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**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549  
**FORM 10-K**

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 1-13627

**GOLDEN MINERALS COMPANY**

(Exact Name of Registrant as Specified in its Charter)

**DELAWARE**  
(State of Incorporation or Organization)

**26-4413382**  
(I.R.S. Employer Identification No.)

**350 Indiana Street, Suite 650**  
**Golden, Colorado**  
(Address of principal executive offices)

**80401**  
(Zip Code)

**(303) 839-5060**  
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, \$0.01 par value	AUMN	NYSE American

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes  No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer  Accelerated filer  Non accelerated filer  Smaller reporting company  Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by checkmark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes  No

The aggregate market value of the voting and non-voting common equity held by non-affiliates as of June 30, 2022 was approximately \$46.27 million, based on the closing price of the registrant's common stock of \$0.36 per share on the NYSE American on June 30, 2022. For the purpose of this calculation, the registrant has assumed that its affiliates as of June 30, 2022 included all directors and officers and one shareholder that held approximately 23% of its outstanding common stock. The number of shares of common stock outstanding on March 21, 2023, was 172,173,047.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's Definitive Proxy Statement to be filed with the Securities and Exchange Commission pursuant to Regulation 14A in connection with the 2023 Annual Meeting of Stockholders are incorporated by reference in Part III of this annual report on Form 10-K.

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GOLDEN MINERALS COMPANY  
FORM 10-K  
YEAR ENDED DECEMBER 31, 2022

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*References to “Golden Minerals, the “Company,” “our,” “we,” or “us” mean Golden Minerals Company, its predecessors and consolidated subsidiaries, or any one or more of them, as the context requires. Many of the terms used in our industry are technical in nature. We have included a glossary of some of these terms below.*

## **FORWARD-LOOKING STATEMENTS**

Some information contained in or incorporated by reference into this annual report on Form 10-K may contain forward-looking statements and forward-looking information (collectively, “forward-looking statements”) within the meaning of the United States Private Securities Litigation Reform Act of 1995 and other applicable securities laws. We use the words “anticipate,” “continue,” “likely,” “estimate,” “expect,” “may,” “could,” “will,” “project,” “should,” “believe” and similar expressions (including negative and grammatical variations) to identify forward-looking statements. These statements include comments relating to (i) our financial outlook for 2023, including anticipated expenditures and cash inflows during the year; (ii) the assumptions and projections contained in the Rodeo Technical Report Summary, including estimated mineral resources; (iii) projections regarding the Rodeo mine for 2023, including production, payable extraction, anticipated grades, estimated unit costs and net operating margin; (iv) the anticipated life of the Rodeo mine; (v) the assumptions and projections contained in the Velardeña Technical Report Summary, including estimated mineral resources; (vi) activities planned at Velardeña during 2023 and the potential restart of mining activities at Velardeña; (vii) future evaluation and drilling plans, interpretation of exploration results and planned future exploration activities at our exploration properties, including Yoquivo and Sarita Este; (viii) the timing of release of an initial mineral resource estimate at Yoquivo; (ix) our ability to recover VAT receivable in Mexico and the timing of such recovery; and (x) the potential need for external financing and statements concerning our financial condition, business strategies and business and legal risks. Although we believe the expectations and assumptions reflected in those forward-looking statements are reasonable, we cannot assure you that these expectations and assumptions will prove to be correct. Our actual results could differ materially from those expressed or implied in these forward-looking statements as a result of various factors described in this annual report on Form 10-K, including:

- Whether we are able to raise the necessary capital required to continue our business on terms acceptable to us or at all;
- Timing, duration and overall impact of the COVID-19 pandemic, including potential future suspension of activities at the Rodeo Property or at our Velardeña mill as a result of future orders of the Mexican Federal Government;
- Deviations from the projected timing, amount of estimated production and projected costs at Rodeo due to unanticipated variations in grade, unexpected challenges associated with our proposed mining plan, volatility in commodity prices, variations in expected recoveries, increases in projected operating costs, working capital, capital costs or delays in commencement of or interruptions in production;
- Higher than anticipated care and maintenance costs at the Velardeña properties in Mexico or at El Quevar in Argentina;
- Risks related to the El Quevar project in Argentina, including unfavorable results from our evaluation activities and whether the option with respect to the El Quevar project is exercised pursuant to the terms of the Earn-In Agreement;
- Decreases in silver and gold prices;
- Unfavorable results from exploration at the Yoquivo, Sarita Este, Sand Canyon or other exploration properties and whether we will be able to advance these or other exploration properties;

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- Risks related to the El Quevar project in Argentina, including unfavorable results from our evaluation activities, the feasibility and economic viability and unexpected costs of maintaining the project, and whether we will be able to find a joint venture partner or secure adequate financing to further advance the project;
- The Rodeo project, including potential inaccuracies in our assumptions and projections contained in the Rodeo PEA (including life of mine and mineral extraction expectations), and our plans regarding further advancement of the project;
- Variations in the nature, quality and quantity of any mineral deposits that are or may be located at the Rodeo and Velardeña properties or our exploration properties, changes in interpretations of geological information, and unfavorable results of metallurgical and other tests, and the timing and scope of our further evaluation activities at the Rodeo and Velardeña properties;
- Whether we will be able to continue or begin to mine and sell minerals successfully or profitably at any of our current properties at current or future silver and gold prices and achieve our objective of becoming a mid-tier mining company;
- Potential delays in our exploration activities or other activities to advance properties towards mining resulting from environmental consents or permitting delays or problems, accidents, problems with contractors, disputes under agreements related to exploration properties, unanticipated costs and other unexpected events;
- Our ability to retain key management and mining personnel necessary to successfully operate and grow our business;
- Economic and political events negatively affecting the market prices for gold, silver, zinc, lead and other minerals that may be found on our exploration properties;
- Political and economic instability in Argentina, Mexico and other countries in which we conduct our business, and future actions of any of these governments with respect to nationalization of natural resources or other changes in mining or taxation policies;
- Our ability to acquire additional concessions in Mexico based on the economic and environmental policies of Mexico's current or future governmental authorities;
- Volatility in the market price of our common stock; and
- The factors set forth under "*Risk Factors*" in Item 1A of this annual report on Form 10-K.

Many of these factors are beyond our ability to control or predict. Although we believe that the expectations reflected in our forward-looking statements are based on reasonable assumptions, such expectations may prove to be materially incorrect due to known and unknown risks and uncertainties. You should not unduly rely on any of our forward-looking statements. These statements speak only as of the date of this annual report on Form 10-K. Except as required by law, we are not obligated to publicly release any revisions to these forward-looking statements to reflect future events or developments. All subsequent written and oral forward-looking statements attributable to us and persons acting on our behalf are qualified in their entirety by the cautionary statements contained in this section and elsewhere in this annual report on Form 10-K.

## CONVERSION TABLE

In this annual report on Form 10-K, figures are presented in both United States standard and metric measurements. Conversion rates from United States standard measurement systems to metric and metric to United States standard measurement systems are provided in the table below. All currency references in this annual report on Form 10-K are to United States dollars, unless otherwise indicated.

U.S. Unit	Metric Measure	Metric Unit	U.S. Measure
1 acre	0.4047 hectares	1 hectare	2.47 acres
1 foot	0.3048 meters	1 meter	3.28 feet
1 mile	1.609 kilometers	1 kilometer	0.62 miles
1 ounce (troy)	31.103 grams	1 gram	0.032 ounces (troy)
1 ton	0.907 tonnes	1 tonne	1.102 tons

## GLOSSARY OF SELECTED MINING TERMS

“**Base Metal**” means a classification of non-ferrous metals usually considered to be of low value and higher chemical activity when compared with the precious metals (gold, silver, platinum, etc.). This nonspecific term generally refers to the high-volume, low-value metals copper, lead, tin, and zinc.

“**Breccia**” means rock consisting of fragments, more or less angular, in a matrix of finer-grained material or of cementing material.

“**Calcareous Clastic**” means sedimentary rock composed of siliciclastic particles usually of conglomerate, sand, or silt-size and cemented by calcium carbonate in the form of calcite.

“**Claim**” means a mining interest giving its holder the right to prospect, explore for and exploit minerals within a defined area.

“**Concentrates**” means the partially cleaned product of potentially economically interesting metal-bearing minerals separated from its containing rock or earth by froth flotation or other methods of mineral separation.

“**Concession**” means a grant or lease of a tract of land made by a government or other controlling authority in return for stipulated services or a promise that the land will be used for a specific purpose.

“**Core Drill**” means a rotary type of rock drill that cuts a core of rock and is recovered in long cylindrical sections, usually two centimeters or more in diameter.

“**Crown Pillar**” means a rock mass of variable geometry that is situated above the uppermost underground workings of a mine and that serves to ensure permanently or temporarily the stability of surface elements and underground workings.

“**Deposit**” means an informal term for an accumulation of minerals.

“**Development Stage**” means a project with an established resource, not in production, engaged in the process of additional studies preparing for completion of a feasibility study or for commercial extraction.

“**Diorite**” means a grey to dark grey intermediate intrusive igneous rock composed principally of plagioclase feldspar, biotite, hornblende, and/or pyroxene.

“**Euhedral**” means a well-developed degree of which mineral grains show external crystal faces.

“**Exploration Stage**” means a property that has no mineral reserves disclosed.

“**Exploration Target**” means a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnage and a range of grade (or quality), relates to mineralization for which there has been insufficient exploration to estimate a mineral resource.

“**Feasibility Study**” means a comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable modifying factors, as defined by this section, together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable. The results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.

“**Flotation**” means the separating of finely crushed minerals from one another by causing some to float in a froth and others to remain in suspension in the pulp. Oils and various chemicals are used to activate, make floatable, or depress the minerals.

“**Formation**” means a distinct layer of sedimentary or volcanic rock of similar composition.

“**Fracture System**” means a set or group of contemporaneous fractures formed by a stress system.

“**Grade**” means the metal content of mineralized material which for precious metals is usually expressed in troy ounces per ton (2,000 pounds) or in grams per metric tonnes, which contain 2,204.6 pounds or 1,000 kilograms.

“**Indicated mineral resource**” means that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.

“**Inferred mineral resource**” means that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve.

“**Laramide Orogeny**” means a period of mountain building in western North America, which started in the Late Cretaceous age, 70 to 80 million years ago, and ended 35 to 55 million years ago.

“**Measured mineral resource**” means that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource

has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.

“**Mineralization**” means the concentration of metals within a body of rock.

“**Mineral reserve**” means an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

“**Mining**” means the process of extraction and beneficiation of mineral reserves or mineral deposits to produce a marketable metal or mineral product. Exploration continues during the mining process and, in many cases, mineral reserves or mineral deposits are expanded during the life of the mine activities as the exploration potential of the deposit is realized.

“**Monzodiorite**” means coarse-grained igneous rock consisting of essential plagioclase feldspar, orthoclase feldspar, hornblende and biotite, with or without pyroxene, with plagioclase being the dominant feldspar making up 6% to 90% of the total feldspar and varying from oligoclase to andesine in composition. The presence of the orthoclase feldspar distinguishes this rock from a diorite.

“**National Instrument 43-101**” or “**NI 43-101**” means the standards of disclosure for mineral projects prescribed by the Canadian Securities Administrators.

“**Net Smelter Return Royalty**” or “**NSR Royalty**” means a defined percentage of the gross revenue from a resource extraction operation, less a proportionate share of transportation, insurance, and processing costs.

“**Open Pit**” means a mine working or excavation open to the surface.

“**Ore**” means material containing minerals that can be economically extracted.

“**Outcrop**” means that part of a geologic formation or structure that appears at the surface of the earth.

“**Oxide**” means mineralized rock in which some of the original minerals have been oxidized (i.e., combined with oxygen).

“**Precious Metal**” means any of several relatively scarce and valuable metals, such as gold and silver.

“**Preliminary Economic Assessment**” or “**PEA**” means a study, other than a pre-Feasibility or Feasibility Study, that includes an economic analysis of the potential viability of mineral resources.

“**Probable Mineral Reserves**” means the economically mineable part of an indicated and, in some cases, a measured mineral resource.

“**Production Stage**” means a project that is actively engaged in the process of extraction and beneficiation of mineral reserves or mineral deposits to produce a marketable metal or mineral product.

“**Proven Mineral Reserves**” means the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource.

“**Reclamation**” means the process of returning land to another use after mining is completed.

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“**Recovery**” means that portion of the metal contained in the ore that is successfully extracted by processing, expressed as a percentage.

“**Sampling**” means selecting a fractional part of a mineral deposit for analysis.

“**Sediment**” means solid fragmental material that originates from weathering of rocks and is transported or deposited by air, water, or ice, or that accumulates by other natural agents, such as chemical precipitation from solution or secretion by organisms, and that forms in layers on the earth’s surface at ordinary temperatures in a loose, unconsolidated form.

“**Sedimentary**” means formed by the deposition of Sediment.

“**S-K 1300**” means subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission, which sets forth the rules and regulations for disclosure by registrants engaged in the mining industry.

“**Skarn**” means a coarse-grained metamorphic rock formed by the metamorphism of carbonate rock often containing garnet, pyroxene, epidote and wollastonite.

“**Stock**” means discordant igneous intrusion having a surface exposure of less than 40 square miles.

“**Sulfide**” means a compound of sulfur and some other metallic element or elements where sulfur is in the unoxidized form.

“**Tailings Pond**” means a low-lying depression used to confine tailings, the prime function of which is to allow enough time for processed minerals to settle out or for cyanide to be destroyed before water is reused, evaporates, or is discharged into the local watershed.

“**Tertiary**” means the first period of the Cenozoic Era (after the Cretaceous of the Mesozoic Era and before the Quaternary) thought to have covered the span of time between 2 to 3 million years ago and 65 million years ago.

“**Vein**” means a fissure, fault or crack in a rock filled by minerals that have traveled upwards from some deep source.

“**Waste**” means rock lacking sufficient grade and/or other characteristics of ore.

## PART I

### ITEMS 1 AND 2: BUSINESS AND PROPERTIES

#### Overview

We are a mining company holding a 100% interest in the Rodeo gold mine (the “Rodeo Property”) in Durango State, Mexico, a 100% interest in the Velardeña and Chicago gold-silver mining properties and associated oxide and sulfide processing plants in the state of Durango, Mexico (the “Velardeña Properties”), a 100% interest in the El Quevar advanced exploration silver property (the “El Quevar Property”) in the province of Salta, Argentina (subject to the terms of the April 9, 2020, earn-in agreement (the “Earn-in Agreement”) pursuant to which Barrick Gold Corporation (“Barrick”) has the option to earn a 70% interest in the El Quevar Property), and a diversified portfolio of precious metals and other mineral exploration properties located primarily in or near historical precious metals producing regions of Argentina, Nevada and Mexico. The Rodeo Property, the Velardeña Properties, the El Quevar Property and the Yoquivo Property are the only properties that the Company considers material at this time.

We are primarily focused on (i) mining operations at the Rodeo Property (see “*Material Mining Properties – Rodeo Property*” for additional details), (ii) exploration activities at the Yoquivo Property (see “*Material Mining Properties – Yoquivo Property*”), and (iii) further studies of a restart plan for our Velardeña Properties, including use of bio-oxidation to improve the payable gold recovery as further described below under “*Material Mining Properties -Velardeña Properties*”. We began mining activities at the Rodeo Property during December 2020 and began processing mined material from Rodeo at the Velardeña plant in January 2021. We currently anticipate that the Rodeo Property will remain in production approximately through the second quarter of 2023. The employees at the Rodeo and Velardeña properties, in addition to those who operate the plant that processes the Rodeo mined material, include an operations group, an administrative group and an exploration group to continue to advance our plans in Mexico and to provide oversight for corporate compliance activities as well as maintain and safeguard the longer-term value of the Velardeña Properties.

We are also focused on advancing our El Quevar exploration property in Argentina through the Earn-in Agreement with Barrick as described below under “*Exploration Properties-El Quevar*” and continuing to evaluate and search for mining opportunities in North America (including Mexico) with near term prospects of mining, and particularly for properties within reasonable haulage distances of our processing plants at the Velardeña Properties. We are also reviewing strategic opportunities, focusing primarily on development or operating properties in North America, including Mexico.

Our management team is comprised of experienced mining professionals with extensive expertise in mineral exploration, mine construction and development, and mine operations. Our principal office is located in Golden, Colorado at 350 Indiana Street, Suite 650, Golden, CO 80401, and our registered office is the Corporation Trust Company, 1209 Orange Street, Wilmington, DE 19801. We also maintain an office at the Velardeña Properties in Mexico and exploration offices in Argentina and Mexico.

#### Company History

We were incorporated in Delaware under the Delaware General Corporation Law in March 2009. From March 2009 through September 2011, we focused on the advancement of our El Quevar silver project in Argentina. In September 2011, we completed a business combination transaction with ECU Silver Mining Inc. (“ECU”), resulting in our ownership of the Velardeña and Chicago silver, gold and base metals mines located in the Velardeña mining district in the State of Durango, Mexico as further described below under “*-Velardeña Properties*”.

## Corporate Structure

Golden Minerals Company, headquartered in Golden, Colorado, is the operating entity through which we conduct our business. We have a number of wholly-owned subsidiaries organized throughout the world, including in Mexico, Canada, South America, the Caribbean and Europe. We generally hold our exploration rights and properties through subsidiaries organized in the countries in which our rights and properties are located.

## Summary of Mining Properties

Although we have commenced extraction of minerals at the Rodeo Property, we do not have mineral reserves as defined under S-K 1300 and therefore all of our mining properties are considered to be in the exploration stage. We have approximately 12 mining properties, which are listed in the *Summary of Principal Mining Properties* below. In total, Golden Minerals' mining properties, including our options, cover approximately 78,600 hectares. The Rodeo Property, the Yoquivo Property, the Velardeña Properties and the El Quevar Property are the only properties that we consider to be material at this time.

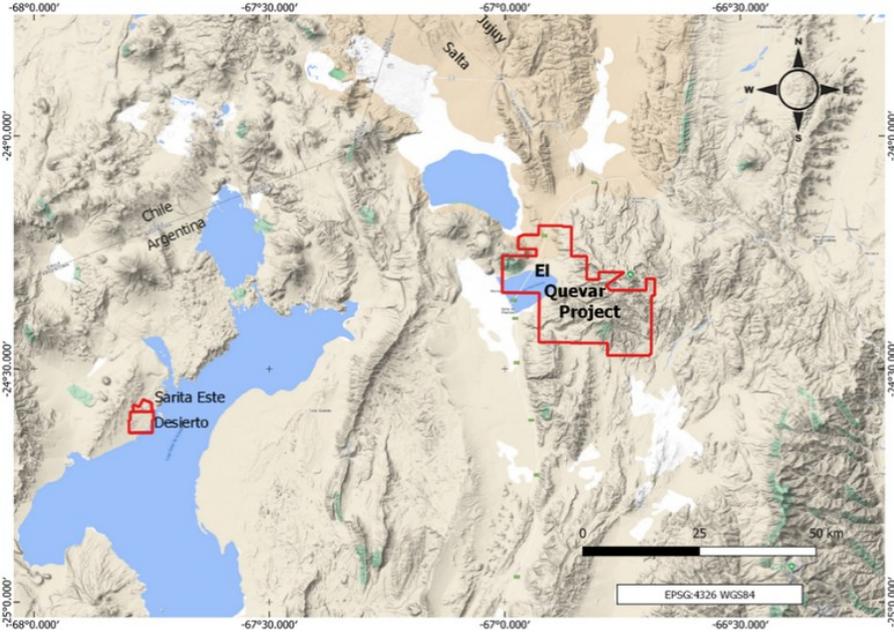
### *Property locations*

#### *Mexico properties*

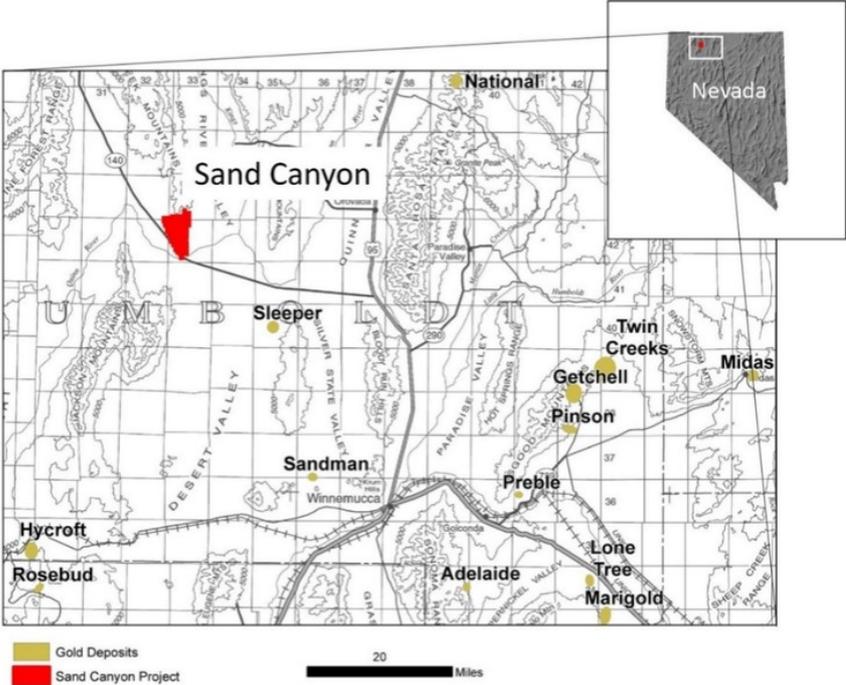
*Mexico properties, showing states of Chihuahua and Durango, Mexico*



*Argentina properties*



United States property



**Summary of Principal Mining Properties**

**Mexico**

<b>Property</b>	<b>Mine and Mineral Types</b>	<b>Ownership, Operator, and Permitting</b>	<b>Facilities and Processing Plants</b>	<b>Recent Activities</b>
Rodeo <sup>(1)</sup>	Gold and silver.  Open pit mine(surface).	100% owned or controlled, subject to royalty interest.  2 concessions covering 1866 hectares.  Permitting complete and currently extracting minerals.	Fuel storage, maintenance area, portable warehouses, mobile offices.  Mined material is transported to our Velardeña oxide mill for processing.	Began mineral extraction in December 2020. Payable extraction of 26,380 oz gold and 103,107 oz silver during for life of mine through 2022. Production is expected to continue through the second quarter of 2023.
Velardeña <sup>(2)</sup>	Silver and gold with lead and zinc byproducts.  Potential underground mines.	100% ownership of 29 mineral concessions covering 316 hectares and surface ownership of 144 hectares that contain the oxide plant and tailings area, 31 hectares containing the sulfide plant and tailings, and 35 hectares containing mine portal, offices, and maintenance shops.  Permitting complete.	Underground workings related to prior mining (suspended in 2015).  300 tonne per day flotation mill for sulfide material.  550 tonne per day cyanide leach mill for oxide material.	Oxide mill is used to process material from our Rodeo mine.  Currently evaluating mining methods and processing alternatives to evaluate potential restart of mineral extraction at Velardeña.
Yoquivo <sup>(4)</sup>	Silver and gold exploration.	100% ownership of 7 concessions (1975 hectares) subject to 2 to 3% NSR royalty interests on production, capped at \$2.8 million.	No significant facilities.	Since 2020 16,565 m drilled in 70 holes. Initial inferred mineral resource estimated in 2023 of 927,000 tonnes of 570 g/t Ag eq.

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<b>Property</b>	<b>Mine and Mineral Types</b>	<b>Ownership, Operator, and Permitting</b>	<b>Facilities and Processing Plants</b>	<b>Recent Activities</b>
Santa Maria <sup>(3)</sup>	Gold and silver.  Potential underground mine.	100% ownership of the 5 concessions that comprise the 101-hectare property with payments now complete. Subject to NSR royalty interest on outlying 3 concessions.	No significant facilities.	In 2020, we entered into an option agreement with Fabled Silver Gold Corp. under which Fabled will have the right to acquire a 100% interest in the property upon final payment of \$2.0 million in cash in \$250,000 quarterly payments through September 2024. In February 2023 Fabled defaulted on this agreement.
Flechas	Gold and silver exploration.	100% ownership of 4 concessions (951 hectares).	No significant facilities.	Prior historic production.
Miscellaneous	Preliminary mineral exploration.	Ownership interest or right to acquire an ownership in seven individual concessions located in Durango, Zacatecas and Chihuahua.	No significant facilities.	No material exploration work has been conducted to date.

**Argentina**

<b>Property</b>	<b>Mine and Mineral Types</b>	<b>Ownership, Operator, and Permitting</b>	<b>Facilities and Processing Plants</b>	<b>Recent Activities</b>
El Quevar <sup>(5)</sup>	Silver and gold exploration.  Potential surface and/or underground development.	100% ownership of 31 mining concessions (56,719 hectares).  Permitting in place for exploration activities.	Camp that accommodates 100 workers.	Signed earn-in agreement with Barrick Gold (“Barrick”) in April 2020. Barrick has since satisfied the \$1 million work expenditure requirement.
Desierto <sup>(6)</sup>	Gold and silver exploration.	33% ownership and an option to increase to 67% ownership of 2 mining concessions (2505 hectares). One of the 2 concessions is subject to a legal dispute.  Drill permit received.	No significant facilities.	Pending JV agreement with Cascadero Copper for 51% ownership once option payments are complete.
Sarita Este <sup>(6)</sup>	Gold, silver and copper exploration.	Company has option to acquire 51% from Cascadero Minerals Corp.  One concession totaling 830 hectares.  Drill permit received.	No significant facilities.	In January 2022, announced initial results from 2,518-meter diamond drill program and plans for trenching and drilling in 2022 field campaign.  In August 2022, announced results from second phase 1,286-meter diamond drill program.  In December 2022, announced results from third phase 1,825-meter diamond drill program.
Carolina and Tocata	Preliminary mineral exploration.	Company has ownership interest in 14 concessions in the San Juan and Santa Cruz provinces.	No significant facilities.	No material exploration work has been conducted to date.

**Nevada, United States**

<b>Property</b>	<b>Mine and Mineral Types</b>	<b>Ownership, Operator, and Permitting</b>	<b>Facilities and Processing Plants</b>	<b>Recent Activities</b>
Sand Canyon <sup>(7)</sup>	Gold and silver exploration.	We have the option to earn a 60% interest from Golden Gryphon Enterprises: US\$2.5M over 5 yrs. plus \$0.14M cash payments (now complete).  Contains 586 claims totaling 4838 hectares.  Drill permit received.	No significant facilities.	Announced results from initial drill program completed Q1 2020.  Currently evaluating results and considering future activities.

- (1) See “*Material Mining Properties— Rodeo Property*” for additional details, including a summary of mineral extraction.  
 (2) See “*Material Mining Properties —Velardeña Properties*” for additional details.  
 (3) See “*Exploration Properties —Santa Maria*” for additional details.  
 (4) See “*Exploration Properties —Yoquivo*” for additional details.  
 (5) See “*Material Mining Properties —El Quevar*” for additional details.  
 (6) See “*Exploration Properties —Desierto / Sarita Este*” for additional details.  
 (7) See “*Exploration Properties —Sand Canyon*” for additional details.

**Quality Assurance and Quality Control**

Our internal controls relating to Quality Assurance and Quality Control (QA/QC) consist of monitoring the chain of custody of samples and including blanks, duplicates, and reference material standards in each batch of samples for lab analysis, consistent with industry standards. Additionally, umpire check assays are regularly submitted and analyzed to ensure lab performance, as well as continuous oversight and review by senior staff to ensure all QA/QC procedures and protocols are followed under company standards and guidelines.

QA/QC data is rigorously reviewed and analyzed to ensure its quality for use in exploration and mineral resource and estimation efforts. All mineral resource and estimation efforts are reviewed internally along with undergoing an external detailed peer review and edit process. Although there is inherent risk to any mineral resource estimation, we attempt to minimize risk by following strict QA/QC company procedures and protocols as well as continued and rigorous internal and external review.

**No Proven or Probable Mineral Reserves/Exploration Stage Company**

We are considered an exploration stage company under the SEC criteria because we have not demonstrated the existence of mineral reserves at any of our properties. Under S-K 1300, the SEC defines a “mineral reserve” as “an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project.” To have mineral resources, there must be reasonable prospects for economic extraction. Per the SEC, “probable mineral reserves” are the economically mineable part of an indicated and, in

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some cases, a measured mineral resource and “proven mineral reserves” can only result from measured mineral resources. Mineral reserves cannot be considered proven or probable unless and until they are supported by a preliminary feasibility study or feasibility study, indicating that the mineral reserves have had the requisite geologic, technical and economic work performed and are economically and legally extractable.

Although we are currently extracting minerals from the Rodeo mine, due to the size of the Rodeo deposit and the relatively short mine life we did not believe it necessary to incur the expense and delay involved in preparing a preliminary feasibility study or full feasibility study in order to commence extracting minerals at the Rodeo project. We have not completed a preliminary feasibility study or feasibility study with regard to any of our properties to date. We expect to remain an exploration stage company for the foreseeable future. We will not exit the exploration stage until such time, if ever, that we demonstrate the existence of proven or probable mineral reserves that meet the guidelines under S-K 1300.

**Summary of Mineral Resources as of December 31, 2022**

	Measured Mineral Resources			Indicated Mineral Resources			Measured + Indicated Mineral Resources			Inferred Mineral Resources		
	Amount tonnes	Grade g/t	Quantity oz	Amount tonnes	Grade g/t	Quantity oz	Amount tonnes	Grade g/t	Quantity oz	Amount tonnes	Grade g/t	Quantity oz
<b>Gold</b>												
Mexico												
<b>Rodeo mine<sup>1</sup></b>												
High-grade	88,300	2.55	7,200	18,000	3.21	1,900	106,300	2.66	9,100			
Low-grade (stockpile)	79,600	1.20	3,100	11,400	1.18	400	91,000	1.20	3,500			
<b>Velardeña Properties<sup>2</sup></b>	385,000	5.58	69,000	883,800	4.88	138,500	1,268,800	5.09	207,500	1,709,200	4.80	263,800
<b>Yoquivo Property<sup>3</sup></b>										937,000	2.10	64,000
<b>Total oz</b>			<b>79,300</b>			<b>140,800</b>			<b>220,100</b>			<b>327,800</b>
<b>Silver</b>												
Mexico												
<b>Rodeo mine</b>												
High-grade	88,300	17.56	49,900	18,000	11.00	6,400	106,300	16.45	56,200			
Low-grade (stockpile)	79,600	11.69	29,900	11,400	4.82	1,800	91,000	10.83	31,700			
<b>Velardeña Properties</b>	385,000	327	4,050,800	883,800	316	8,980,600	1,268,800	319	13,031,400	1,709,200	362	19,893,600
<b>Yoquivo property</b>										937,000	410.00	12,300,000
<b>Total oz</b>			<b>4,130,600</b>			<b>8,988,800</b>			<b>13,119,300</b>			<b>32,193,600</b>

\* Rounded to nearest 100, columns might not total due to rounding

1. Based on \$1,800/oz Au and \$25/oz Ag at 1.45 g/t Au cutoff for high-grade, 1.0 g/t Au cutoff for low-grade
2. Based on \$1,744/oz Au and \$23.70/oz Ag, \$0.97/lb. Pb, \$1.15/lb. Zn at \$175/t NSR cutoff
3. Based on \$1,840/oz Au and \$24/oz Ag at 200 g/t Ag eq. cutoff and 85% Ag and Au recoveries

## **Description of Material Mining Properties**

### **Rodeo Property**

#### *Location, Access and Facilities*

The Rodeo Property is located 2 km east of the town of Rodeo in Durango State, Mexico, at latitude 25°09'03.3"N, longitude 104°31'03.3"W. The city of Torreón is located 189 kilometers by road to the east of the project and the city of Durango is located 157 kilometers by road to the south. The property can be reached via gravel roads from the town of Rodeo. Basic amenities are available in the town of Rodeo. Facilities onsite at the Rodeo project include fuel storage, a maintenance area, portable warehouses, mobile offices and other essential services and support units. No processing facilities are located on site. We have obtained rights to extract water from the Nazas River which is within a few kilometers of the project. There is a power line that crosses the property and services the nearby villages; however, we rely on generators to provide power for the minimal infrastructure required at the mine site.

Although we do not have defined mineral reserves and therefore the Rodeo Property remains in the exploration stage pursuant to S-K 1300, we began mining at the Rodeo Property in December 2020. The Rodeo mine is a surface mine. We process mined material at our Velardeña oxide mill, which is located approximately 115 kilometers via road from the Rodeo Property. The plant was initially constructed in 1996 and improved in 2005 and again in 2012. It is in good working condition and the current book value of the plant is \$1.2 million. Because the Company does not capitalize exploration and development costs associated with the Rodeo Property, the book value associated with the Rodeo Property itself is zero.

We began processing mined material from the Rodeo Property in January 2021 and reached a steady state of throughput in April 2021. Pursuant to the mine plan, we truck mined material to the plant using a commercial trucking contractor. Our Velardeña oxide plant is a typical agitated leach plant that is rated to handle up to 550 tonnes per day of throughput. The plant is equipped with a modern doré refinery, and the attached tailings facility recently underwent an expansion which is expected to be sufficient for the tailings from operations at Rodeo. We installed a new regrind mill circuit at the plant specifically designed to process the harder mined material coming from the Rodeo Property, which was completed in April 2021. The new circuit allowed us to increase daily throughput of Rodeo material in the oxide plant to at least 500 tonnes per day. Mill throughput averaged 521 tonnes per day in third quarter 2022 and 573 tonnes per day in fourth quarter 2022. At that higher throughput level, the current life of the Rodeo mine is estimated to run through the second quarter of 2023.

Assays from processing at the Velardeña oxide plant indicate the doré bars smelted to date are comprised of approximately 20 to 30 percent gold and 65 to 80 percent silver and are of a quality that is readily marketable and saleable to refineries located either in Mexico or internationally, consistent with standard commercial terms. We have a refining agreement with a third party and have completed 72 shipments of doré as of March 17, 2023.

The following map shows the location of the Rodeo project.



### *Property History*

Exploration and informal mining of the Rodeo Property dates back over 25 years. Prior to 1994, two prospects, called the “Los Murcielagos” gold-silver-lead-copper and “Francisco Marquez” gold-copper prospects, were documented in the vicinity of the Los Murcielagos arroyo on the Rodeo Property. Little information is available on these historic prospects other than gold and silver-bearing mineralization was apparently extracted from short adits that are visible from surface. In the early 1990’s, exploration work, including geological mapping and drilling, on the property was carried out by La Cuesta International Inc. and Monarch Resources de Mexico, S.A. de C.V. The property was acquired by Canplats Resource Corporation in 2003, and it conducted a geochemical sampling program and multiple drilling programs during the mid-2000s. Canplats was acquired by Goldcorp Inc. in 2010 and the rights to the Rodeo concessions came to be held in Camino Minerals Corporation (“Camino”), a wholly-owned subsidiary of Goldcorp. In 2010, Camino issued a technical report on the property. In 2011, Camino conducted a 6,238-meter drilling program to investigate the extension of the known mineralization to the north and south of the main mineralized zone of the property, as well as its depth. In 2014, Camino relinquished its right to acquire the Rodeo concessions and the property reverted to La Cuesta. We acquired the Rodeo concessions from La Cuesta International Inc. in 2015.

*Title and Ownership Rights*

The Rodeo Property consists of two mineral concessions totaling approximately 1,866 hectares. The “Rodeo” concession, totaling 521 hectares, is held under a lease agreement dated May 18, 2015 pursuant to which we are required to make advanced royalty payments of \$40,000 per year to La Cuesta International, S.A. de C.V., a wholly-owned subsidiary of La Cuesta International Inc (“La Cuesta”). We are required to pay La Cuesta a 2% net smelter return royalty.

After \$5 million has been paid to La Cuesta under the royalty agreement, the royalty payment will reduce to a 1% net smelter return. Based on the mineable mineral resources identified by the Company, we do not currently anticipate that the \$5 million threshold will be achieved. The mineral resources that have been identified to date are located on the Rodeo concession.

The “Rodeo 2” concession, totaling approximately 1,345 hectares, was purchased from Rojo Resources, S.A. de C.V. under a purchase agreement dated July 22, 2015. Royalty payments of 2% of net smelter returns on material produced from Rodeo 2 are also due to La Cuesta.

We are also required to pay a 0.5% net smelter return royalty to the Mexican federal government from all gold and silver extraction at the Rodeo Property.

The following Rodeo Property mine concessions are identified below by name and file number in the Federal government Public Registry of Mining.

<b>Name of Mine Concession</b>	<b>Concession File Number</b>
Rodeo	30748
Rodeo 2	31305

We are required to pay annual concession holding fees to the Mexican government to maintain our rights to the Rodeo mining concessions. In 2022, we made such payments totaling approximately \$35,000 and expect to pay approximately \$40,000 in 2023. Similar to our Velardeña Properties, the Rodeo Property is subject to the Mexican ejido system requiring us to contract with the local communities, or ejidos, surrounding the property to access mineral claims needed in connection with our mining and exploration activities. The Rodeo deposit is located on a private ranch and is not a part of the ejido system. We have a surface use agreement with the private ranch owner that allows us to operate on the property and does not expire until March 12, 2030. The surface use agreement requires us to make annual payments of approximately \$240,000 to the private ranch owner. We also have an agreement with the local ejidos to allow access to the property that we believe will be sufficient to conduct our proposed mining activities for the life of the mine. The local ejidos do not have a direct interest in the mineral claims and payments under the agreement are expected to be less than \$25,000 per year.

*Geology and Mineralization*

The Rodeo concession lies on the eastern boundary of the Sierra Madre Occidental. The Rodeo fault system consists of three major parallel structures and wall-rock fracture systems that are the principal feeder conduits for a high-level, gold-silver epithermal mineral system. These major vein and breccia-filled structures appear to be feeder conduits responsible for the 1 kilometer by 4 kilometer area of silicified, clay-altered and gold-anomalous rocks that form a resistant north northwest-trending ridge. All three of the structures are wide, laterally and longitudinally persistent, well-developed feeder vein swarms with high-level, locally banded chalcedonic quartz veins, stockworks and silicified breccias. In the area of principal interest, the structures are strongly veined, silicified, brecciated, and mineralized for over 4 kilometers, and the shear fault zones and hydrothermal system can be traced for 8 kilometers along strike on the property. Individual feeder vein and breccia systems are up to 60 meters thick. Flexures in the vein swarms and/or structural intersections provide brecciation and open conduits for intense, episodic fluid flow and silica deposition with the potential for ore-grade concentrations of precious metals, especially gold.

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The immediate Rodeo deposit area is approximately 300 meters along strike and 200 meters wide and extends to a depth of 200 meters below surface. The deposit strikes at 330° and dips to the northeast with various vein phases dipping from subvertical to 30°. The deposit is entirely hosted within Tertiary Rodeo volcanics that are strongly silicified and brecciated. The deposit is bound to the east by the Rodeo fault. Along strike to the north and south, the mineralization is offset slightly by near vertical faulting; mineralization does not terminate at these faults, but the intensity of the trend is either diminished or has yet to be located.

*Mineral Resource Estimate*

Mineral resources were validated by Tetra Tech through the effective date of December 31, 2022. After adjusting for mineral extraction at Rodeo for 2022, the estimate of mineral resources at the Rodeo Property at December 31, 2022 is shown below. Aaron Amoroso, an employee of the Company and “qualified person” pursuant to S-K 1300, prepared the estimate shown below. The resources are reported at a cutoff of 1.0 g/t Au for stockpiling and 1.45 g/t Au for processing. Numbers reported as mineral resource are constrained to a mine design of 1 g/t Au.

**Rodeo Property – Summary of Gold and Silver Mineral Resources at December 31, 2022 Based on \$1,800 oz/Au and \$25 oz/Ag**

Classification	Cutoff Au (g/t)	Tonnes	Au (g/t)	Au (oz)	Ag (g/t)	Ag (oz)
<b>Low-Grade (Stockpile)</b>						
Measured	1.0	79,600	1.20	3,100	11.69	29,900
Indicated	1.0	11,400	1.18	400	4.82	1,800
Measured + Indicated	1.0	91,000	1.20	3,500	10.83	31,700
<b>High-Grade</b>						
Measured	1.45	88,300	2.55	7,200	17.56	49,900
Indicated	1.45	18,000	3.21	1,900	11.00	6,400
Measured + Indicated	1.45	106,300	2.66	9,100	16.45	56,200

\*Columns may not total due to rounding

The resource tabulation shown above is based on price forecasts of \$1,800/oz and \$25/oz for gold and silver, respectively. In support of these price assumptions, the Company relied on an analysis of price forecasts prepared by a financial analyst in the mining industry, which reflected price forecasts of 22 financial institutions for each of the years 2021 through 2024. Each institution’s estimate was as of a date between June 2021 and September 2021. In that report, the median gold price was \$1,805 for 2021, \$1,800 for 2022 and \$1,750 for 2023, while the median silver price was \$26.14 for 2021, \$25.44 for 2022 and \$24.00 for 2023. In preparing the estimate as of December 31, 2022, the Company retained its current price forecasts (\$1,800/oz for gold and \$25/oz for silver) in the 2022 Rodeo Technical Report. The Company believes this forecast is reasonable in light of the existing prices at year-end 2022 (\$1,812.35/oz and \$23.95/oz for gold and silver and the short remaining life of mine. The reported resource for the Rodeo mine as of December 31, 2022 was calculated by adjusting for material mined and processed between December 31, 2021, and December 31, 2022. The difference in the mineral resources as of the end of the last fiscal year to the preceding fiscal year was 22,900 oz Au (28%) and 81,700 oz Ag (41%) for High-Grade material, and 6,700 oz Au (35%) and 43,600 oz Ag (42%) for the Low-Grade material.

No mineral reserves were reported.

**Rodeo Property - Summary of Gold and Silver Mineral Resources at December 31, 2021, Based on \$1,800 oz/Au and \$25 oz/Ag**

Classification	Cutoff Au (g/t)	Tonnes	Au (g/t)	Au (oz)	Ag (g/t)	Ag (oz)
<b>Low-Grade (Stockpile)</b>						
Measured	1.0	201,100	1.24	8,000	10.18	65,800
Indicated	1.0	55,500	1.18	2,100	5.21	9,300
Measured + Indicated	1.0	256,500	1.23	10,100	9.11	75,100
Inferred	1.0	1,500	1.21	100	4.10	200
<b>High-Grade</b>						
Measured	1.6	286,100	3.00	27,600	13.37	123,000
Indicated	1.6	43,500	3.17	4,400	10.66	14,900
Measured + Indicated	1.6	329,600	3.02	32,000	13.02	137,900

No mineral reserves were reported.

*Production*

For a discussion of mineral extraction at Rodeo during 2022 and plans for 2023, see “*Management’s Discussion and Analysis of Financial Condition and Results of Operations - 2022 Highlights - Rodeo Property.*”

*Certain Laws Affecting Mining in Mexico*

Our current and proposed operations at the Rodeo Property are subject to a variety of laws affecting mining operations in Mexico. For a discussion of these laws, see “*Material Mining and Properties - Velardeña Properties - Certain Laws Affecting Mining in Mexico.*”

*Taxes*

For a discussion of the taxes that apply generally to mining projects in Mexico, see “*Material Mining Properties - Velardeña Properties - Taxes in Mexico.*”

*Recent Activities and Operating Plans*

For a discussion of recent activities and projected operating parameters, see “*Management’s Discussion and Analysis of Financial Condition and Results of Operations – 2022 Highlights – Rodeo Property*” below.

**Velardeña Properties**

*Location, Access and Facilities*

The Velardeña Properties are comprised of two underground mines and two processing plants, which are located within the Velardeña mining district in the municipality of Cuencamé, in the northeast quadrant of the State of Durango, Mexico, approximately 65 kilometers southwest of the city of Torreón, Coahuila and approximately 140 kilometers northeast of the city of Durango, which is the capital of the State of Durango. The Velardeña property is centered on UTM

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grid coordinates 2774300 N and 632200 E (WGS 84 datum, zone 13). This property contains the Santa Juana mine which has been the focus of mining efforts since 1995, as well as the historical Terneras, San Juanes, and San Mateo mines.

The Chicago property is located approximately 2 km south of the Velardeña property and is centered at UTM grid coordinates 2772480 N and 631867 E (WGS 84 datum, zone 13). This property contains the historical Los Muertos-Chicago mine.

The mines are reached by a seven-kilometer gravel road from the village of Velardeña which is reached by highway from Torreón and Durango. The Velardeña mining district is situated in a temperate hot, semi-arid region.

Although we do not have defined mineral reserves pursuant to S-K 1300 and the Velardeña Properties are in the exploration stage, we have extracted minerals from the Velardeña Properties in the past. Of the two underground mines comprising the Velardeña Properties, the Velardeña mine includes five different major vein systems including the Terneras, Roca Negra, San Mateo, Santa Juana and San Juanes systems. During 2015, we mined from the San Mateo, Terneras and Roca Negra vein systems as well as the Santa Juana vein system to augment grades as mining and processing rates ramped up.

We own a 300-tonne per day flotation sulfide mill situated near the town of Velardeña. The mill includes three flotation circuits in which we can process sulfide material to make lead, zinc and pyrite concentrates. We also own a conventional 550-tonne per day cyanide leach oxide mill with a Merrill-Crowe precipitation circuit and flotation circuit located adjacent to our Chicago mine. We continue to evaluate and search for other oxide and sulfide feed sources, focusing on sources within haulage distance of our sulfide and oxide mills at the Velardeña Properties.

We installed a new regrind mill circuit at the Velardeña oxide plant specifically designed to process the harder mined material coming from the Rodeo Property, which was completed in April 2021. The new circuit allowed us to increase daily throughput of Rodeo material in the oxide plant to at least 500 tonnes per day.

The recent rise in precious metals prices, the advancement of alternative processing technologies in the industry, and the results of our testing activities prompted us to pursue the preparation of an updated PEA based partly on projected increased gold recoveries from a proposed bio-oxidation circuit to treat gold-bearing pyrite concentrates. In June 2021, we began limited-scale mining activities at our Velardeña underground mine to obtain further bulk samples for use in final optimization of the bio-oxidation (BIOX™) plant design and for use in additional flotation separation studies (BIOX is a trademark of Metso-Outotec for its proprietary bio-oxidation process.). Test results using the BIOX pre-treatment oxidation process continue to support the use of the technology in future processing at Velardeña. In March 2022, we filed an updated PEA Technical Report Summary and 43-101 Technical Report supporting a possible economic operation at Velardeña using the optimized flotation parameters, BIOX treatment of pyrite concentrates and employing rescue mining techniques to control dilution. In May 2022 we began additional test-mining activities with a new mining contractor to evaluate productivity and dilution of rescue mining on the principal veins accessible from the San Mateo decline in part to validate the PEA assumptions. The results of the test mining met expected productivity metrics but did not meet anticipated dilution metrics on some of the veins mined. We are continuing to evaluate modified mine plans and mining techniques to address dilution issues including new test work on automated ore sorting which shows potential to allow for upgrading mined material by rejecting waste rock after crushing. We have not yet made a decision regarding a potential restart of the Velardeña mines and it is possible that we will not restart production.

Power for all of the mines and plants is provided through substations connected to the national grid.

Water is provided for all of the mines by wells located in the valley adjacent to the Velardeña Properties. In Mexico, water concessions are granted by the National Commission of Water (“CNA”). Currently no new water concessions are being granted by the CNA; however, companies can acquire water concessions through purchase or lease from current concession holders. We hold title to three wells located near the sulfide plant and hold certificates of registration to three wells located near the oxide plant. We are licensed to pump water from all six wells up to a permitted

amount. We are required to make annual payments to the CNA to maintain our rights to these wells. In 2022 we made such payments totaling approximately \$84,000 and expect to pay approximately \$121,000 in 2023. We are required to pay a nominal additional fee to the CNA each year if we use too much water from a particular well or alternatively if we do not use a minimum amount of water from a particular well.

The following map shows the location of the Velardeña Properties.



### *Property History*

Exploration and mining in the Velardeña district extended back to at least the late 1500s or early 1600s, with large scale mining beginning in 1888 with the Velardeña Mining and Smelter Company. In 1902, the mining properties were acquired by ASARCO, who mined the property until 1926 when the mines were closed. For the next 35 years, the mines were operated from time to time by small companies and local miners. The property was nationalized in 1961, and in 1968 the sulfide processing plant was built by the Mexican government. In 1994, William Resources acquired the concessions comprising the Velardeña Properties. In 1997, ECU Gold (the predecessor to ECU Silver Mining Inc.) purchased from William Resources the subsidiaries that owned the concessions and the sulfide processing plant. The oxide processing plant was acquired in 2004. In 2011, we acquired ECU Silver Mining Inc.

*Title and Ownership Rights*

We hold the concessions comprising the Velardeña Properties through our wholly-owned Mexican subsidiary Minera William S.A. de C.V. At present, a total of 28 mineral concessions comprise the Velardeña Properties. The Velardeña Properties concessions encompass approximately 316 hectares. The mineral concessions vary in size, and the concessions comprising each mineral property are contiguous within each of the Velardeña and Chicago properties. We are required to pay annual concession holding fees to the Mexican government to maintain our rights to the Velardeña mining concessions. In 2022, we made such payments totaling approximately \$23,000 and expect to pay approximately \$27,000 in 2023. We also own the surface rights to 144 hectares that contains the oxide plant, tailings area and access to the Chicago mine, along with surface lands that may be required for potential plant expansions.

The Velardeña Properties are in part subject to the Mexican ejido system requiring us to contract with the local communities, or ejidos, surrounding our properties to obtain surface access rights needed in connection with our mining and exploration activities. We currently have contracts with two ejidos to secure surface rights for our Velardeña Properties with a total annual cost of approximately \$56,000. We have a ten-year contract with the Velardeña ejido, which provides surface rights to certain roads and other infrastructure at the Velardeña Properties through 2031 and a 25-year contract with the Vista Hermosa ejido, which provides exploration access and access rights for roads and utilities for our Velardeña Properties until 2038.

The following Velardeña Properties exploitation concessions are identified below by name and number in the Federal government Public Registry of Mining.

<b>Mine/Area</b>	<b>Name of Exploitation Concession</b>	<b>Concession Number</b>
Velardeña	AMPL. DEL ÁGUILA MEXICANA	85580
	ÁGUILA MEXICANA	168290
	LA CUBANA	168291
	TORNASOL	168292
	SAN MATEO NUEVO	171981
	SAN MATEO	171982
	RECUERDO	171983
	SAN LUIS	171984
	LA NUEVA ESPERANZA	171985
	LA PEQUEÑA	171988
	BUEN RETIRO	172014
	UNIFICACIÓN SAN JUAN EVANGELISTA	172737
	UNIFICACIÓN VIBORILLAS	185900
	BUENAVENTURA No. 3	188507
	EL PÁJARO AZÚL	188508
	BUENAVENTURA 2	191305
	BUENAVENTURA	192126
	LOS DOS AMIGOS	193481
	VIBORILLAS NO. 2	211544
	KELLY	218681
Chicago	SANTA TERESA	171326
	SAN JUAN	171332
	LOS MUERTOS	171986
	EL GAMBUSINO	171987
	AMPLIACIÓN SAN JUAN	183883
	MUÑEQUITA	196313
	SAN AGUSTÍN	210764
	LA CRUZ	189474

### *Geology and Mineralization*

The Velardeña district is located at the easternmost limit of the Sierra Madre Occidental on the boundary between the Sierra Madre Oriental and the Mesa Central sub-provinces. Both of these terrains are underlain by Paleozoic and probably Precambrian basement rocks.

The regional geology is characterized by a thick sequence of limestone and minor calcareous clastic sediments of Cretaceous age, intruded by Tertiary plutons of acidic to intermediate composition. During the Laramide Orogeny, the sediments were folded into symmetrical anticlines and synclines that were modified into a series of asymmetrical overturned folds by a later stage of compression.

A series of younger Tertiary stocks have intruded the older Cretaceous limestone over a distance of approximately 15 kilometers along a northeast to southwest trend. The various mineral deposits of the Velardeña mining district occur along the northeast southwest axis and are spatially associated with the intrusions and their related alteration.

An important northwest-southeast fracture system is associated with these intrusions and, in many cases, acts as the main focus of mineralization. The Velardeña Properties are underlain by a thick sequence of limestone that corresponds to rocks of the Aurora and Cuesta del Cura formations of Lower Cretaceous age.

Several types of Tertiary intrusive rocks are present in the Velardeña district. The largest of these intrusives outcrops on the western flank of the Sierra San Lorenzo and underlies a portion of the Velardeña Properties. It is referred to as the Terneras pluton and forms a northeast oriented, slightly elongated body, considered to represent a diorite or monzodiorite that outcrops over a distance of about 2.5 kilometers. The adjacent limestone has been altered by contact metamorphism (exoskarn), and locally the intrusive has been metamorphosed (endoskarn).

The following is a description of the individual geological characteristics and mineralization found on each of the properties comprising the Velardeña and Chicago mines.

The following is a description of the individual geological characteristics and mineralization found on each of the properties comprising the Velardeña and Chicago mines.

#### *Velardeña Mine*

The Santa Juana, Terneras, San Juanes and San Mateo vein deposits on the Velardeña property are hosted by Aurora Formation limestone, the Terneras intrusion and related skarn. The limestone is intruded by a series of multiphase diorite or monzodiorite stocks (Terneras intrusion) and dikes of Tertiary age that outcrop over a strike length of approximately 2.5 kilometers.

Two main vein systems are present on the Velardeña property. The first is a northwest striking system as found in the Santa Juana deposit, while the second is east-west trending and is present in the Terneras, San Juanes and San Mateo deposits.

In the Santa Juana deposit, vein trends are steeply northeast dipping and northwest trending. The Terneras, San Juanes and San Mateo veins all strike east-west and dip steeply north. The most extensive of these is the Terneras vein, which was mined in the past over a strike length of 1,100 meters. All of these veins are observed to have extensive strike lengths and vertical continuity for hundreds of meters. The mineralogy of the east-west system is somewhat different in that it contains less arsenic than the northwest Santa Juana veins.

Mineralization in the deposits located at the Velardeña mine occurs primarily in epithermal quartz-calcite veins with associated lead, zinc, silver, and copper minerals including gold hosted mostly in arsenopyrite and pyrite, typical of

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the polymetallic vein deposits of northern Mexico. The veins are usually thin, normally in the 0.2 meter to 0.5 meter range, but consistent along strike and down dip. Coxcomb and rhythmically banded textures are common.

### *Chicago Mine*

The geologic setting of the Chicago property is very similar to that at the Velardeña mine. The oldest rocks outcropping at Chicago are folded limestone of the Aurora Formation which were intruded by Tertiary diorite stocks and dikes. Intrusive rocks occupy the western portion of the property with a northeast orientation. The limestone-diorite contact exhibits widespread recrystallization and marble formation overprinted by a distinctive green calc-silicate alteration dominated by grossular garnet and lesser wollastonite.

As at Velardeña, a system of post-mineralization faults striking northwest-southeast cuts and locally displaces mineralized structures. These faults are normally filled with calcite and can have widths up to 10 m near the surface.

In the Chicago mine, rhyolitic volcanic rocks and calcareous conglomerate of the Ahuichila Formation unconformably overlie the mineralized sequence across the eastern half of the area. Mineralization is similar to that encountered at Santa Juana mine in terms of mineralogy, host rocks, geometry of the structures and vein continuity.

Mineralization at the Chicago Mine is similar to the Velardeña Mine in terms of mineralogy, host rocks, geometry of the structures, and continuity. The difference between the two is geometric - northwest striking veins dipping to the northeast at Velardeña instead of northeast striking veins dipping to the southeast at Chicago. The major veins at Chicago are the Chicago vein, the Escondida vein, and the Gambusino vein.

### *Mineral Resource Estimate*

Estimated mineral resources for the Velardeña project are shown in Table 2. The resource is reported by mineral type and resource class for all veins. Resources were calculated as diluted to a minimum of 0.7 meters and are reported at a \$175 NSR cutoff. There have been no changes to the Velardeña mineral resource estimate compared to the estimate prepared as of December 31, 2021. The Company evaluated the price assumptions used in the preparation of the December 31, 2021 estimate and concluded that the prices used remain reasonable. As noted above, we continue to evaluate modified mine plans and mining techniques to address dilution issues including new test work on automated ore sorting which shows potential to allow for upgrading mined material by rejecting waste rock after crushing. We expect to complete that work in mid-2023 and to update the Velardeña mineral resource estimate at that time.

**Table 2: Velardeña Project – Summary of Silver and Gold Mineral Resources at December 31, 2021<sup>(4)</sup> based on \$23.70/troy ounce Ag, \$1,744/troy ounce Au, \$0.97/lb. Pb, and \$1.15/lb. Zn <sup>(1)(2)(3)</sup>**

Classification	Mineral Type	NSR Cutoff	Tonnes	Grade Ag g/t	Grade Au g/t	Grade Pb%	Grade Zn%	Ag oz	Au oz	Pb lb.	Zn lb.
Measured	Oxide	175	128,800	268	5.69	1.74	1.53	1,108,000	23,500	4,936,000	4,333,400
Indicated	Oxide	175	280,300	262	5.06	1.73	1.45	2,361,200	45,600	10,681,500	8,936,600
Measured + Indicated	Oxide	175	409,100	264	5.26	1.73	1.47	3,469,200	69,100	15,617,500	13,270,000
Inferred	Oxide	175	351,400	417	4.95	2.55	1.45	4,714,600	56,000	19,729,500	11,248,200
Measured	Sulfide	175	256,200	357	5.52	1.56	1.91	2,942,800	45,500	8,819,300	10,769,700
Indicated	Sulfide	175	603,500	341	4.79	1.46	1.91	6,619,400	92,900	19,475,600	25,408,900
Measured + Indicated	Sulfide	175	859,700	346	5.01	1.49	1.91	9,562,200	138,400	28,294,900	36,178,600
Inferred	Sulfide	175	1,357,700	348	4.76	1.52	1.97	15,179,000	207,800	45,534,200	58,952,900
Measured	All	175	385,000	327	5.58	1.62	1.78	4,050,800	69,000	13,755,300	15,103,100
Indicated	All	175	883,800	316	4.88	1.55	1.76	8,980,600	138,500	30,157,100	34,345,500
Measured + Indicated	All	175	1,268,800	319	5.09	1.57	1.77	13,031,400	207,500	43,912,400	49,448,600
Inferred	All	175	1,709,200	362	4.80	1.73	1.86	19,893,600	263,800	65,263,700	70,201,100

*Notes:*

- (1) Tetra Tech was the qualified person for the preparation of the mineral resource estimate for the Velardeña Properties.
- (2) Resources are reported as diluted tonnes and grade to 0.7 m fixed width.
- (3) Columns may not total due to rounding.
- (4) No material change in resource to December 31, 2022

Mineral resources have been tabulated using a US\$175/t NSR cutoff grade based on the price assumptions shown in Table 3. The resource tabulation is presented based on the long-term average consensus prices from 40 banks as of December 31, 2022. The prices used are US\$23.70/troy ounce Ag, US\$1,744/troy ounce Au, US\$0.97/lb. Pb, and US\$1.15/lb. Zn.

**Table 3: Cutoff price assumptions**

Assumption	Value
<b>Ag Price \$/oz</b>	23.70
<b>Au Price \$/oz</b>	1,744
<b>Pb Price \$/lb.</b>	0.97
<b>Zn Price \$/lb.</b>	1.15

NSR has been calculated with concentrate characteristics and marketing terms supplied by Golden Minerals. Metal contributions are dependent on the concentrate and mineral type, and the overall recoveries are shown in Table 4.

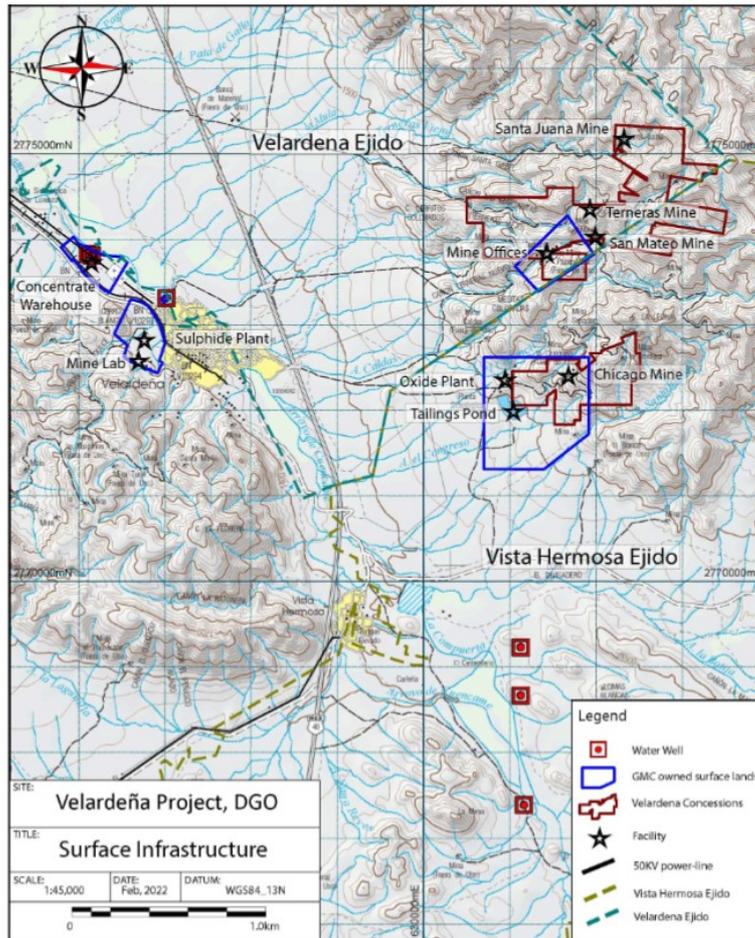
**Table 4: NSR metallurgical recovery assumptions**

Metal	Sulfide Metallurgical Recovery %
<b>Au</b>	67
<b>Ag</b>	90
<b>Pb</b>	72
<b>Zn</b>	77

*Velardeña Properties Activities*

Given high precious metals prices, the advancement of alternative processing technologies in the industry and the results of our testing activities prompted us to pursue the preparation of an updated Preliminary Economic Assessment of our Velardeña project. In April 2020 we announced positive results from the updated PEA. The updated PEA was prepared to incorporate new and updated elements of the project database, mine plan and processing plan, most notably the inclusion of bio-oxidation treatment of gold-bearing pyrite concentrates. In late 2019, we obtained successful results from testing Velardeña gold concentrate material using Finnish firm Outotec's "BIOX" process, a sustainable technology that was developed to pre-treat refractory ores and concentrates ahead of conventional cyanide leaching. The gold in these types of mineralized materials, such as those found at Velardeña, is encapsulated in pyrite and arsenopyrite which prevents the gold from being successfully cyanide leached. BIOX utilizes bacteria to oxidize these sulfide minerals, thereby exposing the gold for subsequent cyanide leaching and increasing overall gold recoveries. The 2019 BIOX testing of Velardeña material achieved gold recoveries of 92% from the pyrite-arsenopyrite concentrate, compared to sub-30% gold recoveries realized when the Velardeña Properties last operated in 2015. Tests completed in 2021 and 2022 confirm these results. During 2023, we plan to continue to evaluate mine plans and mining techniques to address dilution concerns, including test work on automated ore sorting technology. No decision has been made regarding a potential restart of the Velardeña mines and it is possible that we will not restart production.

Infrastructure



The Velardeña and Chicago Mines are fully developed underground with 10,122 meters of drift and ramp development and 2,278 meters of raise development. Surface installations include maintenance shops, offices, and systems for water, electricity, and compressed air as required for underground mining.

We own the equipment required for mining. The key pieces of equipment include scoop-trams, underground trucks and drilling jumbos. The current equipment fleet is expected to be adequate to achieve the 310 t/d of mill feed for

processing and no additional material equipment is expected to be purchased. We also own the jacklegs required for stoping and underground development (narrow drifts) and ventilation equipment in use underground.

Plant 1 is designed to process sulfide material in a conventional flow sheet of crushing, grinding, and differential flotation to produce three separate concentrates: lead-silver, zinc, and pyrite.

Figure 1 shows the processing flow sheet for Plant 1

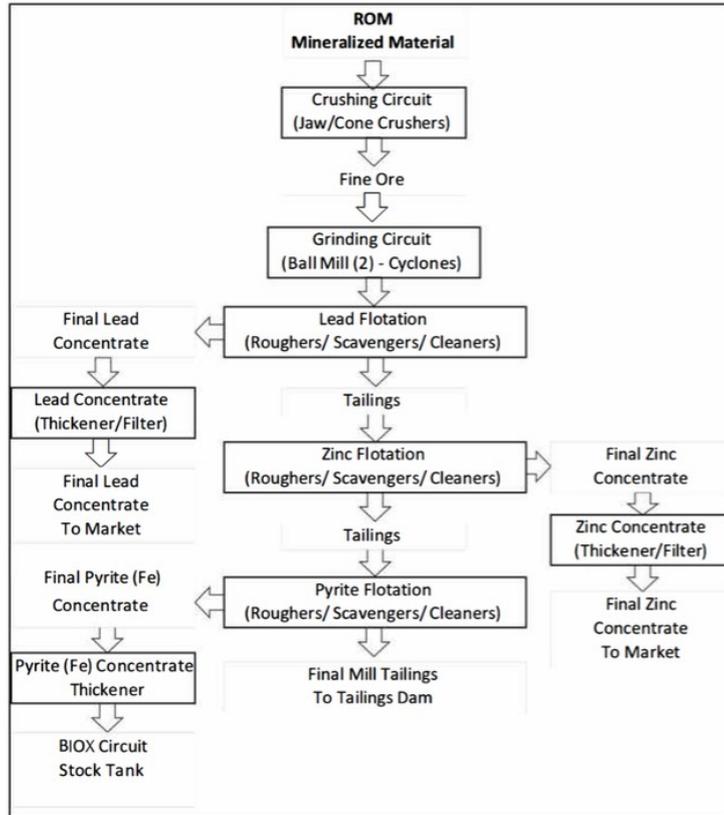


Figure 1: Process plant flow sheet for Plant 1

The sulfide plant was originally constructed in 1966 and has been upgraded and rebuilt several times, most recently in 2014 prior to use in 2015 and in 2017 in preparation for a re-start of the Velardeña and Chicago Mines. The book value of the plant as of December 31, 2022 is zero.

The oxide processing plant at Velardeña is a conventional agitated cyanide leach facility and has an operating capacity of up to 550 tpd depending on material hardness and grind size requirements. It is in excellent working condition and is currently in use processing mineralized material from our Rodeo Mine (see Rodeo Mine above for details of the oxide plant). In the future, if we re-start mineral extraction at the Velardeña and Chicago Mines and construct the proposed bio-oxidation facility, we plan to process oxidized concentrates and oxidized mineralized material from the Velardeña

Properties at Plant 2. The plant was initially constructed in 1996 and improved in 2005 and again in 2012 and 2021. The book value of the plant as of December 31, 2022 is \$1.2 million.

*Environmental Matters and Permitting*

We hold environmental licenses and environmental impact assessments that allow us to run our mines, plants and tailing facilities at our Velardeña Properties. We are required to update our environmental licenses and environmental impact assessments for expansion of or modification to any of the existing two processing plants. The construction of new infrastructure beyond the current plant facilities also would require additional permitting, which could include environmental impact assessments and land use permits.

*Certain Laws Affecting Mining in Mexico*

Mexico, officially the United Mexican States, is a federal constitutional republic in North America and bordered by the United States of America, Belize and Guatemala. Mexico is a federal democratic republic with 31 states and Mexico City. Each state has its own constitution and its citizens elect a governor, as well as representatives, to their respective state congresses. The President of Mexico is the head of the executive federal government. Executive power is exercised by the President, while legislative power is vested in the two chambers of the Congress of the Union. The three constitutional powers are the Judiciary, the Executive and the Legislature which are independent of each other.

*Legislation Affecting Mining*

The Mining Law, originally published in 1992 and amended in 1996, 2005, 2006 and 2014, is the primary legislation governing mining activities in Mexico. Other significant legislation applicable to mining in Mexico includes the regulations to the Mining Law, the Federal Law of Waters, the Federal Labor Law, the Federal Law of Fire Arms and Explosives, the General Law on Ecological Balance and Environmental Protection and regulations, the Federal Law of Duties and the Federal Law on Metrology and Standards.

*The Concession System*

Under Mexican law, mineral deposits are property of the Mexican republic, and a mining concession, granted by the executive branch of the federal government, is required for the exploration, exploitation and processing of mineral deposits. Mining concessions may only be granted to Mexican individuals domiciled in Mexico or companies incorporated and validly existing under the laws of Mexico. Mexican companies that have foreign shareholders must register with the National Registry of Foreign Investments and renew their registration on an annual basis. Mining concessions grant rights to explore and exploit mineral deposits but do not grant surface rights over the land where the concession is located. Mining concession holders are required to negotiate surface access with the landowner or holder (e.g., agrarian communities) or, should such negotiations prove unsuccessful, file an application with the corresponding administrative authority (Ministry of Economy or Ministry of Agrarian-Territorial-Urban Development) to obtain an easement, temporary occupancy, or expropriation of the land, as the case may be. An application for a concession must be filed with the Mining Agency or Mining Delegation located closest to the area to which the application relates.

Mining concessions have a term of 50 years from the date on which title is recorded in the Public Registry of Mining. Holders of mining concessions are required to comply with various obligations, including the payment of certain mining duties based on the number of hectares of the concession and the number of years the concession has been in effect. Failure to pay the mining duties can lead to cancellation of the relevant concession. Holders of mining concessions are also obliged to carry out and prove assessment works in accordance with the terms and conditions set forth in the Mining Law and its regulations. The regulations to the Mining Law establish minimum amounts that must be spent or invested on mining activities. A report must be filed in May of each year regarding the assessment works carried out during the preceding year. The mining authorities may impose a fine on the mining concession holder if one or more proof of assessment work reports is not timely filed.

Pursuant to amendments to the federal corporate income tax law, effective January 2014, additional duties are imposed on mining concession holders; see “—*Taxes in Mexico*”.

#### *Environmental Legislation*

Mining projects in Mexico are subject to Mexican federal, state and municipal environmental laws and regulations for the protection of the environment. The principal legislation applicable to mining projects in Mexico is the federal General Law of Ecological Balance and Environmental Protection, which is enforced by the Federal Bureau of Environmental Protection, commonly known as “PROFEPA”. PROFEPA is the federal entity in charge of carrying out environmental inspections and negotiating compliance agreements. Voluntary environmental audits, coordinated through PROFEPA, are encouraged under the federal General Law of Ecological Balance and Environmental Protection. PROFEPA monitors compliance with environmental legislation and enforces Mexican environmental laws, regulations and official standards. If warranted, PROFEPA may initiate administrative proceedings against companies that violate environmental laws, which proceedings may result in the temporary or permanent closure of non-complying facilities, the revocation of operating licenses and/or other sanctions or fines. According to the Federal Criminal Code, PROFEPA must inform the relevant governmental authorities of any environmental crimes that are committed by a mining company in Mexico.

Concession holders under the exploration stage may submit themselves to comply with the Mexican Official Norm: NOM-120-SEMARNAT-1997, which provides, among other things, that mining exploration activities to be carried out within certain areas must be conducted in accordance with the environmental standards set forth in NOM-120-SEMARNAT-1997; otherwise, concession holders are required to file a preventive report or an environmental impact study prior to the commencement of the exploration, exploitation and processing of mineral resources. An environmental impact study is required for exploitation and processing of mineral resources activities.

In 2014 Mexico developed an energy policy applicable to private investment companies whereby new mining concessions are now subject to prior approval from the Ministry of Energy. Current mining concessions forming the Velardeña Properties are not subject to or affected by this approval requirement, but any new mining concessions acquired will be subject to this additional approval.

#### *Taxes in Mexico*

Mexico has a federal corporate income tax rate of 30%, and there are no state taxes on corporate net income. In determining their corporate income tax, entities are allowed to subtract from gross income various deductions permitted by law, and they are allowed a ten-year carry-forward of net operating losses. Pursuant to amendments to the federal tax laws effective January 1, 2014, a 10% withholding tax is charged on dividends distributed to shareholders, regardless of the tax residence of the recipient, out of after tax profits. However, in the case of nonresident shareholders the limitations and tax rates provided in the treaties to avoid double taxation will prevail. A foreign resident company is subject to income tax if it has a permanent establishment in Mexico. In general, a permanent establishment is a place of business where the activities of an enterprise are totally or partially carried out and includes, among others, offices, branches and mining sites.

Under the 2014 amendments to the federal corporate income tax law, titleholders of mining concessions are required to pay an annual special duty of 7.5% of their mining related profits. Titleholders of mining concessions also are required to pay a 0.5% special mining duty, or royalty, on an annual basis, on revenues obtained from the sale of silver, gold and platinum. Both the 7.5% annual special duty and the 0.5% duty are due at the end of March each year. The special duty of 7.5% is generally applicable to earnings before income tax, depreciation, depletion, amortization, and interest. In calculating the special duty of 7.5%, there are no deductions related to depreciable costs from operational fixed assets, but exploration and prospecting depreciable costs are deductible when incurred. Both duties are tax deductible for income tax purposes.

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Mexico has several taxes in addition to income tax that are relevant to most business operations, including (i) the Value Added Tax (“VAT”); (ii) import duties; (iii) various payroll taxes; and (iv) statutorily entitled employee profit sharing (“PTU”). In addition, annual mining concession fees are charged by the government.

VAT in Mexico is charged upon alienation of goods, performance of independent services, grant of temporary use or exploitation of goods, or import of goods or services that occur within Mexico’s borders, at a rate of 16%. There is no VAT in the case of export of goods or services or for the sale of gold, jewelry, and gold metalwork with a minimum gold content of 80%, excluding retail sale to the general public. The sale of mining concessions is subject to VAT as concessions are not considered to be land. VAT paid by a business enterprise on its purchases and expenses may usually be credited against its liability for VAT collected from customers on its own sales. This creditable VAT may also be directly refunded, but under new regulations beginning in January 2019, the creditable VAT can no longer offset other Mexican federal taxes. At December 31, 2021, the Company recorded a net VAT receivable in Mexico of \$1.3 million, related to the Velardeña Properties and the Rodeo operations. The Company expects that the current amounts will be recovered within a one-year period.

Import duties apply for goods and services entering the country, unless specifically exempted due to a free trade agreement or registered under specific programs like IMMEX. Payroll taxes are payable in most states including Durango and Coahuila, and social security, housing and pension contributions must be made to the federal government when paying salaries.

Employees of Mexico entities are statutorily entitled to a portion of the employer’s pre-tax profits, called PTU. The rate of profit sharing is currently 10% of the employer’s taxable income as defined by the Income Tax law. A taxpayer may reduce its income tax base by an amount equal to the PTU. Certain companies are exempt from paying PTU, which include companies in the extractive industry (principally the mining industry) during the period of exploration.

## **Yoquivo**

### *Location, Access and Facilities*

The Yoquivo Project is located 210 km west–southwest of the city of Chihuahua, in Ocampo Municipality, Chihuahua State. The approximate centroid of the project concessions is located at 28°2’12.2”N latitude, 108°2’37.2”W longitude. The closest town to the Project is Basaseachi, approximately 24 km to the northwest of the project area. The town can support basic exploration activities, and currently the Company rents a house in Basaseachi as the base for project exploration activities. The Project can be reached via a series of paved and unpaved roads from Basaseachi.

The area has a long tradition of mining, and within 50 km of the project area are several large open pit and underground precious metal mines. These mines source the majority of their workforces from the local communities. There is sufficient skilled and unskilled labour in the communities near to the Yoquivo Project to provide skilled and unskilled labour for the Project.

The Comisión Federal de Electricidad (the state power company) constructed a 115 kV powerline to the town of Basaseachi in 2005, and the community of San Francisco de Yoquivo is connected to the main power grid. However, it is likely that these lines would need to be upgraded to support any future operations at the Yoquivo Project.

### *Property History*

We acquired our interest in the Project in 2017 from The Yoquivo group of concessions (El Dollar, La Copa, San Francisco de Yoquivo, La Niña, Dolores, and La Restauradora) from Alejandro Dozal González and Paola Gabriela Dozal González in March 2022. The acquisition consisted of a total payment of US\$480,000 over 54 months and payment of US\$125,140 to settle all outstanding property taxes the original concessions owners owed to the Mexican government. The Esperanza concession was acquired from Maria Esthela Parra Quezada, María del Carmen Parra Quezada, Jesús

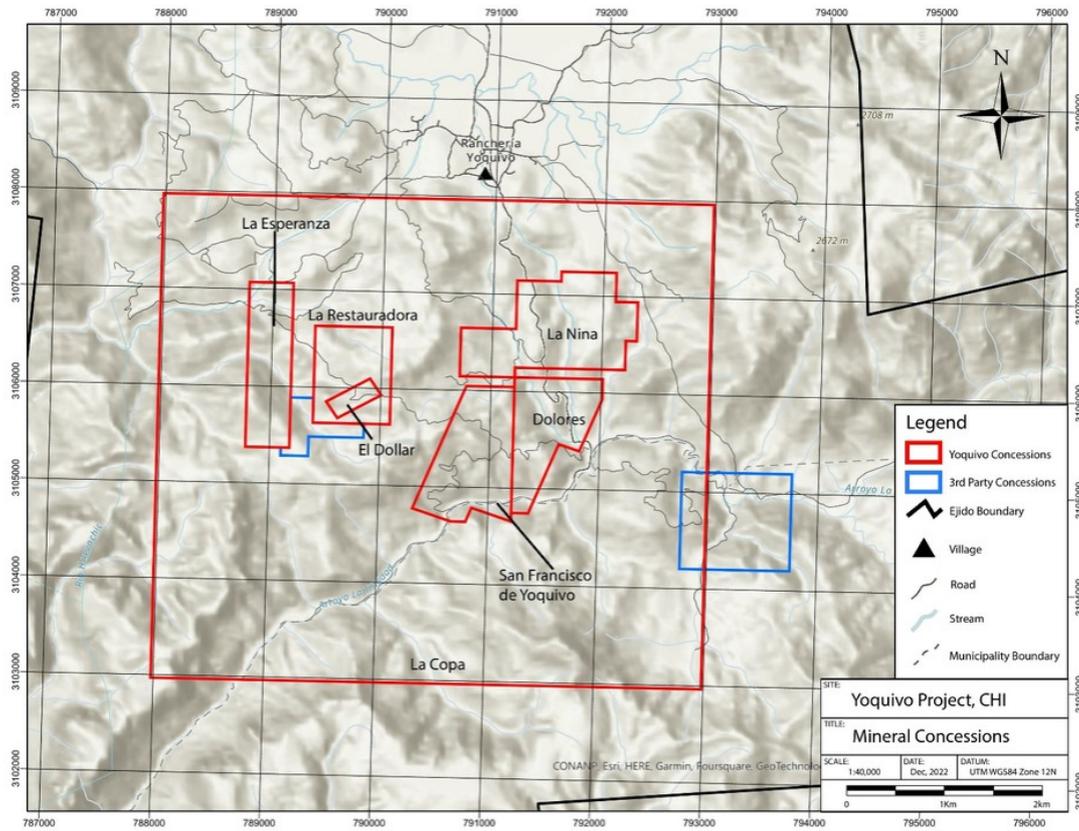
Antonio Parra Quezada and Emiliano Hurtado Montaña on 29 July, 2019 for a total payment of US\$250,000 over 36 months. Prior to our ownership of the property, work conducted at the site included limited narrow-vein mining activities, surface geological and reconnaissance mapping, mapping and sampling of historical excavations, rock chip and channel sampling, a regional helicopter geophysical survey, and core drilling. Several companies owned an interest in the Project prior to our ownership, including Cia. Minera La Rastra, S.A., Mead Exploration Co., Sydney Resources Corporation, West Timmins Mining Inc., and Konigsberg Corporation. During our period of ownership we have completed surface geological and reconnaissance mapping, mapping and sampling of selected historical excavations, rock chip and channel sampling, core drilling, and initial internal metallurgical studies.

*Title and Ownership Rights*

The Project is 100% held by Golden Minerals, subject to royalty interests. Third-party net smelter return (NSR) royalties are payable on all of the concessions, and range from 2–3%, capped at \$2.8M, in the aggregate.

The Project consists of seven mining concessions with an area totalling about 1,975 ha, located within the Ocampo municipality, Chihuahua State. In Mexico, mining concessions are granted by the Economy Ministry and are considered exploitation concessions with a 50-year term. All payments of mining duties and taxes for the concessions are up to date, and the required proof of annual labour forms have been filed for the concessions.

The following map shows the location of the Project along with the Company and 3<sup>rd</sup> party concessions.



<b>Name of Mine Concession</b>	<b>Concession File Number</b>
El Dolar	214876
La Copa	223499
San Francisco de Yoquivo	220851
La Niña	217475
Dolores	216491
La Restauradora	217476
La Esperanza	218071

The claims are located on the San Francisco de Yoquivo ejido. Although the mineral rights are independent of the surface rights, access to the claim block is granted through an agreement between the concession holder and the San Francisco de Yoquivo ejido that does not have a direct interest in the mineral claims. Minera de Cordilleras signed a five-year temporary access agreement in May 2018 with the San Francisco de Yoquivo ejido to allow the company to conduct exploration activities within the mineral concessions. We are currently negotiating a new access agreement with the ejido to allow a continuation of exploration activities.

#### *Geology and Mineralization*

The mineralization types within the vein systems at Yoquivo are examples of low-sulphidation systems. The Yoquivo Project is located within the Sierra Madre Occidental volcanic belt (Sierra Madre), an arc formed by eastward subduction of the Pacific Plate. The Sierra Madre is a metallogenic terrane well known for its epithermal precious metal deposits.

The mineralization on the Yoquivo Project consists of several epithermal quartz veins in four principal vein systems (Pertenenencia, San Francisco, Dolar and Esperanza). Individual vein systems have been mapped and sampled over >3,000 m strike lengths and range from 0.2 m to >5 m in width.

In general, at surface, the veins are sulphide-poor, and have textures typical of a low-sulphidation epithermal environment, including fine colloform to crustiform banding, bladed calcite textures, and open-space filling textures. Outside of the principal mineralized structures and their adjacent stockwork zones, veins are mostly limited to isolated single veins, minor subparallel veins, or small patches of stockwork veins. Orientations of these minor veins are varied, but most commonly dip steeply to the southeast.

Veins have narrow haloes of silicification, local argillic alteration, and distally grade into weak chloritic alteration. The walls of the vein structure sometimes have sharp boundaries, but it is also quite common for the vein to consist of anastomosing veinlets and stockwork veinlets.

Sulphides are generally pyrite with rare argentite, and locally minor galena–sphalerite–chalcopyrite, and total sulphide content is generally <5%. In the oxide zone, the sulphides are leached, leaving either casts or pseudomorphs of goethite–hematite.

#### *Properties Activities*

The initial exploration drilling was conducted in 2007 by West Timmins, who drilled eight core holes totaling 2,473 m. Drill data from the West Timmins campaign are not used in mineral resource estimation because no original assay certificates, down-hole survey or assay quality assurance and quality control (QA/QC) data are currently available to us for this drilling campaign. In addition, no drill holes from this campaign intersected the Pertenenencia vein system. From 2020 to 2022, we have drilled 70 core holes totaling 16,565m. A total of 78 core holes, totaling 19,039 meters have been drilled at Yoquivo.

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On average, the true width of mineralization is about 50–80% of the core length but varies depending on local orientation of the mineralized zones and the drill hole orientation.

*Metallurgical Testwork*

Two composite samples for preliminary test work were collected by Golden Minerals from coarse rejects of Yoquivo core samples. These composites were designed to represent low grade and medium grade mineralized material at Yoquivo. Metallurgical investigations included creating composites, conducting head assays for gold, silver, cyanide soluble gold, and cyanide soluble silver, conducting duplicate bench top agitated leach tests, and flotation tests. Metallurgical tests were designed and conducted by Golden Minerals personnel at the Velardeña metallurgical laboratory.

The samples responded very well to flotation. Gold recoveries were between 84% and 95% and silver recoveries were between 82% and 89%. The flotation kinetics were quick as gold recoveries near 70% and silver recoveries near 60% were achieved in the first minute.

Recoveries of 85% for gold and silver were recommended by the QP for use in assessing reasonable prospects of economic extraction when performing the mineral resource estimate. These forecasts can support estimation of inferred mineral resources.

*Mineral Resource Estimate*

The initial mineral resource estimate for the Yoquivo property was completed in February 2023 by the Company. Resources are reported by vein. The resource tabulation shown below is based on price forecasts for \$1,840/oz Au and \$24/oz Ag, respectively. In support of these price assumptions, the Company relied on a review of long-term mining analysts and investment bank forecasts; pricing used in technical reports filed with Canadian regulatory authorities during 2022; pricing reported by major mining companies in public filings such as annual reports and management discussion and analyses during 2022; and three-year trialing average pricing.

**Yoquivo Property - Summary of Gold and Silver Mineral Resources at February 24, 2023 based on \$1,840 oz/Au and \$24 oz/Ag**

Vein	Tonnes	Ag (g/t)	Au (g/t)	AgEq (g/t)	Ag (koz)	Au (koz)	AgEq (koz)
Pertenencia	244,000	630	2.9	850	4,930	23	6,690
Camila	285,000	330	2.0	490	3,070	18	4,470
Camila Hanging Wall	170,000	300	1.8	440	1,610	10	2,370
New	118,000	560	1.6	680	2,130	6	2,570
Esperanza	120,000	150	1.8	290	570	7	1,130
<b>Total</b>	<b>937,000</b>	<b>410</b>	<b>2.1</b>	<b>570</b>	<b>12,300</b>	<b>64</b>	<b>17,230</b>

Notes to accompany mineral resource table:

1. Mineral resources have been classified using the mineral resource definitions set out in S-K 1300. The estimate was current as of February 24, 2023.
2. The mineral resource estimate was completed by the Company. Aaron Amoroso, an employee of the Company, reviewed the work completed by the Company and is the Qualified Person for the mineral resource estimate for the Yoquivo property.

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3. Reported Inferred resources include crown pillar portions, defined as: Pertenencia Vein 24,000 tonnes @ 1,680 g/t Ag, 6.2 g/t Au and 2,160 g/t AgEq for 1,310 koz Ag, 5 koz Au and 1,690 koz AgEq; New Vein 15,000 tonnes @ 420 g/t Ag, 2.2 g/t Au and 590 g/t AgEq for 210 koz Ag, 1 koz Au and 290 koz AgEq; Esperanza Vein 22,000 tonnes @ 130 g/t Ag, 1.8 g/t Au and 270 g/t AgEq for 90 koz Ag, 1 koz Au and 190 koz AgEq
4. Mineral resources assume a traditional underground cut-and-fill mining method; a silver price of US\$24/oz, a gold price of US\$1,840/oz, a minimum mining width of 1 m; assumed silver and gold metallurgical recovery of 85%; an average mining cost of US\$75 /t mined; average processing and general and administrative cost of US\$50/t processed; transportation and selling cost of US\$0.95/oz Ag and US\$15/oz Au; and a gold and silver royalty of 2%.
5. Mineral resources are reported insitu within a grade shell constructed from composites above a cut-off grade of 200 g/t silver equivalent (AgEq), where  $AgEq = Ag\ g/t + Au\ g/t * (1,840/24)$ , where 1,840 is the gold price per ounce in US\$, and 24 is the silver price per ounce in US\$. Recovery for Au is equal to recovery for Ag.
6. All tonnage, grade and contained metal content estimates have been rounded; rounding may result in apparent summation differences between tonnes, grade, and contained metal content.

A portion of the vein systems at Yoquivo have been the subject of historical mining. The majority of the historical mining has been conducted on the San Francisco vein system, but there is evidence that some historical mining has occurred on the Pertenencia and Esperanza vein systems. There is no evidence for mining on the Camila and Camila HW vein systems. There are some small prospect pits on the New vein system but no evidence of any historical mining. Our drilling in the upper part of the Pertenencia vein system encountered old workings in some of the drill holes. Adjacent drill holes located less than 10 meters away from those drill holes did not intersect workings, suggesting that the workings are small and erratic, and may represent development on the vein rather than large areas of stoping.

### *Certain Laws Affecting Mining in Mexico*

Our current and proposed operations at the Yoquivo Property are subject to a variety of laws affecting mining operations in Mexico. For a discussion of these laws, see “*Material Mining and Properties - Velardeña Properties - Certain Laws Affecting Mining in Mexico*” above.

### *Taxes*

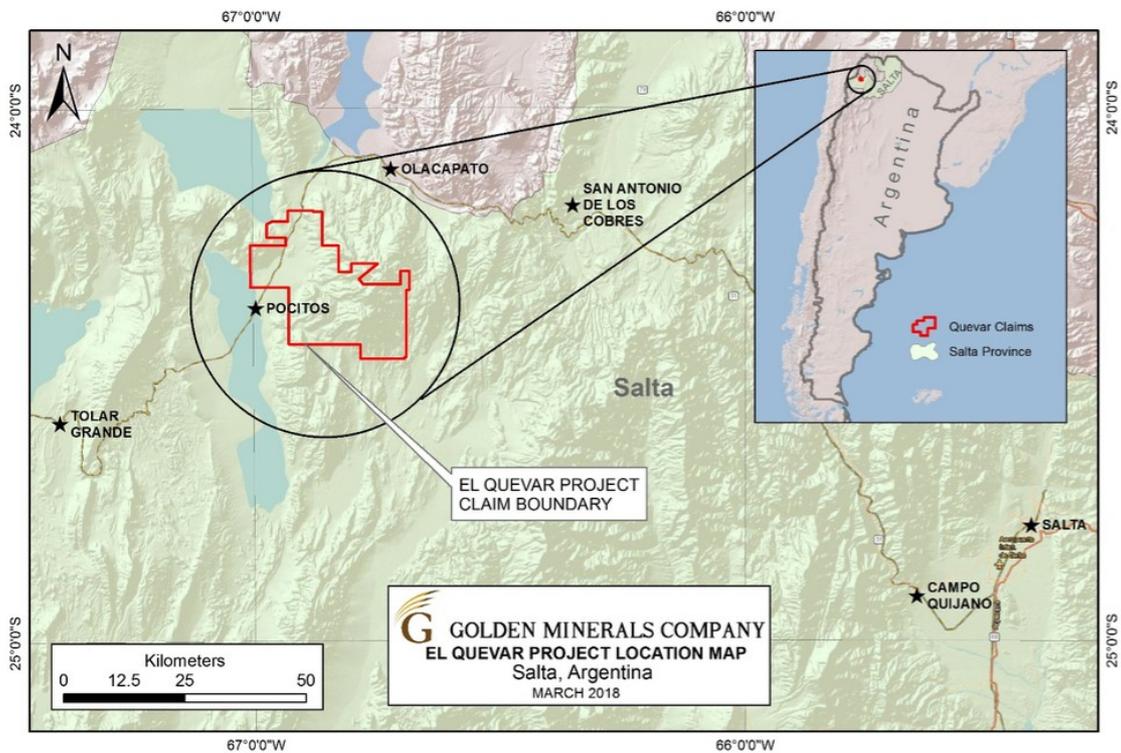
For a discussion of the taxes that apply generally to mining projects in Mexico, see “*Material Mining Properties - Velardeña Properties - Taxes in Mexico*”.

## **El Quevar**

### *Location and Access*

Our El Quevar silver exploration project is located at 24°21'20.4"S latitude and 66°48'13.3"W longitude in the San Antonio de los Cobres municipality, Salta Province, in the altiplano region of northwestern Argentina, approximately 300 kilometers by road northwest of the city of Salta, the capital city of the province. The project is also accessible by a 300-kilometer dirt and gravel road from the city of Calama in northern Chile. The small village of Pocitos, located about 20 kilometers to the west of El Quevar, is the nearest settlement. We have established a camp approximately 10 kilometers west of the project to house project workers. A high-tension power line is located approximately 40 kilometers from the site, and a high-pressure gas line devoted to the mining industry and subsidized by the Salta government is located within four kilometers of the El Quevar camp. There is a permitted well for non-potable water on the property with ample volume for exploration purposes and with potential to be increased to accommodate future production needs.

The El Quevar project is located near Nevado Peak with altitudes at the concessions ranging from 3,800 to 6,130 meters above sea level. The climate of the area is high mountain desert, with some precipitation in summer (such as snow) and little snow in winter. The following map shows the location of the El Quevar project.



#### *Property History*

Mining activity in and around the El Quevar project dates back at least 80 years. Between 1930 and 1950, there was lead and silver extraction from small workings in the area, but we have no mining records from that period. The first organized exploration activities on the property occurred during the 1970s, although no data from that period remains. Over the last 30 years, several companies have carried out exploration activity in the area, including BHP Billiton, Industrias Peñoles, Mansfield Minerals and Hochschild Mining Group, consisting primarily of local sampling with some limited drilling programs.

#### *Title and Ownership Rights*

According to Argentine law, mineral resources are subject to regulation in the provinces where the resources are located. Each province has the authority to grant mining exploration permits and mining exploitation concession rights to applicants. The Federal Congress has enacted the National Mining Code and other substantive mining legislation, which is applicable throughout Argentina; however, each province has the authority to regulate the procedural aspects of the National Mining Code and to organize the enforcement authority within its own territory.

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In the province of Salta, where the El Quevar project is located, all mining concessions are granted by a judge in the Salta Mining Court. The El Quevar project is comprised of exploitation concessions. Exploitation concessions are subject to a canon payment fee (maintenance fee) which is paid in advance twice a year (before June 30th and December 31st of each calendar year). Each time a new mining concession is granted, concession holders are exempt from the canon payment fee for a period of three years from the concession grant date. However, this exemption does not apply to the grant of vacant exploitation concessions; only to the grant of new mining concessions.

The El Quevar project is currently comprised of 31 mining concessions that we hold directly or indirectly through our wholly-owned subsidiaries. In total, the El Quevar project encompasses approximately 57,000 hectares. The area of most of our exploration activities at El Quevar is within the concessions that are owned by Silex Argentina S.A., our wholly-owned subsidiary.

We are required to pay a 1% net smelter return royalty on the value of all minerals extracted from the El Quevar II concession and a 1% net smelter return royalty on one-half of the minerals extracted from the Castor concession to the third party that owns the royalties on these concessions. We can purchase one half of the royalty for \$1 million in the first two years of mining. The Yaxtché deposit is located primarily on the Castor concession. We may also be required to pay a 3% royalty to the Salta Province based on the net smelter value of minerals extracted from any of our concessions less costs of processing. To maintain all of the El Quevar concessions, we paid fees to the Argentine government of approximately \$18,000 and \$12,000 in 2021 and 2022, respectively. In 2023 we expect to pay approximately \$40,000.

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The following El Quevar mine concessions are identified below by name and file number in the Salta Province Registry of Mines.

<b>Name of Mine Concession</b>	<b>Concession File Number</b>
Quevar II	17114
Quirincolo I	18036
Quirincolo II	18037
Castor	3902
Vince	1578
Armonia	1542
Quespejahuar	12222
Toro I	18332
Quevar Primera	19534
Quevar Novena	20215
Quevar Decimo Tercera	20501
Quevar Tercera	19557
Quevar Vigesimo Tercero	21043
Quevar 10	20219
Quevar Vigesimo Primera	20997
Quevar Vigesimo Septima	22403
Quevar IV	19558
Quevar Vigesimo Cuarto	21044
Quevar 11	20240
Quevar Quinta	19617
Quevar 12	20360
Quevar Decima Quinta	20445
Quevar Sexta	19992
Quevar 19	20706
Quevar Vigesimo Sexta	22087
Quevar Vigesimo Segundo	21042
Quevar Séptima	20319
Quevar Veinteava	20988
Mariana	15190
Arjona II	18080
Quevar Vigesimo Quinto	21054

The surface rights at El Quevar are controlled by the Salta Province. There are no private properties within the concession area. To date, no issues involving surface rights have impacted the project. Although we have unrestricted access to our facilities, we have been granted easements to further protect our access rights.

*Barrick Earn-In Agreement*

In April 2020, we entered into the Earn-In Agreement with Barrick, pursuant to which Barrick has acquired an option (the "Option") to earn a 70% interest in the Company's El Quevar. Pursuant to the terms of the Earn-In Agreement, in order to earn an undivided 70% interest in the El Quevar project, Barrick must: (A) incur a total of \$10 million in work

expenditures over a total of eight years (\$0.5 million per year in years one and two, \$1.0 million per year in years three, four and five, and \$2.0 million per year in years six, seven and eight); (B) deliver to the Company a National Instrument 43-101 compliant pre-feasibility study pursuant to the parameters set forth in the Earn-In Agreement; and (C) deliver a written notice to exercise the Option to us within the term of the Earn-In Agreement. Barrick may withdraw from the Earn-In Agreement at any time after spending a minimum of \$1.0 million in work expenditures and upon providing us with 30 days' notice. Barrick has met the \$1 million in work expenditures that would allow them to withdraw from the Earn-in Agreement.

Upon satisfaction of the earn-in conditions and exercise of the Option, we will form a new entity ("NewCo") that will hold the El Quevar properties. NewCo will be 70% owned by Barrick and 30% owned by us. Funding of NewCo will be based on Barrick's and our respective ownership, and industry standard dilution mechanisms will apply in the case of funding shortfalls by either shareholder.

During the earn-in period, originally scheduled from April 9, 2020 to April 9, 2028, in addition to the exploration spending, Barrick will fund the holding costs of the property, which will qualify as work expenditures. Barrick will reimburse us for expenses related to maintaining the exploration camp which will initially be run by us under a service agreement, which will also qualify as work expenditures. Through December 31, 2022, approximately \$2.1 million of expenses incurred by us were reimbursed under the Earn-In Agreement.

Due to the COVID-19 pandemic and related legal restrictions on mining exploration in Salta, Argentina, Barrick declared a force majeure event under the Earn-In Agreement. As a result of the force majeure event, the earn-in period and other applicable deadlines in the Earn-In Agreement were extended by 119 days. The force majeure event is no longer in effect and Barrick has commenced activities at the site.

#### *Geology and Mineralization*

The geology of the El Quevar project is characterized by silver-rich veins and disseminations in Tertiary volcanic rocks that are part of an eroded stratovolcano. Silver mineralization at El Quevar is hosted within a broad, generally east-west-trending structural zone and occurs as a series of north-dipping parallel sheeted vein zones, breccias and mineralized faults situated within an envelope of pervasively silicified brecciated volcanic rocks. There are at least three sub-parallel structures that extend for an aggregate length of approximately 6.5 kilometers. Several volcanic domes (small intrusive bodies) have been identified and mineralization is also found in breccias associated with these domes, especially where they are intersected by the structures. The silver mineralization at the Yaxché zone is of epithermal origin. The cross-cutting nature of the mineralization, the assemblage of sulfide and alteration minerals, and the presence of open spaces with euhedral minerals, all point to an origin at shallow to moderate depths (a few hundred meters below surface) from hydrothermal solutions.

#### **Exploration Properties**

In addition to Rodeo, Velardeña, El Quevar, and Yoquivo, we currently control a portfolio of approximately 10 exploration properties located primarily in certain traditional precious metals producing regions of Mexico, Nevada and Argentina. We do not consider any of our other exploration properties to be individually material, including those noted below.

In 2023 we plan to focus our exploration efforts primarily on evaluating and searching for mining opportunities in North America with near term prospects of mining. We are also focused on continuing our exploration efforts on selected properties in our portfolio.

A brief discussion of certain of our exploration properties is below. We do not believe any of the below are individually material to us at this time.

*Sarita Este*

In December 2019, we paid \$150,000 to enter into an option agreement with Cascadero Minerals Corporation (“Cascadero”) to acquire a 51% interest in the gold/copper Sarita Este concession, located in the northwest portion of the Province of Salta, Argentina, located near the Taca Taca project owned by First Quantum Minerals. The option agreement called for us to spend at least \$0.3 million in exploration expenditures and complete a 2,000-meter drill program by the end of 2021, another \$0.5 million by the end of 2022, and another approximately \$1.6 million by 2023 for a total \$2.5 million. We have exceeded the drilling requirements and have spent approximately \$3.0 million since entering into the agreement in December 2019. In the fourth quarter of 2021 we completed the first drill program ever conducted at Sarita Este, which involved drilling 10 diamond drill holes totaling 2,518 meters to explore untested epithermal gold-silver and copper porphyry targets. In January 2022 we announced assay results from the drill program, which we believe indicate the potential for a significant gold system. We completed a second drill program in June 2022 designed to offset and further delineate mineralization associated with the gold interval encountered in the first drill program. We believe that the recently released assay results from that program point to a potentially economic shallow oxidized gold system.

*Santa Maria*

On July 14, 2020, we entered into a binding letter of intent with Fabled Silver Gold Corp., formerly known as Fabled Copper Corp. (“Fabled”), for a potential transaction pursuant to which Fabled would acquire our option to earn a 100% interest in the Santa Maria mining claims located in Chihuahua, Mexico (the “Option”). On December 4, 2020, we entered into a definitive option agreement (the “Option Agreement”) to sell our Option to Fabled, and we subsequently amended that Option Agreement on two occasions. As consideration for the Option, Fabled (i) paid \$0.5 million in cash to us and issued to us one million shares of Fabled’s common stock; (ii) paid \$1.5 million in cash to the Company on the one year anniversary date following the closing of the Option Agreement; (iii) agreed to pay \$2.0 million in cash to the Company in eight \$250,000 quarterly installments expiring on September 30, 2024; and (iv) upon exercise of the Option, will grant the Company a 1% net smelter return royalty on the Maria, Martia III, Maria II Frac. I, Santa Maria and Punto Com concessions (the “Concessions”). Pursuant to the Option Agreement, during the Exercise Period, Fabled was obligated to pay to each of the owners of the Concessions (the “Owners”) any remaining required payments due to the Owners pursuant to the various underlying option agreements between the Owners and the Company, and to make all payments and perform all other requirements needed to maintain the Concessions in good standing. Fabled did not make the payment due on January 31, 2023, and we issued a notice of default under the Option agreement. Fabled did not cure the default as required within 5 days therefore, we have taken back the property as allowed under the Option agreement.

*Sand Canyon*

During the second quarter 2019 we entered into an earn-in agreement with Golden Gryphon Explorations for the Sand Canyon project located in northwestern Nevada, where surface work has identified a large system of epithermal veins with potential for gold and silver deposits. We have since amended that agreement on two occasions in order to extend the time period during which we are able to satisfy the spending commitments. The option agreement provides us with the opportunity to earn a 60% interest in the Sand Canyon project by spending \$2.5 million in exploration expenses over six years. We have paid \$25,000 cash and \$50,000 in reimbursed exploration expenditures to acquire the option and \$35,000 cash in 2020 on the first anniversary of the agreement, and have made payments of a total additional \$100,000 (\$50,000 in 2021 and \$50,000 in 2022). Through December 31, 2022, we have spent \$1.8 million toward the \$2.5 million earn-in requirement, fulfilling the first- and second-year minimum expenditures and the minimum drill commitment. To retain our ability to earn an interest in the project, we are required to spend an additional \$750,000 prior to March 2024 and an additional \$500,000 prior to March 2025.

We have completed an initial drill program of approximately 1,800 meters in 4 diamond drill holes. The drill holes were placed to target surface geochemical and geophysical anomalies associated with epithermal veining observed in outcrops. Drill holes tested the two principal epithermal vein target areas on the property, the DeLong Canyon target

and the Sand Canyon target. The drill hole collared to test the DeLong Canyon target did not encounter any veins or significant anomalous geochemical values. Interpretation shows that a fault offset likely caused the drill hole to miss the vein system as projected from surface. The three drill holes collared to test the veins and anomalies in the Sand Canyon target area all intersected narrow vein and breccia structures with low anomalous values of Ag, As, Sb, and Mo. No potentially economic concentrations of precious metals were encountered in any of the four drill holes. Plans for further testing of the mineralized system are being considered.

### **Our Competitive Strengths and Business Strategy**

Our business strategy is to establish Golden Minerals as a mid-tier precious metals mining company focused in North America and Argentina. We also review strategic opportunities from time to time.

*Rodeo Property.* We began mining at the Rodeo Property in late December 2020 and began processing mined material from the Rodeo Property in January 2021. We reached a steady state of throughput in April 2021 and exceeded our extraction guidance for Rodeo in 2021.

*Velardeña Properties.* Due to continuing net operating losses, we suspended mining and sulfide processing activities at the Velardeña Properties during the first half of November 2015. In June 2021 we began limited scale mining activities at our Velardeña underground mine to obtain further bulk samples for use in final optimization of the bio-oxidation plant design and for use in additional flotation separation studies that will indicate how we can best separate the gold-bearing minerals into the pyrite-arsenopyrite concentrate that is proposed for processing in the bio-oxidation circuit. We are also testing mining methods to ensure that we can effectively control mining dilution to obtain the head grades that we expect based on our PEA study. We have not yet made a decision regarding a potential restart of the Velardeña mines, and it is possible that we will not restart production.

*Yoquivo.* The initial mineral resource reported for Yoquivo is the first step in moving the property into focus as a potential development property for the company. As financial resources allow, we intend to continue to evaluate prospects for economic mineral extraction at Yoquivo.

*Exploration Focus.* We are focused on evaluating and searching for mining opportunities in North America with high precious metal grades and low development costs with near term prospects of mining, and particularly properties within reasonable haulage distances of our Velardeña processing plants. We also continue to advance our El Quevar silver project in Salta Province, Argentina through an earn-in agreement with Barrick. And we are continuing our exploration efforts on selected properties in our portfolio of exploration properties located in Mexico, Nevada and Argentina.

*Experienced Management Team.* We are led by a team of mining professionals with approximately 60 years of combined experience in exploration, project development, and operations management, primarily in the Americas. Our executive officers have held senior positions at various large mining companies including, among others, Cyprus Amax Minerals Company, INCO Limited, Meridian Gold Company, Barrick Gold Exploration and Noranda Exploration.

*Rodeo Property.* As a result of our decision to commence mining operations at our Rodeo project, we now consider the Rodeo Property to be one of our material properties, along with the Velardeña Properties, the El Quevar Property and the Yoquivo Property. We began mining at the Rodeo project in late December 2020 and began processing mined material from the Rodeo project in January 2021. We reached a steady state of throughput in April 2021 and exceeded our extraction guidance for Rodeo in 2021.

## Executive Officers of Golden Minerals

Name	Age	Position
Warren M. Rehn	68	President and Chief Executive Officer; Director
Julie Z. Weedman	58	Senior Vice President and Chief Financial Officer
John Galassini	59	Chief Operating Officer

*Warren M. Rehn.* Mr. Rehn was appointed President of our Company in May 2015 and appointed Chief Executive Officer and director in September 2015. Mr. Rehn previously served as Senior Vice President, Exploration and Chief Geologist since December 2012 and served as Vice President, Exploration and Chief Geologist since February 2012. From 2007 until February 2012, Mr. Rehn held various positions at Barrick Gold Exploration, Inc., serving most recently as Chief Exploration Geologist for the Bald Mountain and Ruby Hill mining units. From 2005 until 2007, Mr. Rehn was a consulting geologist for Gerson Lehman Group, which provides consulting services to various industries, including geology and mining. Mr. Rehn served as a Consulting Senior Geologist at Placer Dome Exploration, Inc. in 2004 and as an independent consulting geologist throughout the Americas from 1994 until 2003. He served as a Senior Geologist at Noranda Exploration, Inc. from 1988 until 1994. Mr. Rehn holds an M.S. in Geology from the Colorado School of Mines and a B.S. in Geological Engineering from the University of Idaho. Mr. Rehn also serves as a director of the Company, and in determining Mr. Rehn's qualifications to serve on our board of directors, the board has considered, among other things, his experience in the mining industry, including his exploration and geology expertise and experience at several mining companies, as well as his history with the Company.

*Julie Z. Weedman.* Ms. Weedman joined Golden Minerals in January of 2022 as Vice President Finance, assuming the Senior Vice President and Chief Financial Officer role in April 2022. Prior to joining Golden Minerals, Ms. Weedman served as Vice President Finance of Aerospace Contacts LLC from March 2020 to January 2022. She previously served as controller for Cupric Canyon Capital LLC from March 2015 until December 2019 and as corporate controller of Mercator Minerals Ltd. from June 2012 to January 2015. Prior to joining Mercator, Ms. Weedman worked from 2006 to 2012 for Ducommun Corporation, serving in several capacities including site controller and group controller for its Ducommun Technologies division. She also spent 10 years at Phelps Dodge Corporation in various financial roles including assistant controller of Chino Mines Co. in Silver City, New Mexico. Ms. Weedman began her career in public accounting with Deloitte & Touche. She holds a B.S. in accountancy from Northern Arizona University.

*John Galassini.* Mr. Galassini joined Golden Minerals in May of 2022. Prior to that, he served as Executive Vice President and Chief Operating Officer for Sabre Gold Mines Corporation from March 2021 to April 2022. From March 2017 to March 2021, he served as an independent consultant to numerous mining companies. Before that, he was the Senior Vice President – Mining at Nyrstar from December 2014 through March 2017 and prior to that, he was the Chief Operating Officer for Sunshine Silver Mines from 2011 through 2013. He began his career with Phelps Dodge, serving as General Manager at the Morenci copper mine in Arizona, President of Minera Candelaria in Chile, and ultimately rising to the role of Senior Vice President of North America Operations where he was responsible for seven large mining operations and two smelters. He later served as Regional Vice President, North America, for Kinross Gold from 2009 to 2011, where he was responsible for the company's exploration and mining operations in North America. He received a Bachelor of Science degree in chemical engineering from New Mexico State University and is a member of the Society for Mining, Metallurgy and Exploration.

## **Metals Market Overview**

We are an emerging precious metals exploration company with silver and gold mining properties in Mexico and a large, advanced exploration silver project in Argentina. Descriptions of the markets for these metals are provided below.

### *Silver Market*

Silver has traditionally served as a medium of exchange, much like gold. Silver's strength, malleability, ductility, thermal and electrical conductivity, sensitivity to light and ability to endure extreme changes in temperature combine to make it a widely used industrial metal. While silver continues to be used as a form of investment and a financial asset, the principal uses of silver are industrial, primarily in electrical and electronic components, photography, jewelry, silverware, batteries, computer chips, electrical contacts, and high technology printing. Silver's anti-bacterial properties also make it valuable for use in medicine and in water purification. Additionally, the use of silver in the photovoltaic and solar panel industries is growing rapidly, and new uses of silver are being developed in connection with the use of superconductive wire and radio frequency identification devices.

Most silver product is obtained from mining in which silver is not the principal or primary product. The Silver Institute, an international silver industry association, noted that for 2018 only around 26% of output came from so-called primary silver mines, where silver is the main source of revenue.

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The following table sets forth for the periods indicated on the London Fix high and low silver fixes in U.S. dollars per troy ounce. On March 14, 2023, the closing price of silver was \$21.64 per troy ounce

Year	Silver	
	High	Low
2013	\$ 32.23	\$ 18.61
2014	\$ 22.05	\$ 15.28
2015	\$ 18.23	\$ 13.71
2016	\$ 20.71	\$ 13.58
2017	\$ 18.56	\$ 15.22
2018	\$ 17.52	\$ 14.13
2019	\$ 19.31	\$ 14.38
2020	\$ 19.31	\$ 12.01
2021	\$ 28.89	\$ 21.53
2022	\$ 29.59	\$ 17.77
2023	\$ 26.18	\$ 20.09

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\* Through March 10, 2023.

*Gold Market*

Gold has two main categories of use: fabrication and investment. Fabricated gold has a variety of end uses, including jewelry, electronics, dentistry, industrial and decorative uses, medals, medallions and official coins. Gold investors buy gold bullion, official coins and jewelry. The supply of gold consists of a combination of production from mining and the draw-down of existing stocks of gold held by governments, financial institutions, industrial organizations and private individuals.

The following table sets forth for the periods indicated on the London Fix PM high and low gold fixes in U.S. dollars per troy ounce. On March 14, 2021, the closing price of gold was \$1,907 per troy ounce.

Year	Gold	
	High	Low
2013	\$ 1,694	\$ 1,192
2014	\$ 1,385	\$ 1,142
2015	\$ 1,296	\$ 1,049
2016	\$ 1,366	\$ 1,077
2017	\$ 1,346	\$ 1,151
2018	\$ 1,355	\$ 1,178
2019	\$ 1,546	\$ 1,270
2020	\$ 1,672	\$ 1,527
2021	\$ 1,957	\$ 1,685
2022	\$ 2,039	\$ 1,629
2023	\$ 1,932	\$ 1,811

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\* Through March 10, 2023.

## **Employees**

We currently have 238 employees, including 9 in the United States, approximately 214 in Mexico, primarily involved with the Rodeo operation, and 15 in Argentina, primarily in connection with the El Quevar project.

## **Competition**

There is aggressive competition within the mining industry for the acquisition of a limited number of mineral resource opportunities, and many of the mining companies with which we compete have greater financial and technical resources than we do. Accordingly, these competitors may be able to spend greater amounts on acquisitions of mineral properties of merit, as well as on exploration and advancement of their mineral properties. We also compete with other mining companies for the acquisition and retention of skilled mining engineers, mine and processing plant operators and mechanics, geologists, geophysicists and other experienced technical personnel. Our competitive position depends upon our ability to successfully and economically advance new and existing silver and gold properties. Failure to achieve and maintain a competitive position could adversely impact our ability to obtain the financing necessary for us to advance our mineral properties.

## **Available Information**

We make available, free of charge through our website at [www.goldenminerals.com](http://www.goldenminerals.com), our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. Information on our website is not incorporated into this annual report on Form 10-K and is not a part of this report. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at <http://www.sec.gov>.

## **ITEM 1A: RISK FACTORS**

Investors in Golden Minerals should consider carefully, in addition to the other information contained in, or incorporated by reference into, this annual report on Form 10-K, the following risk factors:

### **Risk Factors related to our Financial Circumstances**

*There is substantial doubt about whether we can continue as a going concern.*

At February 28, 2023, our aggregate cash and cash equivalents totaled approximately \$1.8 million. In the absence of sufficient asset sales, equity financing or other external funding the Company's cash balance is expected to be depleted in the second quarter of 2023. Therefore, our continuation as a going concern is dependent upon our achieving a future financing or strategic transaction. However, there is no assurance that we will be successful pursuing a financing or strategic transaction. Accordingly, there is substantial doubt as to whether our existing cash resources and working capital are sufficient to enable us to continue our operations for the next 12 months as a going concern. Ultimately, in the event that we cannot obtain additional financial resources or achieve profitable operations, we may have to liquidate our business interests and investors may lose their investment. The accompanying consolidated financial statements have been prepared assuming that our company will continue as a going concern. Continued operations are dependent on our ability to obtain additional financial resources or generate profitable operations. Such additional financial resources may not be available or may not be available on reasonable terms. Our consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. Such adjustments could be material.

***We are an exploration stage company and do not have a long-term source of revenue.***

We have a history of operating losses. Although our Rodeo Property generated revenue and free cash flow commencing in 2021, that project is short-lived and is not expected to generate significant cash flow beyond 2023. We are evaluating other potential mining activities, including a potential restart of mineral extraction at the Velardeña Properties. However, we do not currently have any mining activities scheduled to commence after the termination of mining at the Rodeo Property. If we are unable to generate revenue from another mining property, we will be dependent on future external financing to fund our corporate expenses and exploration activities. There is no assurance that such financing will be available on acceptable terms or at all. See “*Risk Factors - We may not have access to sufficient future capital.*”

***Our results of operations, cash flows and the value of our properties are highly dependent on the market prices of gold and silver and certain base metals, and these prices can be volatile.***

The profitability of our mining operations and the value of our mining properties are directly related to the market price of gold, silver, and certain base metals. The price of gold and silver may also have a significant influence on the market price of our common stock. The market prices of these metals historically have fluctuated significantly and are affected by numerous factors beyond our control, including (i) global or regional consumption patterns; (ii) supply of and demand for silver and gold on a worldwide basis; (iii) speculative and hedging activities; (iv) expectations for inflation; (v) political and economic conditions; (vi) supply of, and demand for, consumables required for extraction and processing of metals, and (vii) general economic conditions worldwide.

In the event metal prices decline or remain low for prolonged periods of time, we might be unable to develop our exploration properties, which may adversely affect our results of operations, financial performance, and cash flows. An asset impairment charge may result from the occurrence of unexpected adverse events that impact our estimates of expected cash flows generated from our Rodeo mine or the market value of our non-producing properties, including a material diminution in the price of metals.

***We may not have access to sufficient future capital.***

Although the Rodeo Property is expected to generate revenue through the second quarter of 2023, we expect to require additional external financing to fund our continuing business activities. We may be required to expend significant funds to determine if mineral reserves exist at any of our other properties, continue exploration, and if warranted, develop our existing properties and identify and acquire additional properties to diversify our property portfolio.

We do not have a credit, off-take or other commercial financing arrangement in place that would finance our general and administrative costs and other working capital needs to fund our continuing business activities in the future, and we believe that securing credit for these purposes would be challenging. In addition, commercial financing arrangements may not be available on favorable terms or on terms that would not further restrict our flexibility and ongoing ability to meet our cash requirements over a reasonable period of time.

We also may not be able to obtain funding by monetizing additional non-core exploration or other assets at an acceptable price. Although we may be able to access public equity markets, including through issuances under our At the Market Offering Program with H.C. Wainwright & Co. (“ATM Program”), significant equity issuances may be dilutive to our existing stockholders.

We cannot assure you that we will be able to obtain financing to fund our general and administrative costs and other working capital needs to fund our continuing business activities in the future on favorable terms or at all. Failure to obtain financing could result in delay or indefinite postponement of further mining operations or exploration and construction and the possible partial or total loss of our interest in our properties.

## **Risks Related to our Operations**

### ***Increased operating and capital costs could adversely affect our results of operations.***

Operating costs at our Rodeo mine are subject to fluctuation due to a number of factors, such as variable ore grade, changing metallurgy and revisions to mine plans in response to the physical shape and location of the ore body, as well as the age and utilization rates for the mining and processing-related facilities and equipment. In addition, costs are affected by the price and availability of input commodities, such as fuel, electricity, labor, chemical reagents, explosives, steel, concrete and mining and processing related equipment and facilities. Commodity costs are, at times, subject to volatile price movements, including increases that could make mineral extraction less profitable. Further, changes in laws and regulations can affect commodity prices, uses and transport. Reported costs may also be affected by changes in accounting standards. A material increase in costs could have a significant effect on our results of operations and operating cash flow.

We could have significant increases in capital and operating costs over the next several years in connection with the development of new projects in challenging jurisdictions and in the sustaining and/or expansion of existing mining and processing operations. Costs associated with capital expenditures may increase in the future as a result of factors beyond our control, such as inflation or due to supply chain constraints or delays. Increased capital expenditures may have an adverse effect on the results of operations and cash flow generated from existing operations, as well as the economic returns anticipated from new projects, or may make the development of future projects uneconomic.

### ***The assumptions behind our estimates of cash flow and profitability at the Rodeo mine are inherently subject to uncertainty.***

We have not established mineral reserves as defined under S-K 1300 at the Rodeo mine. As a result, despite the fact that we have undertaken confirmatory drilling to provide additional certainty regarding the Rodeo deposit, there is increased uncertainty and risk that may result in economic or technical failure which may adversely impact our future profitability. In making the decision to commence mining, we made certain assumptions regarding operating and capital costs and project economic returns. These estimates of average cash operating costs are based upon, among other things, (i) anticipated tonnage, grades and metallurgical characteristics of the ore to be mined and processed; (ii) anticipated recovery rates of silver and other metals from the ore; (iii) cash operating costs of comparable facilities and equipment; and (iv) anticipated climatic conditions. Actual cash operating costs, production and economic returns may differ significantly from those anticipated by our studies and estimates.

### ***We are party to a collective bargaining agreement with a union in Mexico that, together with labor and employment regulations, could adversely affect our mining activities and financial condition.***

Mine employees in Mexico are typically represented by a union, and our relationship with our employees is, and we expect in the future will be, governed in part by collective bargaining agreements. Any collective bargaining agreement that we enter into with a union is likely to restrict our mining flexibility in and impose additional costs on our mining activities. In addition, relations between us and our employees in Mexico may be affected by changes in regulations or labor union requirements regarding labor relations that may be introduced by the Mexican authorities or by labor unions. Changes in legislation or in the relationship between us and our employees may have a material adverse effect on our mining activities and financial condition.

***Competition in the mining industry is intense, and we have limited financial and personnel resources with which to compete.***

Competition in the mining industry for desirable properties, investment capital and human capital is intense. Numerous companies headquartered in the United States, Canada, and elsewhere throughout the world compete for properties and human capital on a global basis. We are a small participant in the mining industry due to our limited financial and human capital resources. We presently operate with a limited number of people and we anticipate operating in the same manner going forward. We compete with other companies in our industry to hire qualified employees and consultants when needed to successfully operate the Rodeo mine, the Velardeña processing facility, and to advance our exploration properties. We may be unable to attract the necessary human capital to fully explore, and if warranted, develop our properties and be unable to acquire other desirable properties. We believe that competition for acquiring mineral properties, as well as the competition to attract and retain qualified human capital, will continue to be intense in the future.

***Products processed from our Rodeo project or other mines in the future could contain higher than expected contaminants, thereby negatively impacting our financial condition.***

Treatment charges paid to smelters and refineries include penalties for certain elements, including arsenic and antimony that exceed contract limits. If the material mined from our Rodeo project includes higher than expected contaminants, this would result in higher treatment expenses and penalty charges that could increase our costs and negatively impact our business, financial condition and results of operations. This could occur due to unexpected variations in the occurrence of these elements in the material mined, problems that occur during blending of material from various locations in the mine prior to processing and other unanticipated events.

***Conditions of our mining and processing activities are dependent on the availability of sufficient water supplies to support our mining activities.***

Water is critical to our business, and the increasing pressure on water resources requires us to consider both current and future conditions in our management approach. Across the globe, water is a shared and regulated resource. Mining operations require significant quantities of water for mining, ore processing and related support facilities. Our properties in Mexico and Argentina are in areas where water is scarce and competition among users for continuing access to water is significant. Continuous production and mine development are dependent on our ability to acquire and maintain water rights and claims and to defeat claims adverse to current water uses in legal proceedings. Although we believe that our operations currently have sufficient water rights and claims to cover operating demands, we cannot predict the potential outcome of future legal proceedings relating to water rights, claims and uses. Water shortages may also result from weather or environmental and climate impacts out of our control. Shortages in water supply could result in production and processing interruptions. In addition, the scarcity of water in certain regions could result in increased costs to obtain sufficient quantities of water to conduct our operations. The loss of some or all water rights, in whole or in part, or ongoing shortages of water to which we have rights or significantly higher costs to obtain sufficient quantities of water (or the failure to procure sufficient quantities of water) could result in our inability to maintain mineral extraction at current or expected levels, require us to curtail or shut down mining operations and prevent us from pursuing expansion or any development opportunities. Laws and regulations may be introduced in some jurisdictions in which we operate which could also limit access to sufficient water resources, thus adversely affecting our operations.

Processing activities at the Velardeña Properties require significant amounts of water. At the Velardeña Properties, our ability to have sufficient water is dependent on our ability to maintain our water rights and claims. Water is provided for all of the mines comprising our Velardeña Properties by wells located in the valley adjacent to the Velardeña Properties. We hold title to three wells located near the sulfide plant and hold certificates of registration to three wells located near the oxide plant. We are licensed to pump water from all six wells up to a permitted amount. We are currently using water from the three wells associated with the oxide plant and from two of the three wells associated with the sulfide plant. We are required to make annual payments to the Mexican government to maintain our rights to these wells. We are required to pay a fine to the Mexican Government each year if we use too much water from a particular well or alternatively

if we do not use a minimum amount of water from a particular well. In addition to these fines, the Mexican Government reserves the right to cancel our title to the wells for abuse of these rules.

We believe we currently have a sufficient amount of water for our expected processing activities at the plant. However, if we began processing material through both the sulfide and oxide plants in the future, we may face shortages in our water supply, and therefore will need to obtain water from outside sources at higher costs. The loss of some or all water rights for any of our wells, in whole or in part, or shortages of water to which we have rights would require us to seek water from outside sources at higher costs and could require us to curtail or shut down mining and processing in the future. Laws and regulations may be introduced in the future which could limit our access to sufficient water resources in mining activities, thus adversely affecting our business.

***The nature of mineral exploration, mining, and processing activities involves significant hazards, a high degree of risk, and the possibility of uninsured losses.***

Exploration for and the production of minerals is highly speculative and involves greater risk than many other businesses. Many exploration programs do not result in the discovery of mineralization, and any mineralization discovered may not be of sufficient quantity or quality to be profitably mined. While we are not currently conducting mining operations at the Velardeña Properties, we are evaluating a potential restart of mineral extraction. Because the Velardeña mines are underground, potential mining activities, as well as the conduct of our exploration programs that frequently require rehabilitation of and drilling in underground mine workings, are subject to numerous risks and hazards inherent in underground mines. Our operations are, and any future mining operations or construction we may conduct will be, subject to all of the operating hazards and risks normally incident to exploring for and mining of mineral properties, such as, but not limited to:

- Fluctuation in production costs that make mining uneconomic;
- Social, community or labor disputes resulting in work stoppages or delays, or related loss of social acceptance of community support;
- Changes to legal and regulatory requirements;
- Unanticipated variations in grade and other geologic problems;
- Environmental hazards, noxious fumes and gases;
- Ground and water conditions;
- Difficult surface or underground conditions;
- Industrial accidents;
- Security incidents;
- Failure of unproven or evolving technologies or loss of information integrity or data;
- Metallurgical and other processing problems;
- Mechanical and equipment performance problems;
- Failure of pit walls, dams, declines, drifts and shafts;
- Unusual or unexpected rock formations;
- Personal injury;
- Fire, flooding, cave-ins, seismic activity, landslides or other inclement weather conditions, including those impacting operations or the ability to access and supply sites; and
- Decrease in the value of mineralized material due to lower gold, silver and metal prices.

These occurrences could result in damage to, or destruction of, mineral properties, processing facilities or equipment, personal injury or death, environmental damage, reduced extraction and processing and delays in mining, asset write-downs, monetary losses and possible legal liability. Although we maintain insurance against risks inherent in the conducting of our business in amounts that we consider reasonable, this insurance contains exclusions and limitations on coverage, and will not cover all potential risks associated with mining and exploration activities, and related liabilities

might exceed policy limits. As a result of any or all of the forgoing, we could incur significant liabilities and costs that may exceed the limits of our insurance coverage or that we may elect not to insure against because of premium costs or other reasons, which could adversely affect our results of operations and financial condition. We may also not be insured against all interruptions to our operations. Losses from these or other events may cause us to incur significant costs which could materially adversely affect our financial condition and our ability to fund activities on our properties. A significant loss could force us to reduce or suspend our operations and development.

***Our exploration and development activities, strategic transactions, or any acquisition activities may not be commercially successful and could fail to lead to gold production or fail to add value.***

Substantial expenditures are required to acquire gold properties, establish mineral reserves through drilling and analysis, develop metallurgical processes to extract metal from the ore and develop the mining and processing facilities and infrastructure at any site chosen for mining. We cannot be assured that any such activities will be commercially successful, lead to gold production, or add value.

#### **Risks related to our Exploration Activities**

***Our properties are in the exploration stage.***

***Our exploration properties may not contain mineral reserves.***

We have not established that our properties contain any mineral reserve, nor can there be any assurance that we will be able to do so. A mineral reserve is defined by the SEC in Regulation S-K 1300 as that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination. The probability of an individual prospect ever having a “reserve” that meets the requirements of Regulation S-K 1300 is extremely remote; in all probability our mineral properties do not contain any “reserves” and any funds that we spend on exploration could be lost. Even if we do eventually discover mineral reserves on our properties, there can be no assurance that they can be developed into producing mines and we can extract those minerals. Both mineral exploration and development involve a high degree of risk and few mineral properties which are explored are ultimately developed into producing mines.

***Our mineral resource estimates are inherently imprecise.***

We have released estimates of mineral resources at the Rodeo project and the Velardeña Properties. Mineral resource figures based on estimates made by geologists are inherently imprecise and depend on geological interpretation and statistical inferences drawn from drilling and sampling that may prove to be unreliable or inaccurate. We cannot assure you that these estimates are accurate, and even if the estimates are accurate, the economic viability of the Velardeña project may not justify exploitation, or in the case of Rodeo mine, the estimates may not accurately reflect the future revenue we receive from mineral extraction.

***The exploration of our mineral properties is highly speculative in nature, involves substantial expenditures and is frequently non-productive.***

Mineral exploration is highly speculative in nature and frequently results in no or very little return on amounts invested to evaluate a particular property. Substantial expenditures are required to (i) establish the existence of a potential ore body through drilling and metallurgical and other testing techniques; (ii) determine metal content and metallurgical recovery processes to process metal from the ore; (iii) determine the feasibility of mine development and mineral extraction; and (iv) construct, renovate or expand mining and processing facilities. If we discover a deposit or ore at a property, it usually takes several years from the initial phases of exploration until mineral extraction is possible, if at all. During this time, the economic feasibility of a project may change because of increased costs, lower metal prices or other

factors. As a result of these uncertainties, our exploration programs may not result in the identification of proven and probable mineral reserves in sufficient quantities to justify developing a particular property.

***We may acquire additional mining properties and our business may be negatively impacted if reserves are not located on acquired properties or if we are unable to successfully execute and/or integrate the acquisitions.***

We have in the past, and may in the future, acquire additional mining properties. There can be no assurance that reserves will be identified on any properties that we acquire. We may experience negative reactions from the financial markets if we complete acquisitions of additional properties and reserves are not located on acquired properties. There can be no assurance that we will be able to complete any acquisitions successfully, or that any acquisition will achieve anticipated synergies or other positive results. Any material problems that we encounter in connection with such an acquisition could have a material adverse effect on our business, results of operations and financial position. These factors may adversely affect the trading price of our common stock.

***We may not mine the Velardeña Properties again.***

In mid-November 2015, we shut down the mines and sulfide processing plant at our Velardeña Properties and placed them on care and maintenance. Commencing mining again is subject to numerous risks and uncertainties, including: whether we are able to create a mine plan or gold recovery improvements that can achieve sustainable cash positive results at current and future metals prices; unexpected events, including difficulties in maintaining the properties on a care and maintenance basis, potential sabotage or damage to the assets related to the suspension of mining, and variations in ore grade and relative amounts, grades and metallurgical characteristics of oxide and sulfide ores; whether gold and silver prices will achieve or remain at sufficiently high levels to permit us to achieve sustainable cash positive results; whether actual holding and care and maintenance costs exceed current estimates or whether unanticipated costs arise; whether we are able to retain sufficient numbers of skilled mining and management personnel and otherwise maintain satisfactory relations with the unionized workforce on site; and our ability to obtain additional funding for general and administrative costs and other working capital needs to fund our continuing business activities as currently conducted and possibly for a potential restart of our Velardeña Properties. Based on these risks and uncertainties, there can be no assurance that we will restart mining activities at the Velardeña Properties.

#### **Regulatory Risks**

***Our operations are subject to ongoing permitting requirements which could result in the delay, suspension or termination of our operations.***

Our operations, including our ongoing exploration drilling programs and mining, require ongoing permits from governmental and local authorities. Future mining and current processing at our Rodeo and Velardeña properties and the continued evaluation of the El Quevar project and other exploration activities will require additional permits from various governmental authorities. We may also be required to obtain certain property rights to access or use our properties. Obtaining or renewing licenses and permits, and acquiring property rights, can be complex and time-consuming processes. There can be no assurance that we will be able to acquire all required licenses, permits or property rights on reasonable terms or in a timely manner, or at all, and that such terms will not be adversely changed, that required extensions will be granted, or that the issuance of such licenses, permits or property rights will not be challenged by third parties. If we cannot obtain or maintain the necessary permits or if there is a delay in receiving future permits, our timetable and business plan will be adversely affected and may prevent or make future mining and processing at our Rodeo or Velardeña properties and other continued processing activities economically unfeasible.

***Our exploration activities are in countries with developing economies and are subject to the risks of political and economic instability associated with these countries.***

We currently conduct exploration activities almost exclusively in countries with developing economies, including Argentina and Mexico. These countries and other emerging markets in which we may conduct business have from time to time experienced economic or political instability. We may be materially adversely affected by risks associated with conducting exploration activities in countries with developing economies, including:

- political instability and violence;
- war and civil disturbance;
- expropriation or nationalization;
- changing fiscal, royalty and tax regimes;
- fluctuations in currency exchange rates;
- high rates of inflation;
- uncertain or changing legal requirements respecting the ownership and maintenance of mineral properties, mines and mining activities, and inconsistent or arbitrary application of such legal requirements;
- uncertain or changing economic and environmental policies of governmental authorities in Mexico or Argentina;
- underdeveloped industrial and economic infrastructure;
- corruption; and
- unenforceability of contractual rights.

Changes in mining or investment policies or shifts in the prevailing political climate in any of the countries in which we conduct exploration activities could adversely affect our business.

***Our El Quevar exploration property is located in Argentina and is subject to various levels of political, economic, legal, social and other risks.***

Our El Quevar exploration property is located in Argentina and, as such, is exposed to various levels of political, economic, legal, social and other risks and uncertainties, including high interest rates; abrupt changes in currency values; high levels of inflation; stability and competitiveness of the Argentine peso against foreign currencies; wage and price controls; regulations to import equipment and other necessities relevant for operations; changes in governmental economic (including export duties and import regulations) or tax policies; and political and social tensions.

The Argentine economy has experienced significant volatility in recent decades, characterized by periods of low or negative gross domestic product growth, high and variable levels of inflation and currency depreciation and devaluation. Financial and securities markets in Argentina, and the Argentine economy, are influenced by economic and market conditions in other markets worldwide. The Argentine government has often changed monetary, taxation, credit, tariff and other policies to influence the course of Argentina's economy, and taken other actions which do, or may be perceived to weaken the nation's economy especially as it relates to foreign investors and the overall investment climate.

The Argentine government has not only historically exercised significant influence over the country's economy, but the country's legal and regulatory frameworks have at times suffered radical changes due to political influence and significant political uncertainties as well. Future government policies to preempt, or in response to, social unrest may include expropriation, nationalization, forced renegotiation or modification of existing contracts, suspension of the enforcement of creditors' rights, new taxation policies including royalty and tax increases and retroactive tax claims, and changes in laws and policies affecting foreign trade and investment. Such policies could destabilize the country and adversely and materially affect the economy, and thereby our business.

***Most of our properties are subject to extensive environmental laws and regulations which could materially adversely affect our business.***

Our exploration, mining, and processing operations are subject to extensive laws and regulations governing land use and the protection of the environment which control the exploration and mining of mineral properties and their effects on the environment, including air and water quality, mine reclamation, waste generation, handling and disposal, the protection of different species of flora and fauna and the preservation of lands. These laws and regulations require us to acquire permits and other authorizations for conducting certain activities. In many countries, there is relatively new comprehensive environmental legislation, and the permitting and the authorization processes may not be established or predictable. We may not be able to acquire necessary permits or authorizations on a timely basis, if at all. Delays in acquiring any permit or authorization could increase the cost of our projects and could suspend or delay the commencement of extraction and processing of mineralized material.

Our Rodeo and Velardeña properties are subject to regulation by SEMARNAT, the environmental protection agency of Mexico. In order to permit new facilities at or expand existing facilities, regulations require that an environmental impact statement, known in Mexico as a Manifestación de Impacto Ambiental (the “Manifestación”), be prepared by a third-party contractor for submission to SEMARNAT. Studies required to support the Manifestación include a detailed analysis of soil, water, vegetation, wildlife, cultural resources and socio-economic impacts. The Manifestación is then published on SEMARNAT’s web page and in its official gazette in a national and local newspaper. The Manifestación is discussed at various open hearings, including hearings in the local communities, at which third parties may voice their views. We would be required to provide proof of local community support of the Manifestación as a condition to final approval. We may not be able to obtain community support of future projects.

Environmental legislation in Mexico and in many other countries is evolving in a manner which will likely require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects, and a heightened degree of responsibility for companies and their officers, directors and employees. Future changes in environmental regulation in the jurisdictions where our Rodeo and Velardeña properties are located may adversely affect our business, make our business prohibitively expensive, or prohibit it altogether. We cannot predict what environmental legislation or regulations will be enacted or adopted in the future or how future laws and regulations will be administered or interpreted. Compliance with more stringent laws and regulations, as well as potentially more vigorous enforcement policies or regulatory agencies or stricter interpretation of existing laws, may (i) necessitate significant capital outlays, (ii) cause us to delay, terminate or otherwise change our intended activities with respect to one or more projects, or (iii) materially adversely affect our future exploration activities.

***Many of our properties are located in areas of prior mining activity and we may encounter legacy environmental damage.***

The Velardeña Properties and many of our exploration properties are located in historic mining districts where prior owners, including ECU in the case of the Velardeña Properties, may have caused environmental damage that may not be known to us or to applicable regulators. At the Velardeña Properties and in most other cases, we have not conducted comprehensive environmental analyses of our mineral properties. Insurance fully covering many environmental risks (including potential liability for pollution or other hazards as a result of disposal of waste products occurring from exploration and mining) is not generally available. To the extent environmental hazards may exist on the properties in which we currently hold interests, or may hold interests in the future, that are unknown to us at present and that have been caused by us, or by previous owners or operators, or that may have occurred naturally, and to the extent we are subject to environmental requirements or liabilities, the cost of compliance with these requirements and satisfaction of these liabilities could have a material adverse effect on our financial condition and results of operations. If we are unable to fully fund the cost of remediation of any environmental condition, we may be required to suspend activities or enter into interim compliance measures pending completion of the required remediation.

***Climate change and climate change legislation or regulations could impact our business.***

We are subject to physical risks associated with climate change which could seriously harm our results of operations and increase our costs and expenses. The occurrence of severe adverse weather conditions, including increased temperatures and droughts, fires, longer wet or dry seasons, increased precipitation, floods, hail, snow, or more severe storms, may have a potentially devastating impact on our operations. Adverse weather may result in physical damage to our operations, instability of our infrastructure and equipment, washed-out roads to our projects, and alter the supply of water and electricity to our properties, mining sites, and oxide plant. Increased temperatures may also decrease worker productivity at our projects and raise cooling costs. Should the impacts of climate change be material in nature or occur for lengthy periods of time in the areas in which we operate, our financial condition or results of operations would be adversely affected.

Changes in the quantity of water, whether in excess or deficient amounts, may impact exploration and development activities, mining and processing operations, water storage and treatment facilities, tailings storage facilities, closure and reclamation efforts, and may increase levels of dust in dry conditions and land erosion and slope stability in case of prolonged wet conditions. Increased precipitation, extreme rainfall events or increased snowfall may potentially impact tailings storage facilities through flooding of the water management infrastructure, exceeding surface water runoff network capacity, overtopping the facility, or undermining the slope stability of the structure. Increased amounts of water may also result in extended periods of mine pit flooding, maintenance and storage facilities; or may exceed current water treatment facility capacity to store and treat water physical conditions resulting in an unintended overflow either on or off of the mine site property.

U.S. and international legislative and regulatory action intended to ensure the protection of the environment are constantly changing and evolving in a manner expected to result in stricter standards and enforcement, larger fines and liability, and potentially increased capital expenditures and operating costs. Transitioning our business to meet regulatory, societal and investor expectations may cause us to incur lower economic returns than originally estimated for new exploration projects and development plans of existing operations.

***Mining companies are increasingly required to consider and provide benefits to the communities, regions, and countries in which they operate, and are subject to extensive environmental, health and safety laws and regulations.***

As a result of public concern about the real or perceived detrimental effects of economic globalization, global climate impacts, and other adverse environmental effects resulting from the operation of extractive industries, businesses in general and the mining industry in particular face increasing public scrutiny of their activities. These businesses are under pressure to demonstrate that as they seek to generate satisfactory returns on investment to shareholders, other stakeholders, including employees, governments, communities surrounding operations, adjacent regions, and the countries in which they operate, such constituencies benefit and will continue to benefit from their commercial activities. The potential consequences of these pressures include reputational damage, delays, suspension of activities, legal claims, increased costs, increased social investment obligations, difficulty in acquiring permits, and increased taxes and royalties payable to governments and communities.

***Title to the Rodeo project, Velardeña Properties and our other properties and rights may be defective or may be challenged.***

Our policy is to seek to confirm the validity of our rights to, title to, or contract rights with respect to, each mineral property in which we have a material interest. However, we cannot guarantee that title to our properties will not be challenged. Title insurance is not available for our mineral properties, and our ability to ensure that we have obtained secure rights to individual mineral properties or mining concessions may be severely constrained. Accordingly, the Rodeo project, Velardeña Properties and our other mineral properties may be subject to prior unregistered agreements, transfers or claims, and title may be affected by, among other things, undetected defects. In addition, we may be unable to conduct activities on our properties as permitted or to enforce our rights with respect to our properties, and the title to our mineral

properties may also be impacted by state action. We have not conducted surveys of all of the exploration properties in which we hold direct or indirect interests and, therefore, the precise area and location of these exploration properties may be in doubt.

In most of the countries in which we operate, failure to comply with applicable laws and regulations relating to mineral right applications and tenure could result in loss, reduction or expropriation of entitlements, or the imposition of additional local or foreign parties as joint venture partners. Any such loss, reduction or imposition of partners could have a material adverse effect on our financial condition, results of operations and prospects.

Under the laws of Mexico, mineral resources belong to the state, and government concessions are required to explore for or exploit mineral reserves. Mineral rights derive from concessions granted, on a discretionary basis, by the Ministry of Economy, pursuant to the Mexican mining law and regulations thereunder. We hold title to the Rodeo project, Velardeña Properties and our other properties in Mexico through these government concessions, but there is no assurance that title to the concessions comprising the Rodeo project, Velardeña Properties and other properties will not be challenged or impaired. The Rodeo project, Velardeña Properties and other properties may be subject to prior unregistered agreements, interests or native land claims, and title may be affected by undetected defects. There could be valid challenges to the title of any of the claims comprising the Rodeo project, Velardeña Properties that, if successful, could impair mining with respect to such properties in the future. A defect could result in our losing all or a portion of our right, title, and interest in and to the properties to which the title defect relates.

Our Rodeo project mining concessions, Velardeña Properties mining concessions and our other mining concessions in Mexico may be terminated if our obligations to maintain the concessions in good standing are not satisfied, including obligations to explore or exploit the relevant concession, to pay any relevant fees, to comply with all environmental and safety standards, to provide information to the Ministry of Economy and to allow inspections by the Ministry of Economy. In addition to termination, failure to make timely concession maintenance payments and otherwise comply strictly with applicable laws, regulations and local practices relating to mineral right applications and tenure could result in reduction or expropriation of entitlements. Additionally, in 2014, new mining concessions became subject to additional review and approval by the Mexico Ministry of Energy, and in recent years the federal government has been reluctant to issue new mining concessions at all.

Mining concessions in Mexico give exclusive exploration and exploitation rights to the minerals located in the concessions but do not include surface rights to the real property, which requires that we negotiate the necessary agreements with surface landowners. Many of our mining properties are subject to the Mexican ejido system requiring us to contract with the local communities surrounding the properties in order to obtain surface rights to land needed in connection with our mining exploration activities. See *“Risk Factors -- Our ability to develop our Mexican properties is subject to the rights of the Ejido (agrarian cooperatives) who use or own the surface for agricultural purposes.”* Our inability to maintain and periodically renew or expand these surface rights on favorable terms or otherwise could have a material adverse effect on our business and financial condition.

***Most of our mining properties, including our Rodeo and Velardeña properties, are located in Mexico and are subject to various levels of political, economic, legal, social and other risks.***

Our Rodeo and Velardeña properties are located in Mexico, and, as such, are exposed to various levels of political, economic, legal and other risks and uncertainties, including local acts of violence, such as violence from drug cartels; military repression; extreme fluctuations in currency exchange rates; high rates of inflation; labor unrest; the risks of war or civil unrest; expropriation and nationalization; renegotiation or nullification of existing concessions, licenses, permits and contracts; illegal mining; acts of political corruption; changes in taxation policies; restrictions on foreign exchange and repatriation; and changing political conditions, currency controls and governmental regulations that favor or require the awarding of contracts to local contractors or require foreign contractors to employ citizens of, or purchase supplies from, a particular jurisdiction.

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In the past, Mexico has been subject to political instability, changes and uncertainties, which have resulted in changes to existing governmental regulations affecting mineral exploration and mining activities. Mexico's status as a developing country may make it more difficult for us to obtain any required funding for our Rodeo project, Velardeña Properties or other projects in Mexico in the future.

Our Mexican properties are subject to a variety of governmental regulations governing health and worker safety, employment standards, waste disposal, protection of historic and archaeological sites, mine development, protection of endangered and protected species, purchase, storage and use of explosives and other matters. Specifically, our activities related to the Rodeo and Velardeña properties are subject to regulation by SEMARNAT, the Comisión Nacional del Agua, which regulates water rights, and Mexican mining laws. Mexican regulators have broad authority to shut down and levy fines against facilities that do not comply with regulations or standards.

Our Rodeo and Velardeña properties and mineral exploration activities in Mexico may be adversely affected in varying degrees by changing government regulations relating to the mining industry or shifts in political conditions that increase the costs related to our mining and exploration activities or the maintenance of our properties.

Changes, if any, in mining or investment policies, changes or increases in the legal rights of indigenous populations or in the difficulty or expense of obtaining rights from them that are necessary for our Rodeo or Velardeña properties or shifts in political attitude may adversely affect our business and financial condition. Our mining and exploration activities may be affected in varying degrees by government regulations with respect to restrictions on extraction, price controls, export controls, currency remittance, income and other taxes, expropriation of property, foreign investment, maintenance of claims, environmental legislation, land use, land claims of local people, water use and mine safety. Restart of mining or use of both the oxide and sulfide plant may also require us to assure the availability of adequate supplies of water and power, which could be affected by government policy and competing businesses in the area. The occurrence of these various factors and uncertainties cannot be accurately predicted and could have an adverse effect on our mining and exploration activities and financial condition.

Future changes in applicable laws and regulations or changes in their enforcement or regulatory interpretation could negatively impact current or planned exploration or mining activities at our Rodeo or Velardeña properties or in respect of any of our other projects in Mexico or projects with which we become involved in Mexico. Any failure to comply with applicable laws and regulations, even if inadvertent, could result in the interruption of mining and exploration or material fines, penalties or other liabilities.

***Our ability to develop our Mexican properties is subject to the rights of the Ejido (agrarian cooperatives) who use or own the surface for agricultural purposes.***

Our ability to mine minerals is subject to maintaining satisfactory arrangements and relationships with the Ejido for access and surface disturbances. Ejidos are groups of local inhabitants who were granted rights to conduct agricultural activities on the property. We must negotiate and maintain a satisfactory arrangement with these residents in order to disturb or discontinue their rights to farm.

In connection with our Velardeña Properties, we have contracts with two ejidos to secure surface rights with a total annual cost of approximately \$25,000. The first contract is a ten-year contract with the Velardeña ejido, which provides surface rights to certain roads and other infrastructure at the Velardeña Properties through 2031. The second contract is a 25-year contract with the Vista Hermosa ejido signed in March 2013, which provides exploration access and access rights for roads and utilities for our Velardeña Properties. Similar to our Velardeña Properties, the Rodeo Property is subject to the Mexican ejido system. We also have a separate surface rights agreement in place with a local private landowner that allows us to conduct mining operations on the two concessions that make up the Rodeo Property. Our inability to maintain and periodically renew or expand these surface rights on favorable terms or otherwise could have a material adverse effect on our business and financial condition.

***Most of our costs are subject to exchange control policies, the effects of inflation, and currency fluctuations between the U.S. dollar and the Mexican peso.***

Our revenue and external funding are primarily denominated in U.S. dollars. However, certain mining, processing, maintenance and exploration costs at the Rodeo and Velardeña properties and most of our exploration properties are denominated in Mexican pesos. These costs principally include electricity, labor, water, maintenance, local contractors and fuel. The appreciation of the peso against the U.S. dollar increases expenses and the cost of purchasing capital assets in U.S. dollar terms in Mexico, which can adversely impact our operating results and cash flows. Conversely, depreciation of the Mexican peso decreases operating costs and capital asset purchases in U.S. dollar terms. When inflation in Mexico increases without a corresponding devaluation of the Mexican peso, our financial position, results of operations and cash flows could be adversely affected. The annual average inflation rate in Mexico was approximately 7.9% in 2022, 7.3% in 2021, and 3.2% in 2020. At the same time, the peso has been subject to fluctuation, which may not have been proportionate to the inflation rate and may not be proportionate to the inflation rate in the future. The value of the peso decreased by 4.9% in 2022, decreased by 2.6% in 2021, and decreased by 4.7% in 2020. Current and future inflationary effects may be driven by, among other things, supply chain disruptions and governmental stimulus or fiscal policies, and geopolitical instability, including the ongoing conflict between Ukraine and Russia. Continuing increases in inflation could increase our costs of labor and other costs related to our business, which could have an adverse impact on our business, financial position, results of operations and cash flows.

In addition, fluctuations in currency exchange rates may have a significant impact on our financial results. There can be no assurance that the Mexican government will maintain its current policies with regard to the peso or that the peso's value will not fluctuate significantly in the future. We cannot assure you that currency fluctuations, inflation and exchange control policies will not have an adverse impact on our financial condition, results of operations, earnings and cash flows.

***Lack of infrastructure could forestall or prevent further exploration and advancement.***

Exploration activities, as well as any advancement activities, depend on adequate infrastructure. Reliable roads, bridges, power sources and water supply are important factors that affect capital and operating costs and the feasibility and economic viability of a project. Unanticipated or higher than expected costs and unusual or infrequent weather phenomena, or government or other interference in the maintenance or provision of such infrastructure, could adversely affect our business, financial condition and results of operations.

**Risks related to our Common Stock**

***One of our stockholders owns a significant percentage of our common stock and could block decisions or transactions that could be beneficial to other stockholders.***

One of our stockholders, The Sentient Group, through the Sentient executive funds (“Sentient”), owns approximately 22% of our outstanding common stock. With this level of ownership, Sentient could exert significant control over us, including over the election of directors, changes in the size or the composition of the board of directors, and mergers and other business combinations involving us. Through greater control of the board of directors and increased voting power, including the potential to prevent a quorum at stockholders meetings, Sentient could control certain decisions, including decisions regarding qualification and appointment of officers, operations of the business including acquisition or disposition of our assets or purchases and sales of mining or exploration properties, dividend policy, and access to capital (including borrowing from third-party lenders and the issuance of equity or debt securities). Sentient’s large share ownership will also make it difficult, if not impossible, for us to enter into a change of control transaction that may otherwise be beneficial for our other shareholders.

***Our stock price may be volatile and as a result shareholders could lose part or all of their investment.***

In addition to other risk factors identified in this annual report on Form 10-K and due to volatility associated with equity securities in general, the value of a shareholder's investment could decline due to the impact of numerous factors upon the market price of our common stock, including:

- Changes in the worldwide price for the metals we mine;
- Adverse results from our exploration, development, or production efforts;
- Producing at rates lower than those targeted;
- Political and regulatory risks and social unrest, including the conflict between Ukraine and Russia;
- Weather conditions and extreme weather events, including unusually heavy rains;
- Failure to meet our revenue or profit goals or operating budget;
- Decline in demand for our common stock;
- Downward revisions in securities analysts' estimates or changes in global financial markets and global economies and general market conditions;
- Technological innovations by competitors or in competing technologies;
- Investor perception of our industry or our prospects;
- Lawsuits;
- Economic impact from spread of disease, including from the COVID-19 pandemic;
- Our ability to integrate and operate the companies and the businesses that we acquire;
- Actions by government or central banks; and
- General economic trends.

Stock markets in general have experienced extreme price and volume fluctuations and the market prices of individual securities have been highly volatile. These fluctuations are often unrelated to operating performance and may materially adversely affect the market price of our common stock. As a result, shareholders may be unable to sell their shares at a desired price.

***The existence of a significant number of warrants may have a negative effect on the market price of our common stock.***

As of December 31, 2022, we had 9.8 million warrants outstanding with a weighted average exercise price per share of \$0.34. The existence of securities available for exercise and resale is referred to as an "overhang," and, particularly if the warrants are "in the money," the anticipation of potential sales could exert downward pressure on the market price of our common stock.

***If our common stock were delisted and determined to be a "penny stock," a broker-dealer could find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock in the secondary market.***

If our common stock were removed from listing on the NYSE American, it may be subject to the so-called "penny stock" rules. The SEC has adopted regulations that define a "penny stock" to be any equity security that has a market price per share of less than \$5.00, subject to certain exceptions, such as any securities listed on a national securities exchange. For any transaction involving a "penny stock," unless exempt, the rules impose additional sales practice requirements on broker-dealers, subject to certain exceptions. If our common stock were delisted and determined to be a "penny stock," a broker-dealer may find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock on the secondary market. These factors could significantly negatively affect the market price of our common stock and our ability to raise capital.

## General Risks

***Certain of the impacts to the economy and supply chain resulting from the COVID pandemic and resulting global recovery are likely to continue for much of 2023, and other impacts to the health of our staff remain uncertain.***

The COVID pandemic has had a significant negative impact generally on the global economy and commodity and equity markets, and the outlook remains uncertain with variants of the virus evolving and continuing to affect many parts of the world. While many of the direct impacts to our business arising from our employees, regulators and suppliers being unable to conduct routine operations due to illness or exposure to COVID have decreased, direct and indirect effects of the pandemic may continue to be experienced. The ongoing impacts to supply chain and available labor and contractors may continue to pose risk to our operations.

We operate in a highly regulated industry and while the regulators are available to address operational impacts from illness, governmental restrictions and other effects, it remains uncertain whether all impacts can be timely addressed with our operations and with the regulators. We are and will remain fully engaged with our employees in our efforts to protect their health and safety.

To the extent the COVID pandemic may adversely affect our business and financial results, it may also have the effect of heightening many of the other risks described throughout this Item 1A, such as timely and economically available labor and supplies, and those relating to our ability to access additional capital, which could negatively affect our business. It continues to be difficult to estimate the continuing or future effects of the pandemic on our business.

***We may not be able to operate successfully if we are unable to recruit, hire, retain and develop key personnel and a qualified and diverse workforce. In addition, we are dependent upon our employees being able to safely perform their jobs, including the potential for physical injuries or illness.***

We depend upon the services of a number of key executives and management personnel. These individuals include our executive officers and other key employees. If any of these individuals were to die, become disabled or leave our company, we would be forced to identify and retain individuals to replace them. We may be unable to hire a suitable replacement on favorable terms should that become necessary.

Our success is also dependent on the contributions of our highly skilled and experienced workforce. Our ability to achieve our operating goals depends upon our ability to recruit, hire, retain and develop qualified and diverse personnel to execute on our strategy. There continues to be competition over highly skilled personnel in our industry. If we lose key personnel or one or more members of our senior management team, and we fail to develop adequate succession plans, or if we fail to hire, retain and develop qualified and diverse employees, our business, financial condition, results of operations and cash flows could be harmed. COVID-19 vaccine mandates and other COVID-19 related laws and policies could make hiring and retaining highly skilled key employees more difficult in the future.

Our business is dependent upon our workforce being able to safely perform their jobs, including the potential for physical injuries or illness. If we experience periods where our employees are unable to perform their jobs for any reason, including as a result of illness (such as COVID-19), our business, financial condition, results of operations and cash flows could be adversely affected. As a result of the COVID-19 pandemic, we have experienced temporary workforce disruptions and periods where we temporarily placed certain sites in care and maintenance. These events, or if similar events occur in the future, could have a material adverse impact on the business in the future.

### ***U.S.-China Tensions***

In light of continuing and increased tension in the relations between U.S. and China, it is difficult to assess and predict the impact that further developments may have, including sanctions, further supply disruption and increased prices of materials, and cyber-security threats. While we do not currently purchase goods and materials directly from China, in

connection with our production operations at Rodeo, our suppliers of electronics and instrumentation components may purchase necessary materials from China, and/or our suppliers and we may be indirectly affected if the market for Chinese products is further disrupted by sanctions, countersanctions or other events.

***We are dependent on information technology systems, which are subject to certain risks, including cybersecurity risks and data leakage risks.***

We are dependent upon information technology systems in the conduct of our business. Any significant breakdown, invasion, virus, cyberattack, security breach, destruction or interruption of these systems by employees, others with authorized access to our systems, or unauthorized persons could negatively impact our business. To the extent any invasion, cyberattack or security breach results in disruption to our business, loss or disclosure of, or damage to, our data or confidential information, our reputation, business, results of operations and financial condition could be materially adversely affected. Our systems and insurance coverage for protecting against cyber security risks may not be sufficient. Although to date we have not experienced any material losses relating to cyberattacks, we may suffer such losses in the future. We may be required to expend significant additional resources to continue to modify or enhance our protective measures. We also may be subject to significant litigation, regulatory investigation and remediation costs associated with any information security vulnerabilities, cyberattacks or security breaches.

The Company could also be adversely affected by system or network disruptions if new or upgraded information technology systems are defective, not installed properly or not properly integrated into operations. Various measures have been implemented to manage the risks related to the system implementation and modification, but system modification failures could have a material adverse effect on the Company's business, financial position, and results of operations.

#### **ITEM 1B: UNRESOLVED STAFF COMMENTS**

None.

#### **ITEM 3: LEGAL PROCEEDINGS**

During April 2021, the Company became aware of a lawsuit in Mexico against one of the Company's Mexican subsidiaries, Minera William, S.A. de C.V. ("Minera William"). The plaintiff in the matter is Unifin Financiera, S.A.B de C.V. ("Unifin"). The lawsuit was assigned to the Fifth Specialized Commercial District Court. In November 2022, the Company was formally served with the complaint in connection with the lawsuit and in December 2022 the Company filed its answer to the complaint. Unifin is alleging that a representative of Minera William signed certain documents in July 2011 purporting to bind Minera William as a guarantor of payment obligations owed by a third party to Unifin in connection with that third party's acquisition of certain drilling equipment. At the time the documentation was allegedly signed, Minera William was a subsidiary of ECU Silver Mining prior to the Company's acquisition of ECU in September 2011. As a preemptive measure, Unifin has obtained a preliminary court order freezing Minera William's bank accounts in Mexico, which has limited the Company's and Minera William's ability to access approximately US\$153,000 according to current currency exchange rates. Notwithstanding this action, the restrictions imposed on Minera William's bank accounts do not impact the Company's ability to operate the Rodeo mine, which is held through a different Mexico subsidiary. Likewise, the action does not impact the Company's ability to continue with the Company's evaluation plans for a potential Velardeña mine restart or move forward with any of the Company's other exploration programs in Mexico. However, because the Velardeña mine and processing plants are held by Minera William, any adverse outcome to the action may have a material impact on our ability to restart production at Velardeña. Unifin is seeking recovery for as much as US\$12.5 million. The Company believes there is no basis for this claim. As such, the Company has not accrued an amount for this matter in its Condensed Consolidated Balance Sheets or Statements of Operations as of December 31, 2022. A preliminary hearing is scheduled to take place on April 3, 2023.

#### **ITEM 4: MINE SAFETY DISCLOSURES**

Not applicable.

#### **ITEM 5: MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our common stock began trading on the NYSE American under the symbol "AUMN" on March 19, 2010. Our common stock is also listed on the Toronto Stock Exchange, also referred to as the "TSX", and trades under the symbol "AUMN".

As of March 16, 2023, we had 156 record holders of our common stock of record based upon the stockholders list provided by our transfer agent, Computershare Trust Company, N.A.

#### **ITEM 6: RESERVED**

#### **ITEM 7: MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

*You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes beginning on page F-1 in this annual report on Form 10-K. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those set forth under "Risk Factors" in this annual report on Form 10-K.*

##### **Our Company**

We were incorporated in Delaware under the Delaware General Corporation Law in March 2009 and are the successor to Apex Silver Mines Limited for purposes of reporting under the Exchange Act. During the year ended December 31, 2022, our principal source of revenue was from the sale of gold and silver from our Rodeo Property in Durango, Mexico. We incurred net operating losses for the years ended December 31, 2022 and 2021.

We remain focused on mining operations at the Rodeo Property as well as the continued advancement of our Yoquivo Property and the evaluation of a potential restart plan for Velardeña. We also continue to evaluate and search for mining opportunities in North America (including Mexico) with near-term prospects of mining, and particularly for properties within reasonable haulage distances of our Velardeña Properties. We are also focused on advancing our El Quevar exploration property in Argentina through the Earn-In Agreement with Barrick and on advancing selected properties in our portfolio of exploration properties, located in Mexico, Nevada and Argentina. We are reviewing strategic opportunities, focusing primarily on development or operating properties in North America, including Mexico.

##### **2022 Highlights**

###### *Rodeo Property*

From inception in January 2021 through the end of December 31, 2022, we have produced 26,380 ounces of gold and 103,107 ounces of silver from Rodeo. Cash costs per payable gold ounce, net of silver by-products have averaged \$1,130 during that period. The operation is expected to continue through mid-2023.

We began mining activities at the Rodeo Property, using a contract miner, in December 2020. We began hauling the mined material, also using a contractor, for processing at our Velardeña oxide plant beginning in January 2021. We provide the overall mine management and engineering, which includes in-pit technicians who determine whether material

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is suitable for process or placement on the waste dump. We also employ and supervise the workforce responsible for processing activities at our oxide plant. Our assay lab, located in Velardeña, Durango, Mexico is used for the project's assaying requirements.

Mill throughput averaged 536 tonnes per day for the full year 2022 and 409 tonnes per day for the full year 2021. At approximately 500 tonnes per day, and based on our current estimate of remaining mineral resources at the project, the current life of the Rodeo mine is estimated to run into mid-2023.

Assays from processing at the oxide plant indicate the doré extracted to date are generally comprised of approximately 15 to 30 percent gold and 65 to 80 percent silver and is of a quality that is readily marketable and saleable to refineries located either in the U.S., Mexico or internationally, consistent with standard commercial terms. We entered into a refining agreement with a third party located in the U.S. in February 2021 and have completed 72 shipments of doré as of March 17, 2023.

The table below sets forth the key processing and sales statistics for the Rodeo operation for the years ended December 31, 2022 and 2021. Payable gold and silver produced in doré include final settlement adjustments for all doré produced for the years ended December 31, 2022 and 2021:

**Rodeo Operations Statistics**  
(in thousands except per unit amounts)

	Year Ended December 31, 2022	Year Ended December 31, 2021
Tonnes mined (1)	771,485	661,102
Tonnes in stockpiles awaiting processing (2)	31,381	14,065
Tonnes in low grade stockpiles (3)	193,479	69,567
Tonnes processed	195,599	149,411
Average tonnes per day processed	536	409
Average gold grade processed (grams per tonne)	2.6	4.1
Average silver grade processed (grams per tonne)	10.6	12.2
Plant recovery - gold (%)	74.7	74.9
Plant recovery - silver (%)	81.2	89.9
Payable gold produced in doré (ounces)	11,982	14,398
Payable silver produced in doré (ounces)	52,179	50,928
Payable gold equivalent produced in doré (ounces) (4)	12,616	15,104
Gold sold in doré (ounces)	12,451	13,772
Silver sold in doré (ounces)	53,486	48,970
Gold equivalent sold in doré (ounces) (4)	13,101	14,454
Average realized price, before refining and selling costs		
Gold (dollar per ounce)	\$ 1,805	\$1,793
Silver (dollar per ounce)	\$ 21.93	\$24.83

(1) Includes all mined material transported to the plant, stockpiled, or designated as waste.

(2) Includes mined material stockpiled at the mine or transported to the plant awaiting processing in the plant.

(3) Material grading between 1.6 g/t (current cutoff grade) and 1 g/t Au held for possible future processing.

(4) Gold equivalents based on realized \$ Au and \$ Ag price.

The following table highlights additional non-GAAP cost and revenue statistics related to the Rodeo operations:

	Year Ended December 31, 2022	Year Ended December 31, 2021
(in thousands except per unit amounts)		
Total cash operating costs	\$ 17,110	\$ 14,390
Treatment and refining costs	385	324
Silver by-product credits	(1,173)	(1,216)
<b>Total cash costs, net of by-product credits</b>	<b>\$ 16,322</b>	<b>\$ 13,498</b>
<b>Total cash cost per unit</b>		
Payable gold ounces produced in doré	11,982	14,398
Total cash operating costs	\$ 1,428	\$ 999
Treatment and refining charges	32	23
Silver by-product credits	(98)	(84)
<b>Total cash costs, net of by-product credits, per payable gold ounce (1)</b>	<b>\$ 1,362</b>	<b>\$ 937</b>
Tonnes Processed in plant	195,599	149,411
Total cash operating costs per tonne processed	\$ 87	\$ 96

(1) Cash costs, net of by-product credits, per payable ounce of gold is a non-GAAP financial measure. See “*Non-GAAP Financial Measures*” below for a reconciliation to the GAAP financial measure.

Total cash operating costs for the years ended December 31, 2022 and 2021, as depicted in the table above, include all production costs during the period, including mining, milling and general and administrative costs related to mined material.

Tonnes processed in the oxide plant for the full year 2022 were approximately 196,000, with grades for gold and silver averaging 2.6 and 10.6 grams per tonne, respectively. Payable extraction for the full year was approximately 12,000 ounces of gold and 52,200 ounces of silver, which approximated the initial guidance for the full year 2022 of 12,000 to 14,000 ounces of gold and exceeded the initial guidance for the full year 2022 of 42,000 to 47,000 ounces of silver. Plant recovery for gold was approximately 74.7% for the full year 2022.

Cash costs, net of silver by-product credits, were approximately \$1,362 per payable gold ounce for the full year 2022. Our average realized prices for 2022 were \$1,805 and \$21.93 for gold and silver, respectively. Net operating margin for the full year 2022 from the Rodeo Property (defined as revenue from the sale of metals less the cost of metals sold) was approximately \$5.7 million, which was lower than the \$7.0 million to \$9.0 million we projected for the year.

For the full year 2023, we expect that we will process at least 90,000 tonnes in the oxide plant, or approximately 550 tonnes per day for at least the first six months of the year, with payable extraction for 2023 over that period of approximately 4,000 to 7,000 ounces of gold and 25,000 to 35,000 ounces of silver. Grades for 2023 are estimated to be approximately 2.3 grams per tonne for gold and 13 grams per tonne for silver, lower than grades achieved in 2022, as anticipated in the mine plan. Mill recoveries are expected to continue during 2023 near current rates of approximately 74% for gold and 80% for silver. Projected operating margins through the second quarter 2023 at Rodeo are expected to be

positive, however are not forecast due to uncertainties in the actual head grade that will be delivered to the process plant as we come to the end of our anticipated life of mine plan. Depending on the gold price and operating costs, Rodeo may be able to continue processing stockpiled lower grade material for the latter six months of 2023 or more at higher throughput but with significantly lower recovered ounces of Au and Ag and at higher unit costs.

The estimates detailed above for 2023 were derived using the actual results of operations achieved during 2022 and a projection of the mine plan, grades, plant throughput, and recoveries for 2023. Actual future results from mining at Rodeo may vary significantly based upon, among other things, unanticipated variations in grade, unexpected challenges associated with our proposed mining plan, volatility in commodity prices, variations in expected recoveries, increases in projected operating costs, working capital or capital costs or interruptions in mining. See “*Risk Factors – Risk Factors related to our Mining and Processing Activities*”.

### **Non-GAAP Financial Measures**

Throughout this report, we have provided information prepared or calculated according to U.S. GAAP and have referenced some non-GAAP performance measures which we believe will assist with understanding the performance of our business. Non-GAAP financial measures are intended to provide additional information only and do not have any standard meaning prescribed by generally accepted accounting principles. These measures should not be considered in isolation or as a substitute for performance measures prepared in accordance with GAAP. These non-GAAP measures are not necessarily indicative of operating profit or cash flow from operations as determined under GAAP.

“Total cash costs, net of by-product credits, per payable gold ounce,” includes all direct and indirect operating cash costs associated with the physical activities that would generate doré products for sale to customers, including mining to gain access to mineralized materials, mining of mineralized materials and waste, milling, third-party related treatment, refining and transportation costs, on-site administrative costs and royalties. Total cash costs do not include depreciation, depletion, amortization, exploration expenditures, reclamation and remediation costs, sustaining capital, financing costs, income taxes, or corporate general and administrative costs not directly or indirectly related to the Rodeo project. By-product credits include revenues from silver contained in the products sold to customers during the period. “Total cash costs, net of by-product credits”, are divided by the number of payable gold ounces produced by the plant for the period to arrive at “Total cash costs, net of by-product credits, per payable gold ounce.”

“*Cost of metals sold*”, reported as a separate line item in our Consolidated Statements of Operations for the years ended December 31, 2022 and 2021, is the most comparable financial measure, calculated in accordance with GAAP, to “Total cash costs, net of by-product credits”. “*Cost of metals sold*” includes adjustments for changes in inventory and excludes third-party related treatment and refining costs, which are reported as part of revenue in accordance with GAAP. The following table presents a reconciliation for the years ended December 31, 2022 and 2021 between the non-GAAP measure of “Total cash cost, net of by-product credits” to the most directly comparable GAAP measure, “*Cost of metals sold*”.

	<b>Reconciliation of Costs of Metals Sold (GAAP) to Total Cash Costs, net of By-product Credits (Non-GAAP)</b>	
	<b>Year Ended December 31, 2022</b>	<b>Year Ended December 31, 2021</b>
Total cash costs, net of by-product credits	\$ 16,322	\$ 13,498
<b>Reconciliation to GAAP measure:</b>		
Treatment and refining costs	\$ (385)	\$ (324)
Silver by-product credits	1,173	1,216
Write down of inventories to net realizable value	—	17
Change in inventory (excluding depreciation, depletion and amortization)	428	(1,096)
Cost of metals sold	<u>\$ 17,538</u>	<u>\$ 13,311</u>

#### *Rodeo Exploration*

In January 2022, we began a small additional reverse circulation drill program (approximately 2,500 m) to finish delineating the mineralized area on the south side of the current pit. The program did not result in an increase in the mineral resource at Rodeo or extend the anticipated life of the project.

#### *Velardeña*

The Velardeña Properties contain two underground mines that were last operated in late 2015, at which point mining activities were suspended when a combination of low metals prices, mining dilution and metallurgical challenges rendered operations unprofitable. We elected to preserve the asset for future use, and since that time we have evaluated and tested various mining methods and processing alternatives that could enable sustainable profitable operations.

In June 2021, we began limited-scale mining activities at our Velardeña underground mine to obtain further bulk samples for use in final optimization of the bio-oxidation (BIOX™) plant design and for use in additional flotation separation studies (BIOX is a trademark of Metso-Outotec for its proprietary bio-oxidation process.). Test results using the BIOX pre-treatment oxidation process continue to support the use of the technology in future processing at Velardeña. In March 2022 we filed an updated PEA Technical Report Summary and 43-101 Technical Report supporting a possible economic operation at Velardeña using the optimized flotation parameters, BIOX treatment of pyrite concentrates and employing rescue mining techniques to control dilution. In May 2022 we began additional test-mining activities with a new mining contractor to evaluate productivity and dilution of rescue mining on the principal veins accessible from the San Mateo decline in part to validate the PEA assumptions. The results of the test mining met expected productivity metrics but did not meet anticipated dilution metrics on some of the veins mined. We are continuing to evaluate modified mine plans and mining techniques to address dilution issues including new test work on automated ore sorting which shows potential to allow for upgrading mined material by rejecting waste rock after crushing. We expect to have the results of these studies in mid-2023.

In late 2022, a tailing storage facility expansion project was initiated to provide storage volume for the remainder of the Rodeo mine life. The project will be complete in March 2023. A total of \$2.6 million was expended for this project of which \$0.5 million was expended in 2023.

*Yoquivo*

In September 2020, we began a 3,400-meter, 15-hole drill program to test the most promising portions of certain veins in the Yoquivo Property in Chihuahua, Mexico. We completed the drill program in December 2020 and identified four separate vein systems in which surface sampling has returned grades up to 4,050 g/t silver and 27.7 g/t gold from surface. Of substantial interest was the discovery of the New vein parallel to and east of the Pertenencia vein. While the other principal veins have been partially mined from surface to the water table (up to 130 meters) in the case of San Francisco and Pertenencia, and over a much less extensive vertical interval in the case of El Dolar and Esperanza, the New vein is unmined from surface. We completed a second drill program of 3,949 meters in 21 holes exploring the Pertenencia, Esperanza and Dolar vein systems in 2021. The drill program demonstrated the potential for the Pertenencia vein to host significant high-grade mineralization and hit multiple high-grade veins, suggesting there may be additional blind veins to be found on the property.

In July 2022, we completed a third drilling program of 5,693 meters in 24 drill holes designed to further delineate the previously encountered vein-hosted mineralized intervals.

In December 2022, we completed a fourth drill program totaling 3,321 meters in 10 drill holes.

During the year we completed payments required under the two option agreements and now hold 100% ownership of the concessions subject to royalty interests between 2 and 3 percent NSR payable on production to third parties and capped at \$2.8M in the aggregate.

With an effective date of February 23, 2023, an initial mineral resource study was completed for Yoquivo that estimates an inferred resource of 937,000 tonnes at 570 g/t Ag eq (equivalent ounces are calculated using prices of \$1,840/oz Au and \$24.00/oz Ag) on five veins that had enough drill density to support mineral resources. Numerous other veins on the property have yet to be drilled sufficiently to allow estimation of additional resources.

*El Quevar*

In April 2020, we entered into the Earn-in Agreement with Barrick, pursuant to which Barrick has acquired an option to earn a 70% interest in the Company's El Quevar project located in the Salta Province of Argentina (the "Option"). For a description of the Earn-In Agreement, see "*Our Material Mining Properties - El Quevar*" in our Annual Report Form 10-K for the year ended December 31, 2021. During the earn-in period, in addition to required exploration spending, Barrick will fund the holding costs of the property, which will qualify as work expenditures. Barrick will reimburse us for expenses related to maintaining the exploration camp, which will initially be run by us under a service agreement, and which will also qualify as work expenditures. As of December 31, 2022, approximately \$0.2 million of expenses incurred by us are expected to be reimbursable under the Earn-in Agreement. Barrick reimbursed this amount to us in January 2023. Barrick met the minimum \$1.0 million in work expenditures required by the Earn-in Agreement in September of 2021. If Barrick elects to terminate the Earn-In Agreement, we will become responsible for future holding costs and exploration spending related to the property.

In June 2022, Barrick completed a 5-hole, 1300-meter initial diamond drill program to test highest priority targets at El Quevar. Barrick reported to us the occurrence of vuggy silica alteration, which is commonly associated with high sulfidation epithermal gold-silver deposits, in all of the drill holes. Final assay results confirm the occurrence of potentially economic gold values in vuggy silica in one of the drill holes.

*Sarita Este / Desierto*

In December 2019, we entered into an option agreement with Cascadero Minerals Corporation ("Cascadero") to acquire a 51% interest in the gold/copper Sarita Este concession, located in the northwest portion of the Province of Salta, Argentina, adjacent to the Taca Taca project owned by First Quantum Minerals. The option agreement calls for us to spend

a total \$2.5 million over four years including a minimum of 2,000 meters of drilling. We have exceeded the drilling requirement and have spent approximately \$3.0 million since entering into the agreement in December 2019. We have notified Cascadero of our intention to proceed with the joint venture as 51% owners of the concession.

In the fourth quarter of 2021, we completed the first drill program ever conducted at Sarita Este, which involved drilling 10 diamond drill holes totaling 2,518 meters to explore untested epithermal gold-silver and copper porphyry targets. In January 2022, we announced assay results from the drill program, including the potential of an oxidized gold system. We completed a second drill program in June 2022 designed to offset and further delineate mineralization associated with the gold interval encountered in the first drill program. In August 2022, we released partial results from the second drill program which point to a potentially economic shallow oxidized gold system. Our third drill program, completed in October 2022, returned results confirming that the mineralization at the Sico epithermal targets is concentrated on the eastern flank of the prospect.

The Desierto concessions (Desierto 1 and 2) which are adjacent and south of the Sarita Este concession are subject to an option agreement with a third-party partial owner and a proposed joint venture agreement also between the Company and Cascadero. The Desierto 1 concession is the object of a legal dispute between the Company and the Salta Ministry of Mines in which the Company is disputing the cancellation of the concession by the province. The dispute is expected to be resolved by mid-year 2023.

## **Results of Operations**

For the results of operations discussed below, we compare the results of operations for the year ended December 31, 2022, to the results of operations for the year ended December 31, 2021.

*Revenue from the sale of metals.* We recorded \$23.3 million in revenue for the year ended December 31, 2022, all from the sale of gold and silver bearing doré from the Rodeo Operation in Mexico. We recorded \$25.6 million in revenue from doré sales for the year ended December 31, 2021.

*Costs of metals sold.* For the year ended December 31, 2022, we recorded \$17.5 million of costs of metals sold. We recorded \$13.3 million of costs of metals sold for the year ended December 31, 2021.

*Exploration Expense.* Our exploration expense, including work at Rodeo, Velardeña, Yoquivo, Sand Canyon and other properties, totaled \$9.6 million for the year ended December 31, 2022, including the cost of expanding a tailings facility at Velardeña and test mining at Velardeña. Our exploration expense totaled \$5.3 million for the year ended December 31, 2021. Exploration expense for both years was incurred primarily in Mexico and includes property holding costs, costs incurred by our local exploration offices, exploration and development project costs, and allocated corporate administrative expenses. The higher exploration expense for 2022 is primarily related to increased exploration and other costs at our Velardeña Properties and exploration expense at Yoquivo in Mexico and the Sarita Este property in Argentina during the period.

*Velardeña shutdown and care and maintenance costs.* We recorded \$1.4 million for each of the years ended December 31, 2022 and 2021, for expenses related to care and maintenance at our Velardeña Properties as the result of the suspension of mining and processing activities in November 2015.

*El Quevar Project Expense.* As discussed above, during April 2020 we entered into the Earn-In Agreement with Barrick, pursuant to which Barrick has acquired an option to earn a 70% interest in the El Quevar Property. During the earn-in period Barrick has and will continue to reimburse us for certain holding and maintenance costs related to the project. During the year ended December 31, 2022, we recorded an expense of approximately \$0.6 million primarily related to holding and evaluation costs for the Yaxtché deposit at the El Quevar Property, net of costs reimbursed. During the year ended December 31, 2021, we recorded an expense of approximately \$0.3 million primarily related to exploration, holding and evaluation costs for the Yaxtché deposit at the El Quevar Property, net of costs reimbursed. For both years,

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additional nominal costs incurred in Argentina and not related to the El Quevar Property are included in “*Exploration Expense*”, discussed above.

*Administrative Expense.* Administrative expenses totaled \$4.5 million for the year ended December 31, 2022, compared to \$4.8 million for the year ended December 31, 2021. Administrative expenses, including costs associated with being a public company, are incurred primarily by our corporate activities in support of the Rodeo Property, Velardeña Properties, El Quevar Property and our exploration portfolio. The \$4.5 million of administrative expenses we incurred during 2022 is comprised of \$2.0 million of employee compensation and directors’ fees, \$1.0 million of professional fees, and \$1.5 million of insurance, rents, travel expenses, utilities and other office costs. The \$4.8 million of administrative expenses we incurred during 2021 is comprised of \$2.5 million of employee compensation and directors’ fees, \$1.2 million of professional fees, and \$1.1 million of insurance, rents, travel expenses, utilities and other office costs.

*Stock based compensation.* During the year ended December 31, 2022, we incurred expense related to stock-based compensation in the amount of \$0.7 million compared to \$1.6 million for the year ended December 31, 2021. Stock based compensation varies from period to period depending on the number and timing of shares granted, the type of grant, the market value of the shares on the date of grant and other variables.

*Reclamation and accretion expense.* During each of the years ended December 31, 2022 and 2021, we incurred \$0.3 million of reclamation expense, related to the accretion of an asset retirement obligation at the Velardeña Properties.

*Other Operating Income, Net.* We recorded \$1.6 million and \$0.5 million of other operating income for the years ended December 31, 2022 and 2021 respectively, primarily related to the amortization of deferred income related to the option agreement for the sale of the Santa Maria property, as discussed above.

*Depreciation, depletion and amortization.* During the year ended December 31, 2022, we incurred depreciation, depletion and amortization expense of \$0.4 million compared to \$0.6 million for the year ended December 31, 2021. The lower depreciation recorded during 2022 was the result of various assets becoming fully depreciated during 2022.

*Interest and Other expense, net.* We recorded a nominal amount of interest and other expense, net for the year ended December 31, 2022. We recorded \$0.4 million for interest and other expense net for the year ended December 31, 2021, primarily related to the write-off of deferred costs related to the Lincoln Park Capital program.

*Gain (Loss) on Foreign Currency.* We recorded a \$0.3 million foreign currency gain and a \$0.2 million foreign currency gain for the years ended December 31, 2022 and 2021, respectively. Foreign currency gains and losses are primarily related to the effect of currency fluctuations on monetary assets net of liabilities held by our foreign subsidiaries that are denominated in currencies other than U.S. dollars.

*Income Taxes.* We recorded a \$88,000 income tax expense for the year ended December 31, 2022, and a \$462,000 income tax expense for the year ended December 31, 2021.

## **Liquidity, Capital Resources and Going Concern**

### *2023 Liquidity Forecast and Going Concern Qualification*

Our forecasted expenditures during the 12 months ending December 31, 2023, excluding Rodeo cost of metals sold which is included in our forecast of net operating margin discussed below, total approximately \$8.5 million, which is \$7.6 million lower than the \$16.1 million in expenditures incurred during 2022. These forecasted expenditures include: (i) exploration expenses of \$2.6 million, (ii) Velardeña care and maintenance costs of \$1.2 million, (iii) El Quevar spending (net of Barrick reimbursements) of \$0.8 million and (iv) administrative expense of \$3.9 million. The actual amount of cash expenditures that we incur during the twelve-month period ending December 31, 2023 may vary significantly from the amounts specified above and will depend on a number of factors, including variations in the anticipated care and

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maintenance costs at the Velardeña Properties or at El Quevar, and costs for continued exploration, project assessment, and advancement of our other exploration properties.

We do not currently have sufficient resources to meet our expected cash needs during the year ended December 31, 2023. At December 31, 2022, we had cash resources of approximately \$4.0 million. The forecasted net operating margin from the Rodeo Property during the year is expected to be between a loss of \$0.5 million and a positive margin of \$0.5 million. Net operating margin is defined as revenue from the sale of metals less the cost of metals sold which includes the full Torreon office G&A costs and project costs. Our estimate assumes average gold and silver prices per ounce during the period of \$1,800 and \$20.00, respectively. The actual amount that we receive in net operating margin from Rodeo during the period may vary significantly from the amounts specified above due to, among other things: (i) unanticipated variations in grade, (ii) unexpected challenges associated with our proposed mining plan, (iii) decreases in commodity prices below those used in calculating the estimates shown above, (iv) variations in expected recoveries, (v) increases in operating costs above those used in calculating the estimates shown above, or (vi) interruptions in mining at Rodeo.

To meet our liquidity needs during the year, we plan to sell non-core assets and seek equity financing, including through the use of our ATM or otherwise. The amount of cash that we need to raise from the ATM program and other equity raises and asset sales combined to cover forecast expenditures during the 12 months ended December 31, 2023 is between \$4.5 million and \$5.5 million.

There is no assurance that we will be successful in raising sufficient capital. At February 28, 2023, our aggregate cash and cash equivalents totaled approximately \$1.8 million. In the absence of sufficient asset sales, equity financing or other external funding the Company's cash balance is expected to be depleted in the second quarter of 2023. In that event, the Company may be forced to liquidate its business.

The consolidated financial statements have been prepared on a going concern basis under which an entity is considered to be able to realize its assets and satisfy its liabilities in the normal course of business. However, as noted above, our continuing long-term operations will be dependent upon our ability to secure sufficient funding to generate future profitable operations. The underlying value and recoverability of the amounts shown as property, plant and equipment in our consolidated financial statements are dependent on our ability to continue to generate positive cash flows from operations and to continue to fund exploration activities that would lead to additional profitable mining and processing activities or to generate proceeds from the disposition of property, plant and equipment.

The ability of the Company to maintain a positive cash balance for a period of 12 months beyond the filing date of the 2022 10-K is dependent upon its ability to generate sufficient cash flow from operations, reduce expenses, sell non-core assets, and raise sufficient funds through the ATM program and other equity sources. There can be no assurance the Company will be successful in generating sufficient funds from these sources to maintain liquidity throughout the 12-month period. These material uncertainties cast significant doubt on the Company's ability to continue as a going concern. Therefore, the Company cannot conclude that substantial doubt does not exist as to the Company's ability to continue as a going concern for the twelve months following the filing date of the 2022 10-K. The financial statements do not include any adjustments relating to the recoverability and classification of recorded assets or liabilities which might be necessary should the Company not continue as a going concern.

### *2022 Liquidity Discussion*

At December 31, 2022, our aggregate cash and cash equivalents totaled \$4.0 million, compared to the \$12.2 million in similar assets held at December 31, 2021. The decrease is the result of the following expenditures and cash inflows for the year ended December 31, 2022. Expenditures totaled \$16.1 million from the following:

- \$9.6 million in exploration expenditures, including \$4.3 million of exploration and mining activities at our Rodeo Property along with other work at the Yoquivo, Sarita Este and other properties, and \$3.3 million to support the potential restart of Velardeña;
- \$1.4 million in care and maintenance costs at the Velardeña Properties;
- \$0.6 million in exploration and evaluation activities, care and maintenance and property holding costs at the El Quevar project, net of reimbursements from Barrick; and
- \$4.5 million in general and administrative expenses;

The above expenditures were offset by cash inflows of \$7.9 million from the following:

- \$5.7 million of net operating margin from the Rodeo operation (defined as revenue from the sale of metals less the cost of metals sold);
- \$1.0 million from the exercise of warrants issued in prior offerings (as further described in Note 16);
- \$0.8 million, net of fees from the ATM Program (as further described in Note 16); and
- \$0.4 million related to changes in working capital due primarily to a decrease in inventories and an increase in accounts payable related to the Rodeo operation partially offset by an increase in value added tax receivables also associated with the Rodeo operation.

### **Critical Accounting Policies and Estimates**

The selection and application of accounting policies is an important process that has developed as our business activities have evolved and as the accounting rules have changed. Accounting rules generally do not involve a selection among alternatives, but involve an implementation and interpretation of existing rules, and the use of judgment, to the specific set of circumstances existing in our business. Discussed below are the accounting policies that we believe are critical to our financial statements due to the degree of uncertainty regarding the estimates or assumptions involved and the magnitude of the asset, liability, revenue or expense being reported.

#### *Income Recognition*

We record income from farm-out agreements with third parties in accordance with Accounting Standards Codification (“ASC”) 610 and “ASC 606”, which generally provides that income be recognized as the Company performs its obligations according to the contract. In most instances, this will result in income being recognized ratably over a period of time relating to the receipt of periodic payments as the Company satisfies its performance obligation.

#### *Mineral Reserves*

We do not have defined mineral reserves pursuant to Regulation S-K subpart 1300 (“S-K 1300”) and all of our mining properties are in the exploration stage. When and if we determine that a mining property has mineral reserves,

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subsequent development costs will be capitalized to those properties. When we commence extraction at our mining properties, capitalized costs would be charged to operations using the units-of-production method. We cannot be certain that any part of the deposits at our properties will ever be confirmed or converted into S-K 1300 compliant reserves.

### *Asset Retirement Obligations*

We record asset retirement obligations in accordance with “ASC” 410, “Asset Retirement and Environmental Obligations” (“ASC 410”), which establishes a uniform methodology for accounting for estimated reclamation and abandonment costs. According to ASC 410, the fair value of a liability for an asset retirement obligation (“ARO”) is recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. To the extent that the ARO is related to fixed plant and equipment, an offsetting asset retirement cost is capitalized as part of the carrying value of the assets with which it is associated and depreciated over the useful life of the asset.

### *Long-Lived Assets*

Long-lived assets are recorded at cost and per the guidance of “ASC” 360 we assess the recoverability of our long-lived assets, including goodwill, whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. If the sum of estimated future net cash flows on an undiscounted basis is less than the carrying amount of the related asset, impairment is considered to exist. The related impairment loss is measured by comparing estimated future net cash flows on a discounted basis or by comparing other market indicators to the carrying amount of the asset.

### *Functional Currency*

Our revenue and external funding are primarily denominated in U.S. dollars. Additionally, substantially all of our significant expenditures are made with reference to U.S. dollars. Accordingly, the Company and its subsidiaries use the U.S. dollar as their functional and reporting currency.

## **ITEM 7A: QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

### **Interest Rate Risk**

We invest substantially all of our excess cash with high credit-quality financial institutions or in U.S. government and debt securities rated “investment grade” or better. The rates received on such investments may fluctuate with changes in economic conditions. Based on the average cash, restricted cash, investments and restricted investment balances outstanding during the year ended December 31, 2022, a 1.0% decrease in interest rates would have resulted in a reduction in interest income for the period of less than approximately \$0.1 million.

### **Foreign Currency Exchange Risk**

Although most of our expenditures are in U.S. dollars, certain purchases of labor, supplies and capital assets are denominated in other currencies. As a result, currency exchange fluctuations may impact the costs of our mining and exploration activities. To reduce this risk, we maintain minimum cash balances in foreign currencies and complete most of our purchases in U.S. dollars.

### **Commodity Price Risk**

We are primarily engaged in the exploration and mining of properties containing silver, gold, zinc, lead and other minerals. As a result, decreases in the price of any of these metals have the potential to negatively impact our ability to establish reserves and mine on our properties. For further detail regarding the effect on our expected cash flow from

fluctuations in silver and gold prices, see “*Item 7: Management’s Discussion and Analysis—Liquidity and Capital Resources*” above.

#### **ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

The consolidated financial statements and supplementary information filed as part of this Item 8 are listed under Part IV, Item 15, “Exhibits, Financial Statement Schedules” and contained in this annual report on Form 10-K at page F-1.

#### **ITEM 9: CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

#### **ITEM 9A: CONTROLS AND PROCEDURES**

##### **Disclosure Controls and Procedures**

Our management has evaluated, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, the effectiveness of our disclosure controls and procedures as of December 31, 2022.

Based on that evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that, as of December 31, 2022, our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) were effective and designed to provide reasonable assurance that (i) information required to be disclosed in our reports filed under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and (ii) information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

The management of Golden Minerals, including the Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of our controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected.

##### **Management’s Report on Internal Control over Financial Reporting**

Management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework*. Based on our assessment, management has concluded that, as of December 31, 2022, our internal control over financial reporting is effective based on these criteria.

**Changes in Internal Control over Financial Reporting**

There have been no changes in our internal control over financial reporting that occurred during the period covered by this report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**ITEM 9B: OTHER INFORMATION**

None.

**ITEM 9C: DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS**

Not applicable.

### **PART III**

#### **ITEM 10: DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE**

Incorporated by reference from the information in our proxy statement for the 2023 Annual Meeting of Stockholders, which we will file with the Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

We have adopted a code of ethics that applies to all of our employees, including the principal executive officer, principal financial officer, principal accounting officer, and those of our officers performing similar functions. The full text of our code of ethics can be found on the Corporate Governance page on our website. In the event our Board of Directors approves an amendment to or waiver from any provision of our code of ethics, we will disclose the required information pertaining to such amendment or waiver on our website.

#### **ITEM 11: EXECUTIVE COMPENSATION**

Incorporated by reference from the information in our proxy statement for the 2023 Annual Meeting of Stockholders, which we will file with the Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

#### **ITEM 12: SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

Incorporated by reference from the information in our proxy statement for the 2023 Annual Meeting of Stockholders, which we will file with the Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

#### **ITEM 13: CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE**

Incorporated by reference from the information in our proxy statement for the 2023 Annual Meeting of Stockholders, which we will file with the Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

#### **ITEM 14: PRINCIPAL ACCOUNTING FEES AND SERVICES**

Incorporated by reference from the information in our proxy statement for the 2023 Annual Meeting of Stockholders, which we will file with the Securities and Exchange Commission within 120 days of the end of the fiscal year to which this report relates.

## PART IV

### ITEM 15: EXHIBITS, FINANCIAL STATEMENT SCHEDULES

- a. Documents filed as part of this annual report on Form 10-K or incorporated by reference:
- (1) Our consolidated financial statements are listed on the “Index to Financial Statements” on Page F-1 to this report.
  - (2) Financial Statement Schedules (omitted because they are either not required, are not applicable, or the required information is disclosed in the notes to the financial statements or related notes).
  - (3) The following exhibits are filed with this annual report on Form 10-K or incorporated by reference.

### ITEM 16: FORM 10-K SUMMARY

Not applicable

## EXHIBITS

Exhibit Number	Description
3.1	<a href="#">Amended and Restated Certificate of Incorporation of Golden Minerals Company. (1)</a>
3.2	<a href="#">First Amendment to the Amended and Restated Certificate of Incorporation of Golden Minerals Company dated September 2, 2011. (2)</a>
3.3	<a href="#">Second Amendment to the Amended and Restated Certificate of Incorporation of Golden Minerals Company dated May 19, 2016. (3)</a>
3.4	<a href="#">Third Amendment to the Amended and Restated Certificate of Incorporation of Golden Minerals Company dated June 11, 2020. (26)</a>
3.5	<a href="#">Amended and Restated Bylaws of Golden Minerals Company. (4)</a>
4.1	<a href="#">Form of Series A Warrant. (5)</a>
4.2	<a href="#">Form of Series B Warrant. (5)</a>
4.3	<a href="#">Form of Series A Warrant. (6)</a>
4.4	<a href="#">Form of Series B Warrant. (6)</a>
4.5	<a href="#">Description of Registrant’s Securities. (25)</a>
10.1	<a href="#">Form of Indemnification Agreement. (1)</a>
10.2	<a href="#">Form of Change of Control Agreement. (1)</a>
10.3	<a href="#">Golden Minerals Company Amended and Restated 2009 Equity Incentive Plan. (7)</a>
10.4	<a href="#">Form of Restricted Stock Award Agreement Pursuant to the 2009 Equity Incentive Plan. (8)</a>
10.5	<a href="#">Non-Employee Directors Deferred Compensation and Equity Award Plan. (8)</a>
10.6	<a href="#">Form of Non-Qualified Stock Option Award Agreement Pursuant to the Amended and Restated 2009 Equity Incentive Plan. (9)</a>
10.7	<a href="#">Registration Rights Agreement by and among Golden Minerals Company, Sentient Global Resources Fund III, L.P., SGRF III Parallel I, L.P. and Sentient Global Resources Fund IV, L.P. dated as of October 7, 2011. (10)</a>

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10.8	<a href="#">Registration Rights Agreement between Golden Minerals Company and Sentient Global Resources Fund IV, L.P. dated as of September 19, 2012. (11)</a>
10.9	<a href="#">Registration Rights Agreement between Golden Minerals Company and Sentient Global Resources Fund IV, L.P. dated as of September 10, 2014. (12)</a>
10.10	<a href="#">Registration Rights Agreement between Golden Minerals Company and Sentient Global Resources Fund IV, L.P. dated as of February 11, 2016. (13)</a>
10.11	<a href="#">Registration Rights Agreement between Golden Minerals Company and Sentient Global Resources Fund IV, L.P. dated as of June 10, 2016. (14)</a>
10.12	<a href="#">Golden Minerals Company 2013 Key Employee Long-Term Incentive Plan. (15)</a>
10.13	<a href="#">Form of Unit Agreement Pursuant to the 2013 Key Employee Long-Term Incentive Plan. (16)</a>
10.14	<a href="#">At the Market Offering Agreement, dated as of December 20, 2016, between Golden Minerals Company and H.C. Wainwright &amp; Co., LLC. (17)</a>
10.15	<a href="#">Amendment to At the Market Offering Agreement, dated as of November 23, 2008. (18)</a>
10.16	<a href="#">Amendment to At the Market Offering Agreement, dated as of December 11, 2020. (19)</a>
10.17	<a href="#">Registration Rights Agreement, dated as of May 9, 2018, between Golden Minerals Company and Lincoln Park Capital Fund, LLC. (20)</a>
10.18	<a href="#">Earn-In Agreement among Golden Minerals Company, ASM Services S.A.R.L., Silex Spain, S.L., Silex Argentina, S.A. and Barrick Gold Corporation, dated April 9, 2020. (21)</a>
10.19	<a href="#">Option Agreement by and among Golden Minerals Company, Minera de Cordilleras, S. de R.L. de C.V., Fabled Silver Gold Corp., and Fabled Silver Gold Mexico Corp., S.A. de C.V., dated December 4, 2020. (22)</a>
16.1	<a href="#">Letter from Plante &amp; Moran, PLLC, dated as of September 8, 2022. (23)</a>
21.1	<a href="#">Subsidiaries of the Company. *</a>
23.1	<a href="#">Consent of Armanino, LLP. *</a>
23.2	<a href="#">Consent of Tetra Tech. *</a>
23.3	<a href="#">Consent of Aaron Amoroso. *</a>
23.4	<a href="#">Consent of Plante &amp; Moran, PLLC. *</a>
23.5	<a href="#">Consent of Matthew Booth. *</a>
31.1	<a href="#">Certification of Chief Executive Officer of Periodic Report Pursuant to Rule 13a-14(a) and Rule 15d-14(a) (Section 302 of the Sarbanes-Oxley Act of 2002). *</a>
31.2	<a href="#">Certification of Chief Financial Officer of Periodic Report Pursuant to Rule 13a-14(a) and Rule 15d-14(a) (Section 302 of the Sarbanes-Oxley Act of 2002). *</a>
32.1	<a href="#">Certificate of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. 1350 (Section 906 of the Sarbanes-Oxley Act of 2002). **</a>
96.1	<a href="#">Rodeo Project – Technical Report Summary. *</a>
96.2	<a href="#">Velardeña Project – Technical Report Summary. (24)</a>
96.3	<a href="#">Yoquivo Project – Technical Report Summary. *</a>
101.INS	Inline XBRL Instance Document. *
101.SCH	Inline XBRL Taxonomy Extension Schema Document. *
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document. *
101.DEF	Inline XBRL Taxonomy Definition Document. *
101.LAB	Inline XBRL Taxonomy Label Linkbase Document. *
101.PRE	Inline XBRL Taxonomy Presentation Linkbase Document. *

- (1) Incorporated by reference to our Current Report on Form 8-K filed March 30, 2009.
- (2) Incorporated by reference to our Current Report on Form 8-K filed September 9, 2011.
- (3) Incorporated by reference to our Current Report on Form 8-K filed on May 20, 2016.
- (4) Incorporated by reference to our Current Report on Form 8-K filed on March 1, 2023.
- (5) Incorporated by reference to our Current Report on Form 8-K filed on July 19, 2019.
- (6) Incorporated by reference to our Current Report on Form 8-K filed on April 23, 2020.
- (7) Incorporated by reference to our Quarterly Report on Form 10-Q filed August 6, 2014.
- (8) Incorporated by reference to our Quarterly Report on Form 10-Q filed August 10, 2009.
- (9) Incorporated by reference to our Quarterly Report on Form 10-Q filed May 4, 2010.
- (10) Incorporated by reference to our Current Report on Form 8-K filed October 11, 2011.
- (11) Incorporated by reference to our Current Report on Form 8-K filed September 19, 2012.
- (12) Incorporated by reference to our Current Report on Form 8-K filed September 10, 2014.
- (13) Incorporated by reference to our Current Report on Form 8-K filed on February 18, 2016.
- (14) Incorporated by reference to our Current Report on Form 8-K filed on June 14, 2016.
- (15) Incorporated by reference to our Current Report on Form 8-K filed December 18, 2013.
- (16) Incorporated by reference to our Quarterly Report on Form 10-Q filed August 11, 2016.
- (17) Incorporated by reference to our Current Report on Form 8-K filed on December 20, 2016.
- (18) Incorporated by reference to our Current Report on Form 8-K filed on November 23, 2018.
- (19) Incorporated by reference to our Current Report on Form 8-K filed on December 11, 2020.
- (20) Incorporated by reference to our Current Report on Form 8-K filed on May 9, 2018.
- (21) Incorporated by reference to our Quarterly Report on Form 10-Q filed on May 6, 2020.
- (22) Incorporated by reference to our Current Report on Form 8-K filed on December 10, 2020.
- (23) Incorporated by reference to our Current Report on Form 8-K filed on September 9, 2022.
- (24) Incorporated by reference to our Annual Report on Form 10-K filed on March 23, 2022.
- (25) Incorporated by reference to our Annual Report on Form 10-K filed on February 27, 2020.
- (26) Incorporated by reference to our Current Report on Form 8-K filed on June 12, 2020.

\* Filed herewith.

\*\* Furnished herewith.



**GOLDEN MINERALS COMPANY**  
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders  
Golden Minerals Company  
Golden, Colorado

***Opinion on the Consolidated Financial Statements***

We have audited the accompanying consolidated balance sheet of Golden Minerals Company (the Company) as of December 31, 2022, and the related consolidated statements of operations, changes in equity, and cash flows for the year ended December 31, 2022, and the related notes (collectively referred to as the consolidated financial statements).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022, and the results of its operations and its cash flows for the year ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

***Going Concern***

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the consolidated financial statements, the Company has suffered recurring losses from operations, incurred negative cash flows from operating activities, and has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters also are described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

***Basis for Opinion***

The Company's management is responsible for these consolidated financial statements. Our responsibility is to express an opinion on the Company's consolidated financial statements. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audit provides a reasonable basis for our opinion.

***Critical Audit Matter***

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that were communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

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**Asset Retirement and Reclamation Liabilities — Refer to Note 12 to the Consolidated Financial Statements**

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**Critical Audit Matter Description**

Estimates of mineral resources, combined with future mine plans, are used to determine mine closure dates utilized in recording the fair value of asset retirement obligations. Since the asset retirement liability represents the present value of the expected future cash outlays, a significant change in mineral resources can impact mine lives, plans and extensions which in turn, could have a substantial effect on the recorded liability. The Company performs an evaluation of its mineral resource estimates by mine on a periodic basis, in addition to routine assessments. The determination of mineral resources requires management, with the support of management's experts, to make significant estimates and assumptions related to key inputs including the plan for the production of mineral resources and ultimate mine closure (collectively "mineral resource inputs"). Changes in any of the judgments or assumptions related to the mineral resource inputs can have a significant impact with respect to the valuation of asset retirement obligations. The Company's asset retirement obligation balance was approximately \$4.0 million as of December 31, 2022.

Given the significant judgments and assumptions made by management to estimate mineral resources and the sensitivity of changes to mineral resource inputs on the Company's recorded asset retirement obligations, performing audit procedures to evaluate the reasonableness of management's judgments and estimates related to the mineral resource inputs required a high degree of auditor judgment and an increased extent of effort.

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**How the Critical Audit Matter Was Addressed in the Audit**

Our principal audit procedures related to the Company's asset retirement and reclamation liabilities included the following:

- We obtained an understanding of management's process to develop their estimate of mineral resources and the related mine closure dates and tested the accuracy of key data used in their estimation process.
- We evaluated the experience, qualifications, and objectivity of management's experts, including external engineers.
- We involved valuation specialists to assist in evaluating the appropriateness of the Company's estimate of the credit-adjusted-risk-free rate based on the mineral resource inputs.
- We performed sensitivity analysis around the significant assumptions used in the valuation of the asset retirement and reclamation liabilities.
- We evaluated the Company's calculation of the changes in asset retirement obligations and compared significant assumptions to other sources of audit evidence.
- We also evaluated the adequacy of the Company's disclosures in Note 12 in relation to the Company's asset retirement and reclamation liabilities.

/s/ Armanino <sup>LLP</sup>  
Dallas, Texas

March 22, 2023

We have served as the Company's auditor since 2022.

## **1 Report of Independent Registered Public Accounting Firm**

To the Stockholders and Board of Directors  
Golden Minerals Company

### ***Opinion on the Financial Statements***

We have audited the accompanying consolidated balance sheet of Golden Minerals Company (the “Company”) as of December 31, 2021; the related consolidated statements of operations, changes in equity, and cash flows for the year ended December 31, 2021; and the related notes (collectively referred to as the “financial statements”).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021, and the results of its operations and its cash flows for the year ended December 31, 2021 in conformity with accounting principles generally accepted in the United States of America.

### ***Basis for Opinion***

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (the “PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ Plante & Moran, PLLC

We served as the Company’s auditor from 2013 to 2022.

Denver, Colorado  
March 23, 2022

**GOLDEN MINERALS COMPANY**  
**CONSOLIDATED BALANCE SHEETS**  
**(Expressed in United States dollars)**

	<u>December 31,</u> <u>2022</u>	<u>December 31,</u> <u>2021</u> <u>(Restated)*</u>
	<u>(in thousands, except share data)</u>	
<b>Assets</b>		
<b>Current assets</b>		
Cash and cash equivalents (Note 5)	\$ 3,972	\$ 12,229
Short-term investments (Note 5)	20	67
Inventories, net (Note 7)	1,371	1,608
Value added tax receivable, net (Note 8)	1,465	1,256
Prepaid expenses and other assets (Note 6)	1,142	1,179
Total current assets	7,970	16,339
Property, plant and equipment, net (Note 9)	6,416	6,627
Investments (Note 5)	225	—
Other long-term assets (Note 10)	333	747
Total assets	<u>\$ 14,944</u>	<u>\$ 23,713</u>
<b>Liabilities and Equity</b>		
<b>Current liabilities</b>		
Accounts payable and other accrued liabilities (Note 11)	\$ 3,709	\$ 3,509
Deferred revenue (Note 9)	—	1,469
Other current liabilities (Note 13)	640	721
Total current liabilities	4,349	5,699
Asset retirement and reclamation liabilities (Note 12)	3,993	3,569
Other long-term liabilities (Note 13)	122	353
Total liabilities	<u>8,464</u>	<u>9,621</u>
<b>Commitments and contingencies (Note 20)</b>		
<b>Equity (Note 16)</b>		
Common stock, \$.01 par value, 350,000,000 shares authorized; 170,258,853 and 162,804,612 shares issued and outstanding respectively	1,703	1,628
Additional paid-in capital	542,737	540,518
Accumulated deficit	(537,960)	(528,054)
Shareholders' equity	6,480	14,092
Total liabilities and equity	<u>\$ 14,944</u>	<u>\$ 23,713</u>

\* See Note 4

The accompanying notes form an integral part of these consolidated financial statements.

**GOLDEN MINERALS COMPANY**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**  
(Expressed in United States dollars)

	Year Ended December 31,	
	2022	2021
(in thousands, except per share data)		
Revenue:		
Sale of metals (Note 17)	\$ 23,285	\$ 25,596
Total revenue	<u>23,285</u>	<u>25,596</u>
Costs and expenses:		
Cost of metals sold (exclusive of depreciation shown below) (Note 17)	(17,538)	(13,311)
Exploration expense	(9,617)	(5,260)
El Quevar project expense	(579)	(342)
Velardeña care and maintenance costs	(1,428)	(1,409)
Administrative expense	(4,496)	(4,821)
Stock-based compensation	(744)	(1,593)
Reclamation expense	(282)	(262)
Other operating income, net	1,622	547
Depreciation and amortization	(369)	(611)
Total costs and expenses	<u>(33,431)</u>	<u>(27,062)</u>
Loss from operations	(10,146)	(1,466)
Other income (expense):		
Interest and other expense, net (Note 18)	(11)	(373)
Gain on foreign currency transactions	339	206
Total other income (expense)	<u>328</u>	<u>(167)</u>
Loss from operations before income taxes	(9,818)	(1,633)
Income taxes (Note 15)	(88)	(462)
Net loss	<u>\$ (9,906)</u>	<u>\$ (2,095)</u>
Net loss per common share - basic	<u>\$ (0.06)</u>	<u>\$ (0.01)</u>
Weighted-average shares outstanding - basic (1)	<u>165,525,402</u>	<u>161,942,970</u>

(1) Potentially dilutive shares have not been included because to do so would be anti-dilutive.

The accompanying notes form an integral part of these consolidated financial statements.

**GOLDEN MINERALS COMPANY**  
**CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY**  
**(Expressed in United States dollars)**

	<u>Common Stock</u>		<u>Additional Paid-in Capital</u>	<u>Accumulated Deficit</u>	<u>Total Equity</u>
	<u>Shares</u>	<u>Amount</u>			
	(in thousands except share data)				
Balance, December 31, 2020	157,512,652	\$ 1,575	\$ 536,263	\$ (525,866)	\$ 11,972
Stock compensation accrued and restricted stock awards granted (Note 16)	335,000	3	1,590	—	1,593
Shares issued under the at-the-market offering agreement, net (Note 16)	1,856,960	19	1,681	—	1,700
Warrants exercised (Note 16)	3,100,000	31	984	—	1,015
Net loss	—	—	—	(2,095)	(2,095)
Balance, December 31, 2021	162,804,612	\$ 1,628	\$ 540,518	\$ (527,961)	\$ 14,185
Adjustment related to correction of immaterial error (Note 4)	—	—	—	(93)	(93)
Adjusted balance at December 31, 2021 (Restated)	<u>162,804,612</u>	<u>1,628</u>	<u>540,518</u>	<u>(528,054)</u>	<u>14,092</u>
Stock compensation accrued and restricted stock awards granted (Note 16)	550,000	6	738	—	744
KELTIP shares issued net of shares relinquished to cover withholding taxes (Note 16)	1,123,380	11	(239)	—	(228)
Shares issued under the at-the-market offering agreement, net (Note 16)	2,780,861	28	700	—	728
Warrants exercised (Note 16)	3,000,000	30	1,020	—	1,050
Net loss	—	—	—	(9,906)	(9,906)
Balance, December 31, 2022	<u>170,258,853</u>	<u>\$ 1,703</u>	<u>\$ 542,737</u>	<u>\$ (537,960)</u>	<u>\$ 6,480</u>

The accompanying notes form an integral part of these consolidated financial statements.

**GOLDEN MINERALS COMPANY**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
**(Expressed in United States dollars)**

	<u>Year Ended December 31,</u>	
	<u>2022</u>	<u>2021</u>
	(in thousands)	
Cash flows (used in) from operating activities:		
Net cash (used in) from operating activities (Note 19)	\$ (9,657)	\$ 1,414
Cash flows (used in) from investing activities:		
Proceeds from sale of assets	125	17
Investment in Golden Gryphon Explorations Inc. (Note 5)	(225)	—
Acquisitions of property, plant and equipment	(52)	(1,620)
Net cash used in investing activities	\$ (152)	\$ (1,603)
Cash flows from financing activities:		
Proceeds from issuance of common stock, net of issuance costs	1,780	2,714
Common stock shares relinquished to pay taxes	(228)	—
Net cash from financing activities	\$ 1,552	\$ 2,714
Net (decrease) increase in cash and cash equivalents	(8,257)	2,525
Cash and cash equivalents, beginning of period	12,229	9,704
Cash and cash equivalents, end of period	<u>\$ 3,972</u>	<u>\$ 12,229</u>

The accompanying notes form an integral part of these consolidated financial statements.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(Expressed in United States dollars)**

**1. Nature of Operations**

The Company is a mining company, holding a 100% interest in the Rodeo property in Durango State, Mexico (the “Rodeo Property”), a 100% interest in the Velardeña and Chicago precious metals mining properties and associated oxide and sulfide processing plants in the state of Durango, Mexico (the “Velardeña Properties”), a 100% interest in the El Quevar advanced exploration silver property in the province of Salta, Argentina, which is subject to the terms of the April 9, 2020 earn-in agreement (the “Earn-in Agreement”) pursuant to which Barrick Gold Corporation (“Barrick”) has the option to earn a 70% interest in the El Quevar project (see Note 9), and a diversified portfolio of precious metals and other mineral exploration properties located primarily in or near historical precious metals producing regions of Mexico, Argentina and Nevada. The Rodeo Property, Velardeña Properties, the Yoquivo property and the El Quevar advanced exploration property are the Company’s only material properties.

The Company is primarily focused on (i) mining operations at the Rodeo Property, (ii) exploration activities at the Yoquivo property, and (iii) further studies of a potential restart plan for the Velardeña mine, including the possible use of bio-oxidation to improve payable gold recovery. The Company is also focused on advancing the El Quevar exploration property in Argentina through the Earn-in Agreement with Barrick and continuing to evaluate and search for mining opportunities in North America (including Mexico) with near-term prospects of mining, and particularly for properties within reasonable haulage distances of our processing plants at the Velardeña Properties. The Company is also reviewing strategic opportunities, focusing primarily on development or operating properties in North America, including Mexico.

The Company began mining activities at the Rodeo Property during December 2020 and began processing mined material from Rodeo at the Velardeña plant in January 2021. The employees at the Rodeo and Velardeña Properties, in addition to those who operate the plant that processes the Rodeo mined material, include an operations group, an administrative group and an exploration group to continue to advance the Company’s plans in Mexico and to provide oversight for corporate compliance activities as well as maintaining and safeguarding the longer-term value of the Velardeña Properties assets.

The Company is considered an exploration stage issuer under the criteria set forth by the SEC under Regulation S-K subpart 1300 (“S-K 1300”) as the Company has not yet demonstrated the existence of mineral reserves at any of the Company’s properties. As a result, and in accordance with generally accepted accounting principles for exploration stage companies, all expenditures for exploration and evaluation of the Company’s properties are expensed as incurred. As such, the Company’s financial statements may not be comparable to the financial statements of mining companies that do have proven and probable mineral reserves. Such companies would typically capitalize certain development costs including infrastructure development and mining activities to access the ore. The capitalized costs would be amortized on a units-of-production basis as reserves are mined. The amortized costs are typically allocated to inventory and eventually to cost of sales as the inventories are sold. As the Company does not have proven and probable mineral reserves, substantially all expenditures at the Company’s Rodeo Property and the Velardeña Properties for mine construction activity, as well as operating costs associated with the mill facilities, and for items that do not have a readily identifiable market value apart from the mineralized material, have been expensed as incurred. Such costs are charged to cost of metals sold or project expense during the period depending on the nature of the costs. Certain costs may be reflected in inventories prior to the sale of the product. The Company cannot be certain that any deposits at any of its properties will ever be confirmed or converted into S-K 1300 compliant “reserves”.

**2. Liquidity, Capital Resources and Going Concern**

Our forecasted expenditures during the 12 months ending December 31, 2023, excluding Rodeo cost of metals sold which is included in our forecast of net operating margin discussed below, total approximately \$8.5 million, which is

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

\$7.6 million lower than the \$16.1 million in expenditures incurred during 2022. These forecasted expenditures include: (i) exploration expenses of \$2.6 million, (ii) Velardeña care and maintenance costs of \$1.2 million, (iii) El Quevar spending (net of Barrick reimbursements) of \$0.8 million and (iv) administrative expense of \$3.9 million. The actual amount of cash expenditures that we incur during the twelve-month period ending December 31, 2023 may vary significantly from the amounts specified above and will depend on a number of factors, including variations in the anticipated care and maintenance costs at the Velardeña Properties or at El Quevar, and costs for continued exploration, project assessment, and advancement of our other exploration properties.

We do not currently have sufficient resources to meet our expected cash needs during the year ended December 31, 2023. At December 31, 2022, we had cash resources of approximately \$4.0 million. The forecasted net operating margin from the Rodeo Property during the year is expected to be between a loss of \$0.5 million and a positive margin of \$0.5 million. Net operating margin is defined as revenue from the sale of metals less the cost of metals sold which includes the full Torreon office general and administrative costs and project costs. Our estimate assumes average gold and silver prices per ounce during the period of \$1,800 and \$20.00, respectively. The actual amount that we receive in net operating margin from Rodeo during the period may vary significantly from the amounts specified above due to, among other things: (i) unanticipated variations in grade, (ii) unexpected challenges associated with our proposed mining plan, (iii) decreases in commodity prices below those used in calculating the estimates shown above, (iv) variations in expected recoveries, (v) increases in operating costs above those used in calculating the estimates shown above, or (vi) interruptions in mining at Rodeo.

To meet our liquidity needs during the year, we plan to sell non-core assets and seek equity financing, including through the use of our ATM or otherwise. The amount of cash that we need to raise from the ATM program and other equity raises and asset sales combined to cover forecast expenditures during the 12 months ended December 31, 2023 is between \$4.5 million and \$5.5 million.

There is no assurance that we will be successful in raising sufficient capital. At February 28, 2023, our aggregate cash and cash equivalents totaled approximately \$1.8 million. In the absence of sufficient asset sales, equity financing or other external funding the Company's cash balance is expected to be depleted in the second quarter of 2023. In that event, the Company may be forced to liquidate its business.

The consolidated financial statements have been prepared on a going concern basis under which an entity is considered to be able to realize its assets and satisfy its liabilities in the normal course of business. However, as noted above, our continuing long-term operations will be dependent upon our ability to secure sufficient funding to generate future profitable operations. The underlying value and recoverability of the amounts shown as property, plant and equipment in our consolidated financial statements are dependent on our ability to continue to generate positive cash flows from operations and to continue to fund exploration activities that would lead to additional profitable mining and processing activities or to generate proceeds from the disposition of property, plant and equipment.

The ability of the Company to maintain a positive cash balance for a period of 12 months beyond the filing date of the 2022 10-K is dependent upon its ability to generate sufficient cash flow from operations, reduce expenses, sell non-core assets, and raise sufficient funds through the ATM program and other equity sources. There can be no assurance the Company will be successful in generating sufficient funds from these sources to maintain liquidity throughout the 12-month period. These material uncertainties cast significant doubt on the Company's ability to continue as a going concern. Therefore, the Company cannot conclude that substantial doubt does not exist as to the Company's ability to continue as a going concern for the twelve months following the filing date of the 2022 10-K. The financial statements do not include any adjustments relating to the recoverability and classification of recorded assets or liabilities which might be necessary should the Company not continue as a going concern.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

**3. Summary of Significant Accounting Policies**

The Company's consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of the Company's consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and related disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. The more significant areas requiring the use of management estimates and assumptions relate to mineral resources and related future metals prices that are the basis for future cash flow estimates utilized in impairment calculations; depreciation, depletion and amortization calculations; environmental reclamation and closure obligations; valuation allowances for deferred tax assets; and the fair value of financial instruments. The Company based its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Actual results may differ significantly from these estimates under different assumptions or conditions.

The policies adopted, considered by management to be significant, are summarized as follows:

*a. Basis of Consolidation*

All of the Company's consolidated subsidiaries are 100% owned and as such the Company does not have a noncontrolling interest in any of its subsidiaries. All intercompany transactions and balances have been eliminated at consolidation.

*b. Translation of Foreign Currencies*

The Company's revenue and external funding are primarily denominated in U.S. dollars. Substantially all of the Company's significant expenditures are made with reference to U.S. dollars. Accordingly, the Company and its subsidiaries use the U.S. dollar as their functional and reporting currency.

*c. Cash and Cash Equivalents*

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

*d. Inventories*

Finished goods inventories include doré bars. Doré bars are valued at the lower of the average cost incurred prior to the refining process, plus applicable refining costs, or net realizable value.

In-process inventories represent material that is currently in the process of being converted to a saleable product. In-process material is measured based on assays of the material fed into the process and the projected recoveries of the respective processing plants. In-process inventories are valued at the lower of the average cost, plus the in-process conversion costs, or net realizable value.

Stockpiles represent ore that has been extracted from the mine and is available for further processing. Costs are added to stockpiles based on current mining costs. Stockpiles are recorded at the lower of average cost or net realizable value, and carrying values are evaluated at least quarterly. Net realizable value represents the estimated future sales price

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

based on short-term and long-term metals price assumptions, less estimated costs to complete production and bring the product to sale.

Materials and supplies inventories are valued at the lower of average cost or net realizable value. Cost includes applicable taxes and freight. The Company routinely counts and evaluates its material and supplies to determine the existence of any obsolete stock that is subject to impairment.

*e. Mining Properties, Exploration and Development Costs*

The Company expenses general prospecting costs and the costs of acquiring and exploring unevaluated mining properties. When and if a mining property is determined to have proven and probable mineral reserves, subsequent development costs will be capitalized to mineral properties. For acquired mining properties with proven and probable mineral reserves, the Company will capitalize acquisition costs and subsequent development costs. When and if mining properties with proven and probable reserves are developed and operations commence, capitalized costs will be charged to operations using the units-of-production method over proven and probable reserves. Upon abandonment or sale of a mining property, all capitalized costs relating to the specific property are written off in the period abandoned or sold and a gain or loss is recognized in the accompanying Consolidated Statements of Operations.

As discussed in Note 1, the Company is considered an exploration stage company under the criteria set forth by the SEC since it has not yet demonstrated the existence of mineral reserves at any of the Company's properties. As the Company does not have proven and probable mineral reserves, substantially all expenditures at the Company's Rodeo Property and the Velardeña Properties for mine construction activity, as well as operating costs associated with the mill facilities, and for items that do not have a readily identifiable market value apart from the mineral resources, have been expensed as incurred. Such costs are charged to cost of metals sold or project expense during the period depending on the nature of the costs. Certain costs may be reflected in inventories prior to the sale of the product.

On a quarterly basis the Company evaluates its exploration properties to determine if they meet the Company's minimum requirements for continued evaluation. The rights to the properties that do not meet the minimum requirements are relinquished and the carrying values, if any, are written off and reflected in "Exploration expense" on the accompanying Consolidated Statements of Operations.

*f. Property, Plant and Equipment and Long-Lived Asset Impairment*

Buildings are depreciated using the straight-line method over the estimated useful lives of the buildings, typically 30 to 40 years, or the estimated life of the mine, whichever is shorter. Mining equipment and machinery, excluding the plant, are depreciated using the straight-line method over useful lives of three to eight years or the lease period, whichever is shorter. Other furniture and equipment are depreciated using the straight-line method over estimated useful lives of three to five years.

As discussed above, the Company does not have any properties with proven or probable mineral reserves.

Property, plant and equipment are recorded at cost and per the guidance of ASC 360 the Company assesses the recoverability of its property, plant and equipment, whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. If the sum of estimated future net cash flows on an undiscounted basis is less than the carrying amount of the related asset, impairment is considered to exist. The related impairment loss is measured by comparing estimated future net cash flows on a discounted basis or by comparing other market indicators to the carrying amount of the asset.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

The Company evaluated its remaining long-lived assets at December 31, 2022 and 2021, and determined that no impairment was incurred.

*g. Asset Retirement Obligations*

The Company records asset retirement obligations (“ARO”) in accordance with ASC 410, “Asset Retirement and Environmental Obligations” (“ASC 410”), which establishes a uniform methodology for accounting for estimated reclamation and abandonment costs. According to ASC 410, the fair value of an ARO is recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. An offsetting asset retirement cost (“ARC”) is capitalized as part of the carrying value of the assets with which it is associated and depreciated over the useful life of the asset (see Note 12).

The Company prepares estimates of the timing and amount of expected cash flows when an ARO is incurred. The fair value of the ARO is measured by discounting the expected cash flows using a discount rate that reflects the credit adjusted risk-free rate of interest. The Company records the fair value of an ARO when it is incurred and layer adjustments of the ARO are recorded as an adjustment to the corresponding ARC. The ARO is adjusted to reflect the passage of time (accretion cost) calculated by applying the discount rate implicit in the initial fair value measurement to the beginning-of-period carrying amount of the ARO. The Company records accretion costs to expense as incurred.

*h. Value Added Taxes*

The Company pays value added tax (“VAT”) in Mexico as well as other countries, primarily related to the Rodeo operation and exploration projects. For exploration projects, the amounts paid are generally charged to expense as incurred because of the uncertainty of recoverability. For the Rodeo operation, the Company records VAT paid as a recoverable asset, which appears in “*Value added tax receivable, net*” on the Consolidated Balance Sheets. Mexico law allows for certain VAT payments to be recovered through ongoing applications for refunds.

*i. Revenue Recognition*

The Company recognizes revenue from the “*Sale of Metals*” in the Consolidated Statements of Operations following the guidance of ASC 606. Under the terms of the Company’s agreement with its customer, title passes, and revenue is recognized by the Company when the contractual performance obligations of the parties are completed, generally at the time a provisional or final payment is made. Refining and transport costs, deducted from the final payments made, are treated as third party costs incurred after the transfer of control on provisional sales, and are therefore netted against revenue on an accrual basis.

*j. Stock Compensation*

Stock based compensation costs are recognized per the guidance of ASC 718, “Compensation — Stock Compensation” (“ASC 718”), using a graded vesting attribution method whereby costs are recognized over the requisite service period for each separately vesting portion of the award (see Note 16). Stock grants are valued at their grant date at fair value which in the case of options requires the use of the Black-Scholes option pricing model. Per ASC 718 the grants may be classified as equity grants or liability grants depending on the terms of the grant.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

*k. Leases*

Effective January 1, 2019 the Company adopted ASU 2016-02 and ASU No. 2018-11, which requires lessees to recognize a right-of-use asset and a lease liability for all leases with terms greater than twelve months. Leases are classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement.

*l. Net Income (Loss) per Share of Common Stock*

Basic income (loss) per share is computed by dividing net income (loss) available to holders of the Company's Common Stock by the weighted average number of shares of Common Stock outstanding for the period. Diluted income (loss) per share reflects the potential dilution that would occur if securities or other contracts to issue Common Stock were exercised or converted into Common Stock.

At December 31, 2022 and 2021, all potentially dilutive shares relating to warrants and stock compensation awards were excluded from the computation of diluted earnings per share because to include them would have been anti-dilutive.

*n. Income Taxes*

The Company accounts for income taxes in accordance with the provisions of ASC 740, "Income Taxes" ("ASC 740"), on a tax jurisdictional basis. The Company files United States and certain other foreign country income tax returns, and pays taxes reasonably determined to be due. The tax rules and regulations in these countries are highly complex and subject to interpretation. The Company's income tax returns are subject to examination by the relevant taxing authorities and in connection with such examinations, disputes can arise with the taxing authorities over the interpretation or application of certain tax rules within the country involved. In accordance with ASC 740, the Company identifies and evaluates uncertain tax positions, and recognizes the impact of uncertain tax positions for which there is a less than more-likely-than-not probability of the position being upheld when reviewed by the relevant taxing authority. Such positions are deemed to be unrecognized tax benefits and a corresponding liability is established on the balance sheet.

The Company classifies income tax related interest and penalties as income tax expense.

*o. Reclassifications*

Certain amounts and disclosures in prior years have been reclassified to conform to the 2022 presentation.

*p. Recently Adopted Standards*

On April 12, 2021, the SEC published a statement relating to accounting and reporting considerations for warrants issued by Special Purpose Acquisition Companies (SPACs). The SEC statement raised accounting and reporting considerations for all reporting entities that restrict the use of the exception under ASC 815-40-25-7 through 8 that allows for equity treatment, under certain conditions, for warrants that allow cash settlement in certain change of control transactions. The restriction put forth by the SEC would prevent equity treatment in cases where cash is received disproportionately between shareholders and warrant holders in such transactions. All of the outstanding warrants granted by the Company are recorded in equity at December 31, 2022 and December 31, 2021 following the guidance established by ASC Topic 815-40. The Company's warrants allow for the potential settlement in cash if certain extraordinary events are effected by the Company, including a 50% or greater change of control in the Company's common stock. Since those

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events have been deemed to be within the Company's control, the Company continues to apply equity treatment for these warrants.

*q. Recently Issued Pronouncements*

There were no new accounting pronouncements issued during 2022 that would affect the Company or have a material impact on its consolidated financial position or results of operations.

**4. Correction of Immaterial Error**

In the first quarter of 2022, the Company became aware that at December 31, 2021, it had failed to properly record a royalty tax payable in Mexico related to its Rodeo operations. The effect of correcting this error was to reduce beginning retained earnings by \$93,000 at January 1, 2022, as reflected in the accompanying Consolidated Statements of Changes in Equity.

The Company evaluated the materiality of the error described above from a qualitative and quantitative perspective. Based on such evaluation, the Company concluded that while the accumulation of the error was significant to the three months ended March 31, 2022, the correction would not be material to results of operations for the period ended December 31, 2021, nor did it have an effect on the trend of financial results, taking into account the requirements of SEC Staff Accounting Bulletin No. 108, Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements ("SAB 108"). Accordingly, the error was corrected for the December 31, 2021, Consolidated Balance Sheets included in this Form 10-K.

**5. Cash and Cash Equivalents and Short-Term Investments**

*Cash and Cash Equivalents*

Of the \$4.0 million reported as "Cash and cash equivalents" on the Consolidated Balance Sheet at December 31, 2022, the Company had approximately \$153,000 that was unavailable for use due to a court order freezing the bank accounts of one of the Company's subsidiaries in Mexico related to a lawsuit, as further described in Note 20. The restrictions imposed on the subsidiary's bank accounts do not impact the Company's ability to operate the Rodeo mine, which is held through a different Mexico subsidiary, or to continue with the Company's evaluation plans for a potential Velardeña mine restart or move forward with any of the Company's other exploration programs in Mexico.

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

*Short-Term Investments*

Short-term investments include investments with maturities greater than three months, but not exceeding 12 months, or highly liquid investments with maturities greater than 12 months that the Company intends to liquidate during the next 12 months for working capital needs.

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The following tables summarize the Company's short-term investments:

<u>December 31, 2022</u>	<u>Cost</u>	<u>Estimated Fair Value</u> <small>(in thousands)</small>	<u>Carrying Value</u>
Short-term investments:			
Trading securities	\$ 59	\$ 20	\$ 20
Total trading securities	59	20	20
Total short-term investments	<u>\$ 59</u>	<u>\$ 20</u>	<u>\$ 20</u>
<u>December 31, 2021</u>			
Short-term investments:			
Trading securities	\$ 59	\$ 67	\$ 67
Total trading securities	59	67	67
Total short-term investments	<u>\$ 59</u>	<u>\$ 67</u>	<u>\$ 67</u>

*Investment in Fabled*

The short-term investments at December 31, 2022 and 2021 consist of 1,000,000 common shares of Fabled Silver Gold Corp. ("Fabled") and 200,000 common shares of Fabled Copper Corp. Fabled is a junior mining company that entered into an option agreement with the Company to acquire the Company's option to earn a 100% interest in the Santa Maria mining claims located in Chihuahua, Mexico (see Note 9). The common shares were issued to the Company as partial consideration per the terms of the option agreement. The Fabled Copper Corp. shares were received in a spin-off of assets from Fabled that occurred on December 21, 2020, to which all existing shareholders of Fabled were entitled.

*Long-Term Investments*

Investments in equity securities are generally measured at fair value. Gains and losses for equity securities resulting from changes in fair value are recognized in current earnings. If an equity security does not have a readily determinable fair value, the Company may elect to measure the security at its cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment in the same issuer. At the end of each reporting period, the Company reassesses whether an equity investment security without a readily determinable fair value qualifies to be measured at cost less impairment, considers whether impairment indicators exist to evaluate if an equity investment security is impaired and, if so, records an impairment loss.

*Investment in Golden Gryphon Explorations Inc.*

Long-term investments at December 31, 2022 consist of approximately 1,500,000 shares of Golden Gryphon Explorations Inc. ("GGE"). In 2019, the Company entered into an earn-in agreement with GGE for the Sand Canyon project located in northwestern Nevada. In August 2022, pursuant to the second amendment to the earn-in agreement by which the earn-in period was extended an additional year, the Company purchased approximately 1.5 million shares of GGE's common stock for an aggregate purchase price of \$225,000.

For a description of the earn-in agreement, see "Exploration Properties - Sand Canyon" in our Annual Report Form 10-K for the year ended December 31, 2021.

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The GGE investment is accounted for at cost less impairment pursuant to ASC topic 321 as there is no ready market for the shares and it is recorded to non-current investments on the consolidated balance sheets. The Company concluded it was impractical to estimate fair value due to the absence of a public market for the stock. The Company identified no events or changes in circumstances that might have had a significant adverse effect on the carrying value of the investment and have therefore not recorded any impairment against the asset.

There were no long-term investments at December 31, 2021.

*Credit Risk*

The Company invests substantially all of its excess cash with high credit-quality financial institutions or in U.S. government or debt securities. Credit risk is the risk that a third party might fail to fulfill its performance obligations under the terms of a financial instrument. For cash and equivalents and investments, credit risk represents the carrying amount on the balance sheet. The Company mitigates credit risk for cash and equivalents and investments by placing its funds and investments with high credit-quality financial institutions, limiting the amount of exposure to each of the financial institutions, monitoring the financial condition of the financial institutions and investing only in government and corporate securities rated “investment grade” or better. The Company invests with financial institutions that maintain a net worth of not less than \$1 billion and are members in good standing with the Securities Investor Protection Corporation.

**6. Prepaid Expenses and Other Assets**

Prepaid expenses and other assets consist of the following:

	<b>December 31, 2022</b>	<b>December 31, 2021</b>
	(in thousands)	
Prepaid insurance	\$ 488	\$ 575
Current portion of deferred offering costs	45	—
Recoupable deposits and other	609	604
	<u>\$ 1,142</u>	<u>\$ 1,179</u>

The current portion of deferred offering costs at December 31, 2022, is associated with the ATM Agreement (see Note 16). The long-term portion of deferred offering costs at December 31, 2021, is recorded in “*Other long-term assets*” on the Consolidated Balance Sheet (see Note 10).

Recoupable deposits and other at December 31, 2022 and 2021, includes a receivable from Barrick for reimbursement of costs related to the Earn-in Agreement (see Note 9) of approximately \$0.2 million and \$0.3 million, respectively.

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**7. Inventories**

Inventories at the Velardeña Properties were as follows:

	<b>December 31, 2022</b>	<b>December 31, 2021</b>
	(in thousands)	
Doré inventory	\$ 230	\$ 481
In-process inventory	572	668
Material and supplies	569	459
	<u>\$ 1,371</u>	<u>\$ 1,608</u>

Doré and in-process inventories, recorded at book value, include approximately \$28,000 and \$21,000 of capitalized depreciation and amortization at December 31, 2022 and 2021, respectively. Doré inventory at December 31, 2022 consists of 157 payable ounces of gold and 652 payable ounces of silver. Doré inventory at December 31, 2021 consists of 626 payable ounces of gold and 1,958 payable ounces of silver.

The materials and supplies inventories are primarily related to the Rodeo operation and are reduced by a \$0.3 million obsolescence reserve at each of December 31, 2022 and 2021.

**8. Value Added Tax Receivable, Net**

At December 31, 2022 and 2021, the Company recorded a net value added tax (“VAT”) paid in Mexico of \$1.5 million and \$1.3 million, respectively, related to the Velardeña Properties and the Rodeo operation, as a recoverable asset, which appears in “*Value added tax receivable, net*” on the Consolidated Balance Sheets. Mexico law allows for certain VAT payments to be recovered through ongoing applications for refunds. The Company expects that the current amounts will be recovered within a one-year period. At December 31, 2022 and December 31, 2021, the Company recorded approximately \$450,000 and \$378,000, respectively, of VAT payable as a reduction to the VAT receivable in Mexico.

The Company has also paid VAT in Mexico as well as other countries, primarily related to exploration projects, which has been charged to expense as incurred because of the uncertainty of recoverability.

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**9. Property, Plant and Equipment**

*Property, Plant and Equipment, Net*

The components of property, plant, and equipment, net were as follows:

	December 31, 2022	December 31, 2021
	(in thousands)	
Mineral properties	\$ 9,353	\$ 9,353
Exploration properties	2,418	2,418
Royalty properties	200	200
Buildings	3,808	3,806
Mining equipment and machinery	17,127	17,477
Other furniture and equipment	1,355	1,328
Asset retirement cost	1,157	1,057
	35,418	35,639
Less: Accumulated depreciation and amortization	(29,002)	(29,012)
	<u>\$ 6,416</u>	<u>\$ 6,627</u>

*El Quevar Earn-In Agreement*

On April 9, 2020, the Company and several of its directly and indirectly wholly-owned subsidiaries entered into the Earn-in Agreement with Barrick, pursuant to which Barrick has acquired an option (the "Option") to earn a 70% interest in the Company's El Quevar project located in the Salta Province of Argentina. Pursuant to the terms of the Earn-in Agreement, in order to earn an undivided 70% interest in the El Quevar project, Barrick must: (A) incur a total of \$10 million in work expenditures over a total of eight years (\$0.5 million per year in years one and two, \$1 million per year in years three, four and five, and \$2 million per year in years six, seven and eight); (B) deliver to the Company a National Instrument 43-101 compliant pre-feasibility study pursuant to the parameters set forth in the Earn-in Agreement; and (C) deliver a written notice to exercise the Option to the Company within the term of the Earn-in Agreement. Barrick may withdraw from the Earn-in Agreement at any time after spending a minimum of \$1 million in work expenditures and upon providing 30 days' notice to the Company. The Company will form a new entity ("NewCo") that will hold the El Quevar properties. Upon satisfaction of the Earn-in conditions and exercise of the Option, NewCo will be 70% owned by Barrick and 30% owned by the Company. Funding of NewCo will be based on Barrick's and the Company's respective ownership and industry standard dilution mechanisms will apply in the case of funding shortfalls by either shareholder. As of December 31, 2021, Barrick had met the \$1 million in work expenditures that would allow them to withdraw from the Earn-in Agreement. The carrying value of El Quevar as of December 31, 2022 and 2021 is \$2.3 million.

*Sale of Santa Maria Property*

On July 14, 2020, the Company entered into a binding letter of intent ("Letter of Intent") with Fabled for a potential transaction pursuant to which Fabled would acquire the Company's option to earn a 100% interest in the Santa Maria mining claims located in Chihuahua, Mexico (the "Option"). On December 4, 2020, the Company entered into a definitive option agreement ("Option Agreement") to sell its option to Fabled. As consideration for the Option, Fabled (i) paid \$500,000 in cash to the Company and issued to the Company 1,000,000 shares of Fabled's common stock (the "Closing Consideration"); (ii) paid \$1,500,000 in cash to the Company on the one year anniversary date following the closing of the Option Agreement.

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The Company recorded the \$1.5 million received from Fabled in December 2021 to “*Deferred revenue*” on the accompanying Consolidated Balance Sheets and recognized the amount to “*Other operating income*” over a one-year period through December 2022. Upon receipt of each cash payment, the Option Agreement imposes a performance obligation on the Company to provide Fabled an exclusive right to the Santa Maria Properties to conduct exploration and mining activities during the period from receipt of the payment until the due date of the next required payment. Accordingly, the Company has determined that its performance obligation for each option payment received is satisfied over time. The remaining unamortized balance of deferred revenue at December 31, 2022, is zero. At December 31, 2021, there was an unamortized balance of \$1.5 million.

On December 19, 2022, the Option Agreement was amended to reschedule the remaining \$2.0 million payment into eight quarterly payments of \$250,000 beginning January 31, 2023 through September 30, 2024. Fabled failed to make the payment due on January 31, 2023. The Company issued a notice of default under the Option Agreement to Fabled and the property has reverted to the Company (see Note 24). The carrying value of Santa Maria as of December 31, 2022 and 2021, is zero.

#### 10. Other Long-Term Assets

Other long-term assets consist of the following:

	December 31, 2022	December 31, 2021
	(in thousands)	
Right of use assets	\$ 333	\$ 677
Long-term portion of deferred offering costs	—	70
	<u>\$ 333</u>	<u>\$ 747</u>

The right of use assets at December 31, 2022 include approximately \$263,000 related to certain office leases and \$70,000 related to a mining equipment lease at our Rodeo Property. The right of use assets at December 31, 2021, include approximately \$394,000 related to certain office leases and \$283,000 related to a mining equipment lease at our Rodeo Property.

The Company took possession of new office space and began a new long-term lease for its principal headquarters office with an effective commencement date of June 1, 2019. The new office lease will expire five years and eight full calendar months following the commencement date. There are no options to extend the lease beyond the stated term. The Company recorded a right of use asset of approximately \$465,000 and a lease liability of approximately \$450,000 in the second quarter of 2019 based on the net present value of the future lease payments discounted at 9.5%, which represents the Company’s incremental borrowing rate for purposes of applying the guidance of Topic 842. As required, the Company will recognize a single lease cost on a straight-line basis.

In November 2019, the Company renewed its Mexican office lease for four years and recorded a right of use asset and lease liability of approximately \$174,000. In December 2021, the Company also renewed its Argentina office lease for three years and recorded a right of use asset and lease liability of approximately \$27,000.

In December 2020, the Company’s wholly-owned subsidiary, Minera de Cordilleras S. de R.L. de C.V., entered into an agreement with Triturados del Guadiana, S.A. de C.V. (“Trigusa”), whereby Trigusa will carry out mining activities at the Rodeo Property. Per the terms of the mining agreement, Trigusa will provide services for the 27-month period beginning in December 2020 and ending March 31, 2023, with the potential for an extension of time upon mutual

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agreement of both parties. The Company has determined that the mining agreement contains an embedded lease, relating to the mining equipment provided by Trigusa, per the guidance of ASU 2016-02 and Topic 842. The Company did not elect the practical expedient permitting the combination of lease and non-lease components of the mining agreement. The Company recorded a right of use asset and a lease liability of approximately \$420,000 based on the net present value of the future lease payments discounted at 7.0%, which represents the Company's incremental borrowing rate.

The lease liabilities noted above have been included in "Other liabilities", short term and long term (see Note 13), in the Company's Consolidated Balance Sheets at December 31, 2022 and 2021.

The long-term portion of deferred offering costs at December 31, 2021, were associated with the ATM Agreement (see Note 16). The current portion of deferred offering costs at December 31, 2022, is recorded in "Prepaid expenses and other assets" on the Consolidated Balance Sheets (see Note 6).

#### **11. Accounts Payable and Other Accrued Liabilities**

The Company's accounts payable and other accrued liabilities consist of the following:

	<u>December 31,</u> <u>2022</u>	<u>December 31,</u> <u>2021</u>
	(in thousands)	
Accounts payable and accruals	\$ 2,206	\$ 1,501
Accrued employee compensation and benefits	1,478	1,988
Income taxes payable (Note 15)	25	20
	<u>\$ 3,709</u>	<u>\$ 3,509</u>

##### *December 31, 2022*

Accounts payable and accruals at December 31, 2022 are primarily related to amounts due to contractors and suppliers in the amounts of \$1.8 million related to the Company's Velardeña and Rodeo properties and \$0.4 million related to corporate administrative and exploration activities.

Accrued employee compensation and benefits at December 31, 2022 consist of \$0.4 million of accrued vacation payable and \$1.1 million related to withholding taxes and benefits payable. Included in the \$1.5 million of accrued employee compensation and benefits is \$1.2 million related to activities at the Velardeña Properties and Rodeo Property.

##### *December 31, 2021*

Accounts payable and accruals at December 31, 2021 are primarily related to amounts due to contractors and suppliers in the amounts of \$1.3 million related to the Company's Velardeña and Rodeo properties and \$0.2 million related to corporate administrative and exploration activities.

Accrued employee compensation and benefits at December 31, 2021 consist of \$0.3 million of accrued vacation payable and \$1.7 million related to withholding taxes and benefits payable. Included in the \$2.0 million of accrued employee compensation and benefits is \$1.2 million related to activities at the Velardeña Properties and Rodeo Property.

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*Mexican Subsidiaries Profit-Sharing Liability*

On April 23, 2021, a new labor law was made official in Mexico that impacts companies that utilize subcontractor structures, effective beginning August 1, 2021. The Company utilizes subcontractor structures in Mexico, as is common practice among companies in the mining industry in Mexico. The law disallows a deduction in computing income taxes for labor outsourcing costs unless the arrangement falls within certain narrowly defined exceptions. The new law does provide for annual caps on the amount of employee profit sharing a company would be required to pay, which is designed to even out the profit-sharing liability over several years. During 2021, the Company reorganized the functions performed by its various Mexican subsidiaries to comply with the new law. The Company's profit-sharing liability in Mexico has increased as a result of the new law taking effect. The profit-sharing liability is included in "Accrued employee compensation and benefits" and was \$0.2 million and \$0.4 million at December 31, 2022 and 2021.

Income taxes payable are related to operations at the Company's Mexican subsidiaries (see Note 15).

**12. Asset Retirement and Reclamation Liabilities**

In 2012, the Company retained the services of a mining engineering firm to prepare a detailed closure plan for reclamation activity the Velardeña Properties. The plan was completed during the second quarter 2012 and indicated that the Company had an ARO and offsetting ARC of approximately \$1.9 million. The original ARC had been fully amortized or written off by the end of December 31, 2015. The ARO has been adjusted since 2012 for changes in assumptions related to inflation factors and the timing of future expenditures used in the determination of future cash flows, which previously contemplated that reclamation activities could begin as early as 2023 following the completion of mining at the Rodeo Property.

In the fourth quarter of 2021, due to the current operating success at Rodeo and the potential of a restart of operations at the Velardeña mine based on recent technical studies and an updated PEA that would further delay the start of any reclamation activity, the Company retained the services of an environmental consultant to review the closure plan to determine the appropriateness of the scope and cost estimates used in the calculation of the ARO. The consultant confirmed the adequacy of the scope of the closure plan and provided certain adjustments to cost estimates. In addition, the timing for the incurrence of reclamation activity was extended approximately 7 years to 2030 to take into account the likelihood of a restart of operations at the Velardeña mine that would further delay the start of any reclamation activity.

In late 2022, the Company determined that the restart of the Velardeña Properties would be deferred one year, which would in turn defer the beginning of the reclamation activity assumption by one year to 2031.

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The Company will continue to accrue additional estimated ARO amounts based on the closure plan and as activities requiring future reclamation and remediation occur. The following table summarizes activity in the Velardeña Properties ARO:

	Year Ended December 31,	
	2022	2021
	(in thousands)	
Beginning balance	\$ 3,569	\$ 3,156
Changes in estimates, and other	142	151
Accretion expense	282	262
Ending balance	\$ 3,993	\$ 3,569

The change in estimate of the ARO recorded during the year ended December 31, 2022 is due to a combination of changes in assumptions related to the timing of future expenditures, the change in inflation assumptions, and the change in the discount rate.

The change in estimate of the ARO recorded during the year ended December 31, 2021 is primarily the result of changes in assumptions related to the amount and timing of future expenditures used in the determination of future cash flows as a result of a review of the closure plan undertaken in the fourth quarter 2021, as noted above (also see Note 14).

Accretion expense in the table noted above for each of the years ended December 31, 2022 and 2021 has been recorded as “*Reclamation expense*” on the Company’s Consolidated Statements of Operations. To the extent that a positive change in estimates, and other for the ARO is related to fixed plant and equipment, an offsetting ARC is capitalized as part of the carrying value of the assets with which it is associated and depreciated over the useful life of the asset, otherwise the increase is recorded as “*Other operating expense, net*” on the Company’s Consolidated Statements of Operations. A negative change in estimates, and other is recorded as a decrease to the ARC previously recorded or, as appropriate, to “*Other operating income, net*” on the Company’s Consolidated Statements of Operations.

**13. Other Liabilities**

*Other Current Liabilities*

The following table sets forth the Company’s other current liabilities:

	December 31, December 31,	
	2022	2021
	(in thousands)	
Premium financing	\$ 406	\$ 394
Office lease liability	164	120
Mining equipment lease liability	70	207
	\$ 640	\$ 721

The premium financing at December 31, 2022 consists of the remaining balance, plus accrued interest, related to premiums payable for the Company’s directors and officers, and general liability insurance. In November 2022, the Company financed approximately \$445,000 of its insurance premium. The premium is payable in eleven equal payments

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at an interest rate of 7.0% per annum. At December 31, 2022, the remaining balance, plus accrued interest, was approximately \$406,000.

The premium financing at December 31, 2021 consists of the remaining balance, plus accrued interest, related to premiums payable for the Company's directors and officers insurance. In November 2021 the Company financed approximately \$394,000 of its premium for directors and officers insurance. The premium was payable in eight equal payments at an interest rate of 4.0% per annum. At December 31, 2021 the remaining balance, plus accrued interest, was approximately \$394,000.

The office lease liability is related to lease liabilities for office space at the Company's principal headquarters in Golden, Colorado and in Mexico and Argentina (see Note 10).

The mining equipment lease liability is related to equipment used by the contract miner at our Rodeo Property (see Note 10).

*Other Long-Term Liabilities*

Other long-term liabilities of approximately \$122,000 for the period ended December 31, 2022, are primarily related to lease liabilities for office space at the Company's principal headquarters in Golden, Colorado and in Mexico and Argentina (see Note 10).

Other long-term liabilities of approximately \$353,000 for the period ended December 31, 2021, are primarily related to lease liabilities for office space at the Company's principal headquarters in Golden, Colorado and in Mexico and Argentina (see Note 10). Also included in other long-term liabilities is approximately \$19,000 of deferred income taxes payable (see Note 15).

**14. Fair Value Measurements**

Financial assets and liabilities and nonfinancial assets and liabilities are measured at fair value on a recurring basis under a framework of a fair value hierarchy which prioritizes the inputs into valuation techniques used to measure fair value into three broad levels. This hierarchy gives the highest priority to quoted prices (unadjusted) in active markets and the lowest priority to unobservable inputs. Further, financial assets and liabilities should be classified by level in their entirety based upon the lowest level of input that was significant to the fair value measurement. The three levels of the fair value hierarchy per ASC 820 are as follows:

**Level 1:** Unadjusted quoted market prices in active markets for identical assets or liabilities that are accessible at the measurement date.

**Level 2:** Quoted prices in inactive markets for identical assets or liabilities, quoted prices for similar assets or liabilities in active markets, or other observable inputs either directly related to the asset or liability or derived principally from corroborated observable market data.

**Level 3:** Unobservable inputs due to the fact that there is little or no market activity. This entails using assumptions in models which estimate what market participants would use in pricing the asset or liability.

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The following table summarizes the Company's financial assets and liabilities measured on a recurring basis at fair value by respective level of the fair value hierarchy:

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
	(in thousands)			
<b>At December 31, 2022</b>				
Assets:				
Cash and cash equivalents	\$ 3,972	\$ —	\$ —	\$ 3,972
Short-term investments	20	—	—	20
	<u>\$ 3,992</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,992</u>
<b>At December 31, 2021</b>				
Assets:				
Cash and cash equivalents	\$ 12,229	\$ —	\$ —	\$ 12,229
Short-term investments	67	—	—	67
	<u>\$ 12,296</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 12,296</u>

The Company's cash equivalents, comprised principally of U.S. treasury securities, are classified within Level 1 of the fair value hierarchy.

The Company's short-term investments consist of the 1,000,000 shares of common stock of Fabled and 200,000 shares of Fabled Copper Corp. shares and are classified within Level 1 of the fair value hierarchy (see Note 9).

At December 31, 2022 and 2021, the Company did not have any financial assets or liabilities classified within Level 2 or Level 3 of the fair value hierarchy.

*Non-recurring Fair Value Measurements*

The Company assesses, where appropriate, the fair value of its liabilities and long-lived assets if circumstances indicate a change in the fair value has occurred. The valuation policies are approved by the Chief Financial Officer who reviews and approves the inputs used in the fair value calculations and the changes in fair value measurements from period to period for reasonableness. Fair value measurements are discussed with the Company's Chief Executive Officer, as deemed appropriate.

The Company recorded an addition to its ARO as of December 31, 2022 and 2021, of approximately \$142,000 and \$151,000, respectively (see Note 12), reflecting a change in the fair value of the ARO primarily as the result of changes in assumptions related to the amount and timing of future expenditures used in the determination of future cash flows, following the guidance of ASC Topic 410. The fair value analysis was performed internally by the Company with the assistance of third-party experts. A third-party expert was used to assess the environmental closure and reclamation obligations for the Company. A third-party expert was also used to determine an appropriate discount rate for determining the fair value of the ARO at December 31, 2022 and 2021. The valuation falls within Level 3 of the fair value hierarchy.

No other non-recurring fair value adjustments to liabilities or long-lived assets were recorded during the years ended December 31, 2022 and 2021.

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**15. Income Taxes**

The Company accounts for income taxes in accordance with the provisions of ASC 740 on a tax jurisdictional basis. The provision for income taxes consists of the following:

	<b>For the Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	<b>(in thousands)</b>	
<b>CURRENT TAXES:</b>		
United States	\$ —	\$ —
Other Countries	107	443
	<u>\$ 107</u>	<u>\$ 443</u>
<b>DEFERRED TAXES:</b>		
United States	\$ —	\$ —
Other Countries	(19)	19
	<u>\$ (19)</u>	<u>\$ 19</u>
Total income tax provision	<u>\$ 88</u>	<u>\$ 462</u>

Income (loss) from operations before income taxes by country consists of the following:

	<b>For the Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	<b>(in thousands)</b>	
United States	\$ (10,151)	\$ (3,723)
Other Countries	333	2,090
	<u>\$ (9,818)</u>	<u>\$ (1,633)</u>

The Company recorded \$107,000 of current tax expense and \$19,000 of deferred tax benefit for the year ended December 31, 2022, the taxable income of certain subsidiaries in Mexico related to the Rodeo operation. The Company recorded \$443,000 of current tax expense and \$19,000 deferred tax expense for the year ended December 31, 2021, stemming primarily from 7.5% special mining tax and the taxable income of subsidiaries in Mexico.

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A reconciliation of the provision for income taxes computed at the statutory rate to the provision for income taxes as shown in the Consolidated Statements of Operations is summarized below.

	<b>For Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	<b>(in thousands)</b>	
Tax expense (benefit) at U.S. rate of 21%	\$ (2,062)	\$ (343)
Other adjustments:		
Rate differential of other jurisdictions	(387)	505
Effects of foreign earnings	(1,631)	687
Change in valuation allowance	(3,619)	(6,948)
Provision to tax return true-ups	113	(99)
Exchange rate changes on deferred tax assets	3,234	3,893
Mexican special mining tax	—	212
Expired net operating losses	4,099	2,667
Other	341	(112)
Income tax provision	<u>\$ 88</u>	<u>\$ 462</u>

The components of the deferred tax assets and deferred tax liabilities are as follows:

	<b>For the year ended</b>	
	<b>December 31,</b>	
	<b>2022</b>	<b>2021</b>
	<b>(in thousands)</b>	
Deferred tax assets:		
Net operating loss carryforwards	\$ 109,397	\$ 110,451
Capital loss carry forwards	2,584	1,702
Stock-based compensation	868	896
Property, plant and equipment	2,730	4,624
Other	2,296	1,755
	<u>117,875</u>	<u>119,428</u>
Less: Valuation allowance	(113,987)	(118,580)
Total deferred tax assets	<u>3,888</u>	<u>848</u>
Deferred tax liabilities:		
Property, plant and equipment	(3,831)	(703)
Other	(57)	(164)
Total deferred tax liabilities	<u>(3,888)</u>	<u>(867)</u>
Net deferred tax asset (liability)	<u>\$ —</u>	<u>\$ (19)</u>

In accordance with ASC 740, the Company presents deferred tax assets net of its deferred tax liabilities on a tax jurisdictional basis on its Consolidated Balance Sheets. The net deferred tax liability as of December 31, 2022 was zero. The net deferred tax liability as of December 31, 2021 was \$19,000, primarily related to the 7.5% special mining tax in Mexico.

At December 31, 2022 the Company had net operating loss carryforwards in the U.S. and in certain non-U.S. jurisdictions totaling \$429.0 million. In the U.S. there are \$91.5 million of net operating loss carryforwards, \$20.8 million

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of which have no expiration, while the remaining losses will expire in future years through 2038. In the remaining non-U.S. countries, there are \$74.2 million of net operating loss carryforwards related to the Rodeo operation and Velardeña Properties in Mexico, which will expire in future years through 2031, \$86.2 million in Spain, which have no expiration date, and \$177.0 million in other non-U.S. countries (including Luxemburg, Peru, Argentina and Canada), which will expire in future years through 2042.

The valuation allowance offsetting the net deferred tax assets of the Company of \$114.0 million and \$118.6 million at December 31, 2022 and 2021, respectively, relates primarily to the uncertain utilization of certain deferred tax assets, primarily net operating loss carryforwards, in various tax jurisdictions. The Company continually assesses both positive and negative evidence to determine whether it is more likely than not that deferred tax assets can be realized prior to their expiration.

The Company, a Delaware corporation, and its subsidiaries file tax returns in the United States and in various foreign jurisdictions. The tax rules and regulations in these countries are highly complex and subject to interpretation. The Company's tax returns are subject to examination by the relevant taxing authorities and in connection with such examinations, disputes can arise with the taxing authorities over the interpretation or application of certain tax rules within the country involved. In accordance with ASC 740, the Company identifies and evaluates uncertain tax positions, and recognizes the impact of uncertain tax positions for which there is less than a more-likely-than-not probability of the position being upheld upon review by the relevant taxing authority. Such positions are deemed to be "unrecognized tax benefits" which require additional disclosure and recognition of a liability within the financial statements. If recognized, none of the unrecognized tax benefits would affect the Company's effective tax rate.

Below is a reconciliation of the beginning and ending amount of gross unrecognized tax benefits, which excludes any estimated penalties and interest on all identified unrecognized tax benefits. The Company had no unrecognized tax benefits at December 31, 2022. The unrecognized tax benefit as of December 31, 2021 is completely offset by net deferred tax benefits and therefore does not appear on the Consolidated Balance Sheet.

	<b>The Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	<b>(in thousands)</b>	
Gross unrecognized tax benefits at beginning of period	\$ —	\$ 249
Increases for tax positions taken during prior years	—	—
Decreases relating to settlements with taxing authorities	—	—
Reductions due to lapse of statute of limitations	—	(249)
Gross unrecognized tax benefits at end of period	<u>\$ —</u>	<u>\$ —</u>

Tax years as early as 2016 remain open and are subject to examination in the Company's principal tax jurisdictions. The Company does not expect a significant change to its net unrecognized tax benefits over the next 12 months. No interest and penalties were recognized in the Consolidated Statement of Operations for the year ended December 31, 2022 or 2021, and there were no interest and penalties recognized in the statement of financial position as of December 31, 2022 and 2021. The Company classifies income tax related interest and penalties as income tax expense.

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**16. Equity**

*Registered direct purchase agreement, commitment purchase agreement and registration rights agreement*

On May 9, 2018, the Company entered into a registered direct purchase agreement (the “Registered Purchase Agreement”) with Lincoln Park Capital Fund, LLC (“LPC”) pursuant to which LPC purchased 3,153,808 shares of the Company’s common stock at a price of \$0.4122 per share, the closing price of the Company’s common stock on the NYSE American on May 8, 2018, for an aggregate purchase price of \$1.3 million.

On May 9, 2018, the Company entered into a commitment purchase agreement (the “Commitment Purchase Agreement”) and together with the Registered Purchase Agreement, the “LPC Program”) and a registration rights agreement (the “Registration Rights Agreement”) with LPC, pursuant to which the Company, at its sole discretion, had the right to sell up to an additional \$10.0 million of the Company’s common stock to LPC, subject to certain limitations and conditions contained in the Commitment Purchase Agreement. The Company closed on the Commitment Purchase Agreement in July 2018. The Commitment Purchase Agreement expired in May 2021.

The Company did not sell any shares of common stock to LPC under the Commitment Purchase Agreement in the years ended December 31, 2022 or 2021. With the May 2021 expiration of the agreement, the Company wrote off the remaining balance of \$352,000 of deferred LPC Program costs to “*Interest and Other Expense*” on the Consolidated Statement of Operations.

*At the Market Offering Agreement*

In December 2016, the Company entered into an at-the-market offering agreement (as amended from time to time, the “ATM Agreement”) with H. C. Wainwright & Co., LLC (“Wainwright”), under which the Company may, from time to time, issue and sell shares of the Company’s common stock through Wainwright as sales manager in an at-the-market offering under a prospectus supplement for aggregate sales proceeds of up to \$5.0 million (the “ATM Program”) or a maximum of 10 million shares. On September 29, 2017, the Company entered into an amendment to the ATM Agreement with Wainwright to reflect a new registration statement on Form S-3 (File No. 333-220461) under which shares of the Company’s common stock may be sold under the ATM Program. On November 23, 2018 the Company entered into a second amendment of the ATM Agreement extending the agreement until the earlier of December 20, 2020, or the date that the ATM Agreement is terminated in accordance with the terms therein. On December 11, 2020 the Company entered into a third amendment of the ATM Agreement further extending the agreement so that it will remain in full force and effect until such time as the ATM Agreement is terminated in accordance with certain other terms therein or upon mutual agreement by the parties, and to reflect a new registration statement on Form S-3 (No. 333-249218).

Under the ATM, the common stock is distributed at the market prices prevailing at the time of sale. As a result, prices of the common stock sold under the ATM Program may vary as between purchasers and during the period of distribution. The ATM Agreement provides that Wainwright will be entitled to compensation for its services at a commission rate of 2.0% of the gross sales price per share of common stock sold.

During the year ended December 31, 2022, the Company sold an aggregate of 2,780,861 shares of common stock under the ATM Program at an average price of \$0.28 per share of common stock for net proceeds, after commissions and fees, of approximately \$754,000. Approximately \$25,000 of deferred ATM Program costs were amortized during the year, and at December 31, 2022, there was a remaining balance of \$45,000 of the current portion of deferred ATM Program costs, recorded in “*Prepaid expenses and other assets*” on the Consolidated Balance Sheet (see Note 6).

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During the year ended December 31, 2021, the Company sold an aggregate of 1,856,960 shares of common stock under the ATM Program at an average price of \$0.97 per share of common stock for net proceeds, after commissions and fees, of approximately \$1.8 million. Also, approximately \$57,000 of deferred ATM Program costs were amortized. At December 31, 2021, there was a remaining balance of \$70,000 of long-term deferred ATM Program costs, recorded in “*Other long-term assets*” on the Consolidated Balance Sheet (see Note 10).

As of December 31, 2022, there is approximately \$1.1 million remaining available for issuance under the ATM Program based on a prospectus supplement filed with SEC on December 11, 2020.

*Equity Incentive Plans*

Under the Company’s Amended and Restated 2009 Equity Incentive Plan (the “Equity Plan”) awards of the Company’s common stock may be made to officers, directors, employees, consultants and agents of the Company and its subsidiaries. The Company recognizes stock-based compensation costs using a graded vesting attribution method whereby costs are recognized over the requisite service period for each separately vesting portion of the award.

*Restricted Stock Grants*

The following table summarizes the status and activity of the Company’s restricted stock grants issued under the Equity Plan:

	The Year Ended December 31,			
	2022		2021	
<b>Restricted Stock Grants</b>	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Outstanding at beginning of period	293,334	\$ 0.61	224,002	\$ 0.36
Granted during the period	550,000	0.38	335,000	0.67
Restrictions lifted during the period	(348,332)	0.49	(265,668)	0.47
Forfeited during the period	—	—	—	—
Outstanding at end of period	<u>495,002</u>	<u>\$ 0.44</u>	<u>293,334</u>	<u>\$ 0.61</u>

During the year ended December 31, 2022, the Company recognized approximately \$207,000 of stock compensation expense related to the restricted stock grants. The Company expects to recognize additional stock compensation expense related to these awards of approximately \$117,000 over the next 33 months. During the year ended December 31, 2022, 500,000 shares were granted to nine employees, with one-third of the grants vesting on the grant date and the remaining shares vesting equally on the first and second anniversaries of the grant date. Also, during the year ended December 31, 2022, 50,000 shares were granted to a new employee, with one-third of the shares vesting equally on the first, second and third anniversaries of the grant date. During the period, restrictions were lifted on the normal vesting of 181,666 shares granted to nine employees in prior years.

During the year ended December 31, 2021, the Company recognized approximately \$165,000 of stock compensation expense related to the restricted stock grants. During the year ended December 31, 2021, 335,000 shares were granted to nine employees, with one-third of the grants (111,666 shares) vesting on the grant date and the remaining shares vesting equally on the first and second anniversaries of the grant date. Also, during the period, restrictions were lifted on the normal vesting of 154,002 shares granted to six employees in prior years.

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*Restricted Stock Units*

The Equity Plan permits the Company to issue Restricted Stock Units (“RSUs”), which entitle each recipient to receive one unrestricted share of common stock upon termination of the recipient’s employment or board service. Also, pursuant to the Equity Plan, the Company’s Board of Directors adopted the Non-Employee Director’s Deferred Compensation and Equity Award Plan (the “Deferred Compensation Plan”). Pursuant to the Deferred Compensation Plan, non-employee directors, and employees as allowed by the Equity Plan, receive a portion of their compensation in the form of RSUs issued under the Equity Plan. The RSUs generally vest on the first anniversary of the grant.

The following table summarizes the status and activity of the RSU grants issued to Directors of the Company under the Equity Plan, including awards to non-employee directors under the Deferred Compensation Plan:

	The Year Ended December 31,			
	2022		2021	
<b>Restricted Stock Units</b>	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Outstanding at beginning of period	4,010,038	\$ 0.69	3,610,038	\$ 0.70
Granted during the period	1,700,000	0.40	400,000	0.60
Restrictions lifted during the period	—	—	—	—
Forfeited during the period	—	—	—	—
Outstanding at end of period	<u>5,710,038</u>	<u>\$ 0.60</u>	<u>4,010,038</u>	<u>\$ 0.69</u>

During the year ended December 31, 2022, the Company recognized approximately \$361,000 of total stock compensation expense related to the RSUs.

During the year ended December 31, 2022, the Company granted each non-employee Director 100,000 RSUs, and recognized approximately \$249,000 of stock compensation expense related to the Director grants. The Company expects to recognize additional stock compensation expense related to the non-employee Director RSU grants of approximately \$112,000 over the next 6 months.

Included in the grants shown in the table during the period is a grant by the Company to its CEO of 1,000,000 RSUs. One-half of the RSUs vest on each of the first and second anniversaries of the grant. The Company recognized approximately \$112,000 of stock compensation expense related to the grant during the year ended December 31, 2022. The Company expects to recognize additional stock compensation expense related to the CEO RSU grants of approximately \$288,000 over the next 33 months.

During the year ended December 31, 2021, the Company recognized approximately \$305,000 of total stock compensation expense related to the RSUs.

During the year ended December 31, 2021, each of the six board members were granted 50,000 RSUs that vest one year from the grant date. During December 2021, a new director was granted 100,000 RSUs with 66,667 vesting on the grant date and the remaining 33,333 vesting one year from the grant date.

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In addition, during the year ended December 31, 2021, the Company granted a consultant 100,000 RSUs and recognized \$67,000 of stock compensation expense. The RSUs vested on the grant date and each vested RSU entitles the consultant to receive one unrestricted share of common stock upon termination of the consulting agreement with the Company. The consultant RSUs are not included in the Directors table above.

*Key Employee Long-Term Incentive Plan*

The Company's 2013 Key Employee Long-Term Incentive Plan (the "KELTIP") provides for the grant of units ("KELTIP Units") to certain officers and key employees of the Company, which units will, once vested, entitle such officers and employees to receive an amount, in cash or in Company common stock (such method of settlement at the sole discretion of the Board of Directors) issued pursuant to the Company's Equity Plan, measured generally by the price of the Company's common stock on the settlement date. KELTIP Units are not an actual equity interest in the Company and are solely unfunded and unsecured obligations of the Company that are not transferable and do not provide the holder with any stockholder rights. Payment of the settlement amount of vested KELTIP Units is deferred generally until the earlier of a change of control of the Company or the date the grantee ceases to serve as an officer or employee of the Company.

The Company intends to settle all the KELTIP Units in common stock of the Company, an option that the Board of Directors holds in its sole discretion so long as sufficient shares remain available under the Equity Plan. As a result, all outstanding KELTIP Units are recorded in equity at December 31, 2022 and 2021.

During the year ended December 31, 2022, the Company granted 950,000 KELTIP Units to two officers of the Company and recognized approximately \$176,000 of stock compensation expense related to the grants. Also, during the year ended December 31, 2022, an officer of the Company retired and was issued 1,123,380 shares of the Company's common stock net of 456,620 shares relinquished to cover withholding taxes. The shares issued were in settlement of previously granted KELTIP Units.

During the year ended December 31, 2021, the Company granted 1,605,000 KELTIP Units to two officers of the Company and recognized approximately \$1.1 million of stock compensation expense related to the grants.

There were 4,700,000 and 5,330,000 KELTIP Units outstanding at December 31, 2022 and 2021, respectively.

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*Common Stock Warrants*

The following table summarizes the status and activity of the Company's common stock warrants:

<b>Common Stock Warrants</b>	<b>Number of Underlying Shares</b>	<b>Weighted Average Exercise Price Per Share</b>
Outstanding at December 31, 2020	17,403,846	\$ 0.38
Exercised during period		
July 2019 Series A warrants	(200,000)	0.35
July 2019 Series B warrants	(1,500,000)	0.35
April 2020 Series A warrants	(1,400,000)	0.30
Expired during period		
May 2016 warrants	(1,500,000)	0.75
Outstanding at December 31, 2021	12,803,846	\$ 0.34
Exercised during period		
July 2019 Series B warrants	(3,000,000)	0.35
Outstanding December 31, 2022	<u>9,803,846</u>	<u>\$ 0.34</u>

The warrants relate to prior registered offerings and private placements of the Company's stock.

On April 20, 2020, the Company entered into a securities purchase agreement with certain institutional investors providing for the issuance and sale of 15,000,000 shares of the Company's common stock and in a concurrent private placement transaction, the issuance of an aggregate of 11,250,000 warrants, ultimately consisting of 7,500,000 series A warrants and 3,750,000 series B warrants. During the year ended December 31, 2021, 1,400,000 series A warrants were exercised, for net proceeds of \$0.4 million, leaving a balance of 1,100,000 and 250,000 series A and series B warrants outstanding, respectively, as of December 31, 2022 and 2021.

On July 17, 2019, the Company issued 8,653,846 registered shares of common stock in a registered direct offering. In connection with the offering, each investor received an unregistered Series A warrant to purchase a share of common stock for each share of common stock purchased. Each Series A warrant is exercisable six months from the date of issuance and has a term expiring in January 2025. During the year ended December 31, 2021, 200,000 series A warrants were exercised, for net proceeds of \$0.1 million, leaving a balance of 8,453,846 series A warrants outstanding as of December 31, 2022 and 2021.

In May 2016, the Company issued 8.0 million registered shares of common stock at a purchase price of \$0.50 per share in a registered direct offering resulting in gross proceeds of \$4.0 million. In connection with the offering, each investor received an unregistered warrant to purchase three-quarters of a share of common stock for each share of common stock purchased. The resulting 6,000,000 warrant shares had an exercise price of \$0.75 per share, became exercisable on November 7, 2016, and were exercisable until November 6, 2021, five years from the initial exercise date.

In connection with the July 2019 registered direct offering noted above, the Company also agreed to exchange, on a one-for-one basis, 4,500,000 of the May 2016 warrants for Series B warrants to purchase 4,500,000 shares of common stock at an exercise price of \$0.35 per share. Each Series B warrant was exercisable six months from the date of issuance and had a term expiring in May 2022. During the year ended December 31, 2021, 1,500,000 of the series B warrants were exercised, for net proceeds of \$0.5 million, leaving a balance of 3,000,000 series B warrants outstanding. During the year

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ended December 31, 2022, the remaining balance of 3,000,000 of the series B warrants were exercised, for net proceeds of \$1.1 million. The remaining 1,500,000 warrants from the May 2016 offering that were not exchanged in the July 2019 registered direct offering expired on November 6, 2021.

All outstanding warrants are recorded in equity at December 31, 2022 and December 31, 2021 following the guidance established by ASC Topic 815-40. The Company's warrants allow for the potential settlement in cash if certain extraordinary events are affected by the Company, including a 50% or greater change of control in the Company's common stock. Since those events have been deemed to be within the Company's control, the Company continues to apply equity treatment for these warrants.

**17. Sale of Metals and Related Costs**

During the year ended December 31, 2022, the Company sold gold and silver contained in doré bars related to the Rodeo operation and recorded revenue of approximately \$23.3 million, (approximately \$22.5 million related to gold in the doré bars and approximately \$1.2 million related to silver in the doré bars offset by refining and other selling costs of approximately \$0.4 million). The Company recorded related costs of approximately \$17.5 million. The gold and silver contained in the doré bars were sold to one customer, a metals refinery located in the United States. Under the terms of the Company's exclusive agreement with its customer, title and control passes and revenue is recognized by the Company when the contractual performance obligations of the parties are completed, generally at the time a provisional or final payment for the gold and silver is agreed to by the parties. A provisional payment for approximately 95% of the contained gold and silver is made generally within 10-12 days after the product is shipped and customary sales documents are completed. A final payment for the gold and the silver is made within approximately 30 days following the date of shipment when final assays and refinery charges are agreed upon by the parties. A separate price for the gold and silver sold is set, based on current market prices, at the time a provisional or final payment is made. There are no minimum or maximum quantities defined under the agreement. Refining and transport costs, deducted from the final payments made, are treated as third party costs incurred by the Company in performing its obligations under the agreement with its customer after the transfer of control on provisional sales, and are therefore netted against revenue on an accrual basis.

During the year ended December 31, 2021, the Company sold gold and silver contained in doré bars related to the Rodeo operation and recorded revenue of approximately \$25.6 million, (approximately \$24.7 million related to gold in the doré bars and approximately \$1.2 million related to silver in the doré bars offset by refining and other selling costs of approximately \$0.3 million). The Company recorded related costs of approximately \$13.3 million.

Costs related to the sale of metals products include direct and indirect costs incurred to mine, process and market the products.

**18. Interest and Other Expense, Net**

For the year ended December 31, 2022, the Company recognized approximately \$11,000 of interest and other expense primarily related to the financing of the Company's directors and officers insurance (see Note 13).

For the year ended December 31, 2021, the Company recognized approximately \$373,000 of interest and other expense primarily related the write off of deferred costs related to the LPC Program (see Note 16).

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**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
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**19. Cash Flow Information**

The following table reconciles net loss for the period to cash (used in) from operations:

	<b>Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	(in thousands)	
<b>Cash flows (used in) from operating activities:</b>		
Net loss	\$ (9,906)	\$ (2,095)
<b>Adjustments to reconcile net loss to net cash used in operating activities:</b>		
Depreciation and amortization	369	611
Accretion of asset retirement obligation	282	262
Loss on trading securities	47	12
Write off of deferred financing costs	—	352
Gain on sale of assets	(125)	(17)
Stock-based compensation	744	1,593
<b>Changes in operating assets and liabilities from continuing operations:</b>		
Decrease (increase) in inventories, net	232	(1,279)
Increase in value added tax receivable, net	(209)	(1,211)
Decrease in prepaid expenses and other assets	37	23
Decrease in other long-term assets	414	373
Increase in accounts payable and other accrued liabilities	198	2,063
(Decrease) increase in deferred revenue	(1,469)	948
(Decrease) increase in other current liabilities	(81)	54
Increase in reclamation liability	41	33
Decrease in other long-term liabilities	(231)	(308)
Net cash (used in) from operating activities	<u>\$ (9,657)</u>	<u>\$ 1,414</u>

The following table sets forth supplemental cash flow information and non-cash transactions:

	<b>Year Ended December 31,</b>	
	<b>2022</b>	<b>2021</b>
	(in thousands)	
<b>Supplemental disclosure:</b>		
Interest paid	\$ 9	\$ 8
Income taxes paid	\$ —	\$ 150
<b>Supplemental disclosure of non-cash transactions:</b>		
Deferred equity offering costs amortized	\$ 25	\$ 57
Deferred equity offering costs written off	\$ —	\$ 352

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**20. Commitments and Contingencies**

*Leases and Purchase Commitments*

The Company has non-cancelable operating lease and other commitments as follows:

	Year Ended December 31,						Total
	2023	2024	2025	2026	2027	Thereafter	
El Quevar mining concessions <sup>1</sup>	\$ 30	\$ 30	\$ 30	\$ 30	\$ 30	\$ —	\$ 150
Velardeña mining concessions <sup>1</sup>	27	27	27	27	27	—	135
Velardeña ejido and surface rights <sup>1</sup>	54	54	54	54	54	—	270
Rodeo mining concessions <sup>1</sup>	99	99	99	99	99	—	495
Rodeo ejido and surface rights <sup>1</sup>	264	264	264	264	264	—	1,320
Office space	161	119	9	—	—	—	289
<b>Total Commitments</b>	<b>\$ 635</b>	<b>\$ 593</b>	<b>\$ 483</b>	<b>\$ 474</b>	<b>\$ 474</b>	<b>\$ —</b>	<b>\$ 2,659</b>

<sup>1</sup> Estimated

The Company is required to make payments to the Argentine government to maintain its rights to the El Quevar mining concessions. The Company has made such payments totaling approximately \$7,000 and \$9,000 for the years ended December 31, 2022 and 2021, respectively.

The Company is required to pay concession holding fees to the Mexican government to maintain its rights to the Velardeña Properties and Rodeo Property mining concessions. During the years ended December 31, 2022 and 2021 the Company made such payments totaling approximately \$107,000 and \$104,000 respectively. Additionally, during the years ended December 31, 2022 and 2021, the Company made annual payments to local ejidos and property owners under its surface rights agreements for the Velardeña Properties and Rodeo Property of approximately \$300,000 and \$109,000 respectively.

The Company has office leases for its corporate headquarters in Golden, Colorado, as well as for its Velardeña Properties offices in Mexico, and exploration offices in Mexico and Argentina. The lease for the corporate headquarters expires in January 2025. Payments associated with the corporate headquarters lease were recorded to rent expense by the Company in the amounts of \$174,000 and \$175,000 for the years ended December 31, 2022 and 2021, respectively. The lease for the Mexican offices expires in October 2023. Payments associated with the Mexican office lease were recorded to rent expense by the Company in the amounts of \$59,000 and \$54,000 for the years ended December 31, 2022 and 2021, respectively. The lease for the Argentina office was renegotiated and extended during the fourth quarter 2021 and now expires in November 2024. Payments associated with the Argentina office lease were recorded to rent expense by the Company in the amounts of \$9,000 and \$10,000 for the years ended December 31, 2022 and 2021, respectively.

The table above assumes that no annual maintenance payments will be made more than five years after December 31, 2022. If the Company continues mining and processing at the Rodeo or the Velardeña Properties beyond five years, the Company expects that it would make annual concession and surface rights payments of approximately \$82,000 per year for the life of the Velardeña mine and approximately \$363,000 per year for the life of the Rodeo mine. If

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**(Expressed in United States dollars)**

the Company continues to evaluate development opportunities at the El Quevar project, the Company expects that it would make annual maintenance payments of approximately \$30,000 per year for the life of the El Quevar mine.

Payments associated with other exploration concessions the Company owns are not included because the Company has not completed exploration work on these concessions. Exploration success is historically low, and the Company has the right to terminate the payments and release the concessions at any time.

*Contingencies*

During April 2021, the Company became aware of a lawsuit in Mexico against one of the Company's Mexican subsidiaries, Minera William, S.A. de C.V. ("Minera William"). The plaintiff in the matter is Unifin Financiera, S.A.B de C.V. ("Unifin"). The lawsuit was assigned to the Fifth Specialized Commercial District Court. Although the Company has knowledge of the existence and content of the lawsuit filed by Unifin, the Court has not officially served Minera William with the complaint as of the date of this report. Unifin is alleging that a representative of Minera William signed certain documents in July 2011 purporting to bind Minera William as a guarantor of payment obligations owed by a third party to Unifin in connection with that third party's acquisition of certain drilling equipment. At the time the documentation was allegedly signed, Minera William was a subsidiary of ECU Silver Mining prior to the Company's acquisition of ECU in September 2011. As a preemptive measure, Unifin has obtained a preliminary court order freezing Minera William's bank accounts in Mexico, which has limited the Company's and Minera William's ability to access approximately US\$153,000 according to current currency exchange rates. Notwithstanding this action, the restrictions imposed on Minera Williams' bank accounts do not impact the Company's ability to operate the Rodeo mine, which is held through a different Mexico subsidiary, or continue with the Company's evaluation plans for a potential Velardeña mine restart or move forward with any of the Company's other exploration programs in Mexico. Unifin is seeking recovery for as much as US\$12.5 million. The Company was formally served with notice of the lawsuit and filed a written response. The trial court has published a writ scheduling the preliminary hearing to take place on April 3, 2023. The Company believes there is no basis for this claim and will defend itself. As such, the Company has not accrued an amount for this matter in its Consolidated Balance Sheets or Statements of Operations as of December 31, 2022.

**21. Foreign Currency**

The Company conducts exploration and mining activities primarily in Mexico and Argentina, and gains and losses on foreign currency transactions are related to those activities. The Company's functional currency is the U.S. dollar but certain transactions are conducted in the local currencies resulting in foreign currency transaction gains or losses.

**22. Segment Information**

The Company's sole activity is the mining, construction and exploration of mining properties containing precious metals. The Company's reportable segments are based upon the Company's revenue producing activities and cash consuming activities. The Company reports two segments, one for its revenue producing activities in Mexico, which includes both the Velardeña Properties and the Rodeo Property, and the other comprised of non-revenue producing activities, including exploration, construction and general and administrative activities. Intercompany revenue and expense amounts have been eliminated within each segment in order to report on the basis that management uses internally for evaluating segment performance.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

The financial information relating to the Company's segments is as follows:

<u>The Year ended December 31, 2022</u>	<u>Revenue</u>	<u>Costs Applicable to Sales</u>	<u>Depreciation, Depletion and Amortization</u>	<u>Exploration, El Quevar, Velardeña and Administrative Expense (in thousands)</u>	<u>Pre-Tax Income/(Loss)</u>	<u>Total Assets</u>	<u>Capital Expenditures</u>
Mexico Operations	\$ 23,285	\$ (17,538)	\$ (319)	\$ (8,521)	\$ (2,212)	\$ 8,425	\$ 44
Corporate, Exploration & Other	—	—	(50)	(7,599)	(7,606)	6,519	8
	<u>\$ 23,285</u>	<u>\$ (17,538)</u>	<u>\$ (369)</u>	<u>\$ (16,120)</u>	<u>\$ (9,818)</u>	<u>\$ 14,944</u>	<u>\$ 52</u>
<b><u>The Year ended December 31, 2021</u></b>							
Mexico Operations	\$ 25,596	\$ (13,311)	\$ (491)	\$ (4,301)	\$ 7,317	\$ 8,240	\$ 1,552
Corporate, Exploration & Other	—	—	(120)	(7,531)	(8,950)	15,473	68
	<u>\$ 25,596</u>	<u>\$ (13,311)</u>	<u>\$ (611)</u>	<u>\$ (11,832)</u>	<u>\$ (1,633)</u>	<u>\$ 23,713</u>	<u>\$ 1,620</u>

Revenue for the year ended December 31, 2022 and 2021, was from the Company's Rodeo Property in Mexico (see Note 17) and was all attributable to the sale of gold and silver doré bars.

**23. Related Party Transactions**

The following sets forth information regarding transactions between the Company (and its subsidiaries) and its officers, directors and significant stockholders.

*Administrative Services:*

In August 2016, the Company began providing limited accounting and other administrative services to Minera Indé, an indirect subsidiary of Sentient. At December 31, 2022, Sentient, through the Sentient executive funds, held approximately 22% of the Company's 170.3 million shares of issued and outstanding common stock. The administrative services are provided locally in Mexico by the administrative staff in the Company's Mexico office. The Company charges Minera Indé \$15,000 per month for the services, which provides reimbursement to the Company for its costs incurred plus a small profit margin. The Company also leases, from time to time, certain nonessential mining equipment to Minera Indé. Amounts received under the arrangement reduce costs incurred for exploration. The Company's Board of Directors and Audit Committee approved the agreement. For the years ended December 31, 2022 and 2021, the Company charged Minera Indé approximately \$222,000 and \$263,000, respectively, for services and the use of equipment, offsetting costs that are recorded in "Velardeña care and maintenance" in the Consolidated Statements of Operations.

**GOLDEN MINERALS COMPANY**  
**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS - (Continued)**  
**(Expressed in United States dollars)**

**24. Subsequent Events**

*Fabled Option Agreement*

Fabled failed to make the payment due on January 31, 2023. The Company issued a notice of default under the Option Agreement to Fabled and the property has reverted to the Company (see Note 9).

*At the Market Offering Agreement*

Subsequent to December 31, 2022, the Company sold an aggregate of 1,914,194 shares of common stock under the ATM Program at an average price of \$0.29 per share of common stock for net proceeds, after commissions and fees, of approximately \$532,000.

## SUBSIDIARIES

<u>NAME</u>	<u>JURISDICTION OF FORMATION</u>
ASM Services S.a r.l. ....	Luxembourg
Silex Spain, S.L. ....	Spain
Silex Argentina S.A. ....	Argentina
Golden Minerals Services Corp. ....	United States
Minera de Cordilleras S. de R.L. de C.V. ....	Mexico
ECU Silver Mining Inc. ....	Canada
Minera William, S.A. de C.V. ....	Mexico

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CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3, as amended (File Nos. 333-167026, 333-172363, 333-179993, 333-189693, 333-200555, 333-213268, 333-220457, 333-235376, 333-249210, and 333-249218), on Form S-8 (File Nos. 333-159096, 333-165933, 333-170891, 333-176915, 333-190542, 333-200557, 333-211348, 333-231264, 333-235375, 333-249213, and 333-264119) and on Form S-1 (File No. 333-225483) of Golden Minerals Company of our report dated March 22, 2023 relating to the consolidated financial statements appearing in this Form 10-K for the year ended December 31, 2022.

/s/ Armanino LLP  
Dallas, Texas

March 22, 2023

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**CONSENT OF QUALIFIED PERSON**

In connection with the Annual Report on Form 10-K for the year ended December 31, 2022 and any amendments or supplements and/or exhibits thereto (collectively, the Form 10-K), the undersigned hereby consents to:

- the filing and use of the Technical Report Summaries for the Velardeña project and the Rodeo property as exhibits to the Form 10-K;
- the use of and references to our name, including our status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission), in connection with the Form 10-K and the Technical Report Summaries; and
- the use of information derived, summarized, quoted, or referenced from the Technical Report Summaries, or portions thereof, that was prepared by us, that we supervised the preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference in the Form 10-K.

We also consent to the incorporation by reference of the above items in the registration statements of Golden Minerals Company on Form S-3, as amended (File Nos. 333-167026, 333-172363, 333-179993, 333-189693, 333-200555, 333-213268, 333-220457, 333-235376, 333-249210, and 333-249218), on Form S-8 (File Nos. 333-159096, 333-165933, 333-170891, 333-176915, 333-190542, 333-200557, 333-211348, 333-231264, 333-235375, 333-249213, and 333-264119) and on Form S-1 (File No. 333-225483).

Dated March 22, 2023

Tetra Tech

/s/ Dante Ramirez Rodriguez, Ph.D.

Name of Qualified Person

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## CONSENT OF QUALIFIED PERSON

In connection with the Annual Report on Form 10-K for the year ended December 31, 2022, and any amendments or supplements and/or exhibits thereto (collectively, the Form 10-K), the undersigned hereby consents to:

- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission) in connection with the preparation of the mineral resource estimate for the Rodeo and Yoquivo properties as presented in the Form 10-K; and
- the use of information that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 10-K.

I also consent to the incorporation by reference of the above items in the registration statements of Golden Minerals Company on Form S-3, as amended (File Nos. 333-167026, 333-172363, 333-179993, 333-189693, 333-200555, 333-213268, 333-220457, 333-235376, 333-249210, and 333-249218), on Form S-8 (File Nos. 333-159096, 333-165933, 333-170891, 333-176915, 333-190542, 333-200557, 333-211348, 333-231264, 333-235375, 333-249213, and 333-264119) and on Form S-1 (File No. 333-225483).

/s/ Aaron Amoroso  
March 22, 2023

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**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in Golden Minerals Company's Registration Statements on Form S-3, as amended (File Nos. 333-167026, 333-172363, 333-179993, 333-189693, 333-200555, 333-213268, 333-220457, 333-235376, 333-249210, and 333-249218), on Form S-8 (File Nos. 333-159096, 333-165933, 333-170891, 333-176915, 333-190542, 333-200557, 333-211348, 333-231264, 333-235375, 333-249213, and 333-264119), and on Form S-1 (File No. 333-225483) of our report dated March 23, 2022, relating to the consolidated financial statements of Golden Minerals Company.

/s/ Plante & Moran, PLLC  
Denver, Colorado

March 22, 2023

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## CONSENT OF QUALIFIED PERSON

In connection with the Annual Report on Form 10-K for the year ended December 31, 2022, and any amendments or supplements and/or exhibits thereto (collectively, the Form 10-K), the undersigned hereby consents to:

- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission) in connection with the preparation of the summary for the Yoquivo property as presented in the Form 10-K; and
- the use of information that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 10-K.

I also consent to the incorporation by reference of the above items in the registration statements of Golden Minerals Company on Form S-3, as amended (File Nos. 333-167026, 333-172363, 333-179993, 333-189693, 333-200555, 333-213268, 333-220457, 333-235376, 333-249210, and 333-249218), on Form S-8 (File Nos. 333-159096, 333-165933, 333-170891, 333-176915, 333-190542, 333-200557, 333-211348, 333-231264, 333-235375, 333-249213, 333-264119) and on Form S-1 (File No. 333-225483).

/s/ Matthew Booth  
March 22, 2023

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## CERTIFICATION

I, Warren M. Rehn, certify that:

1. I have reviewed this annual report on Form 10-K of Golden Mineral Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal controls over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors:
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 22, 2023

/s/ WARREN M. REHN

Warren M. Rehn

*President and Chief Executive Officer*

*(Principal Executive Officer)*

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## CERTIFICATION

I, Julie Z. Weedman, certify that:

1. I have reviewed this annual report on Form 10-K of Golden Mineral Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal controls over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors:
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 22, 2023

/s/ JULIE Z. WEEDMAN

Julie Z. Weedman

*Senior Vice President and Chief Financial Officer  
(Principal Financial and Accounting Officer)*

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**CERTIFICATION PURSUANT TO  
18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Golden Minerals Company (the "Company") on Form 10-K for the year ended December 31, 2022, as filed with the SEC on the date hereof (the "Report"), the undersigned hereby certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ WARREN M. REHN

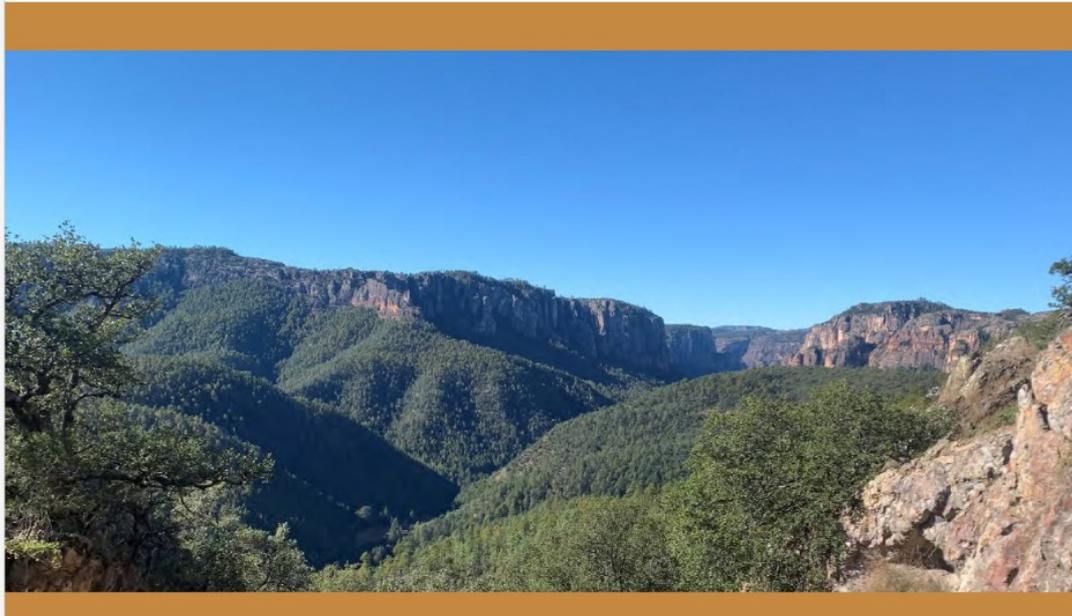
Warren M. Rehn  
*President and Chief Executive Officer*  
*(Principal Executive Officer)*  
March 22, 2023

/s/ JULIE Z. WEEDMAN

Julie Z. Weedman  
*Senior Vice President and Chief Financial Officer*  
*(Principal Financial and Accounting Officer)*  
March 22, 2023

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**Yoquivo Project  
Chihuahua, Mexico  
Technical Report Summary on Mineral Resource Estimate**



**Prepared for:**  
Golden Minerals Company  
**Prepared by:**  
Mr. Aaron J. Amoroso MMSA (QP)  
Mr. Matthew Booth, AIPG.  
**Report Current as at Date:**  
24 February, 2023

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Date and Signature Page

This report titled "S-K 1300 Technical Report Summary on Mineral Resource estimate on the Yoquivo Project Chihuahua Mexico" is current as of February 24, 2023 and was prepared and signed by Mr, Aaron J. Amoroso and Mr. Matthew Booth.

Signed and sealed    Date: March 22, 2023

Aaron J Amoroso MMSA (QP)

Signed and sealed    Date: March 22, 2023

Matthew Booth, AIPG

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## 1.1 Introduction

Golden Minerals Company (Golden Minerals) has prepared a technical report summary (the Report) on the results of a mineral resource estimate for the Yoquivo Project (the Project) located in Chihuahua State, Mexico.

## 1.2 Terms of Reference

The Report was prepared to support the Golden Minerals 2022 Form 10-K.

Mineral resources are reported for the Pertenencia, Camila, New and Esperanza vein systems within the Yoquivo deposit.

All measurement units used in this Report are metric unless otherwise noted, and currency is expressed in United States dollars (US\$) as identified in the text. The Mexican currency is the Mexican peso (\$MXN).

Mineral resources are reported using the definitions in Regulation S-K 1300 (S-K 1300), under Item 1300.

The Report uses US English.

## 1.3 Property Setting

The Yoquivo Project is located 210 km west-southwest of the city of Chihuahua, in Ocampo Municipality, Chihuahua State.

The Project can be accessed from the city of Chihuahua by the following route:

- Chihuahua City to Cuauhtemoc to La Junta to Basaseachi (location of the exploration base camp), a distance of 278 km on Mexico Highway 16.

To access the concession area, the route is:

- Basaseachi to the San Francisco de Yoquivo ejido via Chihuahua State Highway 227 (Basaseachi-San Juanito paved road) for 36.1 km, and then 5 km of unpaved road from the turnoff from Chihuahua State Highway 227.

The Project centre is an additional 3 km due south of the San Francisco de Yoquivo ejido and is accessed by a series of dirt roads and logging tracks.

The climate is classified as humid subtropical to humid continental depending on elevation. The average yearly maximum temperature is approximately 23°C. Rainfall occurs mainly during the summer from July to September. Snow and rain occur sporadically during the winter months.

Exploration activities can be conducted year-round. Any future mining activity would also be year-round.

The closest town to the Project is Basaseachi, approximately 24 km to the northwest of the Project area. The town can support basic exploration activities, and currently Golden Minerals rents a house in Basaseachi as the base for Project exploration activities.

The area has a long tradition of mining, and within 50 km of the Project area are several large open pit and underground precious metal mines. These mines source the majority of their workforces from the local communities. There is sufficient skilled and unskilled labour in the communities near to the Yoquivo Project to provide skilled and unskilled labour for Project purposes.

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The Comisión Federal de Electricidad (the state power company) constructed a 115 kV powerline to the town of Basaseachi in 2005, and the community of San Francisco de Yoquivo is connected to the main power grid. However, it is likely that these lines would need to be upgraded to support any future operations at the Yoquivo Project.

#### **1.4 Ownership**

The Project is 100% held by Golden Minerals. Mineral title is currently in the process of transfer from the original concession holders to Golden Minerals' wholly-owned subsidiary, Minera de Cordilleras S. De R.L. de C.V. (Minera de Cordilleras).

#### **1.5 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements**

The Project consists of seven mining concessions with an area totalling about 1,975 ha, located within the Ocampo municipality, Chihuahua State. In Mexico, mining concessions are granted by the Economy Ministry and are considered exploitation concessions with a 50-year term. All payments of mining duties and taxes for the concessions are up to date, and the required proof of annual labour forms have been filed for the concessions.

The claims are located on the San Francisco de Yoquivo ejido. Although the mineral rights are independent of the surface rights, access to the claim block is granted through an agreement between the concession holder and the San Francisco de Yoquivo ejido that does not have a direct interest in the mineral claims. Minera de Cordilleras signed a five-year temporary access agreement on 5 May, 2018 with the San Francisco de Yoquivo ejido to allow the company to conduct exploration activities within the mineral concessions. Golden Minerals is currently negotiating a new access agreement with the ejido to allow a continuation of exploration activities.

Water used in the exploration programs is purchased from the San Francisco de Yoquivo ejido, with payments based on each water truck load.

Third-party net smelter return (NSR) royalties are payable on all of the concessions, and range from 2–3%.

#### **1.6 Environmental, Permitting, and Social Considerations**

There are numerous historical mine workings, excavations, and dumps on, and adjacent to, the Project area. There are two small, non-operating processing plants within the Project area, but they are not under the control of Golden Minerals.

Some of the disturbances are on mineral concessions held by Golden Minerals. Environmental impacts within the Project site primarily result from historical activities. A site visit, conducted by SEMARNAT as part of the permit application in 2017, determined that the surface disturbances caused by historical mining activities, were "not significant", and Golden Minerals are not liable for any rehabilitation of those surface disturbances.

Adjacent to the Project area, to the west in an excised concession from Golden Minerals' holdings, a small custom mill is operating in the Trinidad area, processing material from artisanal miners (gambusinos) that is sourced from the surrounding mines and prospects including some mineralization mined from the Yoquivo Project area.

Gambusinos have been extracting small amounts of material from the Creel level of the San Francisco vein system and removing small historical mine dumps from the Project during Golden Minerals' tenure ownership. Those impacts have been identified and documented by Golden Minerals' staff. There is an expectation that Golden Minerals is not responsible for the current

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gambusino activity, as material is being removed from the Project area and processed at a toll mill outside the Project area, so there are no waste rock or tailings being generated within the Project boundaries.

Exploration activities such as rock and soil sampling, geological mapping and geophysical surveys can be conducted without environmental permits. An Informe Preventivo is in force for the area of the Yoquivo ejido that permits Golden Minerals to conduct drilling activities.

Golden Minerals, through Minera de Cordilleras, has written permission from the surface landowners to complete exploration on the Project but will need to negotiate agreements to initiate any future construction and mining activities.

## **1.7 Geology and Mineralization**

The mineralization types within the vein systems at Yoquivo are examples of low-sulphidation systems.

The Yoquivo Project is located within the Sierra Madre Occidental volcanic belt (Sierra Madre), an arc formed by eastward subduction of the Pacific Plate. The Sierra Madre is a metallogenic terrane well known for its epithermal precious metal deposits, and is divided into late Cretaceous to early Tertiary calc-alkaline batholiths and equivalent volcano–sedimentary rocks referred to as the “Lower Volcanic Supergroup” (LVG), and two periods of major ignimbrite eruption, accompanied by minor andesite/basalt flows and rhyolitic domes, in the early Oligocene and early Miocene, that collectively constitute the “Upper Volcanic Supergroup” (UVG).

The LVG is represented in the Project area by volcanic andesites that are overlain discordantly by rocks of the UVG. The UVG is dominated by ignimbrites. Several rhyolitic domes intrude all of these units.

The mineralization on the Yoquivo Project consists of several epithermal quartz veins in four principal vein systems. Individual vein systems have been mapped and sampled over >3,000 m strike lengths and range from 0.2 m to >5 m in width.

The Pertenencia vein system consists of at least seven parallel quartz veins, vein breccias and stockwork zones with minor calcite veining and sulphides (pyrite with very minor sphalerite and galena). The vein system has been traced on surface and by drilling for at least 1,800 m along strike and for about 300 m down-dip.

The San Francisco vein system consists of a series of northeast–southwest-striking quartz veins, vein breccias and stockwork zones with minor calcite veining and sulphides (pyrite with minor sphalerite and galena). The San Francisco vein has a strike extent of at least 3,000 m and has been explored to about 300 m depth. Several zones of mineralization were historically mined on this vein to the 1,900 m elevation.

The Esperanza vein system consists of a single quartz vein and vein breccia zone associated with a steeply-dipping fault zone, which has been mapped and sampled over a 1,100 m strike length. At surface, several historical mine workings have exploited a 1–2 m wide chalcedony vein, and chalcedonic-cemented hydrothermal breccias.

The Dolar vein system comprises northeast–southwest-striking quartz veins, vein breccias and stockwork zones with minor calcite veining and sulphides (pyrite with very minor sphalerite and galena). The vein system has a known strike extent of about 1,850 m. Historical workings have been excavated along the vein.

In general, at surface, the veins are sulphide-poor, and have textures typical of a low-sulphidation epithermal environment, including fine colloform to crustiform banding, bladed calcite textures, and open-space filling textures. Outside of the principal mineralized structures and their adjacent

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stockwork zones, veins are mostly limited to isolated single veins, minor subparallel veins, or small patches of stockwork veins. Orientations of these minor veins are varied, but most commonly dip steeply to the southeast.

Veins have narrow haloes of silicification, local argillic alteration, and distally grade into weak chloritic alteration. The walls of the vein structure sometimes have sharp boundaries, but it is also quite common for the vein to consist of anastomosing veinlets and stockwork veinlets.

Sulphides are generally pyrite with rare argentite, and locally minor galena–sphalerite–chalcopyrite, and total sulphide content is generally <5%. In the oxide zone, the sulphides are leached, leaving either casts or pseudomorphs of goethite–hematite.

Although no mineralogical studies have been conducted on the Project mineralization, geological associations suggest that gold is likely to be in the form of native gold associated with pyrite and silver in the form of silver sulphides and sulfosalts. This is a typical association in low-sulphidation systems.

Golden Minerals' geologists believe that there is good potential to discover additional high-grade gold–silver mineralization on the northern part of the Pertenencia vein system as well as on the San Francisco and Esperanza vein systems. The Dolar vein drilling has intersected wide zones of veining, but the gold and silver grade distribution is erratic, suggesting that the drilling has intersected the upper parts of an epithermal vein. The San Antonio vein appears to have good potential to host economic mineralization because the surface sampling has returned elevated gold and silver grades, but at the Report effective date the vein had not been drill tested.

The potential of the Verde, La Texana and La Trucha veins are unknown. They have only been explored partially on surface and returned moderate gold and silver grades at surface. The veins may warrant a small drill program to test potential at depth.

The northwestern and southwestern Project extents, where limited mapping has been conducted and there are outcropping andesites below the upper volcanic ignimbrites and tuffs, may have potential to host veins within the andesite lithologies. There is also potential for the known veins to continue into these areas.

## **1.8 History and Exploration**

Companies that had a Project interest prior to Golden Minerals included Cia. Minera La Rastra, S.A., Mead Exploration Co., Sydney Resources Corporation (Sydney Resources), West Timmins Mining Inc. (West Timmins), and Konigsberg Corporation. Work completed included limited narrow-vein mining activities, surface geological and reconnaissance mapping, and sampling of historical excavations, rock chip and channel sampling, a regional helicopter geophysical survey, and core drilling.

Golden Minerals obtained its Project interest in 2017, and at the Report effective date had completed surface geological and reconnaissance mapping, and sampling of selected historical excavations, rock chip and channel sampling, core drilling, and initial internal metallurgical studies.

## **1.9 Drilling**

The initial exploration drilling was conducted in 2007 by West Timmins, who drilled eight core holes totaling 2,473 m. Drill data from the West Timmins campaign are not used in mineral resource estimation because no original assay certificates, down-hole survey or assay quality assurance and quality control (QA/QC) data are currently available to Golden Minerals for this drilling campaign. In addition, no drill holes from this campaign intersected the Pertenencia vein

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system. From 2020 to 2022, Golden Minerals has drilled 70 core holes totaling 16,565 m. A total of 78 core holes, totaling 19,039 m have been drilled at Yoquivo.

Core sizes used for the various drill programs included NQ (47.6 mm core diameter) and BQ (36.4 mm) sizes by West Timmins, and HQ (63.5 mm) size by Golden Minerals. Drill holes in the Golden Minerals programs were typically drilled from the hanging wall side of the vein, perpendicular to and passing through the target structure, into the footwall and were extended an additional 40–50 m to anticipate possible changes on the dip of the structure, and to explore for additional potentially mineralized structures in the footwall of the principal structure.

Drill core from the Yoquivo drill programs was delivered to the core logging facility in Basaseachi by the drilling company at the end of each shift. Core was measured to confirm the recovery and calculate the rock quality designation (RQD). Recoveries during the Golden Minerals drill campaigns were generally excellent, averaging 98% overall. Core was logged by Golden Minerals geologists directly into Geobank Mobile logging software, capturing lithology, alteration, mineralization, and structural information.

Drill hole collar locations were initially surveyed by handheld global positioning system (GPS) instruments. Once the campaign was completed all drill hole locations were surveyed by a professional surveyor with a differential GPS. Actual orientations at the collars were established by measurements of surface casing using a field compass and a magnetic Reflex instrument was used to survey the orientation of the drill hole downhole. An initial survey was conducted approximately 15 m downhole to confirm the alignment of the drill hole with the planned orientation. Subsequent surveys were conducted every 50 m starting at 50 m until completion of the drill hole.

On average, the true width of mineralization is about 50–80% of the core length but varies depending on local orientation of the mineralized zones and the drill hole orientation.

### **1.10 Sampling**

Surface samples were collected, where possible, by Golden Minerals personnel systematically along principal structures, from historical prospects, and surface mine workings. In addition, grab samples were collected from historical mine dumps and spoil heaps.

Underground samples were collected from all accessible underground workings. Samples were collected from vein structures and in the footwall and hanging wall to mapped structures. Sample lengths were dictated by structural thickness, with a minimum of 20 cm and no defined maximum, but typically do not exceed 2 m in length. Samples were initiated and terminated based on observable vein styles or mineral type difference across the vein. The hanging wall and footwall were also sampled up to 5 m on both sides of the mapped structure.

Core sample intervals ranged from 0.05–3.4 m depending on lithology, averaging 0.93 m. The length for each sample was selected to characterize specific textural, lithological, or compositional breaks. Samples narrower than 0.2 m were selected to sample individual mineralized structures. Longer sample lengths (2–3.4 m) were used to sample weakly-altered rocks to check for possible silver and gold mineralization.

Two core composites were collected for metallurgical testwork purposes.

The water immersion method was used on drill core from geologically and spatially representative locations to obtain bulk density measurements. Measurements were taken on whole core samples typically between 10–15 cm in length. Samples of all mineralized zones, structures, and lithologies were tested and, as at the end of 2022, 1,271 bulk density measurements were collected. In December 2022, 93 samples were submitted to the ALS laboratory facility in

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Vancouver, Canada (ALS Vancouver) for bulk density determinations using the water displacement method on wax-coated samples from whole and half-core samples. Results are in line with the values obtained by Golden Minerals.

Sample preparation was undertaken at the ALS Chemex de México S.A. de C.V. laboratory in Chihuahua (ALS Chihuahua). ALS Chihuahua is independent of Golden Minerals, and accredited to ISO/IEC 17025:2017 standards. Samples were shipped to ALS Vancouver for analysis. ALS Vancouver is certified to ISO 17025:2017 (selected assay techniques) and ISO 9001:2015 standards, and is independent of Golden Minerals. Metallurgical testwork was completed at the Golden Minerals metallurgy laboratory in Velardeña, Durango State, Mexico, which is about approximately 600 km southeast of the Project. The laboratory is owned and operated by Golden Minerals and is not independent. There are currently no international accreditations other than chemical analyses for metallurgical testwork.

Upon delivery to ALS Chihuahua, all surface and underground samples were logged into the laboratory's tracking system. Then the sample was weighed and dried. The samples were then crushed (70% passing 2 mm). The sample was then split through a riffle splitter and a 250 g sub-sample was taken and pulverized (85% passing -200 mesh).

At ALS Vancouver, samples were assayed for gold by fire assay with an atomic absorption (AA) finish. Gold samples returning assay values >10 g/t Au were re-assayed by fire assay with gravimetric finish. Silver assays consisted of a four-acid digest with an inductively coupled plasma atomic emission spectrometry (ICP-AES) finish. Silver samples returning assay values >100 g/t Ag were re-assayed with a four-acid digest with and ICP-AES finish. Silver samples assaying >1,500 g/t Ag were re-assayed with fire assay with gravimetric finish, and silver samples returning assay values >10,000 g/t Ag were re-assayed by fire assay with gravimetric finish. Multi-element analysis consisted of a four-acid digest with an ICP-AES finish. Copper, lead, and zinc samples returning values >10,000 ppm were re-assayed with a four-acid digest with an ICP-AES finish.

Golden Minerals implemented an industry standard QA/QC program including the submission of certified standard reference materials (standards), duplicates and blanks to the laboratory, and the results are reviewed regularly to ensure that appropriate and timely action is taken in the event of a QA/QC failure. The general protocol is one QA/QC sample for every nine routine samples. In the case of a QA/QC failure, the standard practice is to review the data for potential sample swap issues and then re-run 5–8 samples before and after the erroneous sample.

Golden Minerals compiled an extensive dataset for the Yoquivo Project that is stored and managed using Micromine Geobank database management system. The database is stored remotely at Golden Mineral's exploration offices in Torreon, Coahuila, where it is also backed-up on a local server. In addition, paper data are stored in the Torreon offices, and scanned and stored on the local server.

Samples collected in the field are stored in a locked area at the exploration camp in Basaseachi and transported by Golden Minerals employees to ALS Chihuahua. Chain-of-custody procedures consist of sample submittal forms that are emailed to the laboratory, and a physical copy of the submission form delivered with sample shipments to ensure that all samples are received by the laboratory. ALS Chihuahua provides a sample delivery receipt to Golden Minerals.

## **1.11 Data Verification**

Golden Minerals uses database validation tools in Geobank Mobile and Geobank to prevent incorrect data from entering the database. Once the data are imported into Micromine and Leapfrog software systems, the data are reviewed in two dimensions and three dimensions to confirm data quality and to ensure that there are no unreasonable downhole deviations or gaps

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in the logging or assay fields. There are also multiple drill hole data validation processes completed in Micromine that are undertaken to ensure data quality and integrity.

An external data verification program was conducted by Mine Technical Services Ltd. (MTS), a third-party firm, during 2022. An MTS representative who meets the definition of a Qualified Person (QP) under S-K 1300 visited the Yoquivo Project for a five-day period, from 31 October 2022 to 4 November 2022. Data verification checks included inspection of outcrop and selected drill core, collar location checks on selected drill collars, witness sampling to confirm the presence of mineralization, visiting the Golden Minerals metallurgy laboratory in Velardeña, touring the ALS Chihuahua sample preparation facility, and auditing approximately 10% of the collar locations, downhole surveys, geological logs, and assays from the Project database to ensure that the digital database represents the original exploration records. MTS concluded that the Project database accurately represents the original exploration records and is acceptable to support mineral resource estimation.

Mr. Amoroso most recently completed a site visit from 2–4 November, 2022. Data verification checks included inspection of outcrop, historical workings, selected drill core, and the logging facilities, review of the analytical QA/QC, collar, and downhole survey data from Golden Minerals' drill programs, review of data entry and data verification procedures used to upload data to the Project database, and completion of an inspection of drill results in relation to the accuracy of geological interpretations and grade interpretations on section, plan, and 3D, and in geological and vein models. He also undertook a review of documents and reports supporting the mineral resource estimation approach and resulting estimate.

Mr. Booth has visited the site on numerous occasions, most recently from November 2 to 4 November 2022. During his visits, he inspected the vein systems and associated outcrop, selected drill core, and the logging facilities, visited the accessible historical workings, reviewed the analytical QA/QC, geological, collar, and downhole survey data from Golden Minerals' drill programs, reviewed data entry and data verification procedures used to upload data to the Project database, and completed an inspection of the geological interpretation as used in the 3D modelling for the mineral resource estimate. Mr. Booth discussed metallurgical testwork completed with an MTS representative who meets the definition of a Qualified Person under S-K 1300 for metallurgy, and reviewed the recommended metallurgical recovery forecasts with MTS. He complemented this discussion with a desktop review of public information on metallurgical recoveries used by other mining companies in similar deposit types in northern Mexico.

As a result of these checks, the QPs concluded that the Project database accurately represents the available data and is acceptable to support mineral resource estimation.

## **1.12 Metallurgical Testwork**

Two composite samples for preliminary testwork were generated by Golden Minerals from coarse rejects of Yoquivo core samples. These composites were designed to represent low grade and medium grade mineralized material at Yoquivo. Metallurgical investigations included creating composites, conducting head assays for gold, silver, cyanide soluble gold, and cyanide soluble silver, conducting duplicate bench top agitated leach tests, and flotation tests. Metallurgical tests were designed and conducted by Golden Minerals personnel at the Velardeña metallurgical laboratory.

Golden Minerals conducted 1,000 g bottle roll tests to simulate a leach circuit. The samples responded very well to cyanide leaching as gold recoveries were between 81.8% and 92.4%, and silver recoveries were between 77.6% and 92.5%. Both composites yielded higher gold and silver recoveries with higher sodium cyanide (NaCN) concentrations. All recoveries were substantially higher than the amount of cyanide-soluble gold and silver predicted by shake tests.

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Leach kinetics were slow as the gold and silver were still leaching when the majority of the tests were terminated. Between 30% and 70% of the gold leached in the first two hours with the remainder of the gold leached in a slow linear manner for the remainder of the test. Silver recoveries were a little slower, as between 15% and 55% of the silver leached in the first two hours and the remaining silver leached slowly throughout the remainder of the tests.

Flotation tests were conducted on 1,000 g splits from each composite. All flotation tests were conducted using a rougher-scavenger flotation scheme with common flotation reagents. Two different flowsheets were used. For one flowsheet, two concentrates were collected. The first concentrate was collected for one minute and the second concentrate was collected for the entire period between 1–13 minutes. The three remaining tests were conducted using a different flowsheet, where separate concentrates were collected at 1, 3, 5, 7, 9, 11 and 13 minutes.

The samples responded very well to flotation. Gold recoveries were between 84% and 95% and silver recoveries were between 82% and 89%. The flotation kinetics were quick as gold recoveries near 70% and silver recoveries near 60% were achieved in the first minute.

Recoveries of 85% for gold and silver were recommended by the QP for use in assessing reasonable prospects of economic extraction when performing the mineral resource estimate. These forecasts can support estimation of inferred mineral resources.

Insufficient samples have been conducted to qualify for variability testing.

No testwork has been conducted to determine if deleterious elements are present in sufficient quantities to impact the ability to produce, process, and sell a concentrate or that would increase the processing cost of either a leach circuit or a flotation circuit.

## **1.13 Mineral Resource Estimation**

### **1.13.1 Estimation Methodology**

Geology models were provided in digital format from Golden Minerals. Golden Minerals geology staff used LeapFrog software to create lithology and vein solids. Grade shells within the vein solids were constructed using a 200 g/t silver equivalent (AgEq) cut-off grade. The AgEq equation uses US\$1,840/oz Au and US\$24/oz Ag metal prices in the following equation

- $AgEq = Ag \text{ g/t} + Au \text{ g/t} * (1,840/24)$ .

Grade shell polygons were projected along strike 50 m from the last drill hole and extended down dip 100 m from the last drill hole. Where the AgEq vein grade shell true thickness was not at least 1 m thick, a footwall or hanging wall grade shell domain was drawn to bring the total grade shell thickness to 1 m.

Silver and gold boxplots show the majority of elevated silver and grades are associated with veins, breccia, and faults.

Resource model blocks were uniquely coded with the volume percent for each grade shell, footwall, and hanging wall, and were assigned a density of 2.43 g/cm<sup>3</sup>.

An outlier restriction plan was implemented for silver and gold. For silver block grade estimation, composite grades were uncapped during estimation within 15 m of the drill hole. Beyond 15 m, the composite grades were capped during estimation to 3,000 g/t Ag. For gold block grade estimation, gold composite grades were uncapped within 15 m of the drill hole. Beyond 15 m, the composite grades were capped to 10 g/t Au.

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Assays were composited to 0.5 m lengths along the drill hole trace honoring AgEq grade shell vein codes.

Grade interpolation for silver and gold used an inverse distance weighted (IDW) to the third power (ID3) method to estimate grade into the model blocks. The general strike and dip orientation of the veins were visually determined to determine search ellipse orientation for grade estimation. A single estimation pass was used to estimate silver and gold in each of three grade shell domains (hanging wall, vein, and footwall), with a minimum of two composites, a maximum of six composites and no more than two composites from a single drill hole.

The block model estimates were checked using comparison of different declustering methods, visual comparison of block grades to composites on cross sections and levels, and comparison of global block statistics for different estimation techniques.

Resource model blocks were classified as inferred mineral resources where they were within 50 m laterally or 100 m downdip from the nearest drill hole, and within a conceptual potentially mineable mineralization area grading  $\geq 200$  g/t AgEq.

Resource model blocks that have reasonable prospects for economic extraction were assessed by applying a minimum mining width of 1 m and an underground mining AgEq cut-off grade. An AgEq cut-off grade of  $\geq 200$  g/t was calculated using the following assumptions:

- Long-range silver and gold price guideline for cash-flow models in US\$ plus 15%, which equated to a silver price of US\$24/oz and a gold price of US\$1,840/oz;
- Mining by traditional cut-and-fill methods;
- Silver and gold metallurgical recovery assumption of 85%;
- Average mining cost of US\$75/t;
- Processing and general and administrative (G&A) costs of US\$50/t;
- Silver and gold royalty of 2%;
- Transportation and selling cost for silver of US\$0.95/oz and gold of US\$15/oz.

The QP is of the opinion that there are reasonable prospects for economic extraction for mineralized material  $\geq 200$  g/t AgEq that displays geological and grade continuity.

### **1.13.2 Mineral Resource Statement**

Mineral resources in Table 11 are reported as at 24 February, 2023, using the mineral resource definitions set out in S-K 1300. The reference point for the estimate is in situ.

The Qualified Person for the estimate is Mr. Aaron J. Amoroso, MMSA (QP), a Golden Minerals employee.

### **1.13.3 Factors That May Affect the Mineral Resource Estimate**

Factors that may affect the mineral resource estimate include: metal price and exchange rate assumptions; changes to the assumptions used to generate the silver equivalent grade cut-off grade; changes in local interpretations of mineralization geometry and continuity of mineralized zones; changes to geological and mineralization shape and geological and grade continuity assumptions; density and domain assignments; changes to geotechnical, mining and metallurgical recovery assumptions; changes to the input and design parameter assumptions that pertain to the underground mining assumptions used to constrain the estimates; and assumptions

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as to the continued ability to access the site, complete proposed exploration programs, and maintain the social license to operate.

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**Table 1-1: Yoquivo Inferred Mineral Resource Statement**

Vein	Area	Tonnes	Ag Grade (g/t)	Au Grade (g/t)	Silver Equivalent Grade (g/t AgEq)	Contained Ag (koz)	Contained Au (koz)	Contained Silver Equivalent (koz)
Pertenenencia	Vein	220,000	510	2.6	710	3,620	18	5,010
	Crown pillar	24,000	1,680	6.2	2,160	1,310	5	1,690
	<i>Subtotal</i>	<i>244,000</i>	<i>630</i>	<i>2.9</i>	<i>850</i>	<i>4,930</i>	<i>23</i>	<i>6,690</i>
Camila	Vein	285,000	330	2.0	490	3,070	18	4,470
	<i>Subtotal</i>	<i>285,000</i>	<i>330</i>	<i>2.0</i>	<i>490</i>	<i>3,070</i>	<i>18</i>	<i>4,470</i>
Camila hanging wall	Vein	170,000	300	1.8	440	1,610	10	2,370
	<i>Subtotal</i>	<i>170,000</i>	<i>300</i>	<i>1.8</i>	<i>440</i>	<i>1,610</i>	<i>10</i>	<i>2,370</i>
New	Vein	103,000	580	1.4	690	1,920	5	2,280
	Crown pillar	15,000	420	2.2	590	210	1	290
	<i>Subtotal</i>	<i>118,000</i>	<i>560</i>	<i>1.6</i>	<i>680</i>	<i>2,130</i>	<i>6</i>	<i>2,570</i>
Esperanza	Vein	98,000	150	1.9	300	480	6	940
	Crown pillar	22,000	130	1.8	270	90	1	190
	<i>Subtotal</i>	<i>120,000</i>	<i>150</i>	<i>1.8</i>	<i>290</i>	<i>570</i>	<i>7</i>	<i>1,130</i>
<b>Total</b>		<b>937,000</b>	<b>410</b>	<b>2.1</b>	<b>570</b>	<b>12,300</b>	<b>64</b>	<b>17,230</b>

Notes to accompany mineral resource table:

1. Mineral resources have been classified using the mineral resource definitions set out in S-K 1300. The estimate was current as at 24 February, 2023.
2. The Qualified Person for the resource estimate is Mr. Aaron J. Amoroso, MMSA (QP), a Golden Minerals employee.
3. Mineral resources assume a traditional underground cut-and-fill mining method; a silver price of US\$24/oz, a gold price of US\$1,840/oz, a minimum mining width of 1 m; assumed silver and gold metallurgical recovery of 85%; an average mining cost of US\$75 /t mined; average processing and general and administrative cost of US\$50/t processed; transportation and selling cost of US\$0.95/oz Ag and US\$15/oz Au; and a gold and silver royalty of 2%.
4. Mineral resources are reported insitu within a grade shell constructed from composites above a cut-off grade of 200 g/t silver equivalent (AgEq), where  $AgEq = Ag\ g/t + Au\ g/t * (1,840/24)$ , where 1,840 is the gold price per ounce in US\$, and 24 is the silver price per ounce in US\$.
5. All tonnage, grade and contained metal content estimates have been rounded; rounding may result in apparent summation differences between tonnes, grade, and contained metal content.

A portion of the vein systems at Yoquivo have been the subject of historical mining. The majority of the historical mining has been conducted on the San Francisco vein system, but there is evidence that some historical mining has occurred on the Pertenencia and Esperanza vein systems. There is no evidence for mining on the Camila and Camila HW vein systems. There are some small prospect pits on the New vein system but no evidence of any historical mining.

Golden Minerals' drilling in the upper part of the Pertenencia vein system encountered old workings in some of the drill holes. Adjacent drill holes located <10 m away from those drill holes did not intersect workings, suggesting that the workings are small and erratic, and may represent development on the vein rather than large areas of stoping.

The QP's personal inspection indicated, for the workings visited, that the excavations appear minimal based on the size of the dumps associated with the portals/trenches. To the knowledge of Golden Minerals personnel, underground mapping was not conducted on the majority of the workings; the Creel zone of the San Francisco veins is an exception. No maps are currently available for the workings that are present in the area of the mineral resource estimate. The mineral resource estimate does not include any depletion due to historical mining. There is a risk, when excavation data are available, that some of the area included in the mineral resource estimate may have been historically mined out.

## **1.14 Risks and Opportunities**

### **1.14.1 Risks**

Risks at this stage of Project development primarily relate to the ability to continue good relations with the local ejidos such that surface rights and access to water for drill programs can continue.

Metallurgical tests completed to date are sufficient to indicate the potential recoverability of silver and gold to support Inferred Mineral Resource estimates. However, more detailed investigations, including variability tests, may result in changes to the assumed metallurgical recoveries used to support the estimate. No testwork has been completed as to whether potentially deleterious elements are present in the mineralization.

### **1.14.2 Opportunities**

Opportunities include the upside potential represented by the northern part of the Pertenencia vein system as well as on the San Francisco and Esperanza vein systems. The Project area retains significant grassroots exploration potential represented by areas under volcanic cover rock, and the possibility of extensions to known vein systems.

The selection of the mining method used when assessing reasonable prospects of economic extraction is based on limited information; more data including geotechnical data may allow use of different methods than the traditional cut-and-fill method assumed, which may result in additional mineralization able to be mined.

## **1.15 Conclusions**

Under the assumptions in this Report, the estimation of inferred mineral resources can be supported.

The Project shows good potential to discover additional high-grade gold–silver mineralization in the following areas:

- Northern part of the Pertenencia vein system;
-

- San Francisco and Esperanza vein systems.

Additional exploration is warranted on the Dolar and San Antonio vein systems.

The potential of the Verde, La Texana and La Trucha veins is unknown, but may warrant a small drill program to test potential at depth.

The northwestern and southwestern Project extents, where limited mapping has been conducted and there are outcropping andesites below the upper volcanic ignimbrites and tuffs, may have potential to host veins within the andesite lithologies. There is also potential for the known veins to continue into these areas.

### **1.16 Recommendations**

A two-phase work program is recommended. The first phase should include rehabilitation of the existing artisanal mine workings at Pertenencia, mapping and sampling of those workings once accessible, and additional drill testing and metallurgical testwork at Pertenencia, culminating in an updated mineral resource estimate. The second phase, which is dependent on the results of the first phase, would include a reconnaissance geological mapping and sampling program, and infill and step-out drilling at Pertenencia, and drill testing of the Esperanza, Dolar, and San Francisco vein systems. The first work phase is estimated to require a budget of approximately US\$1.8 M to complete. The proposed budget for the second phase is approximately US\$2.4 M.

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## **2.0 INTRODUCTION**

### **2.1 Introduction**

Golden Minerals Company (Golden Minerals) has prepared a technical report summary (the Report) on the results of a mineral resource estimate for the Yoquivo Project (the Project) located in Chihuahua State, Mexico (Figure 21 and Figure 22).

### **2.2 Terms of Reference**

The Report was prepared to support the Golden Minerals 2022 Form 10-K.

Mineral resources are reported for the Pertenencia, Camila, New and Esperanza vein systems within the Yoquivo deposit.

All measurement units used in this Report are metric unless otherwise noted, and currency is expressed in United States dollars (US\$) as identified in the text. The Mexican currency is the Mexican peso (\$MXN).

Mineral resources are reported using the definitions in Regulation S–K 1300 (S–K 1300), under Item 1300.

The Report uses US English.

### **2.3 Qualified Persons**

This Report was prepared by the following Golden Minerals Qualified Persons (QPs):

- Mr. Aaron J. Amoroso, Mining and Metallurgical Society of America (MMSA) (QP), Mineral Resource Manager, Golden Minerals Company;
- Mr. Matthew Booth, American Institute of Professional Geologists (AIPG), Exploration Manager – Mexico, Golden Minerals Company.

Mr. Amoroso is responsible for Chapters 1.1, 1.2, 1.9, 1.10, 1.11, 1.13, 1.14, 1.15, 1.16; Chapter 2; Chapters 7.2, 7.3, 7.4; Chapter 8; Chapters 9.1, 9.2, 9.3.1, 9.4; Chapter 11; Chapter 12; Chapter 13; Chapter 14; Chapter 15; Chapter 16; Chapter 17; Chapter 18; Chapter 19; Chapter 20; Chapter 21; Chapters 22.1, 22.7, 22.8, 22.10, 22.11, 22.12; Chapter 23; Chapter 24; and Chapter 25.

Mr. Booth is responsible for Chapters 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.14, 1.15, 1.16; Chapter 2; Chapter 3, Chapter 4, Chapter 5, Chapter 6, Chapter 7; Chapter 8; Chapters 9.1, 9.2, 9.3.2, 9.4; Chapter 10; Chapter 12; Chapter 13; Chapter 14; Chapter 15; Chapter 16; Chapter 17; Chapter 18; Chapter 19; Chapter 20; Chapter 21; Chapters 22.1, 22.2, 22.3, 22.4, 22.5, 22.6, 22.7, 22.8, 22.9, 22.11, 22.12; Chapter 23; Chapter 24; and Chapter 25.

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Figure 2-1: General Project Location Map



Figure prepared by Golden Minerals, 2023.



of the Project with visiting third-party consultants. Additional information on site visit activities is provided in Chapter 9.3.

## **2.5 Report Date**

Information in this Report is current as at 24 February, 2023.

## **2.6 Information Sources and References**

The principal document used in report preparation was:

- Wakefield, T., Orbock E.J.C., and Arthur, B., 2023: Yoquivo Project, Chihuahua, Mexico, NI 43-101 Technical Report on Mineral Resource Estimate: draft report prepared by Mine Technical Services Ltd for Golden Minerals Corporation, effective date 24 February, 2023 (in draft).

The reports and documents listed in Chapter 24 of this Report were also used to support Report preparation. Information that was provided by Golden Minerals, as the registrant, is identified in Chapter 25 of the Report. Additional information was sought from Golden Minerals personnel where required.

## **2.7 Previous Technical Report Summaries**

Golden Minerals has not previously filed a technical report summary on the Project.

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## **3.0 PROPERTY DESCRIPTION**

### **3.1 Introduction**

The Yoquivo Project is located 210 km west–southwest of Chihuahua city, in Ocampo Municipality, Chihuahua State.

The Project centroid is latitude 28° 2' 20" north, longitude 108° 2' 55" west (WGS84).

The Yoquivo deposit centroid is latitude 28° 2' 21" north, longitude 108° 2' 16" west (WGS84).

### **3.2 Property and Title in Mexico**

The QP has not independently verified the following information, which is in the public domain and was sourced from official Mexican Government websites.

#### **3.2.1 Mineral Title**

In Mexico, mining concessions are granted by the Economy Ministry and are considered exploitation concessions with a 50-year term.

Valid mining concessions can be renewed for an additional 50-year term as long as the mine is active, and the applicant has abided by all appropriate regulations and makes the application within five years prior to the expiration date.

All concessions must be surveyed by a licensed surveyor.

Mining concessions have an annual minimum investment that must be met, an annual mining rights fee to be paid to keep the concessions effective, and compliance with environmental laws. Minimum expenditures, pursuant to Mexican regulations, may be substituted for sales of minerals from the mine for an equivalent amount.

#### **3.2.2 Surface Rights**

Surface rights in Mexico are commonly owned either by communities (ejidos) or by private owners. Mexican mining law includes provisions to facilitate purchasing land required for mining activities, installations, and development.

#### **3.2.3 Royalties**

In 2013, the Mexican Federal government introduced a mining royalty, effective January 1, 2014, based on 7.5% of taxable earnings before interest and depreciation. In addition, precious metal mining companies must pay a 0.5% royalty on revenues from gold, silver, and platinum.

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### **3.2.4 Water Rights**

The National Water Law and associated regulations control all water use in Mexico. The Comisión Nacional del Agua (CONAGUA) is the responsible agency. Applications are submitted to this agency indicating the annual water needs for the mine operation and the source of water to be used. CONAGUA grants water concessions based on water availability in the source area.

### **3.2.5 Fraser Institute Survey**

The QP used the 2021 Fraser Institute Annual Survey of Mining Companies report (the 2021 Fraser Institute Survey) as a credible source for the assessment of the overall political risk facing an exploration or mining project in Mexico. Each year, the Fraser Institute sends a questionnaire to selected mining and exploration companies globally. The Fraser Institute survey is an attempt to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment.

The QP used the 2021 Fraser Institute survey because it is globally regarded as an independent report-card style assessment to governments on how attractive their policies are from the point of view of an exploration manager or mining company and forms a proxy for the assessment by industry of political risk in specific political jurisdictions from the mining industry's perspective.

Of the 84 jurisdictions surveyed in the 2021 Fraser Institute survey, Mexico ranks 34<sup>th</sup> for investment attractiveness, 54<sup>th</sup> for policy perception and 28<sup>th</sup> for best practices mineral potential.

## **3.3 Project Ownership**

The Project is 100% held by Golden Minerals. Mineral title is currently in the process of transfer from the original concession holders to Golden Minerals' wholly-owned subsidiary, Minera de Cordilleras S. De R.L. de C.V. (Minera de Cordilleras).

## **3.4 Mineral Tenure**

The Project consists of seven mining concessions with an area totalling about 1,975 ha, located within the Ocampo municipality, Chihuahua State, Mexico.

Table 31 summarizes the concessions, and Figure 31 shows the concession locations. There are third-party concessions within the La Copa concession (see Figure 31) that are excised from that concession.

The Yoquivo group of concessions (El Dollar, La Copa, San Francisco de Yoquivo, La Niña, Dolores, and La Restauradora) were acquired from Alejandro Dozal González and Paola Gabriela Dozal González in March 2022. The acquisition consisted of a total payment of US\$480,000 over 54 months and payment of US\$125,140 to settle all outstanding property taxes the original concessions owners owed to the Mexican government. All payments were made as required.

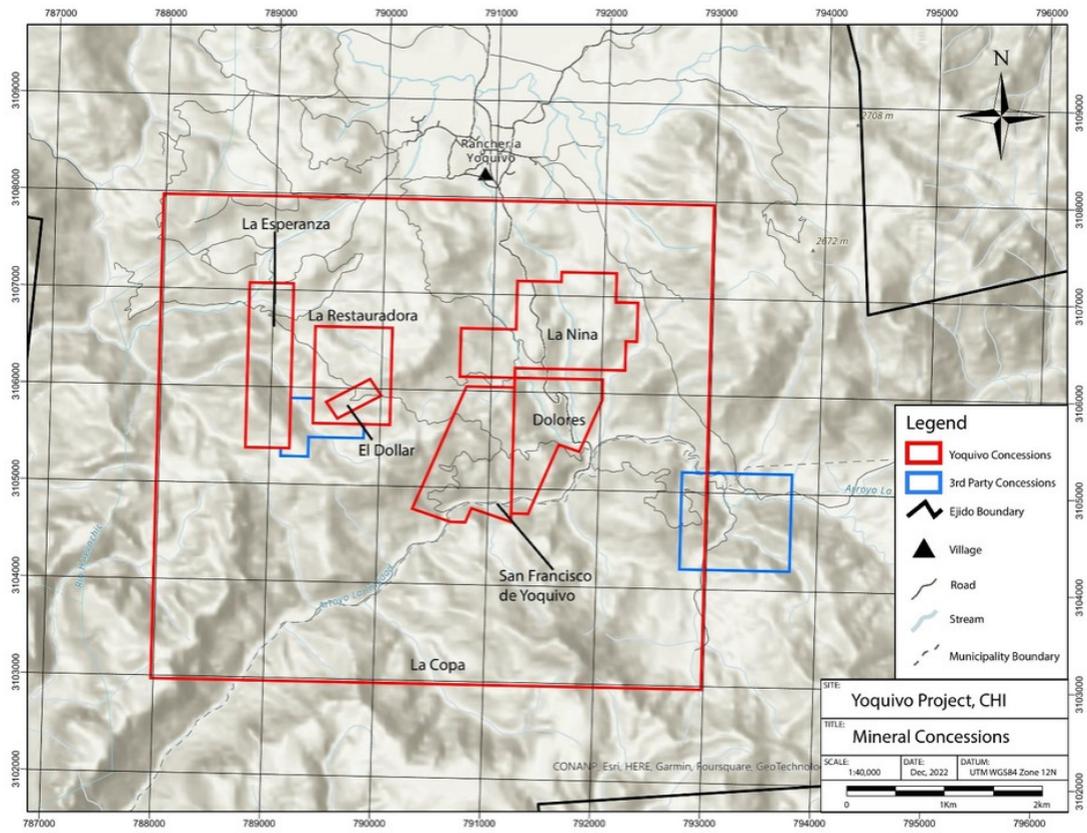
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**Table 3-1: Mineral Tenure Summary Table**

<b>Concession Name</b>	<b>Concession Holder</b>	<b>Original Concession Owner</b>	<b>Title Number</b>	<b>Area (ha)</b>	<b>Expiry Date</b>	<b>Bi-Annual Property Taxes (MXN\$)</b>
El Dollar	Minera de Cordilleras	Alejandro and Paola Dozal González	214876	9.19	3 December, 2051	1,736
La Copa	Minera de Cordilleras	Alejandro and Paola Dozal González	223499	1,552.12	11 January, 2055	293,133
San Francisco de Yoquivo	Minera de Cordilleras	Alejandro and Paola Dozal González	220851	91.06	15 October, 2053	17,197
La Niña	Minera de Cordilleras	Alejandro and Paola Dozal González	217475	122.00	15 July, 2052	23,041
Dolores	Minera de Cordilleras	Alejandro and Paola Dozal González	216491	71.63	16 May, 2052	
La Restauradora	Minera de Cordilleras	Alejandro and Paola Dozal González	217476	60.81	15 July, 2052	11,485
La Esperanza	Minera de Cordilleras	Maria Esthela Parra Quezada, María del Carmen Parra Quezada, Jesús Antonio Parra Quezada, and Emiliano Hurtado Montañó	218071	68.00	2 October, 2052	12,842
<b>Totals</b>				<b>1,974.81</b>		<b>372,961</b>

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**Figure 3-1: Mineral Tenure Location Plan**



Note: Figure prepared by Golden Minerals, 2023.

The Esperanza concession was acquired from Maria Esthela Parra Quezada, María del Carmen Parra Quezada, Jesús Antonio Parra Quezada, and Emiliano Hurtado Montaña on 29 July, 2019 for a total payment of US\$250,000 over 36 months. All payments were made as required.

All payments of mining duties and taxes for the concessions are up to date, and the required proof of annual labour forms have been filed for the concessions.

### **3.5 Surface Rights**

The claims are located on the San Francisco de Yoquivo ejido (Figure 32). Although the mineral rights are independent of the surface rights, access to the claim block is granted through an agreement between the concession holder and the San Francisco de Yoquivo ejido that does not have a direct interest in the mineral claims.

Minera de Cordilleras signed a five-year temporary access agreement on 5 May, 2018 with the San Francisco de Yoquivo ejido to allow the company to conduct exploration activities within the mineral concessions. As part of this agreement Minera de Cordilleras agreed to pay the San Francisco de Yoquivo ejido's outstanding property taxes, which totalled MXN\$120,000, and agreed to pay the annual property tax, which amounts to about MXN\$20,000/a.

Golden Minerals is currently negotiating a new access agreement with the ejido to allow a continuation of exploration activities.

### **3.6 Water Rights**

Water used in the exploration programs is purchased from the San Francisco de Yoquivo ejido, with payments based on each water truck load. This is currently about MXN\$800 per water truck load.

The San Francisco de Yoquivo ejido uses its own water trucks to pump water from the La Trinidad River to a series of temporary storage ponds close to the drill sites.

### **3.7 Royalties**

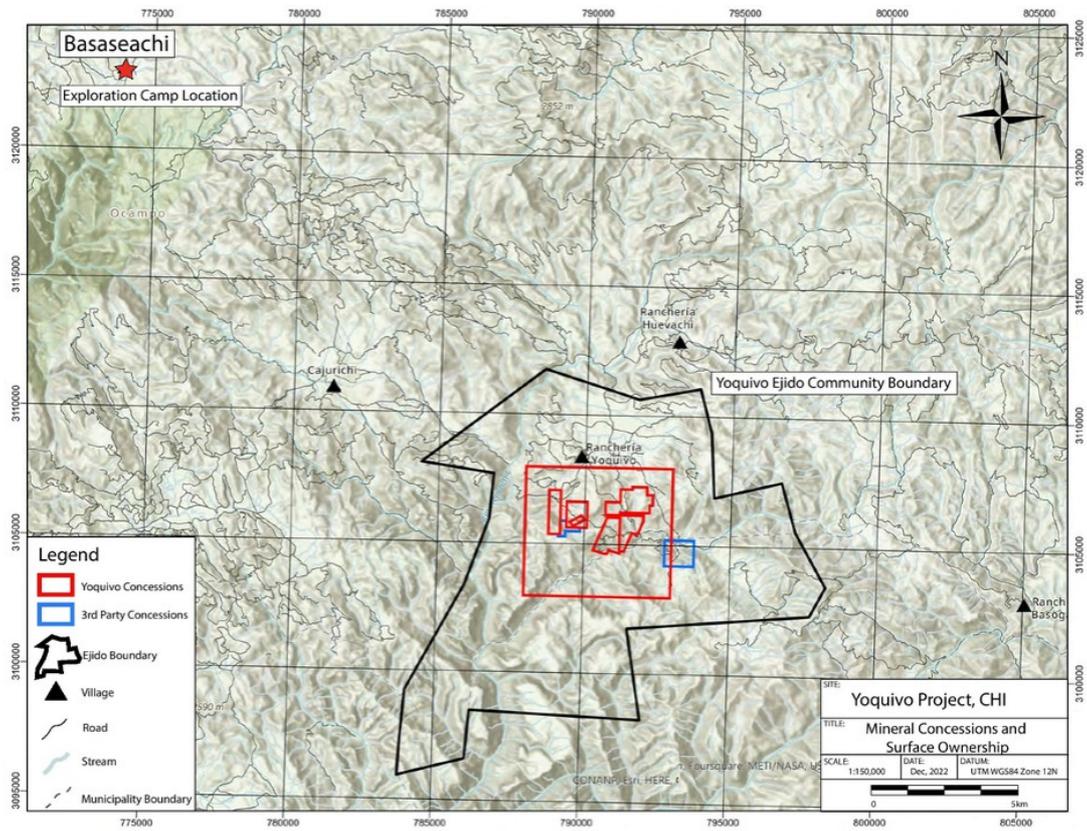
Third-party net smelter return (NSR) royalties are payable on all the concessions (see Table 32) and range from 2–3%.

### **3.8 Property Agreements**

No other agreements, apart from the access agreement discussed in Section 4.5, apply to the Project.

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Figure 3-2: Surface Rights Map, Project Area



Note: Figure prepared by Golden Minerals, 2023.

**Table 3-2: Royalty Payments**

Concession Name	Title Number	Royalty
El Dollar	214876	2% NSR Capped at US\$2 million
La Copa	223499	
San Francisco de Yoquivo	220851	
La Niña	217475	
Dolores	216491	
La Restauradora	217476	3% NSR Capped at US\$800,000
La Esperanza	218071	

### **3.9 Permitting Considerations**

#### **3.9.1 Permitting for Exploration-Stage Programs**

Exploration activities such as rock and soil sampling, geological mapping and geophysical surveys can be conducted without environmental permits.

Drilling and mechanized trenching requires the filing of an Informe Preventivo with the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) if there is minimal construction of access roads and little or no cutting of trees. If significant construction of access roads and drill pads are required, approval from SEMARNAT must be obtained, in the form of an environmental impact manifest (MIA).

Surface access and/or use agreements with the surface rights owners are required for the application of both the Informe Preventivo and MIA.

An Informe Preventivo is in force for the area of the Yoquivo ejido that permits Golden Minerals to conduct drilling activities. The official notice 08/IP-0142/12/18 for the Informe Preventivo is dated January 16, 2019, and was issued by the Ministry of Environmental and Natural Resources to Minera de Cordilleras.

#### **3.9.2 Permitting for Operations**

There are a number of environmental permits required to put any project into operation. The majority of the mining regulations are at a federal level through SEMARNAT, but there are also a number of permits that must be obtained that are regulated and approved at state and local levels. Three SEMARNAT permits are required prior to any construction activities:

- Environmental impact manifest: an MIA must be prepared by a third-party contractor for submittal to SEMARNAT. The MIA must include a detailed analysis of climate, air quality,

water, soil, vegetation, wildlife, cultural resources, and socio-economic impacts of the contemplated operation;

- Estudio de riesgo or risk study (ER): must identify potential environmental releases of hazardous substances and evaluate associated risks to establish prevention methods, responses to, and control of, environmental emergencies;
- Cambio de uso del suelo en terrenos forestales or change in forestry land use (CUSTF): the CUSTF is a formal instrument for changing the designation to allow mining on these areas. The CUSTF study is based on the Forestry Law and its regulations. An evaluation must be completed that documents the existing land conditions, including vegetation and wildlife studies, includes an evaluation of the current and proposed use of the land and impacts on natural resources and provides an evaluation of the reclamation and revegetation plans. Agreements with all affected surface landowners are also required to have been completed.

A Project-specific Licencia Única Ambiental (LAU), which states the operational conditions to be met, is issued by SEMARNAT when that agency has approved the Project.

A construction permit is required from the local municipality and an archaeological release letter is required from the National Institute of Anthropology and History.

An explosives permit is required from the Ministry of Defense before any construction begins. Water discharge and usage must be granted by the Comisión Nacional del Agua (CONAGUA).

Operations involving collection, shipping, and/or storage services as well as reuse, recycling, treatment, incineration, and/or final disposal systems of hazardous waste require the operator to register as a hazardous waste generator with SEMARNAT, with a copy sent to the Procuraduría Federal de Protección al Ambiente (PROFEPA). Once the company is registered with PROFEPA as a hazardous waste generator, SEMARNAT assigns the company an environmental registry number that must appear on all reports that are filed with the authority.

The key permits required for an operation are summarized in Table 33.

### **3.10 Environmental Considerations**

Exploration and mining activities in Mexico are regulated by the Ley General de Equilibrio Ecológico y Protección al Ambiente (LGEEPA), and the Reglamento en Materia de Impacto Ambiental (REIA).

Rules and laws pertaining to mining and exploration activities are administered by SEMARNAT and by PROFEPA, which is the agency that enforces SEMARNAT's laws and policies.

Activities that exceed specified disturbance limits require authorization from SEMARNAT and an MIA must be prepared.

Exploration activities that are expected to generate impacts to the physical or social environment that are assessed as potentially of low significance by the regulators are administered under Norma Oficial Mexicana-120-SEMARNAT-1997 (NOM-120-SEMARNAT-1997), and its subsequent modifications.

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**Table 3-3: Key Permits Required in Support Of Any Future Operations**

Permit	Required Prior to Mining Stage	Agency
Environmental Impact Assessment (MIA)	Construction/operation/post-operation	SEMARNAT
Cambio de uso del suelo en terrenos forestales (CUSTF)	Construction/operation	SEMARNAT
Technical justification study	Construction (includes conceptual design)	SEMARNAT
Risk study (ER)	Construction/operation	SEMARNAT
Construction permit	Construction	Local municipality
Explosive and storage permits	Construction/operation	SEDENA
Archaeological release	Construction	INAH
Water use concession	Construction/operation	CONAGUA
Water discharge permit	Operation	CONAGUA
Licencia única Ambiental (LAU)	Construction, six months prior to operation	SEMARNAT
Accident prevention plan	Operation	SEMARNAT
Hazardous waste generator	Operation	SEMARNAT/PROFEPA

Note: SEMARNAT = Secretaría de Medio Ambiente y Recursos Naturales; PROFEPA = Procuraduría Federal de Protección al Ambiente; SEDENA = Secretaría de la Defensa Nacional; INAH = Instituto Nacional de Antropología e Historia; CONAGUA = Comisión Nacional del Agua.

The Project is not included within any specially protected, federally designated, ecological zones known as Áreas Naturales Protegidas.

The Yoquivo Project is within the Yoquivo Mining District and has been mined historically at small scales since the late 19<sup>th</sup> century. The mineralized bodies and the enclosing host rocks are anomalous in base and precious metals and have generated elevated metals values in sediments that extend well beyond known workings. The mineralized veins are characteristically low or moderate sulphidation but may have potential for acid rock drainage (ARD) and subsequent metal leaching.

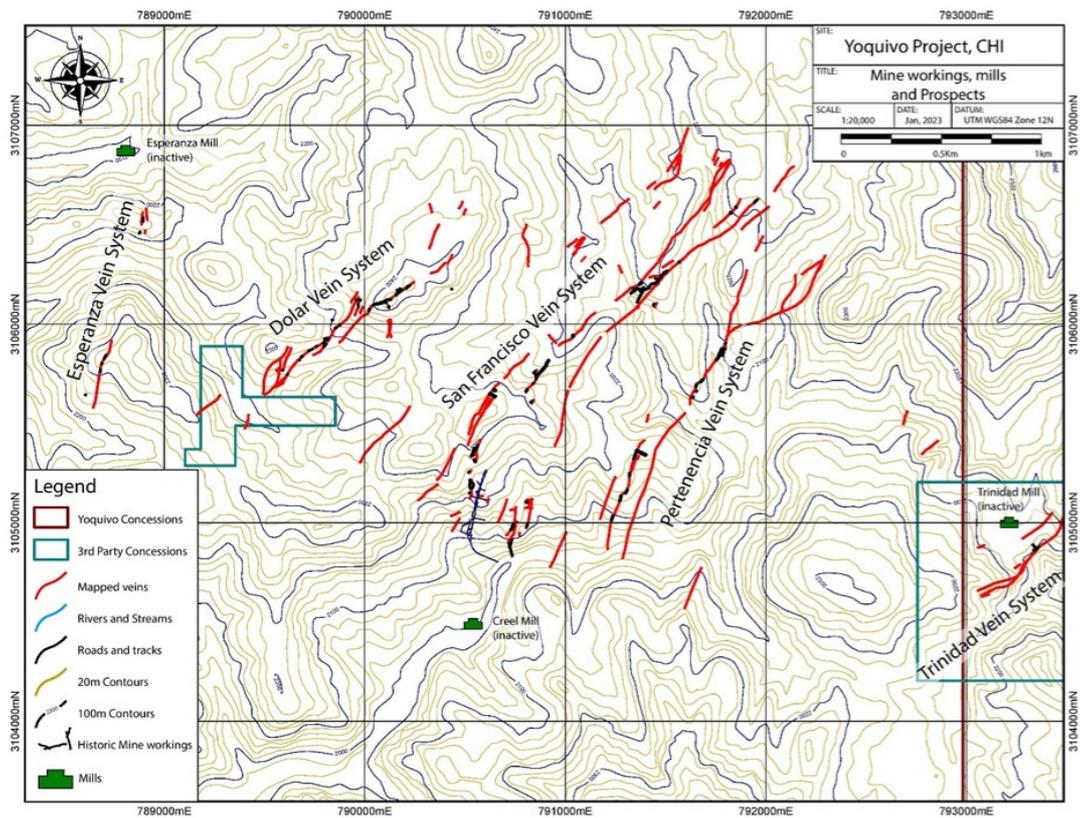
There are numerous historical mine workings, excavations, and dumps on, and adjacent to, the Project area (Figure 33). There are two small processing plants within the Project area, but they are not under the control of Golden Minerals. The Esperanza mill is a small 20 t/d cyanide mill but has never operated. The Creel Mill was a 75 t/d flotation mill installed in the 1980s that has been partially dismantled, and is currently non-operational.

Some of the disturbances are on mineral concessions held by Golden Minerals. Environmental impacts within the Project site primarily result from historical activities. A site visit, conducted by SEMARNAT as part of the permit application in 2017, determined that the surface disturbances

caused by historical mining activities, were “not significant”, and Golden Minerals is not liable for any rehabilitation of those surface disturbances.

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Figure 3-3: Historical Mine Working Location Map



Note: Figure prepared by Golden Minerals, 2023.

Adjacent to the Project area, to the west in an excised concession from Golden Minerals' holdings, a small custom mill is operating in the Trinidad area, processing material from artisanal miners (gambusinos) that is sourced from the surrounding mines and prospects including some mineralization mined from the Yoquivo Project area.

Gambusinos have been extracting small amounts of material from the Creel level of the San Francisco vein system, and removing small historic mine dumps from the Project during Golden Minerals' tenure ownership. Those impacts have been identified and documented by Golden Minerals' staff. There is an expectation that Golden Minerals is not responsible for the current gambusino activity, as material is being removed from the Project area and processed at a toll mill outside the Project area, so there are no waste rock or tailings being generated within the Project boundaries.

### **3.11 Social License Considerations**

Golden Minerals, through Minera de Cordilleras, has written permission from the surface landowners to complete exploration on the Project but will need to negotiate agreements to initiate any future construction and mining activities.

Golden Minerals has built a good relationship with the San Francisco de Yoquivo community, has employed local workers as casual labourers, has employed local contractors for road repair and drill platform construction, and has locally hired water trucks to transport water to the drill sites.

### **3.12 Encumbrances**

There are no known encumbrances.

There are no current material violations or fines, as imposed in the mining regulatory context of the Mine Safety and Health Administration (MSHA) in the United States, that apply to the Yoquivo Project.

### **3.13 Significant Factors and Risks That May Affect Access, Title or Work Programs**

To the extent known to the QP, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the Project that are not discussed in this Report.

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

### **4.1 Physiography**

The elevation in the Project area is rugged, and averages 1,979 masl. Topographic highs and lows can be approximately 600 m different in elevation.

The major drainages in the Project area are the La Trinidad and San Francisco streams. The closest major river to the Project is the Candameña River.

Vegetation is dominated by pine forests with minor oak and maple.

### **4.2 Accessibility**

The Project can be accessed from the city of Chihuahua by the following route:

- Chihuahua City to Cuauhtemoc to La Junta to Basaseachi (location of the exploration base camp), a distance of 278 km on Mexico Highway 16.

To access the concession area, the route is:

- Basaseachi to the San Francisco de Yoquivo ejido via Chihuahua State Highway 227 (Basaseachi–San Juanito paved road) for 36.1 km, and then 5 km of unpaved road from the turnoff from Chihuahua State Highway 227.

The Project centre is an additional 3 km due south of the San Francisco de Yoquivo ejido (refer to Figure 22), and is accessed by a series of dirt roads and logging tracks.

The closest railway station is in San Juanito, 45 km east of the Project area.

### **4.3 Climate**

There is no direct meteorological data collected for the Yoquivo Project area, and because regional and local climates in mountainous regions can be significantly different, the climate information presented in this sub-section was taken from a weather station at the Basaseachi Falls national park located 21 km to the northwest of the Project area. The climate is classified as humid subtropical to humid continental depending on elevation.

The average yearly maximum temperature is estimated to be approximately 23° C. The monthly maximum temperature is approximately 17° C in December and January, whereas the maximum monthly temperature is 30° C in July. Temperatures can drop to average minima of -1° C in December–January.

Rainfall occurs mainly during the summer from July to September. Snow and rain occur sporadically during the winter months. The average annual precipitation is approximately 1,500 mm, falling in two distinct wet seasons. Approximately 80% of the total rainfall occurs from June to September (a summer rain fall regime) and the balance falls during October to April (slight winter precipitation regime).

Exploration activities can be conducted year-round. Any future mining activity would also be year-round.

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#### **4.4      Infrastructure**

The closest town to the Project is Basaseachi, approximately 24 km to the northwest of the Project area. The town can support basic exploration activities, and currently Golden Minerals rents a house in Basaseachi as the base for Project exploration activities.

The area has a long tradition of mining. Several large open pit and underground precious metal mines are operating within 50 km of the Project area. The Yoquivo Project lies about 36 km southeast of the Piños Altos, Ocampo, and El Cocheño mines, all large-scale open pit and underground operations that are exploiting low-sulphidation epithermal vein systems. The Orisyvo high-sulphidation deposit is located 25 km to the south of the Project area.

These mines source the majority of their workforces from the local communities, including the towns of Basaseachi, San Juanito, and La Junta. There is a department of mining, metallurgy, and geology at the Universidad Autónoma de Chihuahua in the city of Chihuahua approximately 300 km to the west of the Project. Golden Minerals believes that there is sufficient skilled and unskilled labour in the communities near to the Yoquivo Project to provide skilled and unskilled labour for Project purposes.

The city of Ciudad Cuauhtémoc, situated 125 km to the northeast of the Project, hosts several universities and post-secondary schools. The principal industry is farming, particularly apple orchards and ranching.

The Comisión Federal de Electricidad (the state power company) constructed a 115 kV powerline to the town of Basaseachi in 2005, and the community of San Francisco de Yoquivo is connected to the main power grid. However, it is likely that these lines will need to be upgraded to support any future operations at the Yoquivo Project.

The Project area is covered by a number of rivers and streams. In support of exploration activities, Golden Minerals has hired water trucks owned by the Yoquivo ejido to transport water from the La Trinidad River to the various drill sites. Negotiations would be required in the future to acquire sufficient water rights to allow Golden Minerals to drill water wells to provide water for future operations.

Within the Project boundary there is sufficient land to allow for the construction of any future processing plant, tailings storage facility, waste rock facilities, mine offices, and a mine camp. Negotiations with the ejido will need to be conducted to acquire the surface rights for any such future facilities.

A review of the existing power and water sources, manpower availability, and transport options indicates that there are reasonable expectations that sufficient labour and infrastructure will be available to support exploration activities.

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## **5.0 HISTORY**

The Project history is summarized in Table 51.

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**Table 5-1: Exploration and Development History Summary Table**

Year	Operator	Work Completed
1867–1925	Unknown	Small scale underground mining operations, primarily on the San Francisco and La Esperanza veins.
Mid-1970s	Cia. Minera La Rastra, S.A.	Drove a tunnel 300 m parallel to the caved areas on the San Francisco vein; completed underground mapping and sampling. Drilled five holes, type and metreage unknown.
1976–1978	Mead Exploration Co.	Limited production from high-grade stringers
2004–2005	Sydney Resources Corporation (Sydney Resources)	Entered into an agreement with concession holder Jose Maria Dozal-Rascon to earn a 100% interest. Rock chip and channel sampling, with 657 samples collected on surface and 131 from underground. San Francisco-Los Angeles-La Cruz and Pertenencia-Dolores structures mapped at 1:5,000 scale.
2006–2008	West Timmins Mining Inc. (West Timmins)	Company formed by merger of Sydney Resources and Band-Ore Resources Ltd. in 2006. During 2007, completed 8 drill holes totaling 2,473.4 m of core drilling, which encountered narrow, high-grade gold–silver intercepts from a number of vein systems. Completed a regional helicopter geophysical survey (total field magnetics and electromagnetics) using a high resolution AeroTEM II system. Returned concessions to original concession holder in 2008.
2007	Konigsberg Corporation	Optioned concessions from West Timmins to obtain a 75% Project interest. Subsequently changed name to Gold Mountain Exploration. Minor reconnaissance sampling conducted (38 samples collected).
2017	Golden Minerals	Golden Minerals acquired the Yoquivo group of concessions.
2018		Mapped and sampled the San Francisco and Pertenencia veins and associated splays over a 2 km strike length. Collected 1,664 surface and underground rock chip samples.
2019		Data review to generate drill targets. Collected 370 rock samples. Contract signed to acquire the La Esperanza Concession.
2020		Phase 1: 3,348 m, 15-hole drill program targeting the Pertenencia, San Francisco and Esperanza vein systems. Collected 53 rock samples.
2021		Phase 2: 3,949 m, 21-hole drill program exploring the Pertenencia, Esperanza and Dolar vein systems. Drill holes were designed to follow up on the high-grade zones intersected by the 2020 drill program and to explore additional veins with

Year	Operator	Work Completed
		the aim of identifying new mineralized zones. Acquired high-resolution digital terrain model for Project area.
2022		<p>Phase 3: 5,947.5 m, 24-hole drill program was designed to follow-up on high-grade intercepts reported from the 2021 drilling program, and to explore additional veins with the aim of identifying new high-grade zones. Collected 28 additional rock samples.</p> <p>Phase 4: 3,320.9 m, 10-hole drill program designed to follow-up on high-grade intercepts reported from the phase 3 program and to further explore the newly discovered Camila vein system.</p> <p>Completed initial internal metallurgical studies.</p> <p>Final property payments made for the Yoquivo and Esperanza concessions. Initiated transfer of concession ownership to Golden Minerals.</p>

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## **6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT**

### **6.1 Deposit Type**

The mineralization types within the vein systems at Yoquivo are examples of low-sulphidation systems.

Low-sulphidation epithermal deposits are formed by high-level hydrothermal systems from depths of ~1 km to surficial hot-spring settings. Most types of volcanic rocks can host the deposit type; however, calc-alkaline andesitic compositions predominate. Ore zones are typically localized in structures but may occur in permeable lithologies. Upward-flaring ore zones centred on structurally controlled hydrothermal conduits are typical. Large (>1 m wide and hundreds of metres in strike length) to small veins and stockworks are common with lesser disseminations and replacements.

Vein systems can be laterally extensive, but ore shoots have relatively restricted vertical extent. High-grade ores are commonly found in dilational zones in faults at flexures, splays and in cymoid loops.

Deposits can be strongly zoned along strike and vertically. Deposits are commonly vertically zoned over 250–350 m from a base metal poor, gold–silver-rich top to a relatively silver-rich base metal zone and an underlying base metal-rich zone grading at depth into a sparse base metal, pyritic zone.

Pyrite, electrum, gold, silver, argentite; chalcopyrite, sphalerite, galena, tetrahedrite, silver sulphosalt, and/or selenide minerals are the main mineral species. Quartz, amethyst, chalcedony, quartz pseudomorphs after calcite, calcite, adularia, sericite, barite, fluorite, and calcium–magnesium–manganese–iron carbonate minerals such as rhodochrosite, hematite, and chlorite are the most common gangue minerals.

### **6.2 Regional Geology**

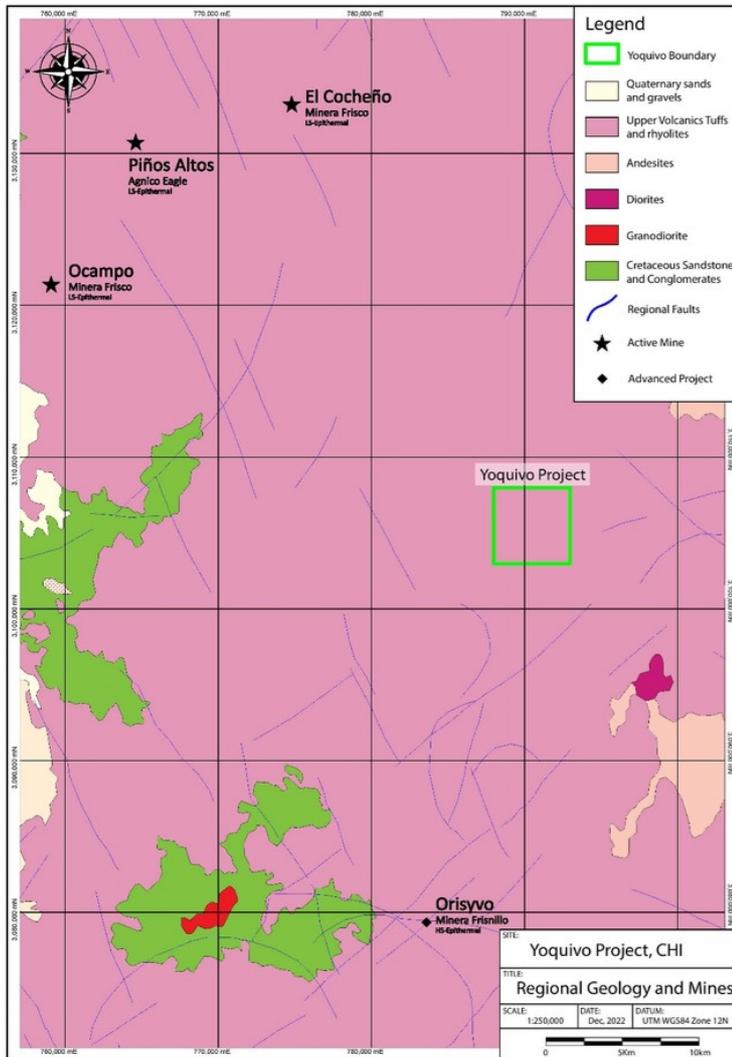
The Yoquivo Project is located within the Sierra Madre Occidental volcanic belt (Sierra Madre), an arc formed by eastward subduction of the Pacific Plate. The Sierra Madre is a metallogenic terrane well known for its epithermal precious metal deposits.

The lower part of the arc comprises late Cretaceous to early Tertiary calc-alkaline batholiths and equivalent volcano–sedimentary rocks referred to as the “Lower Volcanic Supergroup”. These rocks represent magmatic activity during the Laramide orogeny (40–80 Ma) and were followed by two periods of major ignimbrite eruption in the early Oligocene and early Miocene epochs. Collectively these latter two eruptive periods constitute the “Upper Volcanic Supergroup”. Minor andesite/basalt flows and rhyolitic domes accompanied the ignimbrites. Many low-sulphidation epithermal deposits in Mexico probably developed during the first ignimbrite phase, in a window between 27–40 Ma (Camprubí et. al., 2003).

A regional geology map is provided as Figure 61. As noted in Section 4.4, and shown on Figure 61, the Project is within a 40 km radius of a number of operating precious metals mines.

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**Figure 6-1: Regional Geology Map**



Note: Figure prepared by Golden Minerals, 2023. At this map scale, the separate lithologies of the of the Upper Volcanics cannot be differentiated.

Bedding dips are mostly sub-horizontal and gently undulating. Available regional geological maps show a strong north–northwest structural grain defined by numerous faults, some with apparent

normal offsets. Some of these regional faults likely had a syn-depositional history, controlling local basins.

### **6.3 Project Geology**

The Yoquivo Project is host to volcanic rock units belonging to both the Lower Volcanic Group and the Upper Volcanic Group. A stratigraphic column for the Project area is included as Figure 62.

The Lower Volcanic Group is represented in the Project area by volcanic andesites that are overlain discordantly by rocks of the Upper Volcanic Group. The Upper Volcanic Group is dominated by ignimbrites. Several rhyolitic domes intrude all of these units.

The oldest rocks exposed in the Project area are andesitic tuffs, lavas intercalated with rhyolitic tuffs, and sandy volcanoclastic rocks. The andesitic tuffs are greenish grey, with andesite and pumice lithic fragments and feldspar and biotite phenocrysts. The andesitic flows consist of intercalations of agglomerates and massive porphyritic layers. Intercalated within these flows are at least two rhyolitic tuff horizons, which can reach as much as 10 m in thickness. These horizons commonly display argillic alteration, and are weakly oxidized.

The Upper Volcanic Group rocks consist of vitro-crystalline and lithic tuffs of rhyolitic to dacitic composition, aphanitic vitreous tuffs, pyroclastic lithic tuffs ranging up to lapilli tuffs with fragments of variable composition, and volcanic breccias. Overlaying the tuffs are a series of dacitic to rhyolitic pyroclastic units.

Several small rhyolite domes intrude the Lower Volcanic Group and the Upper Volcanic Group units above the El Dolar mine workings. The rhyolites are white to reddish beige, aphanitic to porphyritic and have well-developed flow banding. In addition, several rhyolite dykes have been identified in the northern part of the Pertenencia vein system.

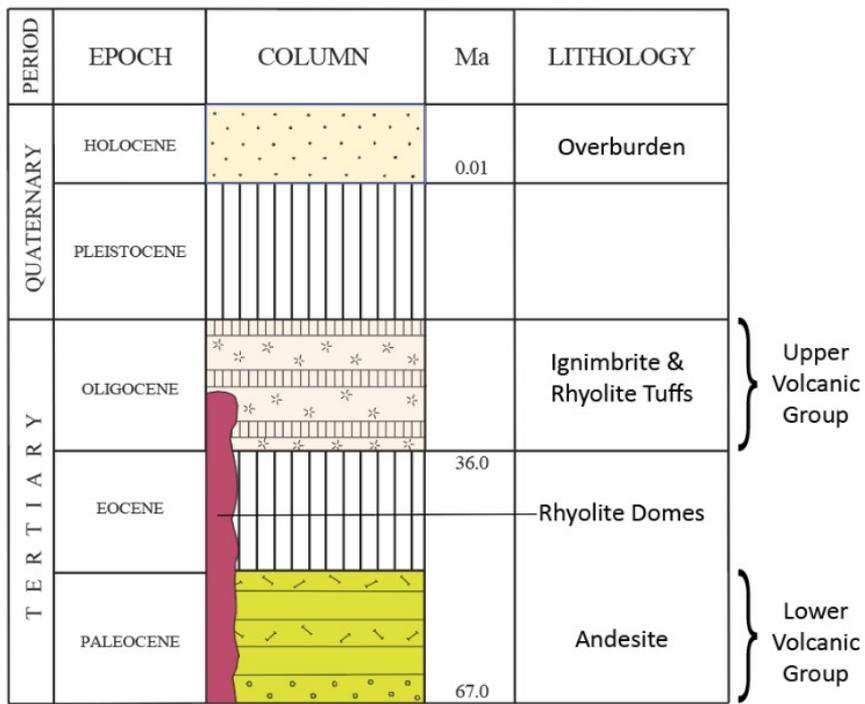
Several silver–gold quartz vein deposits are embedded along a series of northeast–southwest striking shear zones and are discussed in more detail in Section 6.4.

### **6.4 Deposit Descriptions**

The mineralization on the Yoquivo Project consists of several epithermal quartz veins in four principal vein systems. Individual vein systems have been mapped and sampled over >3 km strike lengths and range from 0.2 m to >5 m in width. The major vein systems are shown in Figure 63.

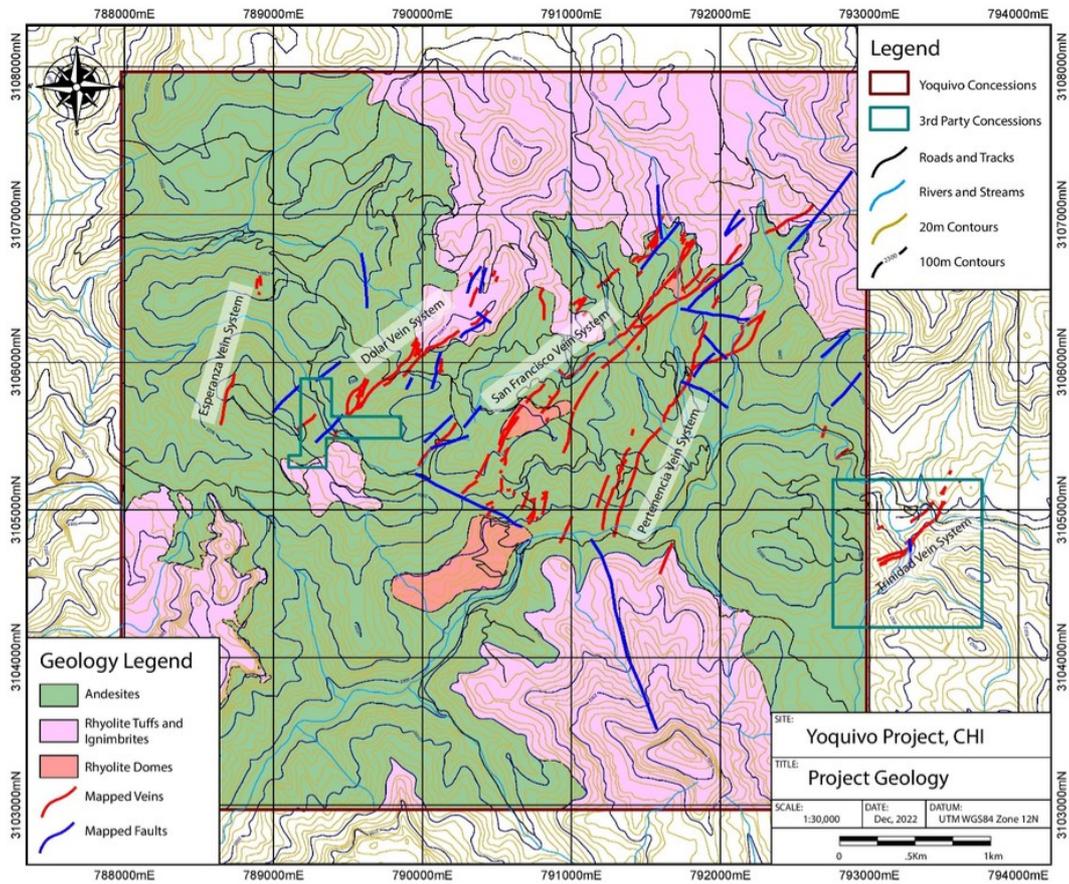
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**Figure 6-2: Stratigraphic Column, Yoquivo Project Area**



Note: Figure prepared by Golden Minerals, 2023.

**Figure 6-3: Vein Systems and Geology Map**



Note: Figure prepared by Golden Minerals, 2023.

#### **6.4.1 Pertenencia Vein System**

The Pertenencia vein system consists of at least seven parallel quartz veins, vein breccias, and stockwork zones with minor calcite veining and sulphides (pyrite with very minor sphalerite and galena). An example cross-section is provided in Figure 64.

The vein system strikes N30°E and dips at 60–85° to the southeast. It has been traced on surface and by drilling for at least 1,800 m along strike and for about 300 m down-dip.

Based on surface sampling, the vein system displays higher silver grades than gold grades.

#### **6.4.2 San Francisco Vein System**

The San Francisco vein system consists of a series of northeast–southwest-striking quartz veins, vein breccias, and stockwork zones with minor calcite veining and sulphides (pyrite with minor sphalerite and galena). An example cross-section is provided in Figure 65.

The San Francisco vein has a strike extent of at least 3,000 m, and has been explored to about 300 m depth. Several zones of mineralization were historically mined on this vein to the 1,900 m elevation, approximately 100 m below the river level.

The vein system displays silver and gold grades.

#### **6.4.3 Esperanza Vein**

The Esperanza vein consists of a single quartz vein and vein breccia associated with a steeply dipping fault zone. The vein strikes N15°E and dips at 70–75° to the east. An example cross-section is provided in Figure 66.

The vein has been mapped and sampled over a 1,100 m strike length.

At surface, several historical mine workings (see Figure 67) have exploited a 1–2 m wide chalcedony vein, and chalcedonic-cemented hydrothermal breccias.

Based on surface sampling, the vein displays higher silver grades than gold grades.

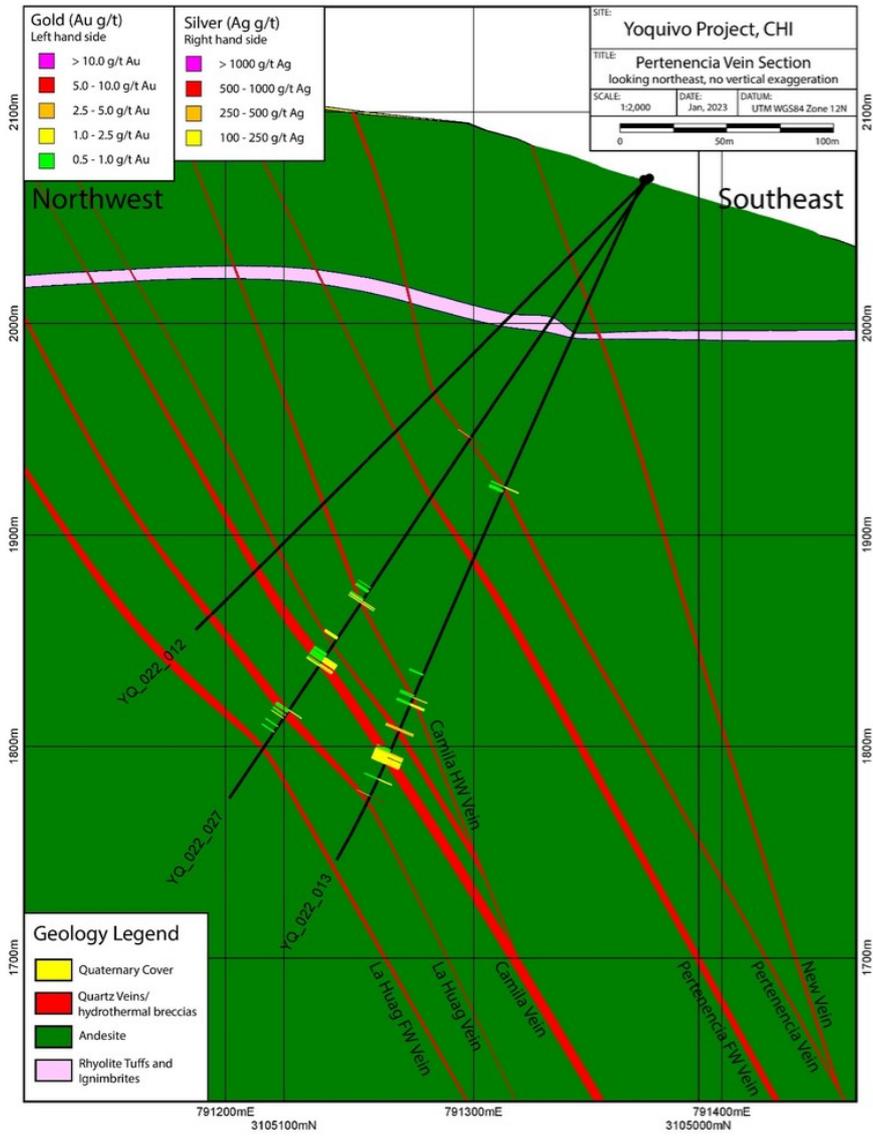
#### **6.4.4 Dolar Vein System**

The Dolar vein system comprises northeast–southwest-striking quartz veins, vein breccias and stockwork zones with minor calcite veining and sulphides (pyrite with very minor sphalerite and galena). Historical workings have been excavated along the vein (Figure 68).

The vein system has a known strike extent of about 1,850 m and displays silver and gold grades.

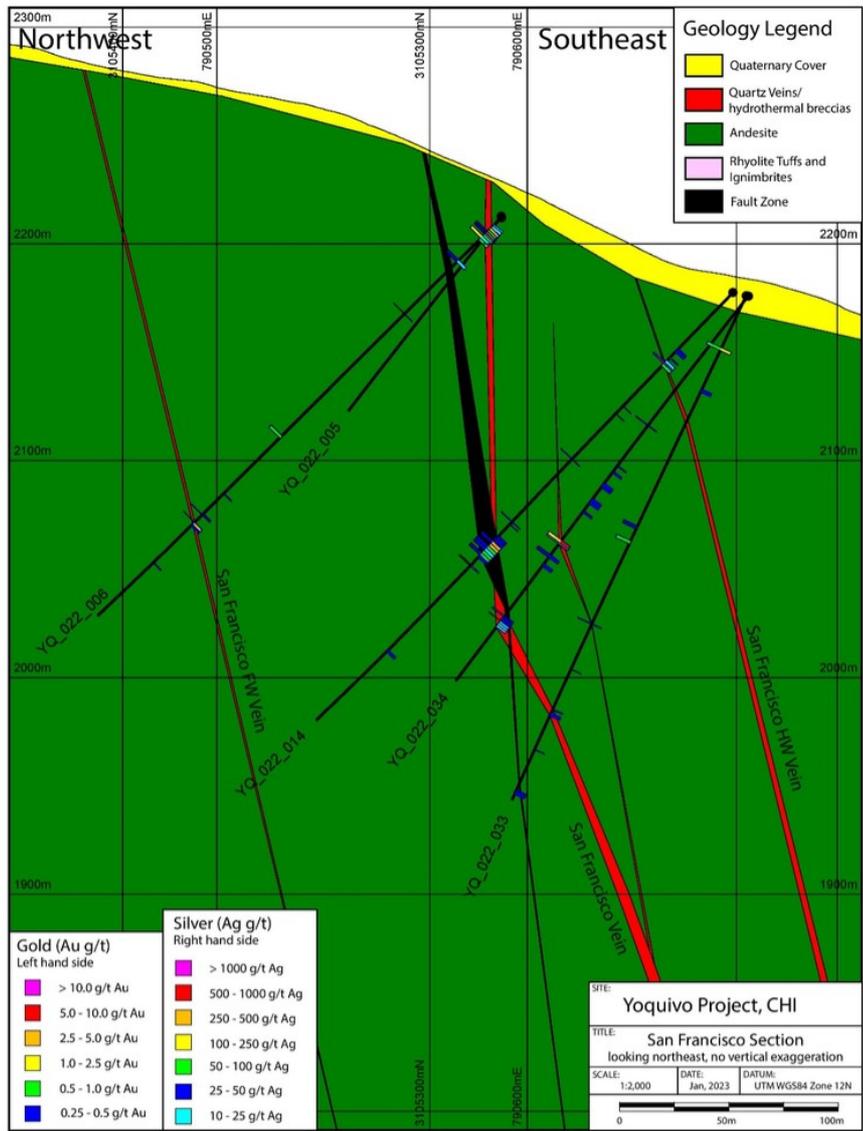
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**Figure 6-4: Drill Cross Section, Pertencia Vein System**



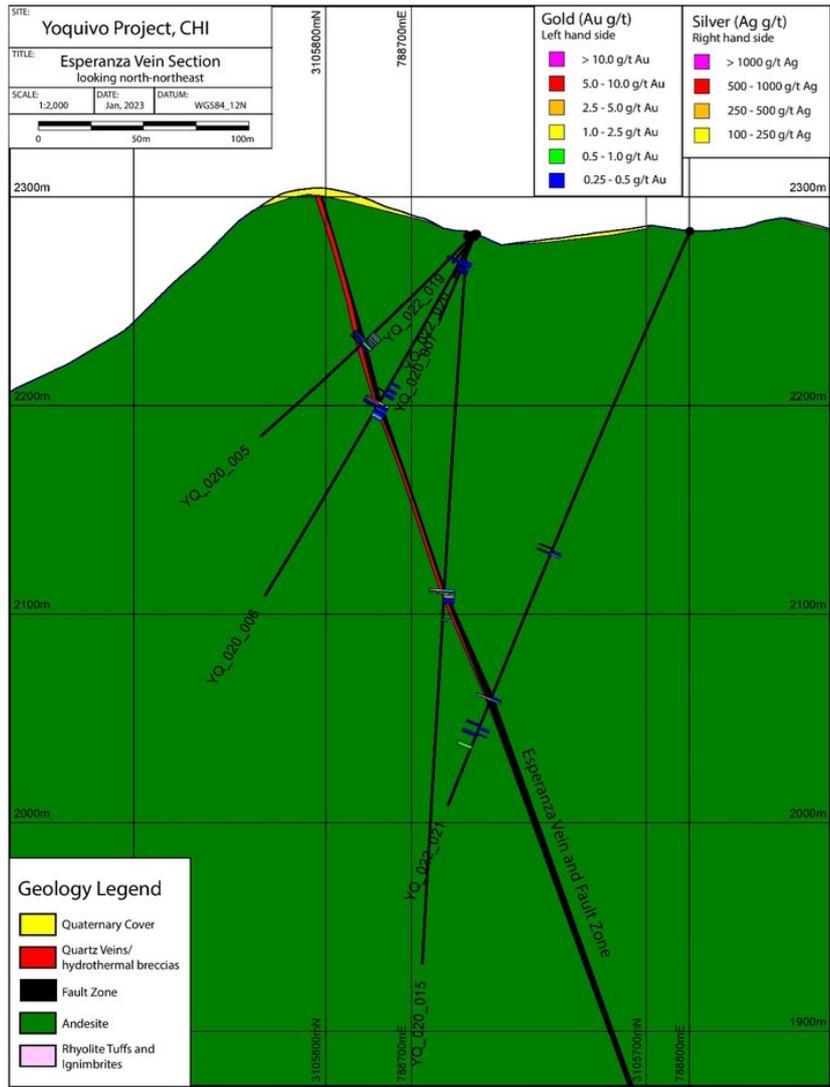
Note: Figure courtesy Golden Minerals, 2023.

Figure 6-5: Drill Cross Section, San Francisco Vein System



Note: Figure courtesy Golden Minerals, 2023.

**Figure 6-6: Drill Cross Section, Esperanza Vein**



Note: Figure courtesy Golden Minerals, 2023.

**Figure 6-7: Historical Workings on the Esperanza Vein**



Note: Photograph courtesy Golden Minerals, 2023. Photograph taken September 2018. Stope width in excavation shown ranges from 1–2.2 m in width. Photograph looks north.

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**Figure 6-8: Historical Workings on the Dolar Vein**



Note: Photograph courtesy Golden Minerals, 2023. Photograph taken September 2018. Slope width in excavation shown ranges from 0.8–3.5 m. Photograph looks northeast. Human figure for scale.

## **6.5 Mineralization**

Veins are generally sulphide-poor, and have textures typical of a low-sulphidation epithermal environment, including fine colloform to crustiform banding, bladed calcite textures, and open-space filling textures. Outside of the principal mineralized structures and their adjacent stockwork zones, veins are mostly limited to isolated single veins, minor subparallel veins, or small patches of stockwork veins. Orientations of these minor veins are varied, but most commonly dip steeply to the southeast.

Veins have narrow haloes of silicification, local argillic alteration, and distally grade into weak chloritic alteration. The walls of the vein structure sometimes have sharp boundaries, but it is also quite common for the vein to consist of anastomosing veinlets and stockwork veinlets.

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Sulphides are generally pyrite with rare argentite, and locally minor galena–sphalerite–chalcopyrite, and total sulphide content is generally <5%. In the oxide zone, the sulphides are leached, leaving either casts or pseudomorphs of goethite–hematite. Minor goethitic and hematitic staining occurs along the vein exposure at surface. Although no mineralogical studies have been conducted on the Project mineralization, geological observations suggest that gold is likely to be in the form of native gold associated with pyrite and silver in the form of silver sulphides and sulfosalts. This is a typical association in low-sulphidation systems.

Several blind structures were intersected by the Golden Minerals drilling, and the drilling also returned anomalous to high-grade gold–silver grades, which occurred both within the principal structure and in peripheral stockwork zones that extend for several meters to tens of meters around the principal structures.

The majority of the drilling has been conducted on the Pertenencia vein system, with only minimal drilling conducted on the San Francisco, Esperanza, and Dolar vein systems. The mineralogy in all of the veins appears to be very similar to that intersected in the Pertenencia drilling. It is unknown if the slightly different silver:gold ratios seen in the surface samples from the different vein systems will be replicated in future drilling data.

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## **7.0 EXPLORATION**

### **7.1 Exploration**

#### **7.1.1 Grids and Surveys**

Most of the location data collected on the Yoquivo Project by Golden Minerals was reported using the WGS84 UTM Zone 12 North coordinate system.

In 2021, Golden Minerals acquired an orthophoto covering 100 km<sup>2</sup> at 50 cm resolution from PhotoSat, Vancouver, from which PhotoSat generated 1, 5, and 10 m digital contours for the Project area.

All drill hole collars, including the 2007 drill holes completed by West Timmins, were surveyed with a differential GPS by Zigna Ingeniería Topográfica, a third-party surveying company based in Ciudad Cuauhtémoc, Chihuahua.

Historical surface and underground samples collected by West Timmins were collected in UTM NAD27 Zone 12 North coordinates. These data were converted to the UTM WGS84 Zone 12 North datum using MapInfo, and the updated locations were imported into Golden Minerals' sample database.

#### **7.1.2 Geological Mapping**

Sydney Resources completed reconnaissance geological mapping, scale unknown, during 2004. Detailed mapping was completed along the San Francisco–Los Angeles–La Cruz and Pertenencia–Dolores structures (Leonard, 2007).

There is moderate outcrop exposure at Yoquivo, and Golden Minerals completed a detailed surface mapping program along the main mineralized structures from 2018 to 2020, at a scale of 1:1,000. Locations of surface and historical mine workings were mapped at 1:250 scale.

#### **7.1.3 Geochemistry**

Multiple campaigns for surface and underground sampling have been conducted at Yoquivo.

Sydney Resources collected channel, rock chip and dump grab samples during 2004–2005, with 657 samples collected on surface and 131 from underground.

West Timmins Mining collected 774 surface and underground samples between 2005 and 2008.

In 2007, Konigsberg Corporation conducted a reconnaissance sampling program at Yoquivo and collected 38 samples from around the Project.

From 2018 to 2022, Golden Minerals collected 1,555 surface channel, rock chip and grab samples around the Yoquivo Project, and in addition collected 590 underground channel and rock chip samples.

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Figure 71 shows the gold grades returned from the surface sampling. Figure 72 shows the silver grades.

#### **7.1.4 Geophysics**

No geophysical work has been conducted on the Project by Golden Minerals.

West Timmins stated that a regional helicopter geophysical survey (total field magnetics and electromagnetics) was completed over the entire Project area using a high resolution AeroTEM II system in 2007. Golden Minerals does not currently have access to any of the historical geophysical data or interpretations that may have been performed.

#### **7.1.5 Pits and Trenches**

Many historical (early 20<sup>th</sup> century) pits, adits and shafts have been developed along the principal vein systems (refer to Figure 33).

No trenching work has been undertaken by Golden Minerals on the Project.

#### **7.1.6 Petrology, Mineralogy, and Research Studies**

No petrographic studies have been completed on the Yoquivo Project.

In 2018–2019, Golden Minerals submitted 15 samples to Tawn Albinson of Mircotermometria y Asesoría Geológica-Minera S.A. de C.V., based in Mexico City, to conduct fluid inclusion analyses to assist in the reconstruction and estimation of geological levels within the epithermal system, as well as the petrographic characteristics of silica phases at Yoquivo.

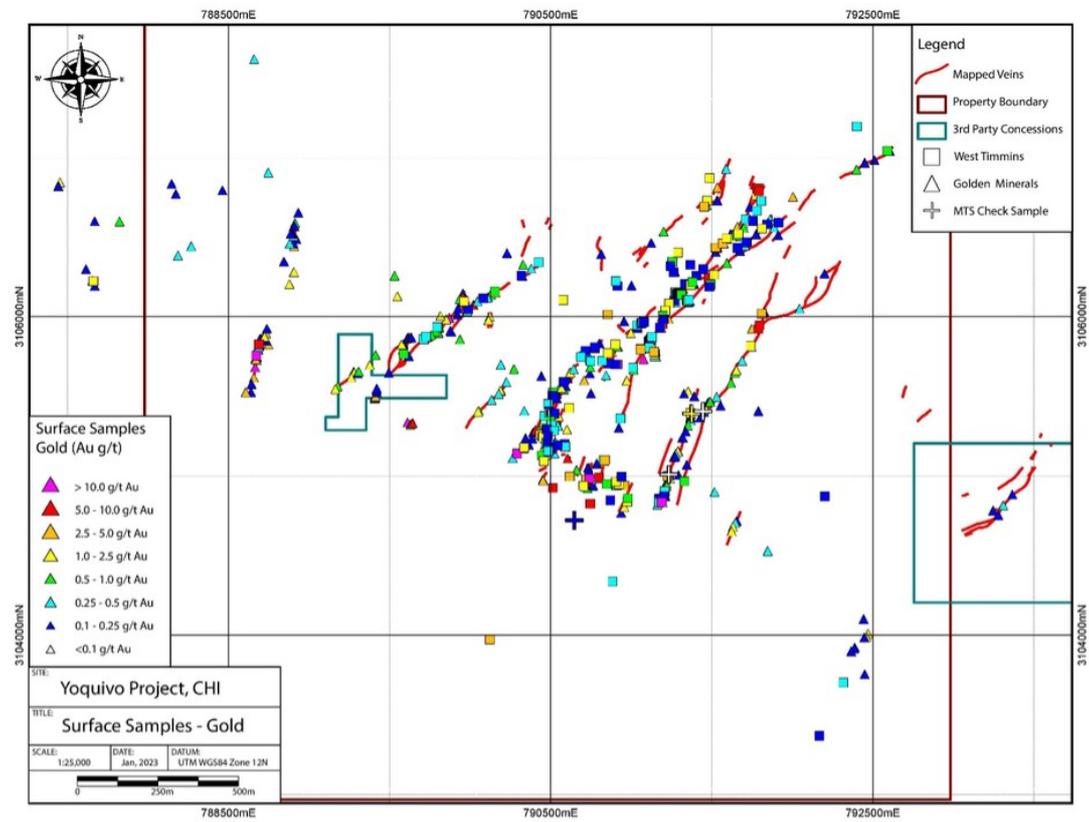
#### **7.1.7 Exploration Potential**

Most of the drilling conducted by Golden Minerals at Yoquivo was focused on exploring the central part of the Pertenencia vein system (see Section 10). Minor drilling has been conducted on the Esperanza, San Francisco, La Huga and Dolar veins, and the drill holes have intersected intervals of potentially economic mineralization on several of these veins that require follow-up. Prospect areas are shown in Figure 73.

The strike extents for most known veins have been identified by exploration. In many cases, mineralized shoots at depth have not yet been defined nor have the down dip extensions been drilled out. There is potential for additional mineralization to be identified on many of the veins with further drilling.

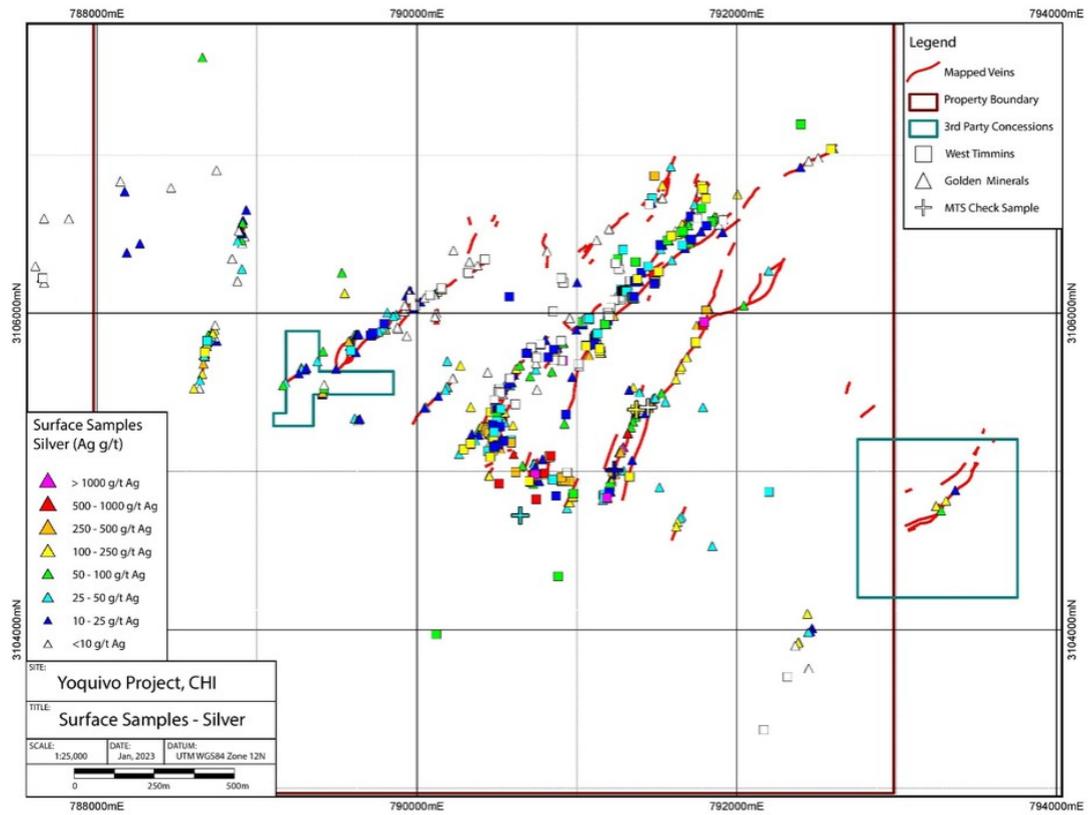
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Figure 7-1: Gold Grades, Yoquivo Surface Samples



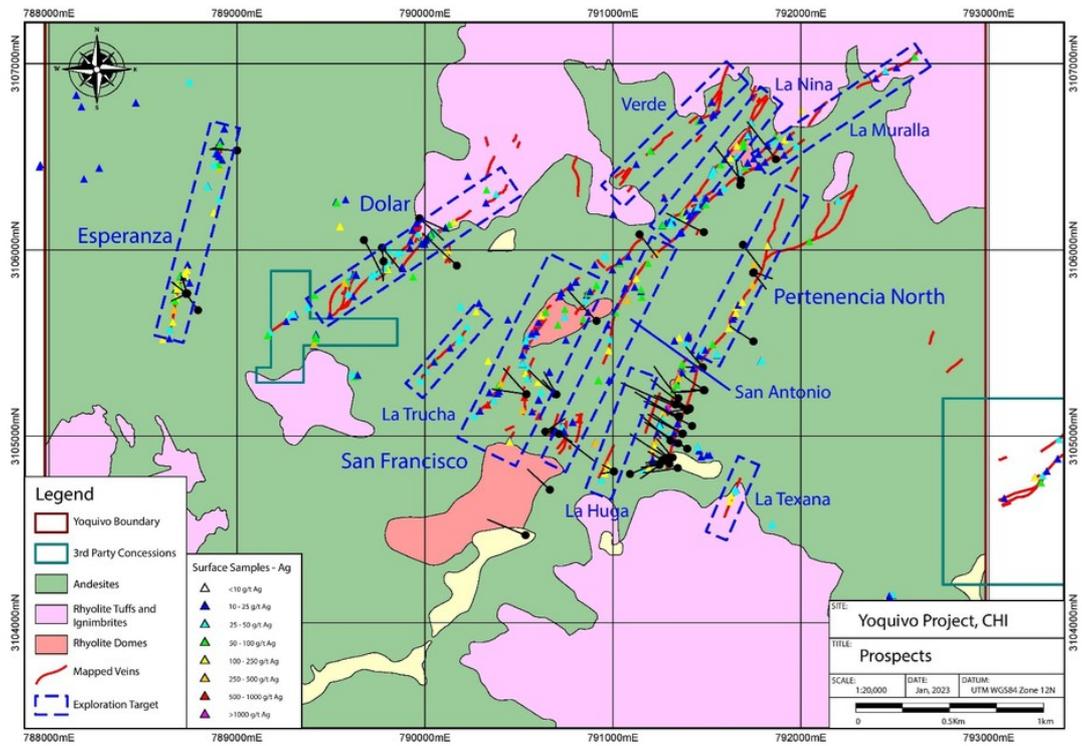
Note: Figure prepared by Golden Minerals, 2023.

**Figure 7-2: Silver Grades, Yoquivo Surface Samples**



Note: Figure prepared by Golden Minerals, 2023.

**Figure 7-3: Prospect Location Map**



Note: Figure courtesy Golden Minerals, 2023. Grid co-ordinates use Universal Transverse Mercator

### 7.1.7.1 Pertenencia North

Golden Minerals has focused drilling in the southern 800 m portion of the vein system. Four drill holes have been drilled exploring the northern continuation of the Pertenencia vein, with the results as summarized in Table 71. A number of the intercepts have encouraging gold and silver grades. The mineralization potential of footwall structures to the south of the Pertenencia vein system require exploration evaluation.

**Table 7-1: Pertenencia North Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_022_015	791749	3105881	2060	108	-45	150	32.25	32.60	0.35	1.0	207	281
YQ_022_015							39.45	41.10	1.65	2.7	646	850
YQ_021_018	791747	3105877	2060	141	-45	150	142.85	144.70	1.85	1.4	184	289
YQ_021_021	791748	3105509	2041	301	-45	201	No significant results					
YO-07-04	791691	3106028	2080	143	-51	271	Did not intersect the Pertenencia vein system					

Note: Mineralized intercepts >100 g/t AgEq, where  $AgEq = Ag + (Au \times 76.67)$ . Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. All numbers have been rounded.

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### **7.1.7.2 San Francisco**

The San Francisco vein has been explored by seven wide-spaced drill holes. The drilling intersected the principal San Francisco vein as well as a hanging wall and a footwall structure. Drill results are summarized in Table 72. A number of the intercepts have encouraging gold and silver grades in the area of the historical workings and along the hanging wall vein.

### **7.1.7.3 Dolar**

The Dolar vein has been tested by six drill holes. Drill results are summarized in Table 73. Wide zones of veining and silicification were intersected, but only a few narrow, high-grade silver–gold zones were intersected, suggesting that the drilling has only explored the upper part of the vein system, above the boiling zone, and that more consistent mineralization may be found at depth.

### **7.1.7.4 Esperanza**

The Esperanza vein has been tested by nine drill holes (Table 74). The drilling intersected narrow zones of gold–silver mineralization associated with silicified fault zones and hydrothermal breccias. The drilling appears to have intersected the upper part of an epithermal vein, suggesting that there is potential for higher-grade mineralization to be intersected at depth.

### **7.1.7.5 La Huga**

The La Huga vein has been mapped and sampled over a 700 m strike length and was intersected by three wide-spaced drill holes (Table 75). The drilling intercepted a wide zone of veining, vein breccias and zones of silicification, but only returned a narrow zone of low-grade gold–silver mineralization.

### **7.1.7.6 La Muralla and La Niña Veins**

The northern part of the San Francisco vein splits into two splays, the La Muralla and La Niña veins. They have been mapped and sampled over a 1,600 m strike length and have been tested by five widely-spaced drill holes (Table 76). The drilling intersected multiple veins, hydrothermal breccias and silicified shear zones, but only low-grade gold–silver mineralization was encountered. An evaluation of the geochemical data suggests that the drilling explored the upper part of a low-sulphidation epithermal vein and that wider zones of potentially economic mineralization may be found at depth.

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**Table 7-2: San Francisco Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)	Vein
YO-07-01	791142	3106084	2145	143	-51	250	41.10	41.75	0.65	2.4	363	542	SF
YQ_020_014	790913	3105620	2230	316	-46	315	No significant results						
YQ_022_005	790540	3105225	2213	280	-46	265	9.00	10.25	1.25	0.1	214	222	SF
YQ_022_005							232.45	233.25	0.80	0.7	180	232	SF_FW
YQ_022_006	790541	3105226	2212	319	-45	261	6.60	10.80	4.20	0.2	229	241	SF
YQ_022_006							198.95	200.25	1.30	0.6	189	230	SF_FW
YQ_022_014	790692	3105227	2178	310	-46	275	43.50	45.70	2.20	7.4	1,253	1,808	SF_HW
YQ_022_014							158.55	162.00	3.45	0.2	448	463	SF
YQ_022_033	790699	3105225	2177	313	-65	256	No significant results						
YQ_022_034	790700	3105227	2176	330	-51	22	143.40	145.60	2.20	1.3	545	643	SF

Note: Mineralized intercepts >100 g/t AgEq, where AgEq = Ag + (Au x 76.67). Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

**Table 7-3: Dolar Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_020_013	790170	3105916	2301	315	-45	350	Hole did not reach target					
YQ_021_008	789773	3106013	2245	141	-46	228	88.00	88.20	0.20	2.2	280	445
YQ_021_008							118.10	119.60	1.50	1.8	3	138
YQ_021_009	789773	3106013	2245	142	-60	210	No significant results					
YQ_021_011	789780	3105939	2254	181	-45	150	42.60	42.90	0.30	1.2	155	245
YQ_021_012	789780	3105940	2254	180	-65	120	93.10	94.05	0.95	9.2	763	1,455
YQ_021_013	789772	3106013	2245	173	-66	225	No significant results					
YQ_021_015	789675	3106054	2231	149	-52	351	No significant results					
YQ_022_017	789971	3106168	2341	263	-67	250	125.30	129.25	3.95	13.4	181	1,185
YQ_022_018	789971	3106170	2341	141	-45	250	No significant results					

Note: Mineralized intercepts >100 g/t AgEq, where AgEq = Ag + (Au x 76.67). Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

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**Table 7-4: Esperanza Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_020_005	788733	3105767	2282	306	-46	140	69.00	69.75	0.75	0.2	209	224
YQ_020_006	788734	3105766	2282	305	-61	200	91.90	93.75	1.85	3.3	69	314
YQ_020_007	788731	3105764	2281	244	-45	122	93.15	93.50	0.35	8.8	60	717
YQ_020_015	788729	3105766	2282	304	-86	350	170.00	170.90	0.90	2.3	39	209
YQ_020_015							172.90	174.00	1.10	0.2	321	335
YQ_021_010	789000	3106534	2197	273	-45	201	No significant results					
YQ_021_014	789001	3106535	2199	273	-65	291	No significant results					
YQ_022_019	788736	3105767	2283	340	-46	150	84.10	84.40	0.30	2.0	109	225
YQ_022_020	788735	3105768	2283	341	-60	180	107.20	108.20	1.00	3.6	512	779
YQ_022_021	788793	3105678	2283	322	-66	300	262.25	262.85	0.60	2.6	20	214

Note: Mineralized intercepts >100 g/t AgEq, where AgEq = Ag + (Au x 76.67). Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

**Table 7-5: La Huga Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_021_019	791006	3104812	1992	300	-46	102	No significant results					
YQ_021_020	791005	3104812	1993	259	-46	102	65.15	65.65	0.50	0.6	243	289
YQ_022_030	791394	3105138	2090	291	-46	518	No significant results					

Note: Mineralized intercepts >100 g/t AgEq, where AgEq = Ag + (Au x 76.67). Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

**Table 7-6: La Muralla and La Niña Drill Hole Intercepts**

Hole_ID	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Drilled Interval (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YO-07-02	791680	3106376	2110	323	-51	361	No significant results					
YO-07-03	791867	3106488	2165	324	-51	400	194.90	195.85	0.95	2.4	503	684
YO-07-03							198.10	198.55	0.45	1.5	308	419
YQ_020_008	791484	3106095	2150	295	-46	300	No significant results					
YQ_022_016	791396	3104934	2020	303	-46	354	No significant results					

Note: Mineralized intercepts >100 g/t AgEq, where  $AgEq = Ag + (Au \times 76.67)$ . Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

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#### **7.1.7.7 La Trucha**

The La Trucha structure is situated about 1,200 m west of the Pertenencia vein. The vein crops out in a stream bed and occurs as a 0.2–1.5 m wide quartz vein over a strike length of >500 m. The vein strikes 40° and dips steeply to the southeast. Sampling returned elevated gold–silver grades.

Mapping suggests that the La Trucha structure could be the upper part of a low-sulphidation epithermal vein.

#### **7.1.7.8 San Antonio**

The San Antonio vein has been mapped and sampled over a 1,300 m strike length. The structure had not been drilled at the Report effective date, but encouraging gold–silver grades were returned from surface samples.

#### **7.1.7.9 Verde**

The Verde vein has been mapped and sampled over a 900 m strike length. Surface sampling and mapping indicate that the outcropping structure may represent the upper part of an epithermal vein system. While the vein is not a high-priority exploration target currently, additional investigation is warranted.

#### **7.1.7.10 La Texana**

The La Texana vein has been mapped and sampled over a 300 m strike length. Surface sampling returned anomalous gold and silver grades. While the vein is not a high-priority exploration target currently, additional investigation is warranted.

### **7.1.8 Qualified Person's Interpretation of the Exploration Information**

The exploration conducted by Golden Minerals and predecessor companies provided vectors to historical mine workings or geochemical surface anomalies that were drill tested. This work identified the Yoquivo deposit.

Golden Minerals' geologists believe that there is good potential to discover additional high-grade gold–silver mineralization on the northern part of the Pertenencia vein system as well as on the San Francisco and Esperanza vein systems. The Dolar vein drilling has intersected wide zones of veining, but the gold–silver grade distribution is erratic, suggesting that the drilling has intersected the upper parts of an epithermal vein. The San Antonio vein appears to have good potential to host significant mineralization, and the surface sampling has returned good gold and silver grades, but to date the vein has not been drilled.

The potential of the Verde, La Texana and La Trucha veins is unknown. They have only been explored partially on surface and returned moderate gold and silver grades at surface. The veins may warrant a small drill program to test potential at depth.

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The northwestern and southwestern Project extents, where limited mapping has been conducted and outcropping andesites occur below the upper volcanic ignimbrites and tuffs, may have potential to host veins within the andesite lithologies. There is also potential for the known veins to continue into these areas.

## **7.2 Drilling**

### **7.2.1 Overview**

#### **7.2.1.1 Drilling on Property**

A total of 78 core holes, totaling 19,039 m, have been drilled at Yoquivo.

The initial exploration drilling was conducted in 2007 by West Timmins, who drilled eight core holes totaling 2,473 m. Drill data from the West Timmins campaign were not used in mineral resource estimation because no original assay certificates, and no down-hole survey or assay QA/QC data are currently available to Golden Minerals for this drilling campaign. In addition, no drill holes from this campaign intersected the Pertenencia vein system.

From 2020 to 2022, Golden Minerals drilled 70 core holes totaling 16,565 m.

A drill summary table is provided as Table 77, and a Project-scale drill collar location map as Figure 74.

#### **7.2.1.2 Drilling Supporting Mineral Resource Estimates**

The drilling in the Pertenencia area is shown in more detail in Figure 75. Information on the completed Golden Minerals drilling in the Pertenencia Vein system is summarized in Table 78. This table provides the collar location data and anomalous mineralized intercepts >200 g/t AgEq. Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag.

A total of 70 drill holes from the 2020–2022 drill campaigns was used to define the mineralized grade shells used in mineral resource estimation. A total of 38 drill holes from the 2020–2022 drill campaigns was used for interpolation.

#### **7.2.1.3 Drilling Excluded For Estimation Purposes**

Eight drill holes from 2007 drilling were not used in grade shell modeling or estimation due to the lack of QA/QC data.

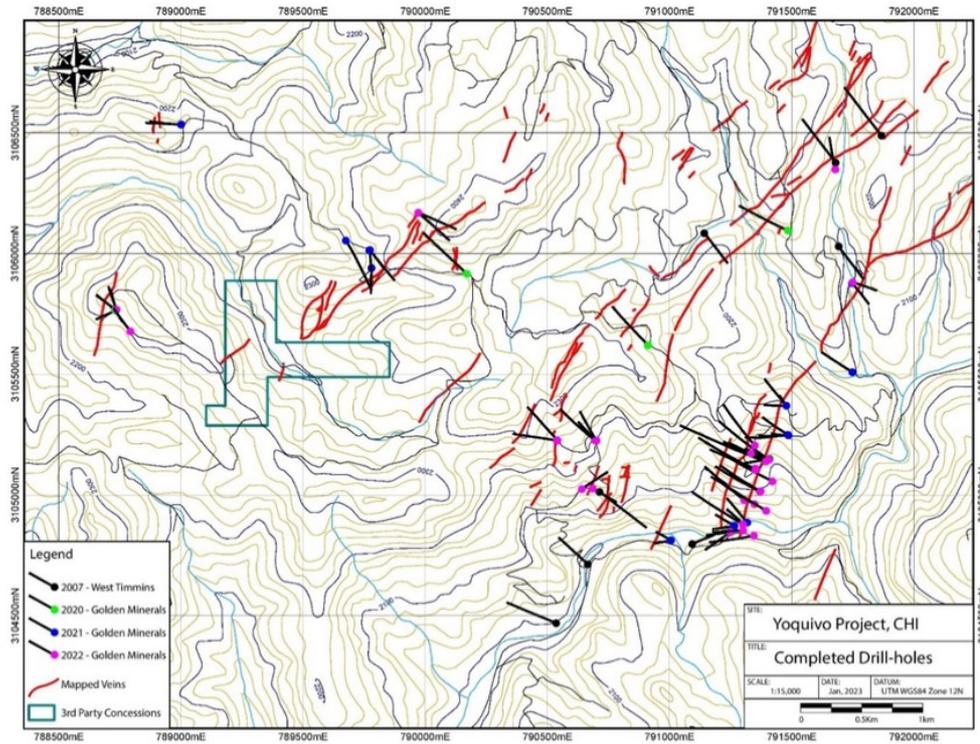
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**Table 7-7: Property Drill Summary Table**

Year	Operator	No. Holes	Core Diameter	Meterage (m)	Purpose
2007	West Timmins	8	NQ/BQ	2,473	Exploration
2020	Golden Minerals	15	HQ	3,348	Exploration
2021		21	HQ	3,949	Exploration
2022		34	HQ	9,268	Exploration
<b>Total</b>		<b>78</b>		<b>19,039</b>	

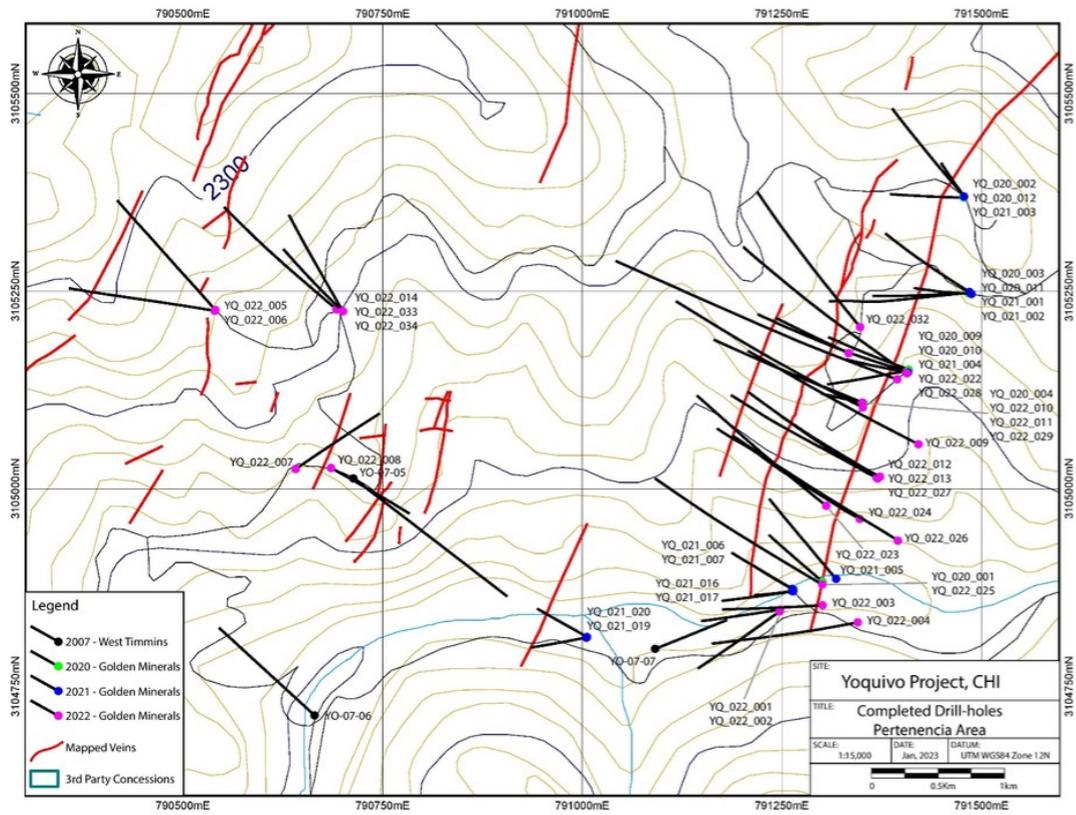
Note: metreage has been rounded.

**Figure 7-4: Property Drill Collar Location Plan**



Note: Figure prepared by Golden Minerals, 2023.

**Figure 7-5: Drill Collar Location Plan, Pertencia Area**



Note: Figure prepared by Golden Minerals, 2023.

**Table 7-8: Drill Collar Locations, Pertenencia Vein System**

Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_020_001	791301	3104882	1997	311	-46	128	94.10	94.30	1.2	145	237
							111.58	112.05	1.9	491	638
							112.92	114.43	0.8	147	206
							114.43	115.75	5.7	223	659
YQ_020_002	791478	3105368	2175	272	-66	231	192.25	192.80	1.1	423	510
YQ_020_003	791484	3105248	2143	264	-46	250	169.60	170.00	2.6	228	424
							235.20	235.90	2.2	401	568
YQ_020_004	791353	3105108	2099	282	-46	77	No significant intercept				
YQ_020_005	788733	3105767	2282	306	-46	140	69.00	69.75	0.2	209	225
YQ_020_006	788734	3105766	2282	305	-61	200	91.90	92.90	5.4	118	533
YQ_020_007	788731	3105764	2281	244	-45	122	93.15	93.50	8.8	60	732
YQ_020_008	791484	3106095	2150	295	-46	300	No significant intercept				
YQ_020_009	791409	3105151	2088	291	-61	225	96.65	96.95	0.5	211	252
							118.65	119.00	0.8	245	305
							183.90	184.20	0.9	135	207
							200.30	200.65	0.8	250	312
							200.65	201.25	1.7	527	658
201.25	201.75	0.6	161	203							
YQ_020_010	791408	3105149	2088	259	-61	210	126.70	127.70	1.4	224	329
							131.00	131.20	15.4	1,150	2,331
							132.00	133.10	1.7	186	319
							135.00	135.60	2.9	103	326
							186.95	188.00	1.6	157	280
209.60	210.00	0.8	144	206							

Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_020_011	791484	3105247	2143	267	-61	250	118.80	119.40	8.3	1,390	2,029
							119.40	120.80	4.4	892	1,228
							122.10	123.35	1.0	166	241
							172.25	173.05	0.0	201	204
							173.90	174.40	0.6	479	525
YQ_020_012	791478	3105370	2175	320	-45	200	47.25	47.55	135.5	7,480	17,868
YQ_020_013	790170	3105916	2301	315	-45	350	No significant intercept				
YQ_020_014	790913	3105620	2230	316	-46	315	No significant intercept				
YQ_020_015	788729	3105766	2282	304	-86	350	170.00	170.90	2.3	39	213
							172.90	174.00	0.2	321	336
YQ_021_001	791485	3105249	2144	303	-58	250	243.05	243.55	0.3	329	350
YQ_021_002	791487	3105247	2144	272	-74	275	165.75	166.00	3.7	3,020	3,307
							166.00	167.40	0.2	662	677
							209.50	209.90	0.7	309	360
YQ_021_003	791478	3105370	2175	325	-64	120	63.90	64.05	0.8	156	219
YQ_021_004	791408	3105147	2087	280	-71	250	100.20	101.10	6.4	2,360	2,851
							125.75	126.00	0.9	313	384
							131.50	131.80	1.7	578	706
							133.00	133.40	1.1	369	455
							134.00	135.00	0.7	206	260
							139.05	139.70	0.6	179	227
							139.70	140.05	5.2	1,320	1,715
							166.90	168.30	0.5	165	204
							195.40	195.60	0.0	200	201
							196.90	197.40	0.1	904	912
215.25	216.40	0.2	237	254							

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_021_005	791318	3104886	1997	320	-45	177	159.00	159.60	0.4	221	251
YQ_021_006	791263	3104873	1995	301	-45	123	63.80	64.00	0.6	155	203
							64.75	65.15	66.2	11,768	16,843
							65.15	65.50	188.5	21,447	35,899
							65.50	66.20	8.2	1,745	2,373
							66.20	66.70	0.3	389	415
							69.20	69.60	12.3	1,470	2,413
							70.60	70.90	6.7	1,330	1,840
						92.55	92.80	1.4	102	211	
YQ_021_007	791264	3104873	1996	299	-70	171	74.30	75.00	3.6	13	291
YQ_021_008	789773	3106013	2245	141	-46	228	88.00	88.20	2.2	280	449
YQ_021_009	789773	3106013	2245	142	-60	210	No significant intercept				
YQ_021_010	789000	3106534	2199	273	-45	201	No significant intercept				
YQ_021_011	789780	3105939	2254	181	-45	150	42.60	42.90	1.2	155	247
YQ_021_012	789780	3105940	2254	180	-65	120	22.00	22.20	9.0	645	1,338
							56.35	56.60	1.7	201	328
							93.10	94.05	9.2	763	1,471
YQ_021_013	789772	3106013	2245	173	-66	225	No significant intercept				
YQ_021_014	789001	3106535	2199	273	-65	291	No significant intercept				
YQ_021_015	789675	3106054	2231	149	-52	351	No significant intercept				
YQ_021_016	791263	3104870	1996	261	-47	126	64.95	65.15	40.7	7,920	11,040
							65.15	65.45	9.3	3,870	4,582
							65.45	65.80	16.2	6,350	7,592
							65.80	66.05	3.9	792	1,092
							66.05	66.40	2.6	468	670
							78.85	79.15	1.1	141	224

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_021_017	791264	3104870	1996	263	-67	126	No significant intercept				
YQ_021_018	791747	3105877	2060	140	-43	150	143.90	144.10	10.2	1,310	2,092
YQ_021_019	791006	3104812	1992	300	-46	102	No significant intercept				
YQ_021_020	791005	3104812	1993	259	-46	102	65.15	65.65	0.6	243	292
YQ_021_021	791748	3105509	2041	301	-45	201	50.50	50.70	1.9	148	294
YQ_022_001	791248	3104847	1996	261	-46	143	141.50	141.70	7.3	1	560
YQ_022_002	791248	3104845	1997	234	-46	180	49.30	50.30	1.8	297	437
YQ_022_003	791301	3104853	2000	266	-46	180	72.90	73.20	3.1	753	991
YQ_022_004	791345	3104831	2006	260	-45	261	No significant intercept				
YQ_022_005	790540	3105225	2213	280	-46	265	9.00	10.25	0.1	214	221
							232.45	232.75	1.6	368	490
YQ_022_006	790541	3105226	2212	319	-45	261	6.60	7.95	0.0	289	292
							9.10	10.05	0.4	294	321
							10.05	10.80	0.4	392	423
							198.95	199.15	2.4	549	735
YQ_022_007	790641	3105025	2118	54	-44	175	70.60	70.80	16.9	57	1,353
YQ_022_008	790685	3105026	2123	119	-45	162	141.50	141.90	30.8	5,260	7,621
							156.00	157.30	0.4	175	203
YQ_022_009	791421	3105056	2063	297	-46	356	128.70	129.00	0.5	1,735	1,774
							133.10	133.70	0.6	178	225
							225.90	227.00	1.0	159	236
							227.00	227.45	1.2	212	301
							233.25	234.10	0.6	160	205
							234.10	235.15	0.8	141	201
							236.40	237.40	0.9	141	206
240.00	240.85	0.8	170	229							

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
							263.45	264.40	4.8	174	545
							281.25	282.00	1.4	165	275
							282.00	283.45	1.2	150	245
							283.45	284.60	2.0	159	309
							284.60	285.90	8.3	149	784
							285.90	286.80	13.0	124	1,121
							286.80	288.00	4.1	76	391
							288.00	289.45	1.4	97	204
							289.45	290.70	2.1	58	219
							293.65	295.00	1.6	143	269
							329.25	330.10	2.3	322	498
							332.30	332.40	1.2	225	320
YQ_022_010	791351	3105109	2100	293	-76	300	No significant intercept				
YQ_022_011	791350	3105109	2100	293	-46	300	70.15	70.35	4.0	692	999
YQ_022_012	791370	3105013	2068	299	-45	300	No significant intercept				
YQ_022_013	791369	3105014	2068	296	-65	353	159.20	159.75	0.8	191	252
							267.60	268.10	0.5	448	490
							283.80	285.00	3.9	524	819
							296.25	297.00	3.3	374	625
							297.00	298.40	1.1	123	210
							299.00	300.30	1.9	243	389
							300.30	301.75	1.0	159	238
							301.75	302.10	1.5	429	547
							318.65	318.80	2.7	826	1,030
YQ_022_014	790692	3105227	2178	310	-46	275	45.00	45.70	23.3	3,850	5,636
							106.60	106.80	6.3	556	1,038

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
							146.50	146.75	1.3	337	433
							158.55	159.00	0.2	1,355	1,368
							159.00	160.50	0.4	366	393
							160.50	162.00	0.1	257	263
YQ_022_015	791749	3105881	2060	108	-45	150	32.25	32.50	1.0	207	282
							32.50	32.60	1.0	207	282
							40.55	41.10	6.9	1,640	2,171
YQ_022_016	791678	3106348	2107	349	-46	201	No significant intercept				
YQ_022_017	789971	3106168	2341	130	-46	250	126.00	127.15	6.7	116	632
							127.15	128.35	34.7	400	3,060
							128.35	129.25	2.6	88	285
YQ_022_018	789971	3106170	2341	113	-46	250	No significant intercept				
YQ_022_019	788736	3105767	2283	340	-46	150	84.10	84.40	2.0	109	258
YQ_022_020	788735	3105768	2283	342	-61	180	104.65	105.10	2.2	88	259
							107.20	107.90	4.5	677	1,021
							107.90	108.20	1.4	126	235
YQ_022_021	788793	3105678	2283	322	-66	300	244.35	245.15	2.4	77	257
							262.25	262.85	2.6	20	218
YQ_022_022	791407	3105146	2088	293	-55	351	36.65	38.05	0.9	202	269
							38.05	39.30	6.6	811	1,320
							39.30	39.60	1.1	235	319
							39.60	41.05	2.3	391	566
							68.35	68.80	1.2	284	378
							221.15	222.00	1.8	250	385
							223.05	223.90	0.9	179	251
							233.10	234.00	0.6	162	207

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
							341.75	342.10	2.5	614	803
							342.10	342.50	0.5	180	214
							344.10	344.95	9.3	161	873
YQ_022_023	791306	3104978	2041	309	-45	305	94.45	94.60	2.2	222	388
							118.00	118.50	2.8	337	549
							212.45	212.60	2.7	563	769
YQ_022_024	791348	3104962	2033	299	-45	300	132.10	132.65	1.6	222	345
							134.10	135.50	0.7	166	221
							205.15	206.40	15.7	677	1,877
							206.40	206.80	0.1	216	223
YQ_022_025	791301	3104879	1997	301	-46	351	131.70	131.90	2.7	257	463
YQ_022_026	791396	3104934	2020	303	-46	354	192.35	193.45	0.6	448	492
YQ_022_027	791373	3105015	2069	298	-55	354	148.80	148.90	4.0	780	1,087
							241.25	241.65	1.7	215	346
							242.20	242.60	1.3	148	249
							274.50	275.00	0.6	237	281
							275.00	275.90	0.6	237	281
							276.90	277.80	0.6	200	244
							277.80	278.40	1.8	479	619
							303.30	303.65	0.9	198	265
YQ_022_028	791406	3105146	2088	305	-44	350	34.20	35.15	3.8	1,585	1,877
							150.25	150.50	1.1	199	282
							172.50	172.95	13.2	1,305	2,313
							239.25	240.40	4.7	1,650	2,010
							240.40	241.60	0.9	313	379
							241.60	242.85	1.5	485	598

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Hole_ID	Easting (m)	Northing (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Au (g/t)	Ag (g/t)	AgEq (g/t)
YQ_022_029	791351	3105103	2099	297	-55	449	161.85	162.25	0.9	263	334
							303.75	303.90	2.1	113	274
							303.90	304.85	1.5	207	320
							312.00	312.45	1.2	150	241
							312.45	312.95	1.4	189	299
YQ_022_030	791394	3105138	2090	291	-46	518	139.95	140.50	5.9	49	502
							201.35	201.45	1.4	135	239
							238.85	239.75	1.6	100	220
							239.75	239.85	17.0	154	1,457
							240.35	240.55	4.2	168	487
							267.15	267.60	3.0	116	342
							274.90	275.00	5.0	299	680
							275.00	275.60	5.0	299	680
							370.40	370.55	1.1	183	268
							442.95	443.05	4.3	16	344
443.05	443.25	1.7	81	210							
YQ_022_031	791333	3105171	2127	296	-50	159	44.35	44.60	10.3	1,360	2,150
							44.60	44.80	22.4	3,200	4,917
							44.80	44.95	27.7	4,000	6,124
							44.95	45.30	0.4	537	570
							46.20	46.45	0.6	353	400
YQ_022_032	791348	3105204	2133	321	-46	305	No significant intercept				
YQ_022_033	790699	3105225	2177	314	-65	256	No significant intercept				
YQ_022_034	790700	3105225	2176	330	-51	226	143.40	144.90	1.7	705	832
							144.90	145.60	0.6	202	244

Note: Mineralized intercepts >100 g/t AgEq, where AgEq = Ag + (Au x 76.67). Silver equivalent grades were calculated using metal prices of US\$1,840/oz Au and US\$24/oz Ag. Numbers have been rounded.

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## **7.2.2 Drill Methods**

The West Timmins drilling was completed at NQ (47.6 mm core diameter) and BQ (36.4 mm) sizes. The drill contractor is not known.

Golden Minerals used HQ (63.5 mm) core. Drilling was completed by Eco drilling S. de R.L. de C.V. from Guadalajara, Mexico using a track mounted rig with a 500 m depth maximum.

Drill holes in the Golden Minerals programs are typically drilled from the hanging wall side of the vein, perpendicular to and passing through the target structure, into the footwall and are extended an additional 40–50 m to anticipate possible changes on the dip of the structure, and to explore for additional potentially mineralized structures in the footwall to the principal structure.

## **7.2.3 Logging**

### **7.2.3.1 West Timmins**

Scanned copies of West Timmins logs were digitized by Golden Minerals and entered into the Geobank Mobile database. No information on West Timmins logging procedures is available to Golden Minerals.

### **7.2.3.2 Golden Minerals**

Drill core from the Yoquivo drill programs was delivered to the core logging facility in Basaseachi by the drilling company at the end of each shift.

Golden Minerals technicians washed the drill core, verified drill lengths, and recorded recovery on wooden blocks inserted by the drilling company to confirm interval lengths and correct any errors. The technicians photographed the core dry and wet.

The core was measured to confirm the recovery and calculate the rock quality designation (RQD). All recovery and RQD measurements were entered into Geobank Mobile logging software.

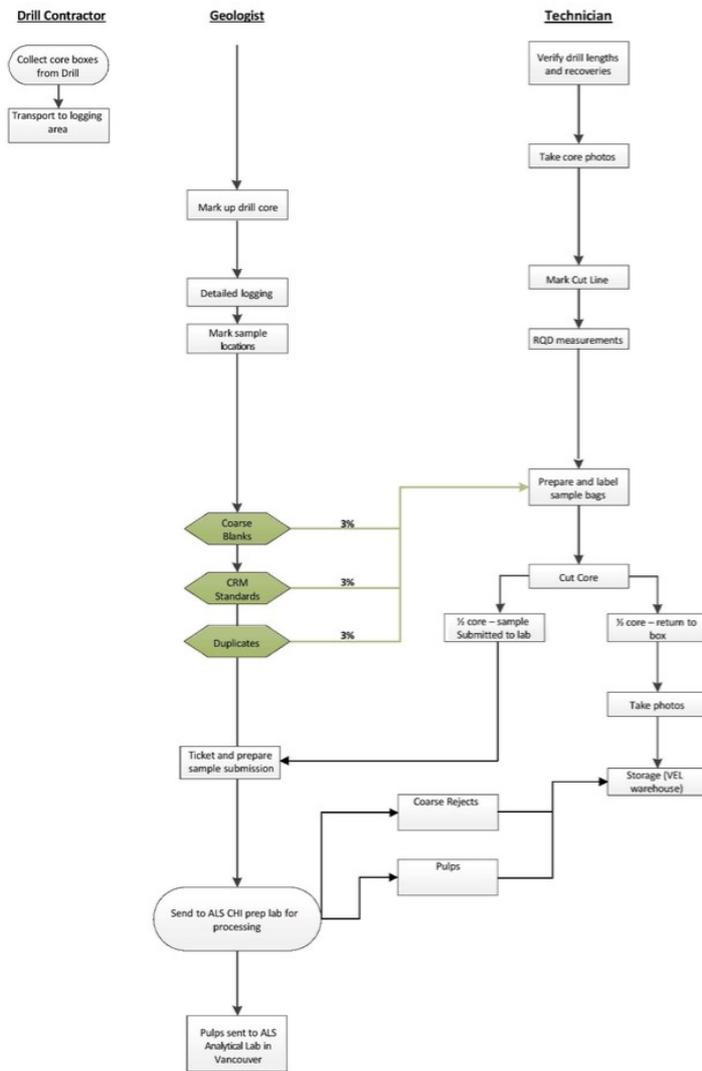
The core was logged by Golden Minerals geologists directly into Geobank Mobile. Logging captured lithology, alteration, mineralization, and structural information from the drill core.

The geologists also marked intervals for sampling, which ranged from 0.05–3.4 m depending on lithology, averaging 0.93 m. The length for each sample was selected to characterize specific textural, lithological, or compositional breaks. Samples narrower than 0.2 m were selected to sample individual mineralized structures. Longer sample lengths (2–3.4 m) were used to sample for weakly altered rocks to check for possible anomalous silver and gold grades.

A flowsheet showing the logging and sampling procedures is provided as Figure 76.

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Figure 7-6: Logging and Sampling Flowsheet



Note: Figure prepared by Golden Minerals, 2023.

## **7.2.4 Recovery**

### **7.2.4.1 West Timmins**

No information is currently available to Golden Minerals as to recoveries from the West Timmins drill campaign.

### **7.2.4.2 Golden Minerals**

Drill recoveries during the Golden Minerals drill campaigns were generally excellent, averaging 98% overall. Recoveries were poor from overburden and soil (<50%), and in and adjacent to fault zones (average recovery 89%). Recoveries in the vein zones were excellent, averaging >95% overall.

## **7.2.5 Collar Surveys**

### **7.2.5.1 West Timmins**

Using the drill hole collar coordinates from the scanned drill logs, Golden Minerals located the West Timmins drill hole pads in the field and created cement location monuments for each drill hole. The drill hole collar locations were surveyed by a professional surveyor with a differential GPS.

### **7.2.5.2 Golden Minerals**

Drill hole collar locations were initially surveyed by handheld GPS and a cement monument was constructed at the site when drilling was completed. Each drill hole monument was marked with the drill hole name, the azimuth, the dip, and the total depth. Once the campaign was completed all drill hole locations were surveyed by a professional surveyor with a differential GPS.

## **7.2.6 Down Hole Surveys**

### **7.2.6.1 West Timmins**

The azimuth and dip for the West Timmins drill holes were recorded on the scanned drill logs obtained by Golden Minerals. No information is currently available to Golden Minerals as to any downhole survey methods that may have been used during the West Timmins drill campaign.

### **7.2.6.2 Golden Minerals**

Golden Minerals geologists orient each drill rig using front and back stakes with the planned azimuth. Actual orientations at the collars were established by measurements of surface casing

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using a field compass and a magnetic Reflex instrument was used to survey the orientation of the drill hole downhole. An initial survey was conducted approximately 15 m downhole to confirm the alignment of the drill hole with the planned orientation. Subsequent surveys were conducted every 50 m starting at 50 m until completion of the drill hole.

### **7.2.7 Comment on Material Results and Interpretation**

Mineralized structures (veins, hydrothermal breccias and fault/shear zones) generally strike at about 035° and dip at approximately 65° to the southeast. Most drill holes were collared in the hanging wall to the various Pertenencia veins, and were generally oriented at an azimuth of 295°.

On average, for the shallower drill holes (drilled at a -45° inclination) the true width of the mineralization is about 75–80% of the downhole drilled length but varies depending on local orientation of the mineralized zones and the drill hole orientation. For deeper drill holes (those drilled at -60° inclination), the true width of the mineralization is about 50–60% of the downhole drilled length.

Examples of the orientation of the drilling to mineralization are provided in Figure 64 to Figure 66.

Drilling and surveying were conducted in accordance with industry-standard practices. The drilling as performed provides suitable coverage of the zones of silver–gold mineralization. Collar and down hole survey methods used generally provide reliable sample locations. Drilling methods provide good core recovery. Logging procedures provide consistency in descriptions.

These data are considered to be suitable for mineral resource estimation. There are no drilling or core recovery factors in the drilling that supports the estimates that are known to the QP that could materially impact the accuracy and reliability of the results.

### **7.3 Hydrogeology**

At this early Project stage, no hydrological studies have been completed.

### **7.4 Geotechnical**

At this early Project stage, no geotechnical studies have been completed. Golden Minerals has collected RQD measurements, see Chapter 7.2.3.2.

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## **8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY**

### **8.1 Sampling Methods**

#### **8.1.1 West Timmins**

Leonard (2007) noted in terms of geochemical sampling:

*“Sample locations are marked in the field by aluminium metal tags engraved with the sample number. Local cattle have chewed some of the tags, making it difficult to find some of the sample locations.”*

Leonard (2007) noted in terms of drill core:

*“All diamond drill core was split manually. After the core was split, one half is put into a sample bag and the other half is returned to the core tray. The core splitter was thoroughly cleaned after each sample has been collected. Each sample was completely described on a card with the appropriate sample number”.*

#### **8.1.2 Golden Minerals**

##### **8.1.2.1 Surface Samples**

Intensive surface sampling has been conducted over the entire Project area by Golden Minerals. Samples generally targeted rocks where veining and alteration were visible. Rock chip sample locations were marked on outcrop with red spray paint and labelled with their respective sample numbers with aluminium tags.

Initial rock chip sampling was conducted with a rock hammer and chisel to collect a representative sample. Once initial positive results were obtained, follow-up sampling was conducted by Golden Minerals personnel using a Stihl cement saw to cut two parallel cuts 5–10 cm apart. A rock hammer and chisel were used to cut out the rock between the two cuts to collect a representative channel sample of outcropping vein and hydrothermal breccias, and where possible, 2–3 m into the surrounding footwall and hanging wall rocks. Sample lengths ranged from 2 cm to 2.1 m.

Samples were collected, where possible, systematically along principal structures, from historical prospects, and surface mine workings. In addition, grab samples were collected from historical mine dumps and spoil heaps.

##### **8.1.2.2 Underground Samples**

Underground samples were collected from all accessible underground workings.

Geologists first surveyed the underground workings, and then mapped the structures and veins. Following mapping, the geologists used red spray paint to mark channel sample lines spaced along the strike of the drift. Samples were collected from vein structures and footwall and hanging wall to mapped structures. Sample lengths were dictated by structural thickness with a minimum

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of 20 cm with no defined maximum, but typically not exceeding 2 m in length. Samples were initiated and terminated based on observable vein styles or mineral type difference across the vein. The hanging wall and footwall were sampled up to 5 m on both sides of the mapped structure.

Under the supervision of a geologist, the samplers were instructed to fully chip away the entire painted portion of the channel sample indicated by the geologist. Using a rock hammer, chisel and five-pound sledgehammer, one sampler chipped the vein while another sampler held a sample bag to capture the sample. A tarpaulin was placed on the ground below the sample to collect any rock that was not collected in the sample bag.

The sample bag was annotated with a sample number that was also painted on the wall by the geologist. For hard-to-reach samples, samplers used a ladder to access the drift back while a helper positioned a tarpaulin on the ground to catch the chiseled material. The collected sample on the tarpaulin was then funneled into a sample bag. The tarpaulin was cleaned between the collection of each individual sample.

### **8.1.2.3 Drilling**

After logging, the core was moved to the sampling area. The core was cut in half using a diamond saw when the rock was intact. For fault rubble zones, where the rock was too fractured or loose to make sawing representative, half of the split core was placed onto a metal tray which was also used to collect the sample fines representing that half of the core. The other half of the core was retained for future reference.

The samples were then placed into thick labelled plastic bags, along with a sample tag, and sealed using cable-ties that could only be opened using a knife. The samples were then placed in large sacks that could accommodate 5–8 samples and sealed with a plastic tie.

The samples were delivered weekly to the ALS Chemex de México S.A. de C.V. laboratory in Chihuahua (ALS Chihuahua) by members of the exploration team. The laboratory was responsible for preparation of the samples and for the subsequent analyses.

All core, pulp and coarse reject samples were transported by Golden Minerals from the ALS Chihuahua preparation laboratory to the core shed located in Velardeña, Durango State, Mexico, which is about approximately 600 km southeast of the Project.

## **8.2 Metallurgical Sampling**

In November 2022, Golden Minerals conducted initial metallurgical testwork on material from the Yoquivo Project (see discussion in Section 13). Test material was sent to Golden Minerals' metallurgical laboratory at the Velardeña mine oxide plant, owned and operated by Minera William S.A. de C.V., a wholly-owned subsidiary of Golden Minerals, which operates the Velardeña mine facilities. All testwork was performed and managed by Golden Minerals personnel.

Material was selected to be of similar mineralization style and type. The mineralization type was determined from logging and indicated that most of the mineralization selected for metallurgical testwork was sulphide dominant. Coarse reject material from drill core was used as the source

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of the composites, and Golden Minerals geologists performed a visual check to make sure that the coarse reject material did not contain significant oxides.

The composite samples were created by mixing the coarse reject material at the Velardeña core shed using a riffle splitter to ensure that the material was uniformly mixed. The samples were placed into sealed buckets and transported by Golden Minerals vehicle to the Velardeña laboratory.

Two composites were generated. Average grades were calculated for each composite by weighing the amount of coarse reject material and applying the gold and silver assay value received from ALS in Vancouver, Canada (ALS Vancouver) for that specific sample. The composite material was selected to test:

- Low-grade mineralization: average grades of 1.5 g/t Au and 216 g/t Ag;
- Medium-grade mineralization: average grades of 3.03 g/t Au and 398 g/t Ag.

## **8.3 Sample Security Methods**

### **8.3.1 West Timmins**

Leonard (2007) stated that:

*“Sample chain of control was maintained by West Timmins from the sample collection point until delivery to a representative from the analytical laboratory or until shipping directly to the sample preparation facility. Samples were bagged individually and tagged in the field then immediately collected into larger rice bags to be stored at the West Timmins field camp until bulk-shipped or transported. While stored in West Timmins’ field camp, these “rice sacks” were tightly sealed using strapping tape that was immediately marked with an indelible marker”.*

### **8.3.2 Golden Minerals**

Samples collected in the field are stored in a locked area at the exploration camp in Basaseachi and transported by Golden Minerals employees to ALS Chihuahua.

Chain-of-custody procedures consist of sample submittal forms that are emailed to the laboratory, and a physical copy of the submission form delivered with sample shipments to ensure that all samples are received by the laboratory. ALS Chihuahua provides a sample delivery receipt to Golden Minerals.

## **8.4 Density Determinations**

Golden Minerals collected bulk density measurements as part of the logging process at the Basaseachi logging facility using the water immersion method on whole drill core from geologically and spatially representative locations. Measurements were taken on whole core samples typically between 10–15 cm in length. Samples of all mineralized zones, structures, and lithologies were tested and, as at the end of 2022, 1,271 bulk density measurements were collected.

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In December 2022, 93 samples were submitted to ALS Vancouver for bulk density determinations using the water displacement method on wax-coated samples from whole and half-core samples to verify the data collected by Golden Minerals staff. Results from this sampling program were received in January 2023 and indicated a bulk density range from 1.93–2.76 g/cm<sup>3</sup>, with an average density of 2.44 g/cm<sup>3</sup>.

The density data do not show a significant difference between mineralized and unmineralized material or by the various lithologies drilled. The bulk density in quartz veins, quartz–calcite veins and hydrothermal breccias averaged 2.43 g/cm<sup>3</sup>.

## **8.5 Analytical and Test Laboratories**

### **8.5.1 West Timmins**

Based on information provided in Leonard (2007), West Timmins used ALS for sample preparation and analysis. Sample preparation was completed at the ALS facility in Hermosillo, Sonora State, Mexico (ALS Hermosillo). Analysis was completed at ALS Vancouver.

### **8.5.2 Golden Minerals**

Sample preparation was undertaken at ALS Chihuahua. ALS Chihuahua is independent of Golden Minerals, and accredited to ISO/IEC 17025:2017 for selected analytical techniques.

Samples were shipped to ALS Vancouver for analysis. ALS Vancouver is certified to ISO 17025:2017 (selected assay techniques) and ISO 9001:2015 standards, and is independent of Golden Minerals.

Metallurgical testwork (discussed in Section 13), was completed at the Golden Minerals metallurgy laboratory in Velardeña. The laboratory is owned and operated by Golden Minerals and is not independent. There are currently no international accreditations other than chemical analyses for metallurgical testwork.

## **8.6 Sample Preparation**

### **8.6.1 West Timmins**

ALS Hermosillo dried the samples, crushed to a minimum of 75% -10 mesh, and pulverized to a minimum of 95% -150 mesh.

### **8.6.2 Golden Minerals**

Drill core, surface, and underground samples from the Yoquivo Project were placed into plastic bags with a unique sample ID tag. The bags were sealed with cable-ties and taken weekly by company geologists to the ALS Chihuahua laboratory.

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Upon delivery, samples were logged into the laboratory's tracking system. Samples were weighed and dried, crushed to 70% passing 2 mm, and pulverized to 85% passing -75 µm.

A flowsheet showing the sample preparation and analysis used by Golden Minerals is included as Figure 81.

## **8.7 Analysis**

### **8.7.1 West Timmins**

ALS Vancouver analyzed 30 g of material using a standard fire assay/atomic absorption or gravimetric finish for gold with ICP analyses for 30 additional elements. Samples with values >10 g/t Au were re-analyzed by fire assay and gravimetric finish.

### **8.7.2 Golden Minerals**

After sample preparation, the prepared pulps for all samples (drill core, surface, and underground samples) were shipped to ALS Vancouver for analysis. Samples were analyzed using the following techniques.

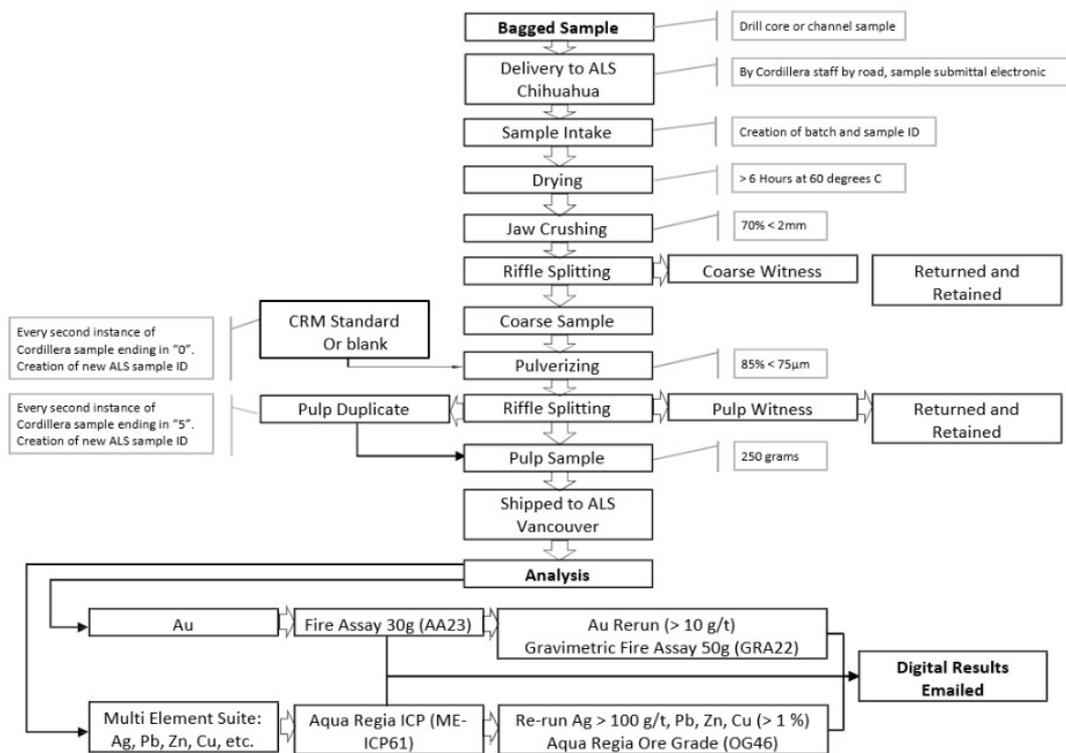
Gold was assayed using ALS code Au-AA23, with overlimit values re-assayed using method Au-GRA22:

- Gold samples were assayed by fire assay with an atomic absorption finish (detection range of 0.005–10 g/t Au);
- Gold samples returning assay values >10 g/t Au were re-assayed by fire assay with gravimetric finish (detection range of 0.05–10,000 g/t Au).

Silver was assayed using ALS code ME-ICP61, with overlimit assays re-assayed using methods OG62, ME-GRA22, and Ag-CON01:

- Four-acid digest with an inductively coupled plasma atomic emission spectrometry (ICP-AES) finish (detection range of 0.5–100 g/t Ag);
  - Silver samples returning assay values >100 g/t Ag were re-assayed with a four-acid digest with and ICP-AES finish (detection range of 1–1,500 g/t Ag);
  - Silver samples returning assays >1,500 g/t Ag were re-assayed by fire assay with gravimetric finish (detection range of 5–10,000 g/t Ag);
  - Silver samples returning assays >10,000 g/t Ag were re-assayed by fire assay with gravimetric finish (detection range of 0.7–995,000 g/t Ag).
-

**Figure 8-1: Golden Minerals Sample Preparation and Analysis Flowsheet**



Note: Figure prepared by Golden Minerals, 2023.

Multi-element analysis (including base metals) consisted of:

- Four acid digest with an inductively coupled plasma atomic emission spectrometry (ICP-AES) finish (detection range of 1–10,000 ppm Cu, and 2–10,000 ppm for lead and zinc);
- Copper, lead, and zinc samples returning values >10,000 ppm were re-assayed with a four-acid digest with and ICP-AES finish (detection range of 0.001–50% Cu, 0.001–20% Pb, and 0.001–30% Zn).

## **8.8 Quality Assurance and Quality Control**

### **8.8.1 West Timmins**

Leonard (2007) noted that:

*“ALS Chemex completes routine quality assurance and control through the process of sample preparation and analysis. This includes but was not limited to air quality testing, sieve testing of coarse crushed and pulverised samples, preparation of sample blanks, and numerous analytical calibrations. Analyses of internal blanks and standards were reported to clients with the associated analytical data.*

*West Timmins inserted a field blank (an unmineralized portion of the diamond drill core) into the sample stream at regular intervals (every 15th sample) and alternated this with a sample duplicate from a previously sampled section of diamond drill core further up-hole. There were no apparent issues with data quality”.*

### **8.8.2 Golden Minerals**

#### **8.8.2.1 Insertion Protocols**

Golden Minerals has implemented an industry standard QA/QC program including the submission of certified standard reference materials (standards), duplicates and blanks to the laboratory, and the results are reviewed regularly to ensure that appropriate and timely action is taken in the event of a QA/QC failure.

At present the protocol for the submission of QA/QC samples is one QA/QC sample for every nine routine samples.

In the case of a QA/QC failure, the standard practice is to review the data for potential translation issues (samples results swapped with an adjacent sample), and then re-run 5–8 samples on both sides of the erroneous sample.

In total, 665 QA/QC samples were submitted, or approximately 10.4% of the total number of samples submitted from the Golden Minerals Yoquivo drill programs.

#### **8.8.2.2 Standards**

Results of the regular submission of standards are used to identify problems with specific sample batches and long-term biases associated with the primary assay laboratory. Golden Minerals uses commercial CRMs purchased from OREAS based in Melbourne, Australia.

A total of 196 standard samples were submitted by Golden Minerals at an average frequency of one for every batch of 30 samples. Two different CRMs were used during the Yoquivo drill program.

Results from the standards show adequate accuracy and no significant bias in the gold and silver assays.

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Golden Minerals continually monitors the results from the standard samples to verify the quality of the results received from ALS Vancouver during the drilling campaign.

### **8.8.2.3 Blanks**

Golden Minerals submits blank material to assess any contamination during sample preparation and to identify sample numbering errors. The blank material used is a silica sand purchased from Abrasivos Laguna SA de CV in Torreon, and used at the Velardeña laboratory. Prior to this material being used, several samples of the blank material were submitted to ALS Vancouver for check analysis to verify that they contained no significant gold or silver mineralization.

The results from this confirmation sampling indicated that the material had below detection limit gold and silver grades (<0.005 ppm Au and <0.5 ppm Ag) and was considered acceptable to be used as a blank for the Golden Minerals drill programs.

Blank samples were inserted at an average rate of approximately one per 20–25 samples, with a total of 279 blank samples (4.4%) analyzed during the 2020–2022 Golden Minerals drill campaigns. No significant carryover contamination is indicated in the gold and silver blank results.

Golden Minerals continually monitors the results from the blank samples to verify the quality of the results received from ALS Vancouver during the drilling campaigns.

### **8.8.2.4 Field, Coarse Reject, and Pulp Duplicates**

Duplicate samples help to monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. Golden Minerals does not currently insert a field duplicate, due to the remoteness of the field camp at Basaseachi from the core and sample storage warehouse in Velardeña. Instead, Golden Minerals directs the ALS Chihuahua laboratory to prepare two pulps from a single parent sample to make a pulp duplicate.

Pulp duplicates were inserted at an average rate of approximately one per 25–30 samples, with a total of 192 duplicate samples (3.0%) analyzed. Results returned from the duplicate program indicate adequate precision of the gold and silver assays.

Results from the duplicate samples are continually reviewed, and actions are taken according to the failure limits set at  $\pm 10\%$  of the original value. If there are multiple samples outside of these failure limits, the batch is requested to be repeated.

Golden Minerals plans to increase the quality of the duplicate sampling program by including field duplicates and coarse (crusher) duplicates as additional QA/QC checks.

### **8.8.3 Check Assays**

At the Report effective date, no check assay samples had been submitted to a secondary laboratory to evaluate the accuracy of the results from ALS Vancouver.

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## **8.9 Databases**

Golden Minerals has compiled an extensive dataset for the Yoquivo Project that is stored and managed using the Micromine Geobank database management system designed for the mining and mineral exploration industry.

Field data (drilling and geotechnical data) are captured using Geobank Mobile logging software, and are transferred daily, via the internet, to the database.

The database includes a series of validations to prevent inaccurate data from being imported into the database. If any errors are flagged (e.g., overlapping intervals, data extending beyond hole depths or unknown codes), the data are not imported, and these errors are corrected in the field.

Assay data are imported directly from comma-separated value (csv) files sent from ALS Vancouver and compiled into final assay tables within the database. The database also flags and separates QA/QC samples into relevant tables.

The database is stored remotely at Golden Minerals' exploration offices in Torreon, Coahuila, where it is also backed-up on a local server. In addition, paper data (sample submissions, daily drilling reports etc.) are stored in the Torreon offices and scanned and stored on the local server.

### **8.10 *Qualified Person's Opinion on Sample Preparation, Security, and Analytical Procedures***

The QP is of the opinion that the sample preparation, analysis, quality control, and security procedures are sufficient to provide reliable silver and gold data to support estimation of mineral resources.

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## **9.0 DATA VERIFICATION**

### **9.1 Internal Data verification**

Golden Minerals conducted several digital and visual queries on the Yoquivo sample database. Golden Minerals uses database validation tools in Geobank Mobile and Geobank to prevent incorrect data from entering the database, including:

- Intervals exceeding the total hole length;
- Gaps in lithology data;
- Negative length intervals;
- Positive down-hole dip measurements;
- Out-of-sequence and overlapping intervals;
- Sample intervals overlapping areas of no recovery (e.g., historical workings);
- No interval defined within analyzed sequences (not sampled or missing samples/results);
- Inconsistent drill hole labelling between tables;
- Invalid data formats, logging codes and out-of-range values;
- Unusual assay results, including excessively long assay intervals;
- Recovery and RQD values exceeding interval length.

After the data were imported into Micromine and Leapfrog software systems, the data were reviewed in two dimensions and three dimensions to confirm data quality and to ensure that there were no unreasonable downhole deviations or gaps in the logging and assay data fields. There are also multiple drill hole data validation processes completed in Micromine that are undertaken to ensure data quality and integrity.

### **9.2 External Data Verification**

An external data verification program was conducted by Mine Technical Services Ltd. (MTS), a third-party firm, during 2022. An MTS representative who meets the definition of a Qualified Person under S-K 1300 visited the Yoquivo Project for a five-day period, from 31 October 2022 to 4 November 2022.

#### **9.2.1 Field Inspection**

MTS visited the Pertenencia and San Francisco vein systems, and walked along outcrop exposures and historical excavations at the topographic top (2,200 masl) and base (2,000 masl) of the exposures.

Historical excavations observed included shallow surface trenches established along the strike of the vein system and shafts, declines, and adits accessing the historical underground mine

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workings. Vein orientations were collected where possible and generally trended northeast-southwest (averaging approximately 015° azimuth) with a dip of -70° to the east.

Mineralization consisted of white quartz vein, quartz vein stockwork, and quartz vein breccia hosted by rhyolite and andesite volcanic and intrusive rocks.

### **9.2.2 Collar Checks**

MTS collected hand-held GPS coordinates for nine drill holes on the Project and compared the coordinates with those found in the database. The differences in easting and northing are generally between 1–36 m. The difference in northing for drill holes YQ\_022\_010 and YQ\_022\_011 are likely due to less accurate readings from the hand-held GPS used MTS. Elevation coordinates were not collected for some drill holes.

MTS reviewed the drill hole coordinates with the digital topography and considers the database coordinates to be accurate and reliable for mineral resource estimation purposes.

### **9.2.3 Witness Sampling**

MTS collected six rock chip samples and five core samples during the site visit. The QP personally collected or supervised the sampling of the rock chip samples from surface outcrop exposures, trench walls, or underground workings and delivered the samples to ALS Chihuahua. Drill interval samples were selected by MTS and ¼ core samples were cut, sampled, bagged, and delivered to ALS Chihuahua by Golden Minerals staff.

Rock chip and core samples were analyzed by method Au-AA23 (gold by lead fire assay on a 30 g sample followed by AA) and ME-ICP61 (33 elements by four-acid digestion on a 0.25 g sample followed by ICP-AES). Samples reporting >100 g/t Ag were re-assayed by method Ag-OG62 (silver by four-acid digestion of a 0.4 g sample followed by ICP-AES).

Silver and gold assay results for rock chip witness samples and indicate the presence of mineralization on surface and underground.

The ¼ core witness samples are not considered duplicate samples and so are not expected to be evaluated as such. However, the witness samples do confirm the presence of mineralization in the core intervals and agree reasonably well with the original assays except for the interval from drill hole YQ\_020\_011.

### **9.2.4 Drill Core Review**

MTS examined drill core from drill holes YQ\_021\_006 and YQ\_022\_032. Mineralized zones from YQ\_021\_006 are characterized as zones of quartz veining, calcite veining, sulphide mineralization, and brecciation. The host rocks are andesitic and lesser rhyolitic volcanic rocks. Significant variation in the texture of the andesitic rocks was observed. Core from YQ\_022\_032 is characterized by narrow white quartz veins and calcite veinlets and some breccia hosted by green andesitic volcanic rocks.

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The style of mineralization observed by MTS was stated to be consistent with the low-sulphidation exploration model being employed by Golden Minerals.

### **9.2.5 Laboratory Visits**

MTS visited the Golden Minerals metallurgy laboratory in Velardeña. MTS toured the facility and inspected the equipment and methods used to perform the metallurgical testwork. In MTS's opinion, the laboratory is adequately equipped to perform the preliminary testwork described in Section 13.

MTS toured the ALS Chihuahua sample preparation facility and found it adequate to prepare core samples for analysis by ALS Vancouver.

### **9.2.6 Database Audit**

MTS audited approximately 10% of the collar locations, downhole surveys, geological logs, and assays from the Project database to ensure that the digital database represents the original exploration records.

No discrepancies were found between the database and the original records in the collar locations or silver and gold assays.

MTS found five data entry errors in the downhole surveys and Golden Minerals corrected these errors and completed a comparison of all downhole surveys in the database against the original records and corrected any errors that were found.

No errors were found in the geological logs, but the relogged intervals for one drill hole that was relogged in November 2022 was missing from the database. The intervals for this drill hole were replaced by the relogged intervals and Golden Minerals performed a check of the other drill holes that were relogged to ensure that the best logging information is in the database.

MTS concluded that the database accurately represents the original records and is acceptable for use in mineral resource estimation.

### **9.2.7 MTS's Opinion on Data Adequacy**

MTS had the following observations as a result of the site visit and data verification checks:

- Field inspection, core inspection, and witness sample results indicate that the Yoquivo Project hosts significant precious metal mineralization in a low-sulphidation setting;
  - Drill hole collar locations are accurate and acceptable for use in mineral resource estimation;
  - The Golden Minerals metallurgical laboratory in Velardeña is adequately equipped to perform the preliminary testwork described in Section 13. MTS recommends that future metallurgical testwork be performed by an independent commercial laboratory;
  - ALS Chihuahua is adequate to prepare core samples for analysis at ALS Vancouver;
-

- The Project database accurately represents the original exploration records and is acceptable to support mineral resource estimation.

### **9.3 Data Verification by Qualified Person**

#### **9.3.1 Mr. Aaron J. Amoroso**

The QP visited the Yoquivo Project in June 2022, and most recently from 2 to 4 November 2022. During the site visits, the QP:

- Visited the Pertenencia, Dolar, Esperanza, and San Francisco vein systems, and inspected outcrops, geological setting and visible examples of mineralized material;
- Visited historical workings at the Pertenencia and San Francisco vein systems.

Drilling was being conducted on Pertenencia vein during the QP's site visit and HQ core was observed being recovered. The QP visited the logging facilities and observed core logging and sampling procedures during the site visit. Practices observed at the core shed included:

- Core meter and sample line marking;
- Core logging procedures, protocols, and geological control;
- Core photography procedures and quality;
- Core cutting and sampling procedures;
- Core storage and security;

The storage and logging facilities are acceptable and meet industry standards.

The QP reviewed the analytical QA/QC data and reports for the Golden Minerals drill program. This included examination of analytical results for the standard, blank and duplicate samples. No material errors were noted from this review. The quality assurance program for the core drilling on the Project demonstrates sufficient accuracy and precision of the silver and gold assays for use in estimating mineral resources for silver and gold.

The QP reviewed the collar and downhole survey data from the Golden Minerals drill program, inspecting results for anomalous collar locations and deviations in the downhole survey data. No material errors were noted from this review.

The QP completed a validation review of data entry and data verification procedures used to upload data to the Project database. The QP checked the database used for mineral resource estimation by running software checks, including:

- Collar location within reasonable limits;
  - Missing collar coordinates;
  - Azimuth or Inclination deviation of greater than 5° between adjacent measurements;
  - Significant assay values repeated down-hole;
-

- Anomalous assay values;
- Missing down-hole survey information;
- Missing interval data;
- Logging or assays not extending to depth;
- Overlapping interval information;
- Assay values with “no core” logging information; if the interval does not have both assay and logging information it is excluded.

The QP completed an inspection of drill results in relation to the accuracy of geological interpretations and grade interpretations on section, plan, and 3D, and in geological and vein models. He also undertook a review of documents and reports supporting the mineral resource estimation approach and resulting estimate.

### **9.3.2 Mr. Matthew Booth**

The QP visited the Yoquivo Project on a number of occasions, including September, October, and December 2018; February and May 2019; September and December 2020; October, 2021; and May, June, and November, 2022. The most recent site visit was from November 2 to 4 November 2022. During his site visits, the QP:

- Visited the Pertenencia, Dolar, Esperanza, and San Francisco vein systems, and inspected outcrops, geological setting and visible examples of mineralized material;
- Visited historical workings at the Pertenencia and San Francisco vein systems.

Drilling was being conducted on Pertenencia vein during the QP’s site visit and HQ core was observed being recovered. The QP visited the logging facilities and observed core logging and sampling procedures during the site visit. Practices observed at the core shed included:

- Core meter and sample line marking;
- Core logging procedures, protocols, and geological control;
- Core photography procedures and quality;
- Core cutting and sampling procedures;
- Core storage and security;

The storage and logging facilities are acceptable and meet industry standards.

The QP reviewed the analytical QA/QC data and reports for the Golden Minerals drill program. This included examination of analytical results for the standard, blank and duplicate samples. No material errors were noted from this review. The quality assurance program for the core drilling on the Project demonstrates sufficient accuracy and precision of the silver and gold assays for use in estimating mineral resources for silver and gold.

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The QP reviewed the collar and downhole survey data from the Golden Minerals drill program, inspecting results for anomalous collar locations and deviations in the downhole survey data. No material errors were noted from this review.

The QP completed a validation review of data entry and data verification procedures used to upload data to the Project database. The QP checked the database used for mineral resource estimation by running software checks, including:

- Collar location within reasonable limits;
- Missing collar coordinates;
- Azimuth or Inclination deviation of greater than 5° between adjacent measurements;
- Significant assay values repeated down-hole;
- Anomalous assay values;
- Missing down-hole survey information;
- Missing interval data;
- Logging or assays not extending to depth;
- Overlapping interval information;
- Assay values with “no core” logging information; if the interval does not have both assay and logging information it is excluded.

The QP completed an inspection of the geological interpretation as used in the 3D modelling for the mineral resource estimate.

The QP discussed metallurgical testwork completed with an MTS representative who meets the definition of a Qualified Person under S-K 1300 for metallurgy, and reviewed the recommended metallurgical recovery forecasts with MTS. The QP complemented this discussion with a desktop review of public information on metallurgical recoveries used by other mining companies in similar deposit types in northern Mexico.

#### **9.4 Qualified Person’s Opinion on Data Adequacy**

The QPs personally verified data supporting the mineral resource estimates. This included observation of drilling and sampling at active drill sites, review of logging and sampling procedures, inspection of drill results relative to interpretations on cross sections and levels, and review of documents and reports supporting the mineral resource estimation approach and resulting estimate.

As a result of these checks, the QPs concluded that the Project database accurately represents the available data and is acceptable to support mineral resource estimation.

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## **10.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

### **10.1 Introduction**

Two composite samples were selected (see Section 11.2) from core coarse rejects for preliminary testwork, and designated as low-grade and medium-grade. The samples were placed into sealed buckets and transported by Golden Minerals personnel to the Golden Minerals-owned Velardeña laboratory.

Golden Minerals conducted several preliminary metallurgical tests during the fourth quarter of 2022 to determine if the mineralization in the Yoquivo deposit is amenable to cyanide leaching and flotation. The tests were designed and conducted by Golden Minerals personnel.

Testwork included creating composites; conducting head assays for gold, silver, cyanide soluble gold, and cyanide soluble silver; conducting bench top duplicate agitated leach tests; and flotation tests.

### **10.2 Metallurgical Testwork**

#### **10.2.1 Head Assays**

The Velardeña laboratory undertook duplicate total gold and silver assays by fire assay using a 10 g fire assay in concert with an AA finish.

Aqua regia digestions were conducted to obtain lead, zinc, and copper assays in duplicate as well.

Golden Minerals also conducted cyanide shake tests to predict the amount of cyanide soluble gold and silver in each composite at two different grind sizes, 85% passing 200 mesh and 100% passing 200 mesh. The splits were leached with a 5,000 ppm sodium cyanide (NaCN) solution at a pH of 11.0 and a temperature of 65° C for one hour. The test was repeated five times at both grind sizes. The resulting head assays and cyanide soluble gold and silver assays are presented in Table 101 to Table 103. The sample numbering refers to different splits of each of the two composites.

#### **10.2.2 Agitated Leach Tests**

Golden Minerals conducted 1,000 g bottle roll tests to simulate a leach circuit. Each sample was tested at 2.5 g/L NaCN and 3 g/L NaCN for 96 hours. All other tests conditions were held constant.

The samples were ground to a nominal 75% -200 mesh prior to the leach. The pH was maintained above 10.5 with lime, and the slurry density was set at 50% solids. Tap water from the site was used as the source of water. The pH and sodium cyanide concentrations were monitored at 2, 6, 24, 48, 72 and 96 hours and adjusted as needed with lime and sodium cyanide to maintain the targets. Solution samples were also collected at the same time intervals and subjected to dissolved gold, silver, and copper assays.

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**Table 10-1: Head Assays of Composites**

Sample	Gold Grade (Au g/t)	Silver Grade (Ag g/t)
Low grade A	1.60	222
Low grade B	1.56	205
Low grade C	1.19	200
Medium grade A	3.18	327
Medium grade B	3.08	331
Medium grade C	2.74	309

**Table 10-2: Percent Cyanide Soluble Gold Based on In-House Shake Test**

Sample	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Average (%)
Low grade A	90.5	85.9	90.4	94.8	90.0	90.3
Low grade B	90.1	80.0	89.1	93.7	66.5	83.9
Medium grade A	80.2	77.9	75.2	86.2	68.1	77.5
Medium grade B	51.2	64.3	61.8	67.8	58.8	60.8

**Table 10-3: Percent Cyanide Soluble Silver Based on In-house Shake Test**

Sample	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Average (%)
Low grade A	85.9	86.3	87.4	86.8	85.3	86.4
Low grade B	80.1	67.0	78.9	74.9	57.1	71.6
Medium grade A	67.5	63.8	66.7	68.0	58.0	64.6
Medium grade B	53.0	54.3	53.1	49.2	54.9	52.9

The test conditions and results are summarized in Table 104 to Table 106.

The samples responded very well to cyanide leaching, as gold recoveries were between 81.8% and 92.4%, and silver recoveries were between 77.6% and 92.5%. Both samples yielded higher gold and silver recoveries with higher NaCN concentrations (Table 105). All recoveries were also substantially higher than the amount of cyanide-soluble gold and silver predicted by the shake tests.

Leach kinetics were slow, as the gold and silver were still leaching when the tests were terminated in all tests except the test with the higher NaCN dosage on the low-grade composite, as shown in Figure 101 and Figure 102.

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**Table 10-4: Bottle Roll Test Conditions**

Sample	NaCN Concentration (g/L)	Grind Size (% passing 200 mesh)	Target pH	Solids (%)
Low grade A	2.5	74.63	>10.5	50
Low grade B	3.0	74.63	>10.5	50
Medium grade A	2.5	74.63	>10.5	50
Medium grade B	3.0	76.69	>10.5	50

**Table 10-5: Agitated Leach Test Results**

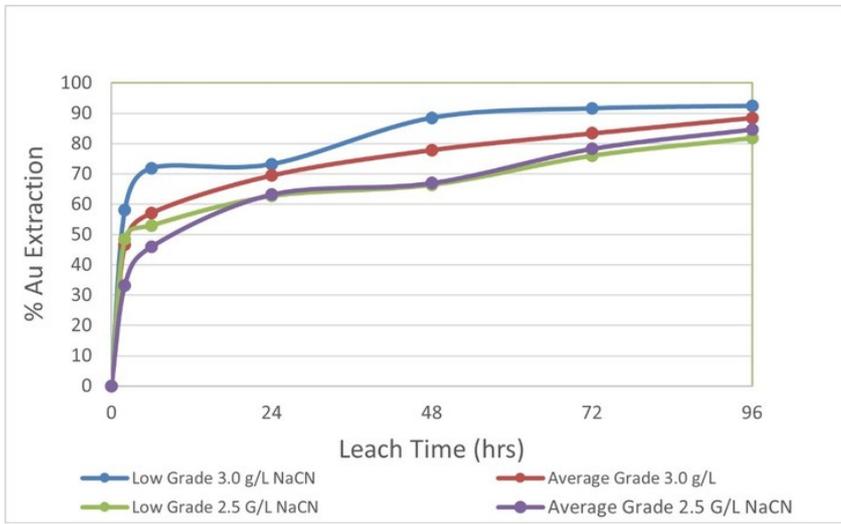
Sample	NaCN Concentration (g/L)	Gold Extraction (%)	Silver Extraction (%)	Gold Accountability (%)	Silver Accountability (%)
Low grade A	2.5	81.8	90.9	125	114
Low grade B	3.0	92.4	92.5	134	120
Medium grade A	2.5	84.7	77.6	88	100
Medium grade B	3.0	88.5	85.5	132	111

**Table 10-6: Lime and Sodium Cyanide Additions**

Sample	Target Concentration (g/L)	Total NaCN Added (g/L)	NaCN Consumption (kg/t)	Total Lime Added (kg/t)
Low grade A	2.5	5.63	3.14	1.8
Low grade B	3.0	5.55	3.10	2.5
Medium grade A	2.5	4.81	2.52	1.8
Medium grade B	3.0	4.55	2.03	2.5

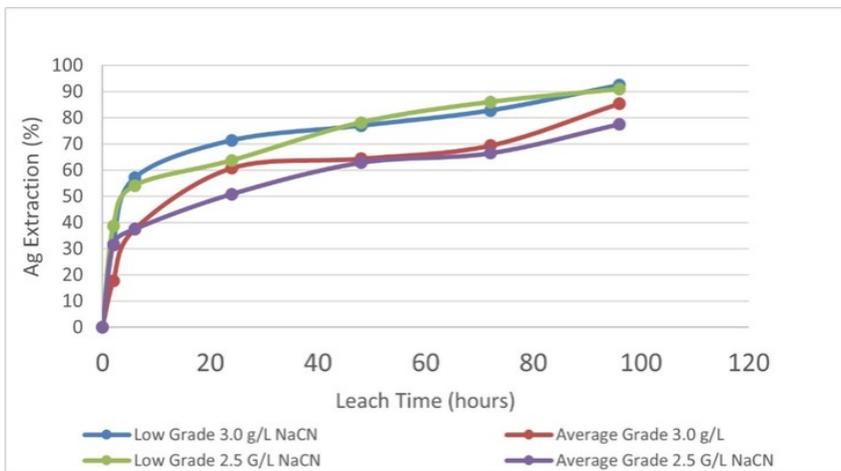
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**Figure 10-1: Gold Leach Kinetics**



Note: Figure courtesy Golden Minerals, sourced from file "preliminar de yoquivo 1011202.xlsx." In this figure, average grade = medium grade.

**Figure 10-2: Silver Leach Kinetics**



Note: Figure courtesy Golden Minerals, sourced from file "preliminar de yoquivo 1011202.xlsx." In this figure, average grade = medium grade.

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Between 30% and 70% of the gold leached in the first two hours with the remainder of the gold leaching in a slow linear manner for the remainder of the test. Silver recoveries were similar to gold recoveries except a little slower, as between 15% and 55% of the silver leached in the first two hours and the remaining silver leached slowly throughout the remainder of the tests.

Sodium cyanide additions between 4.5 and 5.5 kg/t were required to maintain the 2.5 g/L and 3.0 g/L NaCN targets. Lime additions between 1.8 and 2.5 kg/t were needed to maintain pH levels above 10.5 throughout the tests.

### **10.2.3 Flotation Tests**

Flotation tests were conducted on 1,000 g splits from each composite. All flotation tests were conducted using a rougher-scavenger flotation scheme with common flotation reagents. Two different flowsheets were used.

For one flowsheet, two concentrates were collected. The first concentrate was collected for one minute and the second concentrate was collected for the entire period between 1–13 minutes.

The three remaining tests were conducted using the flowsheet shown in Figure 103, where separate concentrates were collected at 1, 3, 5, 7, 9, 11, and 13 minute intervals.

A combination of a blended collector (RO2) with dithiophosphate and mercaptobenzothiazol plus Aero A3418 were used as collectors, A70 (MIBC) was used as the frothing agent, and T609 was also added as a dispersive agent. These reagents are all commonly used in base metal and precious metal flotation circuits. The RO2 and T609 are marketed by Quimica Teuton, S.A. DE C.V. Aero 3418 and A70 are marketed by Solvay.

### **10.2.4 Flotation Results**

The samples responded very well to flotation. Gold recoveries were between 84% and 95% and silver recoveries were between 82% and 89%. The flotation kinetics were quick as gold recoveries near 70% and silver recoveries near 60% were achieved in the first minute.

The gold and silver recoveries are summarized in Table 107 to Table 1010.

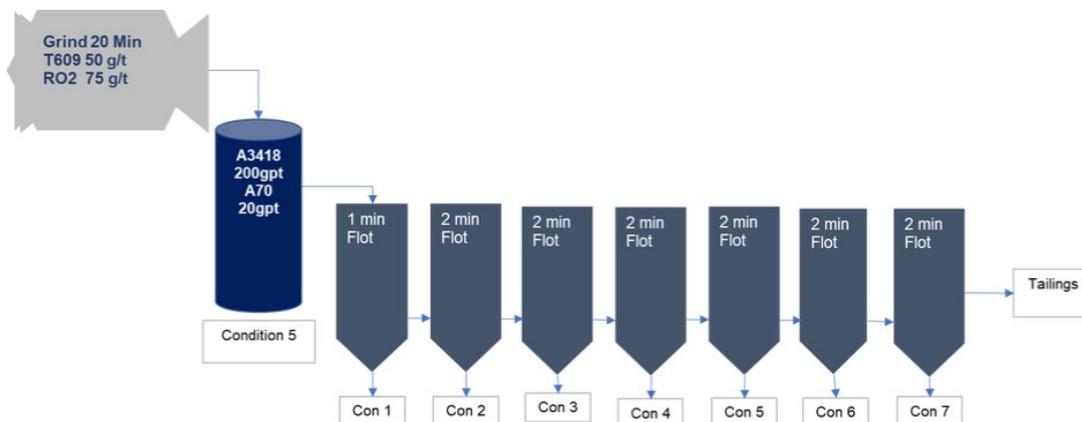
## **10.3 Recovery Estimates**

Recoveries of 85% for gold and silver were recommended by the QP for use in assessing reasonable prospects of economic extraction when performing the mineral resource estimate. These forecasts can support estimation of inferred mineral resources.

Recovery assumptions were based on the following:

- Initial metallurgical testwork conducted by Golden Minerals on material from the Yoquivo Project, summarized in Section 13.2;
  - Reviewing other mining operations that use similar recovery technologies to that conceptually envisaged at Yoquivo.
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**Figure 10-3: Flotation Test Flowsheet**



Note: Figure courtesy Golden Minerals, sourced from file "Balance met 366372final.xlsx".

**Table 10-7: Summary Low Grade A Flotation Results**

Low Grade A	Mass (%)	Au (g/t)	Ag (g/t)	Ag/Au	Au Distribution (%)	Ag Distribution (%)
Head assay	100.0	1.58	214	135		
Rougher concentrate	3.2	32.74	4,294	131	72.30	68.85
Scavenger concentrate	1.4	13.38	2,103	157	12.92	14.75
Final tailings	95.4	0.22	34	153	14.77	16.40
Calculated head	100	1.449	200	138	100.00	100.00
Recovery (%)	4.6	85.80	83.93	NA	85.23	83.60
Accountability (%)	100	91.72	93.49	NA	NA	NA

Note: Recovery = (metal in head – metal in tailings)/metal in head.  
 Back calculated recovery = (metal in concentrates)/(metal in tailings + sum of metals in concentrates).  
 Accountability = metal in head/(sum of metals in concentrate + metal in tailings).  
 NA = not applicable.

**Table 10-8: Summary Low Grade B Flotation Results**

Low Grade B	Mass (%)	Au (g/t)	Ag (g/t)	Ag/Au	Au Distribution (%)	Ag Distribution (%)
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Head grade	100.0	1.58	214	135		
Flot 1; 1 min	2.00	40.35	5,048	125	59.58	53.85
Flot 2; 1–3 min	1.40	12.16	1,856	153	12.57	13.86
Flot 3; 3–5 min	1.20	3.39	586	173	3.00	3.75
Flot 4; 5–7 min	0.80	3.08	515	167	1.82	2.20
Flot 5; 7–9 min	1.50	2.61	461	177	2.89	3.69
Flot 6; 9–11 min	1.00	2.30	420	183	1.70	2.24
Flot 7; 11–13 min	0.80	2.68	447	167	1.58	1.91
Final tailings	91.30	0.25	38	152	16.85	18.51
Calculated head	100	1.354	187	138	100.00	100.00
<i>Recovery (%)</i>	<i>8.70</i>	<i>84.18</i>	<i>82.20</i>	<i>NA</i>	<i>83.15</i>	<i>81.49</i>
<i>Accountability (%)</i>	<i>100</i>	<i>85.72</i>	<i>87.81</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>

Note: Recovery = (metal in head – metal in tailings)/metal in head.  
Back calculated recovery = (metal in concentrates)/(metal in tailings + sum of metals in concentrates).  
Accountability = metal in head/(sum of metals in concentrate + metal in tailings).  
NA = not applicable.

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**Table 10-9: Summary Medium Grade A Flotation Results**

Medium Grade A	Mass (%)	Au (g/t)	Ag (g/t)	Ag/Au	Au Distribution (%)	Ag Distribution (%)
Head grade	100.0	3.13	329	105		
Flot 1; 1 min	2.60	71.79	7,318	102	69.89	62.49
Flot 2; 1–3 min	1.40	25.09	3,148	125	13.15	14.47
Flot 3; 3–5 min	1.80	6.77	1,019	150	4.56	6.02
Flot 4; 5–7 min	2.00	2.48	388	156	1.86	2.55
Flot 5; 7–9 min	1.40	1.90	302	159	0.99	1.39
Flot 6; 9–11 min	1.40	1.76	279	159	0.92	1.28
Flot 7; 11–13 min	2.00	1.84	257	140	1.38	1.69
Final tailings	87.40	0.22	35	159	7.24	10.11
Calculated head	94	2.670	304	114	100.00	100.00
Recovery (%)	12.60	92.93	89.29	NA	92.76	89.89
Accountability (%)	100	85.32	92.55	NA	NA	NA

Note: Recovery = (metal in head – metal in tailings)/metal in head.  
Back calculated recovery = (metal in concentrates)/(metal in tailings + sum of metals in concentrates).  
Accountability = metal in head/(sum of metals in concentrate + metal in tailings).  
NA = not applicable.

**Table 10-10: Summary Medium Grade B Flotation Results**

Medium Grade B	Mass (%)	Au (g/t)	Ag (g/t)	Ag/Au	Au Distribution (%)	Ag Distribution (%)
Head grade	100.0	3.13	329	105		
Flot 1; 1 min	1.40%	111.98	8,133	73	59.60	47.84
Flot 2; 1–3 min	0.80%	36.50	3,464	95	11.10	11.64
Flot 3; 3–5 min	1.00%	38.82	1,819	47	14.76	7.64
Flot 4; 5–7 min	1.00%	6.37	1,062	167	2.42	4.46
Flot 5; 7–9 min	2.20%	3.30	518	157	2.76	4.79
Flot 6; 9–11 min	1.80%	3.43	575	168	2.35	4.35
Flot 7; 11–13 min	2.00%	2.49	407	163	1.89	3.42
Final tailings	89.80%	0.15	42	280	5.12	15.85
Calculated head	97%	2.630	238	90	100.00	100.00

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<b>Medium Grade B</b>	<b>Mass (%)</b>	<b>Au (g/t)</b>	<b>Ag (g/t)</b>	<b>Ag/Au</b>	<b>Au Distribution (%)</b>	<b>Ag Distribution (%)</b>
<i>Recovery (%)</i>	10.20	95.21	87.23	NA	94.88	84.15
<i>Accountability (%)</i>	100	84.04	72.34	NA	NA	NA

Note: Recovery = (metal in head – metal in tailings)/metal in head.  
Back calculated recovery = (metal in concentrates)/(metal in tailings + sum of metals in concentrates).  
Accountability = metal in head/(sum of metals in concentrate + metal in tailings).  
NA = not applicable.

Current metallurgical tests were conducted on two composites with different grades. These composites were sourced from 14 intercepts from nine different drill holes that penetrated three different veins. Figure 104 shows a map of the drill holes and intercepts and their relative positions within the deposits. Most of the samples in the composite tests were sourced from the Pertenencia vein system.

Thus far the tests are sufficient to indicate potential recoverability of the gold and silver mineralization to support inferred mineral resource estimates.

#### **10.4 Metallurgical Variability**

Insufficient samples have been conducted to qualify for variability testing.

#### **10.5 Deleterious Elements**

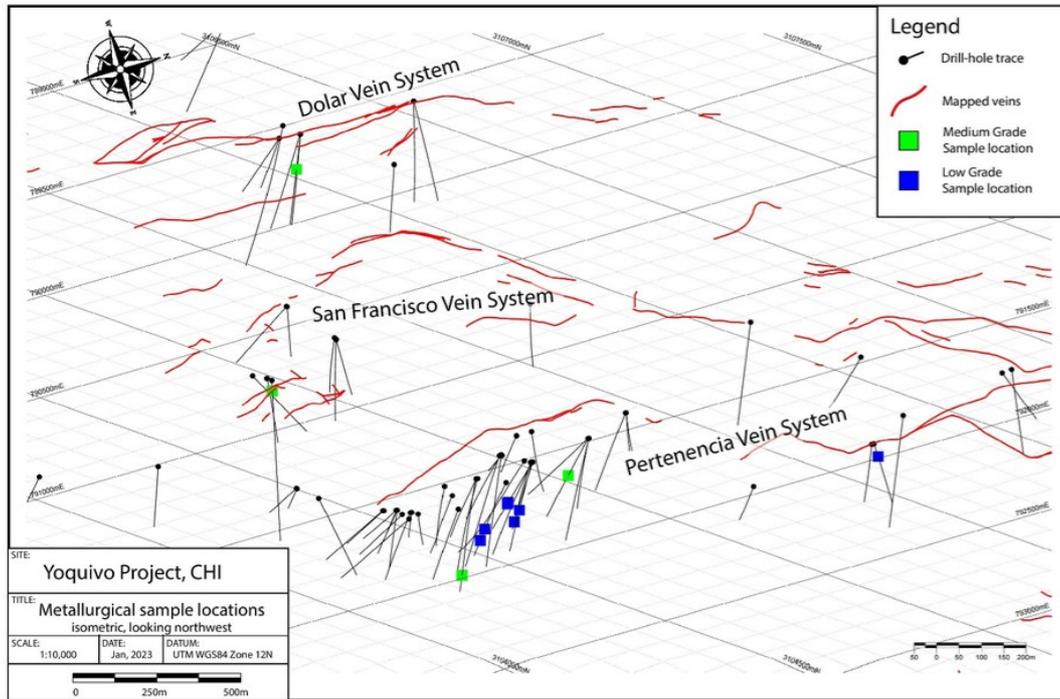
No testwork has been conducted to determine if deleterious elements are present in sufficient quantities to impact the ability to produce, process, and sell a concentrate or that would increase the processing cost of either a leach circuit or a flotation circuit.

#### **10.6 Qualified Person's Opinion on Data Adequacy**

The limited metallurgical testwork completed thus far has shown that gold and silver in the Yoquivo deposit can be recovered with cyanide leaching and flotation. Recovery forecasts can be used to support inferred mineral resources.

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Figure 10-4: Metallurgical Sample Location Plan



Note: Figure courtesy Golden Minerals, 2023.

## **11.0 MINERAL RESOURCE ESTIMATES**

### **11.1 Introduction**

The mineral resource estimates were prepared using 3-D models in the commercial mine planning software MinePlan3D® (version 16.0.2, build 84145-en-1690).

### **11.2 Geological Models**

Geology models were provided in digital format by Golden Minerals. Golden Minerals geology staff used LeapFrog software to create lithology and vein solids. Information from drill hole geology logs and surface and subsurface mapping were used to develop the lithology models, while the vein models were based on logging, mapping, and assay data. Modeled lithological units consist of alluvium, andesite, rhyolite tuffs and sills, veins, and fault structures.

Grade shells within the vein solids were constructed within mineralized intercepts using a 200 g/t silver equivalent (AgEq) cut-off grade. The AgEq equation uses US\$1,840/oz Au and US\$24/oz Ag metal prices in the following equation:

- $AgEq = Ag\ g/t + Au\ g/t * (1,840/24)$ .

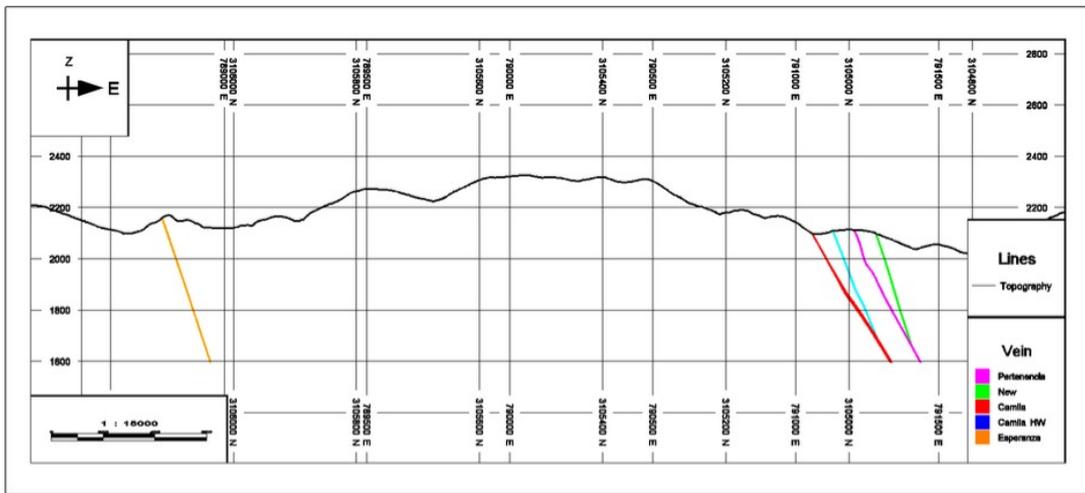
Silver-equivalent grade shells were constructed using composites for the Pertenencia, New, Camila, Camila hanging wall (HW), and Esperanza Veins (Figure 111).

Other veins reviewed included the Dolar, San Francisco, La Huga, La Huga footwall (FW), Pertenencia FW, and Camila hanging wall splay (HW 01), which were determined to have insufficient drilling or grade continuity to estimate a Mineral Resource. Cross sections were created through each mineralized drill hole intercept perpendicular to the strike of the vein. An example cross-section is provided in Figure 112. Grade shell polygons were drawn encapsulating composites within mineralized intercepts  $\geq 200$  g/t AgEq. Polygons were projected along strike 50 m from the last drill hole and extended down dip 100 m from last drill hole.

Where the AgEq vein grade shell true thickness was not at least 1 m thick, a footwall or hanging wall grade shell domain was drawn to bring the total grade shell thickness to 1 m. The determining factor as to a footwall or a hanging wall grade shell being drawn depended on which side had the higher AgEq grade adjacent to the vein grade shell.

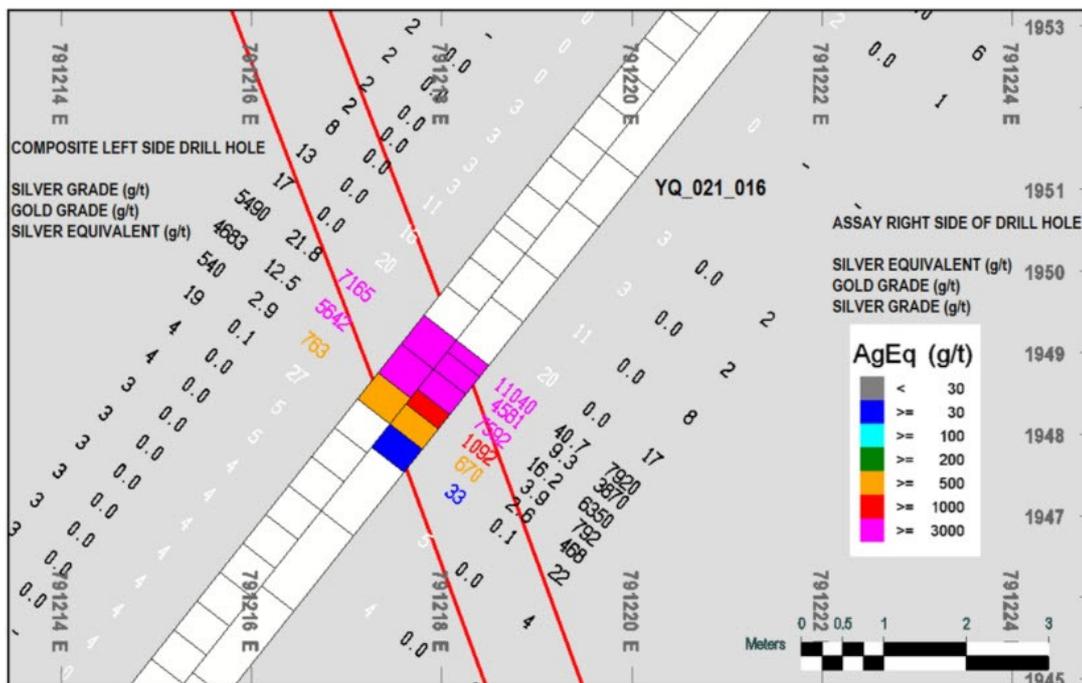
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Figure 11-1: Esperanza, Camila, Camila HW, New, and Pertenencia Veins



Note: Figure prepared by Mine Technical Services Ltd, 2023. Figure looks north.

Figure 11-2: Example Cross Section, Pertenencia Vein



Note: Figure prepared by Mine Technical Services Ltd, 2023. Example from drill hole YQ\_021\_016 . Assay grades on right side of drill hole and composite grades on left side of drill hole.

### 11.3 Exploratory Data Analysis

Box plots, histograms, and cumulative probability plots by lithology were examined for gold and silver. The following lithology codes were used:

- Breccias: BXH, BXO, BXT;
- Andesite: IAN;
- Dacite: IDA;
- Granite: IGR;
- Alluvium: RCO, RSO;
- Volcanics: VDA, VRH, VTU;
- Faults: ZFO ZFX;

- Veins: ZVC, ZVO, ZVQ, ZVQC, ZVQS, ZVQX, ZVS.

Silver boxplots show the majority of the elevated silver grades are associated with veins, vein stringers, breccia zones, and faults (Figure 113).

Gold boxplots shows the majority of the elevated gold grades are associated with veins, breccias, and faults (Figure 114).

#### **11.4 Block Model**

The block model was constructed using a block size of 1 x 2 x 2 m. The block model is not rotated. The block model extents for Pertenencia, New, Camila, Camila HW, and Esperanza are listed in Table 111.

#### **11.5 Density Assignment**

Resource model blocks were coded by the vein, hanging wall, and footwall solids together with their respective volume percent. All mineralized volumes were assigned a density of 2.43 g/cm<sup>3</sup> (see discussion in Section 8.4).

#### **11.6 Grade Capping/Outlier Restrictions**

Grade capping analysis consisted of reviewing cumulative probability plots and decile analysis. Inflection points along the graphed line that represents a change in slope in a cumulative probability plot may indicate the presence of multiple sample populations.

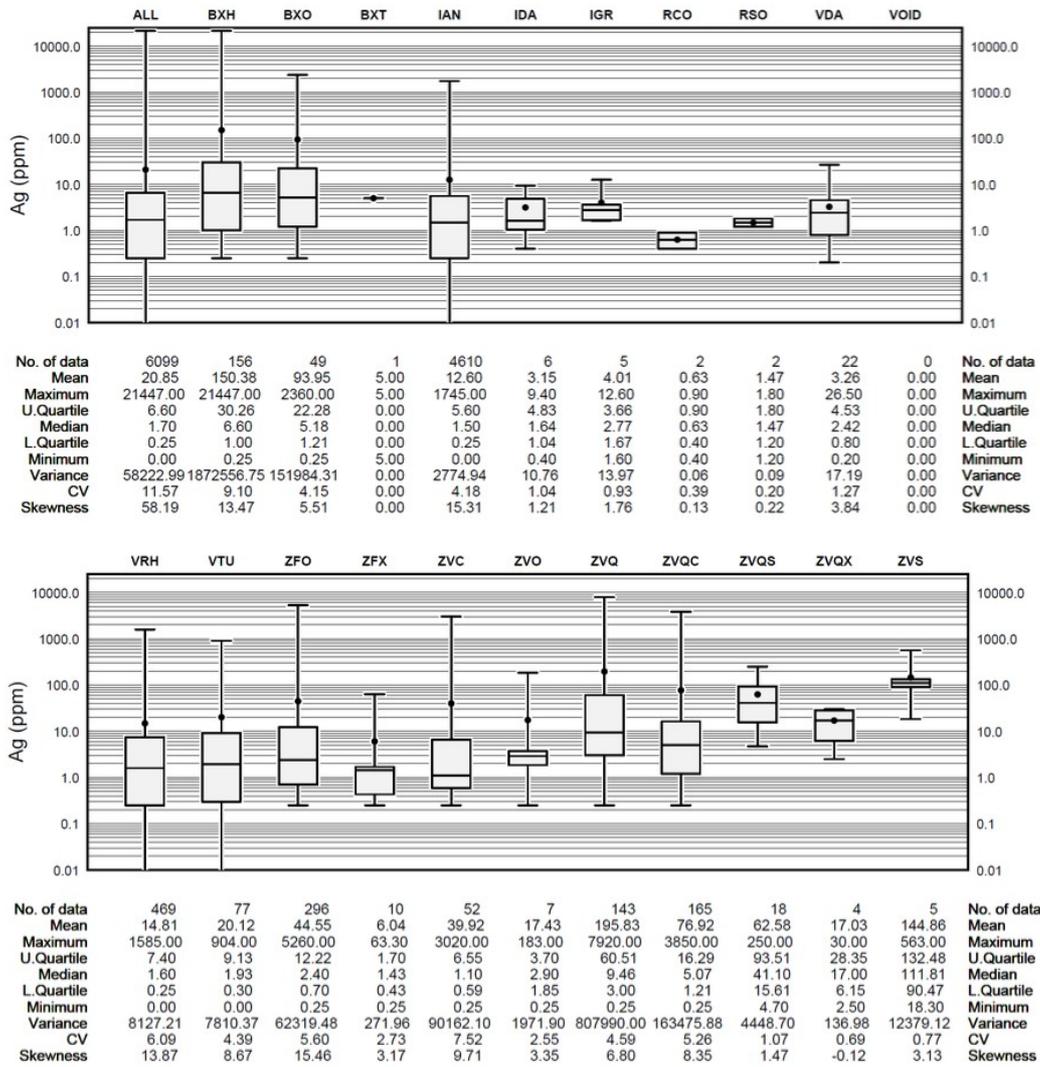
Decile analysis of silver and gold indicates that grade capping/restriction is warranted as the 10<sup>th</sup> decile has more than twice the metal content of the ninth decile, the 100<sup>th</sup> percentile contains more than twice the metal of the 99<sup>th</sup>, and the 100<sup>th</sup> percentile contains more than 10% of the metal content as shown in Table 112 and Table 113.

An outlier restriction plan for silver and gold was implemented. For silver block grade estimation, composite grades were uncapped during estimation within 15 m of the drill hole. Beyond 15 m, the composite grades were capped during estimation to 3,000 g/t Ag (refer to Table 112). A silver outlier grade of 3,000 g/t was selected from the mean grade of 99<sup>th</sup> percentile rounded to the nearest thousand. The silver outlier restriction was applied to the Pertenencia and New veins.

For gold block grade estimation, gold composite grades were uncapped within 15 m of the drill hole. Beyond 15 m, the composite grades were capped to 10 g/t Au. A gold outlier grade of 8.280 g/t was selected due to being the maximum grade of the 99<sup>th</sup> percentile, and then rounded to the nearest decile to 10 g/t Au (refer to Table 113). The gold outlier restrictions were applied to the Pertenencia, New, and Camila HW veins.

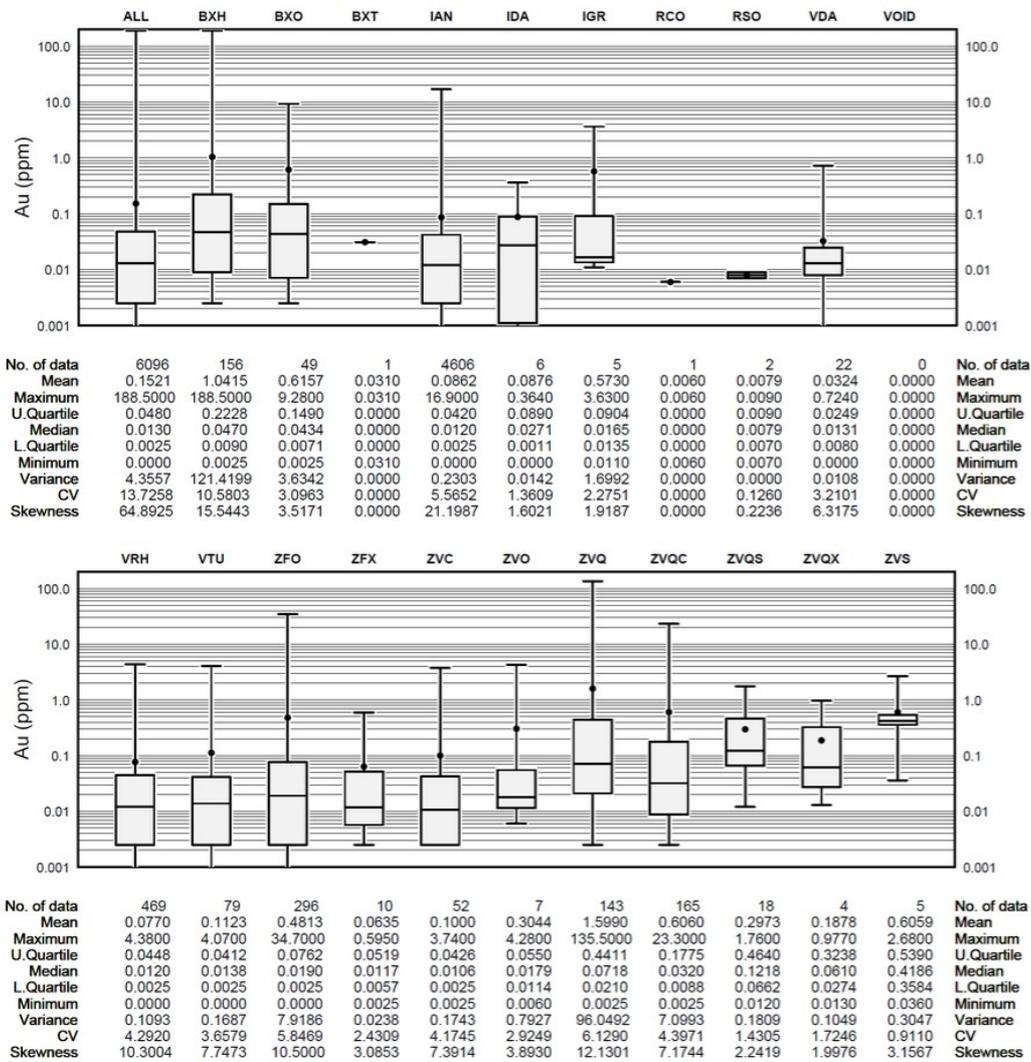
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**Figure 11-3: Silver Box Plot by Lithology**



Note: Figure prepared by Mine Technical Services Ltd, 2023.

**Figure 11-4: Gold Box Plot by Lithology**



Note: Figure prepared by Mine Technical Services Ltd, 2023.

**Table 11-1: Block Model Extents**

Vein	Model Parameter	Item	Value
Pertencia, New, Camila, and Camila HW	Number of blocks	Columns	999
		Rows	610
		Levels	395
	Origin and rotation	Min X	790,885
		Min Y	3,104,590
		Max Z	2,340
		Rotation	None
	Block size	Column size	1 m
		Row size	2 m
		Level size	2 m
Esperanza	Number of blocks	Columns	210
		Rows	160
		Levels	205
	Origin and rotation	Min X	788,630
		Min Y	3,105,610
		Max Z	2,310
		Rotation	None
	Block size	Column size	1 m
		Row size	2 m
		Level size	2 m

---

**Table 11-2: Silver Decile Analysis**

Binstart	Binend	Number	Mean	Min	Max	CV	Var	STD	Content
0	100	184	417	1	11,768	2.346	957,063.750	978.296	100
0	10	18	66	1	103	0.140	86.180	9.283	1.592
10	20	14	118	105	129	0.017	4.035	2.009	2.635
20	30	17	137	129	143	0.010	1.799	1.341	3.388
30	40	18	149	143	157	0.008	1.378	1.174	3.452
40	50	12	162	159	166	0.006	0.813	0.902	3.972
50	60	19	183	167	201	0.019	12.394	3.520	4.185
60	70	19	221	202	243	0.018	16.377	4.047	5.374
70	80	21	313	243	391	0.052	260.715	16.147	7.776
80	90	21	535	401	780	0.059	988.786	31.445	13.233
90	100	25	2,258	792	11,768	0.026	51,292.473	226.478	54.393
90	91	1	792	792	792	0.000	0.000	0.000	0.389
91	92	2	813	811	826	0.001	0.247	0.497	2.237
92	93	3	919	892	1,150	0.011	96.801	9.839	3.797
93	94	3	1,317	1,305	1,330	0.001	0.971	0.986	2.848
94	95	3	1,410	1,360	1,470	0.003	18.900	4.347	3.465
95	96	1	1,585	1,585	1,585	0.000	0.000	0.000	2.961
96	97	2	1,668	1,650	1,735	0.002	14.096	3.755	4.755
97	98	1	1,745	1,745	1,745	0.000	0.000	0.000	2.402
98	99	5	2,933	2,360	4,000	0.027	6,115.703	78.203	10.383
99	100	4	8,606	6,350	11,768	0.026	51,292.473	226.478	21.155

Note: green cell is outlier capping selection value.

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**Table 11-3: Gold Decile Analysis**

Binstart	Binend	Number	Mean	Min	Max	CV	Var	STD	Content
0	100	944	0.761	0.075	188.500	7.027	28.628	5.351	100.000
0	10	86	0.081	0.075	0.090	0.017	0.000	0.001	1.065
10	20	86	0.098	0.090	0.108	0.017	0.000	0.002	1.291
20	30	87	0.120	0.108	0.131	0.019	0.000	0.002	1.571
30	40	95	0.147	0.131	0.164	0.020	0.000	0.003	1.939
40	50	89	0.187	0.165	0.210	0.024	0.000	0.005	2.443
50	60	89	0.237	0.211	0.265	0.020	0.000	0.005	3.124
60	70	93	0.318	0.266	0.378	0.032	0.000	0.010	4.158
70	80	99	0.463	0.378	0.576	0.043	0.000	0.020	6.130
80	90	102	0.763	0.578	1.025	0.052	0.002	0.040	10.021
90	100	118	5.223	1.030	188.500	0.144	19.288	4.392	68.258
90	91	10	1.091	1.030	1.130	0.003	0.000	0.003	1.347
91	92	14	1.189	1.135	1.240	0.003	0.000	0.003	1.573
92	93	9	1.342	1.305	1.395	0.002	0.000	0.003	1.775
93	94	9	1.468	1.400	1.570	0.003	0.000	0.005	1.774
94	95	12	1.710	1.605	1.835	0.005	0.000	0.008	2.487
95	96	10	1.968	1.850	2.180	0.006	0.000	0.011	2.507
96	97	15	2.780	2.280	3.740	0.017	0.002	0.046	3.629
97	98	12	4.261	3.810	4.970	0.009	0.001	0.038	5.822
98	99	10	6.634	4.970	8.280	0.017	0.012	0.111	8.683
99	100	17	30.438	8.330	188.500	0.144	19.288	4.392	38.661

Note: green cell is outlier capping selection value.

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## **11.7 Composites**

Assays were composited to 0.5 m lengths along the drill hole trace honoring the AgEq grade shell vein codes. The last assay within the AgEq vein grade shell was added to the previous composite if its length was <0.25 m. A 0.5 m composite length was chosen to limit the smearing of high-grade values along a larger composite length, allowing uncapped grades to estimate blocks near the drill hole, and allowing a capped grade to be used to estimate blocks further away from the drill hole. One 0.5 m composite length is half the conceptual mining width of 1 m.

Table 114 lists statistics from uncapped and outlier restricted silver composites used in grade estimation. Outlier restriction capped four Pertenencia vein silver composites and one New vein silver composite.

Table 115 lists statistics from uncapped and outlier restricted gold composites used in grade estimation. Outlier restriction capped five gold Pertenencia vein gold composites, one New vein gold composite and three Camila HW vein gold composite.

## **11.8 Variography**

Variography analysis on silver and gold produced very poor quality variograms with high nugget values that are unreliable in determining correlation between samples. This is most likely due to the small number of mineralized composites, high sample value variability for silver and gold, and high coefficient of variation values for silver and gold.

## **11.9 Estimation/Interpolation Methods**

Grade interpolation for silver and gold used an inverse distance weighted (IDW) to the third power (ID3) method to estimate grade into the model blocks. The general strike and dip orientation of the veins was visually determined to determine search ellipse orientation for grade estimation.

Hexagon's MinePlan 3D IDW interpolation program defines a primary search cube originating from the center coordinate of the block that is the target of the grade estimation. The primary search ranges for composite selection for all estimations of silver and gold were set at 200 m east (X), 200 m north (Y), and 200 m in elevation (Z) with no rotations (Table 116). A secondary composite search was applied that formed an ellipse within the primary box that allows for azimuth, plunge, and dip rotation and ranges (Table 117). Vein azimuths range from 15–33.5° and dips range from 60–71° to the southeast.

A single estimation pass was used to estimate silver and gold in each of three grade shell domains (hanging wall, vein, and footwall), with a minimum of two composites, a maximum of six composites and no more than two composites from a single drill hole. Each block contains fields for vein code, vein volume percentage, and vein grades for silver and gold; hanging wall code, hanging wall volume percentage, and hanging wall grades for silver and gold; and footwall code, footwall percentage, and footwall grades for silver and gold (Figure 115).

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**Table 11-4: Silver Composite Statistics Used in Estimation**

<b>Capping</b>	<b>Domain Solid</b>	<b>Number</b>	<b>Mean</b>	<b>Minimum</b>	<b>Maximum</b>	<b>CV</b>	<b>STD</b>	<b>VAR</b>
Uncapped	Pertenencia vein	51	1,031	42	13,704	2.5	2,564	6,573,917
	New vein	35	660	28	7,480	1.9	1,275	1,624,891
	Camila HW vein	15	396	141	1,181	0.7	272	73,872
	Camila vein	84	161	2	1,650	1.7	270	72,928
	Esperanza vein	14	195	39	677	0.9	173	29,818
	Pertenencia hanging wall	22	37	2	201	1.4	51	2,569
	New hanging wall	15	28	3	101	1.1	32	1,024
	Camila HW hanging wall	13	42	2	114	0.8	35	1,205
	Esperanza dilution	17	68	11	147	0.6	42	1,738
	Pertenencia footwall	20	40	4	99	0.9	35	1,191
	Camila HW footwall	14	67	13	148	0.6	42	1,743
Capped (outlier restriction)	Pertenencia vein	51	570	42	3,000	1.4	823	676,817
	New vein	35	532	28	3,000	1.2	660	435,992

Note: CV = co-efficient of variation; STD = standard deviation, VAR = variance

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**Table 11-5: Gold Composite Statistics Used in Estimation**

<b>Capping</b>	<b>Domain Solid</b>	<b>Number</b>	<b>Mean</b>	<b>Minimum</b>	<b>Maximum</b>	<b>CV</b>	<b>STD</b>	<b>VAR</b>
Uncapped	Pertenencia vein	51	6.4	0.1	98.3	2.9	18.3	334.9
	New vein	35	5.8	0.1	135.5	3.8	22.3	499.3
	Camila HW vein	15	4.0	0.3	15.7	1.4	5.4	29.4
	Camila Vein	84	1.5	0.0	13.0	1.5	2.4	5.6
	Esperanza Vein	14	2.7	0.1	8.8	1.0	2.5	6.5
	Pertenencia hanging wall	22	0.115	0.1	0.0	0.4	1.0	0.1
	New hanging wall	15	0.136	0.1	0.0	0.4	1.0	0.1
	Camila HW hanging wall	13	0.216	0.2	0.0	0.9	1.3	0.3
	Esperanza Dilution	17	0.3	0.0	1.9	1.3	0.4	0.2
	Pertenencia footwall	20	0.2	0.0	1.3	1.6	0.3	0.1
Camila HW footwall	14	0.3	0.0	1.3	1.0	0.3	0.1	
Capped (outlier restriction)	Pertenencia vein	51	2.7	0.1	10.0	1.2	3.1	9.8
	New vein	35	2.2	0.1	10.0	1.1	2.5	6.4
	Camila HW vein	15	3.1	0.8	10.0	1.2	3.7	13.6

Note: CV = co-efficient of variation; STD = standard deviation, VAR = variance

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**Table 11-6: Primary Search Box**

Vein	Strike* (Z rot °)	Pitch* (X rot °)	Dip* (Y rot °)	Y Range (m)	X Range (m)	Z Range (m)
Pertenencia	0.0	0	0	200	200	200
New	0.0	0	0	200	200	200
Camila	0.0	0	0	200	200	200
Camila HW	0.0	0	0	200	200	200
Esperanza	0.0	0	0	200	200	200

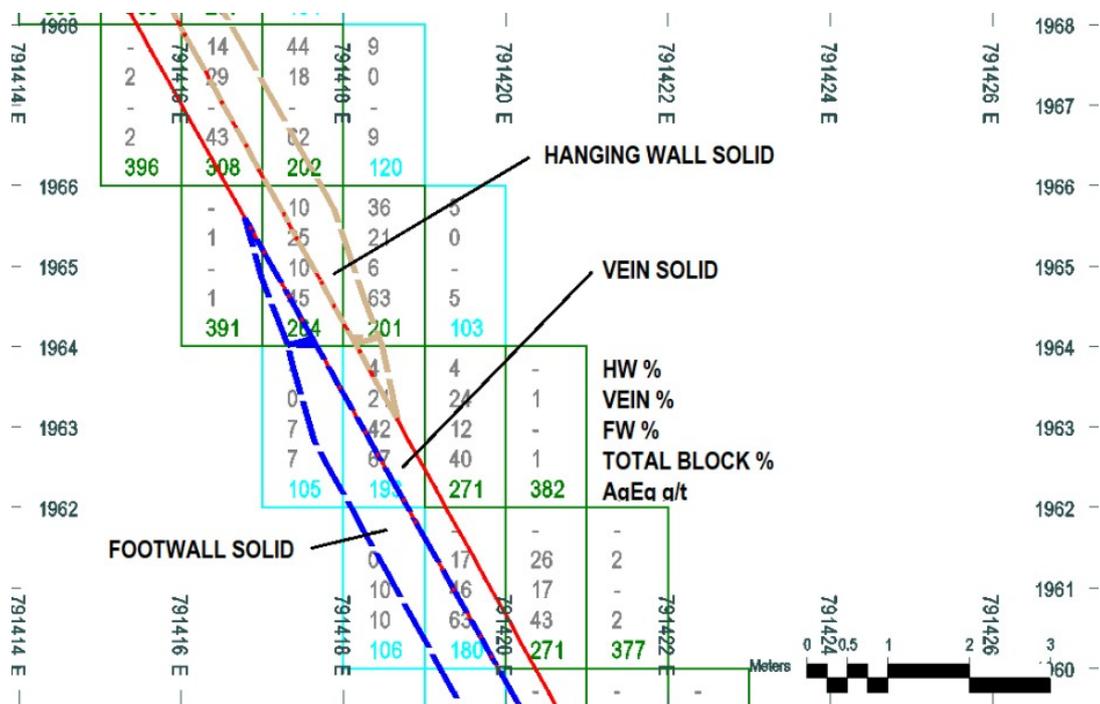
\*Rotations are left-, right-, left-hand rule

**Table 11-7: Secondary Search Ellipse**

Vein	Strike* (Z rot °)	Pitch* (X rot °)	Dip* (Y rot °)	Y Range (m)	X Range (m)	Z Range (m)
Pertenencia	30.0	0	-70	200	200	100
New	25.0	0	-70	200	200	100
Camila	33.0	0	-60	200	200	100
Camila HW	33.5	0	-69	200	200	100
Esperanza	15.0	0	-71	200	200	100

\*Rotations are left-, right-, left-hand rule

**Figure 11-5: Pertenencia Vein Section 3105250N (east-west)**



Note: Figure prepared by Mine Technical Services Ltd, 2023. Pertenencia vein with hanging wall and footwall solids and resource model blocks displaying volume percent tagged from the solids.

Post-grade estimation processing was run to combine these volumes and grades into a single mineable mineralized volume, an overall block silver grade, and an overall block gold grade. A block AgEq grade was calculated from block silver and gold values.

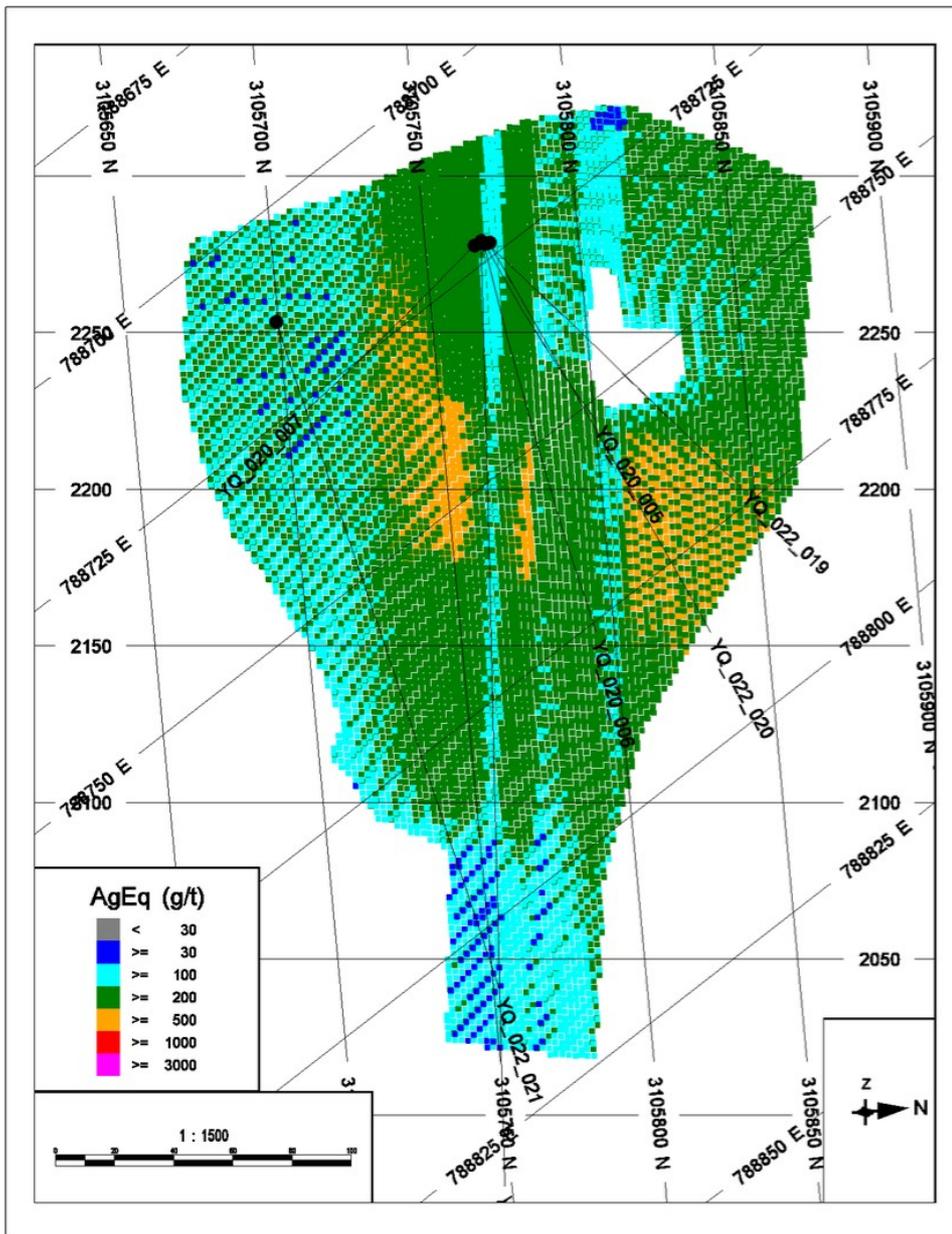
Figure 116 to Figure 1110 show AgEq block grades through the Esperanza, Camila and Pertenencia veins.

### 11.10 Validation

Validation consisted of visual, statistical and alternative estimation methods.

Silver and gold grades were visually inspected using cross sections and plans. Block grades from the IDW3 were compared to the composite grades and the comparisons looked reasonable (Figure 1111).

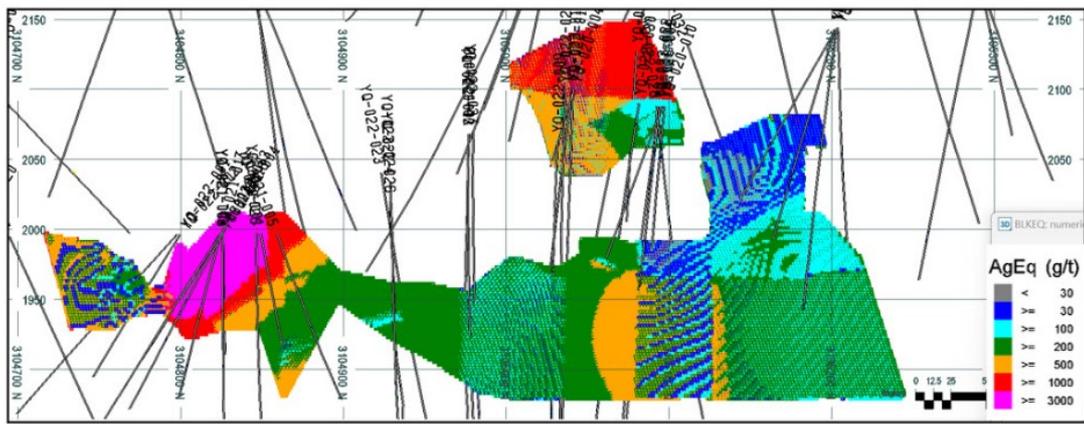
Figure 11-6: Esperanza Vein Showing AgEq Block Grades (long section)



Note: Figure prepared by Mine Technical Services Ltd, 2023. Section 1. Figure looks east-northeast.

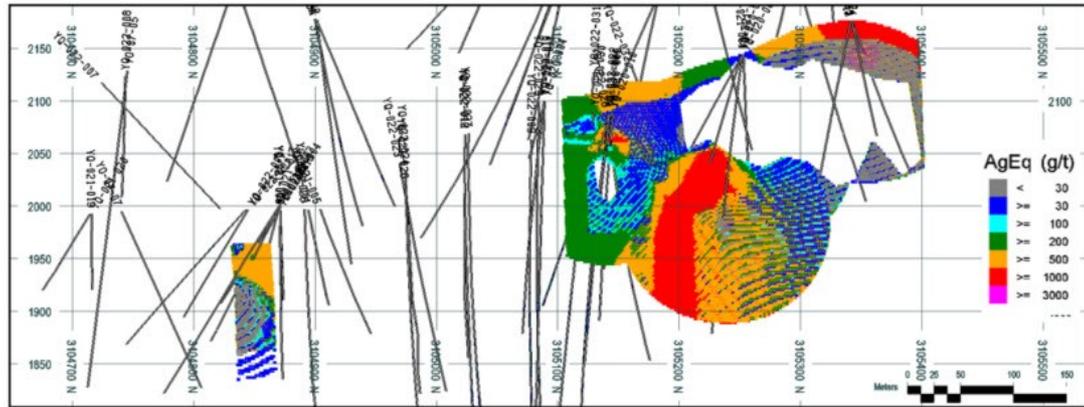


**Figure 11-8: Pertenencia Vein Showing AgEq Block Grades (long section)**



Note: Figure prepared by Mine Technical Services Ltd, 2023. Figure looks northwest.

**Figure 11-9: New Vein Showing AgEq Block Grades (long section)**



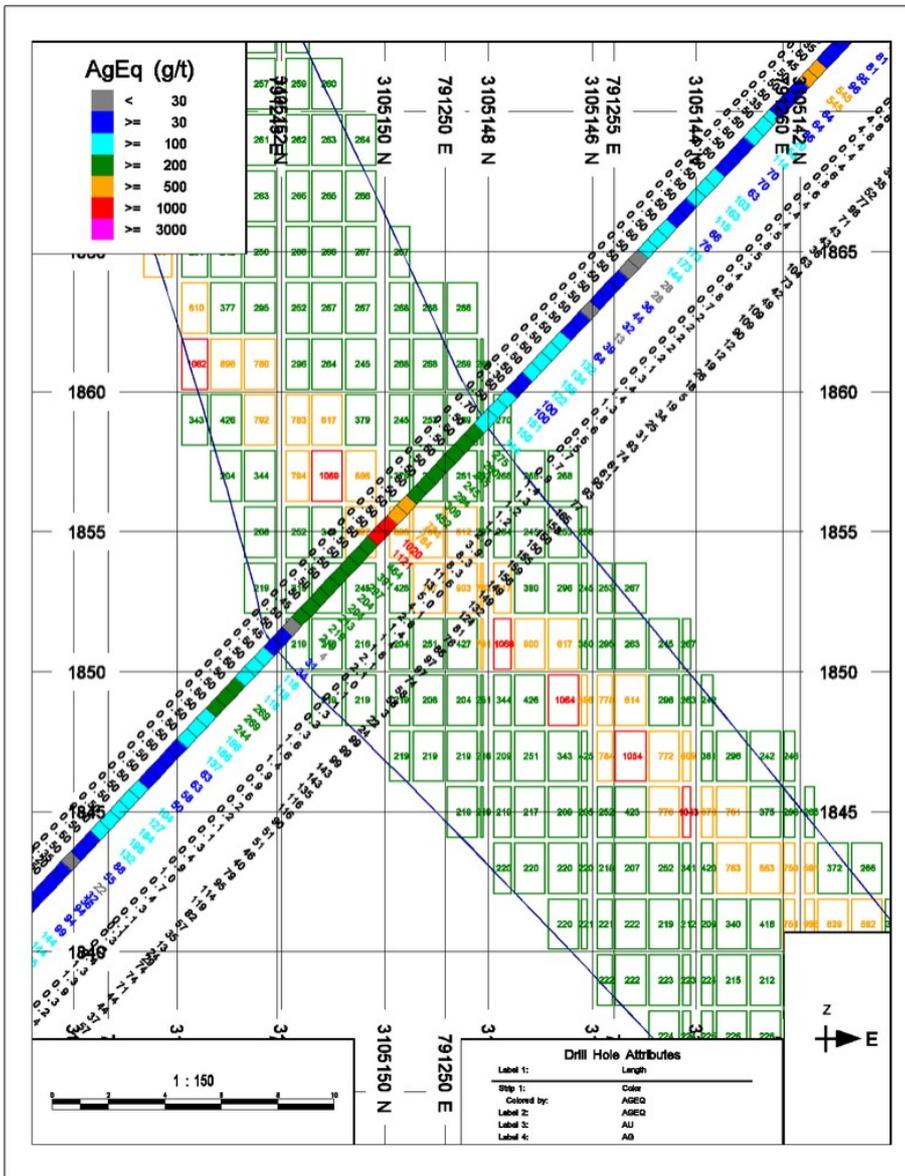
Note: Figure prepared by Mine Technical Services Ltd, 2023. Figure looks northwest.

Figure 11-10: Camila HW Vein Showing AgEq Block Grades (long section)



Note: Figure prepared by Mine Technical Services Ltd, 2023. Figure looks northwest.

Figure 11-11: Example Cross-Section, Camila Vein, Showing Block Model and Composites



Note: Figure prepared by Mine Technical Services Ltd, 2023.

A declustered composite distribution for silver and gold was completed by creating a nearest-neighbour (NN) model. The model was then compared to the IDW3 block model to check for global bias. The NN model used the same block size of 1 m x 2 m x 2 m as the IDW3 model. Nearest-neighbour grade interpolation also honoured the outlier grade restrictions as applied to the IDW3 silver and gold models.

The silver and gold models were checked for global bias by comparing the means of the ID3 model with means from the NN model. The NN model theoretically produces an unbiased estimate of the average grade value at a zero cut-off grade. For measured and indicated mineral resources, a relative percentage value of <5% difference between the means is an acceptable result and demonstrates a reasonable estimation of the global mean. With inferred mineral resources, a higher percent relative difference of 10–15% is acceptable.

Table 118 shows relative percent differences for modeled veins between IDW3 and NN mean silver block grades. Results range between 6–11%, and are considered to be globally unbiased.

Table 119 lists the percent relative difference for gold. Percent relative differences between ID3 and NN mean grade range from 6–13%, and are considered to be globally unbiased.

## ***11.11 Confidence Classification of Mineral Resource Estimate***

### **11.11.1 Mineral Resource Confidence Classification**

Resource model blocks were classified as Inferred Mineral Resources where they were within 50 m laterally or 100 m downdip from the nearest drill hole, and within a conceptual potentially mineable mineralization area grading  $\geq 200$  g/t AgEq (Figure 1112).

### **11.11.2 Uncertainties Considered During Confidence Classification**

Uncertainties regarding sampling and drilling methods, data processing and handling, geological modelling, and estimation were incorporated into the classifications assigned. The level of uncertainty is reflected in the assignment of the inferred category to the resource blocks.

## ***11.12 Reasonable Prospects of Economic Extraction***

### **11.12.1 Input Assumptions**

#### **11.12.1.1 Initial Assessment Assumptions**

To meet the content requirements of an initial assessment to support mineral resource estimates, the QPs evaluated the content requirements set out in Table 1 of §229.1302 (Item 1302) “Qualified person, technical report summary, and technical studies”. The assumptions used by the QPs in support of the Initial Assessment are summarized in Table 1110.

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For the purpose of this initial assessment, the optimization is based on gold and silver.

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**Table 11-8: Global Bias Check, Silver**

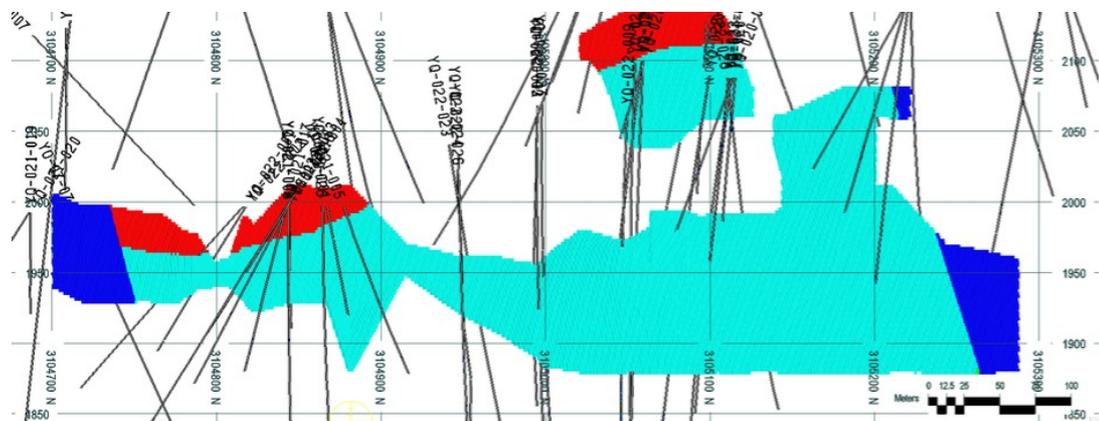
<b>Vein</b>	<b>Tonnes</b>	<b>Mean Ag Grade of IDW Model (g/t Ag)</b>	<b>Mean Ag Grade of NN Model (g/t Ag)</b>	<b>Relative Percent Difference (%)</b>
Esperanza	67,744	215	213	1
Camila	293,782	333	368	10
New	93,423	703	752	7
Pertenencia	198,820	757	819	8
Camila HW	127,953	373	336	11

**Table 11-9: Global Bias Check, Gold**

<b>Vein</b>	<b>Tonnes</b>	<b>Mean Au Grade of IDW Model (g/t Au)</b>	<b>Mean Au Grade of NN Model (g/t Au)</b>	<b>Relative Percent Difference (%)</b>
Esperanza	67,744	2.89	2.61	11
Camila	293,782	1.98	2.13	7
New	93,423	1.91	1.69	13
Pertenencia	198,820	3.56	3.77	6
Camila HW	127,953	2.35	2.11	11

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**Figure 11-12: Pertenencia Vein and Pertenencia Crown Pillar (long section)**



Note: Figure prepared by Mine Technical Services Ltd, 2023. Figure looks northwest. Figure looks northwest. Inferred mineral resources in cyan (within 100 m down-dip and <50 m laterally from last drill hole) for Pertenencia. Red shows the Inferred mineral resources within the Pertenencia crown pillar. Blue blocks are unclassified, as they are >50 m laterally along strike from the last drill hole.

**Table 11-10: Initial Assessment Assumptions**

Factors	Initial Assessment Requirement	Yoquivo
Site infrastructure	Establish whether or not access to power and site is possible. Assume infrastructure location, plant area required, type of power supply, site access roads, and camp/town site, if required.	Gravel access road in place. Power can be sourced from Mexican grid. Site location reviewed to ensure that key infrastructure can be located within the mining tenure held. Assumed on-site operations/construction camp.
Mine design & planning.	Mining method defined broadly as surface or underground. Production rates assumed.	Assumed underground mining method
Processing plant	Establish that all products used in assessing prospects of economic extraction can be processed with methods consistent with each other. Processing method and plant throughput assumed.	The two commodities in the mineral resource estimate are gold and silver, which can be extracted together; therefore, the requirement that "products reported in the mineral resource statement can be processed with methods consistent with each other" is met. Assumed 300 t/d throughput. Assumed conventional cyanide leaching and flotation. Final product could be doré bars, gold-silver concentrate, or leaching of a gold-silver concentrate to produce doré bars.

Factors	Initial Assessment Requirement	Yoquivo
Environmental compliance & permitting.	List of required permits & agencies drawn. Determine if significant obstacles exist to obtaining permits. Identify pre-mining land uses. Assess requirements for baseline studies. Assume post-mining land uses. Assume tailings disposal, reclamation, and mitigation plans.	Preliminary list of permits and agencies compiled. No risk matrix compiled, but deposit is in area where mines have been permitted and are operating. Pre-existing land use is restricted to small areas of cultivation or grazing. Aspects requiring baseline studies assumed. Post-mining land use is assumed to be grazing. Assumed co-disposal of tailings and waste rock. Reclamation and mitigation plans assumed based on analogous deposits and Golden Mineral's experience in operating the Rodeo mine in Mexico.
Other relevant factors.	Appropriate assessments of other reasonably assumed technical and economic factors necessary to demonstrate reasonable prospects for economic extraction.	Mineral resource estimates confined within a conceptual pit shell.
Capital costs	Optional. If included: Accuracy: $\pm 50\%$ . Contingency: $\pm 25\%$ .	Not relevant to this Report.
Operating costs	Optional. If included: Accuracy: $\pm 50\%$ . Contingency: $\pm 25\%$ .	Not relevant to this Report.
Economic analysis	Optional. If included: Taxes and revenues are assumed. Discounted cash flow analysis based on assumed production rates and revenues from available measured and indicated mineral resources	Not relevant to this Report.

### 11.12.1.2 Input Assumptions Used to Constrain the Mineral Resource Estimates

Blocks that have reasonable prospects for economic extraction were assessed by applying a minimum mining width of 1 m and an underground mining AgEq cut-off grade. An AgEq cut-off grade of  $\geq 200$  g/t was calculated using the following assumptions:

- Long-range gold price guideline for cash-flow models in US\$ plus 15%, which equated to a silver price of US\$24/oz and a gold price of US\$1,840/oz;
  - Mining by traditional cut-and-fill methods;
  - Silver and gold metallurgical recovery assumption of 85%;
-

- Average mining cost of US\$75/t;
- Processing and general and administrative (G&A) costs of US\$50/t;
- Silver and gold royalty of 2%;
- Transportation and selling cost for Ag at US\$0.95/oz and for Au at US\$15/oz.

The QP is of the opinion that there are reasonable prospects for economic extraction for mineralized material  $\geq 200$  g/t AgEq that displays geological and grade continuity.

The assessment of the relevant technical and economic factors likely to influence the prospect of economic extraction are acceptable to support inferred mineral resources. The Project is at too early a stage for detailed assessments, as more data are required to determine if such studies are warranted. The recommendations in Chapter 23 are designed to progress understanding of the deposit and mineralization, and include exploration, additional drilling, and metallurgical testwork.

### **11.12.1.3 Market Overview and Market Strategy**

Golden Minerals has established contracts and buyers for doré product from its Rodeo Operations in Mexico. A similar strategy could be used for any future production from the Yoquivo Project, whether that be in the form of doré bars or a gold–silver concentrate.

Gold and silver can be readily sold on numerous markets throughout the world and it is not difficult to ascertain its market price at any particular time. Since there are a large number of available gold and silver purchasers, Golden Minerals would not be dependent upon the sale of gold or silver to any one customer. Gold and silver could be sold to various bullion dealers or smelters on a competitive basis at spot prices.

### **11.12.1.4 Gold and Silver Pricing**

Commodity prices used in mineral resource estimation were based on:

- A review of long-term mining analysts and investment bank forecasts;
- Pricing used in technical reports filed with Canadian regulatory authorities during 2022;
- Pricing reported by major mining companies in public filings such as annual reports and management discussion and analyses during 2022;
- Three-year trailing average pricing.

The estimated timeframe used for the price forecasts is approximately 10 years, which is considered reasonable time frame over which the deposit could be developed.

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### **11.12.2 Cut-off**

The QP is of the opinion that there are reasonable prospects for economic extraction for mineralized material  $\geq 200$  g/t AgEq that displays geological and grade continuity. This cut-off is based on the assumptions listed in Chapter 11.11.1.2.

### **11.13 Mineral Resource Statement**

Mineral resources in Table 1111 are reported as at 24 February 2023, using the mineral resource definitions set out in S-K 1300.

The reference point for the estimate is in situ.

The Qualified Person for the estimate is Mr. Aaron J. Amoroso, MMSA (QP), a Golden Minerals employee.

### **11.14 Uncertainties (Factors) That May Affect the Mineral Resource Estimate**

Factors which may affect the mineral resource estimates include:

- Metal price and exchange rate assumptions;
  - Changes to the assumptions used to generate the silver equivalent cut-off grade;
  - Changes in local interpretations of mineralization geometry and continuity of mineralized zones;
  - Changes to geological and mineralization shape and geological and grade continuity assumptions;
  - Density and domain assignments;
  - Changes to geotechnical, mining, and metallurgical recovery assumptions;
  - Changes to the input and design parameter assumptions that pertain to the underground mining assumptions used to constrain the estimates;
  - Assumptions as to the continued ability to access the site, complete proposed exploration programs, and maintain the social license to operate.
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**Table 11-11: Yoquivo Inferred Mineral Resource Statement**

Vein	Area	Tonnes	Ag Grade (g/t)	Au Grade (g/t)	Silver Equivalent Grade (g/t AgEq)	Contained Ag (koz)	Contained Au (koz)	Contained Silver Equivalent (koz)
Pertenenencia	Vein	220,000	510	2.6	710	3,620	18	5,010
	Crown pillar	24,000	1,680	6.2	2,160	1,310	5	1,690
	<i>Subtotal</i>	<i>244,000</i>	<i>630</i>	<i>2.9</i>	<i>850</i>	<i>4,930</i>	<i>23</i>	<i>6,690</i>
Camila	Vein	285,000	330	2.0	490	3,070	18	4,470
	<i>Subtotal</i>	<i>285,000</i>	<i>330</i>	<i>2.0</i>	<i>490</i>	<i>3,070</i>	<i>18</i>	<i>4,470</i>
Camila hanging wall	Vein	170,000	300	1.8	440	1,610	10	2,370
	<i>Subtotal</i>	<i>170,000</i>	<i>300</i>	<i>1.8</i>	<i>440</i>	<i>1,610</i>	<i>10</i>	<i>2,370</i>
New	Vein	103,000	580	1.4	690	1,920	5	2,280
	Crown pillar	15,000	420	2.2	590	210	1	290
	<i>Subtotal</i>	<i>118,000</i>	<i>560</i>	<i>1.6</i>	<i>680</i>	<i>2,130</i>	<i>6</i>	<i>2,570</i>
Esperanza	Vein	98,000	150	1.9	300	480	6	940
	Crown pillar	22,000	130	1.8	270	90	1	190
	<i>Subtotal</i>	<i>120,000</i>	<i>150</i>	<i>1.8</i>	<i>290</i>	<i>570</i>	<i>7</i>	<i>1,130</i>
<b>Total</b>		<b>937,000</b>	<b>410</b>	<b>2.1</b>	<b>570</b>	<b>12,300</b>	<b>64</b>	<b>17,230</b>

Notes to accompany mineral resource table:

1. Mineral resources have been classified using the mineral resource definitions set out in S-K 1300. The estimate was current as at 24 February, 2023.
2. The Qualified Person for the resource estimate is Mr. Aaron J. Amoroso, MMSA (QP), a Golden Minerals employee.
3. Mineral resources assume a traditional underground cut-and-fill mining method; a silver price of US\$24/oz, a gold price of US\$1,840/oz, a minimum mining width of 1 m; assumed silver and gold metallurgical recovery of 85%; an average mining cost of US\$75 /t mined; average processing and general and administrative cost of US\$50/t processed; transportation and selling cost of US\$0.95/oz Ag and US\$15/oz Au; and a gold and silver royalty of 2%.
4. Mineral resources are reported insitu above a cut-off grade of 200 g/t silver equivalent (AgEq), where  $AgEq = Ag\ g/t + Au\ g/t * (1,840/24)$ , where 1,840 is the gold price per ounce in US\$, and 24 is the silver price per ounce in US\$.
5. All tonnage, grade and contained metal content estimates have been rounded; rounding may result in apparent summation differences between tonnes, grade, and contained metal content.

A portion of the vein systems at Yoquivo have been the subject of historical mining. The majority of the historical mining has been conducted on the San Francisco vein system, but there is evidence that some historical mining has occurred on the Pertenencia and Esperanza vein systems. There is no evidence for mining on the Camila and Camila HW vein systems. There are some small prospect pits on the New vein system but no evidence of any historical mining.

Golden Minerals' drilling in the upper part of the Pertenencia vein system encountered old workings in some of the drill holes. Adjacent drill holes located <10 m away from those drill holes did not intersect workings, suggesting that the workings are small and erratic, and may represent development on the vein rather than large areas of stoping.

The QP's personal inspection indicated, for the workings visited, that the excavations appear minimal based on the size of the dumps associated with the portals/trenches. To the knowledge of Golden Minerals personnel, underground mapping was not conducted on the majority of the workings; the Creel zone of the San Francisco veins is an exception. No maps are currently available for the workings that are present in the area of the mineral resource estimate. The mineral resource estimate does not include any depletion due to historical mining. There is a risk, when excavation data are available, that some of the area included in the mineral resource estimate may have been historically mined out.

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## **12.0 MINERAL RESERVE ESTIMATES**

This chapter is not relevant to this Report.

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## **13.0 MINING METHODS**

This chapter is not relevant to this Report.

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## **14.0 RECOVERY METHODS**

This chapter is not relevant to this Report.

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## **15.0 INFRASTRUCTURE**

This chapter is not relevant to this Report.

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## **16.0 MARKET STUDIES AND CONTRACTS**

This chapter is not relevant to this Report.

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**17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS,  
OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS**

This chapter is not relevant to this Report.

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## **18.0 CAPITAL AND OPERATING COSTS**

This chapter is not relevant to this Report.

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## **19.0 ECONOMIC ANALYSIS**

This chapter is not relevant to this Report.

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## **20.0 ADJACENT PROPERTIES**

This chapter is not relevant to this Report.

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## **21.0 OTHER RELEVANT DATA AND INFORMATION**

This chapter is not relevant to this Report.

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## **22.0 INTERPRETATION AND CONCLUSIONS**

### **22.1 Introduction**

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

### **22.2 Property Setting**

Any future mining operations are expected to be operated year-round.

There is sufficient suitable land available within the mineral tenure held by Golden Minerals for infrastructure such as tailings disposal, mine waste disposal, and process plant and related mine facilities.

A review of the existing power and water sources, manpower availability, and transport options indicates that there are reasonable expectations that sufficient labour and infrastructure will be available to support exploration activities.

### **22.3 Ownership**

The Project is 100% held by Golden Minerals.

### **22.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements**

Legal opinion supports that the mineral tenure is valid.

Surface rights negotiated in 2018 were sufficient to allow exploration activities. Golden Minerals is currently negotiating a new access agreement with the ejido to allow a continuation of exploration activities.

Water used in the exploration programs is purchased from the San Francisco de Yoquivo ejido.

Third-party NSR royalties are payable on all of the concessions, and range from 2–3%.

To the extent known to the QP, there are no other significant factors and risks known that may affect access, title, or the right or ability to perform work on the Project that are not discussed in this Report.

### **22.5 Environmental, Permitting and Social Considerations**

Environmental impacts within the Project site primarily result from historical activities. A site visit, conducted by SEMARNAT as part of the permit application in 2017 determined that the surface disturbances caused by historical mining activities were “not significant”, and Golden Minerals is not liable for any rehabilitation of those surface disturbances.

Gambusinos have been extracting small amounts of material from the Creel level of the San Francisco vein, and removing small historical mine dumps from the Project during Golden Minerals’ tenure ownership. Those impacts have been identified and documented by Golden Minerals’ staff. There is an expectation that Golden Minerals is not responsible for the current gambusino

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activity, as material is being removed from the Project area and processed at a toll mill outside the Project area, so there are no waste rock or tailings being generated within the Project boundaries.

An Informe Preventivo is in force for the area of the Yoquivo ejido that allows Golden Minerals to conduct drilling activities.

Golden Minerals, through Minera de Cordilleras, has written permission from the surface landowners to complete exploration on the Project.

## **22.6 Geology and Mineralization**

The mineralization types within the vein systems at Yoquivo are examples of low-sulphidation systems.

The QP is of the opinion that the understanding of the geology and mineralization of the Yoquivo deposit is sufficient to support mineral resource estimation.

Golden Minerals' geologists believe that there is good potential to discover additional high-grade gold–silver mineralization on the northern part of the Pertenencia vein system as well as on the San Francisco and Esperanza vein systems.

Additional potential remains in the Dolar, Verde, La Texana and La Trucha vein systems, which are generally under-explored. The northwestern and southwestern Project extents have potential to host vein systems within andesite lithologies.

## **22.7 Exploration, Drilling, and Sampling**

Exploration programs that use an epithermal model to guide the drilling and exploration programs are appropriate for the Project area.

Exploration programs conducted to date have identified a number of areas with gold–silver mineralization within the Project area.

The quantity and quality of the lithological, RQD, collar and downhole survey data collected in the exploration and infill drill programs completed by Golden Minerals are sufficient to support mineral resource estimation.

The quality of the analytical data is sufficiently reliable to support mineral resource estimation.

The data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource estimation.

## **22.8 Data Verification**

Golden Minerals uses database validation tools in Geobank Mobile and Geobank to prevent incorrect data from entering the database. Once the data are imported into Micromine and Leapfrog software systems, the data are reviewed in two dimensions and three dimensions to confirm data quality and to ensure that there are no unreasonable downhole deviations or gaps in the logging or assay fields.

There are also multiple drill hole data validation processes completed in Micromine that are undertaken to ensure data quality and integrity.

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Mr. Amoroso most recently completed a site visit from 2–4 November, 2022. Data verification checks included inspection of outcrop, historical workings, selected drill core, and the logging facilities, review of the analytical QA/QC, collar, and downhole survey data from Golden Minerals' drill programs, review of data entry and data verification procedures used to upload data to the Project database, and completion of an inspection of drill results in relation to the accuracy of geological interpretations and grade interpretations on section, plan and 3D, and in geological and vein models. He also undertook a review of documents and reports supporting the mineral resource estimation approach and resulting estimate.

Mr. Booth has visited the site on numerous occasions, most recently from November 2 to 4 November 2022. During his visits, he inspected the vein systems and associated outcrop, selected drill core, and the logging facilities, visited the accessible historical workings, reviewed the analytical QA/QC, geological, collar, and downhole survey data from Golden Minerals' drill programs, reviewed data entry and data verification procedures used to upload data to the Project database, and completed an inspection of the geological interpretation as used in the 3D modelling for the mineral resource estimate. Mr. Booth discussed metallurgical testwork completed with an MTS representative who meets the definition of a Qualified Person under S–K 1300 for metallurgy, and reviewed the recommended metallurgical recovery forecasts with MTS. He complemented this discussion with a desktop review of public information on metallurgical recoveries used by other mining companies in similar deposit types in northern Mexico.

As a result of these checks, the QPs concluded that the Project database accurately represents the available data and is acceptable to support mineral resource estimation.

## **22.9 Metallurgical Testwork**

Metallurgical testwork on the Yoquivo deposit and associated analytical procedures were performed by a mine laboratory operated by Golden Minerals that is not independent.

Testwork included creating composites; conducting head assays for gold, silver, cyanide soluble gold, and cyanide soluble silver; conducting bench top duplicate agitated leach tests; and flotation tests.

Recoveries of 85% for gold and silver were recommended for use in assessing reasonable prospects of economic extraction when performing the mineral resource estimate. Thus far, the completed metallurgical tests are sufficient to be indicative of potential recoverability of the gold and silver mineralization to support inferred mineral resource estimates.

Insufficient samples have been conducted to qualify for variability testing.

No testwork has been conducted to determine if deleterious elements are present in sufficient quantities to impact the ability to produce, process, and sell a concentrate or that would increase the processing cost of either a leach circuit or a flotation circuit.

## **22.10 Mineral Resource Estimates**

Mineral resources are reported using the definitions in S–K 1300, and assume underground cut-and-fill mining methods.

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Factors that may affect the mineral resource estimate include: metal price and exchange rate assumptions; changes to the assumptions used to generate the silver equivalent grade cut-off grade; changes in local interpretations of mineralization geometry and continuity of mineralized zones; changes to geological and mineralization shape and geological and grade continuity assumptions; density and domain assignments; changes to geotechnical, mining and metallurgical recovery assumptions; changes to the input and design parameter assumptions that pertain to the underground mining assumptions used to constrain the estimates; and assumptions as to the continued ability to access the site, complete proposed exploration programs, and maintain the social license to operate.

A portion of the vein systems at Yoquivo have been the subject of historical mining. The majority of the historical mining has been conducted on the San Francisco vein system, but there is evidence that some historical mining has occurred on the Pertenencia and Esperanza vein systems. There is no evidence for mining on the Camila and Camila HW vein systems. There are some small prospect pits on the New vein system but no evidence of any historical mining.

Golden Minerals' drilling in the upper part of the Pertenencia vein system encountered old workings in some of the drill holes. Adjacent drill holes located <10 m away from those drill holes did not intersect workings, suggesting that the workings are small and erratic, and may represent development on the vein rather than large areas of stoping.

The QP's personal inspection indicated, for the workings visited, that the excavations appear minimal based on the size of the dumps associated with the portals/trenches. To the knowledge of Golden Minerals personnel, underground mapping was not conducted on the majority of the workings; the Creel zone of the San Francisco veins is an exception. No maps are currently available for the workings that are present in the area of the mineral resource estimate. The mineral resource estimate does not include any depletion due to historical mining. There is a risk, when excavation data are available, that some of the area included in the mineral resource estimate may have been historically mined out.

## **22.11 Risks and Opportunities**

### **22.11.1 Risks**

Risks at this stage of Project development primarily relate to the ability to continue good relations with the local ejidos such that surface rights and access to water for drill programs can continue.

Metallurgical tests completed to date are sufficient to indicate the potential recoverability of silver and gold to support Inferred Mineral Resource estimates. However, more detailed investigations, including variability tests, may result in changes to the assumed metallurgical recoveries used to support the estimate. No testwork has been completed as to whether potentially deleterious elements are present in the mineralization.

### **22.11.2 Opportunities**

Opportunities include the upside potential represented by the northern part of the Pertenencia vein system as well as on the San Francisco and Esperanza vein systems. The Project area

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retains significant grassroots exploration potential represented by areas under volcanic cover rock, and the possibility of extensions to known vein systems.

The selection of the mining method used when assessing reasonable prospects of economic extraction is based on limited information; more data including geotechnical data may allow use of different methods than the traditional cut-and-fill method assumed, which may result in additional mineralization able to be mined.

## **22.12 Conclusions**

Under the assumptions in this Report, the estimation of inferred mineral resources can be supported.

The Project shows good potential to discover additional high-grade gold–silver mineralization in the following areas:

- Northern part of the Pertenencia vein system;
- San Francisco and Esperanza vein systems.

Additional exploration is warranted on the Dolar and San Antonio vein systems.

The potential of the Verde, La Texana and La Trucha veins is unknown, but may warrant a small drill program to test potential at depth.

The northwestern and southwestern Project extents, where limited mapping has been conducted and there are outcropping andesites below the upper volcanic ignimbrites and tuffs, may have potential to host veins within the andesite lithologies. There is also potential for the known veins to continue into these areas.

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## **23.0 RECOMMENDATIONS**

### **23.1 Introduction**

A two-phase work program is recommended. The first phase should include rehabilitation of the existing artisanal mine workings at Pertenencia, mapping and sampling of those workings once accessible, and additional drill testing and metallurgical testwork at Pertenencia, culminating in an updated mineral resource estimate. The second phase, which is dependent on the results of the first phase, would include a reconnaissance geological mapping and sampling program, and infill and step-out drilling at Pertenencia, and drill testing of the Esperanza, Dolar, and San Francisco vein systems. The first work phase is estimated to require a budget of approximately US\$1.8 M to complete. The proposed budget for the second phase is approximately US\$2.4 M.

### **23.2 Phase 1**

Golden Minerals is planning to conduct an additional exploration and drilling program to expand and further define the extent of the mineralization within the Pertenencia vein system. Proposed activities include:

- Rehabilitation of the artisanal mine workings to determine their extents and location and extents of historical stopes to identify location and controls on mineralization;
- Completion of geological, structural, alteration and mineralization mapping within the artisanal mine workings;
- Completion of a 10,000 m surface drill program to identify additional mineralization within the Pertenencia vein system;
- Completion of metallurgical and comminution testwork:
  - Determine if metallurgical responses differ between the different veins or if other metallurgical domains exist within the Yoquivo deposit;
  - Complete crushing, grind work index, and abrasion tests on a variety of samples to establish the ranges of hardness and wear that should be expected during processing;
  - Investigate the impact of grind size on both leach and flotation recoveries;
  - Perform multielement and mineralogy analysis to determine if deleterious elements are present that could significantly affect the process or product saleability;
  - Complete additional flotation tests focusing on aspects such as reagent optimization, cleaner tests, cleaner concentrate processing, leach retention times, variability tests, dewatering tests.

Once all data are available and applicable data verification has been completed, a resource estimate update should be undertaken.

The drill program assumes an all-in cost of US\$160/m, inclusive of drilling, assaying and support costs. The metallurgical program is estimated at US\$60,000. The updated resource estimate is budgeted at US\$125,000. The overall budget required to complete the phase 1 recommendations totals approximately US\$1.8 M.

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### **23.3 Phase 2**

The proposed second work phase is dependent on the results of the first phase. If conducted, the suggested program would include:

- Conduct a 4,000 m surface infill and step-out drill program at the Pertenencia vein system;
- Construct required additional road access to support planned drilling and exploration activities;
- Complete an 11,000 m surface drill program to explore for mineralization on the Esperanza, Dolar, and San Francisco vein systems;
- Undertake a reconnaissance geological mapping and sampling program to evaluate the bedrock exposures and determine if veins, stockworks, and mineralization are present in the northwestern and southwestern Project area.

The drill program assumes an all-in cost of US\$161/m, inclusive of drilling, assaying and support costs.

The overall budget required to complete the phase 2 recommendations totals approximately US\$2.4 M.

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### 24.2 Abbreviations and Symbols

Abbreviation/Symbol	Term
2D	two-dimensional
3D	three-dimensional
AA/AAS	atomic absorption/atomic absorption spectroscopy
AIPG	American Institute of Professional Geologists
EIS	Environmental Impact Statement
ESIA	Environmental and Social Impact Assessment
FA	fire assay
G&A	general and administrative
GPS	global positioning system
HQ	63.5 mm core diameter size
ICP	inductively coupled plasma
ICP-AES	inductively coupled plasma atomic emission spectroscopy
ICP-MS	inductively coupled plasma–mass spectrometry
IDW	inverse distance weighting
ID3	inverse distance to the power of three
ISO	International Standards Organization
LOM	life-of-mine
masl	metres above sea level
MMSA	Mining and Metallurgical Society of America
MSHA	Mine Safety and Health Administration
NaCN	sodium cyanide

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Abbreviation/Symbol	Term
NAD27	North American Domain of 1927
NAG	non acid generating
NN	nearest neighbor
NQ	47.6 mm core diameter size
QA/QC	quality assurance and quality control
QP	Qualified Person
RM SME	Registered member of the Society for Mining, Metallurgy and Exploration
S-K 1300	Regulation S-K 1300
SME	Society for Mining, Metallurgy and Exploration
TSF	tailing storage facility
US/USA	United States/United States of America
US\$	United States dollar
UTM	Universal Transverse Mercator

### 24.3 Glossary of Terms

Term	Definition
acid rock drainage/acid mine drainage	Characterized by low pH, high sulfate, and high iron and other metal species.
azimuth	The direction of one object from another, usually expressed as an angle in degrees relative to true north. Azimuths are usually measured in the clockwise direction, thus an azimuth of 90 degrees indicates that the second object is due east of the first.
bullion	Unrefined gold and/or silver mixtures that have been melted and cast into a bar or ingot.
comminution/crushing/grinding	Crushing and/or grinding of ore by impact and abrasion. Usually, the word "crushing" is used for dry methods and "grinding" for wet methods. Also, "crushing" usually denotes reducing the size of coarse rock while "grinding" usually refers to the reduction of the fine sizes.
concentrate	The concentrate is the valuable product from mineral processing, as opposed to the tailing, which contains the waste minerals. The concentrate represents a smaller volume than the original ore
cut-off grade	A grade level below which the material is not "ore" and considered to be uneconomical to mine and process. The minimum grade of ore used to establish mineral resources or mineral reserves.
data verification	The process of confirming that data was generated with proper procedures, was accurately transcribed from the original source and is suitable to be used for mineral resource and mineral reserve estimation
density	The mass per unit volume of a substance, commonly expressed in grams/cubic centimeter.
dilution	Waste of low-grade rock which is unavoidably removed along with the ore in the mining process.
doré	Unrefined gold and silver bullion bars consisting of approximately 90% precious metals that will be further refined to almost pure metal.

Term	Definition
easement	Areas of land owned by the property owner, but in which other parties, such as utility companies, may have limited rights granted for a specific purpose.
encumbrance	An interest or partial right in real property which diminished the value of ownership, but does not prevent the transfer of ownership. Mortgages, taxes and judgements are encumbrances known as liens. Restrictions, easements, and reservations are also encumbrances, although not liens.
flotation	Separation of minerals based on the interfacial chemistry of the mineral particles in solution. Reagents are added to the ore slurry to render the surface of selected minerals hydrophobic. Air bubbles are introduced to which the hydrophobic minerals attach. The selected minerals are levitated to the top of the flotation machine by their attachment to the bubbles and into a froth product, called the "flotation concentrate." If this froth carries more than one mineral as a designated main constituent, it is called a "bulk float". If it is selective to one constituent of the ore, where more than one will be floated, it is a "differential" float.
flowsheet	The sequence of operations, step by step, by which ore is treated in a milling, concentration, or smelting process.
inferred mineral resource	<p>An inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The term limited geological evidence means evidence that is only sufficient to establish that geological and grade or quality continuity is more likely than not. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability.</p> <p>A qualified person must have a reasonable expectation that the majority of inferred mineral resources could be upgraded to indicated or measured mineral resources with continued exploration; and should be able to defend the basis of this expectation before his or her peers.</p>
initial assessment	An initial assessment is a preliminary technical and economic study of the economic potential of all or parts of mineralization to support the disclosure of mineral resources. The initial assessment must be prepared by a qualified person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of mineral resources but cannot be used as the basis for disclosure of mineral reserves
mill	Includes any ore mill, sampling works, concentration, and any crushing, grinding, or screening plant used at, and in connection with, an excavation or mine.
mineral resource	<p>A mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction.</p> <p>The term material of economic interest includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust. It does not include oil and gas resources, gases (e.g., helium and carbon dioxide), geothermal fields, and water.</p> <p>When determining the existence of a mineral resource, a qualified person, as defined by this section, must be able to estimate or interpret the location, quantity, grade or quality continuity, and other geological characteristics of the</p>

Term	Definition
	mineral resource from specific geological evidence and knowledge, including sampling; and conclude that there are reasonable prospects for economic extraction of the mineral resource based on an initial assessment, as defined in this section, that he or she conducts by qualitatively applying relevant technical and economic factors likely to influence the prospect of economic extraction.
ounce (oz) (troy)	Used in imperial statistics. A kilogram is equal to 32.1507 ounces. A troy ounce is equal to 31.1035 grams.
overburden	Material of any nature, consolidated or unconsolidated, that overlies a deposit of ore that is to be mined.
plant	A group of buildings, and especially to their contained equipment, in which a process or function is carried out; on a mine it will include warehouses, hoisting equipment, compressors, repair shops, offices, mill or concentrator.
qualified person	<p>A qualified person is an individual who is a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared.</p> <p>For an organization to be a recognized professional organization, it must:</p> <p>(A) Be either:</p> <p>(1) An organization recognized within the mining industry as a reputable professional association, or</p> <p>(2) A board authorized by U.S. federal, state or foreign statute to regulate professionals in the mining, geoscience or related field;</p> <p>(B) Admit eligible members primarily on the basis of their academic qualifications and experience;</p> <p>(C) Establish and require compliance with professional standards of competence and ethics;</p> <p>(D) Require or encourage continuing professional development;</p> <p>(E) Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and;</p> <p>(F) Provide a public list of members in good standing.</p>
reclamation	The restoration of a site after mining or exploration activity is completed.
refining	A high temperature process in which impure metal is reacted with flux to reduce the impurities. The metal is collected in a molten layer and the impurities in a slag layer. Refining results in the production of a marketable material.
rock quality designation (RQD)	A measure of the competency of a rock, determined by the number of fractures in a given length of drill core. For example, a friable ore will have many fractures and a low RQD.
royalty	An amount of money paid at regular intervals by the lessee or operator of an exploration or mining property to the owner of the ground. Generally based on a specific amount per tonne or a percentage of the total production or profits. Also, the fee paid for the right to use a patented process.
specific gravity	The weight of a substance compared with the weight of an equal volume of pure water at 4°C.
tailings	Material rejected from a mill after the recoverable valuable minerals have been extracted.

## **25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT**

### **25.1 Introduction**

The QPs fully relied on the registrant for the information used in the areas noted in the following sub-sections. The QPs consider it reasonable to rely on the registrant for the information identified in those sub-sections, for the following reasons:

- The registrant is operating a mine in Mexico;
- The registrant has employed or retained industry professionals with expertise in the areas listed in the following sub-sections;
- The registrant has a formal system of oversight and governance over these activities, including peer review and approval;
- The registrant has experience in each of these areas.

### **25.2 Macroeconomic Trends**

Information relating to exchange rates was obtained from the registrant.

This information supports the assessment of reasonable prospects for economic extraction of the mineral resource estimates in Chapter 11.

### **25.3 Markets**

Information relating to potential markets for doré that might be produced from the Project and commodity prices was obtained from the registrant.

This information supports the assessment of reasonable prospects for economic extraction of the mineral resource estimates in Chapter 11.

### **25.4 Legal Matters**

Information relating to the corporate ownership interest, the mineral tenure (concessions, payments to retain property rights, obligations to meet expenditure/reporting of work conducted), surface rights, water rights (water take allowances), royalties, encumbrances, easements and rights-of-way, violations, and fines, permitting requirements, and the ability to maintain and renew permits was obtained from the registrant.

This information is used in support of the property description and ownership information in Chapter 3. It supports the reasonable prospects of economic extraction for the mineral resource estimates in Chapter 11.

### **25.5 Environmental Matters**

Information relating to baseline and supporting studies for environmental permitting, environmental permitting and monitoring requirements, existing environmental liabilities, ability to obtain, maintain and renew permits, closure and reclamation bonding and bonding requirements, was obtained from the registrant.

This information is used when discussing environmental and permitting information in Chapter 3. It supports the reasonable prospects of economic extraction for the mineral resource estimates in Chapter 11.

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## **25.6 Stakeholder Accommodations**

Information relating to social and stakeholder baseline and supporting studies, hiring, and training policies for workforce from local communities, and the status of current community relations was obtained from the registrant.

This information is used when discussing social licence considerations in Chapter 3. It supports the reasonable prospects of economic extraction for the mineral resource estimates in Chapter 11.

## **25.7 Governmental Factors**

Information relating to taxation and royalty considerations at the Project level, monitoring requirements and monitoring frequency, bonding requirements, and violations and fines was obtained from the registrant.

This information is used in the discussion on royalties and property encumbrances in Chapter 3. It supports the reasonable prospects of economic extraction for the mineral resource estimates in Chapter 11.

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