SEC Technical Report Summary
Initial Assessment on Mineral Resources
Santa Bárbara
Chihuahua, México

Effective Date: December 31, 2021
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Report Prepared for

Southern Copper Corporation

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SRK Project Number: 569000.020/USPR000783

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List of Abbreviations

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

Abbreviation	Unit or Term
%	percent
°	degree
°C	degrees Centigrade
3D	three-dimensional
AAS	atomic absorption spectrometry
Ag	silver
Al	aluminum
As	arsenic
Au	gold
Ba	barium
Be	beryllium
Bi	bismuth
Ca	calcium
Cd	cadmium
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
cm	centimeter
cm^3	cubic centimeter
Co	cobalt
CoG	cut-off grade
Company	Industrial Minera México, S.A. de C.V
Cr	chromium
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
Cs	scaled span
CSRM	certified standard reference material
Cu	copper
Fe	iron
g	gram
G&A	general and administrative
g/t	grams per tonne
GWh	gigawatt-hour
ha	hectare
HCl	hydrochloric acid
Hg	mercury
hm^3	cubic hectometer
HNO_3	nitric acid
I	Indicated
ICP	inductively coupled plasma
IMMSA	Industrial Minera México, S.A. de C.V
K	potassium
kg	kilogram
kg/cm^2	kilograms per square centimeter
km	kilometer
km^2	square kilometer
koz	thousand ounces
kt	thousand tonnes
kW	kilowatt
kWh	kilowatt-hour
L	liter
La	lanthanum
lb	pound
Li	lithium

Abbreviation	Unit or Term
LoM	life-of-mine
m	meter
M	Measured
m.y.	million years
m^3	cubic meter
masl	meters above sea level
Mg	magnesium
mm	millimeter
Mn	manganese
Mo	molybdenum
MWh	megawatt-hour
Na	sodium
Na_2O_2	sodium peroxide
Ni	nickel
NSR	Net Smelter Return
P	phosphorus
Pb	lead
QA/QC	quality assurance/quality control
QP	Qualified Person
REPDA	Public Registry of Water Rights
RMR	rock mass rating
RQD	rock quality designation
S	sulfur
Santa Bárbara	Santa Bárbara Polymetallic Mine
Sb	antimony
Sc	critical span
Sc	scandium
SCC	Southern Copper Corporation
SD	standard deviation
SEC	U.S. Securities and Exchange Commission
SG	specific gravity
SGS	SGS Laboratory
Sn	tin
Sr	strontium
SRK	SRK Consulting (U.S.), Inc.
t	tonne (metric ton) (2,204.6 pounds)
t/d	tons per day
t/m^3	tons per cubic meter
Tecmin	Tecmin Drilling and Exploration Services
Ti	titanium
UTM	Universal Transverse Mercator
V	vanadium
W	tungsten
WGS84	World Geodetic System
Y	yttrium
Zn	zinc
Zr	zirconium

1 Executive Summary

This technical report summary was prepared in accordance with the U.S. Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for Industrial Minera México, S.A. de C.V (IMMSA or Company), a subsidiary of Southern Copper Corporation (SCC), by SRK Consulting (U.S.), Inc. (SRK) on the Santa Bárbara Polymetallic Mine (Santa Bárbara).

1.1 Property Description (Including Mineral Rights) and Ownership

The Santa Bárbara mining complex is located approximately 26 kilometers (km) southwest of the city of Hidalgo del Parral in southern Chihuahua, México. The area can be reached via paved road from Hidalgo del Parral, a city on a federal highway. Santa Bárbara was discovered in 1536, and mining activities in the 20th century began in 1913. Santa Bárbara includes three main underground mines (San Diego, Segovedad, and Tecolotes), as well as a flotation plant, and produces lead (Pb), copper (Cu), and zinc (Zn) concentrates, with significant amounts of silver (Ag). IMMSA currently holds 33 mining titles over the Santa Bárbara project, covering a total area of 27,772.5082 hectares (ha), with the titles held 100% by the Company.

1.2 Geology and Mineralization

The pre-mineral rock types found at Santa Bárbara consist of a thick calcareous shale formation and andesite flows. The post-mineral rock types consist of dikes and sills of rhyolite and diabase, a thin conglomerate formation, basalt flows, and unconsolidated stream sediments. Pre-mineral faulting took place in two stages, forming four fault systems. All faults within each system have similar strike and dip. Movement along these faults, vertical in the first-stage faults and horizontal in the second-stage faults, formed openings and breccia zones (Scott, 1958).

Hydrothermal solutions, emanating from depth, were introduced into the faults. The walls and breccia fragments within the faults were silicified, and the high-temperature silicates, garnet, pyroxene, and epidote were formed. Accompanying and following the formation of the silicates, the sulfides, such as sphalerite, galena, chalcopyrite, pyrite, and arsenopyrite, with associated gold (Au) and a silver mineral, were introduced with quartz, calcite, and fluorite. Most of these minerals replaced the silicates and altered shale. The parts of the faults where wide pre-mineral openings were located filled with quartz and a higher ratio of sulfides than in the narrow portions of the faults. Quartz, calcite, fluorite, and barite were among the last minerals deposited. The veins are assigned to the hypothermal class of hydrothermal deposits (Scott, 1958).

1.3 Status of Exploration, Development, and Operations

IMMSA started to exploit the Santa Bárbara veins in 1926 and currently has three main underground mines (San Diego, Segovedad, and Tecolotes) and a flotation plant that produces lead, copper, and zinc concentrates with high amounts of silver. The plant has a capacity of 5,800 tons/day (t/d). The veins have a total length of more than 20 km. The mining methods used include shrinkage stoping, long-hole open stoping, cut-and-fill, and horizontal bench stoping.

1.4 Mineral Resource Estimates

Santa Bárbara collects samples from diamond core drilling (surface and underground) and rock samples from underground workings as part of the exploration and mine geology activities. The mine geology department has performed most of these activities without quality assurance/quality control (QA/QC) protocols and conducting down hole surveys, which do not follow industry best practices. Since 2019, a contractor (Tecmin Drilling and Exploration Services (Tecmin)) has performed drilling campaigns from surface and underground, which included the implementation of QA/QC protocols.

The mineralization in Santa Bárbara's veins is appropriately interpreted using various sources of information, which include drilling, underground mapping, and rock channel sampling. SRK relied upon the information that is stored in paper format and the reconciliation of Santa Bárbara's planned versus executed grades and tonnages system to determine drilling and channel rock sampling. SRK is of the opinion that this is considered reasonable. This opinion is also based on the long history of mining at Santa Bárbara.

The estimation of Santa Bárbara's resources is made based on the available information, which is mostly historical documentation (such as geological maps of the mine, vertical sections, and plan views) and on the original drillhole logging sheets.

A small portion of the historical data is available in digital format for the construction of a three-dimensional (3D) geological model, aid in statistical analysis, and required to estimate mineral resources in a 3D block model.

Santa Bárbara periodically updates the resource estimation using largely manual resource/reserve calculations based on historical and recent information. AutoCAD and Excel software are used when possible.

The estimation of resources is done area by area and includes supporting information (logging sheets, maps, and sections), which contain the geological and mineralization outlines and assay data.

Using the maps and sections, the areas of mineralization bodies are calculated based on the long sections constructed for each vein. The volumes (less mined areas) are calculated from the interpreted areas in the long sections multiplied by the true width (based on dip) of the veins.

A standard density of 3 tons per cubic meter (t/m^3) is applied. This value is based on historical reconciliation but is not supported by any data or studies.

The classification of resources is based on the following criteria.

1.4.1 Measured

No Measured resources are stated, as insufficient overall confidence exists to confirm geological and grade continuity between points of observation to the level needed to support detailed mine planning and final evaluation studies. In the Qualified Person's (QP) opinion, other limitations are a lack of density measurements and insufficient QA/QC protocols in the mine sampling protocols.

1.4.2 Indicated

Indicated mineral resources are defined by material that is interpreted to be continuous in size, shape, and grade and must be located within 30 meters (m) of either underground development or surface/ underground drilling results. Indicated mineral resources may be projected 30 m above or below levels or 30 m beyond the stope face; however, the projection distance is limited to 15 m below the last developed level. No Indicated mineral resources are permitted above the first level of the mine.

1.4.3 Inferred

Inferred resources can be established in areas with sufficient geological confidence, and the following requirements are met:

1. The material not classified as Indicated located between two levels separated by a maximum of 120 m and if no diamond drilling is present
2. The material is within 60 m of multiple surface/underground drillholes or located within 15 m of a single drillhole.

Due to the lack of QA/QC protocols for the historical drilling and channel sampling, deficiencies in the channel sampling procedures, and the lack of downhole surveys, SRK established that there are no Measured resources in Santa Bárbara.

1.5 Mineral Resource Estimate

Mineral resources have been reported based on economic and mining assumptions to support the reasonable potential for eventual economic extraction of the resource. A cut-off grade (CoG) has been derived from these economic parameters, and the resource has been reported above this cut-off. Current mineral resources are reported in situ and are exclusive of reserves, as summarized in Table 1-1.

Table 1-1: Santa Bárbara Summary Mineral Resources at End of Fiscal Year Ended December 31, 2021, SRK Consulting (U.S.), Inc.(1).

IMMSA Underground - Santa Bárbara							Net Smelter Return (NSR) (US$)	Cut-off (2):	NSR $79.3			
		Grade						Contained Metal				
Category	Quantity Tonnes (thousand tonnes ((kt))	Au (grams per tonne (g/t)	Ag (g/t)	Zn (percent (%))	Pb (%)	Cu (%)		Au (thousand ounces (koz))	Ag (koz)	Zn (kt)	Pb (kt)	Cu (kt)
Measured (M)												
Indicated (I)	22,534	0.30	101	3.24	1.92	0.53	181	219	72,822	730.6	433.7	120.2
M+I	22,534	0.30	101	3.24	1.92	0.53	181	219	72,822	730.6	433.7	120.2
Inferred	19,357	0.19	102	3.89	2.35	0.55	201	117	63,722	753.3	454.2	105.8

(1)Mineral resources are reported exclusive of mineral reserves. Mineral resources are not ore reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Gold, silver, lead, zinc, and copper assays were capped where appropriate. Given historical production, it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.
(2)Mineral resources are reported at metal equivalent CoGs based on metal price assumptions,* variable metallurgical recovery assumptions,** mining costs, processing costs, general and administrative (G&A) costs, and variable NSR factors.*** Mining, processing, and G&A costs total US$75.3/t.
*Metal price assumptions considered for the calculation of metal equivalent grades are: gold (US$/oz: 1,725.00), silver (US$/oz: 23.0), lead (US$/pound (lb): 1.04), zinc (US$/lb: 1.32), and copper (US$/lb: 3.80).
**CoG calculations and metal equivalencies assume variable metallurgical recoveries as a function of grade and relative metal distribution. Average metallurgical recoveries are: gold (37%), silver (82%), lead (79%), zinc (80%), and copper (65%) assuming recovery of payable metal in concentrate.
***CoG calculations and metal equivalencies assume variable NSR factors as a function of smelting and transportation costs. The NSR values (inclusive of recovery) are calculated using the following calculation: NSR = Au*14.515+Ag*0.549+Pb*17.090+Cu*46.443+Zn*19.754
Note: The mineral resources were estimated by SRK Consulting (U.S.), Inc., a third-party QP under the definitions defined by S-K 1300.

In SRK's opinion, the mineral resources stated herein are appropriate for public disclosure and meet the definitions of Indicated and Inferred resources established by SEC guidelines and industry standards.

SRK recommends the construction of a 3D geological model for the Santa Bárbara deposit and the digitizing of all the supporting information, including geological/mineralization maps and sections, drilling, and rock sampling information. The new 3D geological model will be the basis for the construction of a block model and future mineral resource estimates using standard industry procedures.

Mineral resources are in compliance with the S-K 1300 resource definition requirement of reasonable prospects for economic extraction. Using the mining blocks (panels) defined by the geologist, the QP has reviewed each panel relative to the defined CoGs. Depletions have been accounted for within each panel using the latest survey information for most of the panels, and only a few panels that were exploited in the last two months of 2021 were adjusted according to the planned exploitation. It is SRK's opinion that the differences with the real exploited material are not material.

Mineral resources have been reported based on economic and mining assumptions to support the reasonable potential for economic extraction of the resource. A CoG has been derived from these economic parameters, and the resource has been reported above this cut-off. Table 1-1 summarizes current mineral resources exclusive of reserves.

1.6 Conclusions and Recommendations

In the QP's opinion, the assumptions, parameters, and methodology used for the Santa Bárbara underground mineral resource estimates, while not optimized to provide flexibility in the planning processes, are appropriate for the style of mineralization and mining methods.

It is the QP's opinion that measures should be taken to mitigate the uncertainty, including but not limited to:

- Continual drilling in the most critical areas of the deposit, locally to spacing of less than 50 x 50 m
- Digitization of all geological information and storage of data into a commercial secure database
- Detailed geological modeling methods using the new digital database, which integrates all relevant geological data into defining the model and achieving the most accurate model possible at the current level of study
- Extensive QA/QC analysis and monitoring to understand relative impacts to local inherent variability within resource domains
- Introduction of more-routine density sampling within the mineralization to confirm level of fluctuation from the current uniform assignment of a single 3.0 t/m^3 value, using the current protocols for analysis
- Rigorous approach to classification that appropriately considers the noted detractors in confidence and utilizes criteria designed to address them

2 Introduction

2.1 Registrant for Whom the Technical Report Summary was Prepared

This technical report summary was prepared in accordance with the SEC S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for IMMSA, a subsidiary of SCC, by SRK on the Santa Bárbara Mine.

2.2 Terms of Reference and Purpose of the Report

The quality of information, conclusions, and estimates contained herein are consistent with the level of effort involved in SRK's services, based on:

- Information available at the time of preparation
- Assumptions, conditions, and qualifications set forth in this report

This report is intended for use by IMMSA subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits IMMSA to file this report as a technical report summary with American securities regulatory authorities pursuant to the SEC S-K regulations, more specifically Title 17, Subpart 229.600, item 601(b)(96) - Technical Report Summary and Title 17, Subpart 229.1300 - Disclosure by Registrants Engaged in Mining Operations. Except for the purposes legislated under U.S. federal securities law, or with other securities regulators as specifically consented to by SRK, any other use of this report by any third party are at that party's sole risk. The responsibility for this disclosure remains with IMMSA.

The purpose of this technical report summary is to report mineral resources for the Santa Bárbara project.

The effective date of this report is December 31, 2021.

References to industry best practices contained herein are generally in reference to those documented practices as defined by organizations, such as the Society for Mining Metallurgy and Exploration (SME), the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM), or international reporting standards as developed by the Committee for Mineral Reserves International Reporting Standards (CRIRSCO).

2.3 Sources of Information

This report is based in part on internal Company technical reports, previous feasibility studies, maps, published government reports, Company letters and memoranda, and public information, as cited throughout this report and listed in the References Section (Section 24).

Reliance upon information provided by the registrant is listed in the Section 25, when applicable.

SRK's report is based upon the following information:

- Site visits to the Santa Bárbara project
- Discussions and communications with key Santa Bárbara operations personnel
- Data collected by the Company from historical mining operation
- Review of the data collection methods and protocols, including sampling, QA/QC, assaying, etc.

- Review of plan maps, including geological interpretations, sampling, and sampling location, in both paper format and AutoCAD files
- Review of the original drillhole logging sheets
- Review of paper documents supporting the resource/reserve estimates by blocks, including interpretation on sections, spreadsheets, and manual calculations. Part of this information was provided in digital format (AutoCAD, Excel, and Word).

2.4 Details of Inspection

Table 2-1 summarizes the details of the personal inspections on the property by each QP or, if applicable, the reason why a personal inspection has not been completed.

Table 2-1: Site Visits

Expertise	Date(s) of Visit	Details of Inspection
Geology, exploration, and mineral resources	June 9 to 13, 2021	Review drilling and sampling procedures, visit to underground workings, and review of resource estimation procedures
Geology, exploration, and mineral resources	November 22 to 28, 2021	Review of estimation procedures and check of resource blocks and supporting data

Source: SRK, 2021

2.5 Qualified Person

This report was prepared by SRK Consulting (U.S.), Inc., a third-party firm comprising mining experts in accordance with § 229.1302(b)(1). IMMSA has determined that SRK meets the qualifications specified under the definition of Qualified Person in § 229.1300. References to the QP in this report are references to SRK Consulting (U.S.), Inc. and not to any individual employed at SRK.

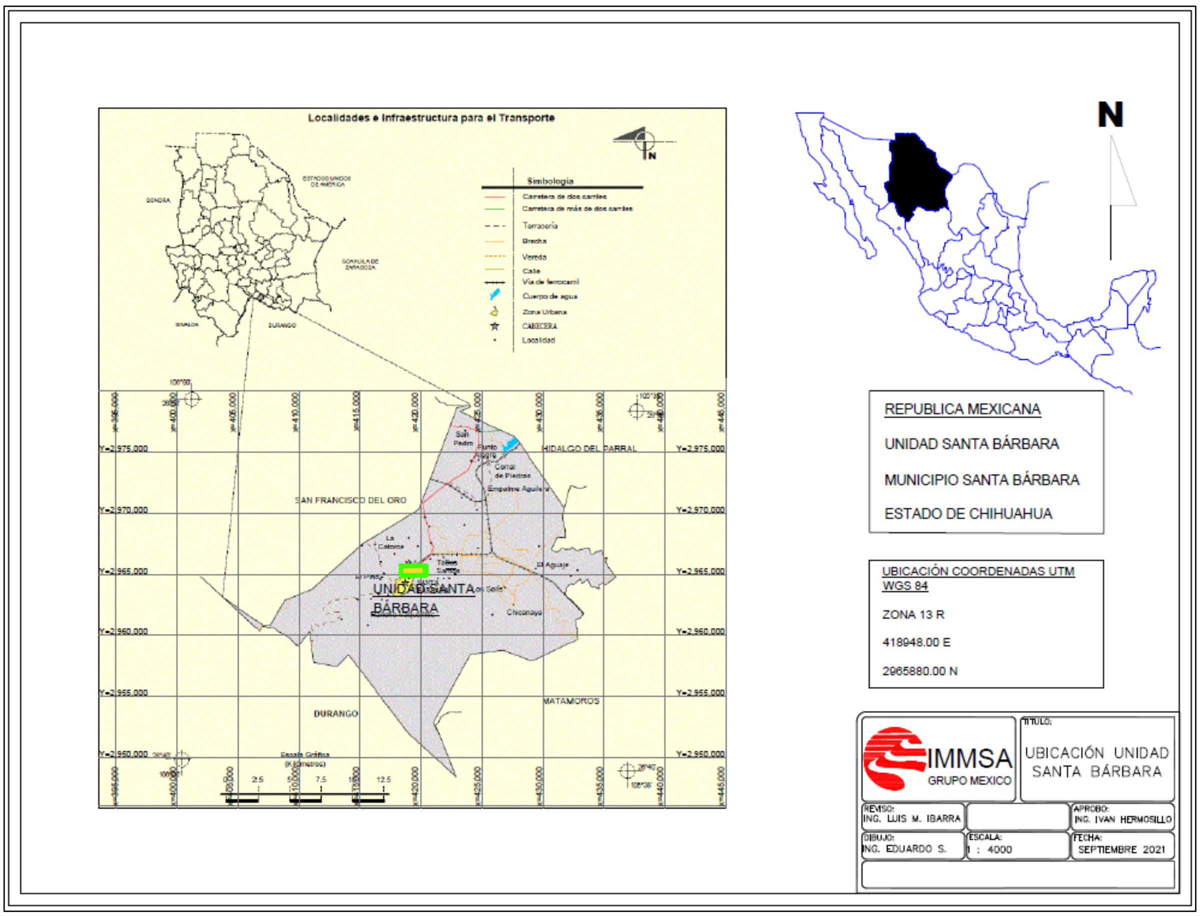
2.6 Report Version Update

This technical report summary is not an update of a previously filed technical report summary and is the most recent report.

3 Property Description

3.1 Property Location

The Santa Bárbara project is located in northern México approximately 25 km southwest of the city of Hidalgo del Parral, in the in the state of Chihuahua. The mine uses the Universal Transverse Mercator (UTM) World Geodetic System (WGS84) Zone 13R coordinate system and is located at 2 965 880 N and 418 948 E at an altitude of 2,000 m above sea level (masl). Access to the mine is connected to Hidalgo del Parral by a paved road 25 km in length and to the state capital of Chihuahua 250 km along Highway 24 (Figure 3.1).



Source: IMMSA, 2021

Figure 3.1: Location Map

3.2 Property Area

IMMSA currently holds 33 mining titles over the Santa Bárbara project covering a total area of 27,772.5082 ha, with the titles held 100% by the Company.

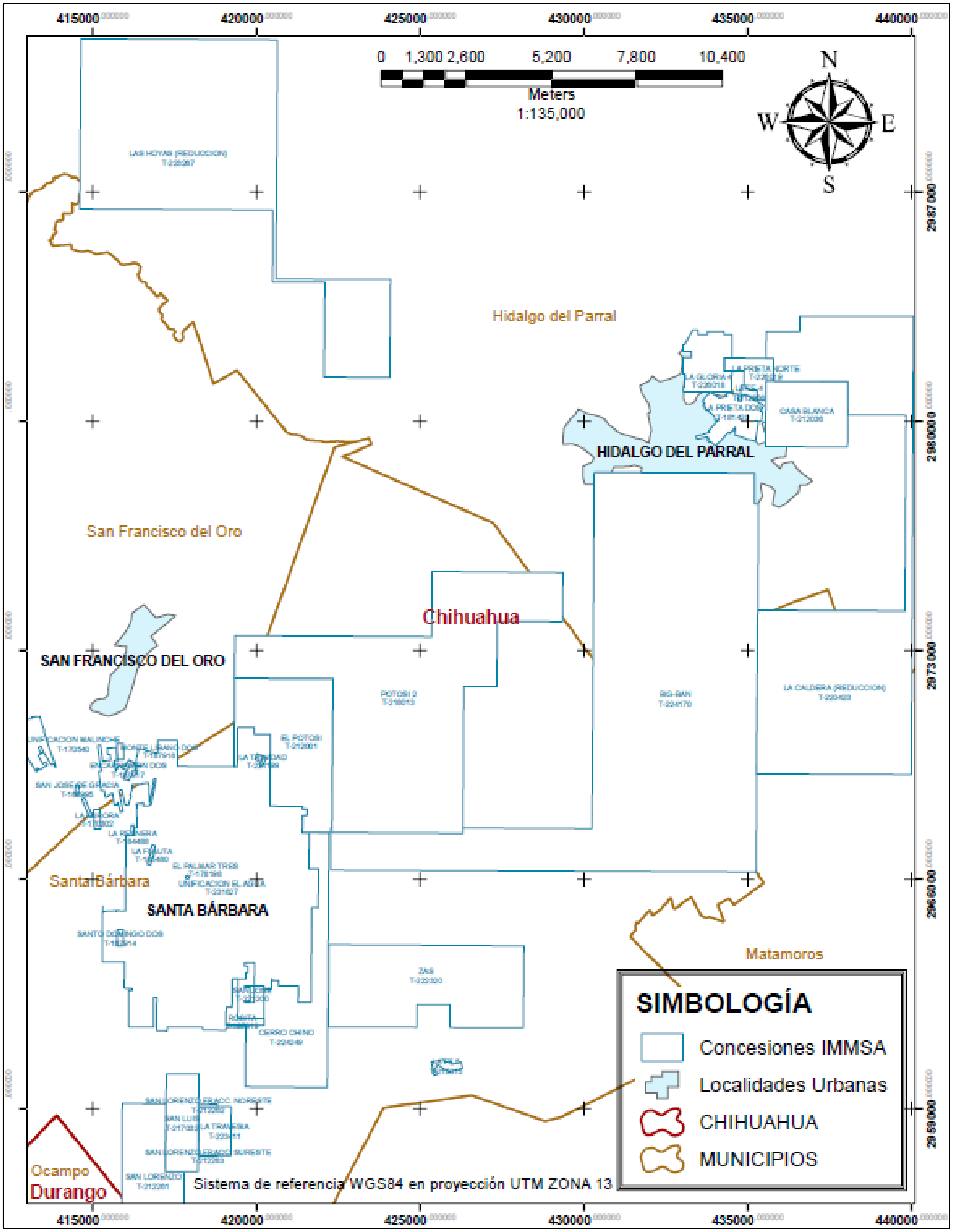
3.3 Mineral Title, Claim, Mineral Right, Lease, or Option Disclosure

The 33 mining concessions are in force for 50 years and extendable to 50 more years (Table 3-1 and Figure 3.2). The oldest concession was originally awarded in 1980 and has a current expiration date for 2030 but has the option for extending a further 50 more years.

Table 3-1: Land Tenure Table

Number	Title Number	Concession Name	Holder	Awarded	Valid Until	Surface (ha)
1	167051	LAS AURAS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	19/08/1980	18/08/2030	6.0000
2	168995	SAN JOSE DE GRACIA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	2/9/1981	1/9/2031	3.0000
3	170302	LA AURORA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	14/04/1982	13/04/2032	12.0000
4	170540	UNIFICACION MALINCHE	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	13/05/1982	12/5/2032	95.4933
5	178198	EL PALMAR TRES	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	14/07/1986	13/07/2036	1.0000
6	181420	LA PRIETA DOS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	18/09/1987	17/09/2037	200.7286
7	184488	LA REYNERA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	6/11/1989	5/11/2039	2.4465
8	185480	LA FLAUTA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	14/12/1989	13/12/2039	6.0000
9	187914	SANTO DOMINGO DOS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	22/11/1990	21/11/2040	10.0000
10	187917	ENCARNACION DOS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	22/11/1990	21/11/2040	5.0000
11	187918	MONTE LIBANO DOS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	22/11/1990	21/11/2040	10.0000
12	187919	ROSITA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	22/11/1990	21/11/2040	49.2316
13	210933	SANGRE DE CRISTO	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	29/02/2000	28/02/2050	3.8184
14	212001	EL POTOSI	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	18/08/2000	17/08/2050	997.2857
15	212036	CASA BLANCA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	25/08/2000	24/08/2050	500.0000
16	212261	SAN LORENZO	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	29/09/2000	28/09/2050	488.9706
17	212262	SAN LORENZO FRACC. NORESTE	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	29/09/2000	28/09/2050	4.4796
18	212263	SAN LORENZO FRACC. SURESTE	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	29/09/2000	28/09/2050	1.2479
19	212856	LA FE 4	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	31/01/2001	30/01/2051	12.9835
20	215015	LA FE 5	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	29/01/2002	28/01/2052	21.9015
21	217032	SAN LUIS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	14/06/2002	13/06/2052	300.0000
22	218013	POTOSI 2	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	3/10/2002	2/10/2052	3,590.0000
23	220423	LA CALDERA (REDUCCION)	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	25/07/2003	2/8/2049	3,515.1687
24	221199	LA TRINIDAD	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	11/12/2003	10/12/2053	2.8916
25	221200	SAN JOSE	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	11/12/2003	10/12/2053	8.1400
26	222320	ZAS	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	25/06/2004	24/06/2054	1,423.7084
27	223287	LAS HOYAS (REDUCCION)	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	25/11/2004	24/11/2054	3,757.0000
28	223411	LA TRAVESIA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	14/12/2004	13/12/2054	150.0000
29	224170	BIG-BAN	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	20/04/2005	19/04/2055	7086.3171
30	224249	CERRO CHINO	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	22/04/2005	21/04/2055	912.2357
31	226018	LA GLORIA 4	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	15/11/2005	14/11/2055	248.0037
32	226019	LA PRIETA NORTE	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	15/11/2005	14/11/2055	113.1502
33	231627	UNIFICACION EL AGUA	INDUSTRIAL MINERA MÉXICO, S.A. DE C.V.	25/03/2008	24/03/2058	4234.3056

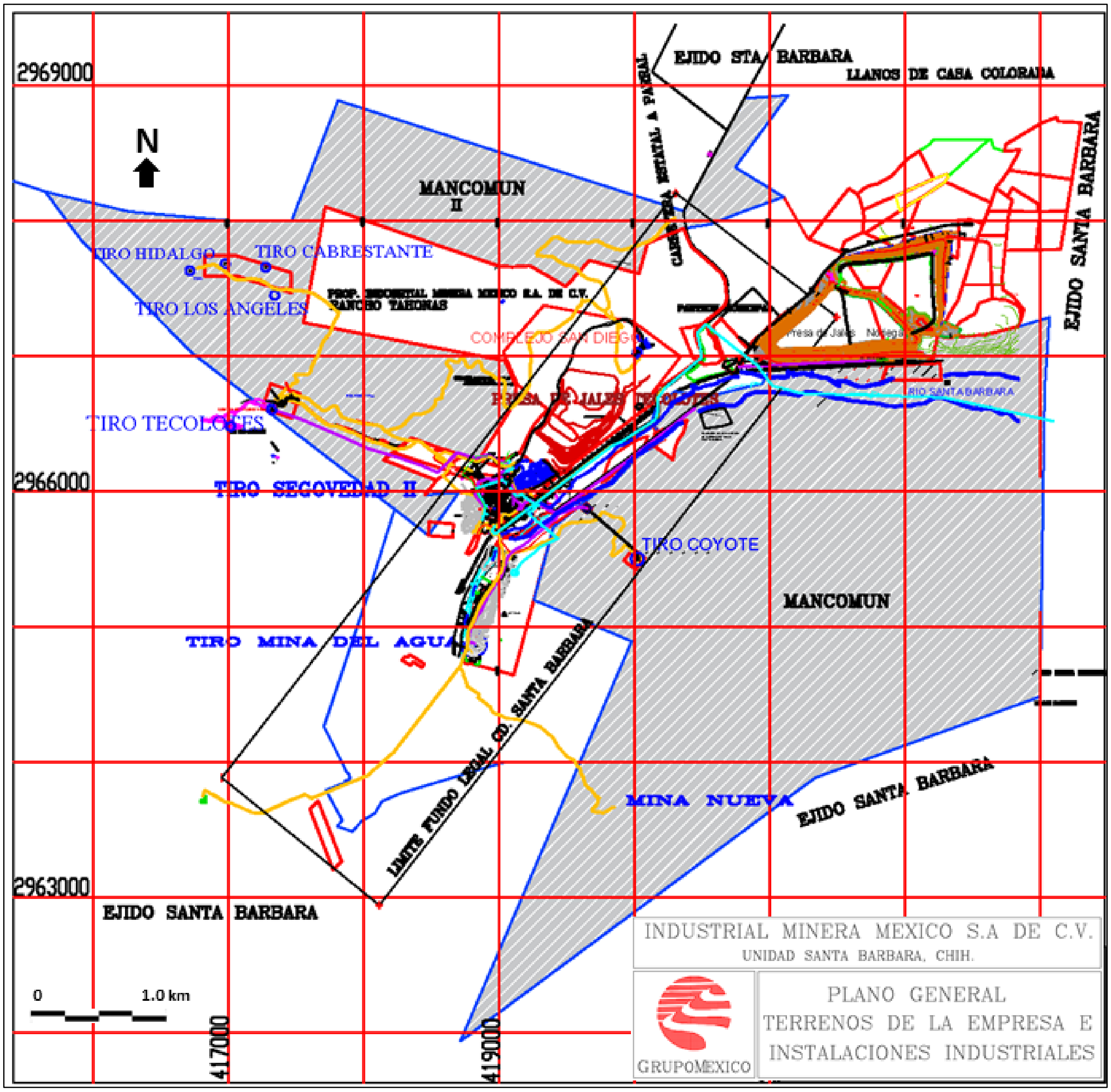
Source: IMMSA, 2021



Source: IMMSA, 2021

Figure 3.2: Map showing Concession Value

For the Santa Bárbara project, there are surface lands that cover an area of 20.92 ha and are owned by IMMSA, which provide the Company within sufficient rights to any work or exploration that the Company requires to carry out for the advancement and continuity of activities in the Santa Bárbara project. There are an additional 371.07 ha covered by a contract with the community of Santa Bárbara that allows for any work or exploration required by IMMSA for the advancement and continuing operation of the Santa Bárbara project (Figure 3.3).



Source: IMMSA, 2021

Figure 3.3: Map of Additional Areas Available Under Contract

3.4 Mineral Rights Description and How They Were Obtained

IMMSA currently holds 33 mining titles over the Santa Bárbara project covering a total area of 27,772.5082 ha, which extend from 2030 to 2058.

The following are the obligations of the registrant to retain the properties at Santa Bárbara according to the Mexican Mining Law:

- Execute and verify the works and works foreseen by the Mexican Mining Law in the terms and conditions established by it and its regulations.
- Pay the mining rights established by the law on the matter.
- Comply with all the general provisions and the official Mexican standards applicable to the mining-metallurgical industry in terms of safety in mines, ecological balance, and environmental protection.
- Allow personnel commissioned by the Mexican mining entity (Secretaría) to carry out inspection visits.
- The execution of works will be proven by means of investments in the area covered by the mining concession or by obtaining economically exploitable minerals. The regulations of the law will set the minimum amounts of the investment to be made and the value of the mineral products to be obtained.
- The holders of mining concessions or those who carry out works and works by contract must designate an engineer legally authorized to practice as responsible for compliance with the safety regulations in the mines, as long as the works and works involve more than nine workers in the case of the coal mines and more than 49 workers in other cases.
- The mining law stipulates the investments in works and works that are mandatory for the registrant of a mining concession.
- The investments in the works and works foreseen by the law that are carried out in mining concessions or the value of the mineral products obtained must be equivalent at least to the amount that results from applying the quotas to the total number of hectares covered by the mining concession or the grouping of these.

Reports delivered to the Mexican mining entity (Secretaría) to verify the execution of the mining works and works must contain:

1. Name of the holder of the mining concession or of the person who carries out the mining works and works by contract
2. Name of the lot or of the one that heads the grouping and title number
3. Period to review
4. Itemized amount of the investment made or amount of the billing value or settlement of the production obtained, or an indication of the cause that motivated the temporary suspension of the works
5. Surplus to be applied from previous verifications and their updates
6. Amount to be applied in subsequent checks
7. Location plan and description of the works carried out in the period

The mining entity (Secretaría) shall consider the works and works of exploration or exploitation to have not been executed and legally verified when, in the exercise of its powers of verification, it finds:

1. The verification report contains false data or does not conform to what was done on the ground.
2. The non-adjacent mining lots object of the grouping do not constitute a mining or mining-metallurgical unit, from the technical and administrative point of view.

In the above cases, Secretaría will initiate the cancellation procedure of the concession or of those mining lots incorporated into the grouping, in the terms of Article 45 of the Mexican Mining Law, final paragraph of the law.

3.5 Encumbrances

SRK is not aware of any legal encumbrances on IMMSA-owned or leased surface or mineral rights but has relied on IMMSA's legal documentation regarding this aspect of the Santa Bárbara project.

Several obligations must be met to maintain a mining concession in good standing, including the ones listed in Section 3.4.

The regulations establish minimum amounts that must be invested in the concessions. Minimum expenditures may be satisfied through sales of minerals from the mine for an equivalent amount. A report must be filed each year that details the work undertaken during the previous calendar year.

Mining duties must be paid to the Secretaria de Economía in advance in January and July of each year and are determined on an annual basis under the Mexican Federal Rights Law.

Duties are based on the surface area of the concession and the number of years since the mining concession was issued. Mining duties totaled US$462,111 in 2020 and US$490,008 in 2021.

Permits to conduct mining work at Santa Bárbara have been obtained. Existing permits will require updates or extensions based on the life-of-mine (LoM) plan outlined in this report, and additional permits will be necessary should the method of tailings storage change.

3.6 Other Significant Factors and Risks

The mine is subject to risk factors common to most mining operations in México, and IMMSA has an internal process in place to study and mitigate those risks that can reasonably be mitigated. No known factors or unusual risks affect access, title, or the ability to conduct mining. Specific exploration activities are authorized into 2022.

3.7 Royalties or Similar Interest

There is no payment for royalties; 100% of the concessions are owned by IMMSA.

4 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1 Topography, Elevation, and Vegetation

Santa Bárbara topography varies from flat in the Parral Valley to mountainous and rugged to the south and southwest (where the Sierra de Santa Bárbara is located). Santa Bárbara has 12,000 ha of hills, 6,000 ha of mountainous terrain, and 4,000 ha of rugged terrain. The average elevation is 1,969 masl (http://www.inafed.gob.mx/work/enciclopedia/EMM08chihuahua/municipios/08060a.html).

The vegetation is characteristic of the semi-arid regions of northern México. Vegetation is of the montebajo type and the stunted vegetation made up of oaks, junipers, walnuts, acamos, willows, mesquite, strawberry trees, and gatuños, transitioning from grasslands in the lower elevations to coniferous in its mountainous regions. Figure 4.1 shows the characteristics of the Santa Bárbara area.

Source: SRK, 2021

Figure 4.1: Photograph of the Santa Bárbara Town, Looking North

4.2 Means of Access

Access to the Santa Bárbara project is well supported via public roads and railways. The state of Chihuahua has an area of 247,455 square kilometers (km^2) has a network of railways (approximately 2,650 km) and has good road infrastructure covering 19,720 km in total, of which 7,100 km are paved, 315 km are lined, and 12,225 km are dirt roads. The Santa Bárbara project connects directly with Highway No. 24, which leads directly to the state capital, Chihuahua, Chihuahua, at a distance of 252 km and also connects with Parral at a distance of 25 km.

4.3 Climate and Length of Operating Season

The climate in Chihuahua state is warm and arid. Average temperatures vary from 0 degrees Centigrade (°C) to 35°C, with an average of 19°C. The average annual precipitation is approximately 330 millimeters (mm), with the majority of rain typically occurring from July to September. Exploration, development, and mining activities can be completed year-round with no hindrance from the climate.

4.4 Infrastructure Availability and Sources

The Santa Bárbara project is an active underground mining operation comprised of three mines (Segovedad, Tecolotes, and San Diego) with one flotation plant that produces zinc, lead, and copper concentrates, with significant amounts of silver. The asset is considered mature.

4.4.1 Water

All the water used in industrial operations at Santa Bárbara comes from the mine and the concentrator plant, where a large part of this water is recovered from the tailings dam, creating a closed circuit for its proper use. IMMSA Santa Bárbara does not have any water concessions.

The water recovered from the tailings dam is received in the general pool located in the process plant; during 2021, there was a recovery of 1,052,207 cubic meters (m^3).

Drinking water is purchased in pipes from the Junta Municipal de Agua y Saneamiento del Estado de Chihuahua, with an average of 669 m^3 per month (8,028 m^3 per year). The water is deposited in tanks (Rotoplas) that are distributed in different points of the industrial complex.

4.4.2 Electricity

The annual average consumption is 157.9 gigawatt-hours (GWh). Electric power is supplied by Eólica el Retiro S A P I DE CV, Energia Chihuahua, SA de CV and the Federal Electricity Commission.

- The annual consumption is an average of 106,124 megawatt-hours (MWh).
- There is a demand of 9,000 kilowatt-hours (kWh) per month.
- There is a maximum contracted demand of 16,750 kilowatts (kW).

The providers include:

- Eolica el Retiro S A P I DE CV
- Energy Chihuahua S.A. of C.V. (gas) only from January to October 2022
- Federal Electricity Commission (transmission is paid)

A Caterpillar brand generator with an acoustic cabin of 350 kW, a diesel engine, and a tank of 2,000 liters (L) provides energy to the tailings dam pumping station (backup).

4.4.3 Fuel

Diesel

Average annual diesel consumption is 3,500,000 L/year. From the tanks located on the surface, the diesel is sent through pipes to the deposits inside the mine, and from these it is fed to the equipment through dispatch guns.

The diesel supplier is CONBILUB, S.A. DE C.V., and diesel comes from Ciudad Camargo Chihuahua. Diesel is received in 20,000-L tankers. An average of three to four pipes per week are received.

There is currently no supply contract; diesel is supplied through scheduled supply orders.

Gasoline

The operation consumes an average of 7,000 to 7,500 L annually, 0.2% with respect to the diesel consumed per month. The gasoline is supplied by one of the gas stations located in the city of Santa Bárbara, Chihuahua located 800 m from the mining unit.

4.4.4 Personnel

There is an ample supply of skilled personnel from the local area, which has a long history of mining operations. In addition to Santa Bárbara, there are a number of operating mines in the immediate vicinity of the Santa Bárbara project. The Santa Bárbara mine site currently employs 196 staff and 1,105 unionized employees.

4.4.5 Supplies

The Santa Bárbara project has a highly favorable location and infrastructure, and local communities in the surrounding area are well suited with basic accommodations, fuel, industrial materials, contractor services, and bulk suppliers. Supplies to the mine can be transported with ease via the rail or road network system. Parral City is an important source, providing services and supplies.

5 History

The following sections provide a brief summary of the history of the Santa Bárbara project, compiled from historical publications and internal corporate documents. Mining activity on the Santa Bárbara area started in 1500s and occurred intermittently during the following centuries and continues in the present with IMMSA.

5.1 Previous Operations

Exploration and mining activity at the Santa Bárbara project dates back to the initial discoveries in the late 1500s. In 1899, the Montezuma Lead Co was founded in the district and acquired other operations and increased production over the next few years. In 1913, the Mexican Metallurgical Company negotiated the sale of some its assets to ASARCO S.A. After the Mexican Revolution, Compañía Industrial Minera ASARCO S.A. was formed and consolidated some properties in the district. In 1932, Compañía Industrial Minera ASARCO assumed control of most of the operations in the area and took control of the American Smelters Securities Company, the main subsidiary of ASARCO S.A. The name was changed to ASARCO MEXICANA S.A. in 1965 and to Industrial Minera México S.A.de C.V. in 1974. In 1978, this became Industrial Minera México S.A DE C.V (Grupo México), and finally in 2012 this was absorbed by Industrial Minera México S.A. DE C.V.

Table 5-1 summarizes production at the Santa Bárbara project from 2002 to 2020.

Table 5-1: Santa Bárbara Production (2002-2020)

Concept	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Milled tonnes	**1,590,650**	**1,450,124**	**1,453,793**	**1,486,622**	**1,483,704**	**1,486,622**	**1,460,854**	**1,542,128**	**1,578,342**	**1,552,869**	**1,589,618**	**1,595,042**	**1,591,851**	**1,556,699**	**1,529,573**	**1,337,389**	**1,670,776**	**1,636,644**	**1,732,554**
Grades mill feed																			
Au (g/t)	0.32	0.32	0.28	0.21	0.22	0.21	0.24	0.23	0.22	0.26	0.24	0.25	0.25	0.24	0.26	0.29	0.25	0.24	0.27
Ag (g/t)	112	111	103	107	105	107	102	103	103	101	99	96	91	88	87	82	79	79	79
Pb (%)	1.28	1.21	1.09	0.92	0.86	0.92	0.9	0.95	1.02	1.07	1.18	1.32	1.42	1.49	1.54	1.5	1.35	1.31	1.34
Cu (%)	0.51	0.53	0.45	0.5	0.51	0.5	0.53	0.53	0.54	0.51	0.52	0.49	0.45	0.41	0.4	0.39	0.38	0.4	0.45
Zn (%)	2.58	2.49	2.43	2.28	2.11	2.28	2.37	2.49	2.53	2.33	2.41	2.52	2.53	2.47	2.31	2.27	1.98	2	2
Pb concentrate tonnes	**28,941**	**26,042**	**24,137**	**20,538**	**20,090**	**20,538**	**19,426**	**22,665**	**24,291**	**24,314**	**27,618**	**29,450**	**31,710**	**30,661**	**32,143**	**23,908**	**29,517**	**31,234**	**31,437**
Grades																			
Au (g/t)	5.99	5.35	4	3.06	3.45	3.06	2.24	2.26	3.61	4.93	3.65	2.85	2.51	2.6	3.43	3.8	3.71	4.02	3.83
Ag (g/t)	3,994	3,994	4,241	5,209	5,392	5,209	5,141	4,881	4,594	4,182	3,844	3,428	3,042	2,959	2,782	2,803	2,868	2,912	2,861
Pb (%)	57.65	55.51	53.06	55.43	54.11	55.43	54.28	54.48	56.53	58.91	59.64	60.8	62.11	63.69	59.87	60.94	57.29	56	55.95
Cu (%)	5.93	5.29	6.47	6.37	5.98	6.37	5.04	5.73	5.6	4.79	4.41	3.94	3.83	3.45	3.19	2.63	3.44	3.84	3.7
Zn (%)	5.6	6.78	6.24	5.23	5.58	5.23	6.48	5.85	5.28	4.71	5.04	5.24	5.1	4.71	6.13	6.91	7.3	5.95	6.94
Cu concentrate tonnes	**16,852**	**14,191**	**11,335**	**14,275**	**14,331**	**14,275**	**14,767**	**15,529**	**15,345**	**14,571**	**14,980**	**14,370**	**12,737**	**11,146**	**10,128**	**8,653**	**10,797**	**10,517**	**12,785**
Grades																			
Au (g/t)	2.41	2.7	2.49	2.01	3.04	2.01	2.02	2.19	3.48	4.09	2.98	4.83	4.22	4.38	3.31	3.05	2.2	2.25	4.96
Ag (g/t)	1,485	1,395	1,346	1,478	1,246	1,478	1,352	1,439	1,403	1,482	1,326	1,435	1,431	1,592	1,404	1,314	1,333	1,073	1,331
Pb (%)	9.09	6.99	5.89	5.47	4.2	5.47	5.11	5.51	5.31	5.7	5.13	6.02	6.65	10.96	9.61	10.68	10.72	7.49	11.81
Cu (%)	28.04	28.34	27.7	29.4	30.2	29.4	29.82	30.16	30.87	30.51	30.39	29.65	28.92	26.76	27.92	27.08	27.71	30	28.22
Zn (%)	3.78	5.38	4.58	3.1	2.66	3.1	3.4	2.99	2.33	2.56	2.82	3.26	3.74	4.33	3.66	4.25	3.38	1.95	2.19
Zn concentrate tonnes	**65,494**	**57,859**	**58,348**	**54,197**	**48,647**	**54,197**	**55,911**	**59,371**	**63,685**	**57,738**	**60,473**	**63,858**	**63,677**	**61,075**	**54,548**	**46,327**	**49,165**	**52,149**	**51,824**
Grades																			
Au (g/t)	0.32	0.32	0.31	0.26	0.24	0.26	0.24	0.21	0.24	0.28	0.27	0.28	0.28	0.28	0.29	0.33	0.32	0.32	0.3
Ag (g/t)	166	170	173	157	141	157	143	115	125	129	113	109	108	116	116	123	112	136	108
Pb (%)	0.86	0.86	0.82	0.59	0.47	0.59	0.43	0.26	0.31	0.29	0.29	0.33	0.39	0.54	0.62	0.93	0.63	0.95	0.72
Cu (%)	1.55	1.62	1.62	1.76	1.87	1.76	1.94	1.58	1.74	1.61	1.52	1.57	1.46	1.48	1.49	1.46	1.38	1.68	1.46
Zn (%)	53.26	53.2	53.29	53.91	54.3	53.91	53.68	55.44	53.99	53.85	54.29	53.86	54.16	53.42	53.54	52.55	51.74	51.9	53.32
Metallic content in Pb concentrate																			
Au (kilograms (kg))	173.4	139.26	96.49	62.92	69.35	62.92	43.5	51.21	87.62	119.85	100.83	83.85	79.52	79.82	110.35	90.81	109.58	125.58	120.28
Ag (kg)	115,598	104,015	102,365	106,982	108,328	106,982	99,863	110,638	111,583	101,678	106,163	100,964	96,477	90,717	89,435	67,023	84,666	90,949	89,944
Pb (tonnes)	16,620	14,455	12,807	11,385	10,871	11,385	10,544	12,349	13,731	14,322	16,472	17,904	19,697	19,527	19,244	14,569	16,910	17,491	17,589
Cu (tonnes)	1,717	1,378	1,563	1,308	1,201	1,308	979	1,299	1,361	1,165	1,217	1,159	1,214	1,058	1,027	629	1,014	1,200	1,162
Zn (tonnes)	1,617	1,764	1,507	1,075	1,120	1,075	1,260	1,327	1,281	1,144	1,391	1,544	1,619	1,444	1,971	1,651	2,154	1,860	2,183
Metallic content in Cu concentrate																			
Au (kg)	40.622	38.248	28.258	28.681	43.62	28.681	29.78	34	53.47	59.54	44.66	69.42	53.76	48.87	33.55	26.43	23.73	23.7	63.41
Ag (kg)	25,021	19,795	15,261	21,105	17,855	21,105	19,970	22,349	21,527	21,599	19,862	20,619	18,229	17,742	14,220	11,373	14,391	11,281	17,020
Pb (tonnes)	1,529	992	668	780	602	780	755	855	815	831	769	866	847	1,222	974	924	1,158	787	1,510
Cu (tonnes)	4,725	4,022	3,140	4,196	4,328	4,196	4,403	4,684	4,736	4,445	4,552	4,260	3,684	2,983	2,828	2,343	2,992	3,155	3,608
Zn (tonnes)	636	763	519	442	381	442	502	464	357	372	422	468	476	482	370	368	365	205	280
Metallic content in Zn concentrate																			
Au (kg)	20.923	18.448	17.893	14.278	11.65	14.278	13.48	12.43	15.15	16.12	16.57	17.57	17.78	17.41	15.95	15.2	15.61	16.86	15.34
Ag (kg)	10,884	9,827	10,081	8,515	6,881	8,515	8,007	6,813	7,953	7,431	6,849	6,952	6,877	7,067	6,330	5,718	5,485	7,102	5,602
Pb (tons)	558	500	480	322	229	322	240	152	200	166	178	211	246	331	340	429	309	496	372
Cu (tonnes)	1,033	936	948	953	910	953	1,082	937	1,105	931	917	1,001	932	903	815	677	676	875	758
Zn (tonnes)	34,877	30,780	31,094	29,220	26,454	29,220	30,014	32,915	34,382	31,089	32,830	34,396	34,490	32,629	29,207	24,345	25,439	27,066	27,633
Total metallic content																			
Au (kg)	234.931	195.957	142.636	105.883	124.62	105.883	86.76	97.64	156.25	195.51	162.07	170.84	151.06	146.1	159.84	132.45	148.92	166.14	199.03
Ag (kg)	151,503	133,637	127,707	136,602	133,064	136,602	127,840	139,800	141,063	130,708	132,874	128,534	121,583	115,526	109,985	84,113	104,542	109,331	112,566
Pb (tonnes)	18,706	15,947	13,955	12,488	11,703	12,488	11,539	13,356	14,746	15,319	17,418	18,981	20,790	21,080	20,558	15,922	18,377	18,775	19,471
Cu (tonnes)	7,475	6,336	5,651	6,457	6,440	6,457	6,464	6,920	7,203	6,540	6,687	6,421	5,830	4,944	4,669	3,649	4,683	5,230	5,528
Zn (tonnes)	37,131	33,307	33,120	30,737	27,955	30,737	31,775	34,706	36,021	32,606	34,643	36,408	36,585	34,555	31,548	26,364	27,959	29,131	30,096

Concept	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Milled tonnes	**1,590,650**	**1,450,124**	**1,453,793**	**1,486,622**	**1,483,704**	**1,486,622**	**1,460,854**	**1,542,128**	**1,578,342**	**1,552,869**	**1,589,618**	**1,595,042**	**1,591,851**	**1,556,699**	**1,529,573**	**1,337,389**	**1,670,776**	**1,636,644**	**1,732,554**
Recoveries in Pb concentrate																			
Au in (%)	33.68	30.18	23.7	20.51	21.36	20.51	12.4	14.53	25.15	29.5	26.36	20.75	19.98	21.03	27.47	23.78	26.71	31.69	25.55
Ag in (%)	64.67	64.41	68.36	67.46	69.83	67.46	66.81	69.58	68.54	64.61	67.29	66.01	66.6	66.16	67.09	61.01	64.21	70.01	65.36
Pb in (%)	81.67	82.07	80.82	83.12	85.2	83.12	80.37	84.69	85.12	86.49	87.69	85.24	87.14	83.97	81.53	72.75	75.13	81.44	75.57
Cu in (%)	21.07	17.99	23.89	17.43	15.83	17.43	12.62	15.93	16.04	14.73	14.85	14.95	16.95	16.53	16.82	12.11	16.15	18.18	15.06
Zn in (%)	3.93	4.89	4.27	3.17	3.58	3.17	3.65	3.46	3.21	3.16	3.63	3.84	4.02	3.76	5.58	5.45	6.52	5.68	6.3
Recoveries in Cu concentrate																			
Au in (%)	7.89	8.29	6.94	9.35	13.44	9.35	8.49	9.65	15.35	14.65	11.67	17.18	13.51	12.88	8.35	6.92	5.79	5.98	13.47
Ag in (%)	14	12.26	10.19	13.31	11.51	13.31	13.36	14.05	13.22	13.72	12.59	13.48	12.58	12.94	10.67	10.35	10.91	8.68	12.37
Pb in (%)	7.51	5.63	4.22	5.7	4.72	5.7	5.75	5.87	5.05	5.02	4.09	4.12	3.75	5.25	4.12	4.61	5.14	3.67	6.49
Cu in (%)	57.99	52.51	48	55.94	57.01	55.94	56.74	57.42	55.79	56.24	55.55	54.93	51.43	46.59	46.31	45.12	47.64	47.8	46.75
Zn in (%)	1.55	2.12	1.47	1.3	1.22	1.3	1.45	1.21	0.9	1.03	1.1	1.16	1.18	1.26	1.05	1.21	1.1	0.63	0.81
Recoveries in Zn concentrate																			
Au in (%)	4.06	4	4.4	4.65	3.59	4.65	3.84	3.53	4.35	3.97	4.33	4.35	4.47	4.59	3.97	3.98	3.81	4.25	3.26
Ag in (%)	6.09	6.09	6.73	5.37	4.44	5.37	5.36	4.28	4.89	4.72	4.34	4.55	4.75	5.15	4.75	5.2	4.16	5.47	4.07
Pb in (%)	2.74	2.84	3.03	2.35	1.8	2.35	1.83	1.04	1.24	1	0.95	1	1.09	1.43	1.44	2.14	1.37	2.31	1.6
Cu in (%)	12.68	12.21	14.49	12.71	11.99	12.71	13.95	11.49	13.02	11.78	11.19	12.91	13.01	14.1	13.34	13.04	10.77	13.25	9.82
Zn in (%)	84.85	85.31	88.02	86.11	84.43	86.11	86.87	85.72	86.22	85.84	85.69	85.48	85.64	84.94	82.74	80.31	76.97	82.72	79.69
Total recoveries																			
Au in concentrate Pb, Cu, Zn (%)	45.63	42.47	35.04	34.51	38.39	34.51	24.74	27.7	44.85	48.12	42.36	42.27	37.96	38.49	39.79	34.69	36.31	41.93	42.28
Ag in concentrate, Pb, Cu, Zn (%)	84.76	82.76	85.29	86.14	85.78	86.14	85.52	87.91	86.65	83.06	84.22	84.03	83.93	84.25	82.5	76.57	79.28	84.17	81.8
Pb in concentrate, Pb, Cu (%)	89.19	87.7	85.04	88.82	89.92	88.82	86.12	90.56	90.18	91.5	91.78	89.36	90.89	89.22	85.65	77.36	80.27	85.1	83.66
Cu in concentrate, Cu, Pb (%)	79.06	70.5	71.89	73.37	72.84	73.37	69.36	73.34	71.83	70.97	70.4	69.88	68.38	63.12	63.13	57.23	63.79	65.98	71.62
Zn in concentrate, Zn (%)	84.85	85.31	88.02	86.11	84.43	86.11	86.87	85.72	86.22	85.84	85.69	85.48	85.64	84.94	82.74	80.31	76.97	82.72	86.79

5.2 Exploration and Development of Previous Owners or Operators

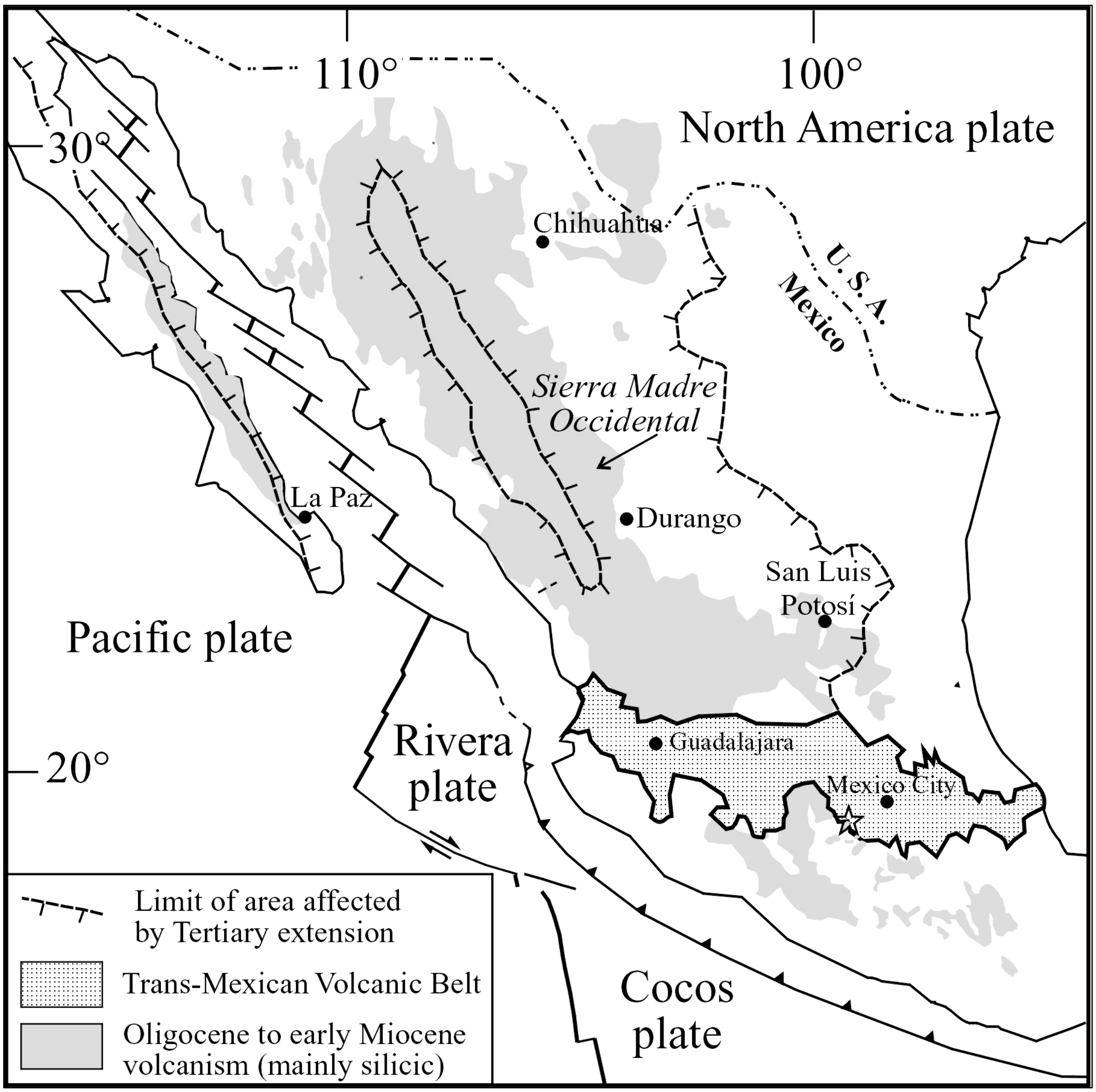
Since the 1920s, all exploration and development have been completed by IMMSA under its current legal name or by its previous name Asarco, S.A or Grupo México. Details of the exploration are discussed in Section 7 of this report.

6 Geological Setting, Mineralization, and Deposit

6.1 Regional, Local, and Property Geology

6.1.1 Regional Geology

The Sierra Madre Occidental extends for over 2,000 km from the U.S.-México border south to Guadalajara, where it is covered by the Late Miocene to Quaternary Trans-Mexican volcanic belt (Figure 6.1). Eocene-Oligocene volcanism south of the Trans-Mexican volcanic belt is from Morán-Zenteno et al. (1999).



Source: Camprubí et al., 2003; based on Ferrari et al., 2002

Figure 6.1: Geodynamic Map of México, showing Tertiary Extension and Volcanism and the Present Configuration of Plates

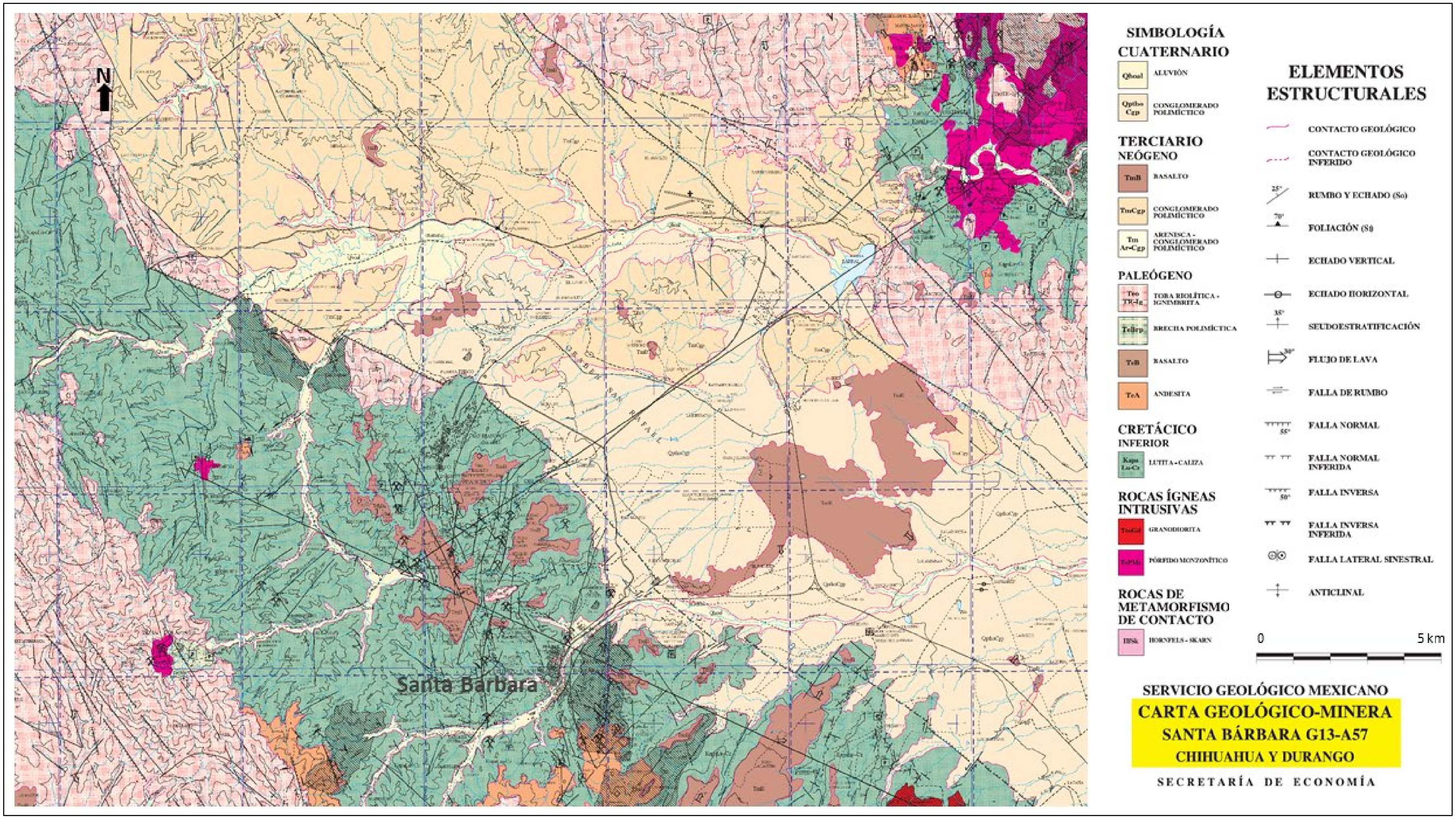
Rocks in the lower part of the Sierra Madre Occidental are Late Cretaceous to Early Tertiary calc-alkaline, granodioritic to granitic batholiths that intrude voluminous, coeval volcano-sedimentary rocks (Henry and Fredrikson, 1987; Aguirre-Díaz and McDowell, 1991; González-León et al., 2000). The volcano-sedimentary rocks were named Lower Volcanic Supergroup by McDowell and Keizer (1977) and represent the magmatic activity that took place during the Laramide Orogeny (Staude and Barton, 2001; Camprubí et al., 2003).

The upper 1,000 m of the Sierra Madre Occidental succession, however, consists of silicic ignimbrites and, to a lesser extent, rhyolitic domes and minor basaltic to andesitic lavas (the Upper Volcanic Supergroup of McDowell and Keizer, 1977). These rocks mark the so-called ignimbrite flare up of the Sierra Madre Occidental and have been emplaced in Early Oligocene along the whole Sierra Madre Occidental (McDowell and Keizer, 1977; McDowell and Clabaugh, 1979; Henry and Fredrickson, 1987; Wark et al.,1990; Gans, 1997; McDowell et al., 1997; Nieto-Samaniego et al., 1999) and in Early Miocene in the southern Sierra Madre Occidental (Ferrari et al., 2002). Tertiary volcanic rocks coeval with the Sierra Madre Occidental (Latest Eocene to Miocene) are also found to the south of the Trans-Mexican volcanic belt in the Michoacán, Guerrero, México, and Oaxaca states (Figure 6.1), but they are referred to as the Sierra Madre del Sur Tertiary magmatic province (Morán-Zenteno et al., 1999; Camprubí et al., 2003).

The time relation between the Tertiary volcanism and epithermal deposits is not well understood, as only some of the deposits are properly dated. Mexican epithermal deposits mainly formed less than 2 million years ago (m.y.) after the occurrence of the youngest acid volcanic host rocks, as determined in the Pachuca-Real del Monte (McKee et al., 1992) and San Dimas districts (Enriquez and Rivera, 2001), or not long after 2 m.y., as in Fresnillo (Lang et al., 1988). McKee et al. (1992) noted that, during this time, no extrusive volcanic activity occurred, although intrusions were common. The implication is that the epithermal deposits were related to intrusive rocks crystallizing during the volcanic hiatuses, providing heat for the hydrothermal activity, and possibly fluids, metals, and ligands (Camprubí et al., 2003).

The structural features suggest three tectonic stages. The first stage is related to the regional metamorphism of the Triassic rocks, the second stage is caused by the Laramide Orogeny, and the third stage occurred in the Pliocene and is related to extension that resulted in a system of fractures and faults.

Regionally, rocks ranging from the Early Cretaceous to recent are present. The oldest represent basin and shelf sediments, while the sedimentary rocks of the Late Cretaceous are represented by shallow basin sediments. The Tertiary is represented by sills and rhyolite structures that overlay the oldest formations. Continental Conglomerates discordantly overlie the Cretaceous rocks. Quaternary age clastic sediments have filled and are widely distributed within the valley (Figure 6.2).

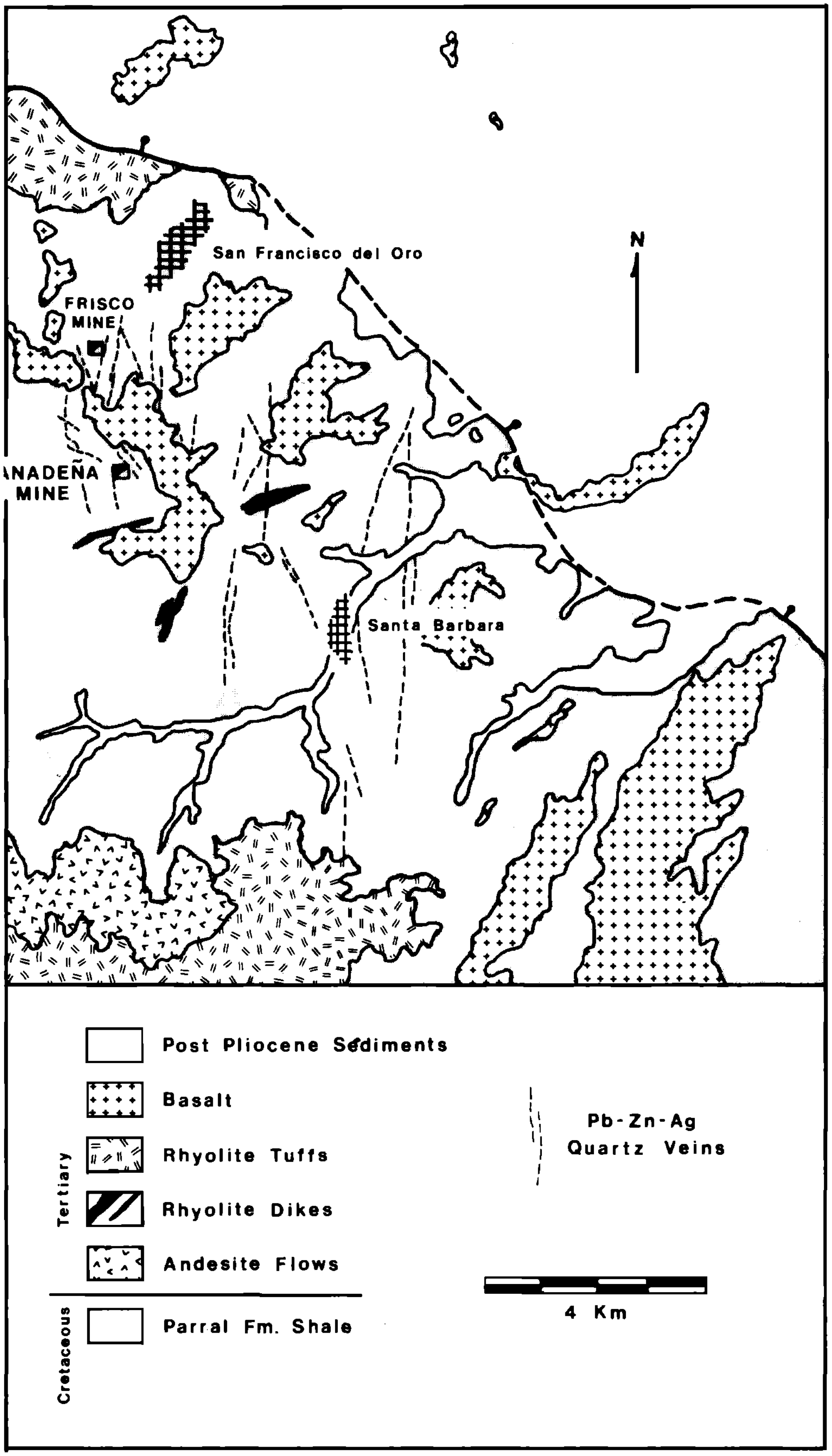


Source: Servicio Geológico Mexicano, 1999

Figure 6.2: Regional Map

6.1.2 Local Geology

Local stratigraphy is characterized by marine Aryan sedimentary rocks from Mesozoic sub-volcanic magmatism, presumed to be Tertiary in age, and continental sediments from the Cenozoic. The oldest rock found in the local area belongs to the Parral Formation of Aptian-Albian age, which is made up of shales and marls with intercalations of fine horizons of fine-grained sandstone. Partially covering the Parral Formation, there are beds of pyroxene andesites composed by fragments of pre-existing rocks that outcrop north of the district in the vicinity of the town of San Francisco del Oro. The rhyolithic complex is made up of a sequence of tuffs, sills, and dikes, covering the upper parts of the hills. The San Rafael conglomerate fills the valley of the same name and emerges to the north of the district, forming soft hills. The conglomerate is the product of the filling of a graven limited by the Santiago Faults to the west and the Esmeralda Fault to the northeast and is constituted by fragments of surrounding rocks. The youngest lithological unit in the region is an olivine basalt, which forms almost horizontal layers. These are described in more detail below. Figure 6.3 presents the map of the local geology.



Source: Glenn, et al, 1988

Figure 6.3: Local Geology Map

Basement Rocks

The basement material is formed by a black to grey shale (age of 120 m.y.) with various degrees of hydrothermal alteration and varying in composition from clay to partially calcareous with the presence of quartz, carbonaceous matter, and some anhedral phenocrystals of magnetite and pyrite observed.

Andesites

Andesite sills are seen in the southern part of the district, lying discordantly on a heavily eroded shale surface, suggesting the sills were formed subsequent to periods of folding and erosion. The andesites range in color from dark green to dark grey and have porphyritic and massive texture. Locally, there is a rhyolite dike cutting the andesite, suggesting that the andesite is older.

Rhyolites

Rhyolites occur as dikes and diatremes with quartz and plagioclase phenocrysts within an aphanitic matrix. At depth, the dikes may tend to thin. Their color varies from brownish pink to light pink and to white when they are weathered.

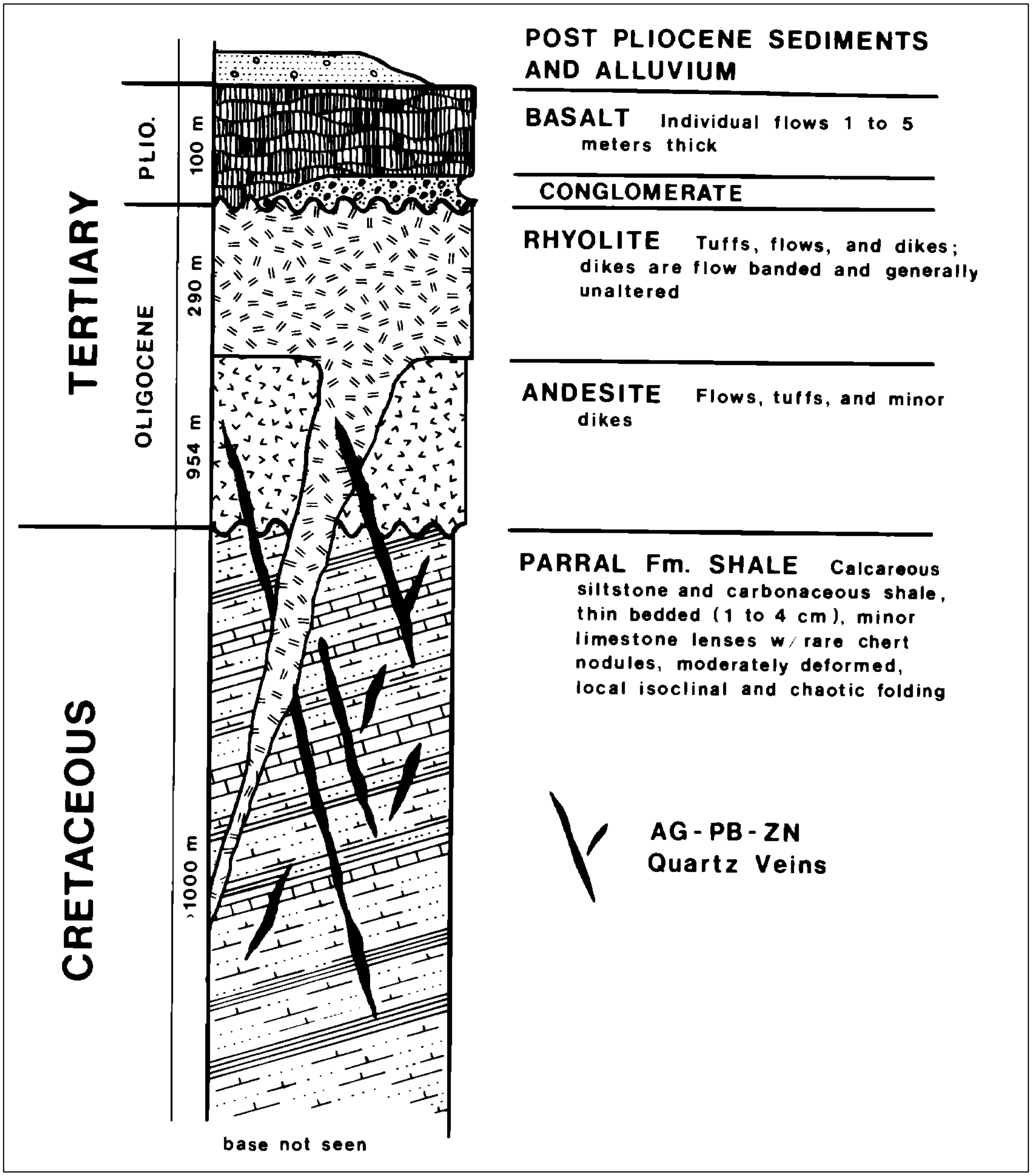
Basalt

Basalts are the youngest rock in the region and vary in color from dark gray to black, with textures ranging from aphanitic to vesicular. Localized amygdaloidal basalt is present and the amygdaloids are filled with calcite. Basalt thickness varies from 30 to 60 m.

San Rafael Conglomerate

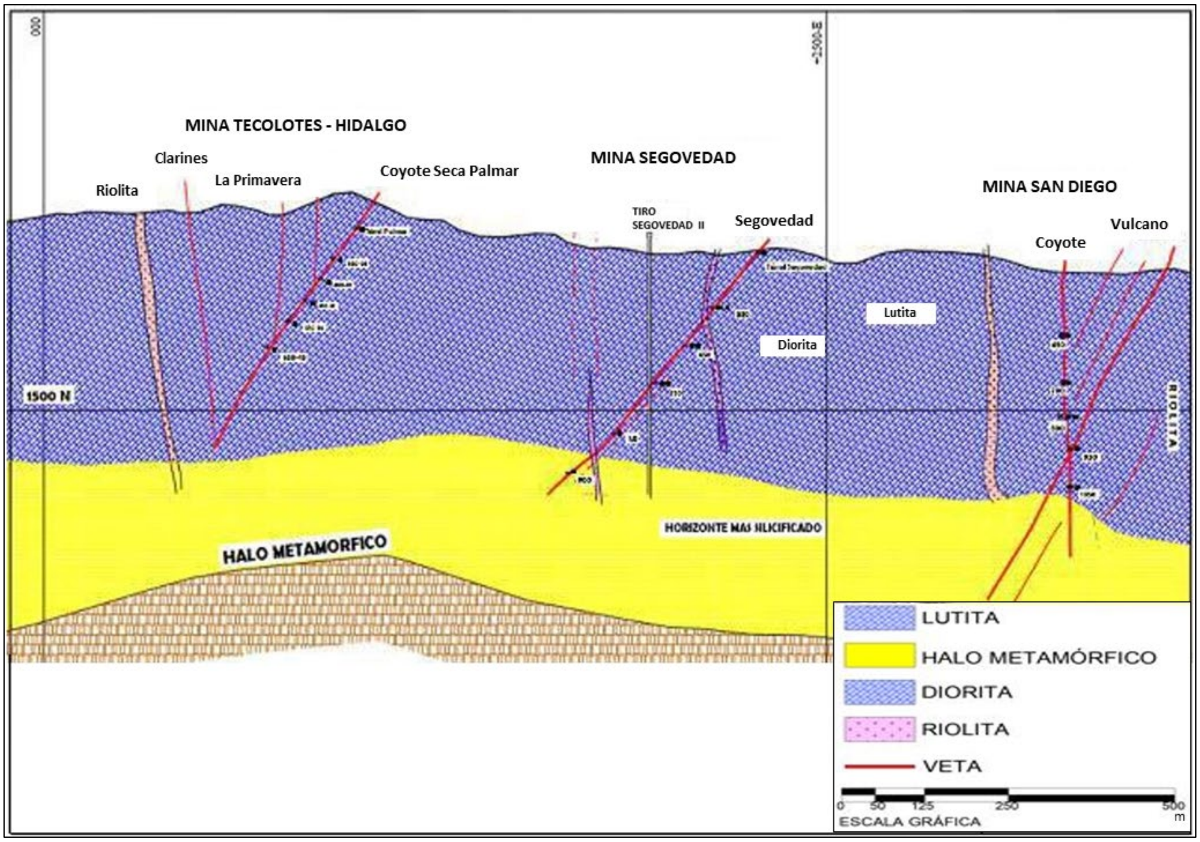
The San Rafael conglomerate is made up of poorly sorted subangular and rounded fragments of andesites, rhyolites, quartz, and shale ranging in size from 2 to 80 centimeters (cm) cemented in a clay-sandy matrix. The thickness of this conglomerate varies from 0 to 450 m.

Figure 6.4 presents the stratigraphic column of the district of Santa Bárbara, and Figure 6.5 displays a cross-section through the key lithologies.



Source: Glenn et al.,1988

Figure 6.4: Stratigraphic Column



Source: IMMSA, 2021

Figure 6.5: Local Geology Cross-Section, Looking North

6.1.3 Structural Geology

There are three significant structural events:

- Compression and folding caused by the two periods of orogenic deformation
- Extensional faulting creating horst and graben structures
- Volcanic activity related to the final stage of the post-orogenic process

These events created the main structures associated mineralization, a north-south system, a northeast 15-degree (°) system, and a northwest 25° system. In addition, these events generated the morphology shown by the Parral Formation, which forms an anticline, with a strike of north 28° west with a dip from 10° to north.

The folding is considered mainly as a consequence of compression efforts of tectonic origin, resulting from the disturbances that occurred during the Laramide Orogeny and possibly the presence of an intrusive that at depth caused uplifts and fracturing in weaker areas. These faults have been filled by different types of material, according to the chronology of mineralization:

- Pre-mineralization failures filled by sulfides, north-south, northeast 10°, and northwest 20° systems
- Faults parallel to the veins, filled by rhyolite and fluorite
- Faults perpendicular to the veins, filled with calcite and fluorite

- Faults perpendicular to the veins and subsequent to mineralization, filled with diabase
- Faults parallel to the veins, filled with salvages and secondary minerals (hematite and limonite)

6.1.4 Property Geology

The lead, zinc, copper, silver, and gold mineralization present at Santa Bárbara is associated to quartz veins and fault veins hosted by sedimentary rocks of the Parral Formation (Cretaceous). Three vein systems are currently in exploitation:

- Segovedad
- Tecolotes
- San Diego

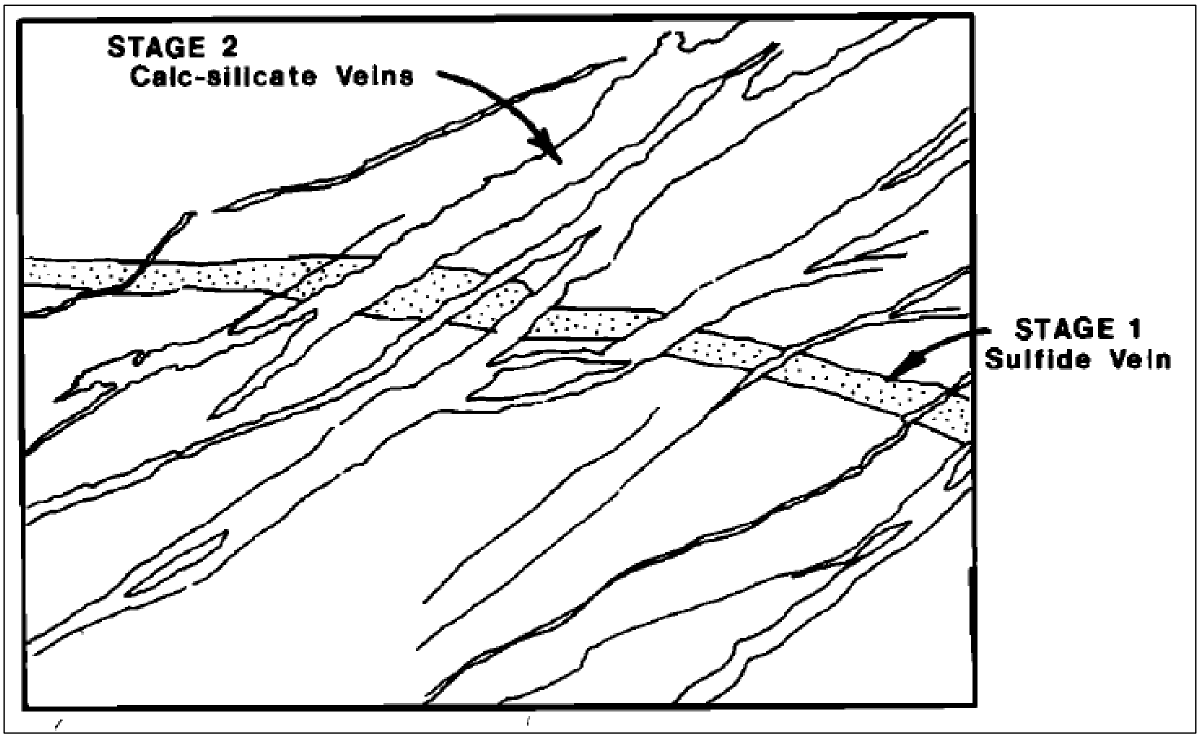
IMMSA has identified ore-shoots of up to several hundred meters in length and of more than 500 m in vertical extension, which are found in structural zones in the three vein systems. Vein width varies from less than a meter up to 20 m. Figure 6.6 shows an example of a vein at the Mina Nueva zone (south of the San Diego Zone) with sulfide bands (galena, sphalerite, and pyrite) and quartz with a 5.3-m horizontal width.

Source: IMMSA, 2021

Figure 6.6: Mina Nueva Zone Vein Characteristics

Pb-Zn-Ag quartz veins are localized along small displacement faults that cut obliquely across the hinge zone of a broad asymmetric anticline. Single veins are more or less continuous for distances up to 800 m. Veins average about 1.5 m wide but locally may pinch and swell from several centimeters to as much as 3 m in width. Pb-Zn-Ag mineralization is found over a vertical extent of more than 500 m (Glenn et al., 1988).

The mineralization was emplaced in several distinct vein stages that display cross-cutting relationships (Figure 6.7). Stage 1 ores contain massive sulfides: sphalerite, galena, and very minor chalcopyrite. Stage 2 ores contain abundant calc-silicates, chalcopyrite, and a small amount of gold, but only minor sphalerite and galena. Silver was deposited during both stages, but the bulk of the silver was associated with galena and deposited in Stage 1. Stages 3 and 4 contain quartz, calcite, and fluorite and are not important ore-bearing stages (Glenn et al., 1988).



Source: Glenn et al., 1988
Note: Area of sketch is 1 m across.

Figure 6.7: State 2 Veins Cutting a Stage 1 Vein

In addition to their occurrence in veins, silver, lead, and zinc are also present in replacement bodies in the San Francisco del Oro-Santa Bárbara. In the district as a whole, greater than 95% of the ore comes from veins (Glenn et al., 1988).

Wall-Rock Alteration

The style and mineralogy of vein-related alteration differs both with the stage of veining (early sulfide rich or late calc-silicate rich) and with the composition of the enclosing rocks. Early sulfide-rich veins have alteration envelopes composed of epidote, axinite, chlorite, minor andradite, and quartz. Late calc-silicate-rich veins have envelopes composed of fine-grained manganoan hedenbergite, andradite, axinite, monticellite (Ca Mg - SiO_4), and quartz (Glenn et al., 1988).

In general, where a vein crosses a calcareous horizon, calc-silicates have been deposited. Where the vein crosses a carbonaceous horizon, there are far fewer calc-silicates. Alteration generally does not extend far into the wall rock. Alteration along Stage 1 veins is usually limited to within 1 or 2 m of the vein and is characterized by an inner zone of epidote, chlorite, and axinite and by an outer zone of fine-grained quartz and recrystallized calcite (Glenn et al., 1988).

Alteration zones developed along Stage 2 veins are generally much wider than those around Stage 1 veins, sometimes extending up to 25 m into the enclosing rocks. Alteration within 2 or 3 m of Stage 2 veins is pervasive and intense. Rock texture and bedding are completely destroyed within 1 m of the vein (Figure 6.8).

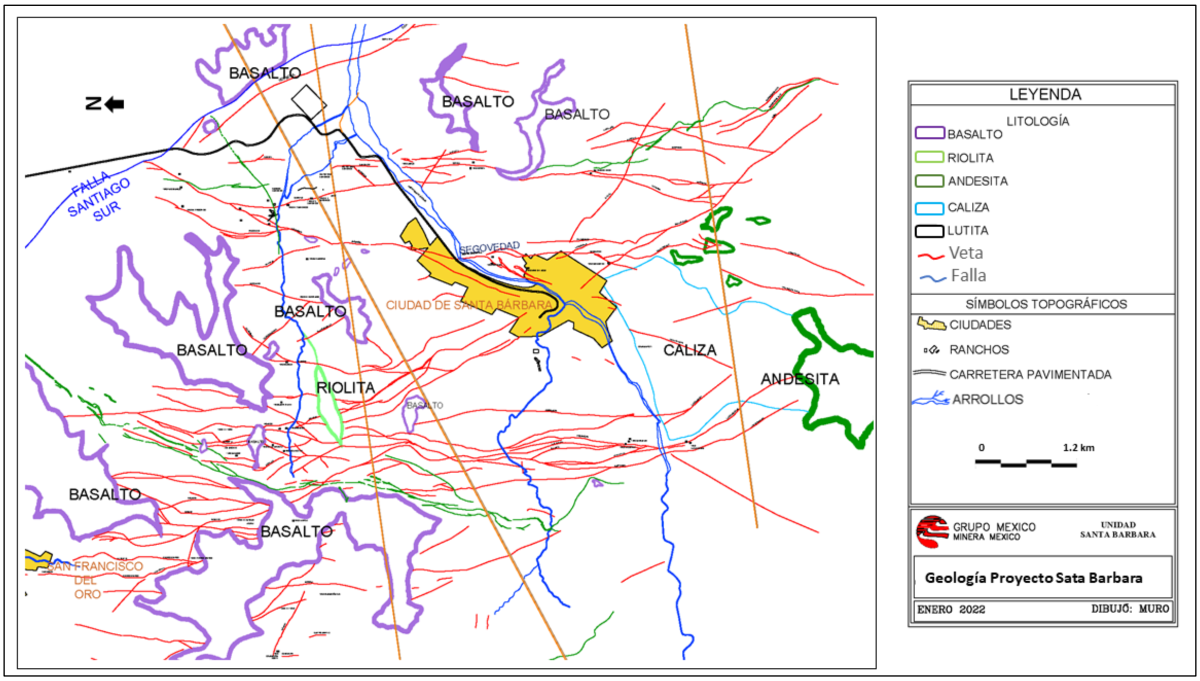
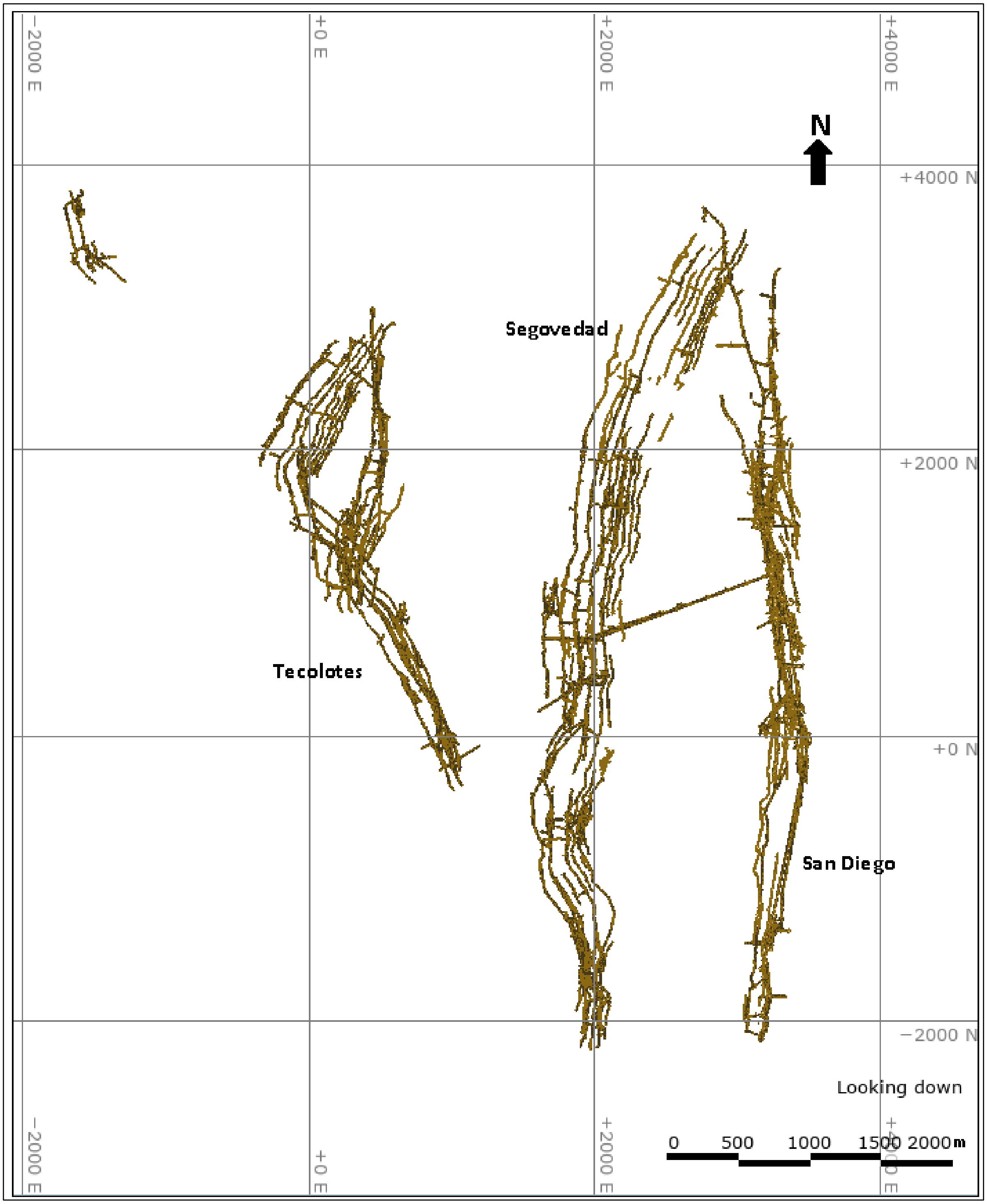


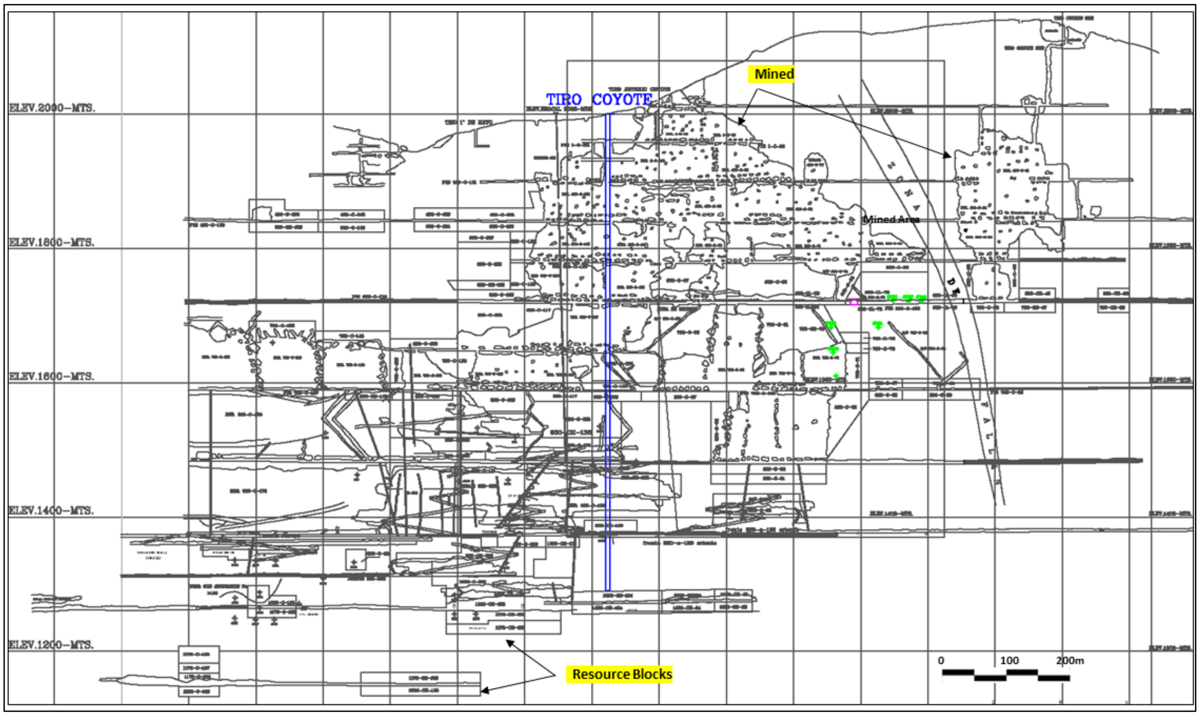
Figure 6.8: Property Geology Map

The total extension of the Tecolotes, Segovedad, and San Diego vein systems vary from 3 to 6.5 km along strike (Figure 6.9), and the vertical extension of the shoots have a vertical extension of up to 600 m in Segovedad, 800 m in San Diego, and 500 m in Tecolotes. Some of the high-grade shoots are open at depth. Figure 6.10 shows the long section of the Loteria Limpia Vein and the extension of the underground workings, reaching up to 900 m vertical extension of the ore shoot that has been exploited.



Source: SRK, 2021

Figure 6.9: Plan View of the Underground Workings in Santa Bárbara



Source: IMMSA, 2021

Figure 6.10: Long Section of Loteria Limpia Vein and Underground Workings

6.2 Mineral Deposit

6.2.1 Type of Deposit

The mineral deposits of Ag-Pb-Zn quartz veins of the Santa Bárbara mining district are hosted in sedimentary rocks of the Cretaceous formed by carbonaceous shales and calcareous siltstones and minor lenses of limestone of the Parral Formation. The hydrothermal solutions, possibly emanating from an intrusive body suspected to be at depth, were introduced in into the fracture systems (Scott, 1958). According to the mineralogy of the veins, which includes sphalerite, galena, chalcopyrite, pyrite, and arsenopyrite, the deposit is considered as hypothermal formed at high temperature according to Lindgren's classification.

6.2.2 Fissure Filling Site

Fracture filled mineralization (veins) is a characteristic of hypothermal processes. The mineralization found in filling fractures and fissures was formed by the circulation of hydrothermal fluids along the structures affecting the rocks of the Parral Formation, especially in the sandy rocks. The formation of higher-grade ore shoots is associated to areas of intense fracturing associated to zones of structure inflections and cross-cutting structures. Locally, these solutions will partially or totally replace the pre-existing rock, especially when the host rock is more calcareous.

6.2.3 Paragenesis of the Site

There are four main zones within the hydrothermal system:

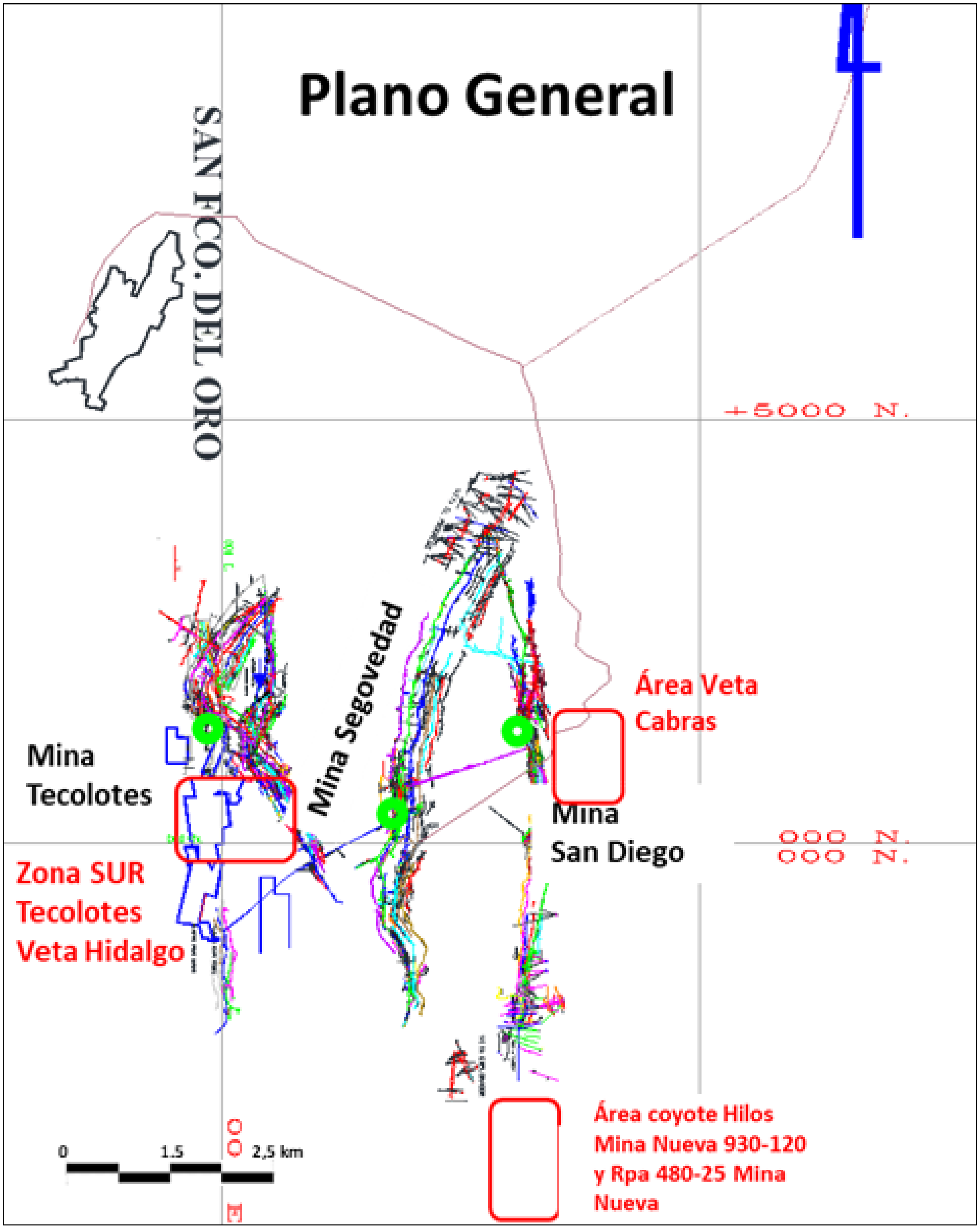
- Leaching zone: located near the surface where soluble minerals have been leached
- Oxide zone: limited by local water table which varies from 50 to 200 m deep. The characteristic minerals are malachite, azurite, cuprite, chrysocolla, smithsonite, anglesite, cerussite, limonite, silver, and gold.
- Secondary enrichment zone: located between the lower limits of the water table and the primary sulfide zone. The primary minerals are covellite, chalcocite, bornite, pyrite, and plumbo-jarosite.
- Primary sulfides: sphalerite and marmatite (Zn), galena associated with sphalerite, chalcopyrite (Figure 6.11), silver, and small amounts of tetrahedrite, tennantite, and chalcopyrite (in three forms: compact, disseminated, and included with sphalerite). Scattered pyrite is observed throughout the veins.

Source: SRK, 2021

Figure 6.11: Photography of Chalcopyrite Mineralization in Mina Nueva Zone

7 Exploration

Since early last century, exploration activities have advanced in parallel with the mining operations, attempting to extend the veins and define the continuity of the mineralization at Santa Bárbara. Figure 7.1 shows the areas where Santa Bárbara focused exploration in 2021.



Source: IMMSA.,2021

Figure 7.1: Areas of Exploration in Santa Bárbara

7.1 Exploration Work (Other Than Drilling)

7.1.1 Procedures and Parameters Relating to the Surveys and Investigations

Access to underground workings associated with the long mining history allows the Company to collect geological information via mapping and sampling. The underground workings are currently surveyed with Total Station and historically surveyed using theodolite instruments; this accurately locates the samples and mapping used to develop mine scale models. Maps containing sampling, geology, structural, and mineralization data are created. Historical maps (paper format) are maintained and stored in the mine geology office. It is the QP's opinion that the processes in place are well-established and follow generally accepted best practices for survey methods underground.

The QP highlights that all the information to date has not been stored in a single central database, which is considered best practice. The lack of a central database limits the ability to integrate multiple sources of data into a geological model. The QP highlights that there is a limited risk that not all information is used when generating maps and cross-sections or that the process of updating the interpretations can result in a time-consuming process for the geological staff.

Modern technologies provide rapid methods to interpret and integrate data in three dimensions, and SRK has recommended that IMMSA integrate these into the mine systems. While these methods would provide improved productivity, it is the QP's opinion that the mine has demonstrated sufficient quality in the survey process to accurately reflect the geology, which is supported by the long mining history of the deposit.

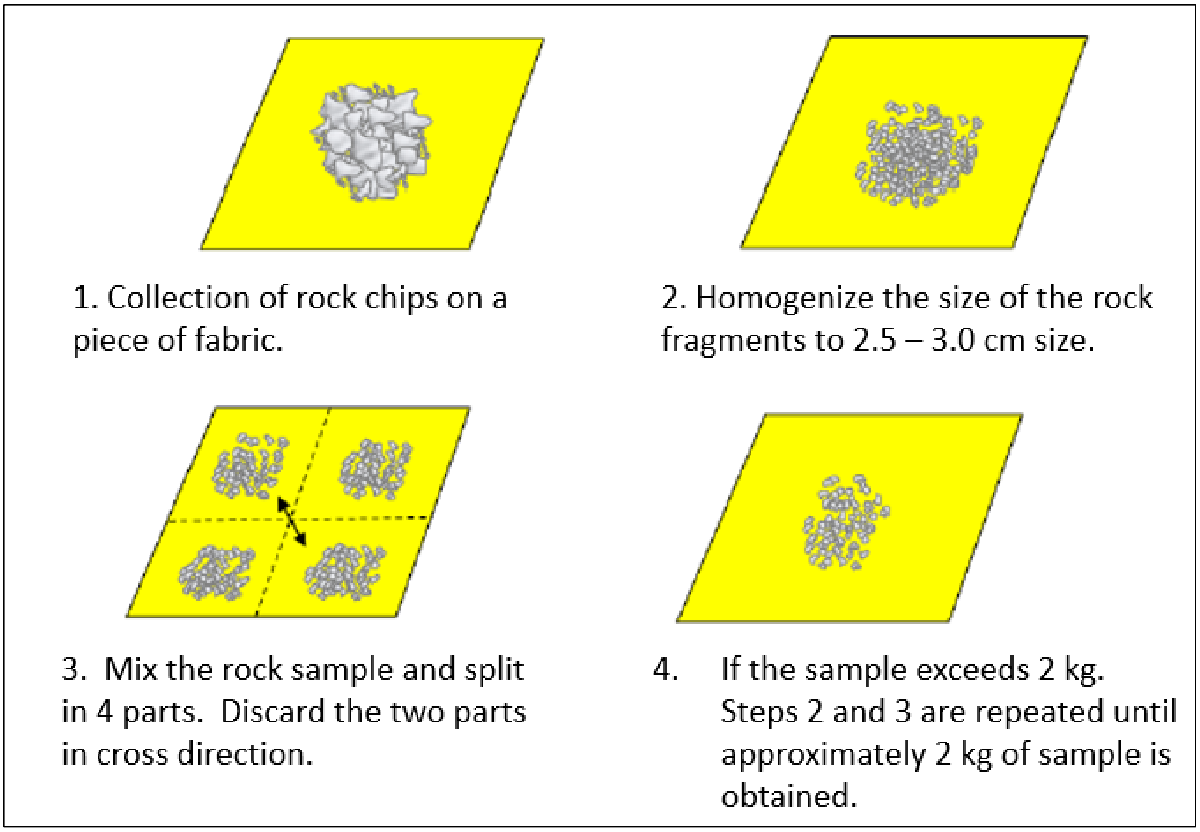
7.1.2 Sampling Methods and Sample Quality

Mine Channel/Rock Chip Sampling

The rock samples from the underground workings are collected from the underground drift fronts and roofs using hammer and chisel. Sample limits are defined by the geologists according to changes in mineralization and lithology and perpendicular to the vein attitude. The rock chips are collected simulating a channel by the geology technicians and assistants. Chip channel sample lengths vary from 0.2 to 1.2 m.

The distance between channels is not systematic and depends on availability of the mine geology personnel. The geologists try to use 5-m spacing between channels along the roof and 3-m spacing along the development as each new face is available.

Each rock sample is collected from the channel of approximately 2-cm depth on a piece of fabric disposed in the floor, and then the big pieces of rock are further broken down (using a hammer) to a size of approximately 2.5 to 3.0 cm using a hammer (Figure 7.2). The sample is mixed inside the fabric, split by hand, and then a 2-kg sample is packed in plastic bags, which are labelled and then closed with ties.

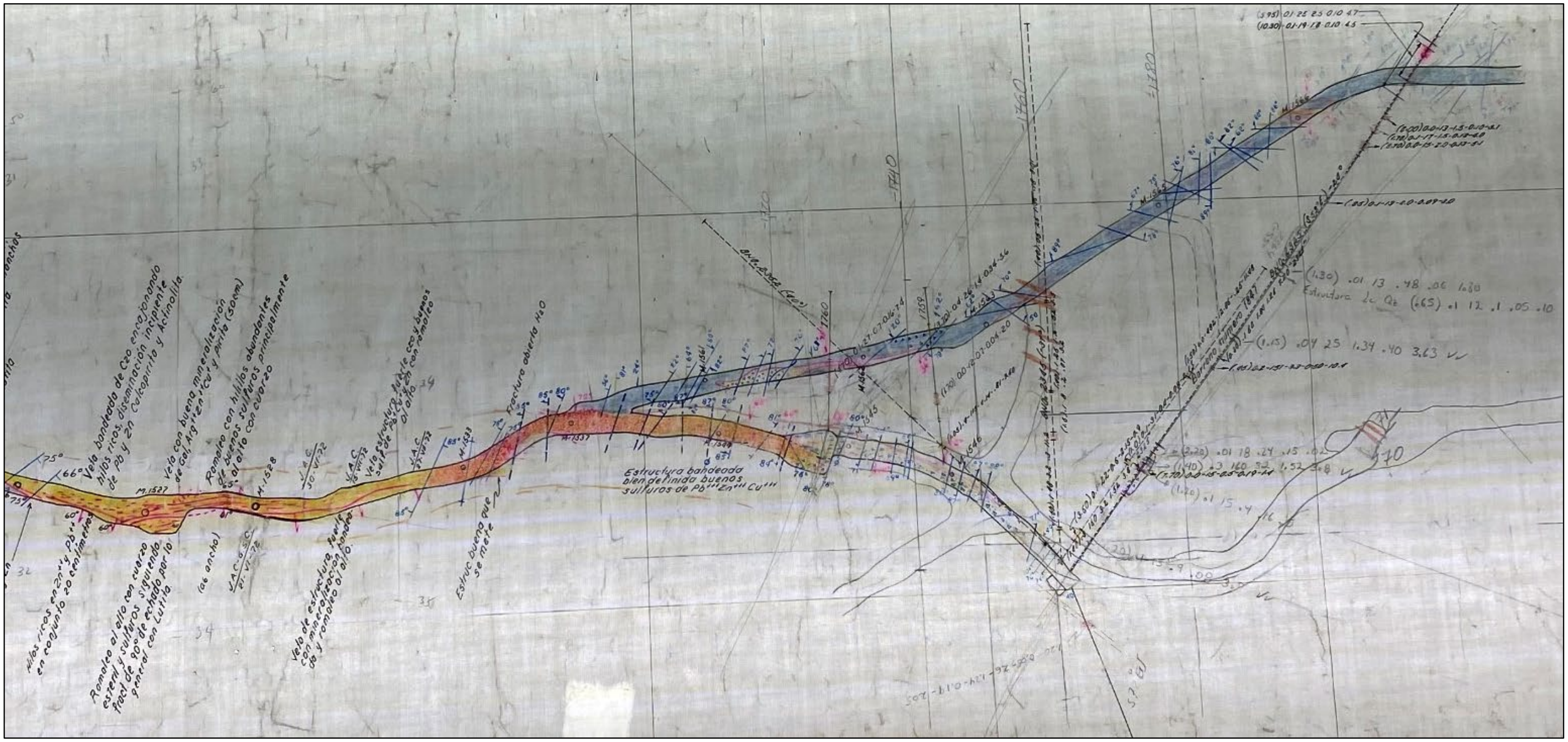


Source: IMMSA.,2021

Figure 7.2: Rock Sample Splitting Procedure

In SRK's opinion, the rock sampling procedures are not in-line with industry best practices. Sampling errors can be introduced due to changes in rock hardness and noncontinuous channel sampling. The lack of an adequate rock sampling protocol likely results in lower-quality rock sampling.

The sample channels are located using compass and tape from surveyed points located along the underground workings. The mine topography maps provided by the mine topography department are used to draw the geology, structure, and rock sampling lines (horizontal projection). This information from the field is translated onto paper maps (Figure 7.3) and is stored in the geology office. This information has not been digitized in a 3D software and therefore has limited use for construction of future models.



Source: IMMSA, 2021

Figure 7.3: Example of Underground Geological Paper Map of Mina Segovedad (Plan View)

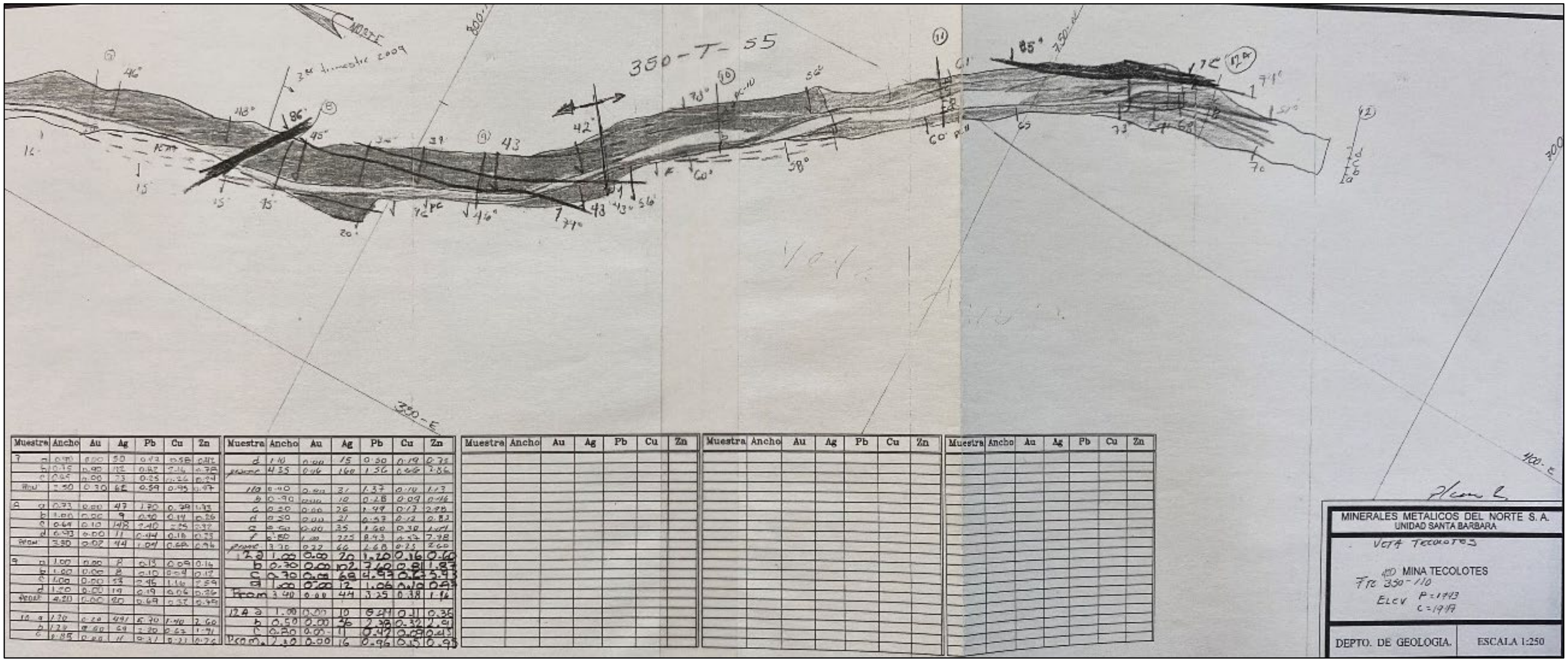
The geologists complete the geological description of the channel. The samples are described including the following information:

- Lithology
- Alteration (type, intensity, and mineralogy)
- Mineralization (styles, intensity, and mineralogy)
- Structures (description, orientation, and mineralogy)

The samples collected by the geology technicians are delivered to a Company geologist, who reviews and delivers the samples to the on-site laboratory to provide a chain of custody. Internal quality controls are not included in the sample stream by Santa Bárbara's geologists.

All the chip channel samples collected by the operation are sent to the internal on-site laboratory for assaying, where assaying is completed as described in Section 8.

Once the geology staff receives the assay results, the results are transferred to the maps by hand (Figure 7.4) and recently to Excel spreadsheets. This information and the historical assay results received from the internal laboratory are not in digital format.



Source: IMMSA, 2021

Figure 7.4: Example of Underground Sampling and Map of Mina Tecolotes (Plan View)

For historical sampling, the assays results were received in paper tables, and the results were transcribed directly onto the maps and the resources/reserves supporting documents. During the process of defining the current mineral resource, the QP visited the mine three times and reviewed the paper sheets to validate the results and positioning of the assays. The QP determined that the results are appropriate for use in the estimation process.

7.1.3 Information About the Area Covered

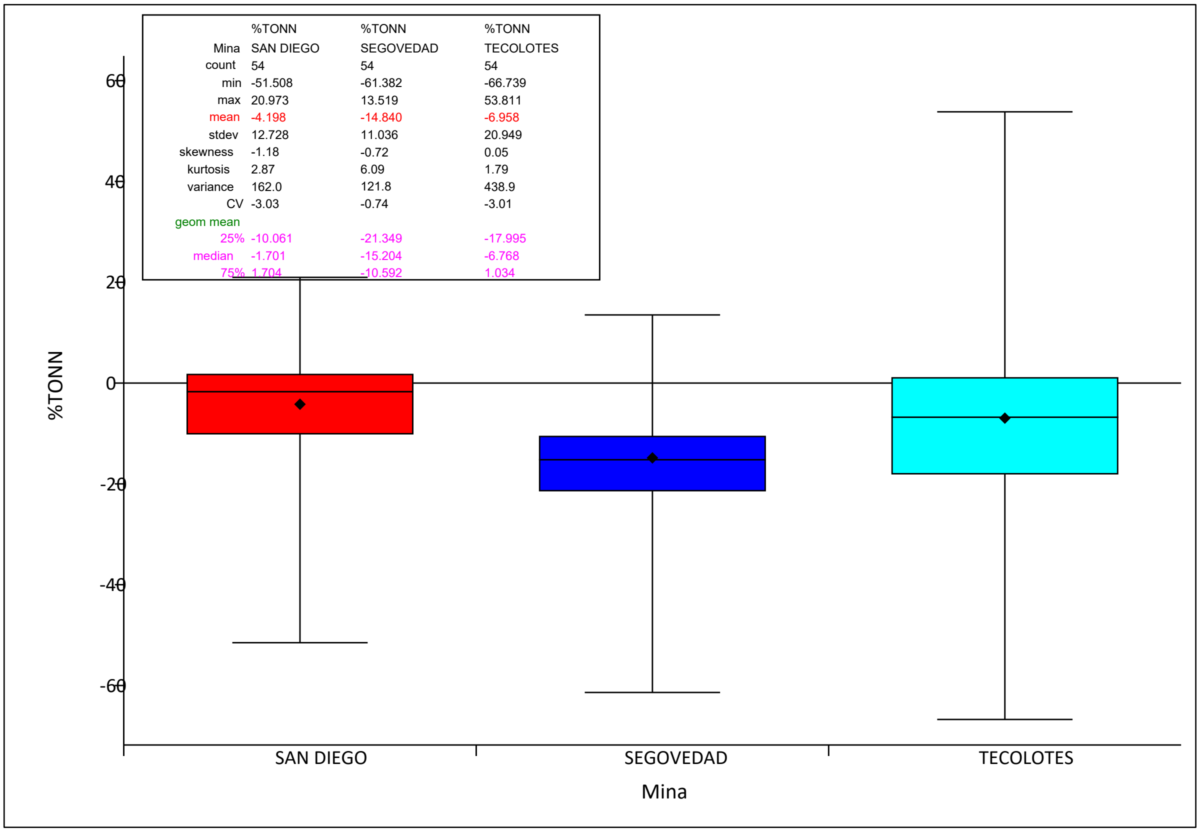
Exploration is generally centered around the mined areas and their extensions, which cover an area of approximately 60 km^2. All the underground workings and stopes have been sampled for decades, but there is not a unique register of all the samples collected. As the stope is advanced vertically, a new set of samples is collected from the ceiling of the stope at a 5-m spacing.

7.1.4 Significant Results and Interpretation

The sampling methods and sample quality are not in-line with best practices; however, the QP considers that the results are representative of the geological units and mineralization controls. The results from channel sampling are acceptable to support the geological interpretations and estimation of mineral resources at Santa Bárbara.

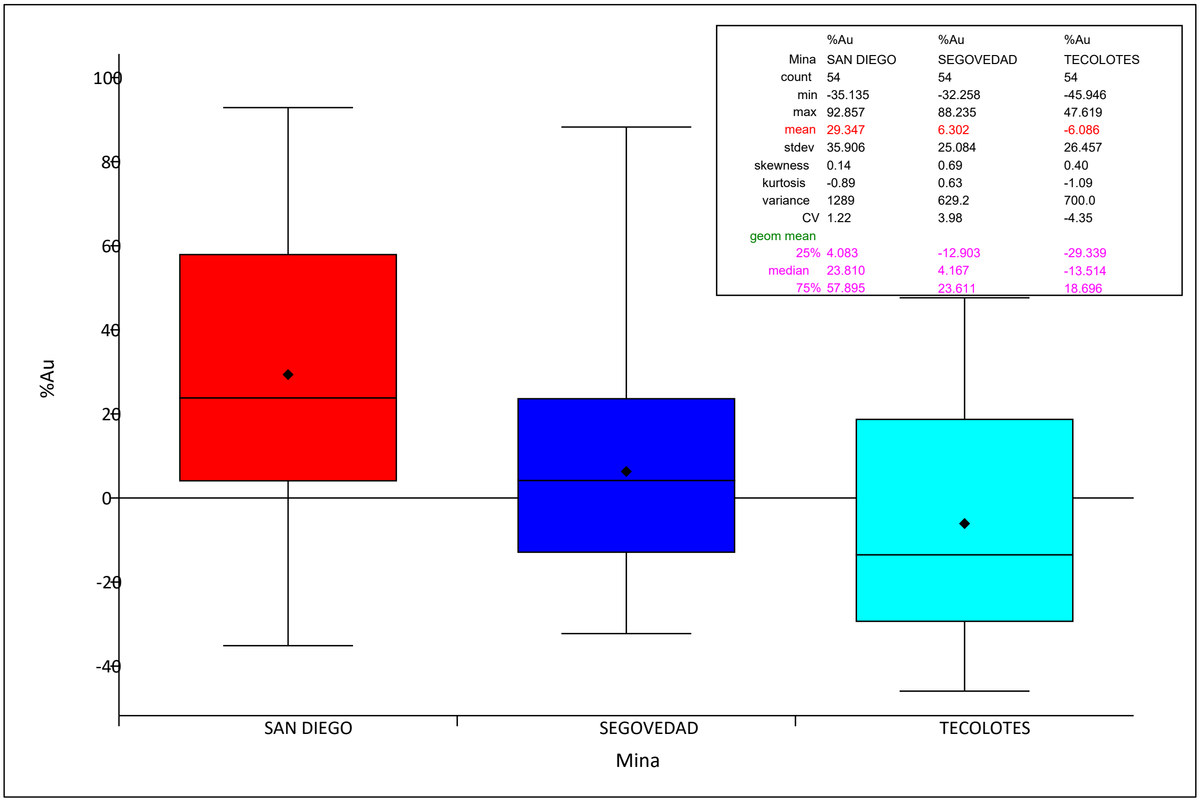
The channel sampling is also used for mine planning (medium and short term). In SRK's opinion, based on the long mining history of Santa Bárbara and reconciliation of planned to actual production, the quality of these samples is acceptable.

The following images present the analysis using of the monthly differences (%) between planned versus actual tonnes and Au, Ag, Cu, Pb, and Zn grades for 54 months between 2016 through part of 2021 (Figure 7.5 through Figure 7.10).



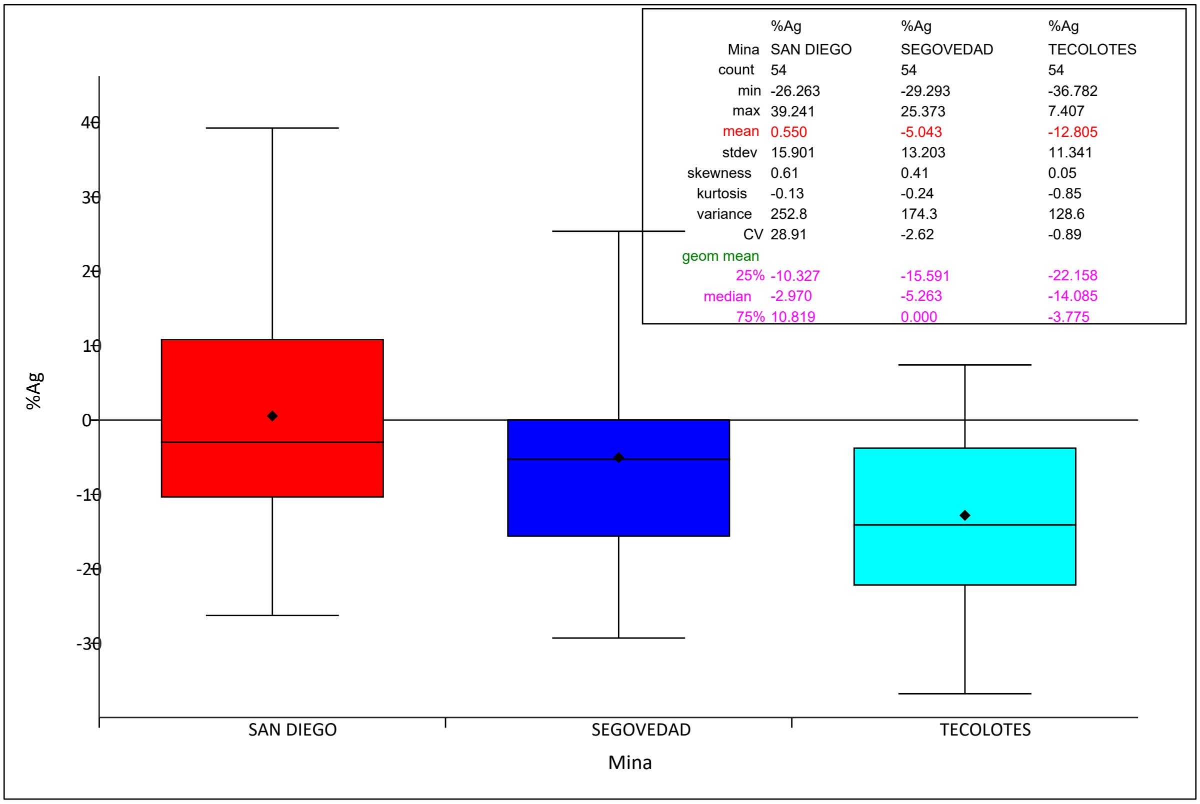
Source: SRK, 2021

Figure 7.5: Box Plot of Monthly Planned versus Real Tonnage Difference (%) by Mine



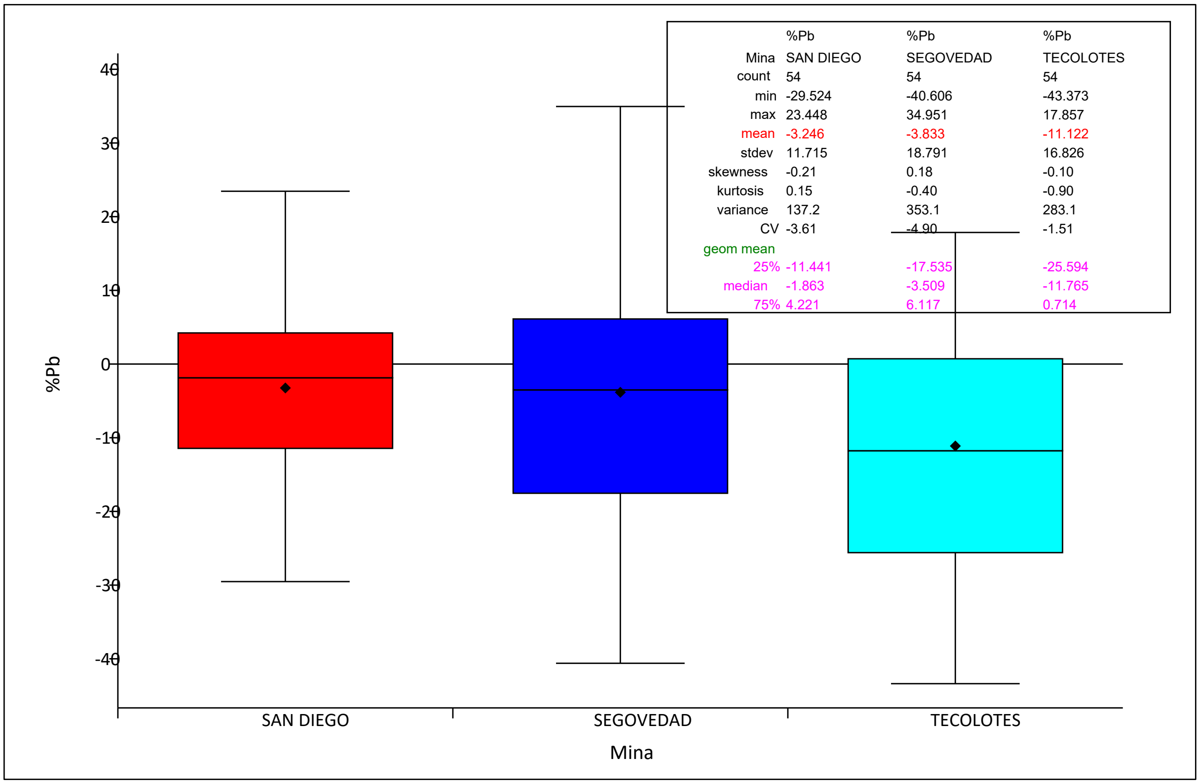
Source: SRK, 2021

Figure 7.6: Box Plot of Monthly Planned versus Real Au Grade Difference (%) by Mine



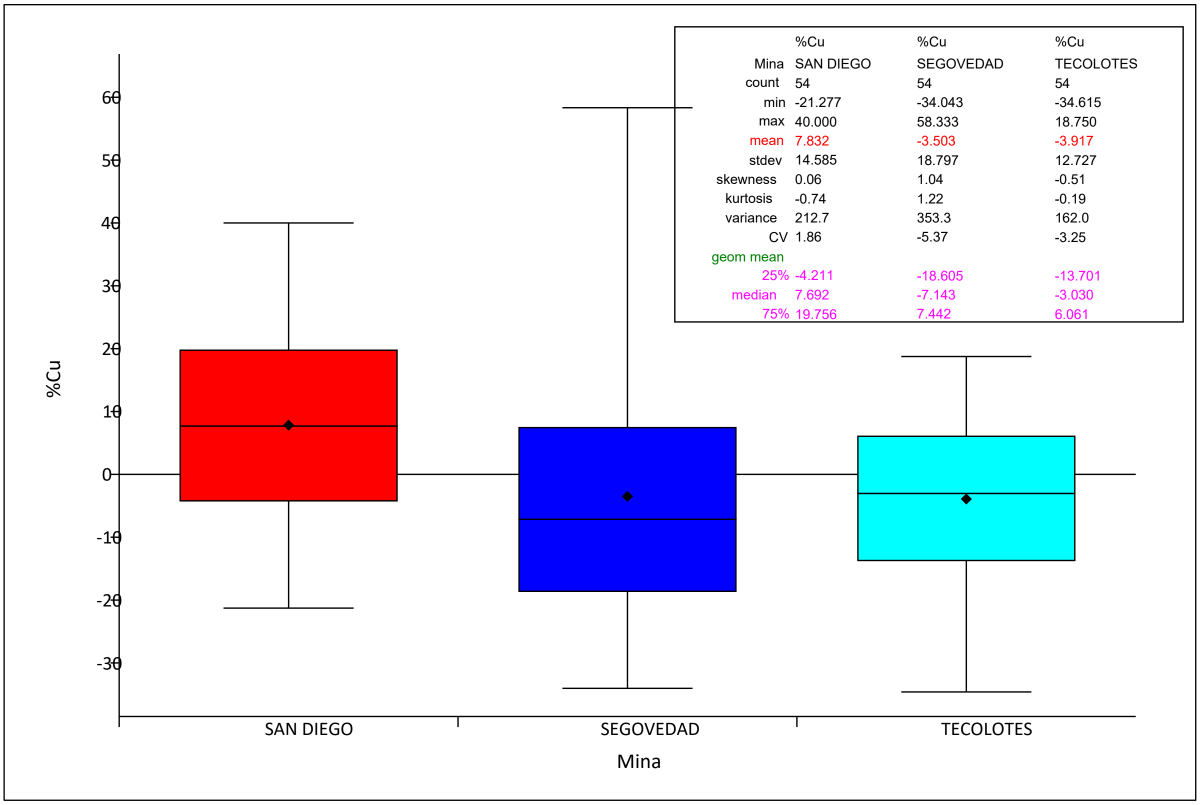
Source: SRK, 2021

Figure 7.7: Box Plot of Monthly Planned versus Real Ag Grade Difference (%) by Mine



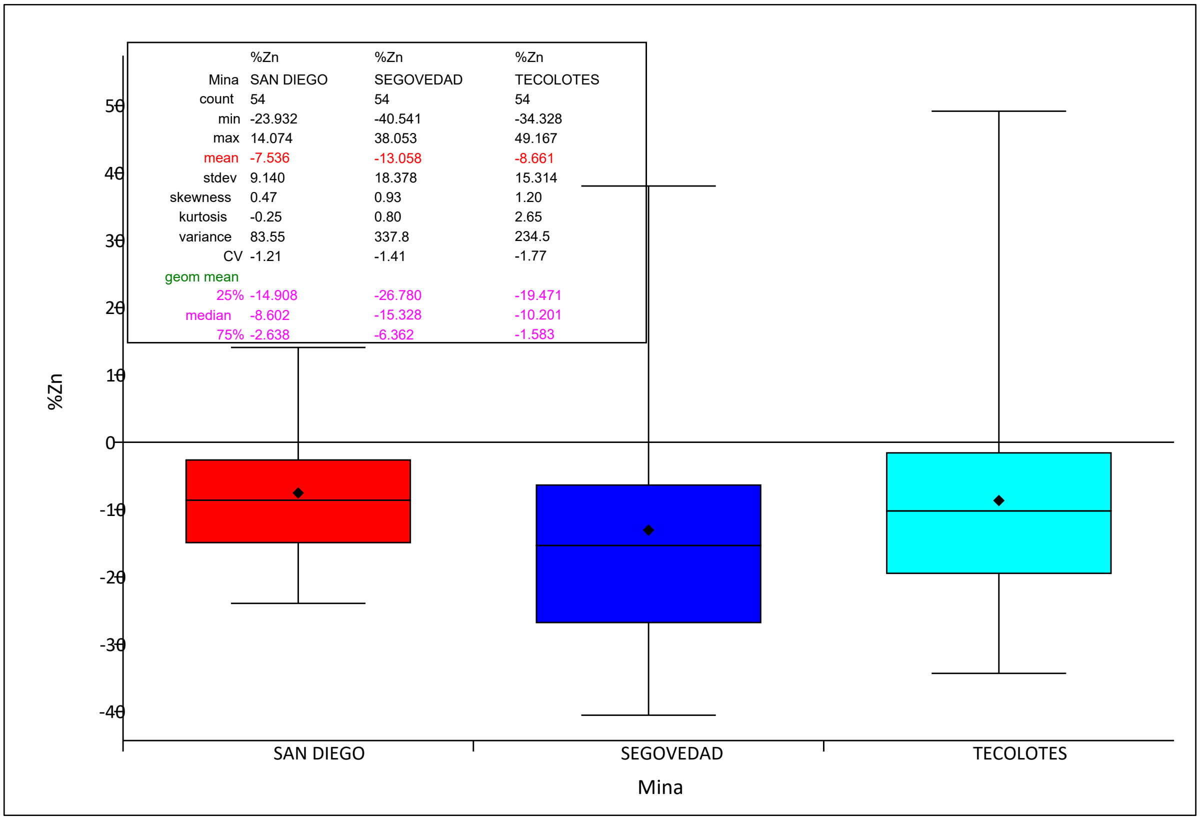
Source: SRK, 2021

Figure 7.8: Box Plot of Monthly Planned versus Real Pb Grade Difference (%) by Mine



Source: SRK, 2021

Figure 7.9: Box Plot of Monthly Planned versus Real Cu Grade Difference (%) by Mine



Source: SRK, 2021

Figure 7.10: Box Plot of Monthly Planned versus Real Zn Grade Difference (%) by Mine

The general results show slightly lower actual compared to the planned tonnes (Figure 7.5). The grade difference averages for this period are in reasonable levels, varying in the range of ±10% for the combined information from the three mines. Higher difference is observed in San Diego with +29.3% average difference of gold (Figure 7.6). Silver and lead in Tecolotes show -12.8% and 11.1% average differences, respectively (Figure 7.7 and Figure 7.8). Zinc consistently shows negative differences for the three mines, including a -13% zinc grade difference in Segovedad (Figure 7.10).

7.2 Exploration Drilling

The drilling in Santa Bárbara has been documented since the last century. Historically, sludge sampling was also conducted, but due to poor sample quality and high potential for contamination, these should have not been used to support resource estimation.

Since 1950, core sampling was the preferred method. About 5,000 drillholes were completed prior to 2001, and at least 2,000 drillholes have been completed since 2001. Between 2018 and the first half of 2021, Tecmin has completed approximately 90 surface drillholes. There is no register that summarizes the total quantity of drilling completed at Santa Bárbara, so these drillhole numbers are approximate. Tecmin has used mainly HQ or NQ (BQ is used in deeper holes or if warranted by ground conditions).

7.2.1 Drilling Type and Extent

The operation has completed at least 7,000 drillholes since the last century, but the actual number is not clear due to lack of a historical drilling register.

Most of the drilling completed by the operation is in TT46, NQ, and BQ core sizes and has not been downhole surveyed. The majority of the drillholes are more than 100 m in length, including a considerable number of drillholes of more than 200 m, which have an associated drillhole deviation that is not being considered, resulting in location errors of the drillhole intercepts and reserve panels defined with the drilling, representing a moderate to high risk level.

A summary of the last 5 years of drilling is as follows:

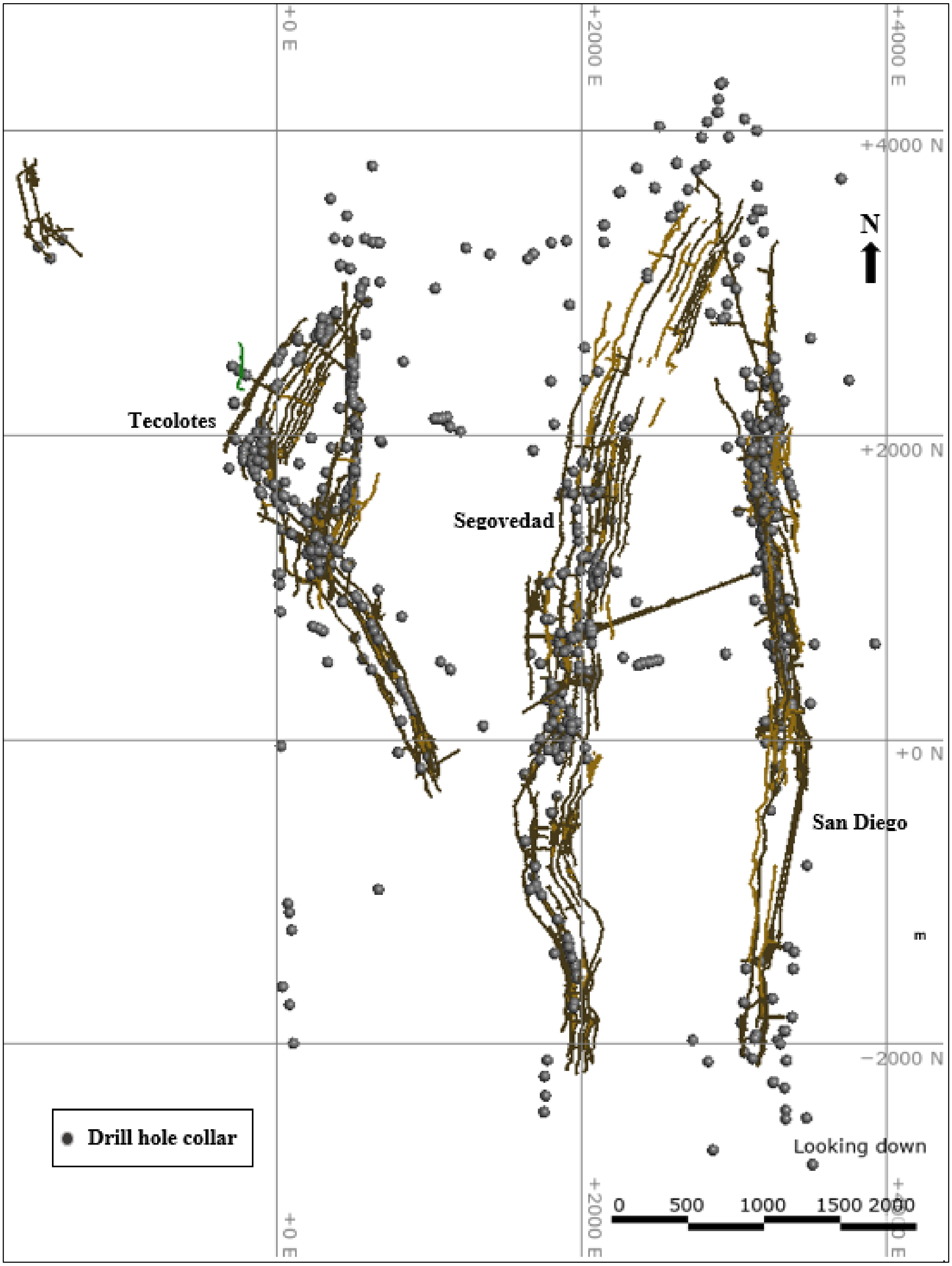
- Mine exploration in 2015 included 5,977 m of surface drilling and 16,609 m from underground stations, which increased estimates by 1,135,750 tons.
- For 2016, mine exploration included 14,300 m from underground stations, which increased estimates by 1,416,756 tons.
- For 2017, mine exploration included 2,571 m of surface drilling and 11,838 m from underground stations, which increased estimates by 613,872 tons.
- For 2018, 10,769 meters from underground stations were drilled, which increased estimates by 418,345 tons.
- For 2019, 11,070 m of surface drilling and 208 m from the underground stations were achieved, which increased estimates by 2,160,062 tons.
- In 2020, 19,873 m from underground stations were drilled, which increased estimates by 2,606,888 tons.

IMMSA is currently in the process of capturing the historical drilling information and digitizing the relevant information into digital format. Table 7-1 presents the drilling that has been digitized in 2021 as part of the process of creating a unique database. To date 1,129 drillholes have been captured for the period between 1950 and 2021, totaling 274,241 m. Figure 7.11 shows the location of the collars indicated in Table 7-1.

Table 7-1: Core Drilling Completed between 1950 and 2021 (Digitized Information Only)

Year	Number of Drillholes	Total Length (m)
1950 to 1999	659	71,619
2000	16	2,581
2001	12	2,051
2002	13	2,080
2004	12	1,805
2005	33	5,529
2006	30	6,063
2007	16	5,679
2008	7	1,067
2009	10	4,536
2010	33	15,721
2011	54	33,402
2012	64	40,178
2013	18	12,865
2014	27	15,229
2015	12	4,300
2016	1	346
2017	4	492
2018	1	584
2019	20	11,231
2020	60	26,412
2021	27	7,905
Total	**1,129**	**274,241**

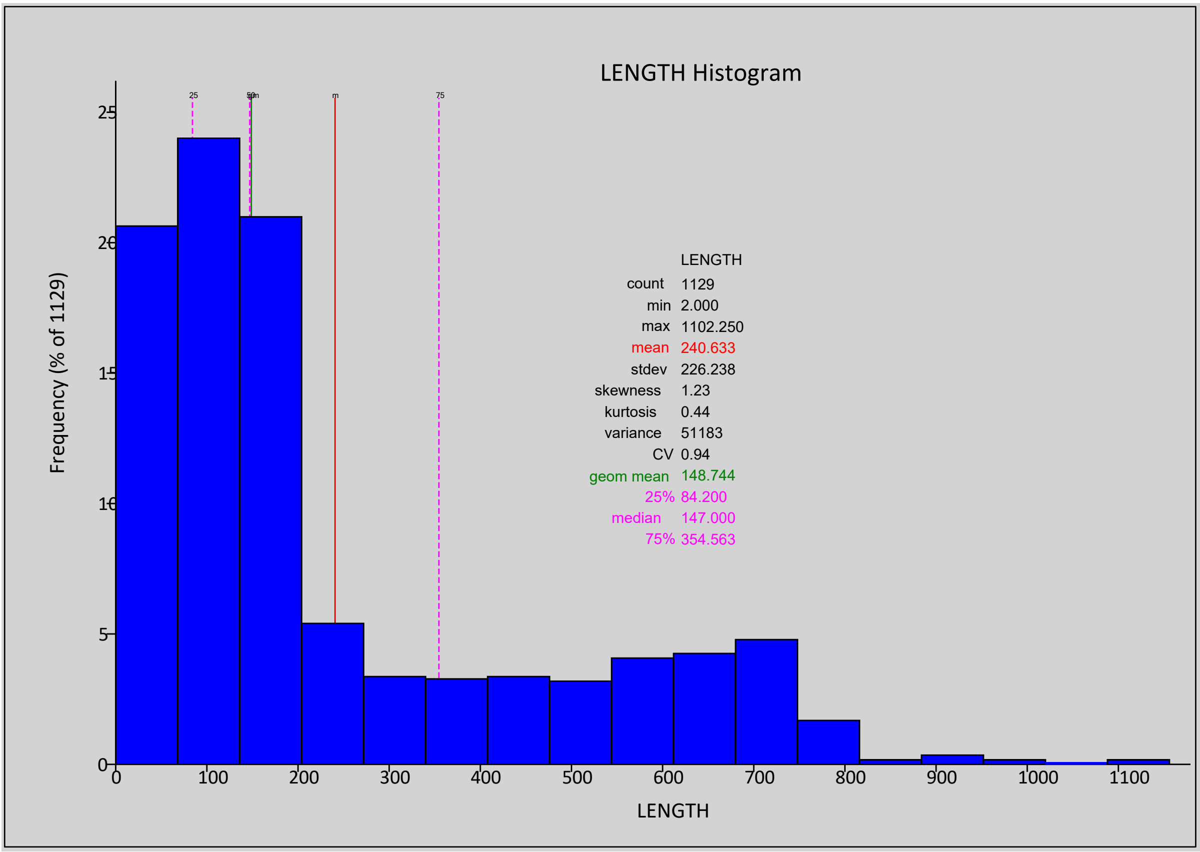
Source: IMMSA, 2021



Source: IMMSA, 2021

Figure 7.11: Location of Part of the Drillhole Collars Completed at Santa Bárbara

Figure 7.12 shows the histogram of the total length of the drillholes included in Table 7-1. The average length is 240.6 m, with at least 75% of the drillholes longer than 85 m. 25% of the drillholes have lengths in excess of 350 m. Most of the drilling completed by the operation lacks downhole surveys. The lack of downhole surveys results in uncertainty related to the location of the drillhole intercepts and the definition of the reserve panels based on these intercepts. In SRK's opinion, this represents a moderate risk level. It is the QP's opinion that this risk is limited, as the drillholes defining the Indicated portion of the deposit are relatively close to the current underground workings and therefore will have limited deviation. Impact on Inferred resources for longer holes will likely have slightly higher risk. The QP has considered this risk during the classification process the reflect the levels of confidence.



Source: SRK, 2021

Figure 7.12: Histogram of Drillhole Length (1950 to 2021)

Recent drillholes completed by Tecmin have deviation measurements taken every 50 m along the drillhole, which is considered more appropriate and accounts for lower risk that the older drillholes.

Underground diamond drilling completed by the mine geology department includes fan drilling in variable grid spacing due to local variations in the position of the mineralization. The drillholes are designed to perpendicularly intercept the vein.

On completion of each drillhole, the collar location is surveyed. The following information is recorded on paper drill log sheets:

- Hole number, with collar location, length, planned dip, and azimuth
- Start and completion dates of drilling
- Collar location (X, Y, and Z coordinates)
- Core lengths and recoveries
- Geological and mineralogical descriptions
- Assay results

The historic mine geology drillholes are used in conjunction with the surface exploration drillholes in the mineral resource estimation.

The location of the collars and drilling traces are not registered in a unique location, paper map, or digital format. The drillhole data can be found in individual paper maps and sections.

7.2.2 Drilling, Sampling, or Recovery Factors

Mine Geology Drilling Programs

The mine geologists complete the core logging in paper formats according to defined protocols, but there is historical information that includes different logging coding or is not logged at all. A data capture protocol that unifies criteria for all the previous and recent drilling and rock sampling will be needed. The current logging includes the lithological, structural, alteration, and mineralization characteristics. The sample limits are defined according to changes in geology and mineralization. Only the mineralized zones and a halo of 1 to 2 m around the mineralized zones are sampled. It is the QP's opinion that the limited sampling around the mineralization is less than ideal, and further sampling into the hangingwall and footwall contracts is recommended to ensure all mineralization is captured.

A core splitter or an electrical saw are used to cut the core (Figure 7.13), and a half of the core is collected in plastic bags and sent to the internal laboratory for assaying (gold, silver, copper, lead, and zinc). The remaining half core is stored at the operation complex for 5 to 10 years and then discarded (Figure 7.14). Small core pieces (10 to 20 cm) from the drillhole intervals that have been described as non-mineralized rock are stored. The remaining core is discarded after logging.

Source: SRK, 2021

Figure 7.13: Core Splitter and Electrical Saw used at Santa Bárbara

Source: SRK, 2021

Figure 7.14: Santa Bárbara Core Box

There is no QA/QC protocol for the historical drilling completed by the operation (mine geology) staff. In 2021, the mine department completed 9,349 m of core drilling from underground and 546 m of core drilling from surface, using three operation drill rigs.

Contractor Drilling

The contractor (Tecmin) has performed the surface and underground drilling since 2019, including all exploration drilling. This contractor has worked in Tecolotes, Segovedad, and San Diego, completing 125 drillholes (53,000 m) through December 2021. This underground and surface drilling includes downhole surveying every 50 m.

For these activities, the IMMSA's exploration department has implemented a QA/QC protocol, which is run by Tecmin personnel, that includes the use of blanks, duplicates, and certified reference materials checks. SRK considers that the QA/QC protocols implemented by the exploration department are in-line with best practices.

Collar locations are surveyed by Total Station instruments. Historically, different coordinate systems have been used by SCC; these should be converted into the current coordinate system.

IMMSA's exploration department has implemented a QA/QC protocol that includes the use of blanks, duplicates, and certified reference materials checks, which will require a detailed review by SRK to evaluate its adequacy.

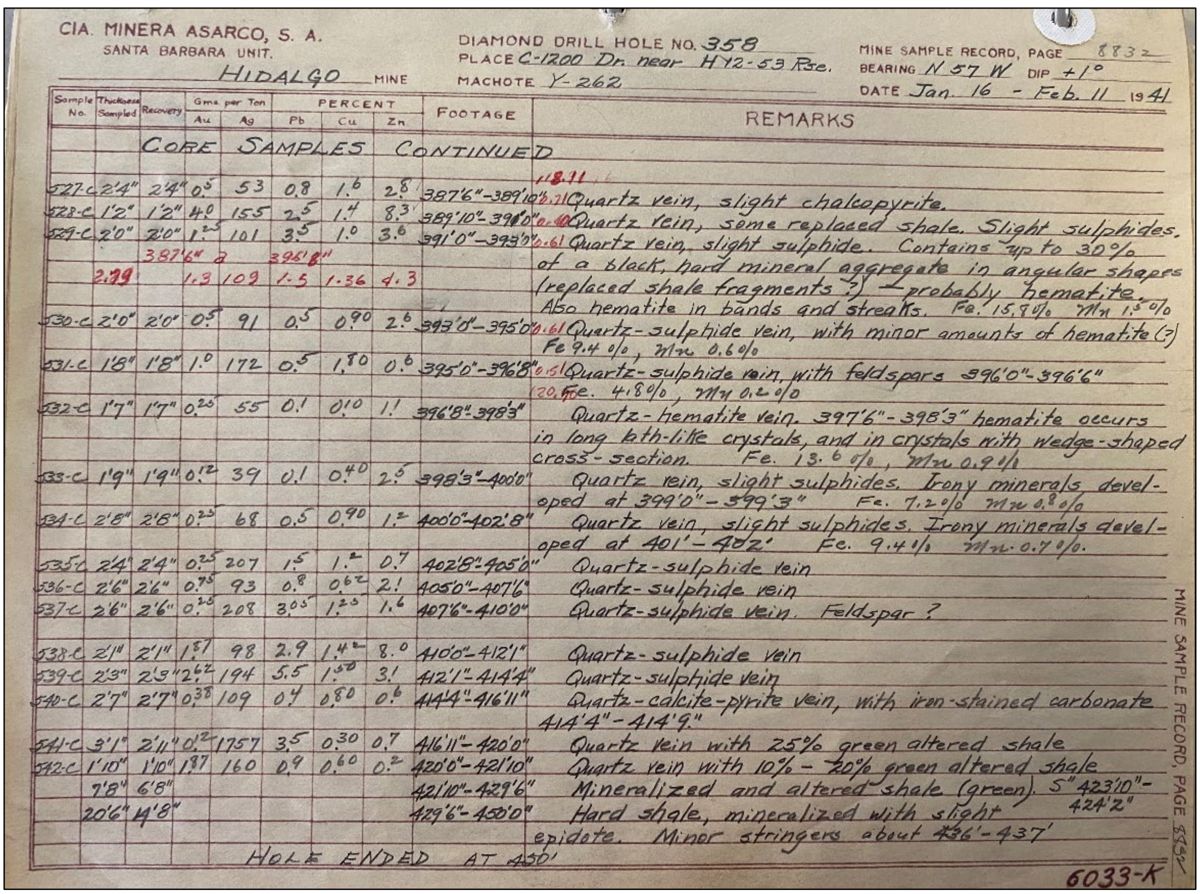
Once the diamond drilling has been carried out and the core has been recovered, the core boxes are transported to the logging facility where the core is logged and sampled.

Once at the logging facility, the core boxes are placed in order on logging tables with the run blocks (from-to) clearly visible. The core is then washed. The core is then logged with the following features recorded: structures, mineralization, alteration, rock type, contacts, and clasts. Sample intervals are marked.

Geotechnical information, such as recovery and rock quality designation (RQD), are also recorded, as these data are needed to assess rock quality and determine mining widths, pillars, and mine support programs.

The logging formats include the zinc, lead, copper, silver, and gold grades. Although part of this information was digitized in Excel, previous problems with Santa Bárbara's servers resulted in the loss of information, and only a small part of this digitized information is currently available in Excel format.

The drillhole information, core logging, and sampling is recorded in paper logs (Figure 7.15). The drilling historical information is kept as paper logs in binders located in the Santa Bárbara geology office, and less than 5% of the information is in digital format.



CIA. MINERA ASARCO, S. A.
SANTA BARBARA UNIT.
HIDALGO MINE

DIAMOND DRILL HOLE NO. 358
PLACE C-1200 Dr. near HY2-53 Rse.
MACHOTE Y-262

MINE SAMPLE RECORD, PAGE 8832
BEARING N 57 W DIP +1°
DATE Jan. 16 - Feb. 11 1941

Sample No.	Thickness Sampled	Recovery	Gms per Ton Au	Gms per Ton Ag	Percent Pb	Percent Cu	Percent Zn	Footage	Remarks
		CORE SAMPLES CONTINUED							
527-C	2'4"	2'4"	0.5	53	0.8	1.6	2.8	387'6"-389'10"	0.71 Quartz vein, slight chalcopyrite.
528-C	1'2"	1'2"	4.0	155	2.5	1.4	8.3	389'10"-391'0"	0.40 Quartz vein, some replaced shale. Slight sulphides.
529-C	2'0"	2'0"	1.25	101	3.5	1.0	3.6	391'0"-393'0"	0.61 Quartz vein, slight sulphide. Contains up to 30% of a black, hard mineral aggregate in angular shapes (replaced shale fragments?) – probably hematite. Also hematite in bands and streaks. Fe. 15.9% Mn 1.5%
	2.99	387'6" a	1.3	109	396'8" 1.5	1.36	4.3		
530-C	2'0"	2'0"	0.5	91	0.5	0.90	2.6	393'0"-395'0"	0.61 Quartz-sulphide vein, with minor amounts of hematite (?) Fe 9.4%, Mn 0.6%
531-C	1'8"	1'8"	1.0	172	0.5	1.80	0.6	395'0"-396'8"	0.51 Quartz-sulphide vein, with feldspars 396'0"-396'6" Fe. 4.8%, Mn 0.2%
532-C	1'7"	1'7"	0.25	55	0.1	0.10	1.1	396'8"-398'3"	Quartz-hematite vein. 397'6"-398'3" hematite occurs in long lath-like crystals, and in crystals with wedge-shaped cross-section. Fe. 13.6%, Mn 0.9%
533-C	1'9"	1'9"	0.12	39	0.1	0.40	2.5	398'3"-400'0"	Quartz vein, slight sulphides. Irony minerals developed at 399'0"-399'3" Fe. 7.2% Mn 0.8%
534-C	2'8"	2'8"	0.25	68	0.5	0.90	1.2	400'0"-402'8"	Quartz vein, slight sulphides. Irony minerals developed at 401'-402' Fe. 9.4% Mn 0.7%.
535-C	2'4"	2'4"	0.25	207	1.5	1.2	0.7	402'8"-405'0"	Quartz-sulphide vein
536-C	2'6"	2'6"	0.75	93	0.8	0.62	2.1	405'0"-407'6"	Quartz-sulphide vein
537-C	2'6"	2'6"	0.25	208	3.05	1.25	1.6	407'6"-410'0"	Quartz-sulphide vein. Feldspar?
538-C	2'1"	2'1"	1.87	98	2.9	1.42	8.0	410'0"-412'1"	Quartz-sulphide vein
539-C	2'3"	2'3"	2.62	194	5.5	1.50	3.1	412'1"-414'4"	Quartz-sulphide vein
540-C	2'7"	2'7"	0.38	109	0.4	0.80	0.6	414'4"-416'11"	Quartz-calcite-pyrite vein, with iron-stained carbonate 414'4"-414'9."
541-C	3'1"	2'11"	0.12	1757	3.5	0.30	0.7	416'11"-420'0"	Quartz vein with 25% green altered shale
542-C	1'10"	1'10"	1.87	160	0.9	0.60	0.2	420'0"-421'10"	Quartz vein with 10% - 20% green altered shale
	7'8"	6'8"						421'10"-429'6"	Mineralized and altered shale (green). 5" 423'10"-424'2"
	20'6"	14'8"						429'6"-450'0"	Hard shale, mineralized with slight epidote. Minor stringers about 436'-437'
		HOLE ENDED AT 450'							

MINE SAMPLE RECORD, PAGE 8832

6033-K

Source: IMMSA, 2021

Figure 7.15: Diamond Drilling Core Logging Sheets as Used by Santa Bárbara Exploration Department for Historical Drilling

Santa Bárbara does not have a database or a geological data management protocol, which makes it difficult to consolidate and appropriately manage the information. During the second half of 2021, Santa Bárbara started the process of digitizing all historical drilling, mapping, and sampling information and generating of a unique database.

Tecmin photographs all core boxes before and after sampling (Figure 7.16). Tecmin takes specific gravity measurements. The samples are selected according to changes of lithology and mineralization characteristics. The specific measurement results have not been used for the resource estimation because these measurements are not representative of all the areas of the deposit.

Source: IMMSA, 2021

Figure 7.16: Photography of Drill Core Box

7.2.3 Drilling Results and Interpretation

The historical drilling information, which supports most of Santa Bárbara's mineral resources, has been completed without proper QA/QC protocol and downhole survey measurements. These practices are not in-line with industry best practices and result in errors in the location of the mineralization intersection and quality of the samples and assays.

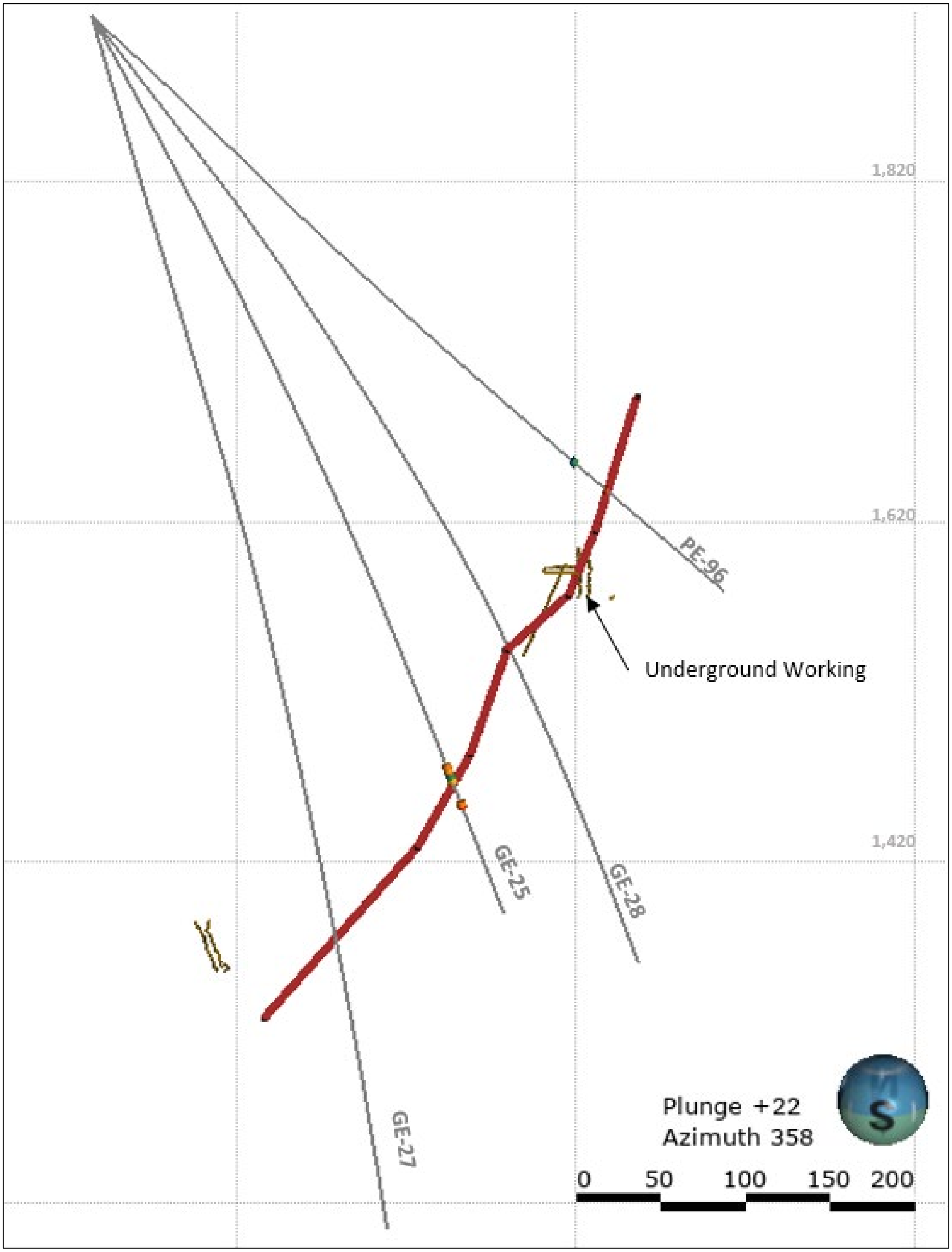
In SRK's opinion, the lack of historical drilling downhole surveys represents a moderate risk due to location errors of mineralized intercepts in areas unsupported by nearby underground workings.

According to Santa Bárbara, in general the core recovery is above 90%, except in some areas of faulting. Recent drilling has shown core recovery average above 95% and locally low recoveries associated to weathering zone and faulting. Lower recoveries observed in historical data may be due to drilling practices or drilling equipment in use at the time.

Historical and recent drilling campaigns have been carried out using NQ, BQ, and TT46 sized core. Recent drilling by Tecmin uses HQ or NQ sized core.

Mine operations and Tecmin personnel have completed the underground drilling. This drilling is completed in fan formations from underground drill stations.

Drillholes are orientated as perpendicular to the mineralization controls (stratigraphy and veins) as possible. In some cases, the angle of the intersection to the mineralization can be shallow, but Santa Bárbara tries to minimize the number of cases. Figure 7.17 shows the intersection angles relative to the interpreted geology in a vertical section, including the completed drilling. Santa Bárbara's geology and distribution of mineralization is irregular, and the variable drilling inclination is acceptable considering the geology and mineralization of the deposit.



Source: SRK, 2021

Figure 7.17: Example of Vein Interpretation in a Vertical Section

The core is logged and transcribed in the hole books.

This data is combined with channel sampling and geological interpretations based on underground workings to update plans and vertical sections on either paper maps or in AutoCAD.

The variability of the mineralization that characterizes Santa Bárbara's skarn and veins deposit is appropriately interpreted using the different sources of information. SRK relied upon reconciliation of the planned versus actual grades and tonnes mined to evaluate the quality of drilling data. Based on the reconciliation and the long history of mining at Santa Bárbara, it is SRK's opinion that the drilling and sampling are acceptable.

7.3 Hydrogeology

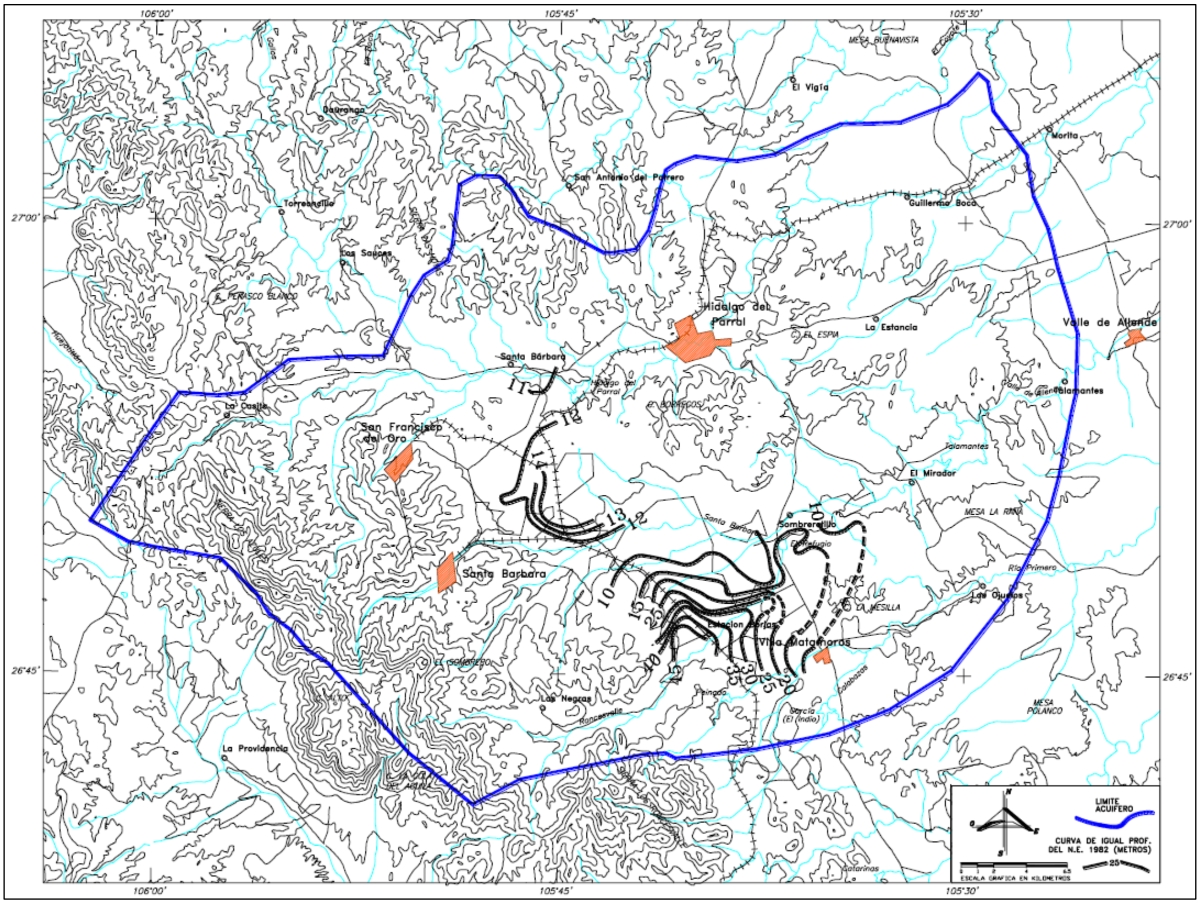
The following information was extracted from the report "Actualización de la Disponibilidad Media Annual de Agua en el Acuífero Parral Valle del Verano (0834), Estado de Chihuahua" prepared by Conagua (Comision Nacioal del Agua), Ciudad de México, 2020.

Lithological units can be grouped into hydro-stratigraphic units based on permeability. Pre-tertiary rocks (limestone, shale, and slate) have low permeability and wide distribution. The limestone is interbedded with shale, which reduces its permeability.

Tertiary rocks (rhyolites, andesites, basalts, and tuffs) generally have low permeability, although the presence of faults and fractures can significantly increase the permeability.

Quaternary rocks composed of gravel, sand, silt, and clay generally have good permeability and form good aquifers if sufficiently thick.

A study conducted in 1982 showed the static levels depths of less than 10 m near the confluence of the Roncesvalles Stream and the Santa Bárbara River. Depths greater than 40 m occur towards the south of the basin in the vicinity of the Roncesvalles hacienda. The depths gradually decreased 10 m towards the east and near Villa de Matamoros and to the north and northeast directions along the Santa Bárbara River. Further north of the Santa Bárbara River, depths of the order of 12 m were found, as shown in Figure 7.18.



Source: CONAGUA, 2020

Figure 7.18: Depth of Static Level, 1982

In the 1982 study, groundwater extraction was indirectly calculated, resulting in 19.8 cubic hectometers (hm^3) per year being extracted, of which 6.8 hm^3/year are pumped from the mines, and the remaining 13 hm^3/year are extracted from the aquifer.

The aquifer was in equilibrium since 1982, and drawdowns were observed due to lower mining production.

The average annual total recharge, calculated as the sum of the natural recharge (23.8 hm^3/year) plus the induced recharge (2.98 hm^3/year), gives a value of 26.7 hm^3/year.

For this aquifer, the volume of groundwater extraction is 60,851,836 m^3/year, which is reported by the Public Registry of Water Rights (REPDA) of the Subdirección General de Administración del Agua, as of the cut-off date of February 20, 2020.

The availability of groundwater constitutes the average annual volume of groundwater available in an aquifer, which users will have the right to exploit, use, or take advantage of, in addition to the extraction already under concession and the committed natural discharge, without endangering the ecosystems. The result indicates that there is no available volume to grant additional concessions.

From the hydrological environment, locally, there are leaks due to different types of aqueous bodies, such as Rio Santa Bárbara, the Vacas Stream, and the Tecolotes Stream; these cross the mineralized veins on the surface and serve as conduits inside the mines. Another important element is the fracture systems after mineralization that serve as a water conduit; these systems are northeast-southwest and east-west. This phenomenon fills cavities and circulates through mining works; however, this is not always the case, as it can be found occupying the crevices (pores and cracks) of the soil, the rocky substrate, or the unconsolidated sediment, which acts like a sponge. As indicated above, in the mines, the underground water can be found in faults, old holes filled with water, and leaks either by crossing streams or being very close to aquifers.

In Santa Bárbara's study area, a lithological unit zone has been detected with physical properties to store water due to the stratification planes and the interstices of the rock. Since there is an alternation of shale and clayey shale as well as some basalt flows, this makes the rock porous; this zone is located to the north of the zone (in the area known as the Franqueño) and at a depth of 0 to 200 m.

7.4 Geotechnical Data, Testing, and Analysis

The following are the conclusions presented in the report "Estudio de Mecánica de Rocas de acuerdo a la Norma 023-STPS-2012¨ completed by Ing. M. Antonio Remos in 2013. The author visited the production stopes and works in development of each of the mines, as well as through the different levels and counter-cannons; additionally, a tour of the general ramps of each of the mines was also carried out.

After touring and visiting most of the stopes in production and works in development at the Tecolotes Mine, it was observed that the mine is generally stable, but it was commented that it has stopes and areas that require attention both for filling and for medium. The specific areas can be controlled by improving the work design, with the help of the standardization of the marking of templates, applying the parallelism and adequate directions of the drilling, the management of controlled blasting, the use of post-cutting in all areas of the mine, and carrying the permitted mining heights. In addition, the mine must consider that sometimes it is necessary to support the height of the stopes, especially when the vein is very shallow.

No serious conditions at the Segovedad Mine were observed. If issues are observed in specific areas, these may be easily controlled with additional support or improved controls, such as:

- Filling on time and respecting the established mining heights as well as the mining cycles
- Throughout the mine, implementing drilling template marking, improving the quality of drilling and loading, ensuring that the firing sequences in the works are correct, and implementing the application of post-cut throughout the mine works

Similarly, at the San Diego Mine, no indications were found that may impact the general stability of the mine. If issues are observed in specific areas, additional support or reinforcement can be used, as recommended below:

- For permanent works in rocks of regular quality, install a support based on electro-welded mesh subject to 19 mm x 2.4 m corrugated rod anchors, embedded in cement in a 1.0 x 1.0 m three-bolillo pattern, to later throw a 30-mm thick layer of concrete.
- For permanent works in rocks of bad quality, install a 25-mm thick layer of shotcrete to subsequently install an electro-welded mesh with 19 mm x 2.4 m rod anchors, embedded in cement in a 1.0 x 1.0 m three-bold pattern, post-tensioned and, if required, re-throw the concrete.

- For permanent work on good quality rock, install a support based on rod anchors of 19 mm x 2.4 m, embedded in cement in a three-bolt pattern of 1.2 x 1.2 m post-tensioned.
- For temporary works in rocks of regular quality, install a support based on electro-welded mesh subject to split-set type anchors of 1.8 or 2.4 m, in a three-bolt pattern of 1.0 x 1.0 m.
- For temporary works in poor quality rocks, install electro-welded mesh subject to split-set type anchors of 1.8 or 2.4 m, in a three-bolt pattern of 1.0 x 1.0 m and, if necessary, sprayed concrete.

It is recommended that the rock mechanics engineer, together with the geology staff, carry out the geotechnical surveys of the main production sites and strategic works using the rock mass rating (RMR) and Barton's Q methods.

We can also estimate the maximum clearance of the work using the Pakalnis graph where, according to the RMR, it shows the maximum clearance.

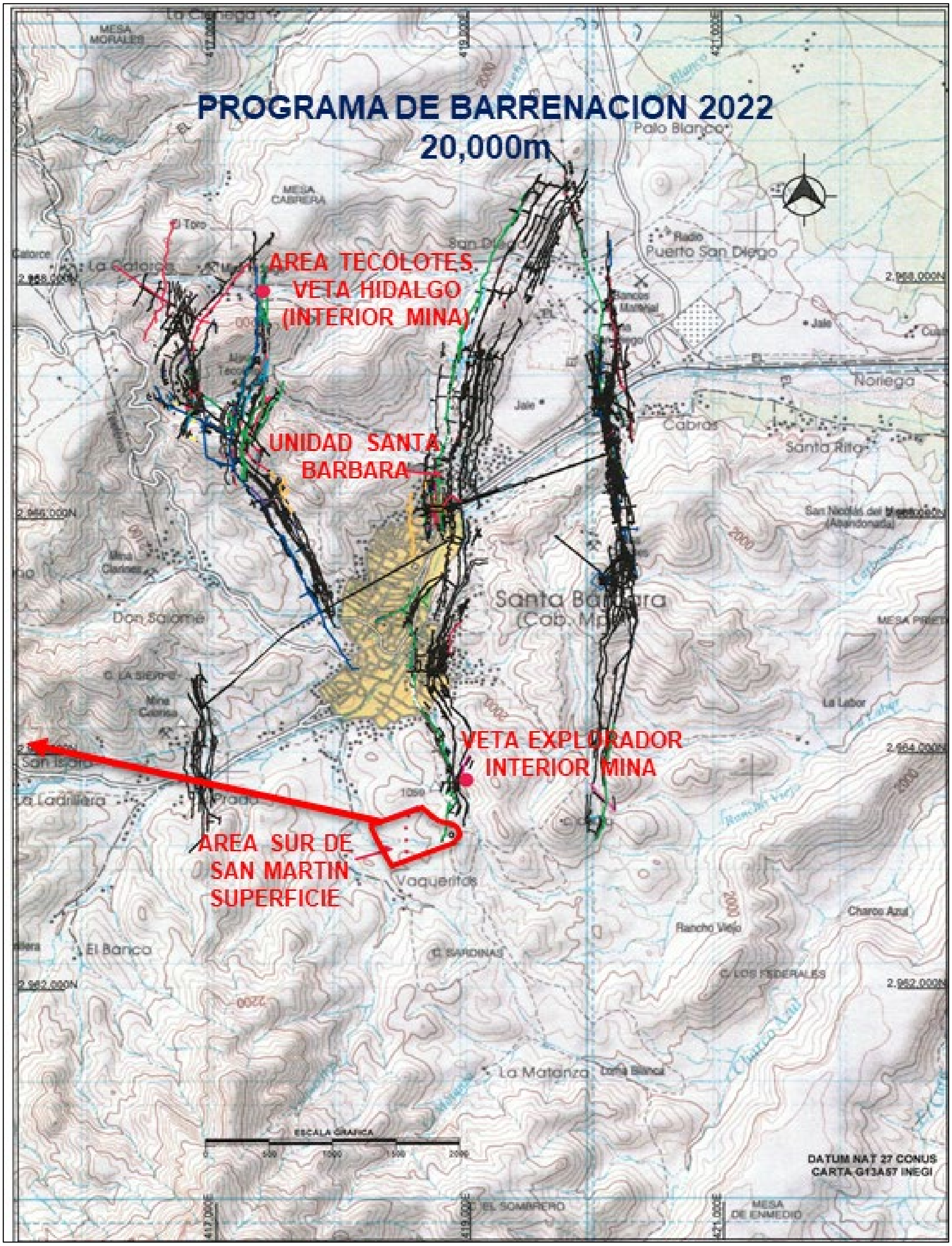
It is recommended for stopes close to the end of their operative life and where a crown pillar has to be left, the 1-to-1 rule can be applied, meaning that the thickness of the pillar will be equal to the clearance of the stope. Also, in the study by Carter and Miller, the stability of a crown pillar is considered to be in conflict, when the value of the scaled span (Cs) is greater than the critical span (Sc).

For shotcrete, it must be established that tests be carried out on it; in this way, the required resistance will be applied, which should normally be 250 kilograms per square centimeter (kg/cm^2). The following tests must be carried out on the concrete:

- **Slump:** An artifice called Abrams cone is used, which is a cone with a lower diameter of 20 cm, an upper diameter of 10 cm, and a height of 30 cm. The cone is filled successively in three parts, each with a height equal to one-third of the total height of the cone. Every one-third of the height of the cone is beaten with a half smooth rod, giving it 10 to 12 penetration strokes. Once the cone is full, it is leveled with the help of a spatula or another accessory. Subsequently, the cone is taken from its handles and is pulled upwards; the concrete, when losing support, slides to the sides or spreads. Finally, the distance from the top of the cone to the top of the spread cement is measured; this height corresponds to the slump, which is closely related to the water/cement ratio and gives us an idea of the resistance that the concrete will have at 7, 14, or 28 days.
- **Concrete simple compressive strength tests.** Circular troughs with 50-cm diameters and 20-cm depths are prepared. Once cured, cylinders are taken from these with a corer; later, the cylinders are tested at 6 and 12 hours.

7.5 Exploration Target

For 2022, Santa Bárbara will continue the exploration in areas of extension of the main vein systems in the areas of Tecolotes (Veta Hidalgo – Interior Mina), Veta Explorador (Interior Mina), and Area Sur de San Martin with surface drilling. The map in Figure 7.19 presents the areas where 2022 exploration drilling will be focused, including 20,000 m that will be completed by Tecmin.



Source: IMMSA, 2021

Figure 7.19: Areas of Exploration for 2022 in Santa Bárbara (Underground and Surface Drilling)

8 Sample Preparation, Analysis, and Security

8.1 Sample Preparation Methods and Quality Control Measures

Trained staff were involved at all stages of the sampling, sample packaging, and sample transportation process. After geological logging and sample selection, the core is split in half longitudinally using an electric core cutter. Core pieces are placed in the cutter machine and cut following the cut line marked by the geologist. The core splitter was used historically. Half of the core was assayed, and the other half was stored in the core box to be available for future assaying or relogging of core.

The sample was placed in plastic bags with its corresponding sample tag and sent to the internal and external laboratories using defined laboratory submission sheets to track the number of samples and batch numbers. Figure 8.1 shows the submission format used for the samples sent to the SGS Laboratory (SGS) in Durango.

SGS

SGS Servicios Minerales – Geoquímica

Formato de recepción de muestras

Para uso del laboratorio
Orden de trabajo núm.: ____________
Fecha de recepción: ____________

Ubicación del Lab. SGS: Durango   En atención a:

Detalles de envío		Detalles de facturación	Igual que datos del reporte ☐
Enviado por:	CARLOS CESAR LEURA TORRES	O. de compra núm.:	Cotización SGS: MX-DU20-050 REV00
Nombre de la compañía:	INDUSTRIAL MINERA MEXICO	Nombre: INDUSTRIAL MINERA MEXICO	RFC: IMM8505281U0
Teléfono:	52(444)1441300 EXT 22324	Nombre de la compañía:	INDUSTRIAL MINERA MEXICO
Email:	carlos.leura@mm.gmexico.com	Teléfono:	
Transporte/núm. guía:		Dirección:	CAMPOS ELISEOS 400 OFNA. 1102, LOMAS DE CHAPULTEPEC
País de origen de la muestra:	MEXICO	Ciudad: DEL. MIGUEL HIDALGO	Provincia/Estado: CD. DE MEXICO
Instrucciones para reporte		País: MEXICO	Código Postal: 11000
Reportar a:	ARCADIO MARIN MARTINEZ	Email 1:	
Nombre de la compañía:	INDUSTRIAL MINERA MEXICO	Email 2:	
Teléfono:	52(444)1441300 EXT 22323	**Destino de la muestra** (a menos que otra cosa se indique, el almacenamiento será cobrado).	
Dirección:	PLANTA DE COBRE, FRACC. MORALES.	**Rechazos**	**Pulpas**
Ciudad: SAN LUIS POTOSI	Provincia/Estado: S.L.P.	☑ Regresar después 30 días	☑ Regresar después 30 días
País: MEXICO	Código Postal: 78180	☐ Disponer después 30 días	☐ Disponer después 30 días
Email 1: arcadio.marin@mm.gmexico.com	PDF☑ XLS☑ CSV☑	☐ Pagar después de 30 días	☐ Pagar después de 30 días
Email 2: carlos.leura@mm.gmexico.com	PDF☑ XLS☑ CSV☑	Regresar con atención a:	
Email 3: diana.garciarobles@mm.gmexico.com	PDF☑ XLS☑ CSV☑	Dirección de regreso:	
Email 4: manuel.moreno@mm.gmexico.com	PDF☐ XLS☐ CSV☐		
El reporte final y la factura serán enviados en PDF por email. Para términos y condiciones de SGS consulte: http://www.sgs.com/en/Terms-and-Conditions.aspx.		Paquetería:	
		Núm. de cuenta:	

Identificación de la muestra e instrucciones de análisis.				Servicio urgente deberá ser aprobado por el lab. Cargo extra será aplicado.	
Nombre del proy.:	STA. BARBARA GE-80			☑ Servicio estándar	☐ Servicio urgente
Tipo de muestra:	☐ Núcleo	☐ Rocas	☐ Sedimentos	☑ Pulpa	☐ Suelo
	☐ Concentrados	☐ Metales	☐ Otro:		
Tipo análisis:	☐ Grado exploración	☑ Grado mineral	☐ Grado control	☐ Grado venta	☐ Tercería
Instrucciones especiales:					
IMPORTANTE: Si tiene conocimiento que las muestras contienen materiales peligrosos por favor indíquelo				☐ Asbestos	☐ Radiactivo

Identificación de Muestras De: / A: / Núm.	Preparación de muestras y análisis requeridos: Preparación	Análisis (Códigos analíticos de SGS o elementos)	Elementos de interés
297620-297639	ARCHIVO ADJUNTO	GE_FAA313	ORO
	ARCHIVO ADJUNTO	GE_ICP14B	34 ELEMENTOS
Número total de muestras enviadas: 20	☑ Ver archivo adjunto para datos de muestras	☑ Ver archivo adjunto para análisis requeridos	
Autorización del cliente (Firma):		Fecha:	2-11-2021

QF-NA-MIN-23 Ver. 2.1 emitida en Marzo 2018

Escríbanos a: minerals@sgs.com
Página: http://www.sgs.com/en/Mining/Analytical-Services.aspx
Vea nuestra guía de servicios: http://www.sgs.com/~/media/Global/Documents/Brochures/SGS%20Analytical%20Guide%202015%20Web.pdf

Source: IMMSA, 2021

Figure 8.1: Example of SGS's Sample Submission Format

8.2 Sample Preparation, Assaying, and Analytical Procedures

8.2.1 Density Analysis

Santa Bárbara does not have historical density data or supporting documentation for the density used in the mineral resource estimate. The plant and the mine have been using a standard density value of 3.0 t/m^3 for decades.

Tecmin has been collecting density measurements and has the following process for the density analysis for the surface drilling; this is not used to support the mineral resource estimate. Increasing the size of the density database to confirm the current density values used should be considered a priority for 2022 for Santa Bárbara.

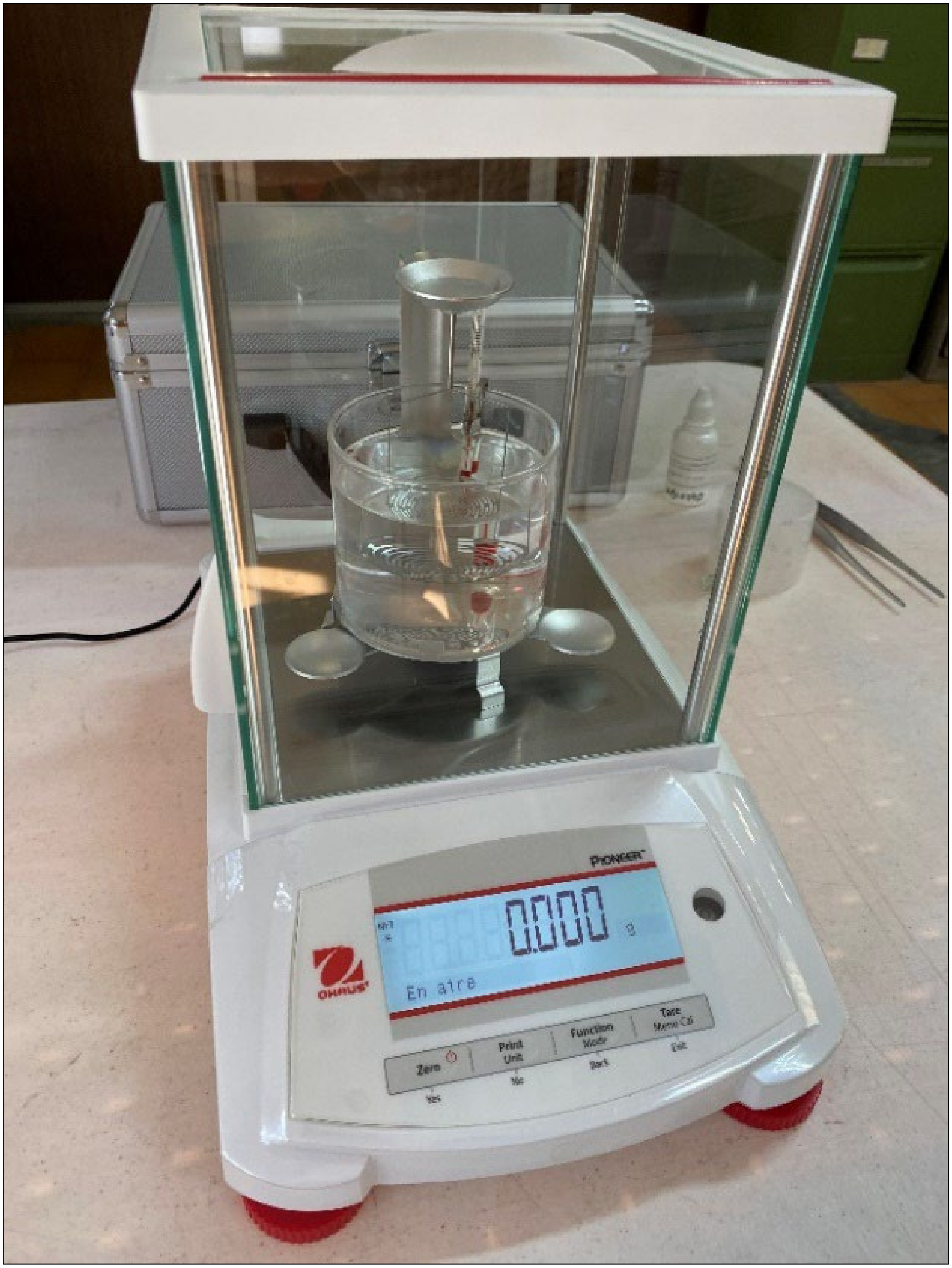
The specific gravity (SG) measurement method is based on the Archimedes principle and consists of measuring the weight of the rock sample P in air and subsequently the weight of the sample in water Pwater. We can determine the specific weight using the formula: SG = P / (P - Pwater)

The steps carried out to obtain the specific gravity of the samples collected from drill core are described below:

1. Record the sample location and cut:
   - Draw hole trajectory
   - Write down nomenclature in the core (Figure 8.2):
     - Hole ID
     - Depth
   - The size of the sample will be at the discretion of the personnel that selects the sample and depending on the capacity of the scale used; the data of the sample collected should be noted down in the core box. Figure 8.3 shows the scale used at Santa Bárbara to complete the specific gravity tests. Santa Bárbara's exploration team uses an OHAUS Dial-O-Gram model 310 mechanical scale with the capacity to measure weight up to 310 grams (g).
2. Wash the sample with water to remove residues.
3. Dry the sample in an electric oven or in sunlight if an oven is not available.
4. Level the balance until the bubble is centered using the help of the position adjustments of each leg of the balance and calibrate the balance before starting to measure the samples, making sure that it reads zero (in the case of a precision digital scale).
5. Weigh the dry sample (P) (Figure 8.4).
6. Waterproof seal the sample with an appropriate material (take into account the density of this material to use in the sample density calculations). Seal at least three times. Wait for a period of time for optimal drying of the samples.
7. Weigh the sample in purified water (preferably) and take the data (P_Agua) (Figure 8.5).
8. Wash the sample and reincorporate it into the core box from where it was collected.
9. Determine the specific gravity with the data obtained and fill in the hole density format.

Source: SRK, 2021

Figure 8.2: Core Samples Selected for Specific Gravity Testing

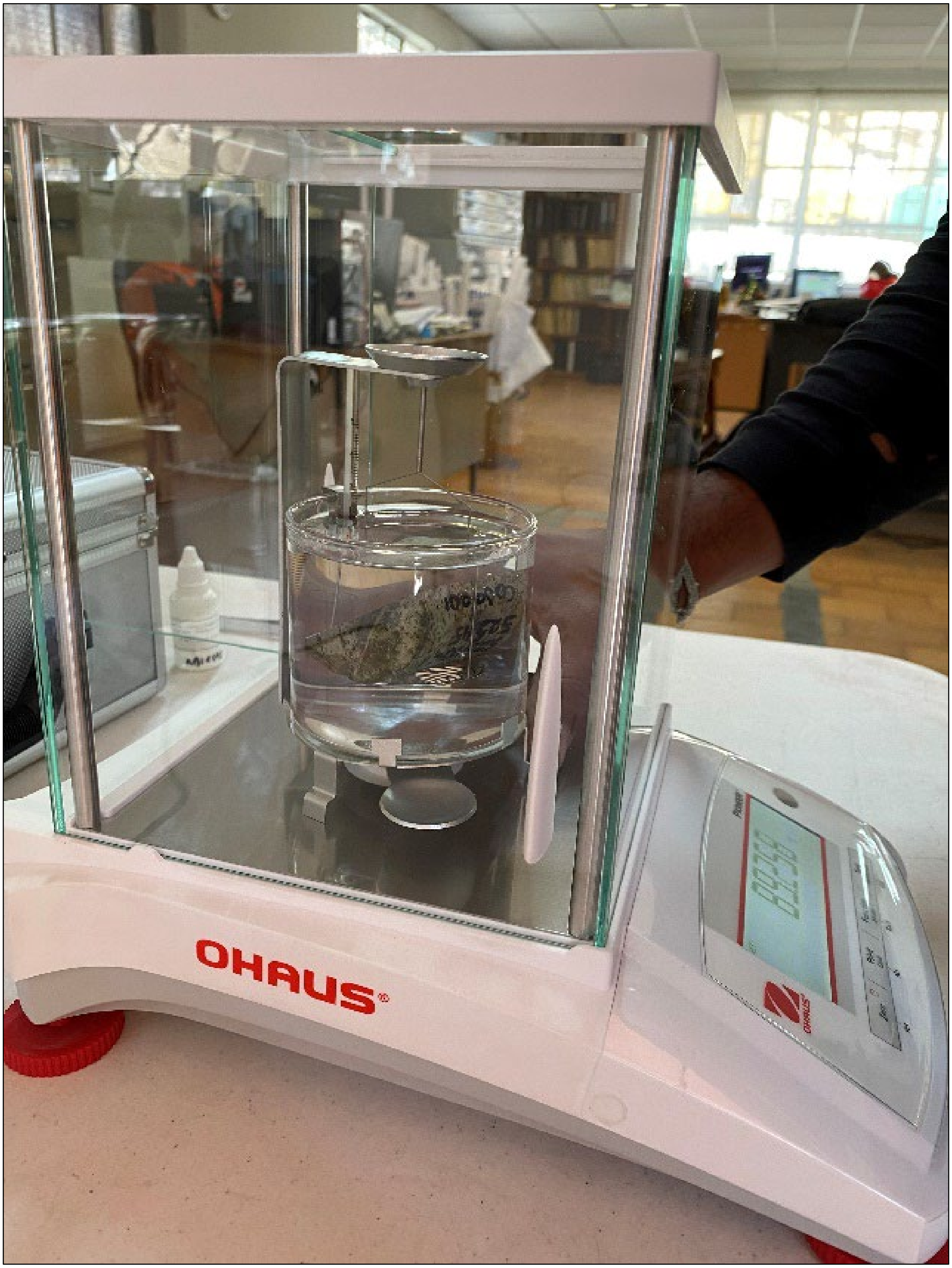


Source: SRK, 2021

Figure 8.3: Scale used by Tecmin in Santa Bárbara

Source: SRK, 2021

Figure 8.4: Dry Sample Weighting



Source: SRK, 2021

Figure 8.5: Weighting of the Sample Submerged in Water

Photographs and brief descriptions were taken, and the corrections to obtain the density data were applied. The density data is then recorded in Tecmin's database.

The QP considers these procedures to follow industry standards and recommends that the process be expanded to include all material (host rocks and mineralization) and be completed at regular intervals within the core. Increasing the size of the density database to confirm the current density values used should be considered a priority for 2022 by the Company.

8.2.2 Sample Preparation, Internal Laboratory

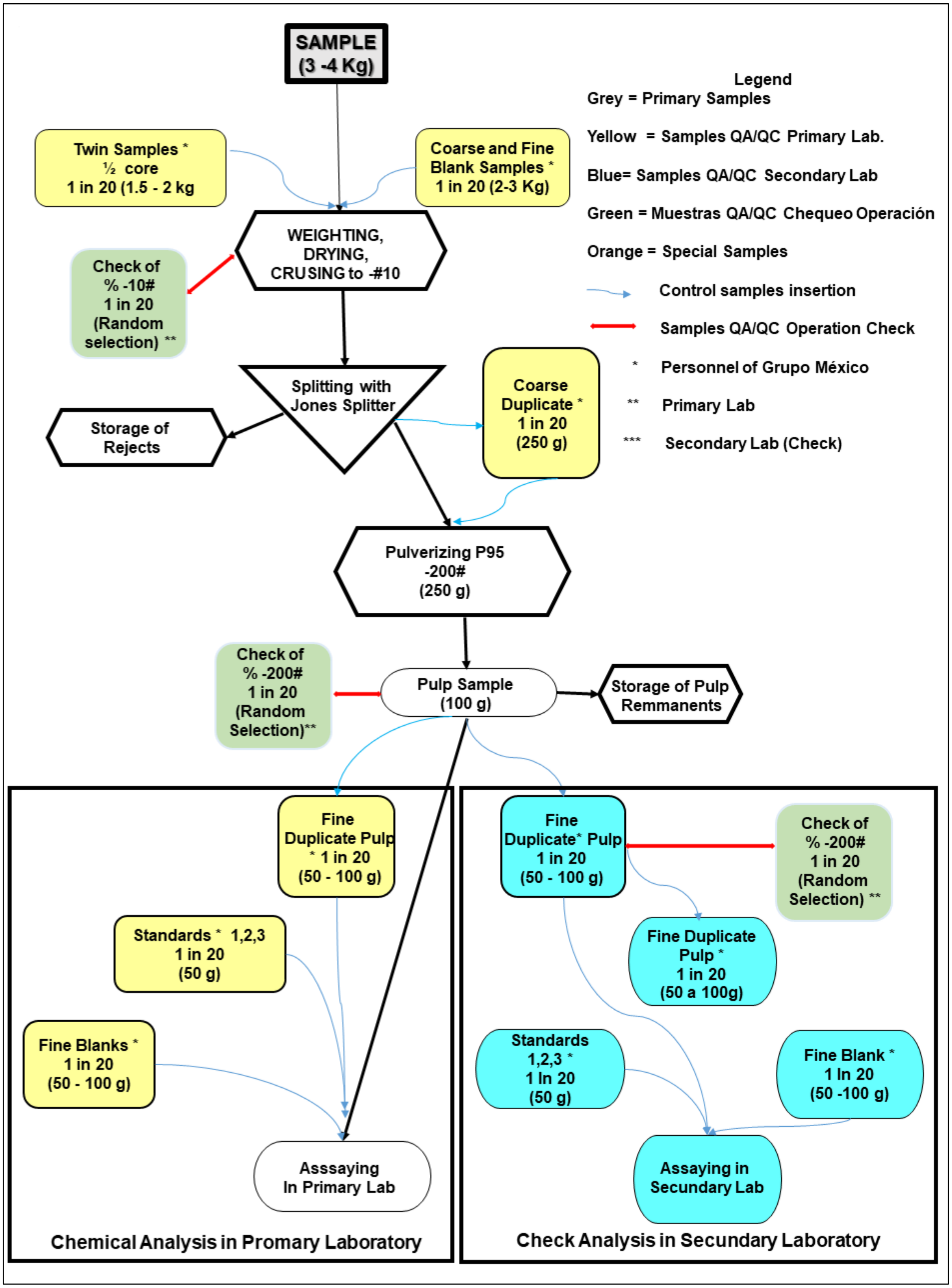
The internal laboratory prepares the core and channel samples and assays all of the samples collected by the mine geology department. The internal laboratory is owned by the mine and run by IMMSA employees. The internal laboratory of Santa Bárbara's internal laboratory does not have any type of quality certification. The QP recommends that IMMSA obtain certification for the quality management system of the internal laboratory in the near future.

The internal laboratory follows internal QA/QC protocols, which include continuous maintenance and calibration of equipment, monitors sample contamination, and uses certified standard reference materials, which, in SRK's opinion, are considered in-line with industry standards.

Sample preparation in the internal laboratory includes:

- Sample drying
- Crushing, 75% passing 10 mesh
- Subsampling (Riffle sample splitter) to obtain a 250-g sample
- Pulverizing, 85% passing 200 mesh
- Subsampling to obtain 50-g pulp samples

Figure 8.6 shows Santa Bárbara's internal laboratory's preparation process flowchart and QA/QC controls using during the process. The core samples collected by Tecmin are sent to Santa Bárbara's internal laboratory.



Source: IMMSA, 2021

Figure 8.6: Flowchart of Sample Preparation (Internal Laboratory)

No certification has been completed on the current mine laboratory, which in the QP's opinion does not meet the required standards for reporting under international best practice. More-detailed validation and external checks should be completed if the laboratory is not certified given the lack of independence presented. The QP recommends that IMMSA undertake a program to certify the laboratory as is completed at their other operation.

8.2.3 Chemical Analysis, Internal Laboratory

The following chemical analyses are used at Santa Bárbara's internal laboratory, using 100-g pulp samples:

- **Inductively coupled plasma (ICP):** multielement (Ag, Au, Pb, Zn, Cu, iron (Fe), cadmium (Cd), arsenic (As), bismuth (Bi), and antimony (Sb)) plasma analytic method; ICP atomic emission spectrophotometer:
  - Detection limits:
    - Au: 0.01 to 100 g/t
    - Ag: 0.1 to 500 g/t
    - Zn: 0.001% to 15%
    - Cu: 0.001% to 15%
    - Pb: 0.001% to 20%
- **Fire assay (gravimetric method):** Determination of Au and Ag by fire assay and gravimetric termination (detection limits: Au: not applicable; Ag: 10 to 30,000 g/t)
- **Volumetric determination of zinc:** For high zinc concentrations (detection limits: 4% to 60%)
- **Volumetric determination of copper:** For high copper concentrations (detection limits: 4% to 40%)
- **Volumetric determination of lead:** For high lead concentrations (detection limits: 4% to 88%)

8.2.4 Sample Preparation, SGS Laboratory

The core samples collected by Santa Bárbara's exploration department are sent to SGS. SGS is independent of IMMSA and holds accreditation under ISO/IEC 17025:2017 under the Standards Council of Canada, which indicates the laboratory is accredited under the general requirements for the competence of testing and calibration laboratories.

SGS's sample preparation procedures comprised of drying the sample, crushing the entire sample in two stages to -6 mm and -2 mm by jaw crusher (more than 95% passing), riffle splitting the sample to 250 to 500 g, and pulverizing the split to more than 95% passing -140 mesh in 800-cubic-centimeter (cm^3) chrome steel bowls in a Labtech LM2 pulverizing ring mill.

8.2.5 Chemical Analysis, SGS Laboratory

The following chemical analysis packages are used at SGS by Santa Bárbara's exploration department:

- **GE_ICP14B:** multielement (34 elements) analysis by aqua regia digestions and ICP-optical emission spectrometry (OES) (Ag, aluminum (Al), As, barium (Ba), beryllium (Be), Bi, calcium (Ca), Cd, chromium (Cr), cobalt (Co), Cu, Fe, mercury (Hg), potassium (K), lanthanum (La), lithium (Li), magnesium (Mg), manganese (Mn), molybdenum (Mo), sodium (Na), nickel (Ni), phosphorus (P), Pb, sulfur (S), Sb, scandium (Sc), tin (Sn), strontium (Sr), titanium (Ti), vanadium (V), tungsten (W), yttrium (Y), Zn, zirconium (Zr), nitric acid (HNO_3), and hydrochloric acid (HCl)

- **GE_FAA515 Au:** Au analysis by 50-g fire assay with atomic absorption spectrometry (AAS) finish (Au: 30 g, 50 g; HNO_3; HCl) (Detection limits: 5 to 10,000 parts per billion Au)
- **GO_FAG515 Ag:** Used for the determination of over limits of Ag by fire and gravimetric termination using a 50-g sample (Detection limits: 10 to 100,000 parts per million Ag)
- **GO_ICP90Q:** Analysis of ore grade samples (Pb, Cu, Zn, Fe, and As) by sodium peroxide fusion and ICP-OES (As, Fe, Cu, Ni, Pb, Sb, Zn, and sodium peroxide (Na_2O_2)) (Detection limits: 0.01% to 30% for each element)
- **GC_CON12V Zn:** Used for the determination of zinc using a volumetric and gravimetric concentration for samples with zinc greater than 32% (Detection limits: 5% to 65% Zn). The process involves preparation and determination of zinc in ores, concentrates, and metallurgical products by separation, precipitation, and titration of acid solubles, fusion with ICP-OES-AAS of acid insoluble.

8.3 Quality Control Procedures/Quality Assurance

8.3.1 Security Measures, Chain of Custody

The mine geology and exploration departments have control and supervision over the process of sample collection from drilling and channel sampling, maintaining the custody chain for the samples until the delivery of the samples to the laboratory.

At the drill rig, the contractor and Santa Bárbara’s drillers are responsible for removing the core from the core barrel (using manual methods) and placing the core in prepared core boxes. The core is initially cleaned in the boxes, and once the box is full of core, it is closed and transported by the authorized personnel to the logging facility where Santa Bárbara’s (mine geology and exploration) geologists or technicians take possession. On receipt at the core shed, geologists follow the logging and sampling procedures. The samples are transported to the laboratories (internal and SGS) by authorized personnel.

In the QP’s opinion, there are sufficient protocols in place to ensure the quality and integrity of the samples from exploration to the laboratory. Storage of data using a central repository system is recommended to ensure data security is maintained.

8.3.2 QA/QC Protocols

Historically and recently (prior to Tecmin drilling), the mine geology department has not implemented QA/QC protocols for its drilling and rock sampling activities, which is not in-line with best industry practices and represents a potential source of uncertainty in the estimates. Given the lack of QA/QC information, the QP has had to rely on reconciliation data to assess the level of confidence in the database. Section 9.1 of this report discusses this process in more detail.

Half of the core that remains after sampling is stored in the Santa Bárbara operation. The core is discarded after several years, and not all of the historical drilling core is conserved in the operation, which has limited the ability to undertake a detailed re-assay program. The internal laboratory conserves the pulps for 1 month after assaying and then discards the samples. Small pieces of non-mineralized core are selected and stored (Figure 8.7) for some months; these are then discarded.

Source: SRK, 2021

Figure 8.7: Pieces of Core of Non-Mineralized Drilling Intervals

Since 2019, Santa Bárbara’s exploration department has been responsible for the surface and underground drilling. Tecmin is contracted to complete this drilling. The QA/QC protocols include the following controls:

For the drilling completed in the Santa Bárbara unit for 2019 to 2020, a series of protocols have been carried out. The controls used are divided into standards (low, medium, and high), coarse blanks, duplicates, and core duplicates:

- Core duplicates to control systematic sampling errors
- Coarse and fine blank controls to detect possible contamination during crushing and pulverization. This material should be barren of the elements of economic interest. In this case, a silica sand was used for pulp blanks and volcanic gravel material -$^{1}/_{4}$-inch silica for the coarse blanks.
- Coarse and fine duplicate controls to evaluate precision of the procedure (subsampling)
- Certified standard reference materials (CSRM) (low, medium, and high grade) to measure accuracy

Control samples were inserted under the following criteria:

- Before and after each mineralized zone or with high mineralization in either zinc, lead, copper, or silver, control samples of the fine and coarse blanks type are inserted.
- Inside or outside mineralized zones and in areas with or without economic values, CSRM controls were inserted with high, medium, and low values based mainly on expected zinc grades.

- Fine and coarse duplicate samples in mineralized areas and in zones with or without economic values at the discretion of the geologist
- Twin samples (core duplicates) in mineralized zones and in zones with or without economic values at the discretion of the geologist

Santa Bárbara has established limits of acceptability for the different controls, including:

- **Blanks:** There is contamination when the assay results are above five times the detection limit for a specific element evaluated. When contamination occurs, Santa Bárbara informs the laboratory to check the internal protocols and, if necessary, repeat the assaying of a specific batch if the contamination is considered repetitive and continuous.
- **Duplicates:** Duplicates use an acceptability level of ±20% relative error range from the 45° line (scatter plot) for coarse and fine duplicates. Checks outside of these acceptability ranges are considered failures, and if they occur in a certain period (e.g., failures are more than 10% of the total control samples), Santa Bárbara contacts the laboratory to review their preparation procedures. SRK recommends using an acceptability range of ±10% relative error for the fine duplicates.
- **Second laboratory checks:** Santa Bárbara is not using second laboratory checks (Tercerías). SRK recommends sending pulps of part of the assayed samples to a third commercial laboratory as part of the QA/QC protocol.
- **CRSMs:** The CRSMs are bought from commercial laboratories that are selected (grades and mineralization type) consistent with Santa Bárbara's mineralization and rock types. The performance of these checks is evaluated using graphs where the two and three standard deviations (SD) reference lines are drawn in conjunction with the assay results obtained. A failure is considered when a specific CRSM assay result is outside of the 3-SD reference line or when two contiguous CRSMs are outside of the 2-SD reference line. In these cases, Santa Bárbara requests the reanalysis of some samples (two to five) above and below the failure in a specific batch of samples included in the laboratory assay certificate.

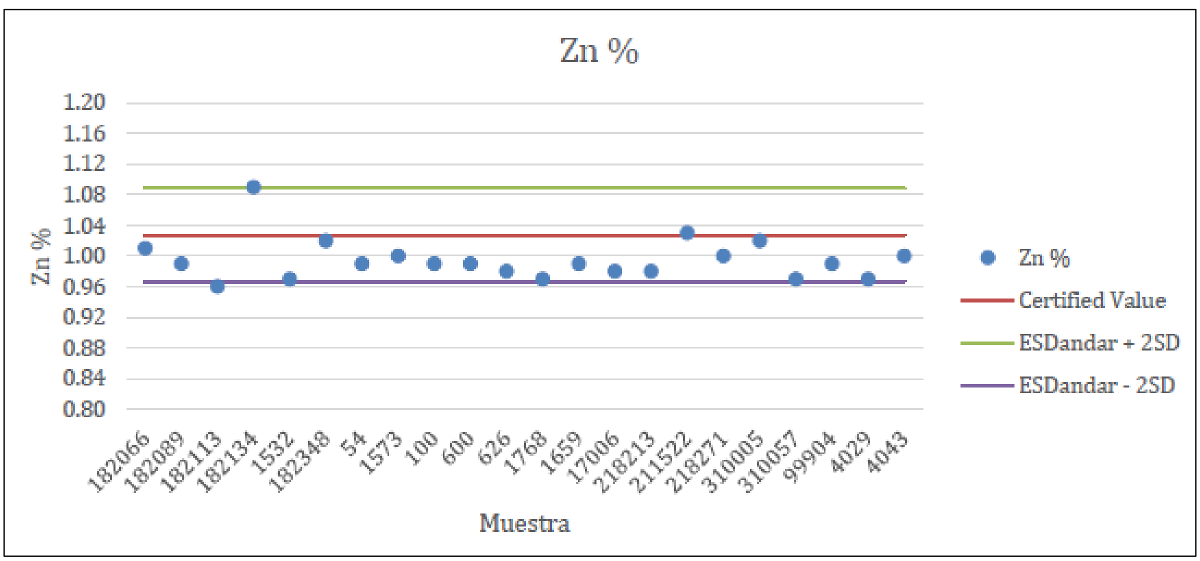
The QP has reviewed the information and notes there is no indication of bias (high or low) in the CSRM results. A number of individual CSRMs have reported outside of the 2-SD limits assigned, but no overall trends are noted.

Figure 8.8 through Figure 8.15 provide a summary of the QA/QC protocols, including a table of the certified values for each CSRM along with its associated results, plus a summary of the coarse blanks and coarse duplicates used at Santa Bárbara.

OREAS 623(STD BAJO)		
4-Acid Digestion	**Certified Value**	**SD**
Ag, Silver (ppm)	20.400	1.058
As, Arsenic (ppm)	77.470	5.316
Cd, Cadmium (ppm)	53.846	3.903
Co, Cobalt (ppm)	221.561	9.519
Cu, Copper (ppm)	1.734	0.064
Fe, Iron (wt.%)	13.423	0.778
Pb, Lead (wt.%)	0.250	0.007
S, Sulphur (wt.%)	9.058	0.321
Sb, Antimony (ppm)	27.618	1.909
Zn, Zinc (wt.%)	1.027	0.030
Fire Assay	**Certified**	**SD**
Au, Gold (ppm)	0.827	0.039

Source: IMMSA, 2021

Figure 8.8: Certified Values of the OREAS 623 CSRM



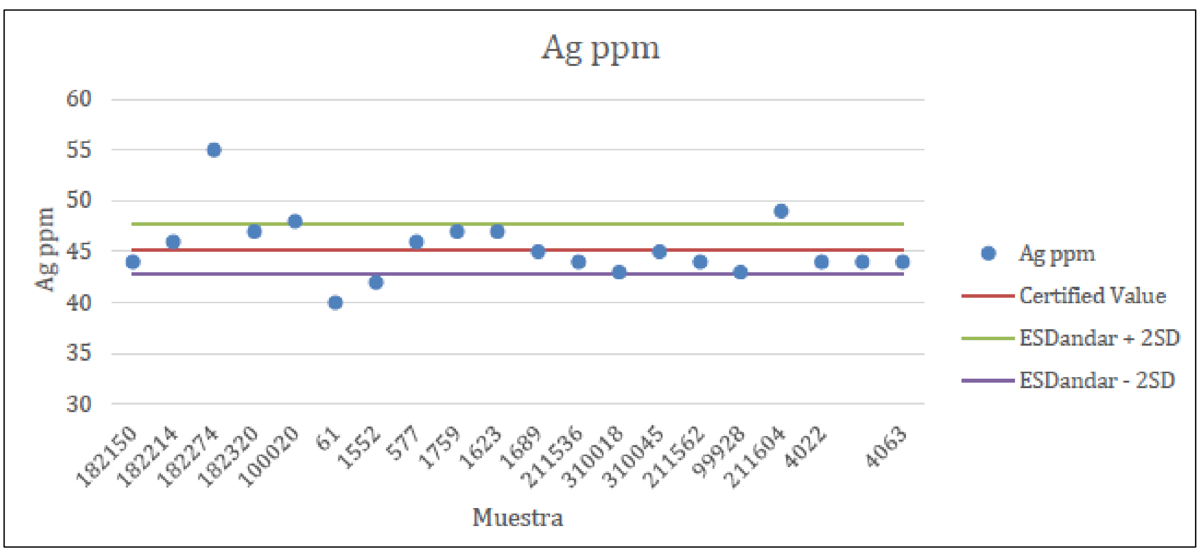
Source: IMMSA, 2021

Figure 8.9: Graph showing the Results of OREAS 623, Zn

OREAS 624(STD MEDIO)		
4-Acid Digestion	**Certified Value**	**SD**
Silver, Ag (ppm)	45.253	1.256
Arsenic, As (ppm)	108.519	8.770
Copper, Cu (ppm)	3.101	0.079
Iron, Fe (wt.%)	16.212	1.094
Manganese, Mn (wt.%)	0.066	0.004
Pb, Lead (wt.%)	0.624	0.019
Thallium, Tl (ppm)	1.006	0.114
Zinc, Zn (wt.%)	2.403	0.078
Fire Assay	**Certified**	**SD**
Au, Gold (ppm)	1.164	0.053

Source: IMMSA, 2021

Figure 8.10: Certified Values of the OREAS 624 CSRM



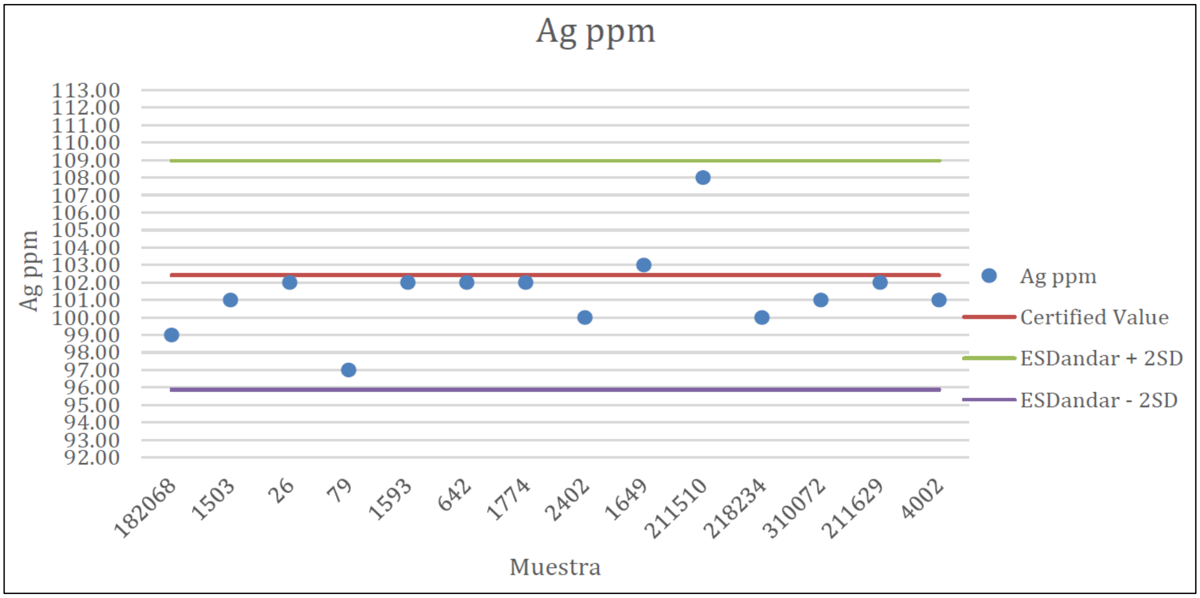
Source: IMMSA, 2021

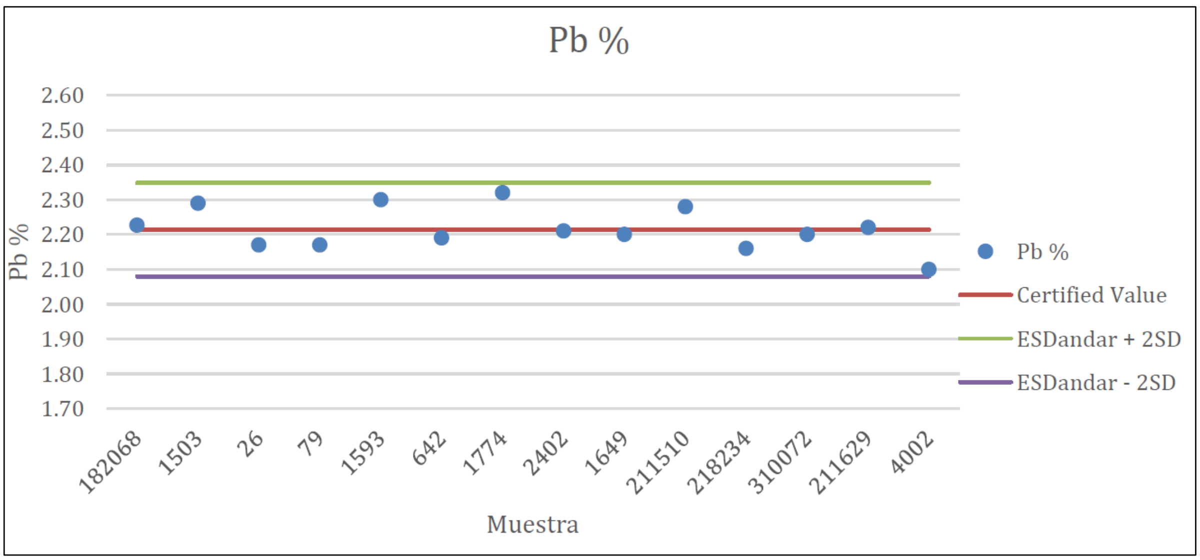
Figure 8.11: Graph showing the Results of OREAS 624, Ag

OREAS 622 (STD ALTO)		
4-Acid Digestion	**Certified Value**	**SD**
Ag, Silver (ppm)	102.418	3.275
As, Arsenic (ppm)	108.986	5.624
Cd, Cadmium (ppm)	459.515	18.366
Co, Cobalt (ppm)	35.964	3.922
Cu, Copper (ppm)	0.486	0.008
Fe, Iron (wt.%)	4.311	0.251
Pb, Lead (wt.%)	2.214	0.067
S, Sulphur (wt.%)	7.714	0.201
Sb, Antimony (ppm)	194.930	12.948
Zn, Zinc (wt.%)	10.239	0.182
Fire Assay	**Certified**	**SD**
Au, Gold (ppm)	1.851	0.066

Source: IMMSA, 2021

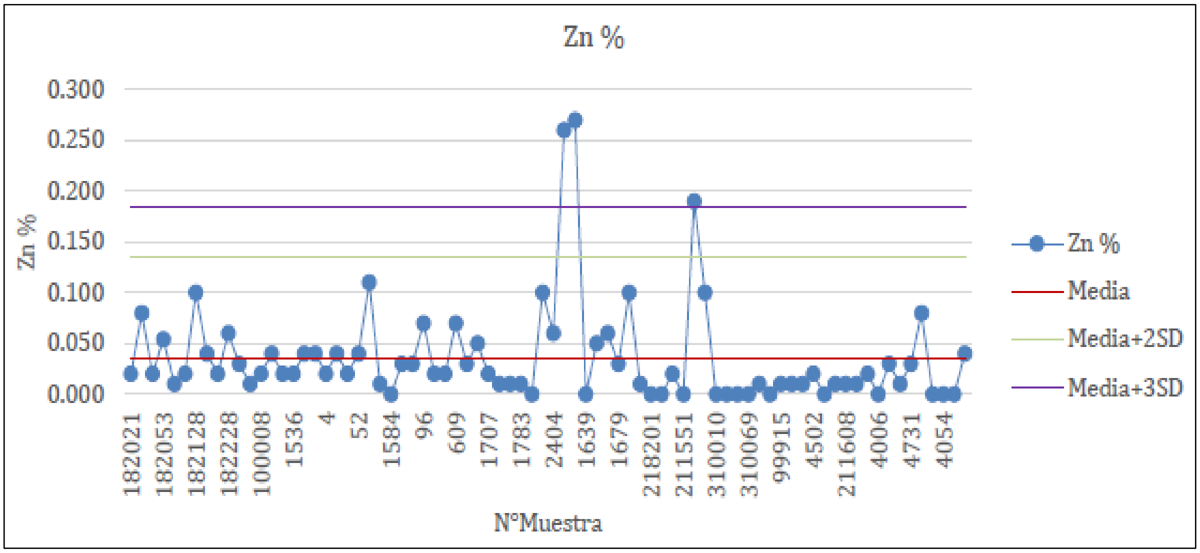
Figure 8.12: Certified Values of the OREAS 622 CSRM





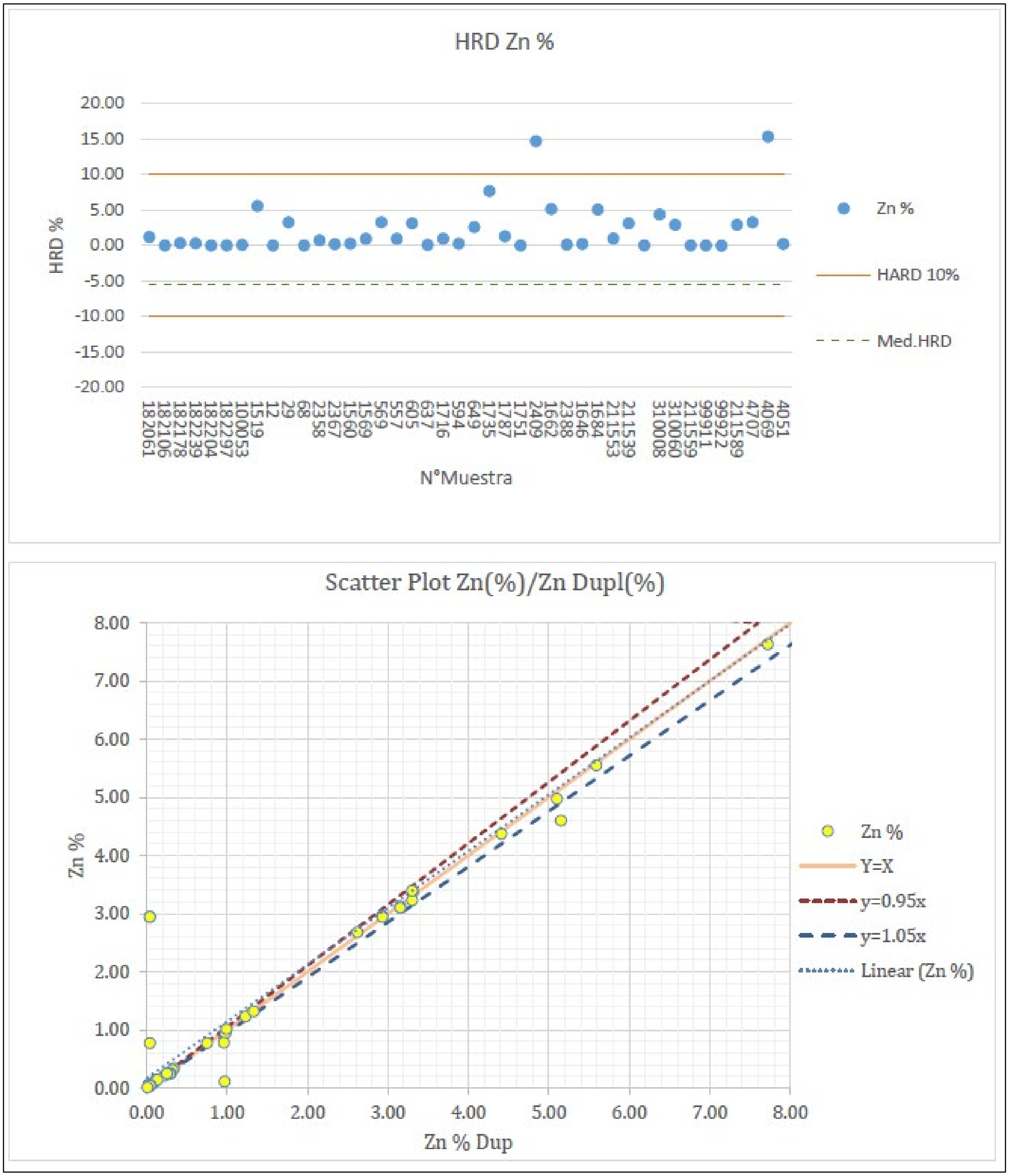
Source: IMMSA, 2021

Figure 8.13: Graph of Results of OREAS 622, Ag and Pb



Source: IMMSA, 2021

Figure 8.14: Results of Coarse Blanks, 2019 to 2020, Zn



Source: IMMSA, 2021

Figure 8.15: Graphs showing the Coarse Duplicate Results, Zn

8.4 Opinion on Adequacy

The security of the drilling and channel sampling is considered adequate for Santa Bárbara's mine geology and exploration departments.

The mine geology department has not implemented quality controls for the samples collected from historical drilling and historical and recent rock sampling from underground workings, which SRK considers to be not in-line with industry best practices and represents a source of uncertainty for the data collected by the mine geology department.

Since 2019, the exploration department has used procedures for drilling and core sampling, which SRK considers to be in-line with industry best practices. SRK recommends the implementation of a protocol to better manage identified QA/QC failures. SRK recommends the inclusion of second laboratory controls (Tercerías) periodically (every 3 months) and the review of the acceptability ranges for coarse duplicates (20% relative error).

The procedures of preparation and chemical analysis and quality protocols of Santa Bárbara's internal laboratory are adequate and appropriate. However, the QP recommends that IMMSA obtain certification for the internal laboratory's quality management system in the near future.

8.5 Non-Conventional Industry Practice

It is the QP's opinion that the current procedures of sampling and QA/QC of Santa Bárbara's mine geology department are not in-line with best practices and represent a potential source of uncertainty in the estimate. Given the large database and lack of historical raw material (core) to complete detailed checks, it is the QP's opinion that this must be addressed via the classification of the deposit.

In order to reach a level of confidence in the sampling information, SRK has relied on information presented from the mining operation to determine potential risk. Santa Bárbara's current mineral resources rely on the quantity of data (drilling and rock channel sampling) collected during the history of the operation. The long history of the mining operations, which started during the first part of the last century, provides support to the historical data based on the recognized performance of the Santa Bárbara operation for decades. Section 9 of this report summarized the work completed by the QP.

9 Data Verification

9.1 Data Verification Procedures

The verification process included the following activities:

- SRK's QP visited the Santa Bárbara project two times between June and November 2021. The purpose of the site visits was to:
  - Complete an underground site inspection and recognize the geology and the mineralization controls
  - Review geological plans and sections to validate information used by IMMSA to generate grade estimates
  - Review the exploration procedures, including the sampling methods, sampling quality, drilling procedures, core sampling, and data management
  - Undertake review of the raw sampling data in hard format to the Excel files used to generate the grade estimate
  - Review of the historical data supporting the reserve calculations
  - Collection of core samples and chemical analysis of available stored core (validation sampling included 30 samples collected from three drillholes)

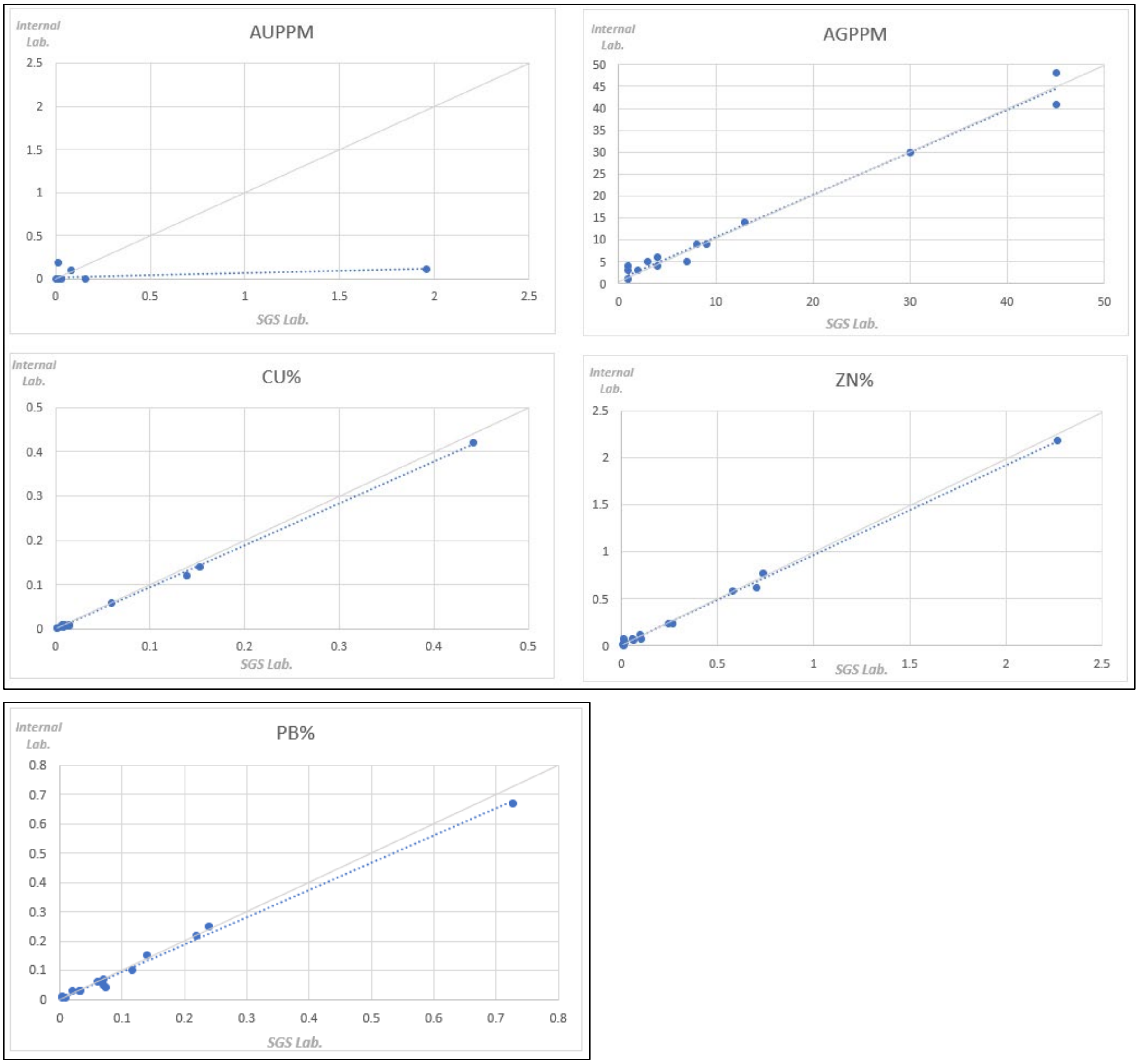
9.1.1 Results of the Validation Samples

Santa Bárbara does not maintain core and discards core after several years. The internal laboratory does not maintain a pulp record and has discarded the pulps and rejects of all the historical samples, which has limited the ability to conduct validation. Only a limited number of historical drill core remains available at the mine. The selection of the drillholes was limited to the core available and does not provide a spatial coverage of the entire operation supporting the current mineral resources. It is the QP's opinion that this process provides a validation on the protocols being used.

SRK's QP completed a review of the available core and notes that IMMSA should review the current practices to improve the core storage facility. Issues noted by SRK are not limited to but included a lack of organization of box storage and poor stacking of core boxes.

Upon completing the review, SRK's QP selected samples from drillholes covering different zones of the deposit. These samples were prepared using Santa Bárbara's internal laboratory. To ensure the quality of the check analysis, SRK also utilized coarse and fine blanks, coarse duplicates, and a certified reference material inserted in the samples sent to SGS for QA/QC purposes. The results of the QA/QC controls passed the acceptability criteria in all cases. Some samples were analyzed at both SGS and Santa Bárbara's internal laboratory.

The average values by drillhole recorded on the original logging sheets tended to be significantly higher in grade compared to the values obtained from the re-assaying program, but the SGS and Santa Bárbara results were in close agreement (Figure 9.1).



Source: SRK, 2021

Figure 9.1: Scatterplots of the Chemical Analysis Results, SGS versus Santa Bárbara's Internal Laboratory

SRK cannot explain the difference between the values recorded on the original logging sheets and the results obtained from the validation submission. It is possible that the poor state of the core and footage markers may have contributed to these differences. It is also possible that the samples or the footage markers in the core box have been moved or misplaced over time. Table 9-1 shows the results of the validation sampling.

Table 9-1: SRK Validation Samples

Information in Logging Sheets										Santa Bárbara Internal Laboratory									SGS Laboratory (Durango) Analysis Results				
Drillhole	Sample Number	From (m)	To (m)	Length (m)	Au (g/t)	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)	Drillhole	From (m)	To (m)	Length (m)	Au (g/t)	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)
										GE-80	522.8	525.85	3.05	0	9	0.05	0.008	0.62	0.011	8	0.0697	0.0105	0.7029
										GE-80	528.9	531.95	3.05	0	6	0.03	0.006	0.06	<0.005	4	0.0302	0.0054	0.0608
GE-80	n/a	682.90	684.15	1.25	0	16	0.1	0.03	0.1	GE-80	681.45	684.45	3.00	0.19	48	0.25	0.14	0.77	0.013	45	0.2398	0.1524	0.737
GE-80	n/a	684.15	686.00	1.85	0.16	263	2.1	0.48	2.1	GE-80	684.45	687.5	3.05	0	14	0.03	0.06	0.01	0.021	13	0.0329	0.0595	0.0086
GE-80	n/a	686.00	687.50	1.50	0	25	0.08	0.12	0.12														
GE-80	n/a	687.50	690.35	2.85	0	15	0.1	0.05	0.19	GE-80	687.5	690.55	3.05	0	5	0.006	0.01	0.02	0.011	3	0.0088	0.0074	0.0079
GE-80	n/a	725.70	727.15	1.45	0	16	0.73	0.09	0.4	GE-80	724.1	727.15	3.05	0	1	0.01	0.005	0.02	0.007	<2	0.0037	0.0083	0.013
				0.00						GE-80	745.45	748.5	3.05	0.1	30	0.1	0.01	0.12	0.081	30	0.1161	0.0143	0.0974
GE-80	n/a	748.50	750.00	1.50	0	37	0.15	0.24	0.6	GE-80	748.5	751.55	3.05	0	5	0.04	0.01	0.07	0.007	7	0.0725	0.0077	0.1018
				0.00						GE-80	751.55	754.6	3.05	0	1	0.005	0.007	0.08	0.01	<2	0.0029	0.0059	0.0113
PS-106	n/a	327.90	331.15	3.25	0	13	0.71	0.16	0.87	PS-106	327.3	330.35	3.05	0	4	0.22	0.01	0.24	0.029	4	0.2194	0.0101	0.245
PS-106	n/a	445.30	447.15	1.85	0	1	0.1	0.01	0.4	PS-106	445.3	448.35	3.05	0	4	0.06	0.004	0.07	0.017	<2	0.06	0.0019	0.054
				0.00						PS-106	442.25	445.3	3.05	0	3	0.03	0.004	0.04	0.007	<2	0.0196	0.0015	0.0198
PS-106	n/a	524.10	525.55	1.45	0	13	0.77	0.05	1.72	PS-106	524.75	527.8	3.05	0.12	41	0.15	0.42	0.59	1.96	45	0.1389	0.4414	0.5805
PS-106	n/a	568.30	570.10	1.80	0	3	0.33	0.02	0.52	PS-106	568.3	571.35	3.05	0	3	0.07	0.007	0.24	0.021	2	0.0689	0.0144	0.2647
PS-106	n/a	570.10	571.75	1.65	0	3	0.18	0.03	0.71														
PS-106	n/a	571.75	573.80	2.05	0	7	0.55	0.03	0.78														
PS-106	n/a	573.80	575.00	1.20	0	23	2.2	0.35	3.09	PS-106	573.3	574.4	1.10	0	9	0.67	0.12	2.18	0.159	9	0.727	0.1384	2.27
Mean Result					n/a	33.0	0.59	0.12	0.83					n/a	8.7	0.10	0.05	0.25	n/a	8.1	0.11	0.05	0.26

Source: SRK, 2021
n/a: Not applicable

9.1.2 Review of Reconciliation Information Planned versus Real Grades

As presented in Section 7.1.4, the results of the comparison between planned and real grades and tonnes for a period of 54 months between 2016 and 2020 show the following:

- Slightly lower actual compared to the planned tonnes (Figure 7.5)
- The differences between grade averages for this period (54 months) are in reasonable levels varying in the range of ±10% for the combined information from the three mines.
- A higher difference is observed in San Diego with a +29.3% average difference of gold (Figure 7.6).
- Silver and lead in Tecolotes show -12.8% and 11.1% average differences, respectively (Figure 7.7 and Figure 7.8).
- Zinc is consistently showing negative differences for the three mines, including a -13% Zn grade difference in Segovedad (Figure 7.10).

9.2 Limitations

Santa Bárbara stores the core of recent drilling completed by the mine geology team, and after some years, the core is discarded. The samples were selected from the available drillholes from different areas of the Santa Bárbara project. The internal laboratory does not store the rejects and pulps from the core and channel samples collected by the mine geology team.

The historical data could not be independently verified due to the non-existence of the core and lack of the original assay certificates. SRK considers there to be limited risk in the use of the historical data, as these typically have supported Santa Bárbara’s production for decades.

9.3 Opinion on Data Adequacy

Based on the validation work completed, SRK is of the opinion that data supporting the resources is adequate to support the mineral resource estimate. The lack of QA/QC data remains a concern, but in the QP’s opinion, the historical mining and production for more than 50 years provides additional verification of the historical data supporting the resources. Given the uncertainty related to the lack of QA/QC, it is the QP’s opinion that assigning the highest level of confidence (Measured) to the estimated resource blocks can be done until the quality control and quality assurance procedures are improved. This will ensure no bias exists (positive or negative) in the data, which is a key requirement for the level of accuracy considered within the Measured category. Revised procedures should include a robust QA/QC program for both internal and external laboratories and third-party checks on a routine basis.

10 Mineral Processing and Metallurgical Testing

10.1 Testing and Procedures

The mine is not currently conducting any specific metallurgical testwork specific to supporting the current disclosure. Economic ore minerals include sphalerite, marmatite, galena, chalcopyrite, and tetrahedrite. The QP has therefore relied on the production data from the three concentrates to determine the recoveries to support the declaration of the mineral resources. Santa Bárbara is an operating mine and has been in operation under the current Company for over 50 years. Mineral processing is completed via conventional flotation processes, with three concentrates being produced (in order of scale):

- Zinc concentrate
- Copper concentrate
- Lead concentrate

10.2 Sample Representativeness

The QP has assumed that the current material is representative of the future mining areas with no known changes in the mineralization styles expected over the short term. Should the mine conduct further exploration on potential exploration targets, additional metallurgical testwork will be required. At minimum, this should include a sensitivity study for potential recoveries using the current operating setup to estimate potential recoveries.

10.3 Laboratories

Currently, all sampling for the Santa Bárbara mill is conducted on-site at the internal laboratory. IMMSA directly owns the internal laboratory. Santa Bárbara's internal laboratory does not have any type of quality certification of its quality management system.

10.4 Relevant Results

The results provided in Table 10-1 show an increase in the recoveries occurred between 2019 and 2020 within the lead concentrate for the lead and a reduction in the tails for lead from 2019 to 2020. It is also noted that the recoveries within the zinc concentrate for 2019 were approximately 6% above the current levels, which accounts for the largest bulk (tonnage) of the produced concentrate streams at the operation.

Table 10-1: Metallurgical Performance 2019 to 2021

Component	Year	Tonnes (t)	Assay Grade						Recovery (%)					
			Au (g/t)	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)	Fe (%)	Au	Ag	Pb	Cu	Zn	Fe
Head Grade	2019	1,636,644	0.24	79.4	1.31	0.40	2.00	3.53	100.5	100.4	100.0	100.3	100.3	100.0
	2020	1,732,554	0.27	79.4	1.34	0.45	2.00	3.53	99.4	100.0	100.0	100.0	100.1	100.0
	2021	989,705	0.24	75.3	1.31	0.41	1.97	3.41	99.3	98.9	99.6	99.3	99.5	99.9
		4,358,903	0.25	78.5	1.32	0.42	1.99	3.50	99.8	99.9	99.9	100.0	100.1	100.0
Concentrate	2019	31,234	4.02	2911.8	56.00	3.84	5.95	5.57	31.7	70.0	81.4	18.2	5.7	3.0
Lead	2020	31,437	3.83	2861.0	55.95	3.70	6.94	5.50	25.5	65.4	75.6	15.1	6.3	2.8
(Pb%)	2021	19,373	3.89	2721.1	53.07	5.31	5.49	6.70	31.4	70.8	79.4	25.2	5.4	3.8
Subtotal		**82,045**	**3.92**	**2847.3**	**55.29**	**4.13**	**6.22**	**5.81**	**29.3**	**68.4**	**78.7**	**18.6**	**5.9**	**3.1**
Concentrate	2019	10,517	2.25	1072.6	7.49	30.00	1.95	26.23	6.0	8.7	3.7	47.8	0.6	4.8
Copper	2020	12,785	4.96	1331.2	11.81	28.22	2.19	24.95	13.5	12.4	6.5	46.7	0.8	5.2
(Cu%)	2021	5,474	2.26	985.8	8.64	29.80	1.16	26.50	5.1	7.2	3.7	40.0	0.3	4.3
Subtotal		**28,777**	**3.46**	**1171.0**	**9.63**	**29.17**	**1.90**	**25.71**	**9.1**	**10.0**	**4.9**	**45.8**	**0.6**	**4.9**
Concentrate	2019	52,149	0.32	136.2	0.95	1.68	51.90	7.91	4.3	5.5	2.3	13.3	82.7	7.2
Zinc	2020	51,824	0.30	108.1	0.72	1.46	53.32	7.55	3.3	4.1	1.6	9.8	79.7	6.4
(Zn%)	2021	29,954	0.24	100.0	0.71	1.51	52.19	7.51	2.9	4.0	1.6	11.1	80.0	6.7
Subtotal		**133,928**	**0.29**	**117.2**	**0.81**	**1.56**	**52.52**	**7.68**	**3.6**	**4.6**	**1.9**	**11.4**	**80.9**	**6.8**
Tails	2019	1,542,743	0.15	13.6	0.18	0.09	0.24	3.18	58.6	16.2	12.6	21.0	11.3	85.1
	2020	1,636,507	0.16	15.3	0.23	0.13	0.28	3.20	57.1	18.2	16.3	28.4	13.3	85.6
	2021	934,903	0.15	13.4	0.21	0.10	0.29	3.07	59.9	16.9	14.9	23.1	13.8	85.1
		4,114,153	0.16	14.2	0.20	0.11	0.27	3.16	58.3	17.1	14.6	24.4	12.7	85.3

Source: IMMSA, 2021

It is the QP's opinion that using a 3-year trailing average for the recoveries would therefore not be appropriate and would likely result in over-stating the zinc recovery and lower lead recoveries in the system.

The QP has therefore elected to use the 2021 production information and recoveries for the assessment of the CoG, as disclosed in Section 11.4 of this report.

Using the information provided in Table 10-1 and by calculating the total recovery for the key elements, Table 10-2 shows the cumulative recoveries that have been used for the purpose of analyzing the CoG.

Table 10-2: Cumulative Recovery used for CoG Analysis

Element	Recovery (%)
Au	36.5
Ag	82.0
Pb	79.4
Cu	65.2
Zn	80.0

Source: SRK, 2021

10.5 Adequacy of Data and Non-Conventional Industry Practice

In the QP's opinion, the results to date are sufficient for the definition of a mineral resource with the potential for economic extraction of the three concentrate products produced. The QP is not aware of non-conventional industry practice utilized.

11 Mineral Resource Estimates

The mineral resource estimate presented herein represents the more recent resource evaluation prepared for the Santa Bárbara project in accordance with the disclosure standards for mineral resources under §§229.1300 through 229.1305 (subpart 229.1300 of Regulation S-K).

11.1 Key Assumptions, Parameters, and Methods Used

This section describes the key assumptions, parameters, and methods used to estimate the mineral resources. The technical report summary includes the mineral resource estimates, effective December 31, 2021.

11.1.1 Mineral Titles and Surface Rights

The mineral resource estimate stated herein is done so on 100% terms of the resources contained within mineral title and surface leases which are currently held by IMMSA as of the effective date of this report. All conceptual optimizations to constrain statement of mineral resources have been limited to within these boundaries, as well. Current and future status of the access, agreements, or ownership of these titles and rights is described in Section 3 of this report.

11.1.2 Database

IMMSA is currently in the process of digitizing the historical database for the Santa Bárbara project, which is projected to be completed in 2022. The lack of a digital database has required more-detailed and manual validation by SRK to validate the current mineral resources. SRK considers the procedures used by IMMSA to be reasonable and in-line with industry standards with the exception of the data storage.

All drilling and sampling completed by the Company are logged for a variety of geological parameters, including rock types, mineralogy, and structure. Historical drilling featured cross-sections, and maps have locally been used for modeling purposes for the mineralization contacts. SRK considers movement to a digital database will result in improvements in the ability to develop a robust geological model supporting the mineral resource estimate.

11.1.3 Geological Model

There is extensive knowledge of the geology, structural, and mineralization controls of the Santa Bárbara deposit; however, a 3D geological model has not been created. The historical information is stored on maps, which include the underground workings, lithology, structure, and mineralization.

Currently, the geological interpretations are in paper format and in AutoCAD vertical, long, and plan sections. The mine geologists map the underground workings and define the channels and the sample limits. Location of sampling points are noted on the geological maps. The mapping includes description of the rock type and the mineralization characteristics, which is then transcribed into the topographic maps and used in conjunction with the assay results.

Once the maps are generated, IMMSA geologists delineate the veins, mineralized zones, and the geological interpretation in the plan views, as shown in Figure 7.3. This information is then used to define the extension of the resource blocks. To generate the volumetric measurement, the area is first determined by measuring the perimeters of the defined blocks and recorded. The volume is then calculated for the mineral resource estimation using the true width of the vein or the projection of irregular areas using sectional interpretations (Figure 7.10).

Geological interpretations of some new mineralization zones of the deposit have been constructed in Leapfrog Geo software (as part of a test process). Integrating the mine maps, horizontal and section interpretations, and the existing geological models into a single model will present some challenges due to the quantity of data and the complexity of the deposit.

To generate a consolidated 3D geological model, the following activities are required:

- Compile a 3D database of the underground chip channel samples. The exclusion of samples in already-mined zones should be defined by the QP in charge of the geological modeling. A 3D modeling software (i.e., Leapfrog Geo) can be used for this activity.
- Convert all the information to a unique coordinate system.
- Consolidate the rock and drill core sampling database (collar, survey, assay, lithology, alteration, vein codes, etc.) currently in Excel and paper formats. This activity will require the digitizing of additional information from the maps and drill logs in paper that have not yet been digitized.
- Digitize sections and maps with lithology information that are not in digital format. This consolidated information will be the basis for the 3D geological interpretation.
- Digitize and construct depletion solids.

11.2 Mineral Resource Estimates

Santa Bárbara has not previously produced mineral resource estimates under Guide 7. The mineral resource statement presented herein represents the latest mineral resource evaluation prepared for Santa Bárbara.

The mineral resource estimation for Santa Bárbara was completed using the available data based on handmade documentation and calculations, including, in part, information in AutoCAD and Excel formats. Due to the characteristics of the available information of Santa Bárbara, the 3D geological model, geostatistical analysis, block model construction, and geostatistical estimation using specialized software are not included as part of this report.

This mineral resource estimation is based on the reserve blocks calculations completed by Santa Bárbara and include the following aspects:

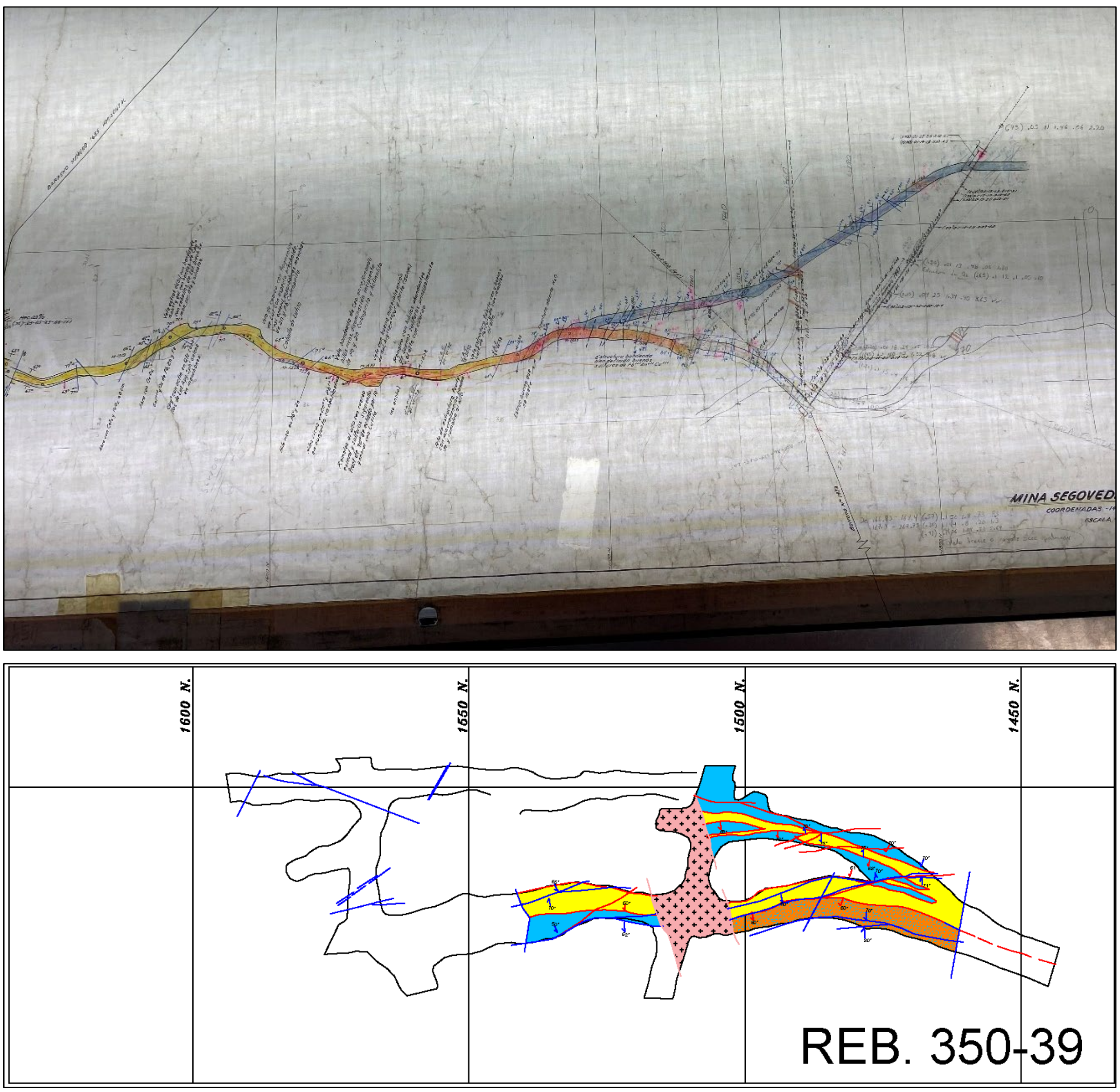
- Data compilation and verification, channel, and core sampling
- Calculation of areas of blocks in vertical or horizontal sections
- Volume calculations from areas and influence distances
- Calculation of grade weighted averages
- Tonnage calculations
- Classification

11.2.1 Data Compilation and Verification

The geological information and the sampling of the underground workings have been historically collected on paper and transferred to maps and formats, including the geological interpretations, lithology, mineralization type, and alteration among other characteristics.

The information that is registered in maps and formats is complemented with the assay results obtained from the internal laboratory and transferred to the maps and formats by hand. In the second half of 2021, Santa Bárbara started digitizing all the historical information, including the drilling, rock sampling, and mapping.

Part of the historical and the more-recent information (geology, mineralization, structural, sampling, etc.) collected on maps has been transferred to a digital format using AutoCAD software using the mine topography information provided by the surveyors (Figure 11.1). This information is then used to generate sections, complete the geological interpretations, and produce long sections, vertical sections, and plan views from where the mineralized zones areas are delimited using the lithology, mineralization, and the sample results.

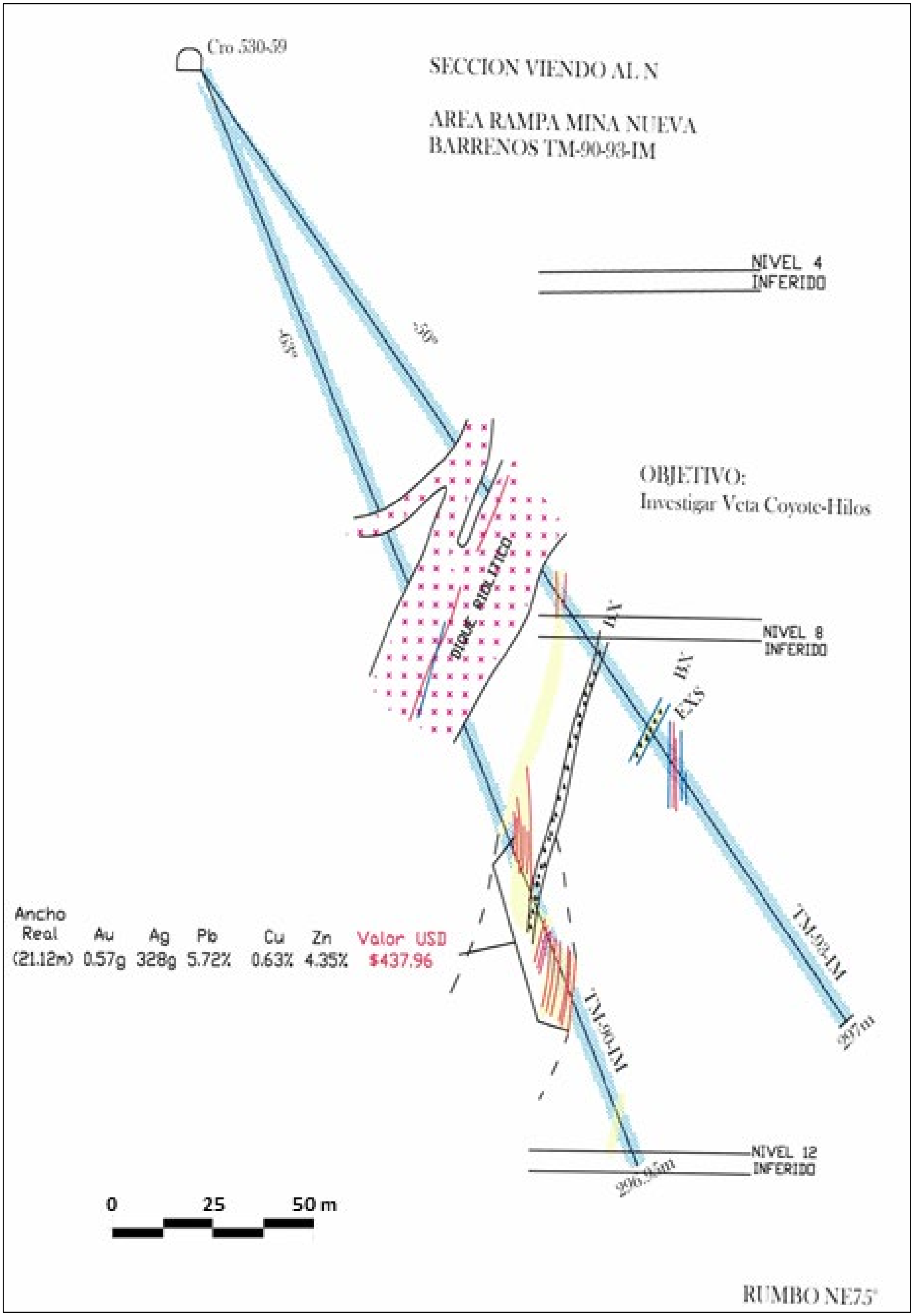


Source: SRK, 2021

Figure 11.1: Examples of Plan Views of Underground Workings and Geology Mapping in Paper Format and as Digitized in AutoCAD

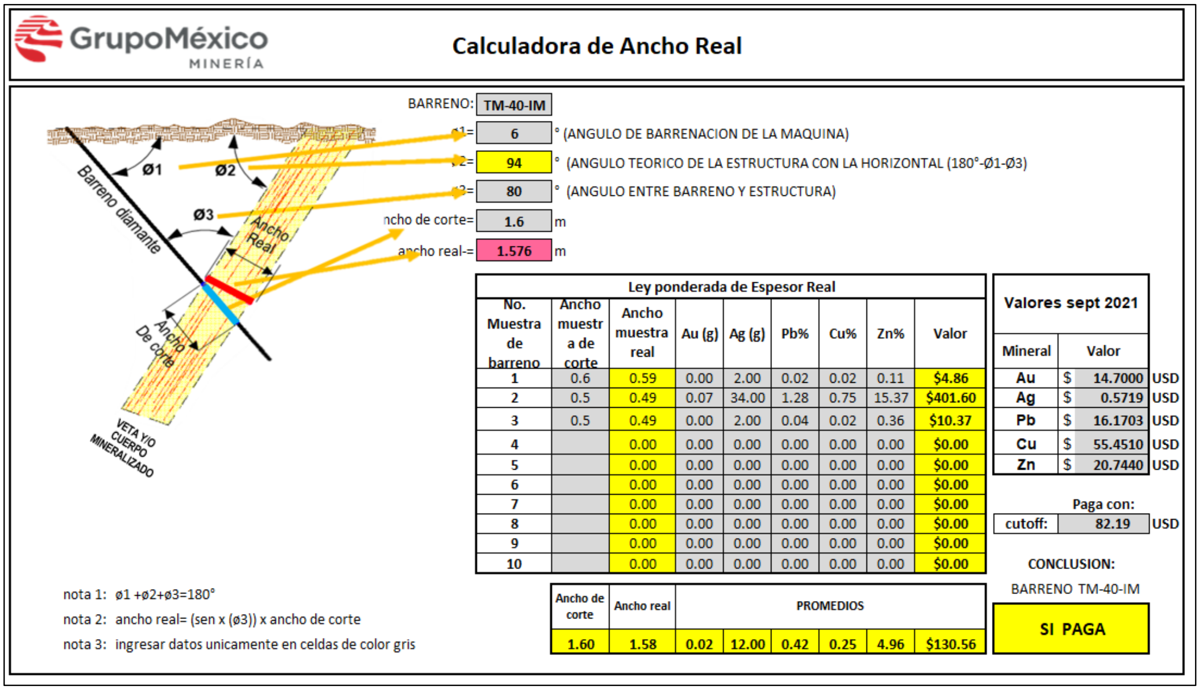
The following is the process to define the block shapes:

- Based on the geological underground mapping and channel sampling, the geologists define the extension of the continuous mineralization in veins and locally in replacements in plan views and outline the mineralized areas in paper maps or in AutoCAD. The mineralization is associated to the veins in Santa Bárbara. The vertical sections approximately perpendicular to the vein directions are used to interpret behavior of the veins (Figure 11.1 and Figure 11.2).
- Santa Bárbara's topography department generates updated long sections (parallel to the general direction) for each vein with the information of mined areas and underground workings. The interpreted blocks are located in the long sections, and the area is measured directly from them using AutoCAD and historically with manual methods.
- The real width of the vein is calculated from the information of drilling and/or channel sampling, which is weighted according to the influence in the block.
- To calculate the true width of the veins when drilling is used, IMMSA performs the correction of apparent widths using the table showed in Figure 11.3.
- The maximum extension of the block from channels or drilling are established by the manual of resources/reserves of IMMSA, which provides the parameters to classify each block, and if necessary limited by existing underground workings or mined areas.
- Once the geologists have defined the block areas from the long sections, the volume of the block is defined by multiplying the area by the vein true width.
- The calculated volumes require and additional correction due to the dip of the vein. The dip of the vein in the location of the block is obtained from the underground mapping and the general interpretation of the vein. The Factor de Echado is calculated, which is greater or equal than 1.



Source: SRK, 2021

Figure 11.2: Example of Geological Interpretation in Vertical Section



Ley ponderada de Espesor Real

No. Muestra de barreno	Ancho muestra de corte	Ancho muestra real	Au (g)	Ag (g)	Pb%	Cu%	Zn%	Valor
1	0.6	0.59	0.00	2.00	0.02	0.02	0.11	$4.86
2	0.5	0.49	0.07	34.00	1.28	0.75	15.37	$401.60
3	0.5	0.49	0.00	2.00	0.04	0.02	0.36	$10.37
4		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
5		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
6		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
7		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
8		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
9		0.00	0.00	0.00	0.00	0.00	0.00	$0.00
10		0.00	0.00	0.00	0.00	0.00	0.00	$0.00

Ancho de corte	Ancho real	PROMEDIOS					
1.60	1.58	0.02	12.00	0.42	0.25	4.96	$130.56

Valores sept 2021

Mineral	Valor	
Au	$ 14.7000	USD
Ag	$ 0.5719	USD
Pb	$ 16.1703	USD
Cu	$ 55.4510	USD
Zn	$ 20.7440	USD

Paga con:

cutoff:	82.19	USD

CONCLUSION:

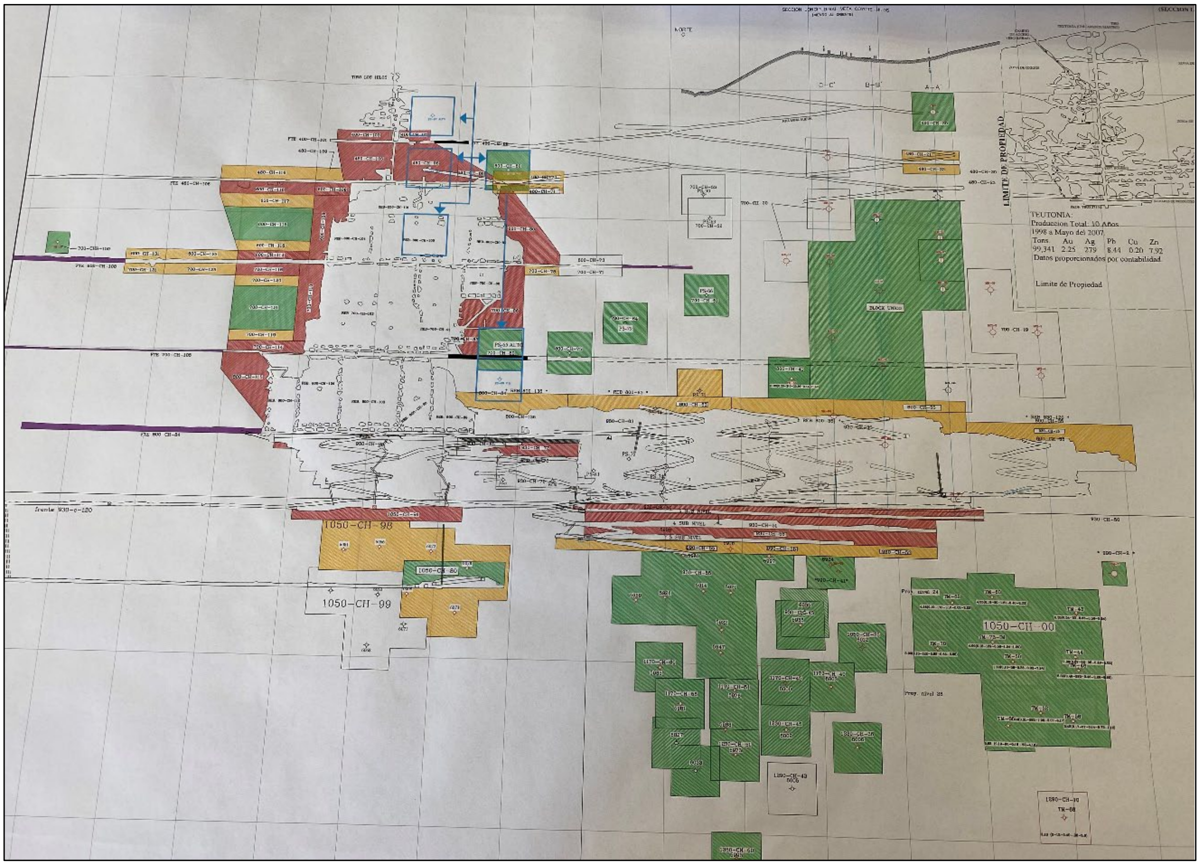
BARRENO TM-40-IM

SI PAGA

Source: IMMSA, 2021

Figure 11.3: Spreadsheet used to Obtain the True Width of the Veins When using Drilling

Figure 11.4 shows an example of a long section showing resource blocks and their areas that are measured from the long section. These long sections include the mined areas for every vein.



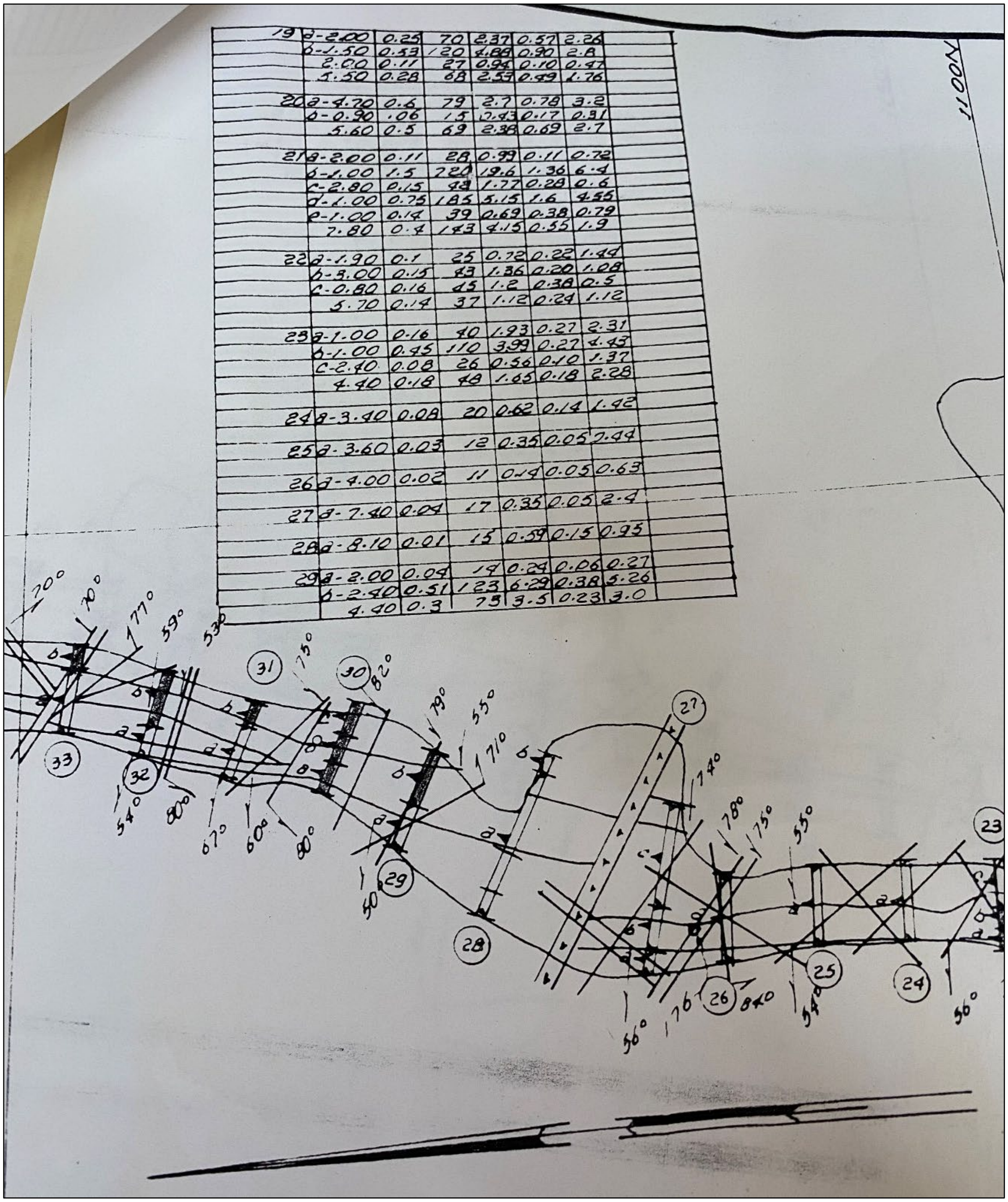
Source: IMMSA, 2021
Note: Internal mine planning confidence ranges are shown in red, orange, and green.

Figure 11.4: Long Section of Veta Coyote Including the Resource Blocks and the Underground Workings at the Santa Bárbara Project

11.2.2 Calculation of Weighted Averages Grades and Volume Calculation

The samples are taken perpendicular to the veins from the stope faces or roofs as well as from the underground workings along the veins or from drillholes intersection the block. Figure 11.5 shows an example of a handmade map including the channel sample lines and the corresponding table with assay results.

- Average grades of each group of channel samples and/or drillhole are obtained using length or distance weighting where necessary.
- Each block can have the influence of various channel sample groups and drillholes. Areas of influence are defined by the geologist for each group of channel samples or drillholes. These areas are then used to obtain the final grades of the block. This is similar to a polygonal style of estimation process, which provides a single estimated value for the defined area (stope). This was a traditional method used in underground mines in the past, but new techniques provide more flexibility to assess changes to potential mine plans.



19	a-2.00	0.25	70	2.37	0.57	2.26
	b-1.50	0.53	120	4.88	0.90	2.8
	2.00	0.11	27	0.94	0.10	0.47
	5.50	0.28	68	2.55	0.49	1.76
20	a-4.70	0.6	79	2.7	0.78	3.2
	b-0.90	.06	15	0.43	0.17	0.31
	5.60	0.5	69	2.38	0.69	2.7
21	a-2.00	0.11	28	0.99	0.11	0.72
	b-1.00	1.5	720	19.6	1.36	6.4
	c-2.80	0.15	48	1.77	0.28	0.6
	d-1.00	0.75	185	5.15	1.6	4.55
	e-1.00	0.14	39	0.69	0.38	0.79
	7.80	0.4	143	4.15	0.55	1.9
22	a-1.90	0.1	25	0.72	0.22	1.44
	b-3.00	0.15	43	1.36	0.20	1.08
	c-0.80	0.16	45	1.2	0.38	0.5
	5.70	0.14	37	1.12	0.24	1.12
23	a-1.00	0.16	40	1.93	0.27	2.31
	b-1.00	0.45	110	3.99	0.27	4.43
	c-2.40	0.08	26	0.56	0.10	1.37
	4.40	0.18	48	1.65	0.18	2.28
24	a-3.40	0.08	20	0.62	0.14	1.42
25	a-3.60	0.03	12	0.35	0.05	1.44
26	a-4.00	0.02	11	0.24	0.05	0.63
27	a-7.40	0.04	17	0.35	0.05	2.4
28	a-8.10	0.01	15	0.59	0.15	0.95
29	a-2.00	0.04	14	0.24	0.06	0.27
	b-2.40	0.51	123	6.29	0.38	5.26
	4.40	0.3	73	3.5	0.23	3.0

Source: IMMSA, 2021

Figure 11.5: Example of Plan View of Underground Working and the Channel Samples Perpendicular to the Vein and the Assay Results Table

Every year, IMMSA updates the resource/reserve calculations for the existing blocks, updating the outline of the blocks, which considers the recent mined areas and using the new set of channel samples collected from the advanced stopes and drilling if new data is available.

11.2.3 Capping

Before the final calculation of weighted average grades for each resource block, the geologists review the assays and apply capping if required using the following procedure:

- Evaluate the grades of a specific zone within a resource block.
- Identify samples considered outliers based on local grades within the particular vein and resource block.
- Calculate the weighted average of the raw grades for each element.
- Cap the identified outliers for each element with the average grade calculated in the previous step.
- Recalculate the final weighted average grade.

This is a local capping approach based on experience and knowledge of the operation and within different areas of the operation, which the QP considers reasonable. SRK will review the capping approach and provide recommendations once the digitized database is established.

11.2.4 Density

Santa Bárbara uses a 3.0-t/m^3 density value, a value provided by the mine. The plant and the mine have been using this density value for decades, which provides confidence. The determination method used to obtain this value is not clear, and Santa Bárbara did not provide documentation related to this value.

Santa Bárbara initiated the collection of specific gravity tests to increase the size of the database to confirm the current density values. Santa Bárbara should consider this activity a priority for 2022.

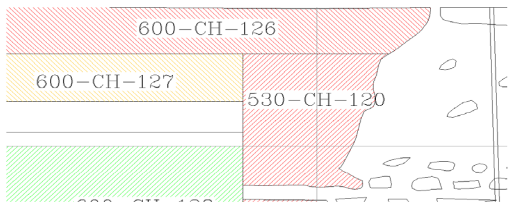
Different vein systems, rock types, and the characteristics of the mineralization have variable densities, which is an aspect to investigate to obtain a more-robust density calculation.

The tonnages are calculated by multiplying the obtained volumes by the 3.0-t/m^3 density value.

11.2.5 Documentation

Plans and calculations for the resource estimates are made in a sufficiently detailed manner to be useful for other uses. The calculation for each block is carried out in the standard sheets (Figure 11.6) using Excel and/or forms filled out by hand. In the spreadsheets, the final data of the ore in situ should appear as a total in situ followed by the tonnage and grades of the ore. The calculations for each block must be accompanied by drawings and sections as necessary. All spreadsheets, drawings, and other documents are stored in paper folders and maintained in the mine geology office (Figure 11.7). Figure 11.8 shows the information stored in paper folders supporting the resource estimation for each block.

INDUSTRIAL MINERA MEXICO S.A. C.V UNIDAD SANTA BARBARA
HOJA PARA CALCULO DE RESERVAS



MINA	SAN DIEGO
VETA	COYOTE HILOS
BLOQUE	530 -CH-120
CLASIFICACIÓN	PROBADO
FECHA	NOV-2021
CALCULADO POR:	PAMELA RODRIGUEZ ARREOLA
CHECADO POR	MANUEL O. MORENO RIOS
TONELADAS TOTALES	10,217
CAMBIO DE AÑO ANTERIOR	TON Y LEY
NOTA:	

(1) Tachese el que no corresponda
(2) Longitud de tramo, area, volumen toneladas

FIGURA O SECC NUM (1)	CALCULOS AUXILIARES							OBSERVACIONES
	AREAS			TONELAJE				
	DIMENSIONES	PROM. FINALES (1)	ANCHO LONG(1)	METROS CUBICOS		DENSIDAD	TON. METRICAS SECAS	
1	X	1,477	2.26	3,339	X	3.0	10,016	AREA
								CALCULADA
								EN AUTOCAD
		1,477		3,339	X	3.0	10,016	

LOCALIZACION MUESTRAS	DATOS PESO (2)		LEYES Au	Ag	Pb	Cu	Zn		VALOR	OBSERVACIONES
FTE 530-C-109	26.75	2.44	0.21	91	1.10	0.51	2.73			VER ANEXO
REB 530-C-105	51.50	2.17	1.43	143	2.54	0.37	3.10			VER ANEXO
	78.25	2.26	1.01	125	2.05	0.42	2.97			

D A T O S F I N A L E S

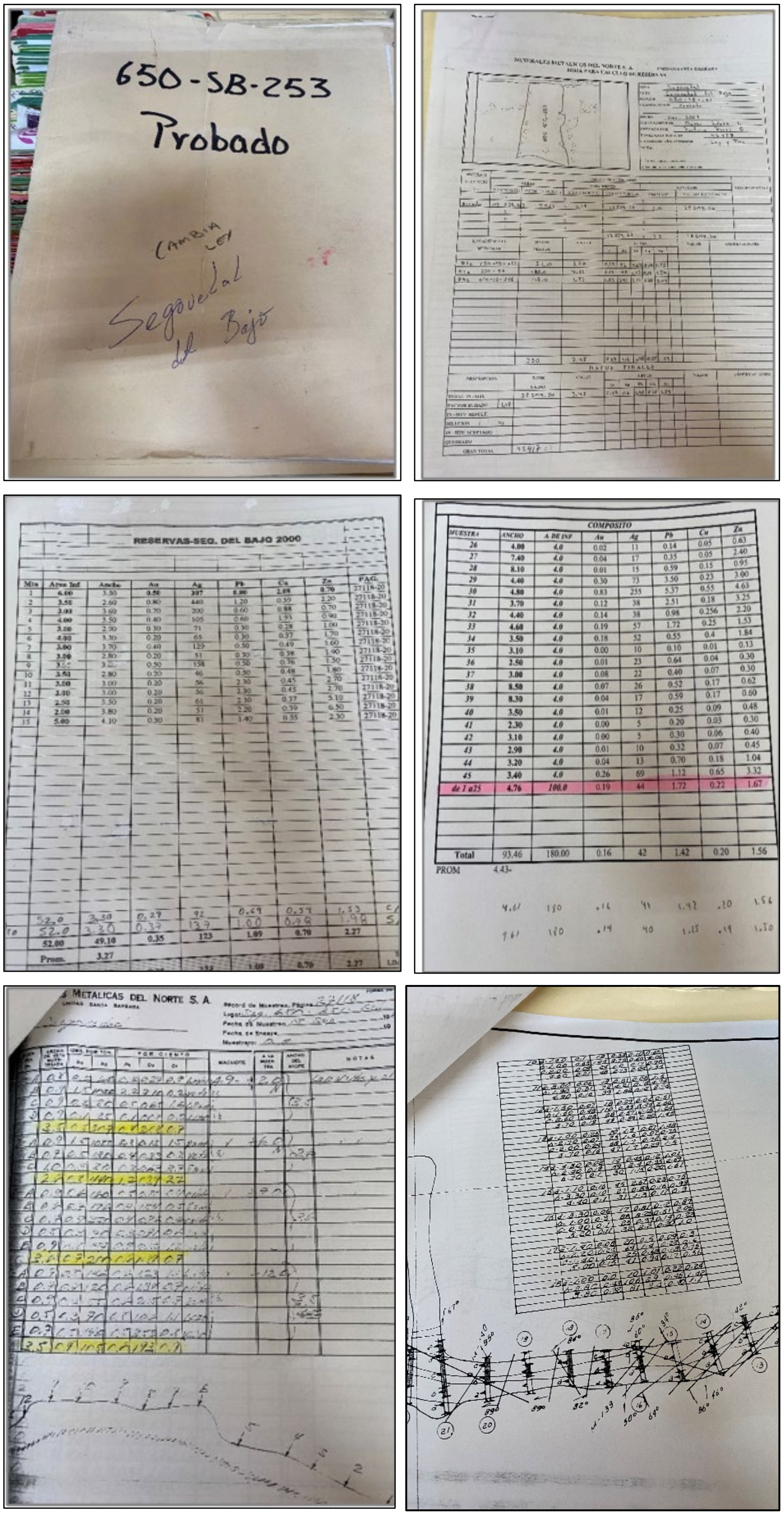
DESCRIPCION	TONE LADAS		LEYES Au	Ag	Pb	Cu	Zn		VALOR	OBSERVACIONES
TOTAL IN - SITU	10,016	2.26	1.01	125	2.05	0.42	2.97			
FACTOR ECHADO 1.02										
IN - SITU RESULT.										
DILUCION (%)										
IN - SITU ACEPTADO										
QUEBRADO										
GRAN TOTAL	10,217									

Source: SRK, 2021

Figure 11.6: Example of Table used for Calculation of Resources/Reserves in Santa Bárbara

Source: IMMSA, 2021

Figure 11.7: Information of Historical Drilling and Information of Resource/Reserve Blocks Stored at Santa Bárbara



Source: IMMSA, 2021

Figure 11.8: Example of Data Supporting a Resource/Reserve Block at Santa Bárbara

11.2.6 Depletion

The shape of the blocks and their extensions are defined by using the updated underground surveying information produced by the IMMSA survey department. The mined areas and underground workings are mapped in the plan, vertical, and long sections that the geologists use to outline the resource blocks in long sections. This methodology makes possible to discount the mined areas, since the resource blocks are not including the underground workings and exploited stopes, which act as limits during the blocks' outlining.

The historical surveying of underground workings and exploited zones is an aspect that introduces some level of inaccuracy when establishing the volumes exploited and the extension of some blocks.

At the operation, the engineering department is responsible for keeping the topography of the mining works updated (digitally and physically in plans). The current system involves capture of survey points directly into a digital copy of the underground workings, which is validated in the field by the survey. The survey data points are used to update the AutoCAD definition of the depleted areas.

The QP comments that the final depletion shapes have been surveyed at the end of October 2021 with the additional depletion based for November and December based on the planned depletions. It is the QP's opinion that this will not have a material impact on the final mineral resources.

11.3 Resource Classification and Criteria

The QP has classified the mineral resources in accordance with §229.1302(d)(1)(iii)(A) (Item 1302(d)(1)(iii)(A) of Regulation S-K) and in a manner consistent with industry guidelines and definitions as defined by CRIRSCO. The mineral resources are classified as Indicated and Inferred, according to the following definitions and criteria.

11.3.1 Measured Resources

No Measured resources are stated, as insufficient overall confidence exists to confirm geological and grade continuity between points of observation to the level needed to support detailed mine planning and final evaluation studies. In the QP's opinion, other limitations are a lack of density measurements and insufficient QA/QC protocols in the mine sampling protocols.

11.3.2 Indicated Resources

Based on good geological evidence, it is the mineral that determines its continuity in terms of the size, shape, and content of the mineralization in the structures already known in exploitation, being able to be quantified at any depth of the deposit based on diamond drilling, whether it is superficial or underground, as long as it does not have a gap greater than 30 m, both vertically and horizontally.

Where there are no vertical works connecting the levels or diamond drilling, the mineral sampled may only be quantified up to 30 m above or below the level or above the head of the stope. It is established that below the last level in the different sections of the mine and regardless of their elevation in each section, only Indicated resources can be quantified up to 15 m below the last level without diamond drilling. To have the desired reliability, Santa Bárbara considers that there should be no Indicated resources above the first level of the mine.

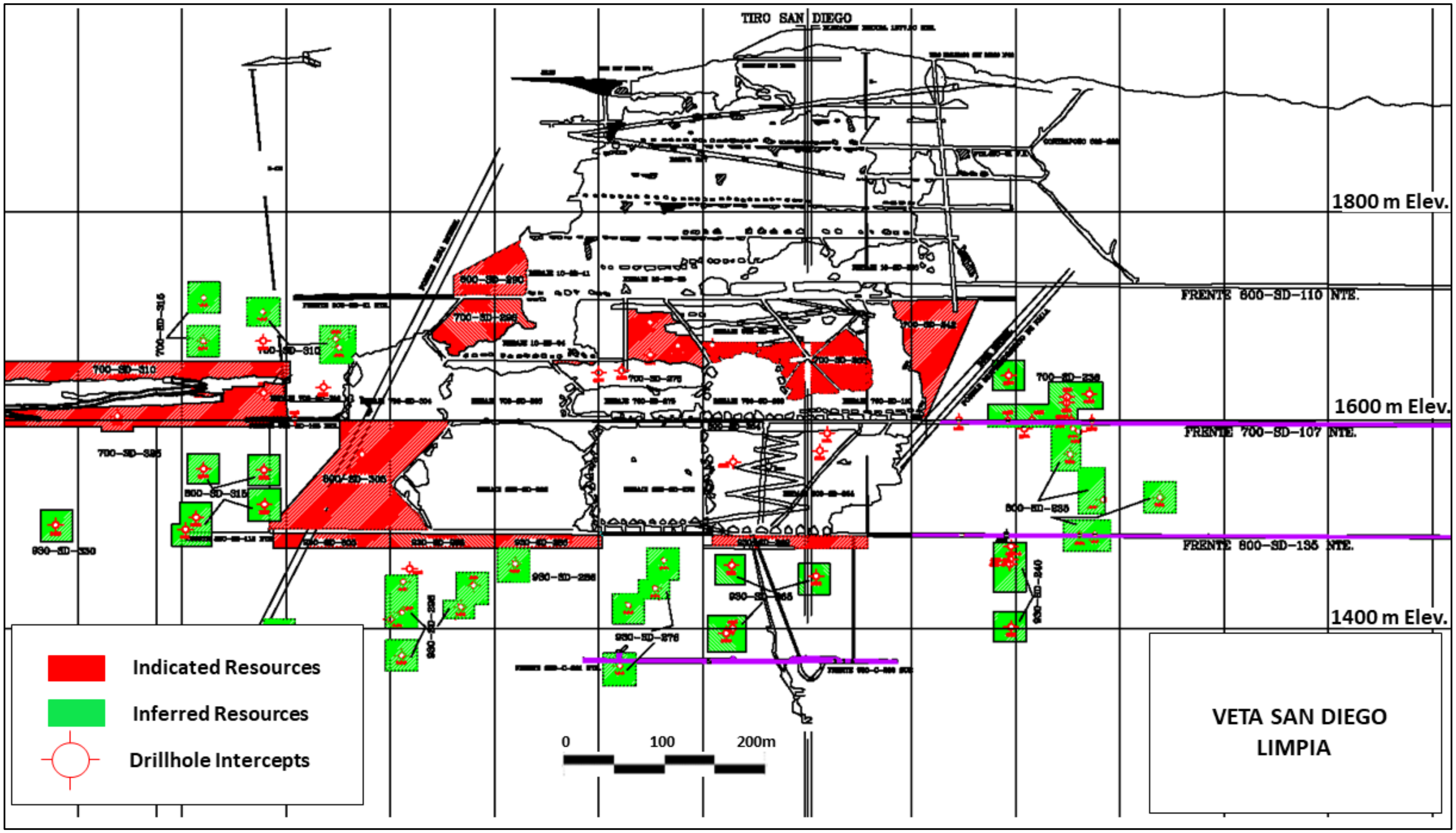
11.3.3 Inferred Resources

Inferred resources can be established in areas with sufficient geological confidence where the following requirements are met:

1. The remaining mineral between two levels, with a maximum separation of 120 m, when there is no diamond drilling
2. The mineral determined by diamond drilling, either superficial or underground, at any depth of the deposit, when systematic drilling is carried out, with a separation of no more than 60 m between drillholes. When the above is not complied with, only a radius of influence of 15 m is allowed.

Due to the lack of QA/QC protocols for the historical drilling and channel sampling, deficiencies in the channel sampling procedures, and the lack of measurements of downhole surveys for historical drilling, SRK established that there are no Measured resources in Santa Bárbara.

Figure 11.9 shows an example of the resource blocks in Veta San Diego Limpia (long section).



Source: IMMSA, 2021

Figure 11.9: Long Section of Veta San Diego Limpia Including the Mineral Resource Blocks

11.4 Uncertainty

11.4.1 Indicated Resources

It the QP's opinion that the Indicated resources are estimated based on adequate geological evidence and sampling. The distances of influence from underground sampling and distances between drilling are the controlling aspects on the uncertainty. Santa Bárbara uses a maximum of 30 m from channel sampling and 30 m between drillholes. The criteria and uncertainty correspond to the medium degree of uncertainty column in Table 11-1.

Table 11-1: Sources and Degree of Uncertainty

Source	Degree of Uncertainty		
	Low	**Medium**	**High**
Drilling	Recent drilling completed by the exploration team is in line with industry standards. This drilling is focused in new areas that are extensions of the vein systems found at Santa Bárbara.	Protocols of historical drilling data supporting the mineral resources do not fulfill industry standards.	
Sampling		Protocols of rock sampling are not in-line with industry standards. Density of rock and core sampling supporting the mineral resources is reasonable.	
Geological knowledge	There is an extensive knowledge of the geology and mineralization of the Santa Bárbara mineral deposit. This aspect and the experience of the management team provides confidence to the geological assumptions during geological interpretations.		
QA/QC	Sample preparation, chemical analysis, and the QA/QC procedures implemented by the exploration team for the drilling completed by the contractor Tecmin in recent years meet current industry standards. These works are focused in new areas that are extension of the veins systems at Santa Bárbara.	A lower precision of historical data has been recognized. Drilling and channel sampling completed by the mine geology department supporting the mineral resources have not been supported by adequate QA/QC protocols.	
Data verification	The extensive historical production information and knowledge of the geology and mineralization provides support to the historical data collected since the early 20th century.	The lack of an important part of the core from historical drilling supporting the mineral resources limited the verification activities.	
Database	Original geology, structural and mineralization maps, drill core logging formats (including the assay results), and interpretation plan and vertical sections that support the mineral resources are stored in the operation in paper format, and a small portion of the information is in digital format.	Most of the data supporting the mineral resources is stored on paper. Local errors related to handwritten supporting data are expected.	
Bulk density		A unique value is used for all the rock types and does not consider the mineralization, vein system, and geology changes. This introduces local inaccuracies. Plant and mine have been using a unique density value for decades, which provides support to this number.	
Variography		Not all of the project data are in digital format for an adequate continuity analysis. Continuity assumptions of mineralization have been based on the extensive geological knowledge of the deposit.	
Grade estimation		Grades and volume calculations are based on historical and recent data, which provides some level of inaccuracy. Part of the calculations were completed using handmade drawings, which introduces inaccuracies.	
Prices, NSR values	Prices and costs are based on Santa Bárbara mining and production information (not exceeding 12-month averages) with 15% as premium applied for resources.		
Drill and sample spacing		Distances to underground workings and channel sampling are less 30 m. There are a minimum of two drillholes within a drill spacing of 30 m.	There is a minimum of one hole at a distance less than 15 m.
Depletion		The resource blocks are defined considering the updated topography of the mine. The adequacy and precision of the historical surveying information of the underground workings and exploited areas introduces some level of inaccuracy to the limits of the resource blocks.	
Criteria of classification	Distances of influence of samples are supported on the good knowledge of the geology and mineralization. These distances are considered conservative, which mitigates in some extent the risk associated to over-estimation of the continuity of mineralization.		

Source: SRK, 2021
Note: Changes in metal prices will likely result in significant changes in the values derived from the NSR equation. Currently, only limited stopes fall below the operating costs of US$79.3/t.

11.4.2 Inferred Resources

The Inferred category is limited to the resources that are in areas where the quantity and grade are estimated based on limited sampling and moderate to limited geological evidence. This category is considered to have the highest levels of uncertainty, which correspond to the high degree of uncertainty column in Table 11-1. These areas of the Santa Bárbara project represent the areas with the lowest drilling density and influence distances to channel sampling of up to 60 m. SRK considers that these areas of the mineral resource will need additional drilling and underground workings prior to mining.

Considering the uncertainty noted above and the means designed to either address uncertainty in the modeling and estimation process, SRK is of the opinion that the stated mineral resources are appropriate and consistent with industry best practice.

In addition, there is potential for some of these uncertainties or risks to be mitigated or reduced through additional study. Section 23 of this report summarizes recommendations for these studies. It is the QP's opinion that measures should be taken to mitigate the uncertainty, including but not limited to:

- Continual drilling in the most critical areas of the deposit, locally to spacing of less than 50 x 50 m
- Digitization of all geological information and storage of data into a commercial secure database
- Detailed geological modeling methods using the new digital database, which integrates all relevant geological data into defining the model and achieving the most accurate model possible at the current level of study
- Extensive QA/QC analysis and monitoring to understand relative impacts to local inherent variability within resource domains
- Introduction of more-routine density sampling within the mineralization to confirm level of fluctuation from the current uniform assignment of a single 3 t/m^3 value
- Rigorous approach to classification which appropriately considers the noted detractors in confidence and utilizes criteria designed to address them.

11.5 Cut-Off Grades Estimates

Definitions for mineral resource categories used in this technical report summary are those defined by the SEC in S-K 1300. Mineral resources are classified into Indicated and Inferred categories. Mineral resources are reported in total, as currently no mineral reserves are reported in accordance with S-K 1300 requirements.

Geologists use diamond drilling information, channel sampling, and development information to identify mineralized areas. The mineralized areas are then divided into smaller blocks based on the vein. Information on each block, such as classification, dimensions, thickness, and sampled grades, are entered into an Excel spreadsheet to compile the final mineral resources.

Santa Bárbara's mineral resources are considered to be amenable to underground mining methodologies, as has been established at the mine to date. Due to the variable characteristics of the orebodies, four types of mining methods are used: shrinkage stoping, long-hole drilled open stoping, cut-and-fill stoping, and horizontal bench stoping. The ore, once crushed, is processed in the flotation plant to produce concentrates (zinc concentrate, copper concentrate, and lead concentrate).

Given that process recoveries and costs in the resource model are grade and/or domain dependent, the resources are reported with respect to a block NSR value, which is calculated on a stope block (panel) basis. The cut-off value used for the resource estimate is based on an NSR value, in units of US$/t, which can be directly compared to operating unit costs. The NSR formula is:

$$NSR = \frac{\text{Gross Revenue – Off-Site Charges}}{\text{Tonnes Processed}}$$

The calculation of the NSR is effectively a calculation of unit values for the individual metals, which results in a value for a block based on the contained metal.

IMMSA reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long term (10-year) metal price forecasts. The QP has been supplied with IMMSA's internal selected metal prices for mine planning for the Santa Bárbara project. The prices are considered in-line with independent forecasts from banks and other lenders. The QP has adjusted the IMMSA selected metal to the selected mineral resource estimation prices using a factor of 15% higher, which is in-line with typical industry practice.

NSR cut-off values for the mineral resources were established using a gold price of 1,725 US$/oz, a zinc price of US$1.32/lb, a lead price of US$1.04/lb, a silver price of US$23.0/oz, and a copper price of US$3.80/lb (Table 11-2).

Table 11-2: Price Assumptions

Factors	Value	Unit
Metal prices		
Au	1,725.00	USD/oz
Ag	23.00	USD/oz
Pb	1.04	USD/lb
Cu	3.80	USD/lb
Zn	1.32	USD/lb
Exchange rate (MXN:USD)	20.1418	

Source: SRK, 2021

It is the QP's opinion that the metal prices used for mineral resources are reasonable based on independent checks using consensus, long-term forecasts from banks, financial institutions, and other sources.

Santa Bárbara's metallurgical recovery factors are based on historic performance of the processing plants and are shown in Table 11-3. The basis for these factors is discussed in Section 10.4 of this report. The QP has elected to use the 2021 recoveries for the basis for the year-end mineral resources.

Table 11-3: Metallurgical Recovery Assumptions

Element	Value	Unit
Au	36.5	%
Ag	82.0	%
Pb	79.4	%
Cu	65.2	%
Zn	80.0	%

Source: SRK, 2021

In addition to the price and metallurgical recovery, IMMSA has applied additional NSR factors in the metal equivalency calculation to account for other aspects of the mineralization. These additional factors include but are not limited to:

- Smelter recoveries
- Smelter penalties (arsenic and bismuth)
- Fleet/transport costs

The NSR factors can be expressed as a further percentage and are averaged out over the annual production. Table 11-4 shows the additional percentages applied to the recoverable metal (in situ metal times recovery).

Table 11-4: NSR Adjustment Factors

Element	Value	Unit
Au	71.7	%
Ag	90.6	%
Pb	94.3	%
Cu	84.7	%
Zn	85.2	%

Source: SRK, 2021

In summary, using the above prices, recovery, and NSR adjustments for the smelter terms, the QP has applied the following equation to define the stope values on a stope-by-stope basis. The following criteria should be considered inclusive of the average metallurgical recovery:

<u>NSR Value</u> = Au (g/t)*14.515+Ag (g/t)*0.549+Pb (%)*17.09+Cu (%)*46.443+Zn (%)*19.754

The operating unit cost used to determine the potential for economic extraction has been taken by reviewing the costs over the past 3 years. Based on current market conditions, the QP has elected to use the 2021 costs as the basis for the assessment, which in their opinion is a reasonable basis for the declaration of mineral resources (Table 11-5). The economic value of each stope is then calculated in an Excel spreadsheet using the NSR equation above, and the QP has assigned a flag for all stopes based on an assessment of their economic value where the NSR values is above/below a CoG of the operating unit cost of US$79.29/t.

Table 11-5: Operating Unit Cost

Factor	Value	Unit
Mine	33.22	USD/t
Mill	11.73	USD/t
Indirect (mine)	14.95	USD/t
Indirect (mill)	**2.53**	USD/t
Subtotal	**62.43**	**USD/t**
Smelting, refining, and transportation	15.70	USD/t
Administrative	1.16	USD/t
Total operating	**79.29**	**USD/t**

Source: IMMSA, 2021

11.6 Summary Mineral Resources

Santa Bárbara mineral resources are in compliance with the S-K 1300 resource definition requirement of reasonable prospects for economic extraction. Using the panels defined by the geologist, the QP has reviewed each panel relative to the defined CoGs. Mineral resources have been reported on an in situ basis in the ground. No further account for additional stockpile material is considered in the current estimate. Depletions have been accounted for within each panel using the latest survey information for most of the panels, and only a few panels that were exploited in the last 2 months of 2021 were adjusted according to the planned exploitation. It is SRK's opinion that the differences with the real exploited material are not material.

In the QP's opinion, the assumptions, parameters, and methodology used for the Santa Bárbara underground mineral resource estimates, while not optimized to provide flexibility in the planning processes, are appropriate for the style of mineralization and mining methods.

Table 11-6 summarizes the mineral resources for the Santa Bárbara underground operation as of December 31, 2021. Mineral resources have been reported in total, as currently no mineral reserves are declared for the Santa Bárbara project in compliance with the new S-K 1300 standards.

Table 11-6: Santa Bárbara Summary Mineral Resources at End of Fiscal Year Ended December 31, 2021, Based on Price[1]– SRK Consulting (U.S.), Inc.

IMMSA Underground - Santa Bárbara							NSR (US$)	Cut-off (2):	NSR $79.3			
Category	Quantity Tonnes (kt)	Grade						Contained Metal				
		Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	Cu (%)		Au (koz)	Ag (koz)	Zn (kt)	Pb (kt)	Cu (kt)
Measured												
Indicated	22,534	0.30	101	3.24	1.92	0.53	181	219	72,822	730.6	433.7	120.2
M+I	22,534	0.30	101	3.24	1.92	0.53	181	219	72,822	730.6	433.7	120.2
Inferred	19,357	0.19	102	3.89	2.35	0.55	201	117	63,722	753.3	454.2	105.8

(1)Mineral resources are reported exclusive of mineral reserves. Mineral resources are not ore reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Gold, silver, lead, zinc, and copper assays were capped where appropriate. Given historical production, it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.
(2)Mineral resources are reported at metal equivalent CoGs based on metal price assumptions,* variable metallurgical recovery assumptions,** mining costs, processing costs, G&A costs, and variable NSR factors.*** Mining, processing, and G&A costs total US$75.3/t.
*Metal price assumptions considered for the calculation of metal equivalent grades are: gold (US$/oz: 1,725.00), silver (US$/oz: 23.0), lead (US$/lb: 1.04), zinc (US$/lb: 1.32), and copper (US$/lb: 3.80).
**CoG calculations and metal equivalencies assume variable metallurgical recoveries as a function of grade and relative metal distribution. Average metallurgical recoveries are: gold (39%), silver (82%), lead (85%), zinc (87%), and copper (76%), assuming recovery of payable metal in concentrate.
***CoG calculations and metal equivalencies assume variable NSR factors as a function of smelting and transportation costs. The NSR values (inclusive of recovery) are calculated using the following calculation: NSR = Au*14.515+Ag*0.549+Pb*17.090+Cu*46.443+Zn*19.754.
Note: The mineral resources were estimated by SRK Consulting (U.S.), Inc., a third-party QP under the definitions defined by S-K 1300.

11.7 Opinion on Influence for Economic Extraction

It is the QP's opinion that the geology and mineralization controls of the Santa Bárbara deposit are very well understood based on the extensive knowledge of the deposit from decades of exploitation.

The mineral resources stated herein are appropriate for public disclosure and meet the definitions of Indicated and Inferred resources established by SEC guidelines and industry standards. Based on the analysis described in this report, it is SRK's understanding of resources that production has occurred at the mine since the Santa Bárbara project's status of operating since 1920 to 1930. In the QP's opinion, there is reasonable potential for economic extraction of the resource.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

12 Mineral Reserve Estimates

Section 12 Mineral Reserve Estimates is not applicable for the current level of study and has not been included in this report.

13 Mining Methods

Section 13 Mining Methods is not applicable for the current level of study and has not been included in this report.

14 Processing and Recovery Methods

Section 14 Processing and Recovery Methods is not applicable for the current level of study and has not been included in this report.

15 Infrastructure

The Santa Bárbara project has some existing infrastructure which supports the current operation. However, the QP has not inspected the infrastructure to sufficient levels to support the declaration of mineral reserves at this stage.

16 Market Studies

Section 16 Market Studies is not applicable for the current level of study and has not been included in this report. SRK has used costs, pricing, and criteria as supplied by the operation which were reviewed and considered to be reasonable to support the current level of studies. To support the declaration of mineral resources, at a minimum, a pre-market study of the various concentrates will need to be completed.

17 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups

Section 17 Environmental Studies, Permitting and Plans, Negotiations, or Agreements with Local Individuals or Groups is not applicable for the current level of study and has not been included in this report.

18 Capital and Operating Costs

Section 18 Capital and Operating Costs is not applicable for the current level of study and has not been included in this report.

19 Economic Analysis

Section 19 Economic Analysis is not applicable for the current level of study and has not been included in this report.

20 Adjacent Properties

The Santa Bárbara deposit sits within a larger metalliferous province. The Santa Bárbara mining unit adjoins to the north-east with the San Francisco mining unit belonging to the Frisco company, located at a distance of 12.3 km (Figure 20.1).

Source: IMMSA, 2021

Figure 20.1: Location of the San Francisco del Oro Project

21 Relevant Data and Information

The Santa Bárbara mine is currently in production and has previously disclosed mineral resources under Guide 7. During the initial review of the underlying technical studies, it was determined that not all studies are at a sufficient level of detail to comply with the new S-K 1300 levels. The Company is currently in the process of updating the required technical work which will be based on a revised 3D block model of the mineral resources in 2022.

22 Interpretation and Conclusions

SRK is of the opinion that the data and analysis presented herein is of sufficient quality and completeness to support the estimation of mineral resources. Santa Bárbara's vein deposits have been mined historically and are currently in production, processing three concentrates (zinc, copper, and lead) via underground mining operations.

22.1.1 Drilling and Sampling

The drilling and analytical work are supported by surveys and limited quality control measures to support confidence in the accuracy and precision of the data. The mine geology department has not implemented quality controls for the samples collected from drilling and rock sampling from underground workings, which SRK considers to be not in-line with industry best practices and represents a source of uncertainty for the data collected by the mine geology department.

Historically, Santa Bárbara's mine geology department has not implemented quality controls for the procedures of collection of samples from drilling and rock sampling from underground workings, which SRK considers to be not in-line with industry best practices and represents a source of uncertainty for the data collected by the mine geology department.

Since 2019, the exploration department has been managing the drilling campaigns at Santa Bárbara, using a contractor (Tecmin). The recent drilling has been completed following procedures and QA/QC protocols, which SRK considers to be in-line with industry best practices.

22.1.2 Geology and Mineralization

The geology and mineralization controls are very well known, supported by the almost 100 years of mining operation and knowledge of the deposit. The geology, mineralization, and sampling information that support the mineral resources is available in paper documents and partially in digital format.

22.1.3 Mineral Resource Estimates

The estimate was categorized in a manner consistent with industry standards. Mineral resources have been reported using economic and mining assumptions to support the reasonable potential for eventual economic extraction of the resource. A CoG has been derived from these economic parameters, and the resource has been reported above this cut-off. The mineral resource is exclusive of reserves, but as no reserves have been quoted for December 31, 2022, the mineral resources are reported in total.

SRK is of the opinion that the mineral resources stated herein are appropriate for public disclosure and meet the definitions of Indicated and Inferred resources established by SEC guidelines and industry standards.

23 Recommendations

It is the QP's opinion that measures should be taken to mitigate the uncertainty, including but not limited to:

- Continual drilling in the most critical areas of the deposit, locally to spacing of less than 50 x 50 m
- SRK recommends reviewing the procedures of drilling and sampling and design and implement a complete QA/QC protocol for the drilling and rock sampling activities performed by Santa Bárbara's mine geology department.
- Regarding the exploration department's QA/QC protocol, SRK recommends including the second laboratory controls (Tercerías) periodically (quarterly) and the review of the acceptability ranges for fine duplicates (10% relative error).
- Digitization of all geological information and storage of data into a commercial secure database
- Detailed geological modeling methods using the new digital database which integrates all relevant geological data into defining the model and achieving the most accurate model possible at the current level of study
- Extensive QA/QC analysis and monitoring to understand relative impacts to local inherent variability within resource domains.
- Introduction of more-routine density sampling within the mineralization to confirm level of fluctuation from the current uniform assignment of a single 3 t/m^3 value
- Rigorous approach to classification which appropriately considers the noted detractors in confidence and utilizes criteria designed to address them

23.1 Mineral Resource and Mineral Reserve Estimates

- SRK recommends the construction of a 3D geological model for the Santa Bárbara deposit and the digitizing of all the supporting information, including geological/mineralization maps and sections, drilling, and rock sampling information. The new 3D geological model will be the basis for the construction of a block model and future mineral resource estimates using industry standard procedures.
- SRK recommends designing and implementing a complete QA/QC protocol for the drilling and rock sampling activities performed by Santa Bárbara's mine geology department.

23.2 Recommended Work Programs

The recommended work program includes the following activities:

- Continue the database capture of historical data, including drilling, historical mapping, channel sampling, and geological interpretations to support the construction of a 3D geological model and future mineral resource estimates using a block model.
- Construct a 3D geological model and update mineral resource and reserve estimates.

23.3 Recommended Work Program Costs

Table 23-1 provides the approximate budget of the 2022 work program.

Table 23-1: Recommended Work Program Costs

Discipline	Program Description	Cost (US$ million)
Geology and exploration	Ongoing exploration and grade-control drilling	3.2
Data capture of geological database	Digitization and capture of key historical database information and geological data (mapping)	0.3
Updated mineral reserve estimates	Generation of geological model and mineral resource estimates	0.2
Mining methods/mineral reserve estimates	Development of mine plan and optimization of mining methodology	0.4
Total	**$4.1**	

Source: SRK, 2021

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25 Reliance on Information Provided by the Registrant

SRK was provided legal documentation by IMMSA and has relied on that information for the purposes of this section. SRK has relied on this information and disclaims responsibility for its accuracy or any errors or omissions in that information.

The Consultant's opinion contained herein is based on information provided to the Consultants by IMMSA throughout the course of the investigations. Table 25-1 of this section of the technical report summary will:

- Identify the categories of information provided by the registrant.
- Identify the particular portions of the technical report summary that were prepared in reliance on information provided by the registrant pursuant to Subpart 1302 (f)(1), and the extent of that reliance.
- Disclose why the QP considers it reasonable to rely upon the registrant for any of the information specified in Subpart 1302 (f)(1).

Table 25-1: Reliance on Information Provided by the Registrant

Category	Report Item/ Portion	Portion of Technical Report Summary	Disclose Why the QP Considers it Reasonable to Rely Upon the Registrant
Legal Opinion	Sub-sections 3.3, 3.4, 3.5, 3.6, and 3.7	Section 3	IMMSA has provided a document summarizing the legal access and rights associated with leased surface and mineral rights. This documentation was reviewed by IMMSA's legal representatives. The QP is not qualified to offer a legal perspective on IMMSA's surface and title rights but has summarized this document and had IMMSA personnel review and confirm statements contained therein.