

## La Parrilla Silver Mine

San José de La Parrilla, Durango,  
Mexico, NI 43-101 Technical Report on  
Mineral Resource and Mineral Reserve  
Update

Latitude 23°44'17.42" N, Longitude: 104°6'29.20" W



Report Prepared for  
**First Majestic Silver  
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**EFFECTIVE DATE**

**DECEMBER 31, 2016**

# Technical Report for the La Parrilla Silver Mine, Durango State, Mexico

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**Effective date: December 31, 2016**

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Cover: View of mill and town of San José de la Parrilla

## CERTIFICATE OF QUALIFIED PERSON

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I, Ramón Mendoza Reyes, PEng, am employed as Vice President of Technical Services with First Majestic Silver Corp. (FMS).

This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI 43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I graduated from the National Autonomous University of Mexico with a Bachelor of Science Degree in Mining Engineering in 1989, and also obtained a Master of Science Degree in Mining and Earth Systems Engineering from the Colorado School of Mines in Golden, Colorado, in 2003.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (PEng #158547).

I have practised my profession continuously since 1990, and have been involved in precious and base metal sulphide mine projects and operations in Mexico, Canada, the United States, Chile, Peru, and Argentina.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the La Parrilla Silver Mine on several occasions between 2014 and 2017. My most recent site visit was on October 12 - 13, 2017.

I am responsible for the preparation of Sections 1, 2, 3, 4, 5, 6, 13, 15.2, 15.3, 16, 18, 19, 21, 22, 23, 24, 25, 26.2, 26.3, and 27 of the Technical Report.

I am not independent of FMS as that term is described in Section 1.5 of NI 43-101.

I have been involved with the La Parrilla Silver Mine overseeing operational aspects including geology, mining and metallurgy, since April 2014.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

“Signed and sealed”  
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## CERTIFICATE OF QUALIFIED PERSON

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This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI 43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I graduated from the Autonomous University of Chihuahua with a Bachelor of Geological Engineering Degree in 1998, obtained a Master of Science Degree in Geology from the University of Texas at El Paso, El Paso, Texas, in 2003, and obtained a Philosophical Doctorate in Geology from the New Mexico Institute of Mining and Technology, Socorro, New Mexico, in 2010.

I am a member of the Mining and Metallurgical Society of America with Qualified Professional Geology status (MMSA #01470QP). I have practised my profession continuously since 1999, and have been involved in exploration, geological modelling, mineral resource estimation of narrow veins and carbonate replacement deposits, and evaluation of precious and base metal sulphide prospects, projects and operations in Mexico.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited La Parrilla Silver Mine on several occasions during 2016 and 2017. My most recent visit on site was on September 4 - 5, 2017.

I am responsible for preparation of Sections 7, 8, 9, 10, 14.1, 14.3, 14.4, 14.5, and 26.1 of the Technical Report.

I am not independent of FMS as that term is described in Section 1.5 of NI 43-101.

I have been involved in the La Parrilla Silver Mine as supervisor and coordinator of the exploration, geology and resource estimation disciplines since April 2014.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

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I graduated from the National Autonomous University of Mexico with a Bachelor in Geological Engineering degree in 1995, and also obtained a Master of Science degree in Geology from the Ensenada Center for Scientific Research and Higher Education, Ensenada, Baja California, Mexico, in 2000.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (PGeo #35815).

I have practised my profession continuously since 1995. I have held technical positions working with database management and Quality Assurance and Quality Control (QA/QC) with exploration, technology and development companies with projects and operations in Canada, Mexico, Peru, Ecuador and Argentina.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the La Parrilla Silver Mine on several occasions between 2014 and 2017. My most recent site visit was on February 6 - 10, 2017.

I am responsible for Sections 11, 12.1, and 12.2 of the Technical Report.

I am not independent of FMS as that term is described in Section 1.5 of NI 43-101.

I have been directly involved with the La Parrilla Silver Mine in my role as the Geological Database Manager for the resource estimation since May 2016.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

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Dated: November 30, 2017

## CERTIFICATE OF QUALIFIED PERSON

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I, Stephen Taylor, MSc, PEng, am employed as Principal Consultant (Mining Engineer) with SRK Consulting (Canada) Inc.

This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI 43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I am a graduate of Laurentian University in Sudbury, Ontario, with a BEng in Mining Engineering in 1992 and I also obtained an MSc (Mining Engineering) from the University of Nevada-Reno, Mackay School of Mines in 1995.

I am a Professional Engineer registered with the Professional Engineers of Ontario (PEO#90365834).

I have practised my profession continuously since 1995. My work has involved mine engineering and mine supervision/operations for 15 years, and consulting on underground projects in several countries since 2010.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the La Parrilla Silver Mine, on February 6 - 8, 2017.

I am responsible for the preparation of Section 15.1 of the Technical Report.

I have not received, nor do I expect to receive, any interest, directly or indirectly, in the La Parrilla Silver Mine or securities of First Majestic Silver Corp. I am independent of First Majestic Silver Corp. as that term is described in Section 1.5 of NI 43-101.

I have no previous involvement with the La Parrilla Silver Mine.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

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I am a graduate of the University of Ottawa in 2001 with BSc (Honours) Geology and I obtained a MSc degree in Geology from Laurentian University in 2003.

I am a professional geoscientist registered with the Association of Professional Geoscientists of Ontario (APGO# 1847).

I have practised my profession continuously since 2002. I worked in exploration and commercial production of base and precious metals mainly in Canada. I have been focusing my career on geostatistical studies, geological modelling and resource modelling of base and precious metals since 2004.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the La Parrilla Silver Mine, on February 6 - 8, 2017.

I am responsible for the preparation of Section 14.2 of the Technical Report.

I have not received, nor do I expect to receive, any interest, directly or indirectly, in the La Parrilla Silver Mine or securities of First Majestic Silver Corp. I am independent of First Majestic Silver Corp. as that term is described in Section 1.5 of NI 43-101.

I have no previous involvement with the La Parrilla Silver Mine.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

“Signed and sealed”

Sébastien B. Bernier, PGeo  
Principal Consultant (Geology)  
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Dated: November 30, 2017

## CERTIFICATE OF QUALIFIED PERSON

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I, Dominic Chartier, PGeo, am a Senior Consultant (Geology) with the firm of SRK Consulting (Canada) Inc. (SRK) with an office at Suite 1500, 155 Yonge Street, Toronto, Ontario, Canada.

This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI -43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I am a graduate of McGill University in Montreal, Quebec, with a BSc in Earth and Planetary Sciences in 2002. I have practised my profession continuously since 2002. I have created geological and ore deposit 3D models, analyzed the geostatistics and variography of ore deposits, completed National Instrument 43-101 compliant mineral resource estimations, evaluated the geotechnical and structural properties of ore deposits, reviewed analytical quality control sample results, and co-authored or contributed to numerous National Instrument 43-101 technical reports focused on gold, base metal and precious metal projects in Canada, West Africa, and South America.

I am a Professional Geologist, registered with the Ordre des Géologues du Québec (OGQ #874), the Association of Professional Geoscientists of Ontario (APGO #2775), and the Association of Professional Engineers & Geoscientists of Saskatchewan (APEGGS#39656).

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have personally inspected the subject project on February 6 - 8, 2017.

I am responsible for the preparation of Section 12.3 of the Technical Report.

I have not received, nor do I expect to receive, any interest, directly or indirectly, in the La Parrilla Silver Mine or securities of First Majestic Silver Corp. I am independent of First Majestic Silver Corp. as that term is described in Section 1.5 of NI 43-101.

I have no previous involvement with the La Parrilla Silver Mine.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

“Signed and sealed”

Dominic Chartier, PGeo  
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## CERTIFICATE OF QUALIFIED PERSON

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This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI -43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I graduated with a degree in Extractive Metallurgy from University of Chile in 1992.

I am a registered member of the Society of Mining, Metallurgy, and Exploration (SME#4206787RM).

I have worked as a Metallurgist for a total of 25 years since my graduation from university. My relevant experience includes: employee of several mining companies, engineering & construction companies, and as a consulting engineer.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the La Parrilla Silver Mine, on February 6 - 8, 2017.

I am responsible for the preparation of Section 17 of the Technical Report.

I have not received, nor do I expect to receive, any interest, directly or indirectly, in the La Parrilla Silver Mine or securities of First Majestic Silver Corp. I am independent of First Majestic Silver Corp. as that term is described in Section 1.5 of NI 43-101.

I have no previous involvement with the La Parrilla Silver Mine.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

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This certificate applies to the technical report “La Parrilla Silver Mine, San José de La Parrilla, Durango, Mexico, NI -43-101 Technical Report on Mineral Resource and Mineral Reserve Update” that has an effective date of December 31, 2016.

I am a graduate of the University of Guelph with a Bachelor of Engineering degree in Water Resources Engineering in 1986.

I am a Professional Engineer registered with Professional Engineers Ontario (PEO#90247040).

I have practised my profession continuously for 29 years. I have been directly involved in the development of mining projects at all stages, working on both the engineering and environmental aspects of mining. I have led multidisciplinary teams in the preparation of environmental assessments for a number of large-scale mining projects and have served as a technical advisor on water and environment planning and strategy development on mining projects across a broad range of geographic and climatic conditions.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have not visited the La Parrilla Silver Mine.

I am responsible for the preparation of Section 20 of the Technical Report.

I have not received, nor do I expect to receive, any interest, directly or indirectly, in the La Parrilla Silver Mine or securities of First Majestic Silver Corp. I am independent of First Majestic Silver Corp. as that term is described in Section 1.5 of NI 43-101.

I have no previous involvement with the La Parrilla Silver Mine.

I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

“Signed and sealed”

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Toronto, Ontario, Canada  
Dated: Nov 30, 2017

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# 1 Executive Summary

## Introduction

This technical report (the Report) was prepared by First Majestic Silver Corp. (FMS) to provide updated Mineral Resource and Mineral Reserve estimates, including updated information on mining and processing plant operations for the La Parrilla Silver Mine (La Parrilla) in Durango State, Mexico. The operating entity is FMS's indirectly wholly owned subsidiary First Majestic Plata, S.A. de C.V.

## Project Setting

The La Parrilla underground mine and processing facility are located about 76 km southeast of the city of Durango, the capital of Durango State, and 225 km from Zacatecas city. Access to the mine is via Federal Highway No. 45, then via a paved road to San José de la Parrilla, and finally an all-weather gravel road to the mine site. Paved roads within the mine site link key facilities such as the administration building, central laboratory, and mill.

The supporting infrastructures for the operations are located near the plant and include the main administrative offices, assay laboratory, tailings facilities, maintenance buildings, cafeteria and other employee housing. The maintenance department operates from several repair shops and warehouses located at the plant site and adjacent to the mine.

Exploration and mining operations are conducted on a year-round basis.

## Mineral Tenure, Surface Rights, and Royalties

La Parrilla consists of 41 contiguous mining concessions covering a total of 69,478 hectares. All concessions are in good standing, with the exception of the Hueco concession which is currently in the process of being registered.

The La Parrilla land package is located partly within the Ejido San José de la Parrilla and partly within private property. La Parrilla's 12 parcels of surface rights cover approximately 167 hectares and are considered sufficient to support operations such as the processing plant installations, tailings storage, and other mine operations requirements. FMS has a current lease agreement in place with the Ejido.

No royalties or any other encumbrances are due on any of the La Parrilla mining concessions.

## History and Exploration

The La Parrilla mining district has been producing since colonial times. Much of the early mine development and exploration activities were conducted by artisanal miners. Small-scale mining and processing operations were conducted between 1956 and 1999 by Minera Los Rosarios, S.A. de C.V. (Minera Los Rosarios) and the Comisión de Fomento Minero. FMS acquired the mining rights and a 180 tonne per day processing plant from Minera Los Rosarios in 2004. In 2006, additional mineral rights that surrounded the La Parrilla mine were acquired from Grupo México.

Work completed by FMS has included geological mapping, rock chip geochemical sampling, direct current/induced polarization and airborne magnetic geophysical surveys, core drilling, channel and production sampling, metallurgical test work, mineral resource and mineral reserve estimation, infrastructure upgrades and expansions, and ongoing mine development.

Production prior to 1960 is estimated at about 700,000 tonnes of silver-bearing ore; production between 1960 and 1999 is about 230,500 tonnes of ore. Between January 2005 and December 2016, FMS produced 20.7 Moz Ag.

## Geology and Mineralization

Two mineral deposit models are proposed by FMS for La Parrilla: intrusion-related carbonate replacement deposits and mesothermal fault-veins.

La Parrilla is located at the transition between the Mesa Central and the Sierra Madre Occidental physiographic provinces of Mexico. The La Parrilla district contains hydrothermal mineral deposits hosted by Early Cretaceous limestones and shales that have been intruded by an Eocene quartz monzonite–granodiorite stock, Oligocene dikes, rhyolite–rhyodacite dikes and plugs, and Miocene–Quaternary basalt–basaltic andesite dikes. The Eocene-age stocks and dikes have metamorphosed the Cretaceous rocks into marble, hornfels, skarnoid and minor skarn.

Mineralization occurs as vein and replacement deposits, the locations of which are structurally controlled by pre-existing faults, fractures, and bedding planes. Veins can be either open space filling, forming massive sulphide and breccia veins, or fault-related, consisting of matrix-supported breccias or gouge containing disseminated sulphides and oxides. Gradations commonly occur between the two types in any vein system. Stockwork veining can occur at country rock/vein contacts. Replacement deposits occur as oblique or perpendicular splays to veins and faults, and as larger replacement deposits concordant with sedimentary bedding.

The La Parrilla deposits contain primary sulphides such as galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, chalcopyrite, covellite, acanthite, native silver, and silver sulphosalts (tetrahedrite–freibergite solid solution). Due to supergene oxidation, the primary sulphides in the upper parts of some deposits have been altered to cerussite, anglesite, hemimorphite, hydrozincite, jarosite, goethite, hematite, cervantite, malachite, chrysocolla, chalcantite, and native silver.

The major mineralized zones are:

- Rosarios vein: strikes N70°W on average, dips at 64° to the northeast (290°/64°), and has a known strike length of 2 km. The mineralization extends vertically for 700 m, with a variable thickness of 0.2–14 m.
- Quebradillas Open Pit-Viboras vein: strikes N80°W on average, dips at 80° to the south (100°/80°), and has a known strike length of 700 m. The vein is mineralized for a vertical extent of 250 m, and it varies from 0.3 to 3.5 m thick.
- Quebradillas Open Pit-El Recuerdo vein: strikes N80°W on average, dips at 70° to the northeast (280°/70°), and has a known strike length of 550 m. The vein is mineralized for a vertical extent of 150 m, ranging in thickness from 1.3 to 9 m.
- San Marcos vein: strikes N20°W on average, dips at 60° to the northeast (340°/60°), and has a known strike length of 600 m. The vein is mineralized for a vertical extent of 280 m, and its thickness varies from 0.5 to 17 m.
- Vacas Replacement vein: strikes N17°W on average, dips at 58° to the northeast (343°/58°), and has a known strike length of 200 m. The zone is mineralized for a vertical extent of 400 m, and its thickness varies from 0.2 to 18 m. This vein was mined out in 2016.
- Intermedia vein: strikes N50°W on average, dips at 75° to the northeast (310°/75°), and has a known strike length of 500 m. The vein is mineralized for a vertical extent of 430 m, and varies from 0.5 to 1.5 m in thickness.
- San Nicolas vein: strikes N25°W on average, dips at 70° to the northeast (335°/70°), and has a known strike length of 300 m. The vein is mineralized for a vertical extent of 400 m, and its thickness varies from 0.3 to 1.8 m.
- Quebradillas 460 Replacement vein: strikes N16°W on average, dips at 63° to the northeast (344°/63°), and has a known strike length of 180 m. The zone is mineralized for a vertical extent of 450 m, and ranges in thickness from 0.1 to 8.5 m.
- Quebradillas N-S Vein: strikes N45°W on average, dips at 71° to the northeast (315°/71°), and has a known strike length of 75 m. The vein is mineralized for a vertical extent of 95 m, and its thickness varies from 0.25 to 5.0 m.

- Quebradillas Tiro Vein: strikes N60°W on average, dips at 56° to the northeast (300°/56°) and has a known strike length of 70 m. The vein is mineralized for a vertical extent of 120 m, and its thickness ranges from 0.50 to 4.0 m.
- The Quebradillas Vein: strikes N88°E on average, dips at 86° to the south (88°/86°) and has a known strike length of 180 m. The vein is mineralized for a vertical extent of 50 m and ranges in thickness from 1 to 2.5 m.
- Quebradillas Q-38: strikes N7°W on average, dips at 68° to the northeast (353°/68°) and has a known strike length of 42 m. The zone is mineralized for a vertical extent of 147 m, and has a variable thickness of 0.3 to 8.7 m.
- Quebradillas 550 vein: strikes N80°E on average, dips at 83° to the south (80°/83°) and has a known strike length of 270 m. The vein is mineralized for a vertical extent of 140 m and varies in thickness from 0.5 to 5.5 m.

Additional exploration potential remains within the La Parrilla claims, with exploration targets defined by a combination of geological mapping, geochemistry, geophysics and drilling. Targets include the area to the southwest of the Quebradillas pit, and the Marqueña-Los Perros and Cerro de Santiago areas.

## Drilling

Drilling by prior operators, consisting of 73 drillholes (16,634 m drilled) are not used to support mineral resource estimation. Between 2005 and 2016, FMS drilled a total of 122,040 metres in 588 core drillholes. An additional 90 core holes totalling approximately 23,000 metres were drilled in 2017 (as of October 31, 2017), subsequent to the estimation database closeout date, and were not included in the mineral resource estimate.

FMS categorizes drillholes into “delineation holes” (used to guide and support the mine operation), “infill holes” (to improve quality of known resources) and “exploration holes” (to identify new mineralization). FMS uses a contractor for most infill and exploration holes whereas delineation holes use the Company’s own rigs and personnel.

The core diameters used for drilling at La Parrilla are 36.4 mm (TT46), 47.6 mm (NQ) or 63.5 mm (HQ). The TT46 diameter is generally used only for delineation holes, whereas the bigger NQ and HQ diameters are used for infill and exploration holes. The small-diameter drillholes are not surveyed and are not used in mineral resource estimation.

Data collected at La Parrilla includes, but is not limited to, collar surveys, downhole surveys, logging, specific gravity (SG), and geotechnical information. The data collection practices employed by FMS are consistent with industry-standard exploration and operational practices.

Core logging is done digitally in Logchief® using tablets or laptop computers; information is captured digitally and includes lithology, structures, alteration, mineralogy, sample intervals, recovery and RQD. Core recovery typically range between 95%-100%, except in select mineralized intercepts where recovery may be reduced significantly due to brecciation and hydrothermal alteration associated with the veins and fault-veins. The average core recovery in mineralized structures is 91%. All core boxes are photographed after they have been logged and sample intervals have been marked.

Since 2005, drillhole collars have been surveyed by the engineering department at La Parrilla using Sokkia and TOPCON ES-105 total station instruments. In 2016, FMS hired the services of J&A Arquitectura and Geomatica S.A. de C.V. to resurvey surface and underground collars used for resource estimation in the WGS84 datum. Currently, downhole surveys are done every 50 m by the contractor Versa Perforaciones, using a DeviTool PeeWee electronic multishot instrument. Historical surveys have used Tropicari, Reflex, Flexit and DeviTool PeeWee instruments.

Drillholes are typically drilled at an angle to intersect veins or mineralized structures that generally dip at near vertical angles. They are sometimes completed at angles less than 90° with respect to the dip and strike of the structure being explored; the thickness of mineralized intercepts is therefore an apparent thickness, greater than the true thickness.



Upon completion of the drilling programs, the diamond drill core is securely stored and catalogued in the core storage facility at the La Parrilla mine site.

Drill core samples are stored in a secure core processing and storage warehouse at La Parrilla prior to their shipment to the sample processing laboratories. Samples are taken to the analytical laboratories by company trucks that are driven by FMS personnel. All samples are securely sealed, and chain of custody documents are issued for all shipments.

## Sampling and Analysis

The average length of core sample intervals has varied over time. From 2005 to 2013, sample intervals were generally <1.5 m in length. During 2013, the length of sample intervals varied from 0.30 to 5 m, depending on the core size. Sample intervals in material considered to be non-mineralized typically measured about 5 m. Since 2014, sample intervals measure from 0.2 to 1.5 m in mineralized material, and 2.5 to 3 m in waste. Core is typically halved, with one half of the core subsequently placed in a numbered bag and sent to the primary laboratory for analysis.

Channel sampling is undertaken underground using a diamond power saw, under the supervision of a mine geologist. Samples across the mineralized structure are taken at 25 m intervals along strike. Channel samples are typically 6 cm wide, 3 cm deep, and have variable lengths as samples are taken respecting vein/wall contacts and any textural or mineralogical variations.

Chip samples have been the primary means of grade control sampling since 2005. Until 2013, samples were taken using a hammer and chisel to cut a channel that was generally <1.5 m in length. Since 2014, chip samples are taken with every 3 m advance on a heading, and every 3 m along the backs of every third stope lift. Chip samples are generally at least 2 m long and often, but not always, include barren or silver-poor shoulder samples. Lithology boundaries are respected.

Specific gravity (SG) measurements were taken on site by FMS geologists on core samples using the water immersion method. A total of 1,863 specific gravity determinations are included in the resource database, covering the Quebradillas, Intermedia, Rosario, San Nicolas and San Marcos areas. In the opinion of the QP, the number and quality of density data are sufficient to support mineral resource estimation.

Several analytical laboratories have been used for processing and assaying La Parrilla samples since 2005, including:

- Inspectorate America Corporation (primary laboratory for drill core samples from 2005 to 2012)
- FMS Central Laboratory (formerly known as the La Parrilla mine laboratory; primary laboratory for production samples from 2005 to date; primary laboratory for drill core samples from 2015 to date)
- SGS Durango (secondary and occasionally primary laboratory for drill core samples from 2013 to date)
- Bureau Veritas Mineral Laboratory (secondary laboratory, 2017)

The Inspectorate and Bureau Veritas laboratories are independent of FMS and hold ISO 9001:2008 and ISO/IEC 17025:2005 certification. The La Parrilla and Central laboratories are not independent of FMS. Central Laboratory gained ISO 9001 accreditation in mid-2015 and ISO 9001:2008 in 2017. SGS Durango held ISO 9001 certification from early 2008 until approximately mid-2012, after which time the laboratory gained ISO 9001:2008 accreditation.

From 2005 to 2013, the sample preparation protocol at La Parrilla/Central laboratory included drying, crushing to 10-mesh, and pulverizing to -100 mesh. The Central laboratory protocol from 2014 onwards consisted of drying, crushing to 80% passing 10-mesh, and pulverizing to 80% passing -150 mesh. Sample preparation at Inspectorate from 2005 to 2012 comprised drying, crushing to 80% passing 10-mesh, then pulverizing to greater than 90% passing 150-mesh. SGS Durango dried samples, then crushed to 75% passing 2 mm,

followed by pulverizing to 85% passing 200-mesh. Bureau Veritas crushed samples to 70% passing 10 mesh, then pulverized to 85% passing 200-mesh.

- Analytical methods used by La Parrilla/Central included fire assays for gold and silver, and multi-acid digest followed by atomic absorption (AA) or inductively-coupled plasma (ICP) for lead, zinc, and copper, and from 2013, arsenic.
- Inspectorate analyzed for silver and gold by fire assay with an AA finish. Multi-element analyses used an aqua-regia digestion, and 30-element ICP package. Over-limit silver results were re-assayed using fire assay with a gravimetric finish; lead, zinc, or copper over-limit values were checked using aqua-regia digestion with an AA finish.
- SGS Durango uses a three-acid digestion with atomic absorption spectroscopy (AAS) finish and aqua-regia digest with 34-element ICP-atomic emission spectroscopy (AES) package for silver. Over-limit three-acid digestion silver assays are also re-analyzed by fire assay with a gravimetric finish. Gold is analyzed by fire assay. Over-limit results for manganese, lead, and zinc are re-analyzed by a sodium peroxide fusion and ICP-AES package.
- All samples at Bureau Veritas are analyzed by four-acid digestion with AAS finish, and aqua-regia with ICP finish for silver. Over-limit silver results are analyzed by fire assay with a gravimetric finish.

From 2007 to 2012, FMS implemented a quality control program to evaluate silver assay results from the La Parrilla Laboratory for chip and core samples by submitting one core sample for every 20 original samples to Inspectorate in Reno, Nevada for duplicate check assaying. Check assays of channel samples were performed by SGS Durango. From 2013 to 2014, quality control samples included duplicates, in-house standard reference materials (SRMs) and blanks, with an overall QA/QC insertion rate of about 5%. The QA/QC protocol was updated in 2015 to an insertion program that included quarter-core field duplicates, coarse and pulp duplicates, certified reference materials (CRMs) and blanks, with an overall QA/QC insertion rate of about 16%.

The quality of the analytical data collected from 2013 to 2017 for silver, gold, lead and zinc from San Marcos, Intermedia, San Nicolas, and Quebradillas resource areas is sufficiently reliable to support mineral resource estimation. Sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards. FMS continues to enforce and improve these practices. Review of the QA/QC data indicates that caution should be exercised when using the pre-2013 results due to their limited QA/QC.

## Data Verification

Independent data verification was performed by Pincock, Allen & Holt in 2007 and 2011 in support of technical reports on the Project, including verification for assay checks of production concentrates at the La Parrilla laboratory, concentrate assays reported by the MET-MEX Peñoles smelter in 2007 and check assaying assessments in 2011. Pincock, Allen & Holt concluded that results from check assaying were reasonable with appropriate preparation procedures, and that the sample results appeared to be reasonably representative of the deposit mineralization and usable with acceptable confidence in the resource estimation.

SRK performed an independent review of the analytical data in 2017. Control samples (blanks and standards) were summarized on time series plots and paired data (duplicates and check assays) were analyzed using bias charts, quantile-quantile and relative precision plots to highlight their performance. Although a number of failures were identified, the analytical results delivered by the Central Laboratory and by SGS Durango were considered by SRK to be sufficiently reliable for the purpose of mineral resource estimation. SRK noted that FMS is improving current methodologies for sampling and assaying procedures to increase confidence in analytical quality control data.

FMS staff have undertaken verification of drillhole and channel data collected between 2013 and 2017, including verification for transcription errors; verification of collar and channel sample locations; downhole survey deviations; verification of downhole lithology and sample intervals; verification of SG data; and conducting site visits. FMS also evaluated field, coarse reject, and pulp duplicates from core samples from 2014 to 2016 drilling campaigns to assess laboratory precision at the Central Laboratory, SGS Durango and Bureau Veritas. SRMs and CRMs were used to assess laboratory accuracy for silver, gold, lead, and zinc at the

Central Laboratory and at SGS Durango. Pulp and coarse blanks were used to assess contamination during sample preparation and analysis for silver, gold, lead and zinc at the Central Laboratory and at SGS Durango.

In the opinion of the QP, a reasonable level of verification has been completed, particularly for data collected since 2013, and no material issues would have been left unidentified from the verification programs undertaken. Drill data are typically verified prior to mineral resource and mineral reserve estimation through software program checks, comparison to original hard copy data, and peer review. The quality of the drill data is sufficiently reliable to support mineral resource and mineral reserve estimation. Earlier data collection programs carried out before 2013 had limited QA/QC, therefore care should be taken when using these data.

## Metallurgical Testwork

The metallurgical processing plant at La Parrilla Central Lab treats two types of material: oxide and sulphide ores. Oxide ore is processed by cyanide leaching to produce doré bars while sulphide ore is processed by differential flotation to produce a silver-rich lead concentrate and a zinc concentrate.

Current grinding throughput in the flotation (sulphide) and cyanidation (oxide) circuits are typically 850 and 780 tpd, respectively (although both circuits have the capacity to process 1000 tpd following a plant expansion performed in March 2012). Particle size (P80) in the flotation and cyanidation circuits are typically 120 and 108 µm, respectively.

Typical mineralogy includes:

- Silver: varies from being hosted in simple molecular structures such as native silver and Ag<sub>2</sub>S (argentite, or silver sulphide) to complex sulphosalts such as freibergite; ((Ag,Cu,Fe)<sub>12</sub>(Sb,As)<sub>4</sub>S<sub>13</sub>), or even embedded in the crystal lattice of tetrahedrite (Cu<sub>12</sub>Sb<sub>4</sub>S<sub>13</sub>);
- Lead: occurs in Pb-bearing species associated with Pb-As oxides (mimetite), Pb-Zn-As oxides, Pb-Mn oxides, Pb-Zn-Mn oxides, Pb-Sb-Zn oxides, Pb-Fe-Sb oxides, Pb-Al-As oxides and galena (PbS) as the main Pb sulphide species;
- Zinc: occurs as Zn sulphide (sphalerite), as silicates (willemite and hemimorphite), and as iron-zinc oxides (franklinite); and
- Gangue: includes pyrite, pyrrhotite and arsenopyrite (iron and iron-arsenic species), as well as non-sulphide gangue such as quartz, feldspar, calcite, Ca-Fe oxides and Ca-Mg aluminum silicates.

To determine the metallurgical performance of the different ore types that feed the plant, stope samples collected from mining faces, as well as monthly plant composites, are regularly sent for bench-scale testing to FMS's Central Laboratory. There are no metallurgical reports issued by external commercial laboratories. Since 2015, all test work has been performed at the Central Laboratory. Since the metallurgical test work results and data originate from material collected from the plant feed and mine production faces, the samples tested are considered representative of the various types and styles of mineralization of the mineral deposit as a whole. Test variables include: grind fineness (% passing 200 mesh) and sodium cyanide (NaCN) concentration. Processing conditions were chosen to replicate those used at the plant at the time the test was performed. The main variables that impact recovery are the particle size and sodium cyanide concentration.

Composites samples representing one month of plant feed are collected and then sent to the Central Laboratory. One objective is to determine the relationship between the metallurgical performance at the laboratory and at the full-scale operation using a set of typical (standard) plant conditions. The second objective is to forecast the plant metallurgical response of future ore types. In addition, since February 2014, monthly and quarterly samples have been sent to the Central Laboratory to perform grindability tests by means of the Bond Ball Mill Work Index method (BWi). To date, BWi grindability tests have been conducted on more than 30 monthly composites and more than 90 stope samples.

In summary:

- Examination of flotation test work results on material tested between 2015 and 2017 shows that the flotation plant recovers slightly more silver and lead metal than the laboratory would indicate. Zinc recovery in the laboratory is significantly higher than the plant (approximately 10%). This suggests a significant opportunity to improve zinc recovery, as the hydrodynamic conditions (bubble size, energy dissipation, etc.) prevailing in the plant flotation cells might be inferior compared to those observed in the more intense and controlled conditions of a laboratory cell.
- Examination of cyanidation test work results shows that the laboratory results reasonably match the plant data for the 2015–2017 period.
- The monthly composite data show that oxide ore is generally harder than the sulphide ore.
- The BWi for the oxide samples vary from 13.1 to 17.7 kWh/t with an average of 15.3 kWh/t, whereas the BWi for the sulphides vary from 12.3 to 16.5 kWh/t with an average of 14.3 kWh/t. The data on stope samples show high hardness variation: from approximately 10 to 20 kWh/t with an average of 14 kWh/t, possibly reflecting an inherent sample collection inconsistency. Therefore, metallurgical interpretation usually relies on the monthly composites (plant feed) as they are considered more representative than the stope samples which are collected from the mining faces.

Since January 2015, due to a lack of investment in development and exploration, the head grades in the flotation (sulphide) circuit ore have shown a downward trend in terms of silver and zinc content, while lead grades seem to be stable at around 1%. Deportment of silver to lead concentrate shows major variations over the 34-month evaluation period. Similarly, the deportment of lead to the lead concentrate varied significantly over the same period. Recovery of zinc to lead concentrate also showed variations, with an overall upward trend in the first half of 2016. Zinc in the lead concentrate is not a payable metal and is typically considered an impurity by smelters and may be subject to penalties. Deportment of silver to zinc concentrate shows major variation over the 34-month evaluation period. Zinc recovery to zinc concentrate shows a downward trend, similar to declining head grades.

The head grades from oxide ore sources at the cyanidation circuit have been reasonably stable over the 34-month evaluation period. The data shows that silver recovery at the plant increases with increasing head grade. Gold metallurgical performance also shows a tendency of increasing recovery with increasing head grade.

Metallurgical recovery used for the life-of-mine (LOM) plan was based on 2016 actuals. For oxides, recoveries used were 65.9% for silver and 80.8% for gold. For sulphides, recoveries used were 86.6% for silver, 80% for gold, 82.5% for lead and 64.2% for zinc.

There have been no issues with the sale of concentrates produced from La Parrilla. However, some concentrate batches since 2015 have incurred penalties due to above-limit detections of one or more elements, including As, Cd, Fe, SiO<sub>2</sub>, Cl, and F. There are no known deleterious elements in the doré produced at La Parrilla and no penalties have been incurred.

## Mineral Resource Estimates

Mineral Resource estimates have been completed on the Quebradillas, San Nicolas, Rosarios, San Marcos, and Intermedia zones. Estimation at the San Marcos and Rosarios-Intermedia used ordinary kriging (OK); the remaining zones were estimated using polygonal methods. All currency is expressed as US\$, unless noted otherwise.

## San Marcos and Rosarios-Intermedia

A total of 79 drillholes (13,883 m) and 238 drillholes (51,020 m) were used for estimation at San Marcos and Rosarios-Intermedia, respectively. Wireframes were built for the mineralized veins using assay data. The weathering profile was modelled as a surface, using data collected from the underground operations. SRK chose a block size of 5 x 5 x 10 m for San Marcos and Rosarios-Intermedia.

Considering the relative thickness variation of the veins and the current mining approach of extracting the entire vein, all assays were composited to a single intersection per drillhole per vein, honouring the vein boundary. The impact of grade outliers was examined on composite data for each element using log probability plots and cumulative statistics. The three-dimensional location of the potential outlier values was also considered. A number of samples were capped in each zone.

Specific gravity values were derived from wax-coated-water displacement method samples. Formulas were derived to estimate block density based on lead, zinc, and iron content.

SRK found that variograms modelled on lead yielded a reasonably clear continuity of long-range structures, allowing fitting of variogram models. The lead variograms were applied to all other metals. However, the orientations were adjusted to match the azimuth and dip of the vein wireframes and other underground information, where applicable.

Due to their distinct geological identity, all veins were estimated independently, using a hard boundary. Three estimation passes were required, informed by capped composites. SRK assessed the sensitivity of the block estimates to changes in minimum and maximum number of data, use of octant search, and the number of informing drillholes. Results from these studies show that globally, the model is relatively insensitive to the selection of the estimation parameters and data restrictions.

The resource block model was validated by means of visual inspection of the OK results, checking the OK model against nearest neighbour and inverse distance algorithm (power of two) models, verifying that the global quantities and average grade for each metal from each method were reasonably comparable, and validating the block estimates against the declustered mean informing composite data.

No Measured mineral resources were classified. Indicated mineral resources were classified for blocks estimated during the first estimation run considering full variogram ranges and having an estimated block grade above the reporting cut-off grade. Blocks estimated during the second and third pass considering search neighbourhoods set with more relaxed estimation parameters were classified as Inferred.

## **Quebradillas and San Nicolas**

The polygonal estimates are supported by a combination of drillhole, channel and chip samples, and underground geological mapping. Longitudinal sections of vein structures were constructed. Polygons were projected from mine levels, or constructed around drill intercepts, and classified as Indicated or Inferred. No Measured mineral resource polygons were defined.

Polygons of Indicated mineral resources were projected vertically (up and down) 40 m from mine levels informed by channel and chip samples, and 20 m around drillhole intercepts where there is continuity of mineralization (based on drilling information or mine levels with sample lines reporting potentially economic grades). Inferred mineral resources were projected 50 m from drillhole intercepts or from polygons that have been classified as Indicated mineral resources.

Polygons for Indicated and Inferred mineral resources were drawn on longitudinal sections using BRISCAD Pro V12 software, after which the area, average width, volume, and weighted mean grade were estimated. Grades were capped following analysis of cumulative frequency histograms; the grade at the 95th percentile was selected as the cap point. An average SG of 2.7 was used to estimate tonnages.

Mineral resources are reported using the considerations in Table i.

**Table i: Considerations used for reasonable prospects for eventual economic extraction (FMS, 2017)**

<b>Underground Oxides</b>			
<b>Parameter</b>	<b>Block Model</b>	<b>Polygonal</b>	<b>Unit</b>
Cut-off grade	130	160	Ag-Eq (g/t)
Silver price	19.00	19.00	\$/oz
Lead price	1.00	1.00	\$/lb
Zinc price	1.20	1.20	\$/lb
Gold price	1300	1300	\$/oz
Mining costs	17.88	17.88	\$ per tonne milled
Process cost	17.70	17.70	\$ per tonne milled
Indirect costs	11.39	11.39	\$ per tonne milled
General and administrative costs	5.32	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	3.87	\$ per tonne milled
Sustaining development	0	5.30	\$ per tonne milled
Infill exploration drilling	0	1.75	\$ per tonne milled
Closure cost allocation	0.30	0.30	\$ per tonne milled
Process recovery Ag	65.9	65.9	%
Process recovery Au	80.8	80.8	%
2016 tonnes processed by leaching	193,900	193,900	tonnes milled
2016 Processing rate	530	530	tpd
<b>Underground Sulphides</b>			
Cut-off grade	135	155	Ag-Eq (g/t)
Silver price	19.00	19.00	\$/oz
Lead price	1.00	1.00	\$/lb
Zinc price	1.20	1.20	\$/lb
Gold price	1300	1300	\$/oz
Mining costs	17.88	17.88	\$ per tonne milled
Process cost	13.97	13.97	\$ per tonne milled
Indirect costs	11.39	11.39	\$ per tonne milled
General and administrative costs	5.32	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	3.87	\$ per tonne milled
Sustaining development	0	5.30	\$ per tonne milled
Infill exploration drilling	0	1.75	\$ per tonne milled
Closure cost allocation	0.30	0.30	\$ per tonne milled
Process recovery Ag	86.6	86.6	%
Process recovery Pb	82.5	82.5	%
Process recovery Zn	64.2	64.2	%
Process recovery Au	80.0	80.0	%
2016 tonnes processed by flotation	416,600	416,600	tonnes milled
2016 Processing rate	1,140	1,140	tpd
<b>Open Pit Oxides</b>			
Cut-off grade		95	Ag-Eq (g/t)
Silver price		19.00	\$/oz
Lead price		1.00	\$/lb
Zinc price		1.20	\$/lb
Gold price		1300	\$/oz
Mining costs		4.83	\$ per tonne milled
Process cost		17.70	\$ per tonne milled
Indirect costs		11.39	\$ per tonne milled
General and administrative costs		5.32	\$ per tonne milled
Sustaining plant and infrastructure		3.87	\$ per tonne milled
Closure cost allocation		0.30	\$ per tonne milled
Process recovery Ag		65.9	%
Process recovery Au		80.8	%
2016 tonnes processed by leaching		193,900	tonnes milled
2016 Processing rate		530	tpd

## Mineral Resource Statement

Indicated and Inferred mineral resources are summarized in Table ii.

The resource estimation based on block modelling techniques for San Marcos and Rosarios-Intermedia were completed by Mr. Sébastien Bernier, PGeo (APGO #1847), of SRK Consulting (Canada) Inc. Mr. Bernier is the Qualified Person taking responsibility for the mineral resource estimates based on block modelling techniques.

The estimates for Quebradillas and San Nicolas using polygonal methods were completed under supervision of Mr. Jesús M. Velador Beltrán, MMSA, and Director of Exploration for FMS. Mr. Velador reviewed the polygonal estimates, and is the Qualified Person taking responsibility for the mineral resource estimates based on polygonal methods.

Mineral resources are reported inclusive of mineral reserves and have an effective date of December 31, 2016. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Estimates are reported using silver equivalent (Ag-Eq) cut-off grades that were calculated using the formula:

$$\text{Ag-Eq} = \text{Ag Grade} + [ (\text{Au Grade} \times \text{Au Recovery} \times \text{Au Payable} \times \text{Au Price} / 31.1035) + (\text{Pb Grade} \times \text{Pb Recovery} \times \text{Pb Payable} \times \text{Pb Price} \times 2204.62) + (\text{Zn Grade} \times \text{Zn Recovery} \times \text{Zn Payable} \times \text{Zn Price} \times 2204.62) ] / (\text{Ag Recovery} \times \text{Ag Payable} \times \text{Ag Price} / 31.1035).$$

**Table ii: Mineral Resource Statement\*, La Parilla Mine, Mexico, with an Effective Date of December 31, 2016 (FMS, 2017)**

Deposit/Vein	Category	Estimation Method	Mineral Type	Cut-off Ag-Eq (g/t)	Mineral Resource						Metal				
					Quantity (ktonnes)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag (koz)	Au (koz)	Pb (ktonnes)	Zn (ktonnes)	Ag-Eq (koz)
San Marcos	Indicated (Underground)	Block Model	Oxides	130	380	192	0.16	-	-	205	2,350	1.9	-	-	2,500
Quebradillas 550	Indicated (Underground)	Polygonal	Oxides	160	49	254	0	-	-	254	400	0	-	-	400
Quebradillas Open Pit	Indicated (Open Pit)	Polygonal	Oxides	95	357	129	0.02	-	-	131	1,480	0.2	-	-	1,500
<b>Sub-Total Indicated (Oxides)</b>	<b>UG + OP</b>				<b>787</b>	<b>167</b>	<b>0.08</b>	<b>-</b>	<b>-</b>	<b>174</b>	<b>4,230</b>	<b>2.1</b>	<b>-</b>	<b>-</b>	<b>4,400</b>
Rosarios - Intermedia	Indicated (Underground)	Block Model	Sulphides	135	703	196	0.11	1.01	0.56	254	4,430	2.4	7.1	4.0	5,730
Quebradillas 460	Indicated (Underground)	Polygonal	Sulphides	155	144	288	0	3.11	3.26	488	1,330	0	4.5	4.7	2,260
Quebradillas 550	Indicated (Underground)	Polygonal	Sulphides	155	44	186	0	2.87	4.02	400	270	0	1.3	1.8	570
Quebradillas Veta	Indicated (Underground)	Polygonal	Sulphides	155	28	185	0	2.94	2.30	352	170	0	0.8	0.6	320
Quebradillas Veta N-S	Indicated (Underground)	Polygonal	Sulphides	155	16	173	0	2.72	1.88	321	90	0	0.4	0.3	170
Quebradillas Veta Tiro	Indicated (Underground)	Polygonal	Sulphides	155	42	422	0	4.96	3.94	706	570	0	2.1	1.7	960
San Nicolas	Indicated (Underground)	Polygonal	Sulphides	155	58	303	0	1.37	1.96	407	560	0	0.8	1.1	750
<b>Sub-Total Indicated (Sulphides)</b>	<b>UG only</b>				<b>1,036</b>	<b>223</b>	<b>0.07</b>	<b>1.64</b>	<b>1.37</b>	<b>323</b>	<b>7,420</b>	<b>2.4</b>	<b>17.0</b>	<b>14.2</b>	<b>10,760</b>
<b>Total Measured and Indicated (All Mineral Types)</b>					<b>1,823</b>	<b>199</b>	<b>0.08</b>	<b>0.93</b>	<b>0.78</b>	<b>259</b>	<b>11,650</b>	<b>4.6</b>	<b>17.0</b>	<b>14.2</b>	<b>15,160</b>
Rosarios - Intermedia	Inferred (Underground)	Block Model	Oxides	130	77	170	0.08	-	-	176	420	0.2	-	-	440
San Marcos	Inferred (Underground)	Block Model	Oxides	130	575	203	0.10	-	-	211	3,760	1.8	-	-	3,900
Quebradillas 550	Inferred (Underground)	Polygonal	Oxides	160	202	244	0	-	-	244	1,580	0	-	-	1,580
San Nicolas	Inferred (Underground)	Polygonal	Oxides	160	67	244	0	-	-	244	530	0	-	-	530
<b>Total Inferred (Oxides)</b>	<b>UG only</b>				<b>922</b>	<b>212</b>	<b>0.07</b>	<b>-</b>	<b>-</b>	<b>218</b>	<b>6,290</b>	<b>2.0</b>	<b>-</b>	<b>-</b>	<b>6,450</b>
Rosarios - Intermedia	Inferred (Underground)	Block Model	Sulphides	135	1,076	148	0.09	1.14	0.67	212	5,120	3.1	12.3	7.2	7,340
San Marcos	Inferred (Underground)	Block Model	Sulphides	135	176	212	0.10	0.37	0.46	244	1,200	0.6	0.6	0.8	1,380
Quebradillas 460	Inferred (Underground)	Polygonal	Sulphides	155	291	239	0	3.76	4.19	489	2,240	0	11.0	12.2	4,580
Quebradillas 550	Inferred (Underground)	Polygonal	Sulphides	155	312	122	0	2.06	2.93	277	1,220	0	6.4	9.1	2,780
Quebradillas Q-38	Inferred (Underground)	Polygonal	Sulphides	155	63	148	0	1.60	1.40	244	300	0	1.0	0.9	490
Quebradillas Veta	Inferred (Underground)	Polygonal	Sulphides	155	135	185	0	2.94	2.30	352	800	0	4.0	3.1	1,530
Quebradillas Veta N-S	Inferred (Underground)	Polygonal	Sulphides	155	177	173	0	2.72	1.88	321	990	0	4.8	3.3	1,830
Quebradillas Veta Tiro	Inferred (Underground)	Polygonal	Sulphides	155	130	269	0	4.15	2.32	479	1,120	0	5.4	3.0	2,000
San Nicolas	Inferred (Underground)	Polygonal	Sulphides	155	304	303	0	1.37	1.96	407	2,970	0	4.2	6.0	3,980
<b>Sub-Total Inferred (Sulphides)</b>	<b>UG only</b>				<b>2,664</b>	<b>186</b>	<b>0.04</b>	<b>1.86</b>	<b>1.71</b>	<b>302</b>	<b>15,960</b>	<b>3.7</b>	<b>49.7</b>	<b>45.7</b>	<b>25,910</b>
<b>Total Inferred (All Mineral Types)</b>					<b>3,586</b>	<b>193</b>	<b>0.05</b>	<b>1.38</b>	<b>1.27</b>	<b>281</b>	<b>22,250</b>	<b>5.7</b>	<b>49.7</b>	<b>45.7</b>	<b>32,360</b>

\*

- (1) Block model estimates prepared under the supervision of Sebastien Bernier, PGeo, Principal Consultant (Geology), SRK Consulting (Canada) Inc.
- (2) Update polygonal estimates prepared under the supervision of Jesus M. Velador Beltran, MMSA, QP Geology for First Majestic Silver Corp.
- (3) Mineral resources have been classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101
- (4) Metal prices considered were \$19.00 /oz Ag, \$1,300 /oz Au, \$1.00 /lb Pb and \$1.20 /lb zinc.
- (5) Cut-off grade considered for oxide block model estimates from underground operation was 130 g/t Ag-Eq, based on actual costs excluding sustaining costs.
- (6) Cut-off grade considered for sulphides block model estimates was 135 g/t Ag-Eq, based on actual costs excluding sustaining costs.
- (7) Cut-off grade considered for oxide polygonal estimates from underground operation was 160 g/t Ag-Eq and 95 g/t Ag-Eq for open pit operations, both are based on actual and budgeted operating and sustaining costs.
- (8) Cut-off grade considered for sulphides polygonal estimates was 155 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.
- (9) Metallurgical recovery used for oxides based on 2016 actuals was 65.9% for silver and 80.8% for gold.
- (10) Metallurgical recovery used for sulphides based on 2016 actuals was 86.6% for silver, 80% for gold, 82.5% for lead, and 64.2% for zinc.
- (11) Metal payable used was 99.6% for silver and 95% for gold in doré produced from oxides.
- (12) Metal payable used was 95% for silver, gold, and lead and 85% for zinc in concentrates produced from sulphides.
- (13) Silver equivalent grade is estimated as:  $Ag-Eq = Ag\ Grade + [(Au\ Grade \times Au\ Recovery \times Au\ Payable \times Au\ Price / 31.1035) + (Pb\ Grade \times Pb\ Recovery \times Pb\ Payable \times Pb\ Price \times 2204.62) + (Zn\ Grade \times Zn\ Recovery \times Zn\ Payable \times Zn\ Price \times 2204.62)] / (Ag\ Recovery \times Ag\ Payable \times Ag\ Price / 31.1035)$ .
- (14) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces or thousands of tonnes.
- (15) Totals may not add up due to rounding.
- (16) Measured and Indicated Mineral resources are reported inclusive or Mineral reserves.



The Mineral resources may be impacted by additional infill and exploration drilling that may identify additional mineralization or cause changes to the current domain shapes and geological assumptions. The Mineral resources may also be affected by subsequent assessments of mining, processing, environment, permitting, taxation, socio-economic, and other factors.

## **Mineral Reserve Estimates**

### **Mineral Reserves Estimated from Mineral Resources Based on Block Models**

Mineral reserve estimates were developed separately for both oxide and sulphide ores with the majority of the assumptions and modifying factors being the same for both types. Zones estimated using block modelling methods included Rosarios, Intermedia, and San Marcos. Mineral reserves were separately estimated for each deposit and mineralization type.

Table iii summarizes the key assumptions and modifying factors used in underground mineral reserve estimation for the sulphide and oxide ores.

**Table iii: Assumptions and modifying factors used in mineral reserve estimation (FMS, 2017)**

<b>Oxide Ore</b>		
<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
Silver price	18.00	\$ per ounce
Gold price	1,250	\$ per ounce
Mining costs	17.88	\$ per tonne milled
Process cost	17.70	\$ per tonne milled
Indirect costs	11.39	\$ per tonne milled
General and Administrative costs	5.32	\$ per tonne milled
Sustaining and closure costs	9.27	\$ per tonne milled
Sustaining Plant and infrastructure	3.87	\$ per tonne milled
Sustaining development	5.30	\$ per tonne milled
Infill exploration drilling	1.75	\$ per tonne milled
Closure cost allocation	0.30	\$ per tonne milled
Off-site costs*	1.19	\$ per tonne milled
Minimum mining width	1.3	metres
Calculated average mining dilution	22	percent
Mining recovery	95	percent
Process recovery Ag	65.9	percent
Process recovery Au	80.8	percent
Payable Ag	99.6	percent
Payable Au	95.0	percent
2016 tonnes processed by leaching	193,900	tonnes milled
2016 Processing rate	530	tonnes per day

\* Doré refining charges, freight, insurance and representation

<b>Sulphide Ore</b>		
<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
Silver price	18.00	\$ per ounce
Gold price	1,250	\$ per ounce
Lead price	1.00	\$ per pound
Zinc price	1.15	\$ per pound
Mining costs	17.88	\$ per tonne milled
Process cost	13.97	\$ per tonne milled
Indirect costs	11.39	\$ per tonne milled
General and administrative costs	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	\$ per tonne milled
Sustaining development	5.30	\$ per tonne milled
Infill exploration drilling	1.75	\$ per tonne milled
Closure cost allocation	0.30	\$ per tonne milled
Off-site costs**	17.29	\$ per tonne milled
Minimum mining width	1.2	metres
Calculated average mining dilution	15	percent
Mining recovery	95	percent
Process recovery Ag	86.6	percent
Process recovery Au	80.0	percent
Process recovery Pb	82.5	percent
Process recovery Zn	64.2	percent
Payable Ag	95.0	percent
Payable Au	95.0	percent
Payable Pb	95.0	percent
Payable Zn	85.0	percent
2016 tonnes processed by flotation	416,600	tonnes milled
2016 Processing rate	1,140	tonnes per day

\*\* Pb and Zn concentrate treatment and refining charges, penalties, price participation, freight, insurance and representation

NSR values were used as an indicator to determine if a mining shape met the economic cut-off criteria for inclusion into the mining plan. NSR formulas for both oxide and sulphide mineralization are based on the assumptions listed above and coded into the block models.

The NSR formula for oxide ores can be expressed as:

$$\bullet \quad \text{NSR (US\$/tonne milled)} = \$0.38 \times \text{Ag} + \$30.85 \times \text{Au} - \$1.19$$

Where:

- Ag is the silver grade in g/t.
- Au is the gold grade in g/t.
- \$1.19 per tonne milled represents the fixed costs for refining charges, freight, insurance, and representation.

The NSR formula for sulphide ores (adding the contributions from the lead concentrate and zinc concentrate) can be expressed as:

$$\bullet \quad \text{NSR (US\$/tonne milled)} = \$0.42 \times \text{Ag} + \$7.15 \times \text{Au} + \$16.97 \times \text{Pb} + \$13.22 \times \text{Zn} - \$17.29$$

Where:

- Ag is the silver grade in g/t.
- Au is the gold grade in g/t.
- Pb is the lead grade in percent.
- Zn is the zinc grade in percent.
- \$17.29/t milled represents the fixed costs for treatment charges, price participation, penalties, freight, insurance, and representation for both concentrates.

As some of the potential mineral reserves are located in areas in proximity to existing development, and some are located in new mining areas, a two-tier cut-off value (COV) was used:

- A COV excluding sustaining development and diamond drilling costs was applied to the areas that are already developed.
- A COV including sustaining development and diamond drilling costs was applied to any new areas requiring ramp development and infill diamond drilling before mining could begin.

The COV for sulphide ore, without sustaining development and drilling costs was US\$56.46, and including those costs was US\$63.51. The costs for oxide ore were US\$52.73 (without sustaining costs) and US\$59.78 (with sustaining costs).

The stope designs targeted only Measured and Indicated mineral resources, but where Inferred mineral resources were unavoidably included within mining shapes, they were treated in the same manner as external dilution. This was achieved by setting the NSR value of all Inferred mineral resource blocks to equal the off-site costs, i.e. the NSR value of all Inferred mineral resource blocks is negative. Total Inferred mineral resources included in the mineral reserve estimate from block models is less than 2%.

Variables such as sub-level spacing, sill pillar sizing, and minimum mining width were based on current mining practices at site.

The final stope shapes were processed using Datamine Studio 5D Planner software to evaluate the tonnes and grade by mineral resource category. These evaluation results represent the in-situ mineral resources available to be mined. The evaluation results were imported into Microsoft Excel in order to apply the modifying factors and compile the final mineral reserve estimate for the deposits based on block models. The modifying factors applied to the evaluation results were external dilution and mining recovery. Internal dilution is already accounted for within the 3D stope shapes and is included in the evaluation results. Dilution percentages are defined as waste tonnes/ore tonnes (W/O) in all cases.

External dilution on the mineral reserves averages 22% for oxides and 15% for sulphides. The external dilution is based on the true width of the vein, with a constant overbreak added to estimate the final mining width to be broken. For oxide ores, the minimum mining width possible using resuing is 0.9 m + 0.4 m of overbreak, or 1.3 m. As the sulphide ores are not as friable as the oxide ores, the minimum mining width for sulphides is 0.9 m + 0.3 m overbreak, or 1.2 m. An additional 5% external dilution was added to account for dilution from other sources, such as backfill dilution from mucking operations. Mining recovery for mechanized cut and fill (MCF) stopes was set at 95%.

## **Mineral Reserves Estimated from Mineral Resources Based on Polygons**

Mineral reserve estimates were developed separately for both oxide and sulphide ores, with the majority of the assumptions and modifying factors being the same for both types where mined by underground methods. Zones estimated using polygonal methods were the Quebradillas and San Nicolas areas.

The polygon-derived estimates use the same assumptions as presented in Table iii for the block-model derived estimates.

A silver equivalent (Ag-Eq) cut-off grade (COG) was estimated to identify the polygons that complete La Parrilla's initial mine design and initiate the process of underground mine optimization. The all-in-sustaining mining cost for mining underground oxide material was \$59.78/t and the cost for mining underground sulphide material was \$63.51/t; these figures include sustaining development and sustaining capital costs. The all-in-sustaining mining cost for mining oxide material using open pit methods is \$37.33/t; this figure includes sustaining capital and sustaining waste stripping cost. The Ag-Eq cut-off used for mineral reserves reporting is based on 2016 actual costs. A COG of 100 g/t Ag-Eq was used for remnant oxide open pit material, and a cut-off grade of 160 Ag-Eq was used for both oxide and sulphide material to be mined using underground methods.

The polygon-derived estimates for material to be mined from underground use similar stope designs, external dilution, and mining recovery assumptions to that block-model derived estimates.

For the open pit estimates, an average of 15% external dilution was considered for open pit mining to account for blasting overbreak. An additional 5% external dilution was added to account for dilution from other sources, such as waste dilution from surface loading and handling. Mining recovery for open pit mining was set at 95%.

## **Mineral Reserve Statement**

The Mineral Reserve Statement for La Parrilla is provided as Table iv.

**Table iv: Mineral Reserve Statement\*, La Parrilla Silver Mine, Mexico, with an Effective Date of December 31, 2016 (FMS, 2017)**

Deposit/Vein	Category	Estimation Method	Mineral Type	Cut-off NSR (\$) or Ag-Eq (g/t)	Mineral Reserve						Metal				
					Quantity (ktonnes)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag (koz)	Au (koz)	Pb (ktonnes)	Zn (ktonnes)	Ag-Eq (koz)
San Marcos	Probable (underground)	Block Model	Oxides	\$59.78/52.73	187	181	0.16	-	-	194	1,090	0.95	-	-	1,170
Quebradillas UG	Probable (underground)	Polygonal	Oxides	160	50	208	0	-	-	208	340	0	-	-	340
Quebradillas OP	Probable (open pit)	Polygonal	Oxides	100	408	108	0.02	-	-	109	1,410	0.21	-	-	1,430
<b>Total Probable (Oxides)</b>	<b>UG + OP</b>				<b>645</b>	<b>137</b>	<b>0.06</b>	<b>-</b>	<b>-</b>	<b>141</b>	<b>2,840</b>	<b>1.17</b>	<b>-</b>	<b>-</b>	<b>2,940</b>
Rosarios/ La Blanca	Probable (underground)	Block Model	Sulphides	\$63.51/56.46	402	200	0.09	1.02	0.43	255	2,580	1.21	4.1	1.7	3,300
Intermedia	Probable (underground)	Block Model	Sulphides	\$63.51/56.46	41	168	0.13	0.63	0.88	225	220	0.17	0.3	0.4	300
Quebradillas	Probable (underground)	Polygonal	Sulphides	160	320	224	0	2.70	2.70	401	2,310	0	8.7	8.6	4,130
San Nicolas	Probable (underground)	Polygonal	Sulphides	160	69	241	0	1.08	1.55	325	530	0	0.7	1.1	720
<b>Sub-Total Probable (Sulphides)</b>	<b>UG only</b>				<b>832</b>	<b>211</b>	<b>0.05</b>	<b>1.65</b>	<b>1.42</b>	<b>316</b>	<b>5,640</b>	<b>1.38</b>	<b>13.8</b>	<b>11.8</b>	<b>8,450</b>
<b>Total Proven and Probable (All Mineral Types)</b>					<b>1,477</b>	<b>179</b>	<b>0.05</b>	<b>0.93</b>	<b>0.80</b>	<b>239</b>	<b>8,480</b>	<b>2.55</b>	<b>13.8</b>	<b>11.8</b>	<b>11,390</b>

- \*
- (1) Block model estimates prepared under the supervision of Stephen Taylor, PEng, Principal Consultant (Mining), SRK Consulting (Canada) Inc.
  - (2) Update polygonal estimates prepared under the supervision of Ramón Mendoza Reyes, PEng, QP Mining for First Majestic Silver Corp.
  - (3) Mineral reserves have been classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101
  - (4) Metal prices considered for mineral reserves estimates were \$18.00 /oz Ag, \$1250 /oz Au, \$1.00 /lb Pb, and \$1.15 /lb Zn
  - (5) Metallurgical recovery used for oxides based on 2016 actuals was 65.9% for silver and 80.8% for gold.
  - (6) Metallurgical recovery used for sulphides based on 2016 actuals was 86.6% for silver, 80% for gold, 82.5% for lead, and 64.2% for zinc.
  - (7) Metal payable used was 99.6% for silver and 95% for gold in doré produced from oxides.
  - (8) Metal payable used was 95% for silver, gold, and lead and 85% for zinc in concentrates produced from sulphides.
  - (9) Silver equivalent grade is estimated as:  $Ag-Eq = Ag\ Grade + [(Au\ Grade \times Au\ Recovery \times Au\ Payable \times Au\ Price / 31.1035) + (Pb\ Grade \times Pb\ Recovery \times Pb\ Payable \times Pb\ Price \times 2204.62) + (Zn\ Grade \times Zn\ Recovery \times Zn\ Payable \times Zn\ Price \times 2204.62)] / (Ag\ Recovery \times Ag\ Payable \times Ag\ Price / 31.1035)$ .
  - (10) The modifying factors used are consistent for each estimation method, but different for each ore type as described in Table iii and Section 15.1
  - (11) Cut-off NRS values considered for oxide block model estimates from underground operation was US\$63.51 with sustaining costs and \$US56.46 without sustaining costs, based on actual costs (Section 15.1).
  - (12) Cut-off NSR values considered for sulphides block model estimates from underground operations was US\$59.78 with sustaining costs and US\$52.73 without sustaining costs, based on actual costs (Section 15.1).
  - (13) Cut-off grade considered for oxide polygonal estimates from underground operation was 160 g/t Ag-Eq and 100 g/t Ag-Eq for open pit operations, both are based on actual and budgeted operating and sustaining costs.
  - (14) Cut-off grade considered for sulphides polygonal estimates was 160 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.
  - (15) The mineral reserves information provided above for deposits based on block models represent an independent estimate prepared as of December 31, 2016. The information provided was reviewed and validated by Mr. Stephen Taylor, PEng of SRK Consulting (Canada) Inc, who has the appropriate relevant qualifications, and experience in mining and reserve estimation practices.
  - (16) The Mineral Reserves information provided above for deposits based on polygonal estimation techniques is based on internal estimates prepared as of Dec 31, 2016. The information provided was reviewed and validated by the Company's internal Qualified Person, Mr. Ramón Mendoza Reyes, PEng, who has the appropriate relevant qualifications, and experience in mining and reserve estimation practices.
  - (17) Tonnage is expressed in thousands of tonnes; metal content is expressed in thousands of ounces or thousands of tonnes.
  - (18) Totals may not add up due to rounding.

## Mining Methods

Production in 2016 came from five underground sources and from the Quebradillas open pit.

### Underground Mining Operations

The underground mining operations currently use the Mechanized Cut and Fill (MCF) mining method, this mining method is assumed to apply to the life-of-mine (LOM) plan. To access the ore body, an initial access drift, or attack ramp, is driven from the lower main level to near the middle of the bottom elevation of the MCF stope. Typical development methods are then used to drive sill drifts in ore to each extent of the ore body. Sill drifts are typically driven 3.5–4 m high to accommodate the production drilling. Production drilling is carried out by hydraulic jumbo drills where the veins are wider and by handheld pneumatic jackleg drills in narrower sections. Blast holes are generally drilled as inclined up holes in the back of the stope.

FMS also uses MCF with resuing when the vein width is narrower than the minimum mining width required by the mobile equipment. All areas where resuing is used are drilled by handheld pneumatic drills.

In 2016, one longhole open stope was excavated at San Marcos as a trial. FMS plans to continue implementing the longhole mining method as there are many areas that are suited to the application of longhole open stope mining methods. One such area is the La Blanca area of the Rosarios mine where ground conditions are excellent, and the steeply dipping vein is 3 m-wide or more.

FMS has not commissioned any hydrogeology studies, and is unaware of any historical hydrogeological studies. The Rosarios vein system has been in production for many decades with no significant flooding issues, though occasional heavy rainstorms may partially interrupt underground operations. Most water observed underground is process water from mining operations, there are generally little to no passive inflows except during heavy rainstorms.

FMS has developed a set of ground control standards based on the Norwegian Geotechnical Institute's Q rock mass classification system and stope stability analysis using Mathew's method. The current ground control standards account for six geotechnical domains: three for oxidized areas and three for sulphide areas. Areas with good quality rockmass ratings or better typically have no ground support installed. Areas with poor to very poor rockmass rating will be supported using rockbolts in the sulphide areas and shotcrete in the oxide areas. Ground support installation is not mechanized.

A portion of the mineral reserves are in areas that are already developed, and represent stopes currently in production, or extension and remnants of past stopes. The following underground areas will be mined in the LOM plan:

- Rosarios deposit (including the La Blanca and San José zones): the oldest of the operating mines located at La Parrilla, with development down to around 470m depth at 14 Level; projected that the remaining sulphide ore will be mined at a rate of 120 ktpa.
- Intermedia deposit: an extension of the Rosarios deposit, connected to the San Marcos deposit; projected that the remaining mineral reserves will be mined out by the end of 2017.
- San Marcos deposit: an older mine, established prior to FMS's property acquisition. Connected to the Intermedia and Rosarios deposits on 9 Level; projected that the remaining oxide material will be mined at rates that will vary between 30 and 78 ktpa over a four-year period.
- Quebradillas and adjacent San Nicolas deposits: San Nicolas is included with Quebradillas as it is accessed from the existing Quebradillas ramp system. The Quebradillas 550 vein will be mined at about 30 ktpa for a three-year period. The Quebradillas 460 vein, Quebradillas Tiro (shaft) vein, Quebradillas N-S vein and the original Quebradillas vein zones will be mined at a combined rate of up to 180 ktpa over a three-year period.

A basic development and production schedule was developed in Excel based on site mine design standards and previous performance metrics for production and development. The schedule tracks and reports development metres and stope production for both oxide and sulphide ore types on a monthly basis. Based on the current LOM plan, FMS will develop a total of 5–7 km of lateral waste development per year for three years, dropping to 1 km in the last year of production. The LOM total is 19.6 km of lateral waste development including 11.3 km of capital development and 8.3 km of operating development. Capital vertical waste development totals 3.4 km.

Table v provides a summary of the development and stope design criteria. Capital and operating development requirements are included in Table vi. The underground mining schedule from 2017 to 2020 is provided in Table vii.

Ventilation for the various mining zones is generally set up as a pull system where a return air fan on surface pulls exhaust air from the ramp at depth via a 3 m diameter raise. This pulls fresh air into the ramp portal and down the ramp. Local auxiliary fans are then used to distribute fresh air from the ramp above the return air raise into the working, with the contaminated air then being pulled to the return air raise back to surface. The current ventilation capacity was modelled in late 2016, and results indicated that ventilation flow should be improved to support mining in deeper areas.

Local contractors perform some of the underground mining activities at La Parrilla, such as ramp, lateral, and vertical development; stoping; haulage; shotcreting; and maintenance activities. FMS staff and employees provide technical, administrative, and supervisory support for the underground operations.

**Table v: Development and stope design criteria (FMS, 2017)**

Development Design Criteria	Dimensions	Stope Design Criteria for Oxide Ores		Stope Design Criteria for Sulphide Ores	
		Parameter	Value	Parameter	Value
Main ramps (15% grade)	4.0 x 4.0m	Mining method (vein width > 2.0 m)	MCF	Mining method (vein width > 2.1 m)	MCF
Levels, footwall drifts and other infrastructure	3.5 x 3.5m	Mining method (vein width 0.9–2.0 m)	MCF with resuing	Mining method (vein width 0.9–2.1 m)	MCF with resuing
Stope access drifts & attack ramps	3.5 x 3.5m	Total hangingwall/footwall dilution (oxides)	0.4 m	Total hangingwall/footwall dilution (sulphides)	0.3 m
Main ventilation raises (raisebored)	3.0 m diameter	Minimum mining width (diluted resuing)(oxides)	1.3 m	Minimum mining width (diluted resuing) (sulphides)	1.2 m
Ventilation raises/manways (open raising)	1.8 x 1.8m	Minimum mining width (diluted MCF)	2.4 m	Minimum mining width (diluted MCF)	2.4 m
Level spacing	50 m				
Sub-level spacing	12 m				

**Table vi: Total capital and operating development requirements (FMS, 2017)**

Capital Development (m)	Size (m)	2017	2018	2019	2020	Total
Main ramp	4 x 4	2,830	2,720	2,130	520	8,200
Main level/infrastructure	3.5 x 3.5	1,240	1,200	660	-	3,100
Auxiliary vent/access raise	1.8 x 1.8	1,080	1,200	450	80	2,810
Main ventilation raise (raisebored)	3m dia.	400	180	-	-	580
Operating Development (m)						
MCF attack ramps	3.5 x 3.5	2,580	2,090	2,100	670	7,440
Stope access drifts	3.5 x 3.5	400	360	120	-	880

**Table vii: Underground Life-of-mine production schedule (FMS, 2017)**

Parameters	2017	2018	2019	2020	Total
Oxide Sources					
Tonnes mined/milled ('000)	236	240	139	29	645
Ag (g/t)	124	128	165	180	137
Au (g/t)	0.02	0.06	0.09	0.15	0.06
Ag-Eq (g/t)	125	133	173	192	141
Contained Ag-Eq (koz)	952	1,025	772	181	2,930
Sulphide Sources					
Tonnes mined/milled ('000)	300	300	190	42	832
Ag (g/t)	228	221	171	199	211
Au (g/t)	0.06	0.04	0.05	0.08	0.05
Pb (%)	1.60	1.87	1.53	1.02	1.65
Zn (%)	1.41	1.81	1.04	0.36	1.42
Ag-Eq (g/t)	324	335	254	249	308
Contained Ag-Eq (koz)	3,125	3,227	1,556	334	8,244

## Open Pit Mining Operation

The Quebradillas open pit is a conventional open pit mine operated by local contractors using track drills, front-end-loaders, backhoe excavators, bulldozers and conventional 20 m<sup>3</sup> trucks.

The remaining oxide mineral reserves from open pit sources are from the Quebradillas and La Herradura deposits. These mineral reserves are constrained by a pit shell designed with the following parameters: the pit configuration is designed with 7.5 m-high benches, 2.5 m-wide berms, and 60° slope angles, resulting in an overall slope angle of 49°. The planned design results in a stripping ratio of 2:1 (waste to ore ratio). The mineral reserves are planned to be mined over the next three years at rates of up to 180 ktpa.

## Processing Plant

La Parrilla operates two parallel processing circuits that recover metals from the sulphide and oxide ores. Both processing lines at La Parrilla use a conventional flowsheet:

- A three-stage crushing plant batches sulphide ore and oxide ore to provide ore to the two parallel circuits.
- The flotation plant treats sulphide ores, and consists of a conventional ball mill, followed by a multi-stage flotation plant that floats a lead concentrate first, then a zinc concentrate. Precious metals are preferably deported to the lead concentrate, with both concentrates showing payable silver values.
- The leaching plant uses conventional agitated leaching, followed by the Merrill-Crowe process to recover precious metals from the pregnant solution. Doré bars are the final product.



Tailing from both circuits are filtered separately before being dry-stacked in the tailings storage facility. Water for each circuit is managed independently.

The processing plants were originally designed to process 1,000 tpd per circuit for a combined throughput of 2,000 tpd; however, since completion of open pit mining in 2016, the amount of oxide ore available for treatment through the leach facility has significantly reduced. FMS has partially offset this by working to increase the throughput of sulphide ores through the flotation plant.

## Infrastructure

The existing surface infrastructure includes the processing plant, repair workshops, an analytical laboratory, temporary ore stockpiles, a tailings storage facility, water management and diversion structures, offices, a drill core and logging shack, power substations and power lines. Existing underground workshop facilities include a washing bay, a lubricant station and several repair stations for mobile equipment.

Standard dump trucks currently haul ore from underground to the stockpile areas on the hill above the mill. There are two stockpile areas, one for oxide ores and one for sulphide ores. A front-end loader is used to feed the appropriate mill feed to the crushing circuit.

The processing plant produces a dry filter cake which is transported via conveyors to the dry stack tailings storage facility, where a small bulldozer distributes and grades the tailings. An expansion to the existing facility has been designed and permitted, and will have sufficient capacity for 12.5 years of production at current production rates.

Fresh water is supplied to the site by two permitted wells located in the adjoining valley, some 7 km from the mine site. FMS indicates that the capacity of a single well is sufficient to provide the seasonal fresh water make-up needs for the current operation. Water is pumped into one of four water tanks located on the hill above the processing plant. Process water is fed directly to the main mine (San Marcos, Rosarios, San José, La Blanca) from the surface water tanks. The majority of the plant process water is recycled. Any water captured in the catchments around the tailings facility is also recycled. Process water underground is also largely recycled.

Power to the site is provided by a 115-kV high-voltage transmission line from a major Comisión Federal de Electricidad (CFE) transmission line that runs parallel to the nearby highway. This line feeds a 10/12.5 MVA transformer that steps the voltage down to 13.2 kV before metering and distribution.

## Markets and Contracts

Three different end products are marketed:

- Silver doré bars: typically contain greater than 90% silver with some gold and other impurities. These are delivered to one of three refineries where doré bars are refined to commercially marketable 99.9% pure silver bars.
- No relevant impurities have been recorded in La Parrilla silver doré bars.
- Separate silver-rich lead concentrates and zinc concentrates are sold under annual contracts to arm's length concentrate traders and smelters. Lead concentrates typically contain a minimum of 40% Pb and 3.6 kg/t Ag. Zinc concentrates contain a minimum of 40% Zn and <1.0 kg/t Ag.
- Based on past performance and the characteristics of the ore, the silver-rich lead concentrates will carry impurities in the form of arsenic sulphides that could be penalized at the smelter. In the last three years, the arsenic content has been recorded at 0.7–1.4% As. The penalty thresholds for arsenic in the different contracts are set at 1.0%. The corresponding penalties provisions have been included in the financial model. No other relevant impurities have been recorded.
- Based on past performance and the characteristics of the ore, the zinc concentrate from La Parrilla will typically carry impurities in the form arsenic sulphides and cadmium that could be penalized at the smelter. In the last three years, the arsenic content has been recorded at a range

between 0.2–0.6% As. The penalty threshold for arsenic is set above 0.3% As. In the last three years, the cadmium content has been recorded at a range between 0.2–0.5% Cd. The penalty threshold for cadmium is set at 0.3% Cd and the corresponding penalty allowances have been included in the financial model. No other relevant impurities have been recorded.

FMS tenders and negotiates sales contracts with refining companies, metals brokers and traders on at least an annual basis. FMS continually reviews its cost structures and relationships with refining companies and metal traders in order to maintain the most competitive pricing possible, while not remaining completely dependent on any single smelter, refiner or trader. At the effective date of the Report, La Parrilla had a number of concentrate sales agreements with smelters and concentrate traders. These sales agreements are valid for one year or more, and are reviewed on a regular basis. Terms within the sales contracts are considered by FMS to be within industry norms for such agreements.

As a normal course of business, La Parrilla has contracts in place for some of the services required for mining and processing activities. All these contracts are for agreed-upon one-year or multi-year terms and, in the opinion of the QP, these contracts and commercial terms are in line with industry norms for such contracts.

FMS has corporately established a standard procedure to determine the medium-term and long-term metal price guidance for silver and gold. This procedure considers the consensus of future metal prices forecasts from credible sources, including major Canadian and global banks, projections from financial analysts specializing in the mining and metals industry, and metal prices forecasts used by other peer mining companies in public disclosures. Metal prices used in the Report are provided in Table viii.

**Table viii: Metal price assumptions (FMS, 2017)**

<b>Metal Price</b>	<b>Units</b>	<b>Used in Mineral Resource Estimation</b>	<b>Used in Mineral Reserve Estimation and Mine Plan</b>
Silver	US\$/oz	19.00	18.00
Gold	US\$/oz	1,300	1,250
Lead	US\$/lb	1.00	1.00
Zinc	US\$/lb	1.20	1.15

## Environmental Considerations

La Parrilla is an operating mine, and as such it currently holds the major environmental permits and licences required by the Mexican authorities to carry out mineral extracting activities.

It is understood that the permitted capacity of the tailings expansion is able to accommodate 10 years of production at current rates, which exceeds the current estimated mineral resources available. The infrastructure footprint, process rate, and fresh water make-up demand will also remain the same. Therefore, no new permitting is required to accommodate production from the current mineral resource or mineral reserve estimates

Recent environmental studies were completed in support of permit applications and development of a closure plan. These studies consider potential environmental impacts of the tailings storage facility (TSF) expansion, the physical stability of the structure and leach testing of the waste rock used to cover the tailings dam.

Water from the Quebradillas underground mine and the mined-out Vacas mine are pumped to surface and discharged to local creek beds. These discharges are licensed, monitored, and reported on, with respect to both the quality and quantity of the discharge. No water is pumped from the Quebradillas open pit. The amount of water collecting in the pit is sufficiently small that there is no requirement for a water collection sump or pump in the pit bottom.

There are no regulated effluent points on site. FMS has indicated that non-point-source surface runoff from mine waste rock piles, tailings areas, the open pit, and from the general building areas is not considered to be an environmental concern.

Tailings from the mill are stored in the TSF as dry stacked tailings. Mill process water is extracted from the tailings prior to placement and recycled. The tailings area has a constructed runoff collection system of drains and ditches, and reports to the water reclaim station downstream of the tailings area where it is pumped back to the mill for re-use as process water. The tailings are placed in lifts that are subsequently covered with mine waste rock. The historic tailings area is currently being rehabilitated by with a waste rock cover, and will eventually be revegetated.

The Restoration and Closure Plan for La Parrilla is based on the commitments established in the Asset Retirement Obligations (ARO). The plan identifies the principles, standards, and international guidelines to be used in the restoration and closure of the various mining areas forming the La Parrilla site, and includes an estimate of the investment needed for closure activities to return the land to a predetermined state, once the activities associated with the mining operation have ceased.

As of December 2015, FMS estimated that the decommissioning liability for La Parrilla is US\$3.357M.

To the extent known, there are no social issues that could materially impact the Company's ability to conduct exploration and mining activities in the district. The economic impact of the La Parrilla mine on the surrounding towns and villages is positive. FMS maintains an active program of support and communications with the nearby communities and relies on its relationship with the local communities, labour unions, and the government regulators, which are presently businesslike and amicable.

## Capital and Operating Costs

FMS categorizes the semi-permanent underground mine development infrastructure as expansionary capital development, including main ramps, main sublevels, and ventilation infrastructure. A total of \$9.4 million is projected to be expended between 2017 and 2020.

Sustaining capital projections for equipment and infrastructure costs are based on the annual average for the period of January 2014 to June 2017. Sustaining capital equipment projections are based on average expenditures in equipment rebuilding, major overhauls or replacements, plant maintenance and on-going refurbishing. Sustaining infrastructure costs includes allocation for expansion of the tailings management facilities as needed and annual mining rights expenditures. Sustaining development costs are estimated based on centre-line-designed distances based on the geometry of the ore body, where a typical MCF block requires 180 m of ramp and lateral waste development. Infill exploration diamond drilling is based on 5,000 m per year at \$120/m. Closure costs are also included as sustaining capital at a rate of US\$0.30/t milled, based on the 2015 Restoration and Closure Plan. The total mining sustaining capital cost estimate for 2017 to 2020 is \$25.2 million.

Operating costs for underground mining are based on actual costs for the first half of 2017 (January to June 2017). Sustaining plant and infrastructure costs are based on the average for January 2014 to June 2017. Total site operating costs for oxide ore are US\$52.29/t milled, and US\$48.56/t milled for sulphide ore.

Operating costs for open pit mining are based on actual costs for the first three quarters of 2017 (January to October 2017). during this time, 173.3 kt of oxide open pit ore was mined and milled at a cost of US\$4.99/t at a 1:1 stripping ratio. As the remaining mineral reserves are estimated to require a 2:1 stripping ratio, the direct mining cost has been estimated to be US\$7.00/t. The site operating cost for oxide ore derived from open pit sources is projected at US\$41.41/t milled.

Overall, for the period 2017 to 2020, the site operating costs for oxide ores from underground and open pit sources is estimated at \$30.77/t milled. In the same period, the site operating costs for sulphide ores from underground sources is estimated at \$43.66/t milled. The total site operating costs for 2017 to 2020 are forecast to be \$74.43/t milled.

## Economic Analysis

FMS is using the provision for producing issuers whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

An economic analysis to support presentation of mineral reserves was conducted. Under the assumptions presented in this Report, the operations show a positive cashflow, and can support mineral reserve estimation.

## Interpretation and Conclusions

Under the assumptions in this Report, the operations have a positive cashflow, and mineral reserves can be reported.

## Recommendations

Recommendations have been separated into two phases. The Phase 1 recommendations are made in relation to exploration activities. Recommendations proposed in Phase 2 are suggestions for improvements in current operating procedures; these recommendations are not contingent on the results of Phase 1 work.

The total cost for the Phase 1 work is about \$15.4 million. Phase 1 will consist of underground drilling, testing of brownfields surface exploration targets, additional geological and alteration mapping, prospect-scale reconnaissance mapping, fluid inclusion and age-dating studies, and acquisition of satellite images.

Phase 2 is estimated at about \$4.5 million. The Phase 2 work program is designed to provide additional support to the mining operations and include the following steps:

- Conducting additional investigation of QA/QC data
- Modernizing mineral resource and mineral reserve estimation procedures for those areas currently estimated using polygonal methods
- Upgrading the ventilation system
- Conducting a trial long-hole stoping evaluation at the Rosarios mine
- Reducing plant operating time to reflect lower throughput capacities
- Introducing slurry density control
- Improving flotation cell stability
- Implementing micro-bubble technology in the cleaning circuits
- Evaluating the need for a concentrate regrind stage
- Compiling geochemical data and analyzing the results to determine if any additional geochemical work should be conducted
- Completing an independent evaluation of the likely closure cost requirements

FMS added a 10% contingency to these work phases of approximately \$20.5 million, resulting in a final Phase 1 and Phase 2 work program estimate total of about \$22.6 million.

## 2 Introduction and Terms of Reference

The La Parrilla Silver Mine is an operating polymetallic silver mine located in Mexico's Durango state. It is located 76 km southeast of Durango near the town of San José de La Parrilla. The mine is 100% owned by First Majestic Silver Corp. (FMS).

FMS is currently mining underground from a number of deposits. The Rosarios, Intermedia and San Marcos deposits constitute the main underground mine as these deposits are located along the same structure, are connected together, and share common infrastructure. A second underground mine consists of the various Quebradillas deposits and of the San Nicolas deposit which is accessed from Quebradillas. The Quebradillas deposit had also been mined by open pit with some remnants still remaining to be mined.

In June 2016, FMS commissioned SRK Consulting (Canada) Inc. (SRK) to visit the property and assist in preparing a geological and mineral resource model for the Rosarios, Intermedia and San Marcos deposits at the La Parrilla Silver Mine. SRK was also commissioned to assist in preparing a mineral reserve estimate to support ongoing mining operations on the same deposits. The services were rendered over a period of 15 months between July 2016 and October 2017, leading to the preparation and update of the mineral resource and mineral reserve statements reported herein and updated information on mining operations and processing plant for the La Parrilla Silver Mine.

This technical report was compiled jointly by FMS and SRK. It documents mineral resource and mineral reserve statements for the La Parrilla Silver Mine prepared jointly by FMS and SRK, wherein SRK prepared the mineral resources and mineral reserves based on 3D geostatistical block modelling techniques for the three of the main production areas (Rosarios, Intermedia and San Marcos) and FMS prepared the mineral resources and mineral reserves base on 2D polygonal estimation techniques for the remaining deposits, namely Quebradillas and San Nicolas.

This technical report was prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1. The mineral resource statement reported herein was prepared in conformity with generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines*.

### 2.1 Scope of Work

FMS commissioned SRK to provide mineral resource modelling support of the polymetallic mineralization delineated by drilling at the La Parrilla Silver Mine, the preparation of mineral reserve estimates, and the preparation of contributions to a technical report in compliance with National Instrument 43-101 and Form 43-101F1 guidelines. This work scope typically involves the assessment of the following aspects of this project:

- Topography, landscape, access
- Regional and local geology
- Exploration history
- Audit of exploration work carried out on the project
- Geological modelling
- Mineral resource estimation and validation
- Preparation of a Mineral Resource Statement
- Auditing current mining operations and practices

- Auditing for geotechnical and hydrogeology issues
- Auditing of current operational practices
- Selection of mining methods and associated cut-off values
- Selection of appropriate modifying factors
- Mine design and schedule
- Mineral reserve estimation and validation
- Auditing current milling operations and metallurgical aspects
- Auditing current environmental practices, permit status and ownership
- Technical economic modelling and financial analysis
- Recommendations for additional work

## 2.2 Work Program

The mineral resource statement reported herein is a collaborative effort between FMS and SRK personnel. The exploration database was compiled and maintained by FMS, and was audited by SRK. The initial Leapfrog® geological models for the Rosarios, Intermedia and San Marcos deposits were constructed by FMS mainly from diamond drilling information; these models were audited and updated by SRK to create the final geological model. In the opinion of SRK, the geological model is a reasonable representation of the distribution of the targeted mineralization at the current level of sampling. Data conditioning, geostatistical analysis and mineral resource modelling were completed by SRK as the various explorations databases became available during last half of 2016. The mineral resource statement reported herein was presented to FMS in June 2017.

FMS completed the mineral resource estimates for the Quebradillas and San Nicolas deposits using polygonal estimation methods. SRK compiled the results for all zones into a Combined Mineral Resource Statement.

Similarly, the Mineral Reserve Statement reported herein was a collaborative effort between FMS and SRK personnel. The estimates of mining methods, services, equipment and manpower are all based on current practice at the mine site. The modifying factors, selection of zones to be converted to mineral reserve from block models (Rosarios, Intermedia, and San Marcos), and compilation were developed by SRK, with FMS updating the underground development designs to match. The Mineral Reserve Statement reported herein was presented to FMS in October 2017.

FMS estimated the mineral reserves for Quebradillas and San Nicolas using polygonal estimation methods. SRK compiled the results for all zones into a Combined Mineral Reserve Statement.

The environmental and metallurgical aspects of the La Parrilla Silver Mine were audited by SRK as part of this assignment.

The Mineral Resource and Mineral Reserve Statements reported herein were prepared in conformity with the generally accepted *CIM Exploration Best Practices Guidelines* and *CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines*. This technical report was prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1.

The technical report was assembled in Sudbury, Toronto and Vancouver by FMS and SRK during the months of December 2016 through November 2017.

## 2.3 Basis of Technical Report

This report is based on information collected by SRK during a site visit performed on February 6 to 8, 2017, and additional information was provided by FMS throughout the course of SRK's investigations. SRK has no reason to doubt the reliability of the information provided by FMS. Other information was obtained from the public domain. This technical report is based on the following sources of information:

- Discussions with FMS personnel
- Inspection of the La Parrilla Silver Mine area, including underground infrastructure and active mining areas, processing plant, surface facilities, on-site assay lab and drill core
- Review of exploration data collected by FMS
- Review of mine plans and sections maintained on site
- Additional information from public domain sources
- Information extracted from the previous La Parrilla technical report assembled by Pincock, Allen & Holt (2011)

Other site visits carried out by SRK to La Parrilla Silver Mine include:

- June 10 to 12, 2012
- July 9 to 11, 2013
- September 9 and 10, 2014
- February 24 and 25, 2015

All costs and prices are expressed in United States dollars (US\$) unless noted otherwise.

## 2.4 Qualifications of First Majestic Silver Corp. Team

The mineral resource evaluation work and the compilation of the related sections of this technical report based on 2D polygonal estimation techniques were completed by FMS staff under the supervision of Mr. Jesús M. Velador Beltrán, MMSA (MMSA #01470QP). By virtue of his education, membership to a recognized professional association, and relevant work experience, Mr. Velador is a Qualified Person as this term is defined by National Instrument 43-101.

The mineral reserve estimation work and compilation of the related sections of this technical report that are based on 2D polygonal estimation techniques was completed by FMS staff under the supervision of Mr. Ramón Mendoza, PEng (APEGBC #158547). By virtue of his education, membership to a recognized professional association, and relevant work experience, Mr. Mendoza is a Qualified Persons as this term is defined by National Instrument 43-101.

The sections describing the geological database compilation, data verification, database quality control and quality assurance, and other related sections of this technical report were completed by FMS staff under the supervision of Ms. Maria Elena Vazquez Jaimes, PGeo (APEGBC #35815). By virtue of her education, membership to a recognized professional association, and relevant work experience, Ms. Vazquez is a Qualified Person as this term is defined by National Instrument 43-101.

## 2.5 Qualifications of SRK and SRK Team

The SRK Group comprises more than 1,400 professionals, offering expertise in a wide range of resource engineering disciplines. The independence of the SRK Group is ensured by the fact that it holds no equity in any project it investigates and that its ownership rests solely with its staff. These facts permit SRK to provide its clients with conflict-free and objective recommendations. SRK has a proven track record in undertaking independent assessments of mineral resources and mineral reserves, project evaluations and audits, technical reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies, and financial institutions worldwide. Through its work with a large number of major international mining companies, the SRK Group has established a reputation for providing valuable consultancy services to the global mining industry.

The mineral resource evaluation work and compilation of the related sections of this technical report that are based on 3D block modelling techniques were completed by Sébastien Bernier, PGeo (APGO#1847). Data Verification was completed by Dominic Chartier, PGeo (OGQ #874). By virtue of their education, membership to a recognized professional association, and relevant work experience, Mr. Chartier and Mr. Bernier are independent Qualified Persons as this term is defined by National Instrument 43-101.

Mr. David Keller, PGeo, a Principal Consultant with SRK, reviewed drafts of geology-related sections of this technical report prior to their delivery to FMS, as per SRK internal quality management procedures. Mr. Keller did not visit the project.

The mineral reserve estimation work and the compilation of the related sections of this technical report on 3D block modelling techniques were completed by Mr. Stephen Taylor, PEng (PEO# 90365834). By virtue of his education, membership to a recognized professional association and relevant work experience, Mr. Taylor is an independent Qualified Person as this term is defined by National Instrument 43-101.

Mr. Micheal Selby, PEng, a Principal Consultant with SRK, reviewed drafts of the mining-related sections of this technical report prior to their delivery to FMS, as per SRK internal quality management procedures. Mr. Selby did not visit the project.

Additional contributions were provided by Mr. Daniel Sepulveda, BSc (SME#4206787RM), an Associate Metallurgist, and David Maarse, PEng (PEO#90247040), a Principal Consultant with SRK's environmental group. Mr. Sepulveda undertook the necessary reviews and compiled Section 17 of this technical report. As per SRK internal quality management procedures, Section 17 was peer-reviewed by Mr. Stacy Freudigmann, also an Associate Metallurgist. Mr. Maarse undertook the necessary reviews and compiled Section 20 of this technical report with peer review by Ms. Kelly Sexsmith, a Principal Consultant with SRK. By virtue of their education, membership to a recognized professional association, and relevant work experience, Mr. Sepulveda and Mr. Maarse are independent Qualified Persons as this term is defined by National Instrument 43-101.



## 2.6 Site Visit

In accordance with National Instrument 43-101 guidelines, Mr. Chartier, Mr. Bernier, Mr. Taylor, and Mr. Sepulveda visited the La Parrilla Silver Mine on February 6, 7, and 8, 2017. They were accompanied by Ms. Maria E. Vazquez, Mr. Jesús M. Velador and Mr. Ramón Mendoza, FMS representatives.

During the site visit, Mr. Chartier and Mr. Bernier focused on reviewing the geological data and validations required to generate industry standard three-dimensional geostatistically-based mineral resource models. Particular attention was given to the treatment and validation of historical drilling data and investigating the geological and structural controls.

Mr. Taylor focused on visiting the active workings and reviewing the modifying factors required to develop a proper mineral reserve estimate based on block models. A great deal of supporting data was also collected to aid in developing the Life-of-mine plan and the Technical Economic Model required to support the declaration of mineral reserves and writing of this Technical Report.

Mr. Sepulveda focused on the processing plant and tailings facilities and reviewed the recent performance of the plant, feed material and production of concentrates. Particular attention was given to the water balance and recycling efforts on site.

Mr. Maarse did not attend the site visit, but relied on information gathered by others during the site visit, information gathered during a previous site visit, and information provided by FMS.

SRK was given full access to relevant data and conducted interviews and tours with FMS personnel to obtain the required information.

### **3 Reliance on Other Experts**

This section is not relevant to this Report. Information pertaining to mineral tenure, surface rights, royalties, environment, permitting and social considerations, marketing and taxation were sourced from FMS experts in those fields as required.

## 4 Property Description and Location

The La Parrilla property is located in the municipality of Nombre de Dios, in the southeastern part of the state of Durango, Mexico (Figure 1). It is approximately 76 kilometres southeast of the state capital, and is in close proximity to the border of the state of Zacatecas to the east.

The La Parrilla property covers nearly 69,478 hectares in an area measuring approximately 32 kilometres by 27 kilometres. The property encloses several silver-gold-lead-zinc underground mines; current mining operations include the Rosarios, Quebradillas and San Marcos deposits. FMS is in the process of acquiring mineral tenure in the southern portion of the district to expand and consolidate the La Parrilla holdings.

The centre of the property is located at approximately 23.74° latitude north and 104.11° longitude west.



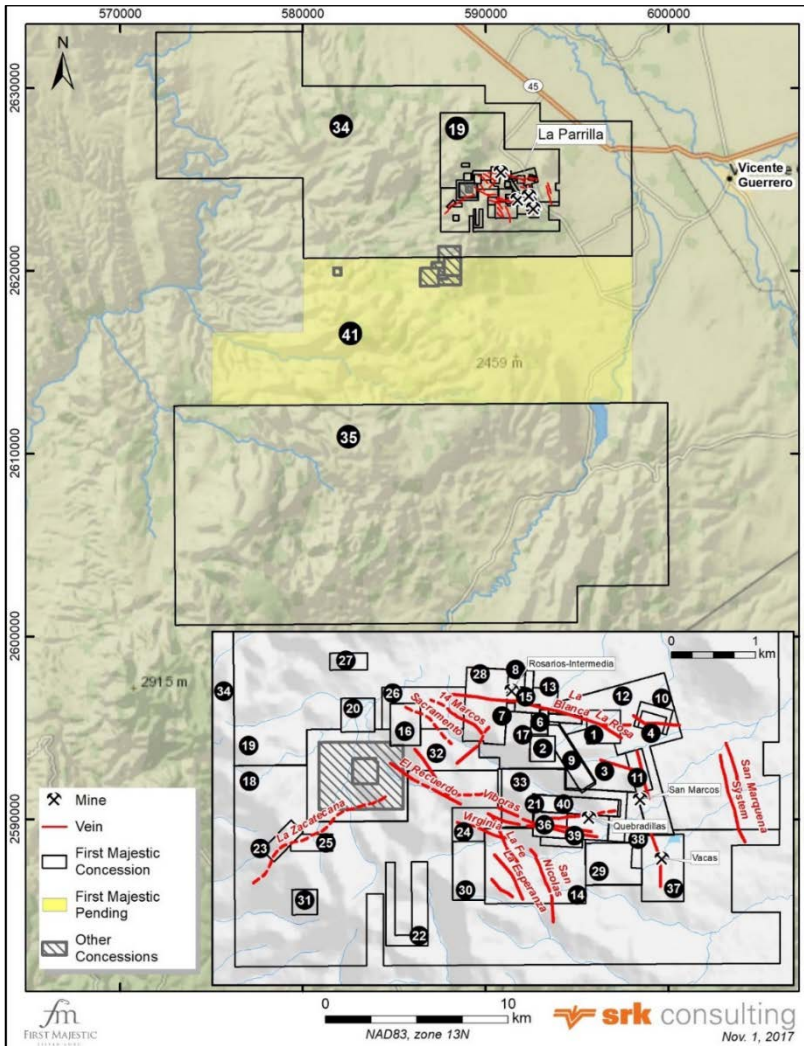
Figure 1: Location of La Parrilla Silver Mine (SRK 2017)

### 4.1 Mineral Tenure

The La Parrilla property consists of 41 contiguous mining concessions covering a total of 69,478 hectares (Figure 2 and Table 1). The property is owned and operated by First Majestic Plata S.A. de C.V. (FMP), an indirect wholly-owned subsidiary of First Majestic Silver Corp.

All concessions are in good standing with the exception of the Hueco concession which is in the process of being registered. The earliest renewal date of any of the mineral concessions is for the *La Encarnacion* concession, which has a renewal date of January 16, 2019.

In Mexico, mining concessions are granted by the Secretariat of Economy (Secretaría de Economía); these concessions grant exploitation rights valid for 50-years. An annual minimum investment must be met and an annual mining rights fee must be paid to keep the mining concessions effective. Valid mining concessions can be renewed for an additional 50-year term as long as the mine is active.



**Figure 2: First Majestic Silver Land Tenure (SRK 2017)**  
 Inset map showing land tenure within the vicinity of the La Parrilla mine  
 Concessions numbers correspond with Table .

**Table 1: La Parrilla mining concessions owned by First Majestic Plata S.A. de C.V. (FMP), a wholly-owned subsidiary of First Majestic Silver Corp. (FMS 2017)**

No.	Mining Concession	Title	Expiration Date	Surface Hectares	Status
1	La Encarnacion	150935	16/01/2019	16.00	Valid
2	San Ignacio Dos	158205	13/02/2023	8.93	Valid
3	Protectora No. 2	169302	05/11/2031	32.36	Valid
4	Extension Rosa	169303	05/11/2031	6.00	Valid
5	Rosa y Anexas	169304	05/11/2031	4.00	Valid
6	Rosario	169305	05/11/2031	5.37	Valid
7	El Salvador	169306	05/11/2031	1.00	Valid
8	Ampl. de los Rosario	169307	05/11/2031	4.00	Valid
9	Los Michosos	169308	05/11/2031	15.97	Valid
10	San José	169309	05/11/2031	6.00	Valid
11	San Marcos	169310	05/11/2031	10.00	Valid
12	La Protectora	169311	05/11/2031	83.88	Valid
13	Ampl. del Rosario No.2	169312	05/11/2031	7.50	Valid
14	San Nicolas	169313	05/11/2031	95.50	Valid
15	Los Rosario	171082	08/08/2032	11.00	Valid
16	La Ilusión	185136	13/12/2041	18.04	Valid
17	Parrilla XIV	198568	29/11/2043	33.16	Valid
18	Parrilla Sur	198569	29/11/2043	874.69	Valid
19	Parrilla Norte	198570	29/11/2043	1,742.39	Valid
20	Parrilla II	203302	27/06/2046	16.00	Valid
21	Parrilla V	203987	25/11/2046	0.41	Valid
22	Parrilla III	204357	30/01/2047	32.53	Valid
23	Parrilla VI	204358	30/01/2047	10.00	Valid
24	Parrilla VII	204520	27/02/2047	20.84	Valid
25	Parrilla 18	210061	30/08/2049	9.22	Valid
26	Parrilla IV	211943	27/07/2050	38.14	Valid
27	Parrilla 15	212351	28/09/2050	8.94	Valid
28	Parrilla 16	214003	12/07/2051	44.42	Valid
29	Parrilla 19	214557	01/10/2051	30.01	Valid
30	Parrilla 21	216554	16/05/2052	26.90	Valid
31	Parrilla 20	216723	27/05/2052	9.00	Valid
32	La Zacatecana	217646	05/08/2052	88.01	Valid
33	Parrilla 22	219888	06/05/2053	53.99	Valid
34	La Providencia	229493	02/05/2057	18,465.71	Valid
35	Michis	230602	24/09/2057	31,350.00	Valid
36	La Asuncion de Quebradilla	237121	28/10/2060	12.00	Valid
37	Las Vacas	237122	28/10/2060	40.00	Valid
38	El Socorro	237123	28/10/2060	15.37	Valid
39	El Tecolote	237124	28/10/2060	20.00	Valid
40	Altamira	241251	21/11/2062	20.00	Valid
41	Hueco	File No. 25/36029	N/A	16,190.66	Registry in process
<b>Total</b>				<b>69,477.91</b>	

## 4.2 Underlying Agreements

A number of the La Parrilla mining concessions were acquired from Grupo México and were subject to a Net Smelter Return (NSR) royalty of 1.5 percent payable to Grupo México. The royalties payable thereunder were capped at a total of \$2,500,000. The royalty commitment of \$2,500,000 was fulfilled during 2016 and the NSR has now expired.

There are no other royalties payable on the La Parrilla mining concessions. None of the concessions are subject to any other encumbrances.

## 4.3 Surface Rights

Surface rights in Mexico are commonly owned either by communities (Ejidos) or by private owners. La Parrilla mining district land is mainly owned by private owners, and to a lesser extent, by Ejidos. In both cases, the mining concessions include access easement rights, although in many cases it is necessary to negotiate access to the land with individual owners or communities. Federal or state laws allow permission to access federal or state lands without other requirements, as mining concessions in Mexico are federal grants. The Mexican Mining Law includes provisions to facilitate purchasing land required for mining activities, installations and development.

The surface rights overlying the La Parrilla property are controlled in part by the Ejido San José de la Parrilla and in part by private surface rights holders. The Comisión de Fomento Minero (CFM) executed a lease agreement on the surface rights from Ejido San José de la Parrilla to permit the use of surface rights for development of projects that are of general economic interest, including mining operations. In 1990, the Gamiz Family acquired the surface rights and mill from CFM and reconfirmed the lease agreement with the Ejido. Subsequently, First Majestic Silver acquired the surface rights and the mill from the Gamiz Family. First Majestic Silver updated the lease agreement with the Ejido and negotiated a lease to extend the surface rights to a total of 100 hectares where the second tailings dam has been built and is now operating. The updated lease agreement includes a yearly payment to the Ejido San José de La Parrilla. First Majestic also has a lease agreement for 100 hectares with a private land owner where the Quebradillas and San Marcos mines are located. First Majestic Silver also owns a surface parcel of 38 hectares where the Vacas mine is located, which was acquired from Grupo México. During 2010, First Majestic Silver acquired an additional 15 hectares of surface rights in the Quebradillas area.

La Parrilla's holds 12 parcels of surface rights covering approximately 167 hectares; these are considered sufficient to support operations including the processing plant installations, tailings storage, and other mine operations requirements (Figure 3 and Table 2).

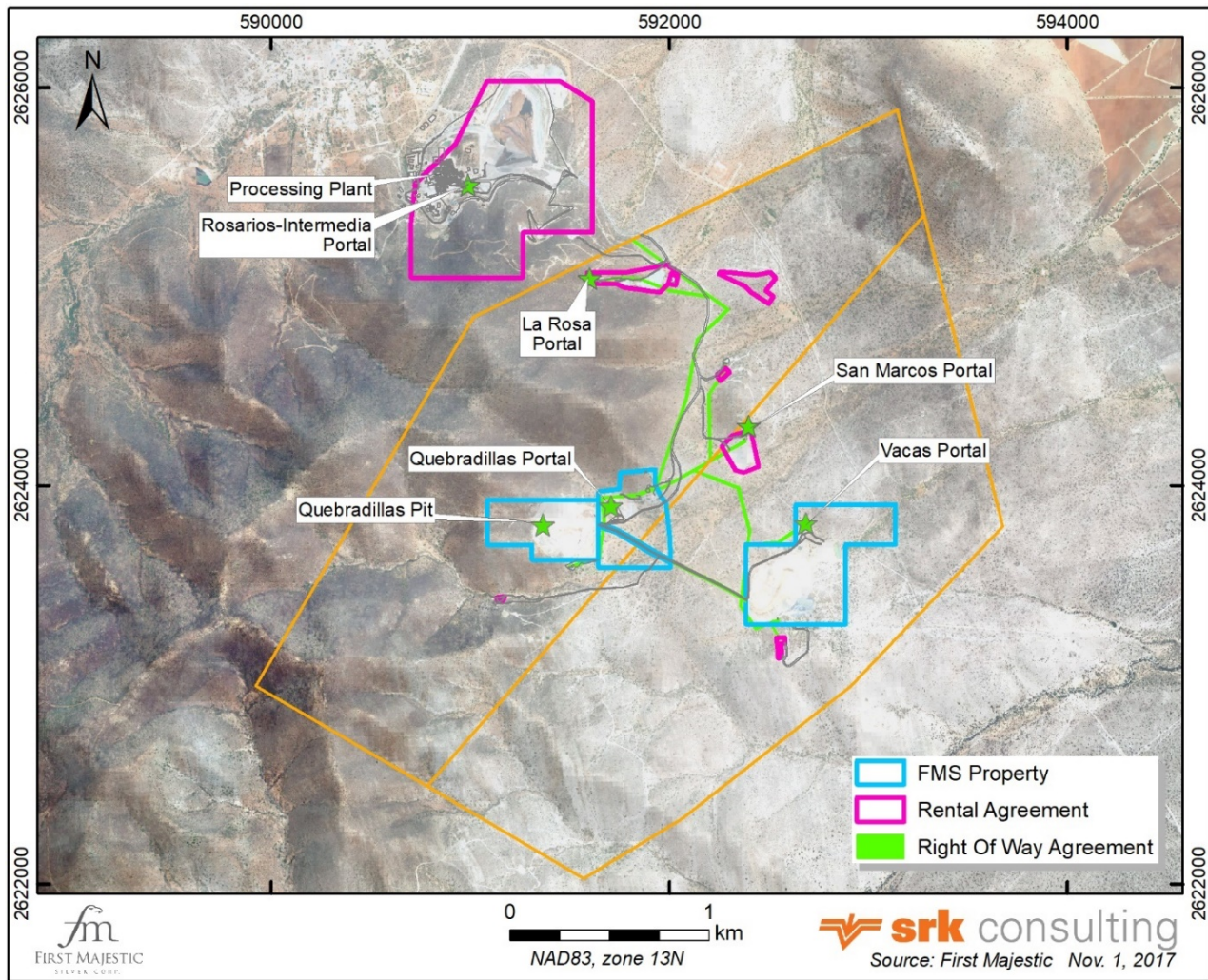


Figure 3: Surface land tenure and agreements (FMS 2017)

Table 2: La Parrilla surface rights (FMS 2017)

Acquired from	Area	Surface Hectares	Validity/Expiry	Type
Los Flores	Quebradillas open pit	15.00	Permanent	First Majestic Plata property
Los Flores	Graceros	15.50	Permanent	
Los Flores	Vacas	30.00	Permanent	
<b>Subtotal FMS Property</b>		<b>60.50</b>		
Los Flores	Quebradillas portal	15.52	2022	Annual Rental Agreements
Los Flores	San Marcos portal	3.40	2022	
Los Flores	La Rosa old mine	3.40	2022	
Los Flores	San José old mine	1.93	2022	
Los Flores	Site of 4 ventilation raises	0.69	2037	
Los Flores	Power line right-of-way	2.56	2037	
Los Flores	Several right-of-way agreements	4.15	2037	
Ejido La Parrilla	Quebradillas	5.97	2028	
Ejido La Parrilla	Rosarios	69.00	2021	
<b>Subtotal Rental Agreements</b>		<b>106.62</b>		
<b>Total Surface Land Holdings</b>		<b>167.12</b>		

## **4.4 Permits and Authorization**

First Majestic Plata S.A. de C.V. has all necessary permits for current mining and processing operations, including an operating license, a mine water use permit, and an Environmental Impact Authorization (EIA) for the mines, processing plant, and tailings management facilities (also discussion in Section 20).

## **4.5 Environmental Considerations/Liabilities**

Information regarding environmental permits and studies are presented in Section 20 of the Report.

### **4.5.1 Social License Considerations**

Information regarding social license is presented in Section 20 of the Report.

## **4.6 Mining Rights in Mexico**

Mining rights in Mexico are granted with the concessions. Changes to the Mexican mining legislation incorporated in 2005 now grant the concession holder the right to conduct exploration, operate a mining operation, and/or operate a processing plant on each concession.



## **5 Accessibility, Climate, Local Resources, Infrastructure, and Physiography**

### **5.1 Accessibility**

The La Parrilla Silver Mine (La Parrilla) is located approximately 76 kilometres southeast of the state capital of Durango along Federal Highway No. 45, which is a major four lane paved highway that connects Durango to the city of Zacatecas. At the 75-kilometre marker, a 4-kilometre paved road leads to the village of San José de la Parrilla. The La Parrilla mine and processing plant are accessed by a rough one-kilometre gravel road that begins near San José de la Parrilla. Driving time from the city of Durango to La Parrilla takes approximately one hour.

La Parrilla can also be accessed from the city of Zacatecas via Federal Highway No. 45, a distance of nearly 225 kilometres by road, taking approximately 2.5 hours to drive. The city of Fresnillo is located approximately 165 kilometres southeast of La Parrilla along the same highway.

La Parrilla is also accessible from various nearby towns and villages located ten to twenty kilometres away, such as Nombre de Dios, Vicente Guerrero, and Suchil.

The cities of Durango and Zacatecas both have international airports. These airports provide regional flights to most major Mexican cities, and direct commercial flights to several major American cities such as Houston.

### **5.2 Climate**

The climate at La Parrilla is semi-arid with annual average temperatures that vary from 12°C to 25°C, with an annual average of approximately 19°C. It is warmest during summer months with average temperatures of 22°C to 24°C. The winter average temperatures are 12°C to 15°C. The annual average rainfall is about 441 millimetres with most of the rain occurring during the summer months and only occasional rains during the winter.

Exploration and mining operations are conducted on a year-round basis; only occasional heavy rain storms partially interrupt the La Parrilla operations for a few hours.

### **5.3 Local Resources and Infrastructure**

Local roads and major highways connect the La Parrilla mine to various population centres within the region. As of 2015, the city of Durango had a population of 650,000, and the towns of Vicente Guerrero, Nombre de Dios, and Suchil had populations of 21,000, 20,000, and 6,000, respectively.

Mining is an important part of the local economy with a long history in the region and surrounding states. Experienced personnel and many services are available locally. Mining suppliers, contractors, consultants and other specialized service providers are available in the cities of Durango, Fresnillo and Zacatecas. Educational institutions with mining related programs are well established in Durango, Fresnillo and Zacatecas.

Facilities and services such as hotels, restaurants, banks, postal services, telephone, and cellular networks are available in Durango and Vicente Guerrero.

Electric power is provided to the La Parrilla mine by the national power grid; potable water is available from local water wells. Main consumables such as diesel fuel, explosives, cement, and spare parts are easily transported to site by road year-round.

The La Parrilla infrastructure, such as the mine, mine portals, access roads, tailings deposits, and waste deposits, are all located away from farming and populated areas.

Additional information on the mining infrastructure is included in Sections 15 and 18.

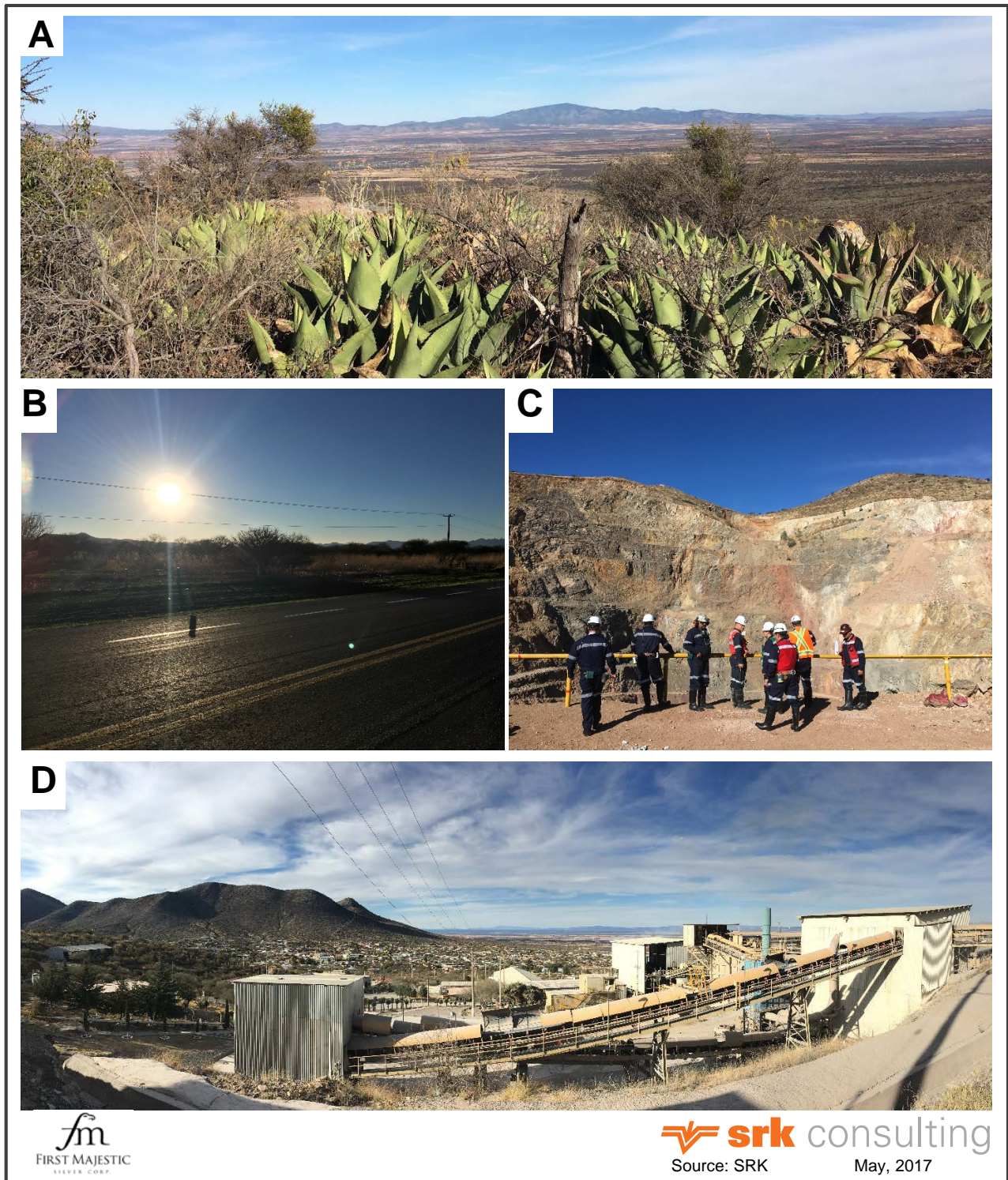
## 5.4 Physiography

La Parrilla is located within the physiographic sub-province of Sierras y Llanuras de Durango, which straddles the Sierra Madre Occidental and the Mesa Central in northwestern Mexico. Elevations range from 1,600 metres above sea-level (masl) in the Mesa Central and up to 3,000 masl in the mountain peaks of the Sierra Madre Occidental.

Topography in the La Parrilla area is dominated by isolated mountains and a chain of northwest-trending mountain ridges, all surrounded by the plateaus of the Mesa Central (Figure 4). The main La Parrilla mine portal is located at an elevation of 2,100 masl.

Vegetation in the area consists of desert bush and shrubs and includes small mesquites, cacti, and grasses. At higher elevation, vegetation consists of pine, cedar and oak trees. Farming is mostly developed in the areas neighbouring the population centres in the Mesa Central flatlands.

Due to the nature of the physiography and vegetation, geological features and mineralized outcrops can often be observed at surface in the La Parrilla area.



**Figure 4: Typical landscape at the La Parrilla Mine (SRK 2017)**

A: Typical landscape. View looking west from San Nicolas area.

B: Federal Highway No. 45 between Durango and La Parrilla

C: Quebradillas Open Pit

D: View of mill and town of San José de la Parrilla

## 6 History

Mining activity in the La Parrilla mining district began in the 16<sup>th</sup> century during the early days of the Spanish colonial times. Numerous discoveries were made during this period including the mines at Fresnillo, San Martin, Sombrerete, La Colorada and Cerro del Mercado.

The first underground silver-gold-lead mines and processing facility at La Parrilla were constructed in 1956 by unknown small operators. In 1960, the mining claims were acquired by Minera Los Rosarios, S.A. de C.V. (MLR), who operated several small underground mines until 1999, when these were put on a care-and-maintenance program due to low silver prices.

In 1961, the now disbanded Comision de Fomento Minero (CFM) (a federal entity that was responsible for promoting and supporting the mining industry in Mexico) constructed a 180 tonne per day (tpd) flotation plant at La Parrilla, which operated as a custom toll mill processing ore from nearby areas such as Chalchihuites, Sombrerete and Zacatecas. This plant was purchased in 1990 by MLR from CFM.

In 2004, First Majestic Silver Corp. (FMS) acquired the mining rights and the plant from Minera Los Rosarios, and in 2006, successfully negotiated the acquisition of the mineral rights held by Grupo México that surrounded the original La Parrilla mine.

The type, amount, quantity, and general results of exploration and development work conducted by previous owners and operators is unknown to FMS due to the artisanal nature of mining practices implemented by small private operators at the time.

### 6.1 Historical Mineral Resource and Mineral Reserve Estimates

The following Table 3 lists the references to the previous mineral resource and mineral reserve estimates on the La Parrilla property. The listed mineral resource and mineral reserve estimates are not believed to be significant and have been superseded by the current estimates discussed herein.

**Table 3: La Parrilla – Previous mineral resource and mineral reserve estimates (FMS 2017)**

Title	Effective Date	Author
Geological Evaluation of the La Parrilla Property, State of Durango, Mexico	March 27, 2006	J.N. Helsen, Ph.D., P. Geo.
Technical Report for the La Parrilla Silver Mine, Durango State, Mexico	July 2, 2007	Richard Addison, P.E. and Leonel Lopez, C.P.G. of Pincock, Allen & Holt
Technical Report for the La Parrilla Silver Mine, Durango State, Mexico	March 18, 2008	Richard Addison, P.E. and Leonel Lopez, C.P.G. of Pincock, Allen & Holt
Technical Report for the La Parrilla Silver Mine, Durango State, Mexico	February 16, 2009	Richard Addison, P.E. and Leonel Lopez, C.P.G. of Pincock, Allen & Holt
Technical Report for the La Parrilla Silver Mine, Durango State, Mexico	September 8, 2011	Richard Addison, P.E. and Leonel Lopez, C.P.G. of Pincock, Allen & Holt

## 6.2 Production

Historical production records and surveying data of the original La Parrilla mines suggest that prior to 1960, approximately 700,000 tonnes of silver ore were extracted from these mines at an estimated grade of 395 grams per tonne (g/t) silver, 2.95% lead and 2.3% zinc. Between 1960 and 1999, MLR produced an additional 230,500 tonnes of ore at an average grade of 235 g/t silver, 1.9% lead and 1.7% zinc.

Total production prior to FMS operations is therefore estimated at 930,500 tonnes containing 10.6 million ounces of silver, 55.2 million pounds of lead and 44.1 million pounds of zinc.

Between January 2005 and December 2016, FMS produced 20.7 million ounces of silver and 7.6 million silver-equivalent ounces of other metals, for a total of 28.3 million silver-equivalent ounces from La Parrilla.

The average production throughput at La Parrilla for the period 2012 to 2016 was 691,350 tonnes per year, equivalent to a daily throughput of 1,895 tpd, with 56% of the production coming from sulphide ore and 44% from oxide ore. The average metal production for the same period was 2.7 million ounces of silver and 1.26 million silver-equivalent ounces per year, for a total of 3.96 million silver-equivalent ounces per year.

Mine production figures between 2005 and 2016 are presented in Figure 5, and silver production is shown in Figure 6.

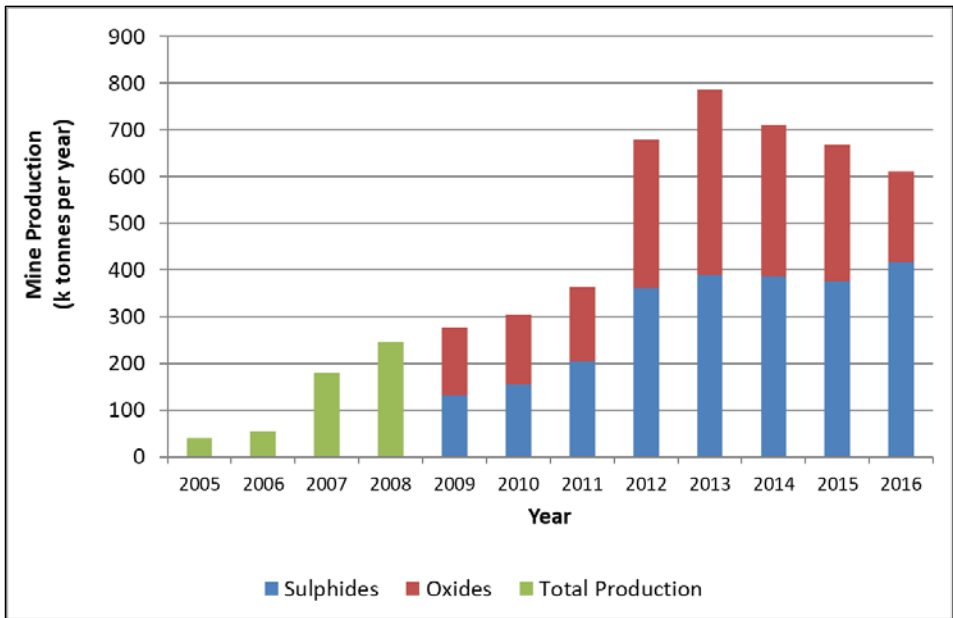
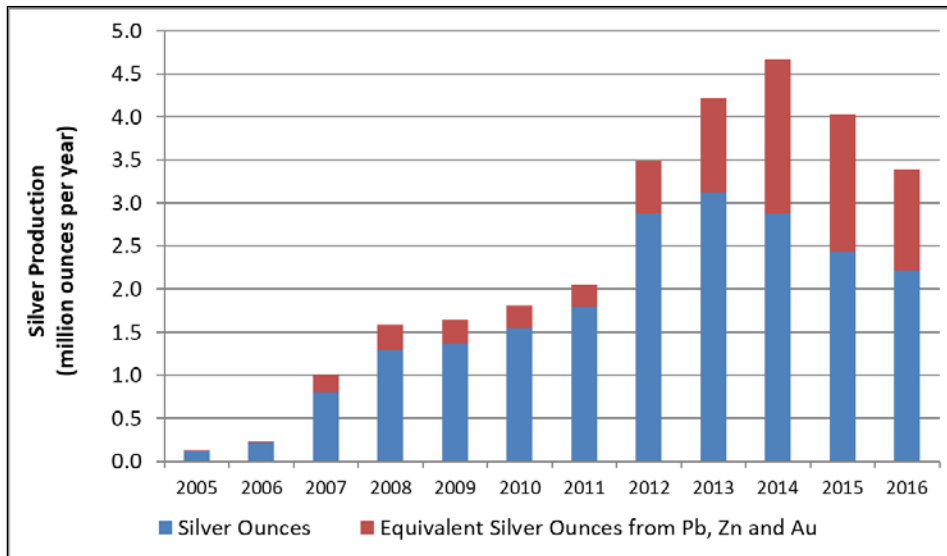


Figure 5: FMS mine production from 2005 to 2016 (FMS 2017)



**Figure 6: FMS silver production from 2005 to 2016 (FMS 2017)**

Payable lead, zinc, and gold content are expressed as silver equivalent, which is calculated every year based on the current commodity prices, mill recoveries and smelter terms of that year

### 6.3 Pre-production and Development 2004–2006

First Majestic acquired a 100% interest in La Parrilla in May 2004 from Minera Los Rosarios, obtaining the mining rights, underground mine infrastructure and the processing plant for the original La Parrilla mine. In August 2006, the Company successfully acquired from Grupo México the Quebradillas and Viboras mines and the mineral rights to 3,126 hectares of mining concessions which surrounded the original La Parrilla mine.

FMS began re-commissioning the existing 180 tonnes per day (tpd) mill in July 2004, and initiated underground operations in October 2004 to develop the resources within the mine and property boundaries. Underground development continued during 2005 with exploration drilling commencing in June 2005.

In April 2006, a decision was made to commence the construction of an 800 tpd mill with two different circuits: a 400 tpd leach circuit and a 400 tpd flotation circuit with the capacity to produce both doré metal bars and flotation concentrates.

In addition to the plant, power and water supply systems were upgraded and a new tailings containment facility with 10 years of life was built in 2006.

### 6.4 Consolidation 2007–2010

Starting in September 2008, a series of incremental improvements were made at the La Parrilla mill, such as addition of new filter presses and an additional leach tank to the leach circuit which improved silver recoveries by 2-3%. A flow sheet change in the flotation circuit also resulted in increasing the silver and lead recoveries to lead concentrate.

## 6.5 Expansion 2011–2012

In December 2010, FMS launched a major expansion of La Parrilla's mill capacity, increasing throughput to 1,000 tpd for both the leach circuit and the flotation circuit, with the objective of increasing the potential annual output of the La Parrilla operation from approximately 1.5 million ounces to 4.0 million ounces of silver equivalent. The flotation circuit began commercial production in October 2011 with the new leach circuit beginning commercial production in March 2012.

Expansion of the production capacity of the underground mines was also undertaken at Rosarios, San Marcos, Quebradillas, and Vacas mines in order to feed the larger mill. This included a capital development program to access more work areas, ventilation upgrades, electrical system upgrades, new mining equipment, and a larger workforce.

## 6.6 Production Status 2012–2016

The average throughput at La Parrilla for the period 2012-2016 was 691,350 tonnes per year, equivalent to a daily throughput of 1,895 tpd, with 56% of the production coming from sulphides ore and 44% from oxide ore. The average metal production for the same period was 2.7 million ounces of silver per year and 1.26 million of silver-equivalent ounces per year for a total of 3.96 million ounces of silver-equivalent per year.

The Vacas mine began production in the second half of 2013 at a rate of 300 tpd. The mine produced sulphide ore with high silver grades ranging from 200 to 240 g/t. The known mineral reserves were exhausted by December 2016.

In 2013, construction of an integral ore transportation system was started. The project included a 2,000 tpd hoisting shaft at the Rosarios, the mine nearest the mill, and a five-kilometre underground rail system connecting all five mines to the shaft. The shaft and tunnel system are expected to improve ore transportation to the mill, thereby reducing overall operation costs and allowing for further expansion.

FMS exploration and development budget for La Parrilla was significantly reduced starting in 2014 in response to lower silver prices, reducing the development rate of the haulage level and suspending the installation of the hoisting system. With revenues increasing in 2016, FMS has begun increasing the exploration and mine development budgets in the second half of the 2016. Expansion of exploration and mine development returned to average levels by the end of 2016 and the haulage level development was restarted although installation of the hoisting system is still suspended.

## 7 Geological Setting and Mineralization

### 7.1 Regional Geology

The La Parrilla mine is located at the transition between the Mesa Central and the Sierra Madre Occidental (SMO) physiographic provinces of Mexico (Figure 7).

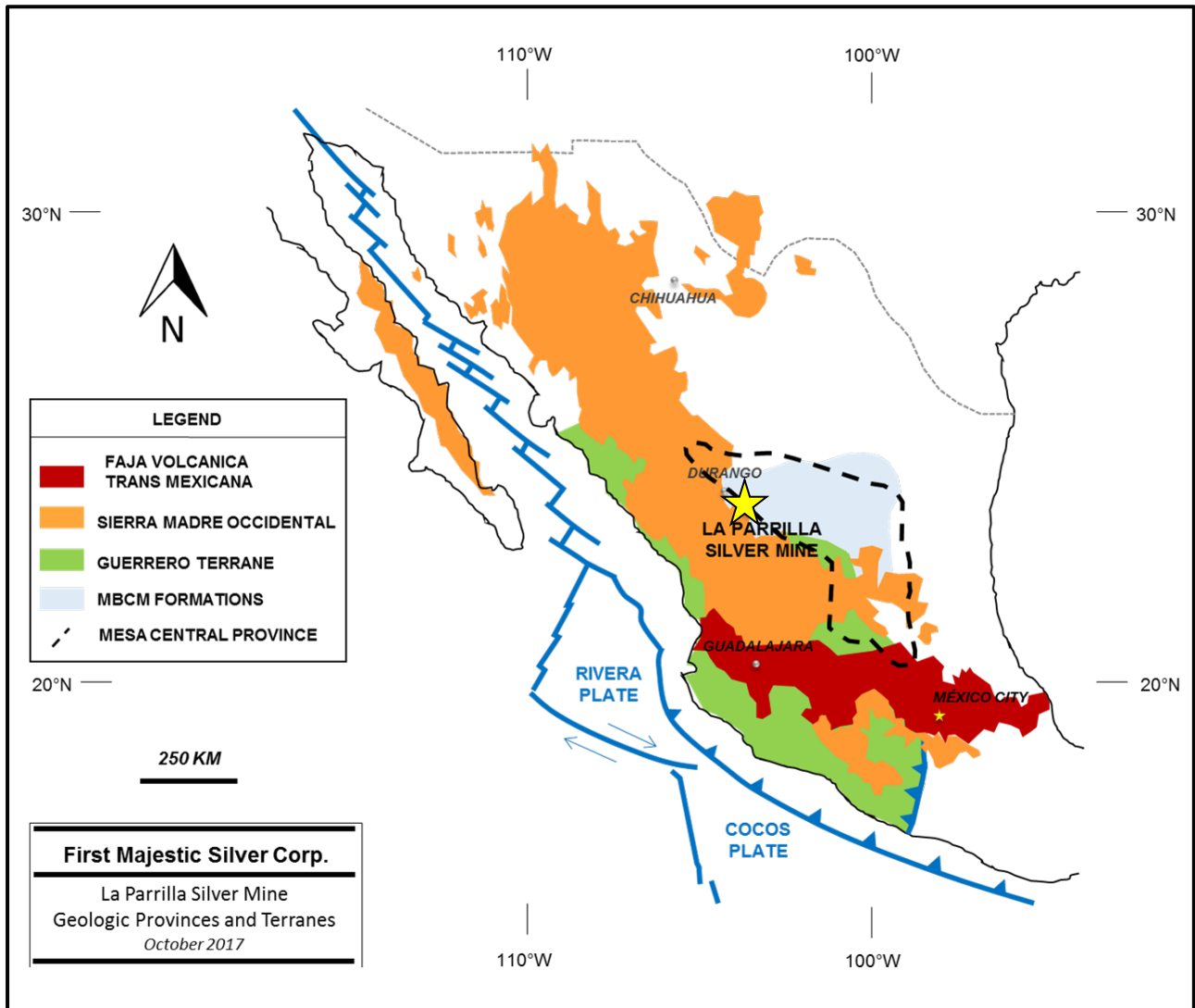
The Mesa Central is an elevated plateau that comprises marine sedimentary rocks of the Mesozoic Basin of Central Mexico (MBCM) to the east, and two sequences of volcano-sedimentary rocks: the Parral terrane to the northwest and the Guerrero super terrane to the southwest (Centeno-Garcia et al. 2008). A clear boundary between the volcano-sedimentary terranes and the calcareous rocks of the MBCM has not been defined, but Nieto-Samaniego et al. (2007) propose that the San Luis Tepehuanes Fault System (SLTFS) could represent the boundary between the Guerrero terrane and the MBCM.

The Sierra Madre Occidental (SMO) province is a large volcanic province that formed as a result of the subduction of the Farallon plate under North America. This volcanic province locally overlaps rocks of the Mesa Central. The SMO consists of five main igneous complexes, from oldest to youngest:

- Late Cretaceous to Paleocene plutonic and volcanic rocks
- Eocene andesites and lesser rhyolites, traditionally grouped into the Lower Volcanic Complex
- Two pulses of silicic ignimbrites emplaced in the Oligocene (ca. 32–28 Ma) and Early Miocene (ca. 24–18 Ma), and grouped into the Upper Volcanic Supergroup
- Transitional basaltic-andesitic lavas that erupted toward the end of, and after each ignimbrite pulse; correlated with the Southern Cordillera Basaltic Andesite Province of the southwestern United States
- Post-subduction volcanic rocks consisting of alkaline basalts and ignimbrites emplaced in the Late Miocene, Pliocene, and Pleistocene (McDowell and Keizer 1977, Clark et al. 1979, and Ferrari et al. 2007).

The La Parrilla area is situated at the boundary between a calcareous sedimentary sequence of the MBCM—correlated with the Cuesta del Cura and Indidura Formations—and volcano-plutonic rocks of the SMO.





**Figure 7: Physiographic provinces of Mexico (FMS 2017)**

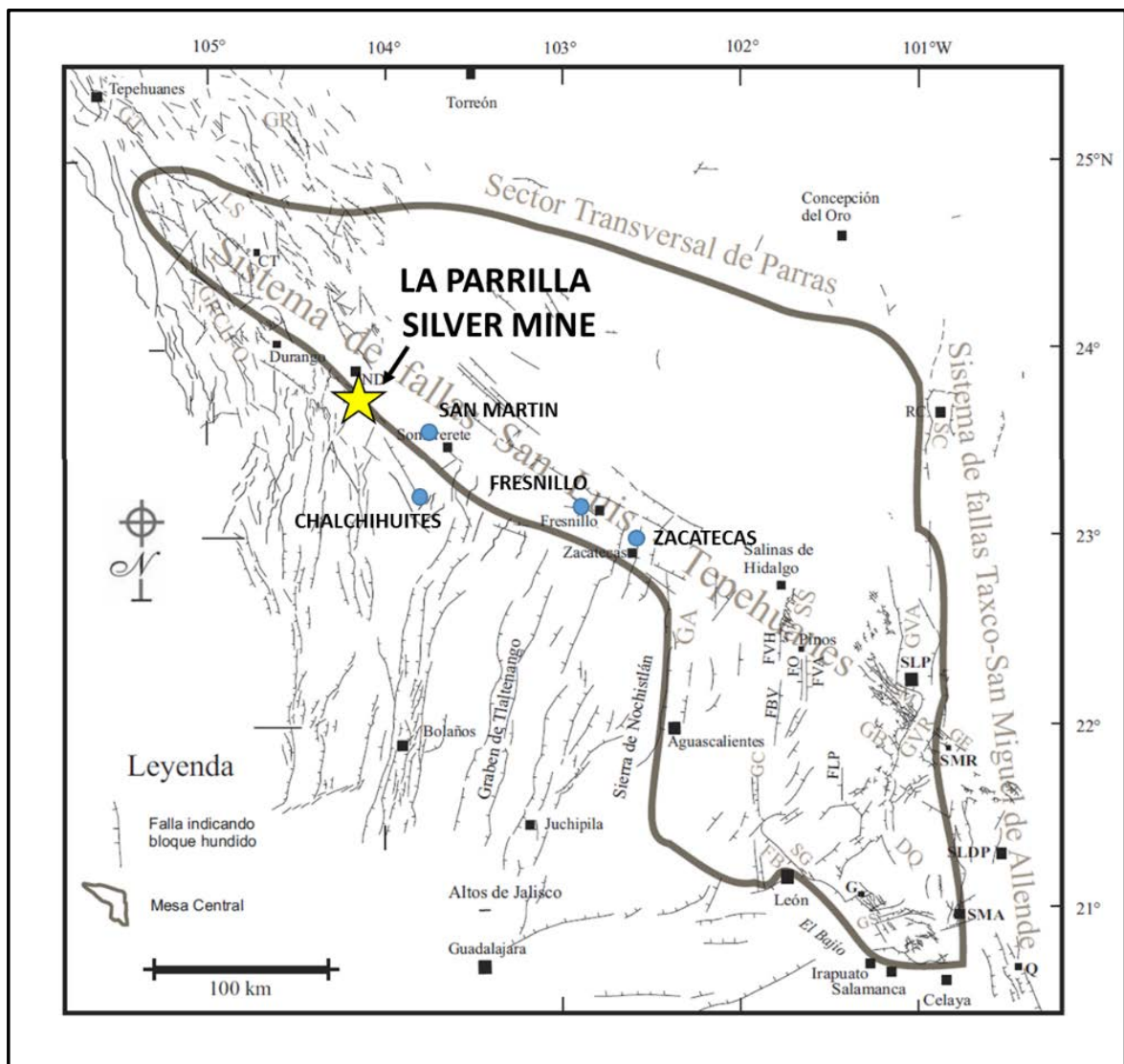
(Adapted from Campa and Coney, 1983)

Three deformation events have been recognized in the region: the Laramide northeast-southwest to east-west compression, a north-south to north-northeast to south-southwest extension and an east-west extension. The Laramide thin-skinned deformation created low-angle northwest-trending folds and thrust faults and was active in the Mesa Central between approximately 90 Ma and 37 Ma (Campa and Coney 1982, Starling 2006, and Nieto-Samaniego et al. 2007). The area was under north-south extension during the Late Eocene to Oligocene and was accompanied by sinistral trans-tensional reactivation of the low-angle northwest-trending thrust faults, which produced east-west to northwest-southeast normal faults and tension fractures between the sets of reactivated northwest-trending thrust-faults (Starling 2006 and Nieto-Samaniego et al. 2007). The east-west extension event started in the Miocene and produced north-northeast- and northwest-trending normal faulting and tilting of the Eocene and Oligocene volcanic units. The north-northeast and northwest normal faults are interpreted to post-date mineralization and are more representative of the Basin and Range-type of extension (Starling 2006 and Nieto-Samaniego et al. 2007).

The San Luis–Tepehuanes Fault System (SLTFS) is an important structural feature of the Mesa Central. The SLTFS is a northwest-trending lineament that extends from Tepehuanes, Durango to San Luis de la Paz in Guanajuato (Figure 8, Nieto-Samaniego et al. 2007). The SLTFS is thought to control the location of mineral deposits in the Mexican Silver Belt (MSB), such as the Real de Angeles, Fresnillo-Juanicipio, Sombrerete (San Martin-Sabinas district), Chalchihuites (Del Toro-La Colorada) deposits in Zacatecas; and the Avino and Pitarrilla deposits in Durango.

The La Parrilla District is located along the Mexican Silver Belt and the SLTFS as described by Nieto-Samaniego et al. (2007).

The La Parrilla District contains hydrothermal mineral deposits hosted by Early Cretaceous limestones and shales that have been intruded by an Eocene quartz monzonite–granodiorite stock, Oligocene dikes, rhyolite–rhyodacite dikes and plugs, and Miocene–Quaternary basalt–basaltic andesite dikes. The Eocene-age stocks and dikes have metamorphosed the Cretaceous rocks into marble, hornfels, skarnoid and minor skarn.



**Figure 8: Regional structures of the Mesa Central (FMS 2017)**  
(adapted from Nieto-Samaniego et al. 2007)

## 7.2 Property Geology

The geology of the La Parrilla project is represented by the stratigraphy of the Chalchihuites district. The oldest units in the area consist of Lower to Upper Cretaceous calcareous rocks of the Cuesta del Cura and Indidura Formations. The Paleocene Ahuichila calcareous conglomerate overlies the Cretaceous formations and is in turn partially overlain by Eocene–Oligocene dacite–rhyodacite flows and tuffs and rhyolite tuffs of the Sierra Madre Occidental Province. Miocene–Quaternary basalts represent the latest volcanic event; they overlie the Eocene–Oligocene volcanic units, Quaternary conglomerates, and unconsolidated gravels.

The Cretaceous formations have been intruded by an Eocene-age granodiorite–quartz monzonite stock, andesite dikes, Oligocene-age rhyolite–rhyodacite dikes, and Miocene–Quaternary basalt–basaltic andesite dikes.

The Cretaceous Cuesta del Cura Formation is lower Albian to Cenomanian and was first described in Parras, Coahuila State, where it overlies the Aurora Formation and is in turn overlain by the Indidura Formation (Imlay 1936). At its type locality, the formation consists of 20 to 120 cm-thick black to grey limestone beds, with boudinaged bedding and abundant lenses of black chert. In the La Parrilla area, the formation was mapped to the southwest of the active mine area where it is in contact with the stock. The thickness of the formation has not been determined on the La Parrilla property, but in the San Martin mining district in Sombrerete, a maximum thickness of 770 metres has been measured (Olivares, 1991).

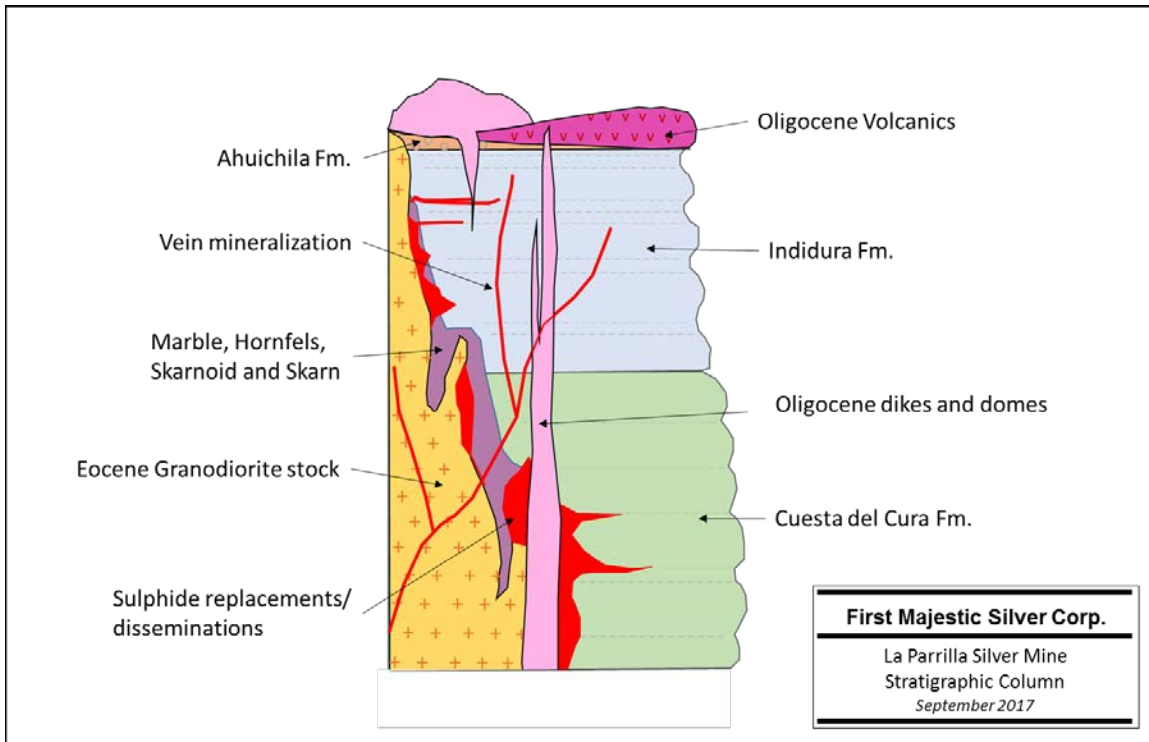
The Indidura Formation is Cenomanian to Turonian and was first described in the Las Delicias region of Coahuila (Kelly 1939). In this locality, the formation overlies the Aurora Formation and consists of intercalated shales and thin layers of limestones. The middle member contains layers of sandstone and gypsum, indicating a shallow depositional environment proximal to shoreline (Reyes 1976). At La Parrilla, the Indidura Formation is the main host to mineralization and consists of 10 to 20 cm-thick silty limestone layers intercalated with shales. The thickness of the formation has not been determined in the La Parrilla area, but a maximum thickness of 575 metres has been measured in the San Martin mining district in Sombrerete (Olivares 1991).

The sedimentary rocks are intruded by granodiorite–quartz monzonite stocks. At La Parrilla, the main granodiorite stock has not been dated but is interpreted to be Eocene, based on similarities with the quartz monzonite stock at the Cerro de la Gloria in San Martin. The Cerro de la Gloria stock was dated by potassium-argon at  $46.2 \pm 1$  Ma by Damon et al. (1983). This suite of Eocene intrusions is responsible for skarn and some of the porphyry-type mineralization in Mexico.

The rhyolite-rhyodacite volcanic rocks are fine-grained to porphyritic, and consist mainly of quartz and alkali feldspar (sanidine-orthoclase). These rocks have not been dated in the area, but in Fresnillo and other prospects in the Mesa Central, age dating suggests an Oligocene age (Velador et al. 2010, Tuta et al. 1988). On the property, Oligocene volcanic rocks occur predominantly to the south and west of the mine area and consist of tuffs, welded tuffs, and of rhyolite–rhyodacite and basalt flows. Rhyolite and rhyodacite domes and flows occur to the south of the property and are characterized by flow textures and the presence of quartz phenocrysts.

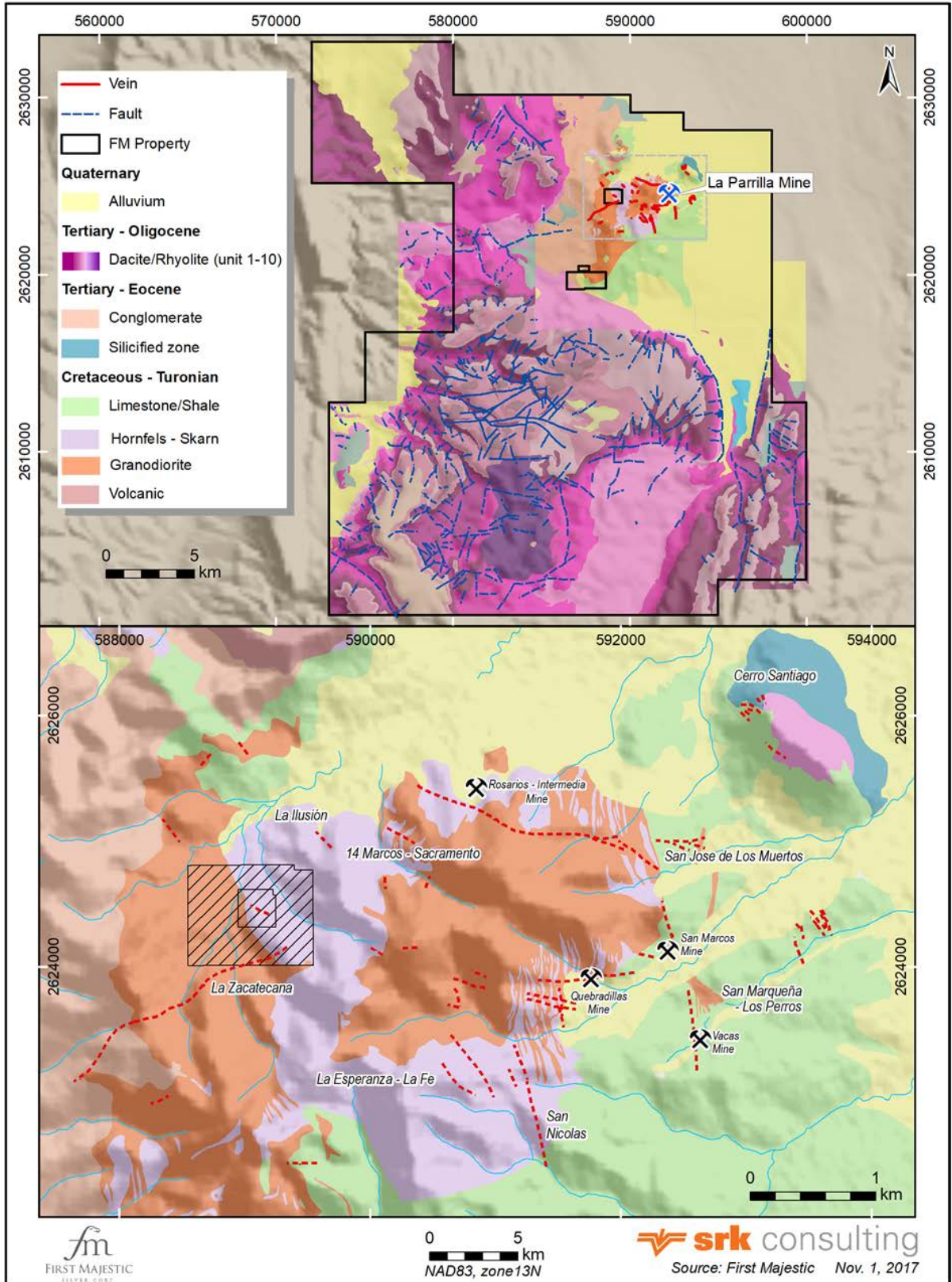
Basalt–basaltic andesite dikes of probable Miocene to Quaternary age intrude the sedimentary formations and older intrusions. These younger dikes have also been observed to destroy or cross-cut mineralization in other districts such as Chalchihuites, Fresnillo, La Parrilla and La Preciosa.

Metamorphic rocks observed in the La Parrilla area are marble, hornfels, skarnoid, and lesser skarn. Skarnoid is defined as an intermediate rock between a purely metamorphic hornfels and a purely metasomatic skarn, with development resulting from the metamorphism of impure lithologies with some mass transfer by small-scale fluid movement (Meinert 1992). Skarn is observed underground in pods and lenses and is better developed in outcrops of the Cuesta del Cura Formation where it is in contact with the stock. Figure 9 is a schematic stratigraphic column for the La Parrilla region.



**Figure 9: Stratigraphic column for the La Parrilla region (FMS 2017)**

Sulphide and oxide mineralization in La Parrilla occur in vein and replacement deposits. Mineral deposits are hosted by sedimentary rocks of the Indidura and Cuesta del Cura Formations and by the granodiorite stock (Figure 10); mineralization is controlled by pre-existing faults, fractures, and bedding planes. Three major structures that bound the La Parrilla stock seem to control most of the mineralization along the Rosarios–La Blanca vein, Intermedia–San Marcos veins and Vacas replacement deposit, and Vivas–Quebradillas veins and replacements.



**Figure 10: Geology of the La Parrilla Mine area (FMS 2017)**

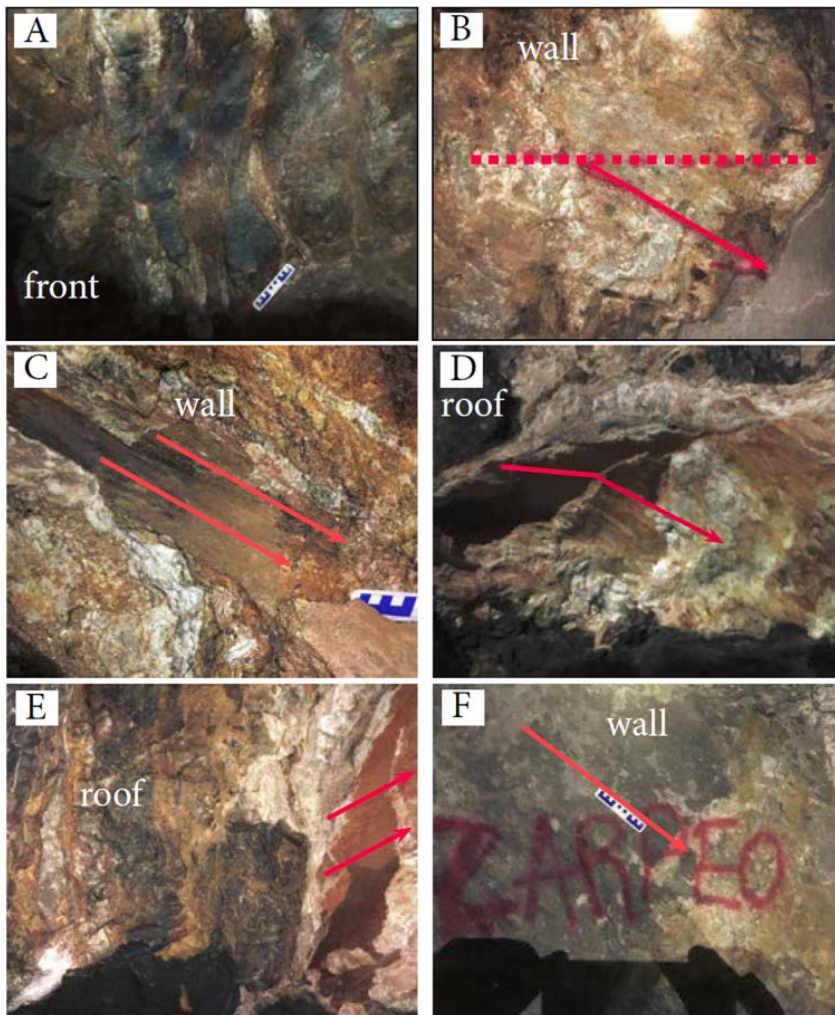
Main lithologies, structures, mineral deposits and the location of mines and prospects. Non-FMS property indicated by hatched box

### 7.3 Structural Interpretation

*Structural analysis on the Rosarios, San Marcos, Intermedia, Quebradillas and Vacas veins and replacements has been carried out by FMS geologists. Most of the following descriptions were obtained from the internal report prepared by Victor H. Galvan (Structural Model of the La Parrilla Silver Mine, 2017).*

The main structures controlling mineralization in the La Parrilla area strike N70°W, N20°W, N10°W and N85°E (290°, 340°, 350°, and 085°), and are located at the north, east and south edges of the main stock (Figure 10). It is hypothesized that the controlling structures occur due to a weakness zone created at the contact between the stock and sedimentary rocks of the Indidura and Cuesta del Cura formations.

Kinematic indicators from slickensides in underground structures (Figure 11) indicate a dextral strike-slip principal component displacement. Anastomosing faulting is observed, indicating several displacement planes (Figure 11a). The kinematic indicators are mostly located in the intrusion and have a cataclastite envelope (Figure 11b, c, d, e, f).

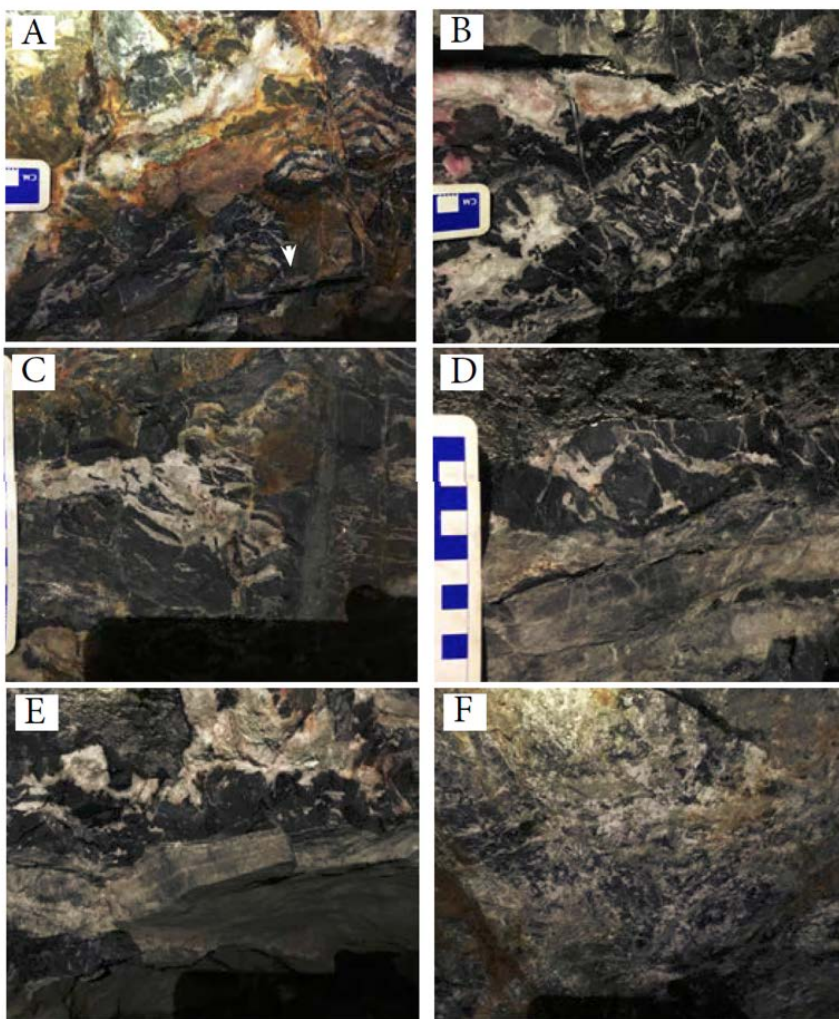


**Figure 11: Underground kinematic indicators (FMS 2017)**

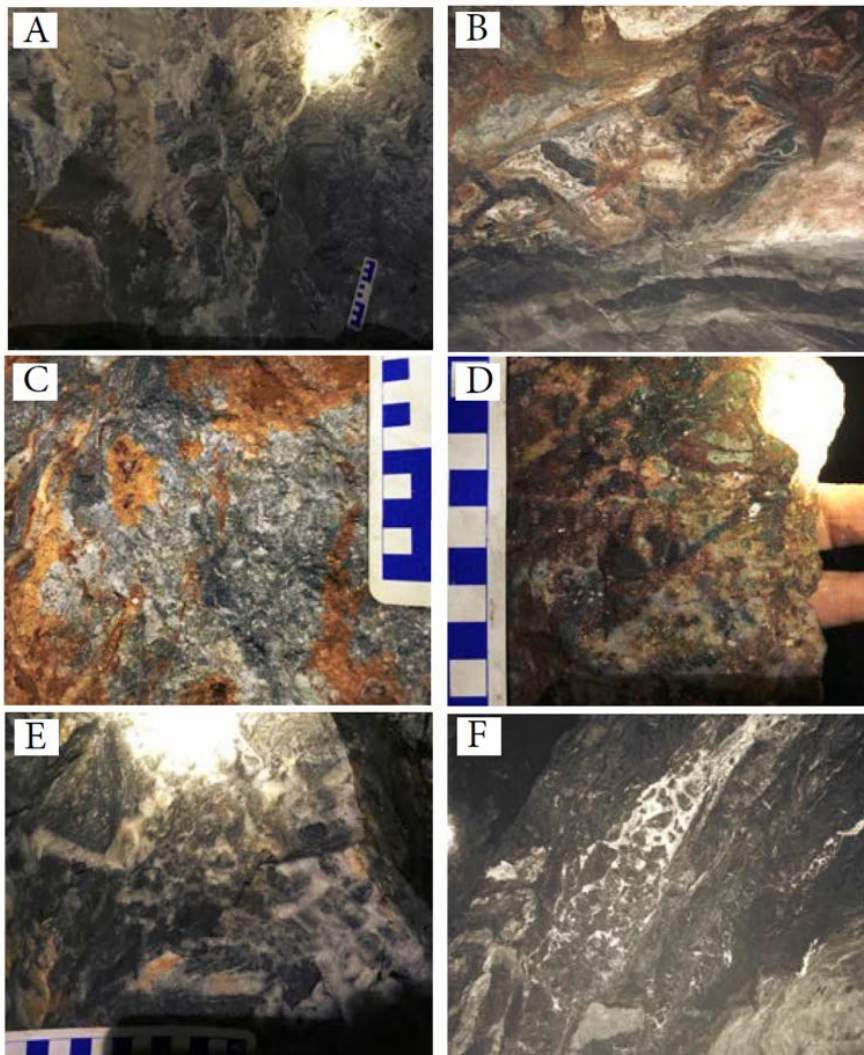
Typical breccia textures in the La Parrilla area are jigsaw-fit, clast-rotated breccias and tabular-clast breccias consisting of angular cobble- and boulder-size fragments of limestone, generally cemented by massive calcite and in minor proportion by sulphides (Figure 12). Some breccia matrix and gouge cement often contain disseminated sulphides such as pyrite, galena, and sphalerite. Some of these breccias are concordant to the stratification (Figure 12d and Figure 12e). These breccias are formed due to sudden and strong pressure-drop proximal to faults due to reactivation and opening, which produces hydraulic brecciation by implosion.

Chaotic and rotated matrix-supported boulder-sized fragments are observed in main faults; this suggests rotation and translation of components (Figure 13a and Figure 13b). Matrix-supported and matrix ± cement-supported pebble- and boulder-sized irregular breccias are observed in the Rosarios vein (Figure 13c and Figure 13d). Rotated angular limestone fragments supported in a quartz (Figure 13e), or calcite (Figure 13f) matrix cross-cut the early sulphide fissure-infill and replacement mineralization, suggesting these breccias represent a late stage of dilation along the main vein faults.

Mineralization at the Quebradillas and Vacas deposits show replacement textures which are likely related to injection structures.



**Figure 12: Photos of conformable breccias cemented by calcite (FMS 2017)**



**Figure 13: Photos of breccias containing clasts of limestone and intrusive rock cemented by calcite and/or sulphides (FMS 2017)**

A strike-slip displacement component is observed in the Rosarios fault-vein, where the western extent of Rosarios shows a horsetail splay (Figure 14). The Rosarios vein is interpreted as two strike-slip underlapping segments linked by horsetail splays. The minor principal stress ( $\sigma_3$ ) is perpendicular to the linking splay, where the dilation occurs, and the major principal stress ( $\sigma_1$ ) indicates the major stress producing the strike-slip displacement. In the same way, the Quebradillas deposit appears to be associated to a linking structure between two strike-slip underlapping segments, but instead of dilation, compression produced a flower structure. The two structures, Rosarios and Quebradillas, form a shear zone with overall dextral displacement (Figure 15).



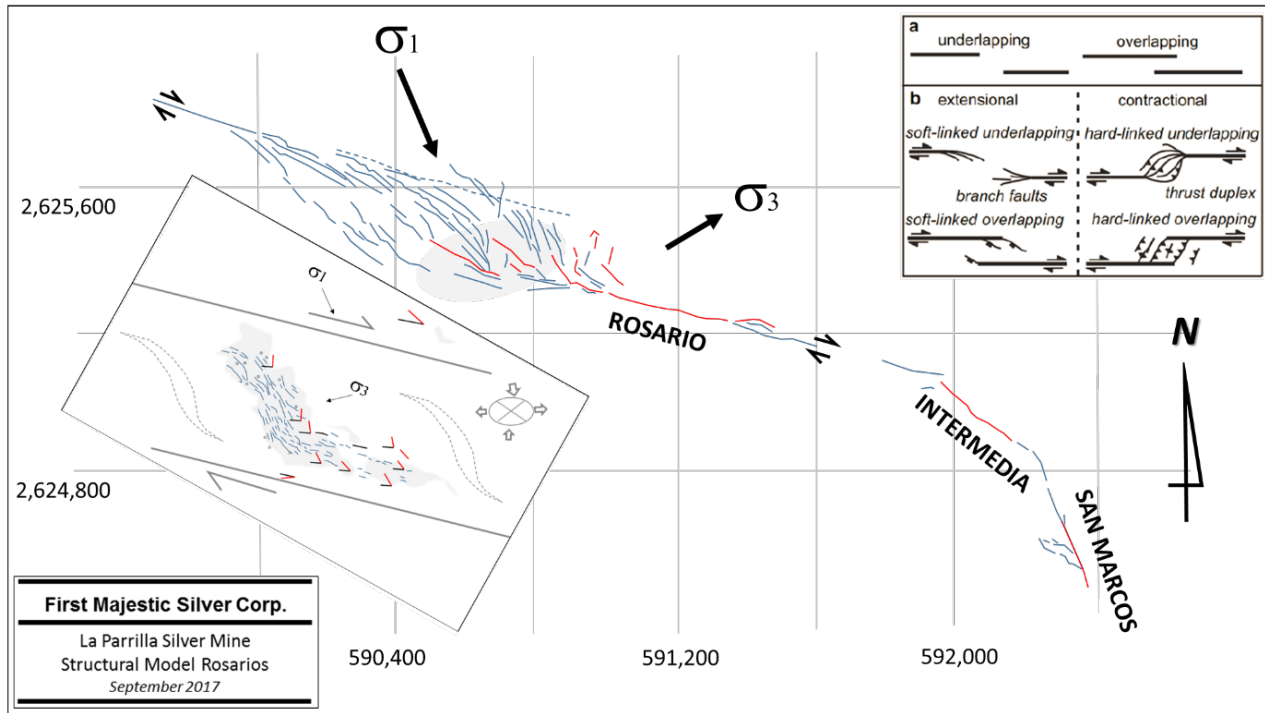


Figure 14: Structural map of Rosarios (FMS 2017)

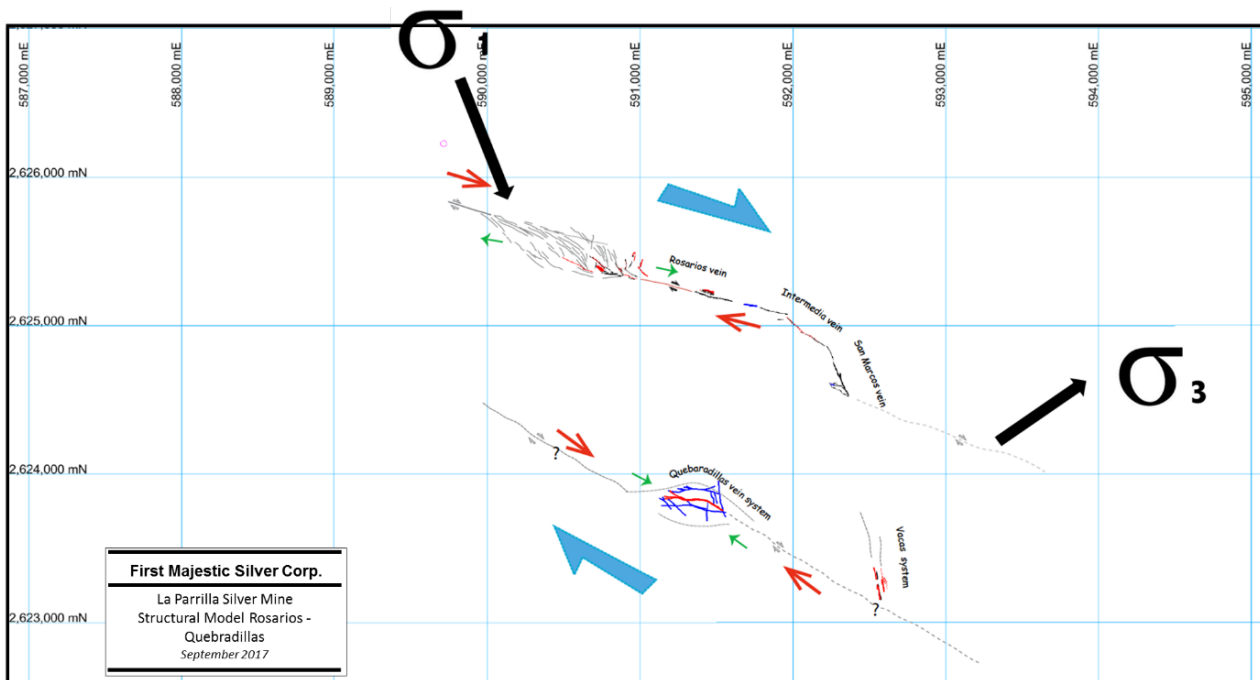


Figure 15: Structural model for Rosarios and Quebradillas (FMS 2017)

Quebradillas shear zone showing underlapping structures and  $\sigma_1$  and  $\sigma_3$  directions of stress.

In conclusion, the following structural features are observed or interpreted:

- The horsetail splay associated with the Rosarios vein is an extensional link between two underlapping segments.
- Intermedia and San Marcos are closely related to the Rosarios structure; although their strike orientations are different, they may form the backbone conduit of the ore-bearing fluids.
- The frictional regime created in the shear zone triggered the replacement bodies.
- Quebradillas replacement veins represent a compressional link between two underlapping segments.
- Vacas and San Marcos veins correspond to—or are related to—the normal fault components of the shear zone.
- Shear zones and strike-slip faults represent potential exploration targets and their presence to the north and south of the deposit should be investigated.

## 7.4 Mineralization

Veins at La Parrilla are of two types: open space filling veins and fault-veins. The open space filling veins can consist of massive sulphides veins; quartz-calcite veins containing pyrite, sphalerite, and galena; and breccia veins cemented by quartz-calcite. Fault-veins consists of matrix-supported breccias or gouge containing disseminated sulphides and oxides. Open space filling veins can transition along strike into fault-veins and vice versa, and the presence of stockwork is common at the contacts of the vein with the host rock. Thus, it is interpreted that most veins were open or partially open faults and fractures, that they were flooded with hydrothermal fluids, and that some of these were reactivated by later faulting. Replacement deposits, on the other hand, occur as oblique or perpendicular splays to veins and faults, and as larger replacement deposits concordant with sedimentary bedding. Replacement deposits generally have limited strike extent and have irregular shape and thickness.

The La Parrilla deposits contain primary sulphides such as galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, chalcopyrite, covellite, acanthite, native silver, and silver sulphosalts (tetrahedrite–freibergite solid solution). Due to supergene oxidation, the primary sulphides in the upper parts of some deposits have been altered to cerussite, anglesite, hemimorphite, hydrozincite, jarosite, goethite, hematite, cervantite, malachite, chrysocolla, chalcantite, and native silver. The main non-metallic gangue minerals present in the deposits are calcite, quartz, fluorite, and siderite. The main clay minerals associated with the deposits and alteration halos are smectite, illite-smectite, and kaolinite.

### Rosarios Vein

The Rosarios vein strikes N70°W on average, dips at 64° to the northeast (290°/64°), and has a known strike length of 2,000 metres. The mineralization extends vertically for 700 metres, and its thickness varies from 0.2 to 14 metres. The vein sits roughly at the northern contact of the stock and the Indidura limestone. The vein pinches and swells; economic grades can occur either at the footwall or at the hangingwall of the main controlling structure. Stockwork zones are developed either at the footwall or hangingwall of the vein; vein splays and replacements are typically developed at the hangingwall. The mineralogy of the vein consists of galena, sphalerite, acanthite, native silver, pyrite, pyrrhotite, arsenopyrite, anglesite, willemite, quartz, calcite, and fluorite.

## Intermedia Vein

The Intermedia vein strikes N50°W on average, dips at 75° to the northeast (310°/75°), and has a known strike length of 500 metres. The vein is mineralized for a vertical extent of 430 metres, and its thickness varies from 0.5 to 1.5 metres. The structure is a fault-vein that pinches and swells and is hosted by the Indidura Formation and the stock. The vein is oxidized in the upper 150 metres and it usually develops mineralized stockwork. The mineralogy of the vein consists of mainly of galena, sphalerite, acanthite, native silver, pyrite, pyrrhotite, quartz, calcite, and fluorite.

## San Marcos Vein

The San Marcos vein strikes N20°W on average, dips at 60° to the northeast (340°/60°), and has a known strike length of 600 metres. The vein is mineralized for a vertical extent of 280 metres, and its thickness varies from 0.5 to 17 metres. The structure is a fault-vein that marks the eastern contact of the stock with the Indidura Formation and it is concordant with bedding. The structure pinches and swells, reaching its maximum thickness in flexure zones along strike where it generally develops cymoid loops. The mineralogy of the vein consists of hematite, goethite, native silver, cerargyrite, quartz, and calcite.

## Vacas Replacement

The Vacas replacement vein strikes N17°W on average, dips at 58° to the northeast (343°/58°), and has a known strike length of 200 metres. The zone is mineralized for a vertical extent of 400 metres, and its thickness varies from 0.2 to 18.0 metres. The replacement body is hosted by the Indidura Formation and is concordant with a fault zone running along bedding planes. This is thought to be a favourable structural setting for replacement mineralization. This fault structure is also locally occupied by later andesite dikes. The mineralogy of the replacement vein consists of galena, sphalerite, acanthite, freibergite, jamesonite, native silver, pyrite, pyrrhotite, arsenopyrite, quartz, calcite, and fluorite. This vein was mined out in the third quarter of 2016.

## Quebradillas N-S Vein

The N-S vein strikes N45°W on average, dips at 71° to the northwest (315°/71°), and has a known strike length of 75 metres. The vein is mineralized for a vertical extent of 95 metres, and its thickness varies from 0.25 to 5.0 metres. The structure is a fault-vein hosted by the Indidura Formation and the granodiorite stock, with replacement bodies developed at its footwall and hangingwall. The mineralogy of the vein consists of galena, sphalerite, acanthite, freibergite, native silver, pyrite, pyrrhotite, arsenopyrite, quartz, calcite, and fluorite.

## Quebradillas Tiro Vein

The Tiro vein strikes N60°W on average, dips at 56° to the northeast (300°/56°), and has a known strike length of 70 metres. The vein is mineralized for a vertical extent of 120 metres, and its thickness varies from 0.50 to 4.0 metres. It occurs as a structurally controlled mineralized breccia with sulphides mineralization that is cemented with calcite and quartz. The mineralogy of the vein consists of galena, sphalerite, native silver, arsenopyrite, pyrite, pyrrhotite, quartz and calcite.

### **Quebradillas vein**

The Quebradillas vein strikes N88°E on average, dips at 86° to the south (88°/86°), and has a known strike length of 180 metres. The vein is mineralized for a vertical extent of 50 metres, and its thickness varies from 1 to 2.5 metres. The structure is a fault-vein hosted by the Indidura Formation and the granodiorite stock, with replacement bodies developed at its footwall and hangingwall. The structure pinches and swell and contains a fault structure with gouge material at its hangingwall and footwall contact. The mineralogy of the vein consists of galena, sphalerite, acanthite, native silver, pyrite, pyrrhotite, arsenopyrite, quartz and calcite.

### **Quebradillas Q-38 Replacement vein**

The Q-38 replacement vein strikes N7°W on average, dips at 68° to the northeast (353°/68°), and has a known strike length of 42 metres. The zone is mineralized for a vertical extent of 147 metres, and its thickness varies from 0.3 to 8.7 metres. The replacement body is hosted by the Indidura Formation and is concordant to bedding planes. The mineralogy of the replacement vein consists of, sphalerite, galena, arsenopyrite, native silver, pyrite, pyrrhotite, quartz, calcite, and fluorite.

### **Quebradillas 550 vein**

The 550 vein strikes N80°E on average, dips at 83° to the south (80°/83°), and has a known strike length of 270 metres. The vein is mineralized for a vertical extent of 140 metres, and its thickness varies from 0.5 to 5.5 metres. The structure is a fault-vein hosted by the Indidura Formation and the granodiorite stock, with replacement bodies developed at its footwall and hangingwall. The structure pinches and swell and contains a fault structure with gouge material at its hangingwall and footwall contact. The mineralogy of the vein consists of galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, quartz, calcite, and fluorite.

### **Quebradillas 460 Replacement**

The 460 replacement vein strikes N16°W on average, dips at 63° to the northeast (344°/63°), and has a known strike length of 180 metres. The zone is mineralized for a vertical extent of 450 metres, and its thickness varies from 0.1 to 8.5 metres. The replacement body is hosted by the Indidura Formation and is concordant to bedding planes. The mineralogy of the replacement vein consists of galena, sphalerite, acanthite, freibergite, native silver, pyrite, pyrrhotite, arsenopyrite, quartz, calcite, and fluorite.

### **Quebradillas Viboras Vein**

The Viboras vein strikes N80°W on average, dips at 80° to the south (100°/80°), and has a known strike length of 700 metres. The vein is mineralized for a vertical extent of 250 metres, and its thickness varies from 0.3 to 3.5 metres. The structure is a fault-vein hosted by the Indidura Formation and the granodiorite stock, with replacement bodies developed at its footwall and hangingwall. The structure pinches and swell and contains a fault structure with gouge material at its hangingwall contact. The mineralogy of the vein consists of galena, sphalerite, acanthite, native silver, pyrite, pyrrhotite, arsenopyrite, quartz, and calcite.

## Quebradillas El Recuerdo Vein

The El Recuerdo vein strikes N80°W on average, dips at 70° to the northeast (280°/70°) and has a known strike length of 550 metres. The vein is mineralized for a vertical extent of 150 metres, and its thickness varies from 1.3 to 9.0 metres. The vein is hosted by the Indidura Formation and by the stock, and is oxidized. The mineralogy of the vein consists of cerussite, anglesite, hematite, goethite, willemite, native silver, quartz, calcite, and fluorite.

## San Nicolas Vein

The San Nicolas vein strikes N25°W on average, dips at 70° to the northeast (335°/70°), and has a known strike length of 300 metres. The vein is mineralized for a vertical extent of 400 m, and its thickness varies from 0.3 to 1.8 metres. The vein shows open-space mineralization textures with small splays of massive sulphides in its hangingwall. It is hosted by Indidura Formation and it is oxidized in its upper 100 metres. The mineralogy of the vein consists of mainly of galena, sphalerite, acanthite, native silver, pyrite, quartz, and calcite.

## 7.5 Prospects

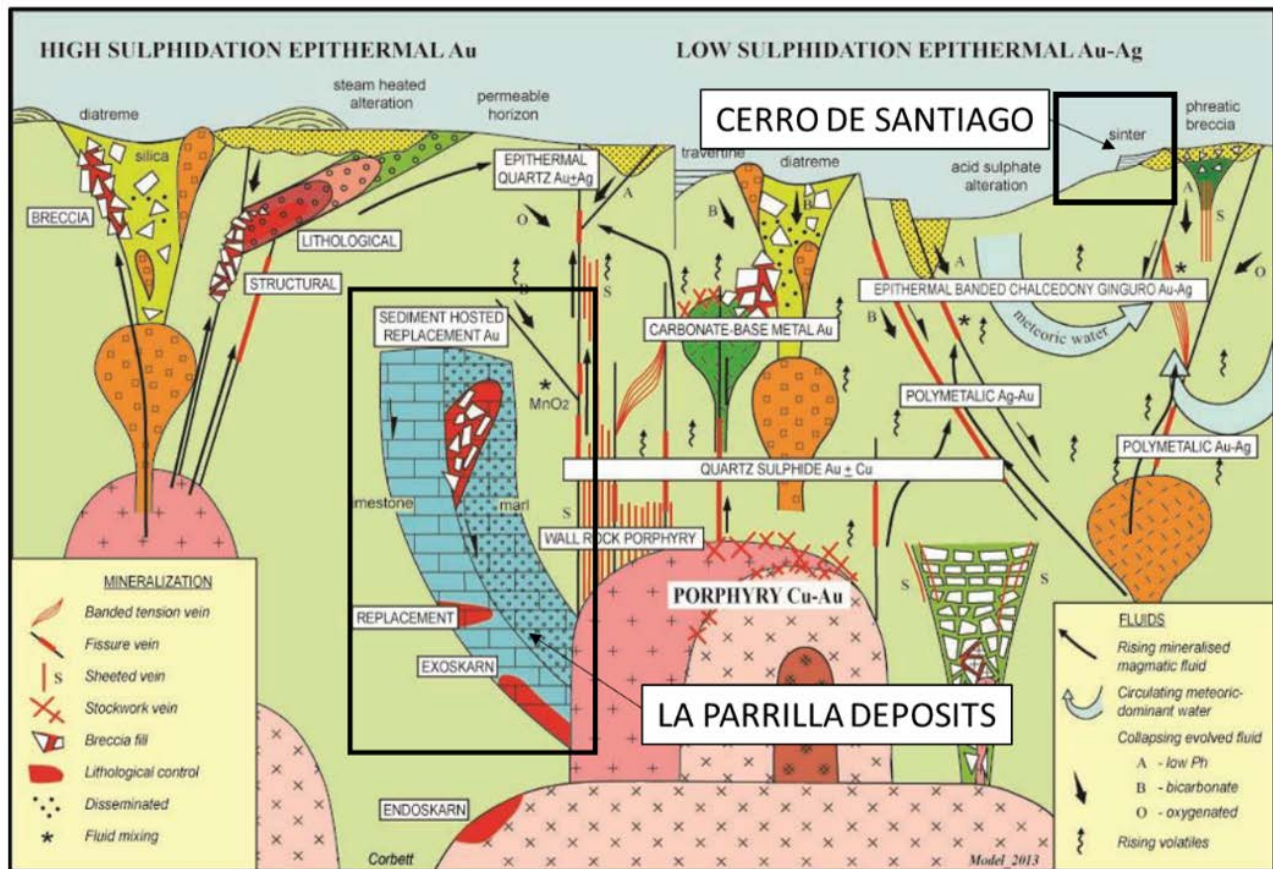
The La Parrilla property contains several prospects, including Quebradillas SW which consists of a system of veins located to the west and southwest of the Quebradillas open pit. Other prospects under exploration are the veins and hydrothermal breccias occurring in the San Marqueña–Los Perros and Cerro de Santiago areas. These two prospects show characteristics of epithermal-type systems, in contrast with the veins in Quebradillas SW, which show mesothermal characteristics.

## 8 Deposit Types

The mineralization at La Parrilla occurs in veins, breccias, stockworks and replacements that are hosted by the Cretaceous limestones and shales of the Indidura Formation and by the granodiorite–quartz monzonite intrusion. Contact metamorphism and metasomatism resulted in the development of marble, hornfels, skarnoid, and skarn at the intrusive contact. Because the mineralization is related to the intrusive contact and skarn development, the deposits are proposed to be of the intrusion-related hydrothermal type, and may represent mesothermal to epithermal environments.

The occurrence of quartz-fluorite veins in the San Marqueña–Los Perros prospects and the sinter Cerro de Santiago prospects are further indications of an epithermal environment.

Figure 16 shows a general genetic model proposed by Corbett (2013) illustrating the various styles of hydrothermal deposits and the proposed environment for the La Parrilla deposits. The proposed setting for La Parrilla is similar to that of the upper portions of San Martin–Sabinas in Zacatecas.



**Figure 16: Schematic model of hydrothermal deposits, proposed by Corbett (2013) (FMS 2017)**

Black boxes show the most likely environments for the La Parrilla deposits and Cerro de Santiago sinter

## 9 Exploration

### 9.1 Geological Mapping and Geochemistry

Prospecting and mapping activities have been conducted by First Majestic Silver geologists around the La Parrilla mine area since 2013 (Table 4). Detailed mapping and sampling have been conducted to the southwest of the Quebradillas open pit in order to define drilling targets along the Esperanza, 19 de Marzo, La Virgen, La Fe and El Recuerdo veins (Figure 17). Mapping was carried out at 1:2,500 scale using a hand-held GPS and compass, and at 1:1,000 and 1:500 scales using a 30 m measuring tape and compass. Selective samples were collected on structures and alteration zones with hammer and chisel; sample locations were determined using a hand-held GPS.

**Table 4: Exploration activities in the La Parrilla mine area (FMS 2017)**

Area	Prospect	Activity	Comments
Quebradillas SW	Esperanza 19 de Marzo La Virgen La Fe El Recuerdo	Mapping and chip sampling	Geologic mapping of 81 Ha at 1:2,000, 1:1,500 and 1:500 scales and chip sampling on vein outcrops, fractures and alteration (n=200)
Rosarios - Quebradillas	Geochemistry	Geochemical sampling	Systematic geochemistry on a north - south trending grid at 100 metres spacing (n=512)
San Marqueña-Perros - Cerro de Santiago	Epithermal veins	Mapping and chip sampling	Geologic mapping of 50 Ha at 1:2,000 scale and chip sampling on outcropping veins (n=15)

A geochemical survey, was conducted between the Rosarios and Quebradillas deposits in the first quarter of 2017. The survey consisted of 512 rock chip samples collected on a north-south oriented systematic grid, with average spacing of 100 metres. The survey was carried out in order to detect potential silver anomalies within the stock and at the contacts between the stock and the sedimentary units. Potential drill targets will be selected based on geochemical results; a second phase of geochemical sampling is being planned on a more detailed grid (Figure 18).

Mapping and sampling activities are also being performed intermittently on other prospects such as San Marqueña-Los Perros and Cerro de Santiago where epithermal vein-breccia structures and a sinter deposit occur (Figure 19). Other prospects include Las Brillosas, San Jose de los Muertos and La Zacatecana. The mapping and sampling activities were conducted intermittently between the second half of 2016 and the first half of 2017.

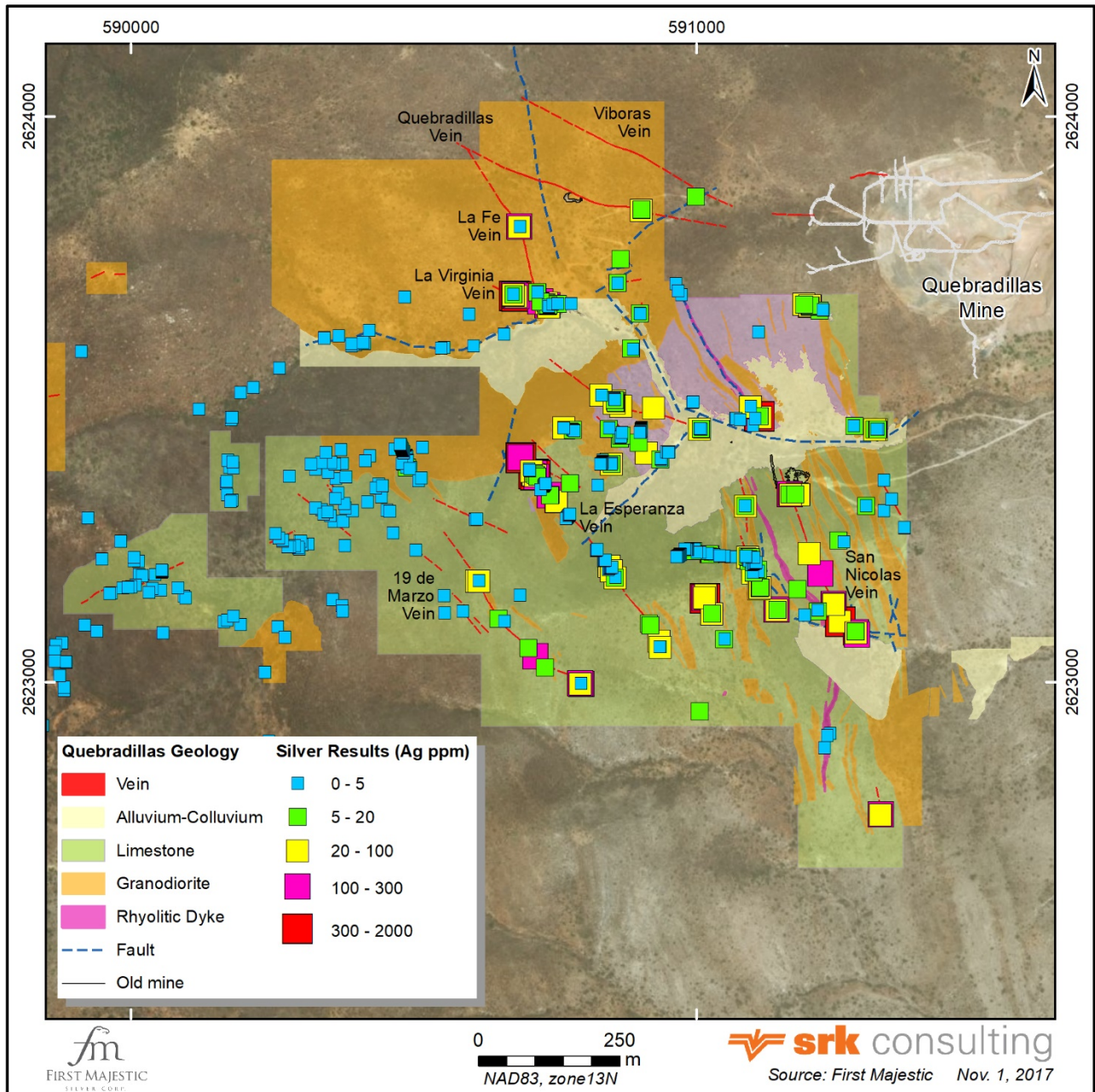
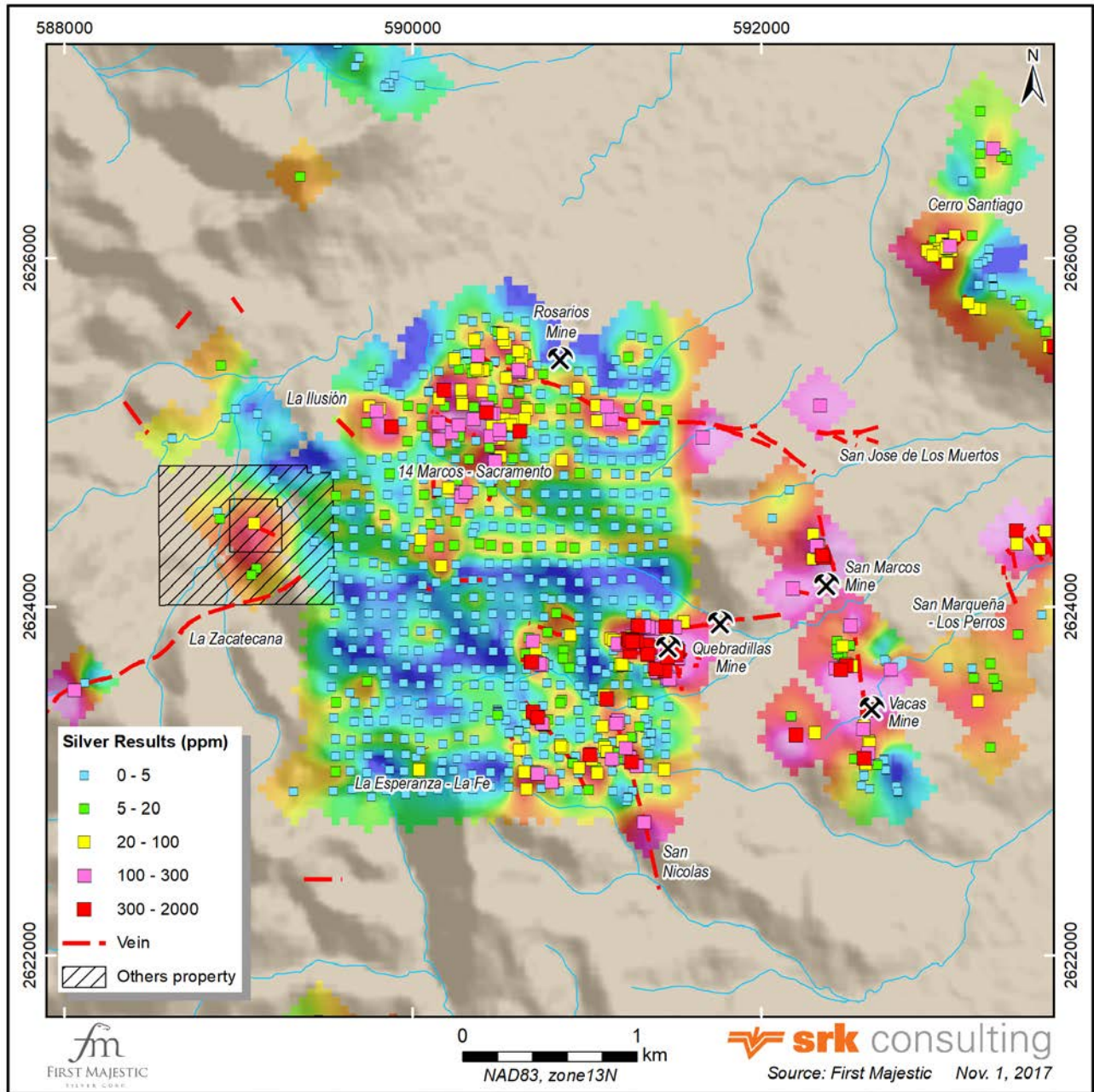


Figure 17: Detailed geological mapping and sampling of the Quebradillas SW area (FMS 2017)





**Figure 18: Geochemical rock chip survey conducted between the Rosario and Quebradillas deposits. (FMS 2017)**

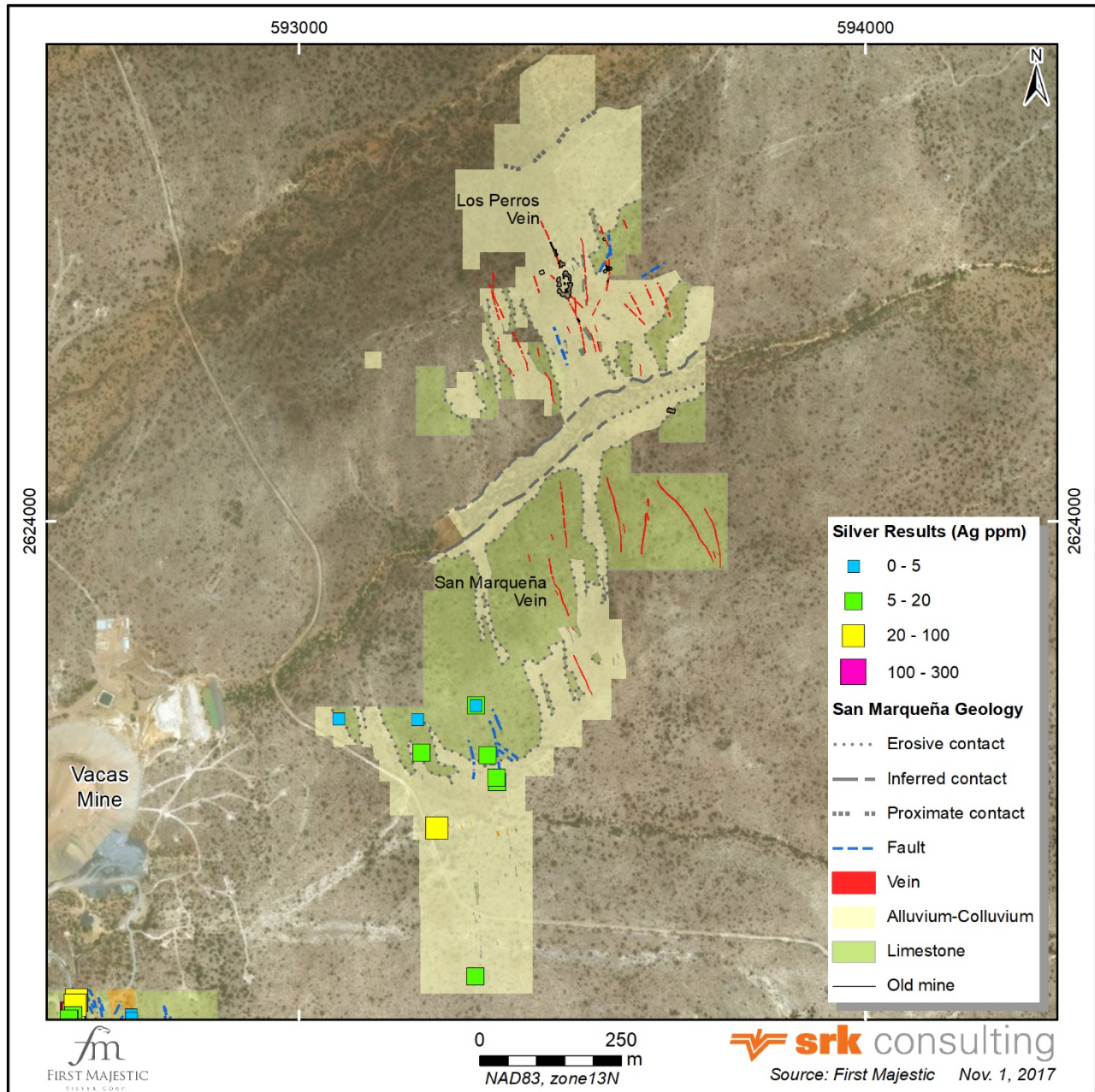


Figure 19: Detailed geological map of the San Marqueña-Los Perros area. (FMS 2017)

### 9.1.1 Sampling Procedures

#### Channel Sampling

In 2013, FMS commenced underground channel sampling efforts. Rock surfaces are first washed, then marked with sample lines every 25 metres where ground conditions permit. Sample lines start on one side of the drift’s wall, continuing along the back to the other side of the drift, with sample lengths respecting vein/wall contacts and any textural or mineralogical variations. A six-centimetre wide by three-centimetre deep channel is cut using a handheld diamond saw. The channel samples

are chipped to fragments of less than six centimetres using a held-held percussion hammer, and are collected using a canvas tarp; the tarp is cleaned thoroughly between samples. Samples are deposited into individually numbered bags and later in larger sacks for transportation to a designated laboratory.

Coordinates from each channel sample are surveyed from a referenced survey peg using a total station.

Channel sampling is conducted under the supervision of a mine geologist.

## **Production Sampling**

Production samples include chip samples and muck samples. Chip samples have been the primary means of grade control sampling in La Parrilla mine since 2005. This sampling was done for the purpose of reserve delineation and was conducted along the mine drifts and developments of the mineralized zones. Chip samples consisted of shallow chips broken off the back of drifts, with sample lines marked and numbered on the drift's walls for proper orientation and identification. Consecutive samples were taken along a channel using a hammer and chisel; the length of individual sample length depended on geological features and generally measured less than 1.5 metres. The chips were collected from a canvas tarp and deposited in numbered bags for transportation to a designated laboratory.

Since 2014, chip samples are collected from every three-metre advance on a heading, and every three metres along the backs of every third stope lift. Chip samples are generally at least two metres long and often include barren or silver-poor shoulder samples; lithological boundaries are respected. Sample intervals are marked with paint, the interval is chipped with a chisel and hammer, and the sample is collected from a canvas tarp and deposited in numbered bags for transportation to a designated laboratory.

## **9.2 Geophysical Surveys**

### **Titan 24 Survey – 2012**

A direct current/induced polarization (DC/IP; TITAN 24) geophysical survey was carried out by Quantec Geoscience Ltd. (Quantec) in 2012. Lines were oriented at 043-223°, with a total of 15 lines surveying the La Parrilla mine area and five lines surveying an area 20 kilometres west of the mine for a cumulative 70.9 line-kilometres. Data was acquired at 100 metre dipole length and 200 metre line spacing.

Depth of investigation was mainly controlled by the array geometry (TITAN 24), but may also have been limited by the received signal, which is dependent on transmitted current and ground resistivity (Quantec 2012). The TITAN 24 Distributed Acquisition System employs a combination of multiplicity of sensors, 24-bit digital sampling, and advanced signal processing (Quantec 2012). The geophysical interpretation was completed by Quantec on two-dimensional (2D) inversion models of TITAN 24 data, and sections and plan maps for different elevations were prepared.

The DC resistivity method is used to resolve the structure and lithology of the subsurface by measuring the electric potential of DC. Resistivity can be an indicator of metallic mineralization, but is more often controlled by rock porosity and is therefore an indirect indicator of alteration and mineral grain fabric. A northwest-trending high resistivity zone (above 1600 ohm metres), that is interpreted to correspond to the quartz monzonite stock, is observed in resistivity plots at 300 m

depth. Chargeability is a near-direct indicator of the presence of sulphide mineralization, graphite and some types of clays, which makes it a useful tool for base metals exploration. Reinterpretation and modelling in 3D of the chargeability and resistivity data carried out by Ellis Geophysical Consulting Inc. (EGC) found that no consistent correlation existed between chargeability highs or lows and mineralization (Figure 20). Further work is required.

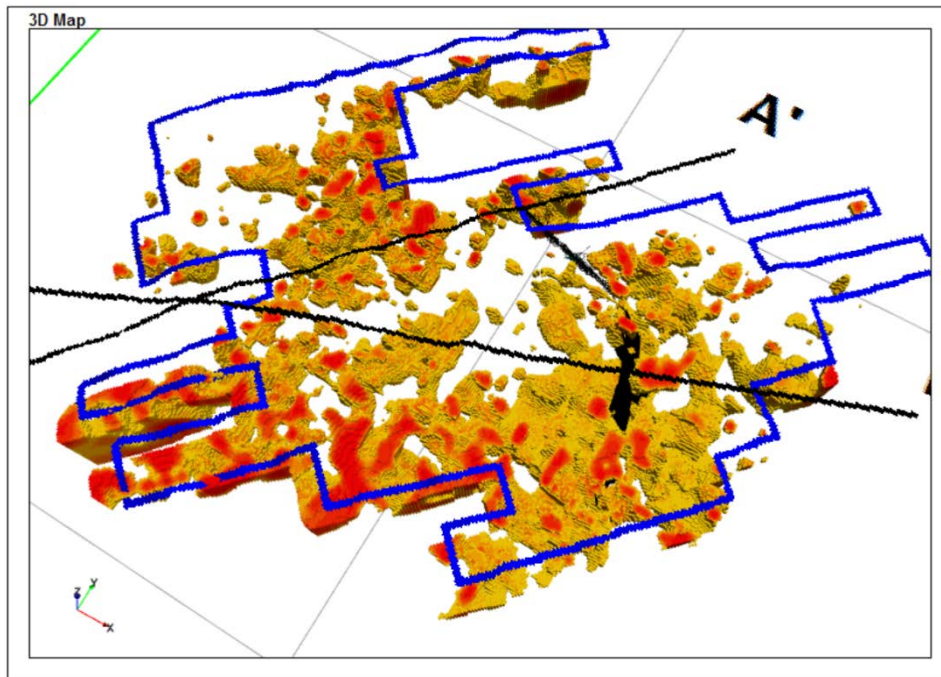


Figure 20: 3D Model for Chargeability Titan-24 Data (EGC, 2016)

### Airborne Magnetic Survey - 2016

In 2016, First Majestic Silver retained MPX Geophysics Ltd. and Ellis Geophysical Consulting Inc. to complete the data acquisition, quality control, and interpretation services for an aeromagnetic survey covering 31,500 hectares over the La Parrilla mining concessions; a total of 2,317 line-kilometres of north-trending lines were flown at 75-metre spacing.

The objective of the magnetic survey was to identify magnetic anomalies caused by magnetic minerals (pyrrhotite-magnetite) associated with skarn veins and replacements, structures within the intrusion, and better define the contact between the carbonate and intrusive rocks. The magnetic data was processed and analyzed. A map of the reduced to pole aeromagnetic survey is shown in Figure 21, black inner polygon represents the area covered by the 2012 Titan survey; and the analytic signal map of the reduced to pole magnetics is shown in Figure 22, lineaments are enhanced with these processes, black inner polygon represents the area covered by the 2012 Titan survey.

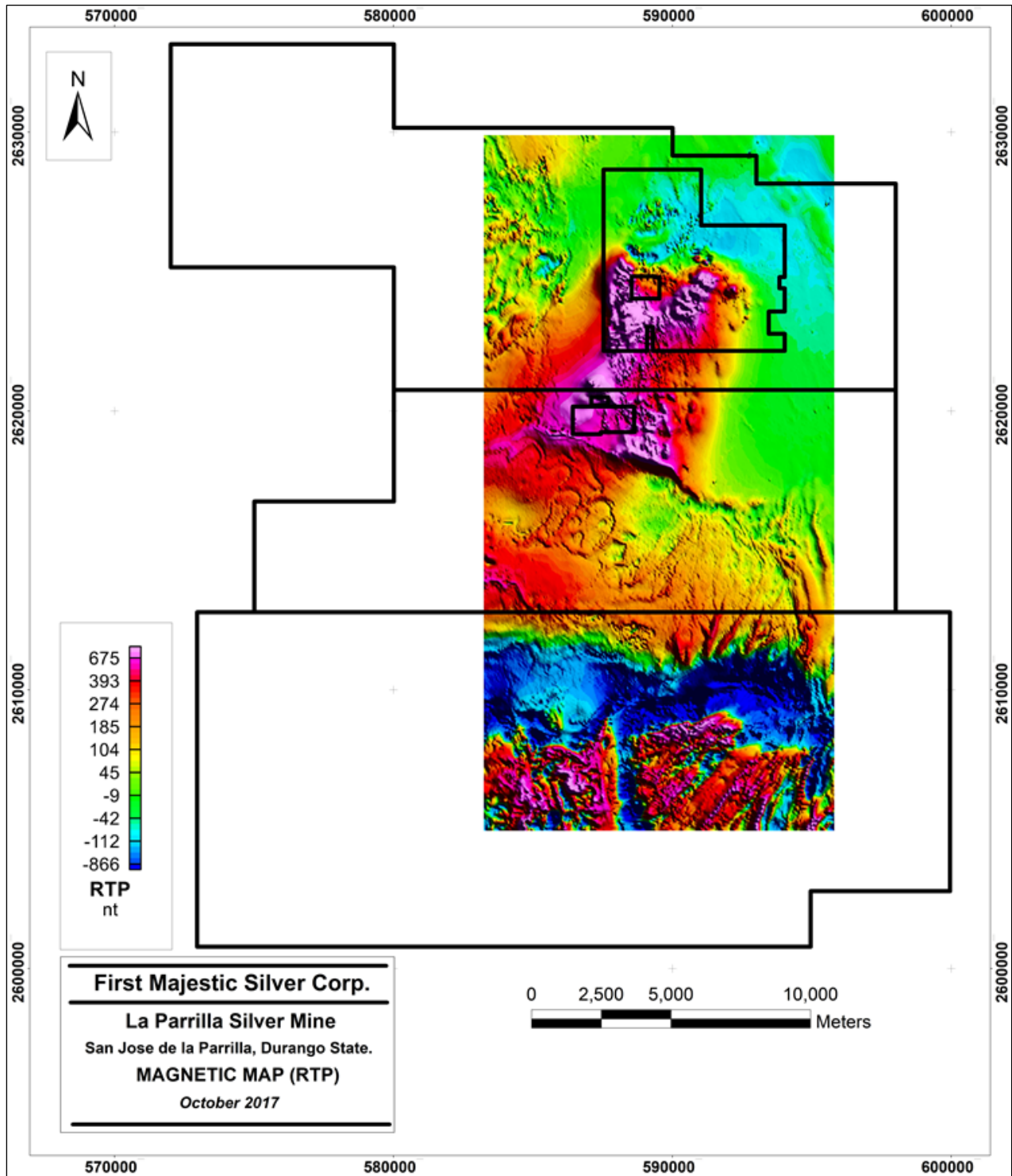


Figure 21: La Parrilla – Total Field and Reduced to Pole magnetic maps (EGC, 2016)

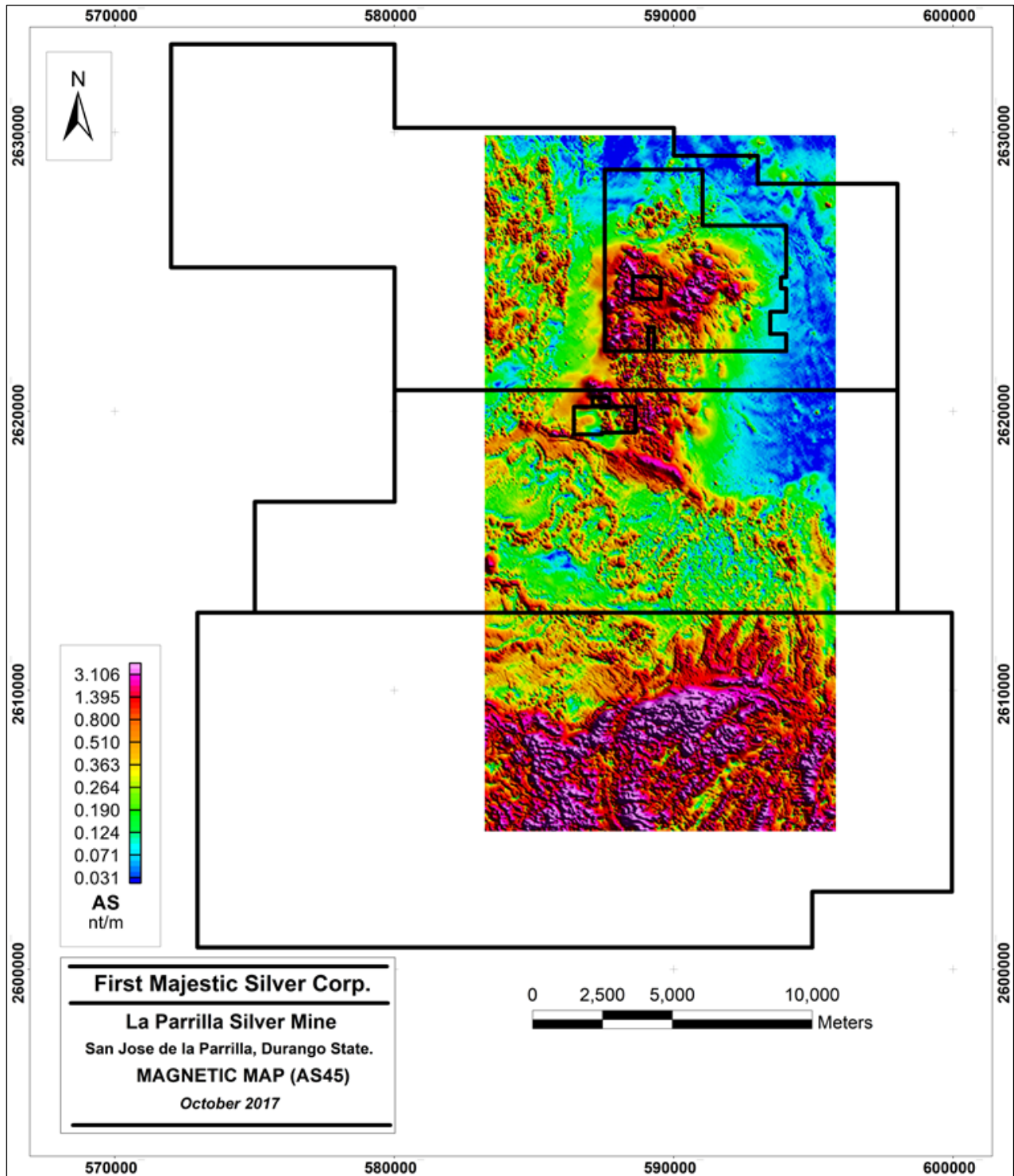
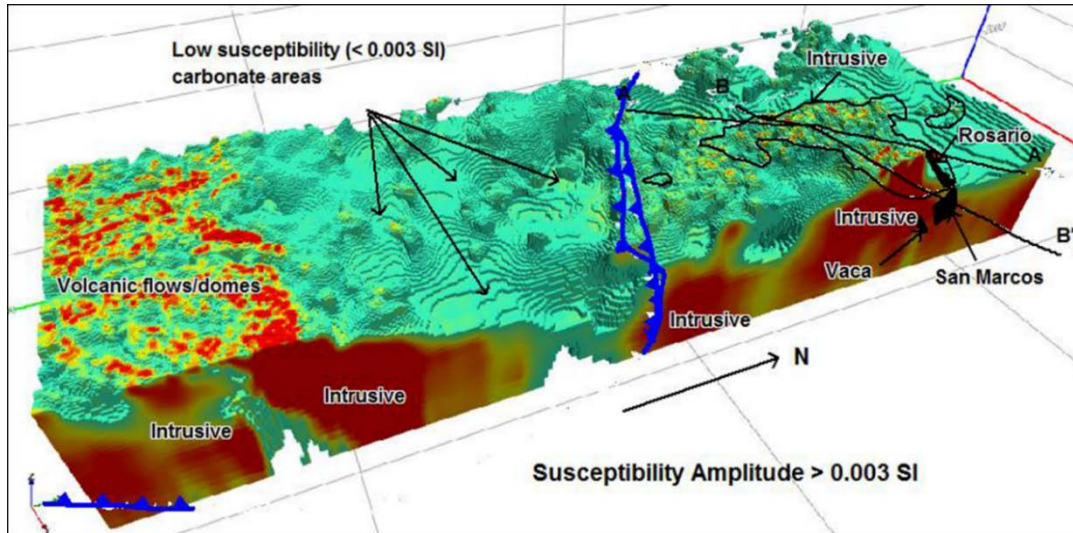


Figure 22: La Parrilla – Analytic signal and Vertical Derivative magnetic maps (EGC, 2016)

A 3D inversion model of magnetic data was completed and Figure 23 displays the resultant interpretation. The inversion model provided an idea of the geometry and depth of magnetic sources using the physical properties and lithology geometries allowed to constrain the inversion model where those properties were known.



**Figure 23: 3D susceptibility inversion model for amplitude at La Parrilla from airborne magnetic survey (EGC, 2016)**

Blue line represents a possible regional fault, black outline represents the intrusion mapped at surface.

### 9.3 Exploration Potential

The linear anomalies observed in the aeromagnetic data are being used to generate exploration targets, as linear anomalies can be indicative of faults and veins. Exploration targets mapped from magnetic lineaments will be prospected as required. Additionally, the 3D inversion model is used as a guide for intrusion-limestone contacts, which are favourable for hosting skarn deposits.

A combination of geological mapping, geochemistry and geophysics have been used to define drilling targets throughout the La Parrilla property. Vein targets are being explored to the southwest of the Quebradillas pit, and other targets like San Marqueña–Los Perros and Cerro de Santiago are being assessed through mapping and sampling. The exploration potential at La Parrilla is indicated by the following favourable factors:

- La Parrilla is located along the Mexican Silver Belt
- Regional northwest-trending structures are observed in regional and detailed magnetic surveys
- The analytic signal and vertical derivative products suggest potential for additional northwest and north-south trending structures
- The occurrence of an Eocene age granodiorite stock hosted by the Cuesta del Cura and Indidura formations creates potential for skarn and replacement deposits at depth.
- The occurrence of veins with epithermal characteristics and of the sinter deposit suggest potential for epithermal deposits proximal to the La Parrilla mine area.
- The occurrence of rhyolite domes south of the property indicates potential for additional exploration for epithermal deposits.

## 10 Drilling

Drilling programs by previous operators on the La Parrilla property were limited, as positive exploration results were likely obtained through underground development. From 1990 to 1993, Grupo México conducted drilling campaigns that totalled 16,634 metres drilled from 73 drillholes. Drill results from previous operators prior to 2005, were not included in the mineral resource estimate summarized in Section 14.

Since the acquisition of La Parrilla in 2005, FMS has explored several areas of the property with numerous drilling programs. From 2005 to 2016, FMS drilled a total of 122,040 metres in 588 core drillholes (Table 5 and Figure 24). A total of 90 additional holes totaling approximately 23,000 m have been drilled in 2017 as of October 31st and were not included in the database used for this mineral resource estimation.

**Table 5: Summary of diamond drilling data from 2005 to 2016 (FMS 2017)**

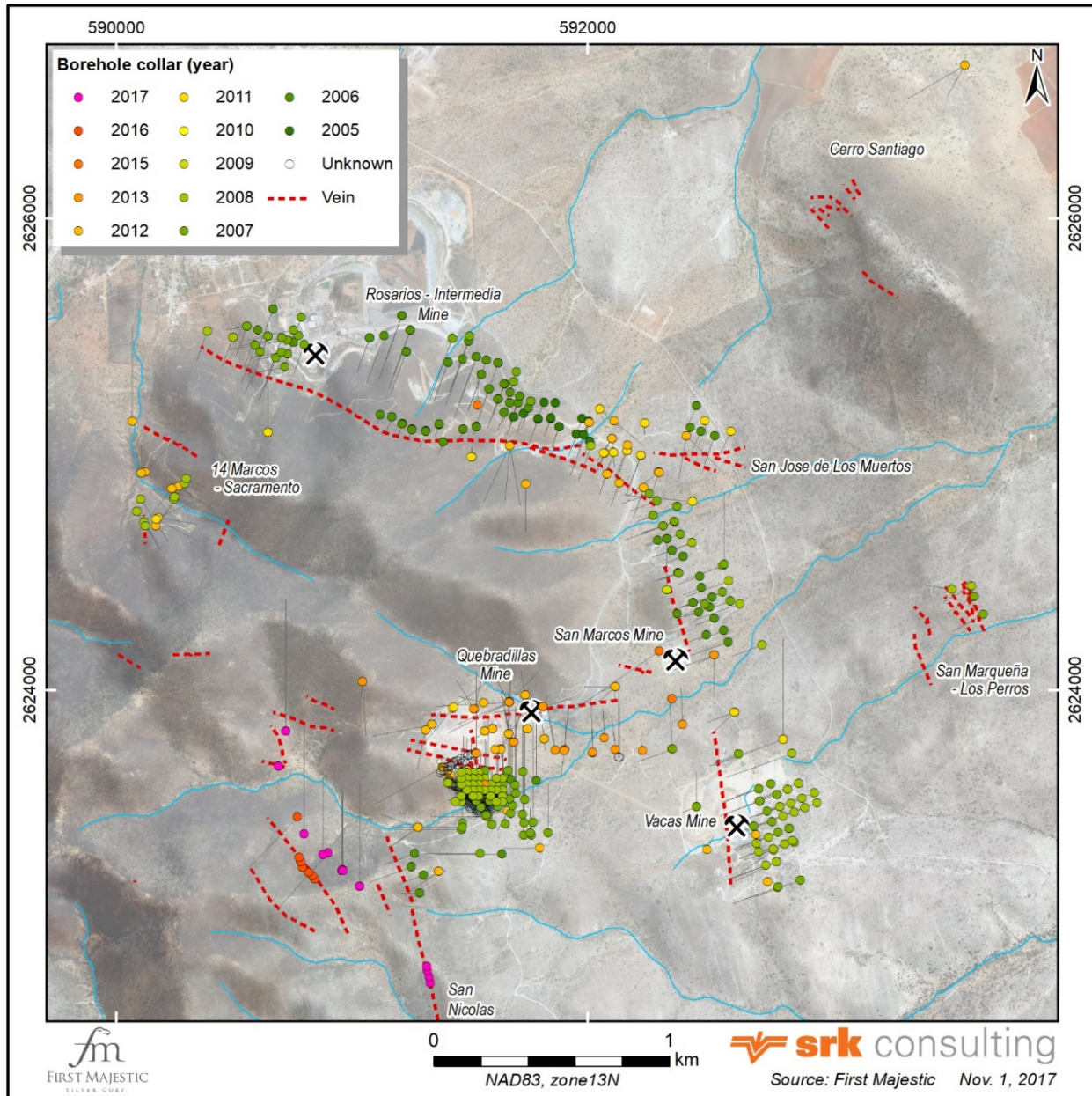
<b>Area</b>	<b>Total Drillholes</b>	<b>Total Metres</b>
Vacas	90	21,389
Intermedia	85	18,332
Quebradillas	153	27,027
Rosarios	155	33,116
San Marcos	79	13,884
San Nicolas	26	8,292
<b>Total</b>	<b>588</b>	<b>122,040</b>

Table 6 summarizes drill intersections representative of the major vein structures observed at La Parrilla.



**Table 6: Summary of drill intersections representative of the major vein structures observed at La Parrilla (FMS 2017)**

Zone	Hole ID	Collar X	Collar Y	Collar Z	Total Depth	Azimuth	Dip	From (m)	To (m)	Drilled width (m)	Ag g/t	Au g/t	Pb %	Zn %
Rosarios	ILP-LBT-12-01	591010.1	2625445.8	1962	419.4	257	-18	264.1	266.2	2.1	392	0.1	8.8	4.0
	RO-27	591646.6	2625296.5	2112	356.2	200	-74	345.8	350.1	4.3	466	0.2	1.4	0.1
	RO-18	591211.3	2625586.9	2118	390.0	200	-43	356.1	373.0	17.0	506	0.1	3.1	2.6
Intermedia	LR-02	591684.4	2625158.5	2138	170.6	200	-64	125.7	128.4	2.7	1125	0.2	0.6	0.1
	LR-26	591645.0	2625175.8	2145	200.8	200	-73	176.6	179.6	3.0	1797	0.2	1.7	0.4
	LR-42	592166.5	2625013.2	2094	356.5	200	-75	284.0	287.5	3.5	384	0.4	1.6	8.5
San Marcos	SM-36	592379.4	2624777.6	2079	270.4	250	-70	231.4	236.8	5.5	406	0.2	2.0	1.0
	ILP-SM-14-04	592306.8	2624457.1	1949	87.8	73	29	59.5	63.8	4.3	248	0.1	0.2	0.1
	SM-28	592605.6	2624377.7	2071	331.3	250	-60	243.5	247.8	4.3	467	0.5	0.4	0.0
Quebradillas	SLP-V-13-01	591901.5	2623747.1	2108	264.5	6	-47	203.3	207.0	3.8	356	0.1	1.1	1.4
	SLP-Q-12-14	591531.5	2623552.2	2135	85.5	277	-45	64.9	67.0	2.2	416	0.0	8.6	0.8
	ILP-Q-16-25	591481.9	2623700.3	1845	270.0	10	-16	127.5	130.3	2.8	360	0.1	1.5	0.2
San Nicolas	ILP-SN-16-01-A	591517.7	2623513.2	1867	585.0	241	2	405.5	407.2	1.8	1479	0.1	1.2	2.1
	SN-02	591264.9	2623306.8	2190	273.7	250	-60	122.6	123.6	1.0	581	0.2	2.3	0.2
	SLP-SN-12-02	591173.7	2623344.9	2026	221.6	236	-45	180.3	183.6	3.3	98	0.1	1.1	2.9



**Figure 24: Map of La Parrilla showing surface drillhole collar locations with respect to vein traces (FMS 2017)**

## 10.1 First Majestic Drilling Procedures

FMS uses geological cross-sections and plan view maps to develop drilling programs on the La Parrilla property. Drillholes are categorized into delineation holes, infill holes, and exploration holes. Delineation holes are used to guide and support the mine operation, infill holes improve the quality of known resources, and exploration holes contribute to additional resources. FMS relies primarily on contracted drilling companies for infill and exploration programs, while utilizing company-owned Diamec drilling rigs and personnel for delineation drilling (Table 7). Core recoveries for surface and underground drilling is typically close to 100%, except in select mineralized intercepts where recovery may be reduced significantly due to brecciation and hydrothermal alteration associated with the veins and fault-veins. The average core recovery in mineralized structures is 91%.

Drillholes are typically drilled at an angle to intersect veins or mineralized structures that generally dip at near vertical angles. They are sometimes completed at angles less than 90° with respect to the dip and strike of the structure being explored, the thickness of mineralized intercepts is therefore an apparent thickness, greater than the true thickness.

Core sizes include TT46 (36.4 millimetres), NQ (47.6 millimetres), and HQ (63.5 millimetres) diameter core. The TT46 diameter is generally used only for delineation drillholes, whereas NQ and HQ core sizes are used for infill and exploration drillholes. The smaller TT46 drillholes are not surveyed, and are not used in mineral resource estimation.

Since 2005, drillhole collars have been surveyed by the engineering department at La Parrilla using Sokkia and TOPCON ES-105 total stations. Collected information includes longitude, latitude, and elevation coordinates, azimuth and dip angle. Collar data are downloaded from the total station and uploaded into a mine server. In 2016, FMS hired the services of J&A Arquitectura and Geomatica S.A. de C.V. to resurvey surface and underground collars used for resource estimation in the WGS84 datum.

Several different downhole survey instruments such as Tropari, Reflex, Flexit and DeviTool PeeWee have been used at La Parrilla since 2005. Downhole surveys are currently collected every 50 metres by the drilling contractor, Versa Perforaciones, using a DeviTool PeeWee electronic multishot instrument.

**Table 7: Summary of drilling contractors from 2005 to 2016 (FMS 2017)**

Year	Contractor	Core Size	Underground	Surface
2005	Causa	HQ, NQ	N	Y
2006	Canmex	HQ, NQ, BQ	N	Y
	Causa	HQ, NQ	N	Y
2007	Causa	HQ, NQ	N	N
	Tecmin Servicios	NQ	N	Y
2008	Causa	HQ, NQ, BQ	Y	Y
2009	Causa	NQ	Y	N
2011	First Majestic	HQ, NQ	Y	N
	Tecmin Servicios	HQ, NQ	Y	Y
	Versa	NQ	Y	N
2012	First Majestic	NQ	Y	N
	Spm	HQ, NQ	Y	Y
	Tecmin Servicios	HQ, NQ	Y	Y
2013	Causa	HQ, NQ	N	Y
	First Majestic	BQ, NQ	Y	N
	Spm	HQ, NQ	Y	Y
	Tecmin Servicios	HQ, NQ	N	Y
2014	First Majestic	HQ, NQ, BQ	Y	N
	Silm	HQ, NQ	Y	N
	Versa	HQ, NQ	Y	N
2015	Causa	NQ	N	Y
	First Majestic	BQ	Y	N
	Tecmin Servicios	NQ	Y	N
	Versa	HQ, NQ	Y	Y
2016	First Majestic	BQ, TT-46	Y	N
	Versa	HQ, NQ, TT-46	Y	N

Extracted core is placed on a sample collection device where the core is broken (if necessary) and fit into core boxes; mechanical breaks due to fitting the core into core boxes are marked using a coloured pencil. Wooden blocks are placed at the end of each 3.05 metre core run to mark the total depth and the core length recovered. Once full, the core box is secured with a top lid and stacked for transportation. Core boxes and lids used by FMS are made of plastic.

Core boxes from underground drilling are transported and delivered to the core shed by the drillers every morning; the core boxes are secured with raffia fiber or rubber bands before transportation. The condition of the core boxes and core is checked by one of the exploration geologists at the core shed upon receipt. In the case of surface drilling, the exploration geologist collects the core boxes every morning from the drilling station and transports them in a pickup truck to the core shed; the core boxes are secured with raffia fiber or rubber bands during transportation.

Logging of drill core and the determination of sample intervals is performed by FMS project geologists. Trained assistants are responsible for core splitting and sampling as per the project geologists' direction. Core logging is done digitally in Logchief® using tablets or laptop computers; the logging software captures lithology, structure, alteration, mineralogy, sample intervals, core recovery and RQD information. FMS's drillhole database is compiled in electronic format and contains collar surveys, assay intervals, lithology and gold, silver, lead, and zinc assay values. The data collection practices employed by FMS are considered to be consistent with industry-standard exploration and operational practices.

After the core has been logged and sample intervals have been marked, the core boxes are photographed. Core boxes are then placed on racks and stored within the secured core shack.

## 10.2 First Majestic Sampling Procedures

### 10.2.1 Drill Core Sampling

From 2005 to 2013, drill core sampling was conducted by First Majestic Plata, S.A. de C.V. (FM Plata). Upon receipt, mine geologists logged the core and marked sample intervals according to geological and mineralized features. Collected samples were generally less than 1.5 metres in length. Sample technicians cut the marked intervals of core into halves utilizing a diamond saw, with one half of the core subsequently placed in a numbered bag and sent to the primary laboratory for analysis.

Since 2013, core sampling has been conducted by First Majestic Silver Corp. During logging, La Parrilla geologists select and mark the sample intervals according to lithological contacts, mineralization, alteration and structural features. From 2013 to 2014, the sample methodology consisted of taking sample intervals of 0.30 to 5.0 metres in length depending on the core size, to obtain a minimum sample weight of 1.5 kilograms. Between mineralized zones, samples with a maximum length of 5.0 metres were taken. After 2014, minor changes to the sampling methodology were implemented. Depending on the core diameter, samples from mineralized zones are 0.20 to 1.5 metres in length, with additional samples collected in the waste rock on either side of mineralized zones ranging from 2.5 to 3.0 metres in length.

All drill core intervals selected for sampling are cut in half using an electrical saw under the supervision of the logging geologist. For each sample, one half of the core is retained in the core box for further inspection and the other half is placed in a sample bag. A sample tag displaying the sample number is stapled into the core box beside the sampled interval, and a copy of the sample tag is inserted into the sample bag. Sample bags are tied with string and placed in rice bags for shipping to the primary laboratory for analysis.

## 10.3 Specific Gravity Data

Specific gravity (or bulk density) measurements were made on site by FMS geologists on core samples using the water displacement method. Specific gravity determinations were made on full HQ or NQ diameter core samples from recent drill programs and on quarter-core samples from historical drill programs. Sample lengths measured 11 centimetres on average and were collected from mineralized zones and from wall rocks on either side of mineralized zones.

The water displacement procedure consists of the following steps:

- Damp weight of sample is recorded
- Sample is dried for six hours in 100°C oven
- Dry weight of sample is recorded
- Sample is dried at room temperature for 18 hours
- Second dry weight of sample is recorded
- Sample is coated in wax
- Wax-coated weight of sample is recorded
- Water is displaced with the sample and weighed
- The specific gravity of the sample is calculated, taking into account the weight of the wax

A total of 1,863 specific gravity determinations are in the resource database, including 1,076 for Quebradillas, 132 for Intermedia, 48 for Rosarios, 48 for San Nicolas and 559 for San Marcos.

## 10.4 SRK Comments

SRK is of the opinion that the drilling and sampling procedures adopted by FMS at La Parrilla are consistent with generally recognized industry best practices. The resultant drilling pattern, in addition to the underground developments, is sufficiently dense to interpret the geometry and the boundaries of silver mineralization with confidence. The core samples were collected by competent personnel according to generally accepted industry best practices. The sampling process was undertaken or supervised by suitably qualified geologists. SRK concludes that the samples are representative of the source materials and there is no evidence that the sampling process introduced a bias.

# 11 Sample Preparation, Analyses and Security

## 11.1 Analytical Laboratories

Several analytical laboratories have been used for processing and assaying First Majestic's La Parrilla samples since 2005 (Table 8).

**Table 8: La Parrilla – Sample preparation and analytical laboratories (FMS 2017)**

<b>Laboratory</b>	<b>Sampling Period</b>	<b>Comments</b>
Inspectorate America Corporation	2005–2012	Primary laboratory for drill core samples. Independent Lab. Sample preparation in Durango, Mexico and analyses in Reno, Nevada.
La Parrilla Laboratory	2005-2012	Primary laboratory for chip samples. Not independent. Preparation and analyses at La Parrilla Mine.
First Majestic Central Laboratory	2013–2017	Primary laboratory for chip samples. Starting in 2015 also primary laboratory for drill core. Not independent. Preparation and analyses at La Parrilla Mine.
SGS	2013–2016 2016–2017	Primary laboratory for core and channel samples. Independent. Regular assays, re-assays and check assays. NQ core samples have been sent to this laboratory since 2016. Preparation and analyses in Durango, Mexico.
Bureau Veritas Mineral Laboratory	2017	Secondary laboratory for check assays starting in 2017. Sample preparation in Durango, Mexico and analyses in Vancouver, Canada

Since January 1, 2015, the Inspectorate America Corporation (Inspectorate) laboratory operates under Bureau Veritas Mineral Laboratories (BVML). Both laboratories are independent of FMS and hold ISO 9001:2008 and ISO/IEC 17025:2005 certification for quality.

Since 2005, most of the exploration and ore control samples from La Parrilla were analyzed at the on-site La Parrilla Laboratory. In 2013, the La Parrilla Laboratory became the First Majestic Central Laboratory (Central Laboratory). Central Laboratory is not a commercial laboratory and is not independent of First Majestic. This laboratory gained ISO 9001 accreditation in mid-2015 and ISO 9001:2008 in 2017.

SGS Durango held ISO 9001 certification from early 2008 until approximately mid-2012, after which time the laboratory gained ISO 9001:2008 accreditation.

## 11.2 Sample Preparation and Analysis

### First Majestic Central Laboratory

From 2005 to 2013, samples were prepared using the following procedures:

- Weighing of sample of approximately 1 to 4 kilograms
- Passed through a jaw crusher, reduced to 1.3 centimetres (1/2 inch), and split
- 500-gram split passed through gyratory or disk crushers to reduce sample to 10 mesh
- Split of 200- to 300-gram sample
- Dried in an oven at 120°C
- Pulverized using one disk and one ring pulverizer to grind the rock to minus 100 mesh

The resulting pulp was homogenized and 10 grams were analyzed for silver, gold, lead, zinc, and copper; in 2013, arsenic analysis was added. Silver and gold assays were carried out by fire assay, while the other elements were analyzed by atomic absorption or ICP, following a multi-acid digestion.

Samples were processed by laboratory personnel during the analytical process, then stored securely at the La Parrilla Laboratory for a short time, before being discarded.

Since 2014, samples are prepared at the Central Laboratory using the following procedure:

- Drying at 100° C for eight hours
- Crushing to 80% passing 10 mesh using a jaw crusher
- Splitting a 200-gram subsample using a riffle splitter
- Pulverizing to 80% passing 150 mesh

All samples received by the Central Laboratory are logged-in and sorted by a laboratory information management system (LIMS). Assay results are reported using LIMS, and include results from inserted laboratory quality control samples. The analytical methods used by the Central Laboratory are listed in Table 9.

**Table 9: Central Laboratory analytical methods and detection limits – 2013 to 2017 (FMS 2017)**

Code	Element	Limits	Description
AUAA-13	Au	0.01-10 g/t	Au by AA with Ag inquarting with Au as main element
ASAG-12	Ag	0.002 g/t	30 g fire assay gravimetric finish
ASAG-13	Au	0.01 g/t	20 g fire assay AAS finish
ASAG-13	Ag	0.3 g/t	20 g fire assay with gravimetric finish
AAG-13	Ag	0.5-300 g/t	2 g 3-acid digestion AAS finish
ICPAW-20	20 elements including Pb, Zn, Cu, Fe, As, Mn	0.001-10 %	0.25 g 2-acid/aqua-regia digestion/ICP-AES
AWAA-100*	Pb, Zn, Cu, Fe, As, Cd, Mn, Bi, Ni, Sb	0.002 %	2-acid digestion finish by atomic absorption



## Inspectorate Laboratory

From 2005 to 2012, primary core samples were submitted to Inspectorate. Samples were prepared at the Inspectorate preparation laboratory in Durango, Mexico, where core samples were crushed and pulverized. Resulting 250-gram pulp samples were sent to Reno, Nevada, USA, for analyses.

The procedure is described as follows:

- A four-kilogram sample was dried, and reduced to greater than 80% passing 10 mesh using a jaw crusher and roll mill.
- A subsample of 250 to 300 grams was obtained using a Jones splitter.
- Sample was pulverized to greater than 90% passing 150 mesh using Labtech LM2 pulverizing mills. Clean tested sand was used between samples during the pulverization process to avoid contamination.
- Pulps were sent to BSI-Inspectorate in Reno, Nevada for analyses.
- Samples were analyzed for silver and gold by fire assay with AA finish. Multi-element analyses were done by aqua-regia and 30-element ICP package. Over-limit samples were re-assayed using the following procedures:
  - For silver over 200 ppm, re-assay by fire assay with gravimetric finish.
  - For lead, zinc, or copper over 10,000 ppm, re-analyzed by aqua-regia digestion with AA finish.

Inspectorate analyses and detection limits used from 2005 to 2012 are presented in Table 10.

**Table 10: Inspectorate Lab analytical methods and detection limits – 2005 to 2012 (FMS 2017)**

Code	Element	Limits	Description
Au-1AT-AAGenX	Au	0.005 ppm	1 AT Fire Assay, AAS finish, 2012.
Au-1AT-AA	Au	5 ppm	1 AT Fire Assay, AAS finish.
Ag-1AT-GV	Ag	3.4 ppm	Over-limit Ag by Fire Assay, gravimetric finish.
30-AR-TR	Ag	0.1–100 ppm	Aqua-regia, ICP, Trace Level Ag. 2011–2012.
30-AR-TR	As, Pb, Zn	5–10,000 ppm 2–10,000 ppm	Aqua-regia, ICP, Trace Level. 2011–2012.
AA	Ag	0.1–200 ppm	AA.
AA	Cu, Pb, Zn, As	10,000 ppm	AA. 2006-2008.
AA/AQR	Ag	200 ppm	Aqua-regia, AA.
AQR	Ag	0.1–200 ppm	Aqua-regia, ICP.
AQR	As, Pb, Zn	10,000 ppm	Aqua-regia, ICP.
FAA, FA/AAS	Au	0.005 ppm	Fire Assay, AAS finish.
FAGRAV	Ag	0.1–200 ppm	Fire Assay, gravimetric finish.
ICP	Ag	0.1–200 ppm	ICP Package. 2006–2007.
AAS	Pb, Zn	10,000 ppm	Pb and Zn by Fire Assay.
Zn-AR-OR-AA	Zn	20%	Ore Grade Zn, Aqua-regia, AA.

## SGS de Mexico, S.A. de C.V.

Samples analysed at SGS Durango were prepared using the following method:

- Drying at 100°C for six to eight hours, or until the sample weight is constant
- Sample crushed to 75% passing 2 millimetres using a Rocklabs Boyd Crusher or Terminator jaw crushers
- 250-gram subsample split using a riffle splitter
- Pulverized to 85% passing 200 mesh using a Labtech ESSA LM2 pulverizer
- Approximately 100 grams used for analysis and laboratory internal quality control

All samples were analyzed by 3-acid digestion with AAS finish and aqua-regia digestion with 34-element ICP-AES package for silver. Over-limit 3-acid digest silver assays were also analyzed by 30-gram fire assay with gravimetric finish. Gold was analyzed by fire assay. Over-limit results for manganese, lead, and zinc were subsequently analyzed by a sodium peroxide fusion /ICP-AES package.

The analytical methods and detection limits for the samples submitted to SGS are listed in Table 11.

**Table 11: SGS analytical methods and detection limits – 2013 to 2017 (FMS 2017)**

Code	Element	Limits	Description
FAA313	Au	0.01 g/t	30 g, Fire Assay, AAS finish.
AAS21E	Ag	0.5–300 g/t (2013)	2 g, 3-acid digest, AAS finish. Main method for Ag.
FAG313	Ag	5 ppm	30 g, Fire Assay, gravimetric finish. Over-limit method.
ICP14B	Ag	2–100 ppm 2–10 ppm (2013)	0.25 g, Aqua-regia digestion/ICP-AES.
ICP14B	multi-element	Range from 0.5–10,000 ppm	0.25 g, Aqua-regia digestion/ICP-AES.
	Mn	0.01%	0.20 g, Sodium Peroxide Fusion/ICP-AES. Over-limit method.
ICP90Q	Pb	0.05%	0.20 g, Sodium Peroxide Fusion/ICP-AES. Over-limit method.
	Zn	0.05%	0.20 g, Sodium Peroxide Fusion/ICP-AES. Over-limit method.
CON12V	Zn	5–65%	Titration. Over-limit method.
CON11V	Pb	10–70%	Titration. Over-limit method.

## Bureau Veritas Mineral Laboratories (BVML)

Starting in 2017, check samples at the BVML preparation facilities have been processed using the following procedures:

- crushed in a jaw crusher to 70% passing 10 mesh
- a 250-gram riffle split sample of the crushed material is pulverized in a mild-steel pulverizer to 85% passing 200 mesh
- Pulps are sent for analysis at the BVML laboratory in Vancouver, BC, Canada.

All samples are analyzed by four-acid digestion with AAS finish, and aqua-regia with ICP finish for silver. Over-limit silver results are analyzed by fire assay with gravimetric finish.

The analytical methods and detection limits for samples submitted to BVML are listed in Table 12.

**Table 12: BVML analytical methods and detection limits – 2017 (FMS 2017)**

Code	Element	Limits	Description
FA430	Au	0.005 ppm	Lead collection Fire Assay, Fusion-AAS finish.
MA401, MA402	Ag	1 ppm	Ag by 4-acid, AAS finish. Main method for Ag.
AR330	Pb, Zn, Multi-elements	10000 ppm	30 elements, aqua-regia, ICP finish.
FA530	Ag	50 ppm	30 g Fire Assay, gravimetric finish. Over-limit method.
AR410	Pb, Zn	1–1000 ppm	0.1 g/100 ml aqua-regia, AAS finish. Ore Grade-over-limit.
GC816	Zn	0.01–100 ppm	Zinc assay by classical titration in duplicate. Over-limit method.
AQ300	Pb, Zn, Cu, As	1-10 000 ppm	Aqua-regia digestion ICP-ES.
AQ300	Ag	1–100 ppm	Aqua-regia digestion ICP-ES.
AQ300	Fe	0.01–40%	Aqua-regia digestion ICP-ES.
AQ374	Pb, Zn, Mn	0.01%	1:1:1 aqua-regia digestion ICP-ES. Over-limit method.

### 11.3 Sample Security

Throughout historical and current mine operations, chip samples have temporarily been kept in secured storage at the La Parrilla Laboratory before being disposed of and recycled in the La Parrilla cyanidation circuit. Samples are processed by laboratory personnel.

Since 2013, drill core samples have been stored in a secure core processing and storage warehouse at the La Parrilla mine, prior to their shipment by company truck to the sample processing laboratories. All samples are securely sealed, and chain of custody documents are issued for all shipments. The analytical results from these samples are received by authorized First Majestic personnel using secure digital transfer transmissions, and these results are restricted to qualified First Majestic personnel until their publication.

SGS and Bureau Veritas Mineral Laboratory hold coarse and pulp reject samples in a secured area for 90 days, after which time the samples are sent back to La Parrilla. Upon completion of the drilling programs, the diamond drill core and coarse rejects and pulps are catalogued and securely stored in the core storage facility at the La Parrilla mine site.

### 11.4 Quality Assurance and Quality Control

From 2007 to 2012, FMS implemented a quality control program to evaluate silver assay results from the La Parrilla Laboratory for chip and core samples by submitting one core sample for every 20 original samples to Inspectorate in Reno, Nevada for duplicate check assaying. Channel sample check assays were performed by the SGS laboratory in Durango.

Pincock, Allen & Holt (2007 and 2011) concluded that the results from the check assaying were reasonable, and recommended the implementation of a strict program of quality control by introducing blanks and in-house prepared standard reference materials (SRMs), as well as duplicate samples. Stricter quality control and quality assurance programs for core samples were implemented

by First Majestic Silver after the second half of 2013; these included the insertion of duplicates, in-house reference materials, certified reference materials (CRMs), coarse and pulp blanks, and coarse and pulp check samples.

Following is the review of the 2013 to 2016 quality assurance and quality control program, including assessments of precision, accuracy, and contamination of regular and check samples for silver, gold, lead, and zinc.

## **Insertion Rates of Quality Control Samples**

From 2013 to 2014, quality control samples included duplicates, in-house standard reference material and blanks. Geologists inserted approximately one duplicate, one standard and one blank every 20 samples (five percent) submitted to the Central Laboratory at the La Parrilla mine.

Starting in 2015, the sample methodology changed and the average insertion rate of control samples sent to the Central Laboratory and to SGS for analysis was modified to the following proportions of samples sent for assay:

- two percent: quarter-core field duplicates
- four percent: coarse and pulp duplicates
- six percent: certified reference materials
- four percent: blanks

Control samples are now inserted randomly into the sample stream. Standards are inserted according to a visual estimate of the mineralization grade, and blanks are inserted between samples containing visible mineralization.

## **Assessment of Laboratory Precision**

Laboratory precision at the Central Laboratory, SGS and BVM for 2014 to 2016 drilling campaigns was assessed using field and coarse reject, and pulp duplicates from core samples.

Field duplicates were taken by splitting half core into quarter core, where one quarter of the core represents the original sample and the other quarter becomes the duplicate sample. Coarse reject and pulp samples were taken by the laboratory from the portions of the samples that were prepared but not used for analysis. Primary and duplicate samples were submitted to the laboratory in the same batch for analysis.

Scatter plots and absolute relative difference cumulative frequency charts for silver, gold, lead, and zinc were prepared to evaluate laboratory precision by correlating the duplicate assays with the original assays.

Target thresholds for acceptable precision are:

- 90% of pulp duplicate pairs having absolute relative differences <10
- 90% of coarse reject duplicate pairs having absolute relative differences <20
- 90% of field duplicate pairs having absolute relative differences <30

Scatter plots with 10°, 20°, and 30° failure limit lines for each type of duplicates were used to assess correlation between grades.

The absolute relative difference cumulative frequency charts and scatter plot charts indicate poor precision and poor to moderate correlation for field duplicates with silver, gold, lead, and zinc assays from the Central Laboratory and from SGS. The poor correlation and low precision at both laboratories is most likely attributable to natural heterogeneity of the distribution of mineralization of the deposit.

Poor precision, but good correlation, was obtained for coarse and pulp duplicates for silver, lead, and zinc assays from SGS and from the Central Laboratory. Coarse and pulp duplicates for gold from both laboratories achieved lower precision and poor correlation. During the precision assessment, assay pairs with significant absolute differences were identified and investigated for data entry errors or errors in the analysis, and were corrected in the database.

### Assessment of Laboratory Accuracy

Both in-house First Majestic Silver standard reference materials (SRMs) and commercially prepared certified reference materials (CRMs) have been used to assess laboratory accuracy for silver, gold, lead, and zinc. Table 13 summarizes the types of standard used by year.

**Table 13: Standards types used by year (FMS 2017)**

Year	Type	Grades	Comments
2012–Early 2013	In-house, not certified (Muestra Alta Nivel 8 Sur, Muestra Baja Nivel 8)	Low, high	Materials from Level 8 of the San Juan deposit at Del Toro Mine. Prepared by SGS in Durango. Best value from round robin-analyses refereed by five laboratories. The expected values and control limits are based on simple statistics only.
Late 2013–2014	In-house, not certified (SMO1-B-LP, SM01-B-LP, SM01-M-LP, SM02-A-LP)	Low, medium, high	Materials from underground deposits at the La Parrilla mine. Prepared by the Central Lab and submitted for a round robin-analysis to three independent laboratories. Preparation procedures used are not known.
2014–2015	In-house, not certified (LPOX_14, LPSU_14)	Low, high, medium	Materials obtained at La Parrilla mine from oxide and sulphide rocks. Prepared at Inspectorate Laboratory. Finalized grades were taken from average results from 10 samples analyzed at Inspectorate.
2015–2016	Commercial, certified	Low, medium, cut-off, and high	Materials were prepared and certified by CDN Resource Laboratories Ltd.

Accuracy was assessed in terms of bias of the mean returned values relative to the expected value and percentage of failures. Standard sample results were plotted on date-sequenced performance charts to investigate for outliers/failures, defined as results that were above or below three times the expected standard deviation. During the accuracy assessment, apparent errors such as mislabeling of samples were identified and corrected. Samples with analytical errors were submitted for re-assay.

Standard results from the Central Laboratory and SGS are summarized in Table 14 and Table 15, respectively.

The majority of the in-house standards (SRMs) used before the 2014 sampling program showed acceptable bias for silver: less than or close to 5 percent. Lead and zinc showed marginal to

unacceptable absolute bias (5 to 20 percent). These standards are not certified, and best values and standard deviation limits were estimated based on round robin statistics.

The standards LPOX\_14 and LPSU\_14, used from 2014 to 2015, were assayed for silver at the Central Laboratory, and showed marginal bias, between 5 and 6 percent. These standards were not certified and best values and standard deviation limits were estimated based on the average results of 10 samples analyzed at Inspectorate Laboratories.

For the majority of the certified standards (CRMs) results, biases are less than 5 percent and are considered acceptable. However, there is a high percentage of gold, lead, and zinc failures: approximately 30 percent failure rate at the Central Laboratory and 16 percent failure rate at SGS. This result reflects analytical accuracy issues for these elements in both laboratories. FMS has taken measures to address the assay accuracy issues that were identified at the Central Laboratory.

**Table 14: Central Laboratory – Summary of SRMs and CRMs assay results (FMS 2017)**

Standard	Method	Element	No. Vals.	Failures	Exp. Val.	Exp. Stdv.	Low Limit	Upper Limit	Calc. Mean	Bias of Mean
CDN-ME-1306	AAS	Ag	23	4	104.00	8.88	76.01	129.28	102.64	-1%
	AAS	Au	23	4	0.92	0.08	0.69	1.18	0.93	1%
	ICP	Pb	23	10	1.60	0.13	1.50	1.71	1.61	1%
	ICP	Zn	23	5	3.17	0.18	2.57	3.65	3.11	-2%
CDN-ME-1407	AAS	Ag	24	6	245	10.82	227.00	263.00	237.64	-3%
	AAS	Au	23	9	2.12	0.09	1.83	2.37	2.10	-1%
	ICP	Pb	23	11	3.97	0.27	3.72	4.23	3.95	-1%
	ICP	Zn	23	8	0.54	0.03	0.50	0.57	0.55	3%
CDN-ME-1505	FA-GRAV	Ag	22	3	370	8.14	344.50	395.50	353.71	-4%
	AAS	Au	22	4	1.29	0.10	0.94	1.55	1.25	-3%
	ICP	Pb	22	10	1.87	0.14	1.77	1.98	1.85	-1%
	ICP	Zn	22	8	0.72	0.05	0.67	0.77	0.71	-1%
CDN-ME-1602	AAS	Ag	20	4	137	6.94	128	146.00	132.90	-3%
	AAS	Au	20	5	1.31	0.12	0.96	1.71	1.33	2%
	ICP	Pb	20	1	1.13	0.05	1.06	1.21	1.12	-1%
	ICP	Zn	20	2	0.78	0.03	0.72	0.83	0.76	-2%
SMO1-B-LP	FA-GRAV	Ag	12	0	90.33	6.14	67.11	103.92	85.51	-5%
	ICP	Pb	12	3	1.73	0.59	-0.23	3.30	1.54	-11%
	ICP	Zn	12	3	1.13	0.39	-0.27	2.08	0.91	-19%
SRM_Alta_LPOX_14	FA-GRAV	Ag	18	0	301.45	6.36	267.12	305.253	286.19	-5%
SRM_Alta_LPSU_14	FA-GRAV	Ag	42	1	490.5	10.00	436.78	496.82	466.81	-5%
SRM_Media_LPOX_14	AAS	Ag	25	1	129.32	5.18	105.86	136.98	121.42	-6%
SRM_Media_LPSU_14	AAS	Ag	72	1	184.24	6.89	153.11	194.68	174.00	-6%
SRM_Baja_LPOX_14	AAS	Ag	18	0	77.68	5.13	63.86	94.67	79.27	2%
SRM_Baja_LPSU_14	AAS	Ag	25	0	111.69	4.87	86.37	115.59	100.98	-10%

**Table 15: SGS – Summary of SRMs and CRMs assay results (FMS 2017)**

Standard	Method	Element	No. Vals.	Failures	Exp. Val.	Exp. Stdev.	Calc. Mean	Bias of Mean
CDN-ME-1306	AAS21E	Ag	81	2	104	3.45	100.10	-4%
	FAA313	Au	67	0	0.919	0.06	0.94	3%
	ICP90Q	Pb	67	6	1.6	0.07	1.56	-2%
	ICP90Q	Zn	67	9	3.17	0.13	3.14	-1%
CDN-ME-1407	AAS21E	Ag	68	11	245	12.79	246.36	1%
	FAA313	Au	68	6	2.12	0.10	2.20	4%
	ICP90Q	Pb	68	3	3.97	0.37	3.90	-2%
	ICP14B	Zn	70	9	0.536	0.03	0.54	1%
CDN-ME-1505	FAG313	Ag	67	4	360	9.43	362.09	1%
	FAA313	Au	67	5	1.29	0.07	1.32	3%
	ICP90Q	Pb	67	10	1.87	0.07	1.82	-2%
	ICP14B	Zn	67	10	0.72	0.03	0.70	-3%
CDN-ME-1602	AAS21E	Ag	66	8	137	5.39	132.65	-3%
	FAA313	Au	66	5	1.31	0.08	1.34	2%
	All Methods	Pb	66	18	1.13	0.07	1.08	-4%
	ICP14B	Zn	66	32	0.775	0.04	0.73	-6%
Muestra Alta Nivel 8 Sur	AAS21E	Ag	56	2	88	4.80	85.68	-3%
	FAA313	Au	45	1	0	0.01	0.05	0%
	All Methods	Pb	56	4	1.62	0.17	1.59	-2%
	All Methods	Zn	56	2	0.82	0.49	0.98	19%
Muestra Baja Nivel 8	AAS21E	Ag	53	3	34.9	1.93	34.02	-3%
	All Methods	Pb	53	3	0.8065	0.24	0.86	6%
	All Methods	Zn	53	4	2.98	0.59	2.67	-10%
	All Methods	Ag	20	0	90.33	5.67	84.80	-6%
SMO1-B-LP	FAA313	Au	11	1	0.157	0.03	0.14	-12%
	ICP90Q	Pb	31	0	1.726	0.13	1.71	-1%
	All Methods	Zn	31	0	1.127	0.09	1.05	-7%
	All Methods	Zn	10	0	1.127	0.08	1.06	-6%

## Assessment of Laboratory Contamination

Pulp and coarse blanks were used to assess contamination during sample preparation and analysis for silver, gold, lead, and zinc at the Central Laboratory and SGS.

Before 2013, blanks were processed from construction blocks made from gravel taken from a local river. Since 2013, blanks have been obtained from basalts located northeast of La Parrilla mine.

Contamination assessment is done using date sequence performance charts from pulp and coarse blanks. The threshold limits are two times the lower detection limit reported by the laboratory.

Several apparent failures were determined to be due to mislabeled samples and were corrected in the database. However, a significant number of failures still occur at both the Central Laboratory and SGS. In addition, results show that the contamination of samples at the Central Laboratory is higher than at SGS. First Majestic Silver suggests that blank failures are a result of poorly prepared materials, however, minor carry-over contamination is also evident in both laboratories. The number of failures and error rate in each type of blank is shown in Table 16.

**Table 16: La Parrilla Mine – Blank failures and error rates (FMS 2017)**

Standard	Element	Central Lab	SGS	Total Outliers	Total of Blanks	Error Rate
Blank (2012) Coarse blank	Au	1	3	4	236	2%
	Ag	12	22	36	437	8%
	Pb	21	11	32	283	11%
	Zn	19	1	20	351	6%
SM-2-BLK-LP (2013) Coarse blank	Au	2	0	2	57	4%
	Ag	4	10	14	57	23%
	Pb	6	0	6	54	11%
	Zn	4	0	4	54	7%
CoarseBl (2013-2014) Coarse blank	Au	1	0	1	49	2%
	Ag	3	1	4	63	6%
	Pb	3	2	5	49	10%
	Zn	1	1	2	49	4%
FineBl (2013-2014) Pulp	Au	3	0	3	60	5%
	Ag	5	0	5	60	8%
	Pb	3	0	3	60	5%
	Zn	2	0	2	60	3%
SM3-BLANK_P95#200 (2015-2016) Pulp	Au	17	0	17	267	6%
	Ag	24	0	24	278	9%
SM3-BLANK_P95-1/4 (2015-2016) Coarse	Au	8	4	12	258	5%
	Ag	11	1	12	258	5%
	Pb	8	1	9	258	3%
	Zn	2	1	3	258	1%
SM3-BLANK_P95#10 (2015-2016) Coarse	Ag	1	0	1	22	4%
	Au	1	0	1	22	4%
	Pb	1	0	1	22	4%
	Zn	0	0	0	22	0

An evaluation should be undertaken to determine the underlying causes of carry-over contamination during sample preparation and analysis at both laboratories in order to remediate any issues identified. In addition, consideration should be given to sourcing different blank materials.

## Check Assay

Reduced Major Axis (RMA) analysis was used to calculate bias. Thresholds were considered acceptable when less than 5 percent, marginal when bias was between 5 and 10 percent, and unacceptable if bias was greater than 10 percent. Paired silver results with a relative difference above 50 grams per tonne (g/t), and paired gold results with a relative difference above 1 g/t were identified as outliers and were excluded when reporting final biases. Only silver, lead, and zinc results were assessed.

The RMA chart for silver from the 2015 and 2016 check program indicates a four percent negative bias for results from the Central Laboratory relative to SGS. An acceptable bias was also observed for lead and zinc results.



The RMA chart for silver from the 2016 and 2017 check program indicates acceptable bias for silver and gold from the Central Laboratory and SGS relative to BVML results, while the RMA charts for lead and zinc results show marginal bias.

## 11.5 Databases

The La Parrilla resource database is located on First Majestic Silver's terminal server located in Monterrey, Mexico. The drillhole database is in MS SQL. The SQL database is based on the Maxwell Database scheme and contains drilling and channel data.

Before April 2013, core was logged on paper and subsequently captured in Excel spreadsheets and in DrillKing. During 2013, data was recorded in an acQuire™ database. DrillKing and acQuire™ are computer programs used to validate and manage geological databases.

Since 2014, core logging data has been captured directly using LogChief™ and imported and validated in DataShed™. LogChief™ and DataShed™ are core logging and database management software provided by Maxwell GeoServices. Historical data previously captured in Excel, DrillKing and acQuire™ was imported into SQL using DataShed™. Historical chip assay data is kept in Autocad and Excel files. First Majestic Silver is currently transferring this data into the SQL database.

Assays results from La Parrilla's Central Laboratory and SGS laboratories are received in electronic formats via email, and copies of the certificates are obtained from their secured websites.

Electronic and paper core logs contain core intervals for main lithology, veins, structures, mineralization, alteration, RQD, core recovery and density data. Paper copies of core logs, drillers' reports, sample tags, density and assay certificates are filed at the La Parrilla Mine.

## 11.6 Comments

The QP considers that caution should be used for the pre-2013 results due to their limited QA/QC.

It is the QP's opinion that the quality of the analytical data collected during 2013–2017 for silver, gold, lead, and zinc from San Marcos, Intermedia, San Nicolas, and Quebradillas resource areas is sufficiently reliable to support mineral resource estimation. It is also the QP's opinion that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards. First Majestic Silver continues to enforce and improve these practices.

The QP notes:

- Sample collection and preparation protocols that support mineral resource estimation have been in line with industry-standard methods.
- Drill core samples were analysed by independent certified laboratory (SGS) and the non-independent Central Laboratory using industry-standard analytical methods for silver, gold, lead and zinc.
- QA/QC insertion rates after 2013 meet industry standards.
- Assay results by the Central Laboratory and SGS achieved acceptable precision from pulp and coarse duplicates. Low precision from field duplicates was attributed to the heterogeneity of the mineralization.

- The quality of La Parrilla in-house Standard Reference Material (SRM) control samples, used to monitor grade bias, is poor in comparison to the certified reference materials (CRMs) from CDN Resource Laboratories Ltd.
- Silver and gold assays of in-house standards by Central Laboratory and SGS showed marginal bias. Assays for lead and zinc results showed high bias above 10 percent. These standards were discontinued in early 2016 and were replaced by CRMs in 2017.
- Silver and gold assays of Certified Reference Materials (CRMs) by the Central Laboratory and SGS achieved acceptable accuracy. However, lead and zinc results show problems with respect to analytical accuracy reporting significant number of failures with Central Laboratory. FMS has taken steps to correct this issue. The Central Laboratory should be monitored on an ongoing basis to ensure that results are of good quality.
- Small carry-over contamination is present in coarse and pulp blanks submitted to the Central Lab and SGS. The Qualified Person (QP) recommends that an evaluation be undertaken to determine the underlying causes of carry-over contamination during sample preparation and analysis, and that the laboratory undertakes remediation of any issues identified. In addition, consideration should be given to sourcing different blank materials.
- The between-laboratories bias for the 2013–2016 check programs was acceptable for silver results from SGS and Central Laboratory.
- The between-laboratories bias for the 2013–2016 check programs was unacceptable for lead, zinc, and gold results. A portion of the bias may be due to differences in analytical methods between the laboratories. It is recommended that FMS selects compatible analytical methods for check analyses.
- Current core sample storage procedures and storage areas are consistent with current industry standards.
- Data are currently captured electronically, entered in databases, and validated through a series of built-in and manual validation routines.

It is the QP's opinion that the quality of the analytical data for silver, gold, lead, and zinc from San Marcos, Intermedia, San Nicolas, and Quebradillas resource areas is sufficiently reliable to support mineral resource estimation. It is also the QP's opinion that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards. First Majestic Silver continues to enforce and improve these practices.

# 12 Data Verification

## 12.1 Verification on legacy data

Data prior to 2013 does not follow First Majestic’s current standards for sample collection, preparation, analysis, and security.

Independent data verification was performed by Pincock, Allen & Holt in 2007 and 2011 in support of technical reports on the Project. This included verification for assay checks of production concentrates at La Parrilla laboratory, concentrate assays reported by the MET-MEX Peñoles smelter in 2007, and check assaying assessments in 2011. Pincock, Allen & Holt concluded that results from check assaying were reasonable with appropriate preparation procedures, and that the sample results appeared to be reasonably representative of the deposit mineralization and to be usable with acceptable confidence in the resource estimation.

The QP considers that caution should be used for pre-2013 results.

## 12.2 Verification by First Majestic

Database validation and verifications by First Majestic consist mainly of data entry error check, collar spatial validation, intervals errors check, downhole survey deviation, quality assurance and quality control review (assessments of precision, accuracy, and contamination of regular and check samples for silver, gold, lead, and zinc).

The flow of historical and new data from capture to use in resource estimate is shown in Figure 25. In conjunction with this flowsheet, FMS maintains a detailed spreadsheet of the data validation items for each major table, including the staff responsible for the verification procedures. In addition, the DataShed import process includes a series of built-in checks for errors at all stages, from header to individual tables. Import of assay data files, including QA/QC results, directly from the laboratory, must match with sample intervals and sample numbers that are already established in the database.

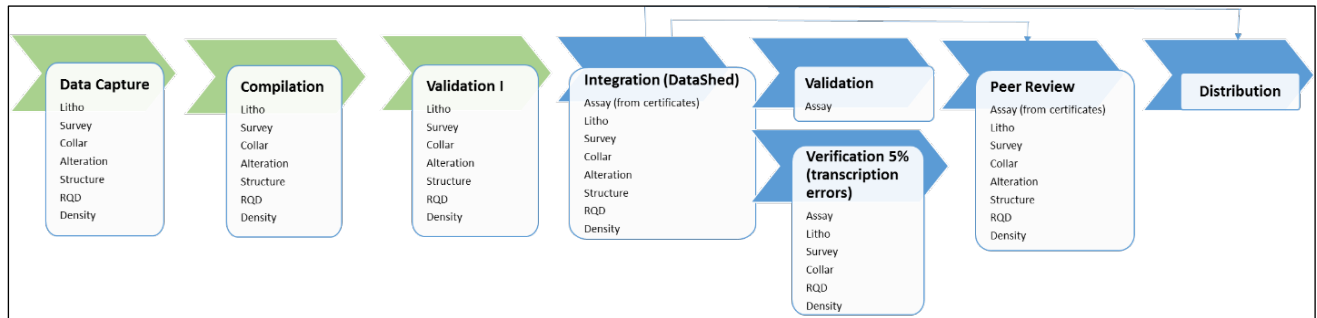


Figure 25: First Majestic data capture and validation flowsheet (FMS 2017)

All drillholes in the database were subject to validation and a 5% selection was subject to verification from hard copy records and originals survey and assay certificates.

In the opinion of the QP, a reasonable level of verification has been completed, especially after 2013, and no material issues would have been left unidentified from the verification programs undertaken. Drill data are typically verified prior to Mineral Resource and Mineral Reserve estimation through software program checks, comparison to original hard copy data, and peer review. The quality of the drill data is sufficiently reliable to support Mineral Resource and Mineral Reserve estimation.

Caution should be used for the pre-2013 results due to their limited QA/QC.

## 12.3 Verifications by SRK

### 12.3.1 Site Visit

In accordance with National Instrument 43-101 guidelines, SRK visited the La Parrilla mine site from February 6 to 8, 2017, accompanied by representatives of First Majestic Silver. The SRK team includes Messrs. Stephen Taylor, PEng; Sebastien Bernier, PGeo; Dominic Chartier, PGeo; and Daniel Sepulveda, Associate Metallurgist.

The purpose of the site visit was to review databases and validation procedures, review exploration procedures, define geological modelling procedures, examine drill core, interview project personnel, and collect all relevant information for the preparation of a revised mineral resource model and the compilation of a technical report.

SRK was given full access to relevant data and conducted interviews with First Majestic Silver personnel to obtain information on the previous work completed on site, and to understand the procedures used to collect, record, store and analyze historical and current data.

### 12.3.2 Verifications of Analytical Quality Control Data

To assess the accuracy and precision of analytical quality control data, SRK performs routine verifications. Analytical quality control data typically comprises analyses from standard reference materials, blank samples, and a variety of duplicate data. Time series plots are used during the analyses of data from reference materials and blanks to identify extreme values (outliers) or trends that may indicate issues with the overall data quality. To assess the repeatability of assay data, SRK routinely plots and assesses the following charts for duplicate data:

- Bias charts
- Quantile-quantile (Q-Q) plots
- Mean versus half absolute deviation (HRD) plots
- Mean versus half absolute relative deviation plot
- Ranked half absolute relative deviation (HARD) plot

SRK analyzed the available analytical quality control data of the La Parrilla project. First Majestic Silver provided SRK with analytical control data containing the assay results for the quality control data produced since 2013 on the La Parrilla silver project. All data was provided in Microsoft Excel spreadsheets. SRK aggregated the assay results of the analytical control samples for further analysis. Control samples (blanks and standards) were summarized on time series plots, and paired data (duplicates and check assays) were analyzed using bias charts, quantile-quantile, and relative precision plots to highlight their performance (Appendix B). The analytical quality control data produced by First Majestic Silver on the La Parrilla project is summarized in Table 17.

**Table 17: Summary of analytical quality control data produced by First Majestic Silver on the La Parrilla project and reviewed by SRK (FMS 2017)**

Assay Results for Silver	FMS Central Lab	(%)	SGS Durango (%)	Total (%)	Expected Value
Blanks	637		230	867	
P95#10	21				
P95#1/4	259		100		
P95-1/4	36		18		
P95#200	321		112		
QC samples	689		343	1,032	
CDN-ME-1306	106		64		104 +/- 3.5 ppm
CDN-ME-1602	104		65		137 +/- 3.0 ppm
CDN-ME-1407	107		66		245 +/- 6.0 ppm
CDN-ME-1505	104		66		370 +/- 8.5 ppm
SMO1-B-LP	26		27		90.33 +/- 5.94 ppm
SM01-M-LP	17		29		115 +/- 4.37 ppm
SM02-A-LP	19		22		149 +/- 6.45 ppm
SRM_Baja_LPOX_14	17		4		77.68 +/- 3.16 ppm
SRM_Baja_LPSU_14	23				111.69 +/- 7.98 ppm
SRM_Media_LPOX_14	26				129.32 +/- 3.76 ppm
SRM_Media_LPSU_14	71				184.24 +/- 8.37 ppm
SRM_Alta_LPOX_14	18				301.45 +/- 2.96
SRM_Alta_LPSU_14	51				490.5 +/- 14.2 ppm
Pulp Duplicates	54		48	102	
Coarse Duplicates	59		60	119	
Field Duplicates	104		96	200	
Total QC Samples	1,543		777	2,320	
<b>Check Assays</b>	<b>99</b>				

The performance of control samples analyzed by the First Majestic Central Laboratory and SGS Durango is considered acceptable despite some identified difficulties. Blanks generally returned values below ten times the detection limit, and standards performed reasonably, with assay results largely within two times the standard deviation of the certified or expected value. A number of failures were identified, however, improvement are being made by First Majestic Silver to increase the confidence in more recently acquired analytical quality control data.

An investigation of blanks assaying significantly above the warning limit indicate potential issues of contamination, as well as the possible swapping or mislabelling of blank material. The performance of blanks submitted to SGS Durango is notably better than that of the First Majestic Central Laboratory, where few blanks assayed above the warning limit. Although observations of potential contamination at the Central Laboratory are noted to occur less than five percent of the time, First Majestic Silver should closely monitor and investigate any failures of blanks to ensure that potential carry-over contamination during the sample preparation process is rectified immediately. First Majestic Silver should also consider sourcing certified blank material to include in their quality control program to increase confidence in analytical results.

CDN certified standards assayed at both the Central Laboratory and SGS Durango display some difficulty in assaying between two times the standard deviation of the expected value. Standards that assayed significantly outside of the range of two standard deviations can often be attributed to the mislabelling of other standards or of blanks, however, an overall general bias of standards assaying below the expected value or below two times the standard deviation is also frequently observed. The

same trend is slightly more pronounced in in-house reference material prepared by First Majestic Silver. SRK recommends these results be investigated further, as they can indicate relatively poor analytical accuracy and precision in the case of these reference materials.

Examination of paired assay data suggest that silver grades can be reasonably reproduced. As expected, the variance of field duplicates is higher than coarse reject duplicate pairs and pulp duplicate pairs, and the variance of coarse reject pairs is higher than pulp duplicate pairs. Half absolute relative difference (HARD) plots suggest that 87.5 percent (SGS Durango) and 74.1 percent (Central Laboratory) of pulp duplicate assay samples have HARD below 10 percent, indicating that the laboratories could reasonably reproduce the results, however, the First Majestic Central Laboratory had notably greater difficulty. Similarly, 70 percent (SGS Durango) and 76.3 percent (Central Laboratory) of coarse reject duplicate pairs are below 10 percent HARD, indicating moderate to reasonable reproducibility by the respective laboratories. HARD plots of field duplicates suggest that 55.2 percent (SGS Durango) and 57.7 percent (Central Laboratory) of pairs have HARD below 10 percent, indicating relatively poor to moderate correlation, however, this can likely be attributed to the heterogeneity of the deposit under investigation.

Although a number of failures have been identified, the analytical results delivered by the First Majestic Central Laboratory and by SGS Durango are considered sufficiently reliable for the purpose of mineral resource estimation. SRK understands First Majestic Silver is improving current methodologies for sampling and assaying procedures to increase confidence in analytical quality control data.

## 13 Mineral Processing and Metallurgical Testing

### 13.1 Background

The metallurgical processing plant at La Parrilla treats two types of material: oxide and sulphide ores. Oxide ore is the in-situ oxidation product of the sulphides and typically occur near surface. Sulphide ore is unaltered and tends to occur below the oxide material. Both ore types are polymetallic with silver as their principal economic component. The ores also contain significant amounts of lead and zinc, and minor amounts of gold. Oxide ore is processed by cyanide leaching to produce doré bars while sulphide ore is processed by differential flotation to produce a silver-rich lead concentrate and a zinc concentrate.

Grinding throughput in the flotation (sulphide) and cyanidation (oxide) circuits are typically 850 and 780 tpd, respectively (although both circuits have the capacity to process 1000 tpd following a plant expansion performed in March, 2012). Particle size (P80) in the flotation and cyanidation circuits are typically 120 and 108  $\mu$ m, respectively.

### 13.2 Metallurgical Testing

To determine the metallurgical performance of the different ore types that feed the plant, stope samples collected from mining faces as well as monthly plant composites are regularly sent for bench-scale testing to FM's Central Laboratory. There are no metallurgical reports issued by external commercial laboratories. Since 2015, all test work has been performed at the Central Laboratory. On a regular basis, the testwork results are internally circulated via email – no formal reports are available.

#### 13.2.1 Flotation

Table 18 shows a summary of the flotation test work results performed on monthly composites from 2015 to 2017.

**Table 18: Summary of flotation test work results on monthly composites (FMS 2017)**

Date	Head Grade			Concentrate Grade			Grind - 200M	Recovery (%)		
	Ag (g/t)	Pb (%)	Zn (%)	Ag (g/t)	Pb (%)	Zn (%)		Ag (%)	Pb (%)	Zn (%)
Feb 2015	202	1.2	5.1	6728	35	41	55	77	72	90
Mar 2015	180	1.3	4.8	5617	36	43	55	77	74	84
Apr 2015	181	1.8	5.0	5708	49	43	60	50	49	88
May 2015	203	1.5	4.3	4159	25	39	60	71	53	82
Jun 2015	162	1.4	2.4	3202	34	28	60	70	77	70
Jul 2015	156	1.5	2.7	3735	42	34	60	66	73	78
Aug 2015	165	1.9	3.0	4388	54	53	60	79	84	75
Sep 2015	178	1.3	2.7	3895	32	50	60	71	80	84
Oct 2015	156	1.8	2.7	2534	30	42	60	75	80	76
Nov 2015	189	2.6	2.4	2107	35	47	50	81	86	78
Dec 2015	156	2.0	2.9	2185	34	39	50	74	84	78
Jan 2016	163	2.1	2.5	2319	34	42	50	82	87	64
Feb 2016	166	1.4	2.6	3746	38	45	50	76	85	86
Mar 2016	162	1.4	3.0	5191	53	46	50	62	72	85
Apr 2016	153	1.3	2.2	4383	34	45	50	72	69	83
May 2016	168	1.3	3.3	4549	34	40	55	55	48	81
Jun 2016	176	1.8	1.6	3983	47	40	55	77	80	79
Jul 2016	163	1.5	1.7	3756	39	41	55	73	80	76
Aug 2016	200	1.5	1.3	6047	43	44	55	77	76	71
Sep 2016	153	1.4	1.3	5185	45	47	55	77	73	48
Oct 2016	162	1.4	1.2	4874	44	45	55	74	77	66
Nov 2016	147	1.2	1.0	5377	43	47	55	64	68	65
Dec 2016	136	1.4	0.9	4019	41	31	55	69	71	54
Jan 2017	142	1.3	1.0	5054	40	38	55	67	72	65
Feb 2017	136	1.3	1.0	4162	51	32	55	64	78	63
Mar 2017	145	1.3	1.0	4801	46	48	55	59	76	62
Apr 2017	135	1.2	1.0	4400	50	42	55	58	67	61
May 2017	134	1.7	1.3	4514	54	40	55	65	60	55
Jun 2017	133	1.7	1.3	4166	47	46	55	64	61	45
Jul 2017	134	1.5	1.2	3858	49	43	55	66	68	60
Aug 2017	139	1.8	1.5	3093	40	42	55	72	74	73
Sep 2017	122	1.2	1.1	4287	46	45	55	69	70	74
Oct 2017	118	1.5	1.6	3086	45	41	55	70	78	76

The flotation reagent scheme uses:

- Zinc sulphate (ZnSO<sub>4</sub>) and sodium cyanide (NaCN) 7:1 ratio in grinding circuit as zinc depressor
- Collector F-2200 and frother F-500 RC (Flottec) in the lead circuit feed
- Copper sulphate (CuSO<sub>4</sub>) as zinc (sphalerite) activator
- Collector F-1234 (Flottec) as zinc collector



### 13.2.2 Cyanidation

Table 19 shows a summary of cyanidation testwork results performed at FM Central Laboratory.

**Table 19: Summary of cyanidation testwork results on monthly composites (FMS 2017)**

Date	Head Grade	Processing Conditions			Recovery	
	Ag (g/t)	Grind - 200M	Solids (%)	NaCN (ppm)	Time (h)	Ag (%)
Jan 2015	113	60	43	1000	96	68
Feb 2015	110	60	43	1000	96	68
Mar 2015	164	60	43	1000	96	67
Apr 2015	143	60	43	1000	96	67
May 2015	125	60	43	1000	96	68
Jun 2015	109	60	43	1000	96	62
Jul 2015	108	65	43	1000	96	57
Aug 2015	96	65	43	1000	96	57
Sep 2015	92	65	43	1000	96	58
Oct 2015	201	60	43	1000	96	68
Nov 2015	106	60	43	1000	96	50
Dec 2015	94	60	43	1000	96	50
Jan 2016	113	60	43	1000	96	58
Feb 2016	116	60	43	1000	96	60
Mar 2016	98	60	43	1000	96	59
Apr 2016	110	60	43	1000	96	64
May 2016	103	60	43	1000	96	61
Jun 2016	125	60	43	1000	96	69
Jul 2016	105	60	43	1000	96	67
Aug 2016	134	60	43	1000	96	68
Sep 2016	127	60	43	1000	96	68
Oct 2016	124	60	43	1000	96	77
Nov 2016	116	60	43	1000	96	67
Dec 2016	116	60	43	1000	96	63
Jan 2017	135	60	43	1000	96	68
Feb 2017	151	60	43	1000	96	69
Mar 2017	140	60	43	1500	96	72
Apr 2017	127	60	43	1500	96	73
May 2017	120	60	43	1500	96	74
Jun 2017	170	60	43	1500	96	79
Jul 2017	140	60	43	1500	96	68
Aug 2017	120	60	43	1500	96	70
Sep 2017	117	60	43	1500	96	75
Oct 2017	122	60	43	1500	96	77

As in case of the flotation tests, all laboratory work has been performed on monthly composite samples. Test variables include, grind fineness (% passing 200 mesh) and sodium cyanide (NaCN) concentration. Processing conditions were chosen to replicate those used at the plant at the time the test was performed. The main variables that impact the recovery is the particle size and sodium cyanide concentration.

### 13.3 Mineralogy

Typical minerals in the ore include: Pb-bearing species associated with Pb-As oxides (mimetite), Pb-Zn-As oxides, Pb-Mn oxides, Pb-Zn-Mn oxides, Pb-Sb-Zn oxides, Pb-Fe-Sb oxides, Pb-Al-As oxides and galena (PbS) as the main Pb sulphide species. Silver mineral associations vary from simple molecular structures such as native silver and Ag<sub>2</sub>S (argentite, or silver sulphide) to complex sulphosalts such as freibergite ((Ag,Cu,Fe)<sub>12</sub>(Sb,As)<sub>4</sub>S<sub>13</sub>), or even embedded in the crystal lattice of tetrahedrite (Cu<sub>12</sub>Sb<sub>4</sub>S<sub>13</sub>). Zinc minerals occur as Zn sulphide (sphalerite), as silicates (willemite and hemimorphite), and as iron-zinc oxides (franklinite). Gangue minerals include pyrite, pyrrhotite and arsenopyrite (iron and iron-arsenic species), as well as non-sulphide gangue such as quartz, feldspar, calcite, Ca-Fe oxides and aluminum silicates of Ca-Mg. Table 20 shows a compilation of mineralogical studies performed to date.

**Table 20: Compilation of Mineralogical Studies (FMS 2017)**

Date	Test Facility	Testwork Performed
Apr 2011	Instituto de Metalurgia, UASLP	Sample ID 217 120 g/t Ag. Study identifies in this head sample silver species argentite. Lead minerals as Pb-As oxides (Mimetite), Pb- Sb oxides, Pb-Mn oxides. Zinc minerals as silicates (Willemite or Hemimorphite). For gangue species found are Feldspar, Quartz, iron oxide and Apatite.
Apr 2011	Instituto de Metalurgia, UASLP	Sample ID 217 180 g/t Ag. Study identifies in this head sample silver species as pyrargyrite, argentite and argentiferous galena. Lead minerals as Pb-As oxides, Pb-Zn-As oxides, Pb-Mn oxides, Pb-Zn-Mn oxides, Pb-Sb-Zn oxides, Pb-Fe-Sb oxides and Pb-Al-As oxides. Zinc minerals as silicates (Willemite or Hemimorphite) and iron/zinc oxides (Franklinite). For gangue species found are Quartz, Feldspar, iron oxide and iron silicates.
Aug 2011	Instituto de Metalurgia, UASLP	Sample ID 360. Study identifies in this head sample Pb species as galena, Zn species sphalerite, as well as pyrite and pyrrhotite and arsenopyrite. Non sulphide gangue as quartz, feldspar, chlorite, calcite and fluorite.
Mar 2012	Instituto de Metalurgia, UASLP	Sample ID 419 Q-25. This study of head sample identifies as Ag species Jamesonite and Tetrahedrite; galena is the main lead mineral, sphalerite was the main mineral for zinc; the specie for arsenic found is arsenopyrite, pyrite as iron Sulphur and non-Sulphur gange is quartz, calcite, calcium an iron silicates an potassium and sodium feldspar, fluorite as traces.
Feb 2013	CM5 Consultores Metalúrgicos	Sample ID LPCS 12 02 (oxide). The sample at -200 mesh. The mineral species contained in this sample are Quartz, Hematite, Goethite, Limonite, Anglesite, Willemite, Cerussite, Galena, Sphalerite, Memimorfite, Acanite, Argentite, Pyrargyrite, native silver, Kaolinite, Orthoclase and plagioclase.
Jul 2015	Instituto de Metalurgia, UASLP	Sample ID 218 for Quebradillas Open Pit. Few silver particles were found, those are as sulphides and associated with lead sulphides. The lead mineralization found are Pb-As oxides, Pb-Mn oxides and traces of lead vanadates. For zinc minerals as silicates (millemite and hemimorfite). There are many iron oxides and non-sulphides gangue are feldspar, clays and quarts with small quantities of calcite and jarosites.
Nov 2016	Instituto de Metalurgia, UASLP	Quarterly (Q3 2016) head sample from sulphide circuit. Ag species freibergite and tetrahedrite, galena, sphalerite, pyrite and arsenopyrite for iron and iron-arsenic species and non-sulphide gange as quarts, calcite, Ca-fe oxides and aluminum silicates of Ca-Mg.

### 13.4 Comparison of Plant and Laboratory Data on Monthly Composite Samples

Composites samples representing one month of plant feed are collected and then sent to the Central Laboratory. One objective is to determine the relationship between the metallurgical performance at the laboratory and at the full-scale operation using a set of typical (standard) plant conditions. The second objective is to forecast the plant metallurgical response of future ore types. Metallurgical performance data obtained after the cutoff date for Resources and Reserves estimates is not materially different from the assumptions incorporated in the NSR, cutoff values and cutoff grades estimates, therefore it is included in this report as reference of performance.

#### 13.4.1 Flotation

Figure 26, Figure 27 and Figure 28 show laboratory-plant comparisons of flotation metallurgical recoveries in terms of Ag, Pb and Zn, respectively. This data covers the period between 2015 and 2017.

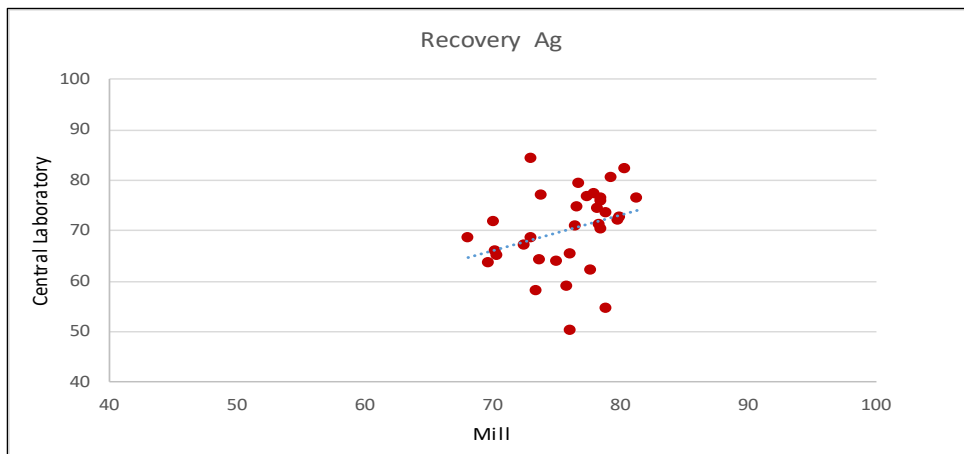


Figure 26: Comparison between laboratory and plant: Ag (FMS 2017)

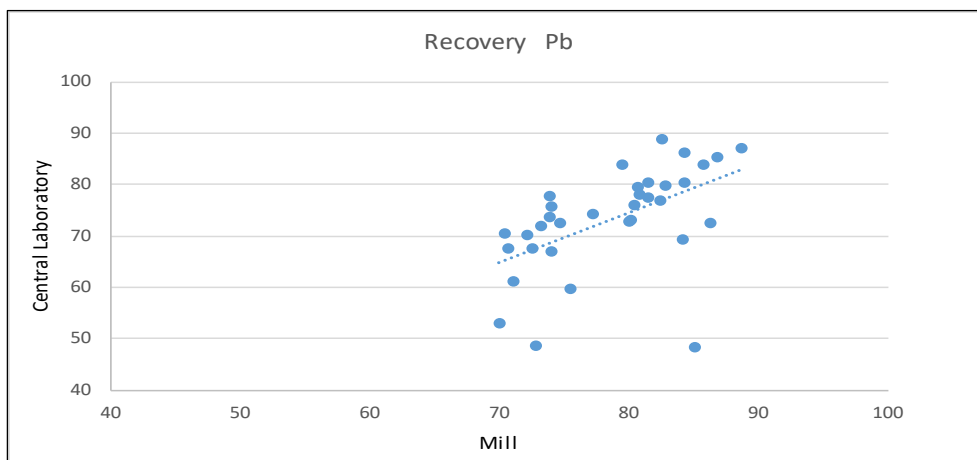
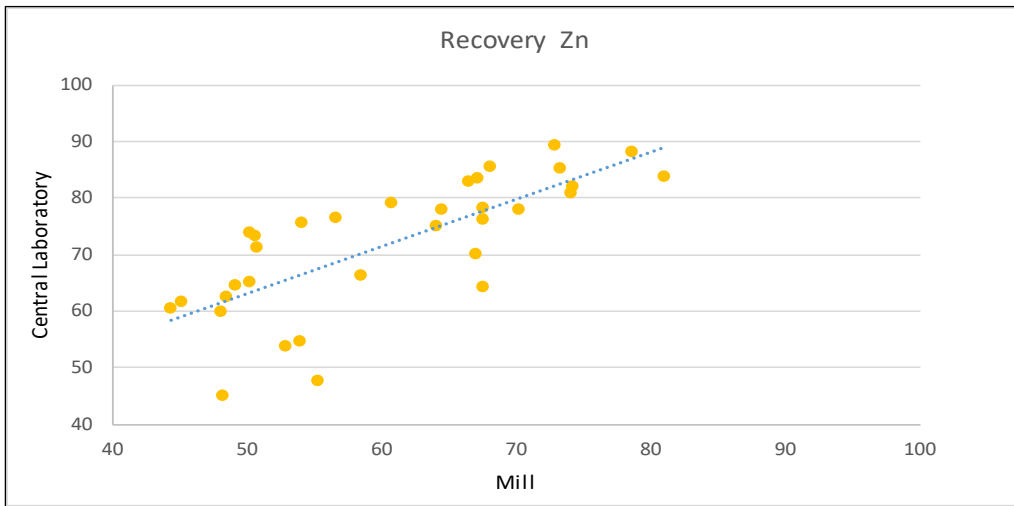


Figure 27: Comparison between laboratory and plant: Pb (FMS 2017)

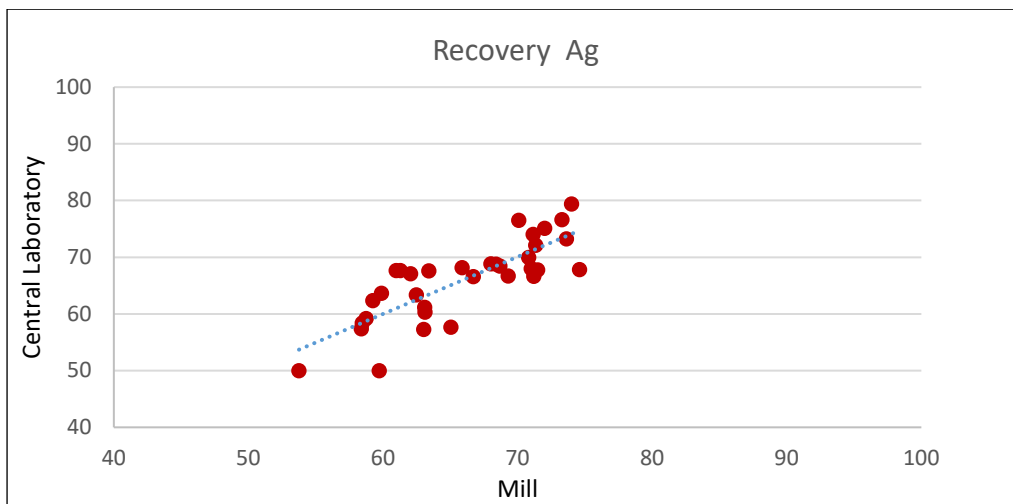


**Figure 28: Comparison between laboratory and plant: Zn (FMS 2017)**

Although the Ag and Pb data appear to be somewhat scattered, it can be observed that, in general, the plant recovers slightly more metal than the laboratory. The comparison in terms of Zn, on the other hand, shows a more consistent relationship between the plant and the laboratory results. Furthermore, the data indicates that Zn recovery in the laboratory is significantly higher than the plant (approximately 10%). This suggests a significant opportunity to improve Zn recovery, as the hydrodynamic conditions (bubble size, energy dissipation, etc.) prevailing in the plant flotation cells might be inferior compared to those observed in the more intense and controlled conditions of a laboratory cell.

### 13.4.2 Cyanidation

Figure 29 shows a comparison of cyanidation metallurgical recoveries between laboratory and plant results based on monthly composites. The data shows that the laboratory results reasonably matches the plant data, therefore, no correction is required (the difference is approximately 3%). This data covers the period between 2015 and 2017.



**Figure 29: Comparison between laboratory and plant Ag recoveries (FMS 2017)**

### 13.5 Grindability

Since February 2014, monthly and quarterly samples are sent to Central Laboratory to perform grindability tests by means of the Bond Ball Mill Work Index method (BWi). To date, BWi grindability tests have been conducted on more than 30 monthly composites and more than 90 stope samples. The results are given in Figure 30 and Figure 31. This data covers the period between 2015 and 2017.

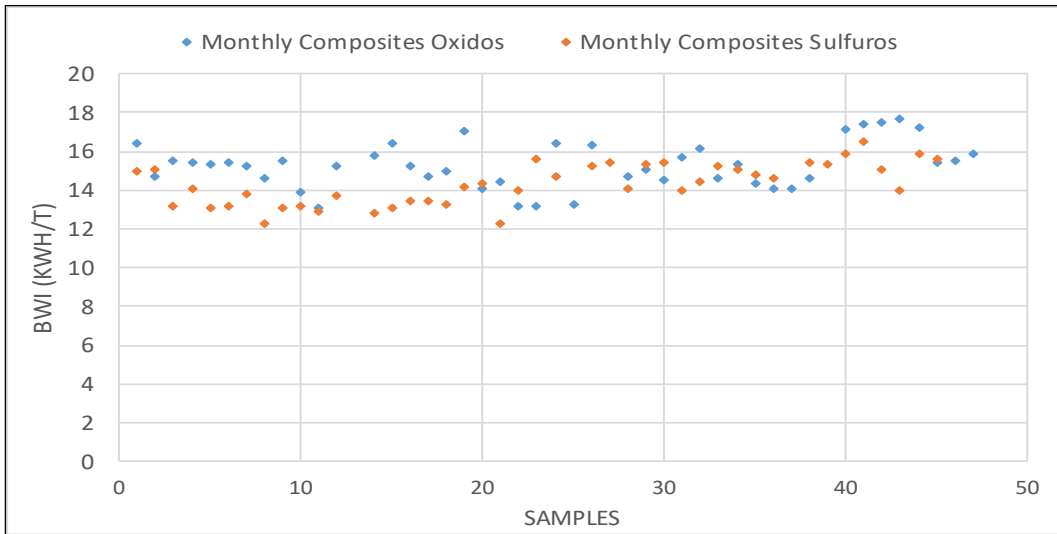


Figure 30: Bond Ball Work Index Data on Monthly Composites (FMS 2017)

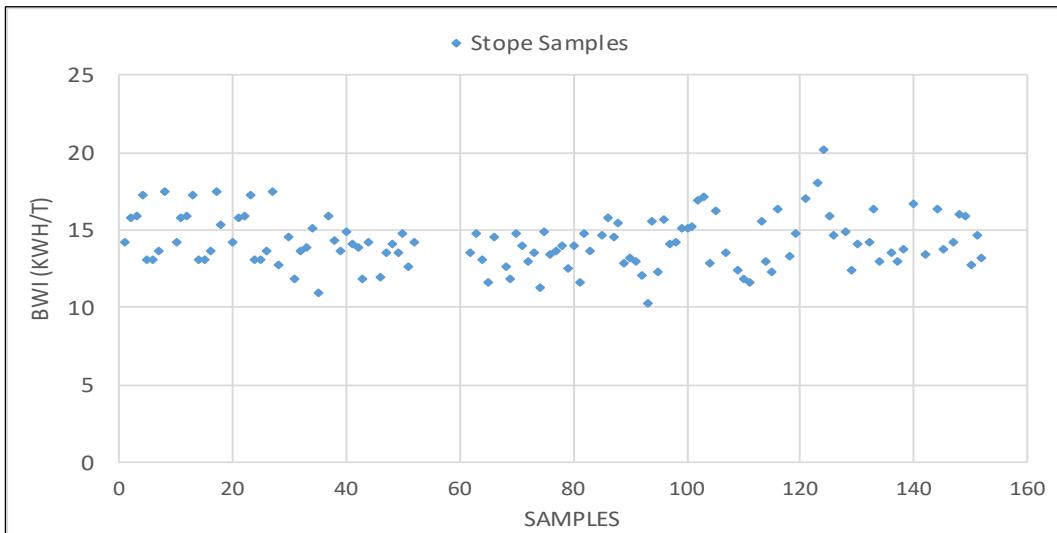


Figure 31: Bond Grindability Data on Stope Samples (FMS 2017)

The data shows that monthly composites for oxide ore are in general harder than the sulphide ore. The BWi for the oxide samples vary from 12.1 to 17.7 kWh/t with an average of 15.3 kWh/t, whereas the BWi for the sulphides vary from 12.3 to 16.5 kWh/t with an average of 14.3 kWh/t.

The data on stope samples show high hardness variation: from approximately 10 to 20 kWh/t with an average of 14 kWh/t, possibly reflecting an inherent sample collection inconsistency. Therefore, metallurgical interpretation usually relies on the monthly composites (plant feed) as they are considered more representative than the stope samples which are collected from the mining faces.

## 13.6 Forecasting Metallurgical Performance

### 13.6.1 Flotation Head Grades

Since January 2015, the head grades in the flotation (sulphide) circuit ore show a downward trend in terms of silver and zinc content (Figure 32), while lead grades seem to be stable at around 1%. Throughout 2015 and the first half of 2016, silver grades were in the 150 g/t to 170 g/t range, dropping to approximately 130 g/t by the end of 2016.

Zinc grades show a similar trend to that of silver. In early 2015, zinc head grade was above 4%, was above 2% for the rest of 2015 and the first half of 2016, and dropped to roughly 1.3% by the end of 2017.

This data covers the period between 2015 and 2017.

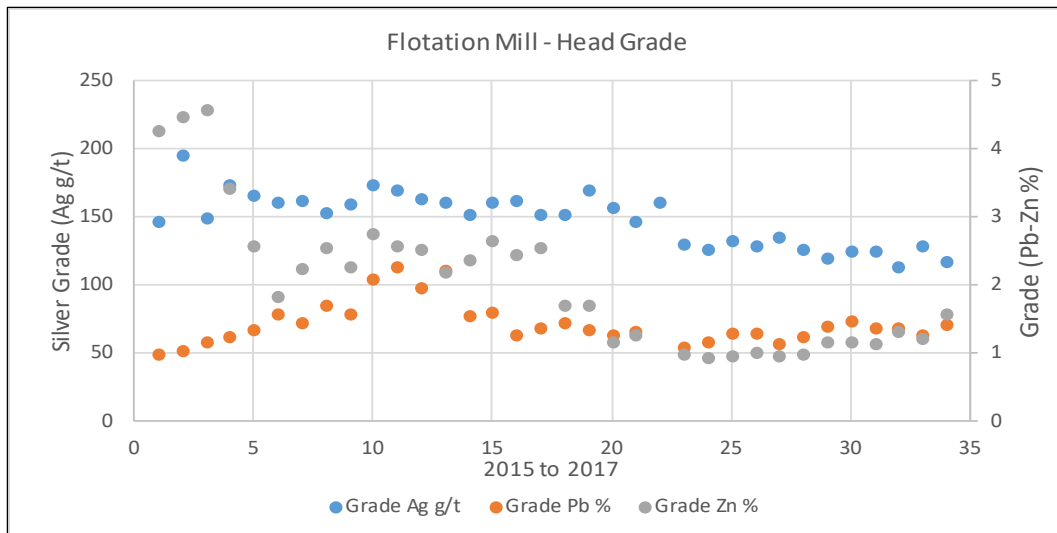


Figure 32: Flotation Circuit Head Grades from 2015 to 2017 (FMS 2017)

### 13.6.2 Flotation Recoveries

Ag and Pb metallurgical recoveries to the Pb concentrate in terms of head grade are shown in Figure 33 and Figure 34 respectively. Figure 35 shows the recovery of Zn as a function of head grade. The data include month-end reconciled metallurgical data for the plant, as well as laboratory recoveries from monthly composite and “geomet” (stope) samples. This data covers the period between 2015 and 2017.

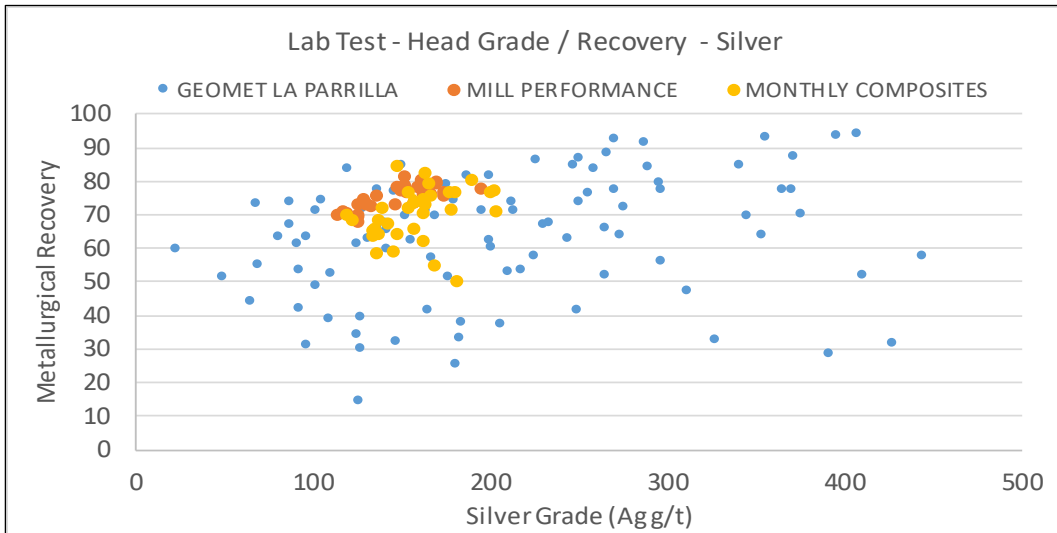


Figure 33: Ag Recovery in Terms of Head Grade (FMS 2017)

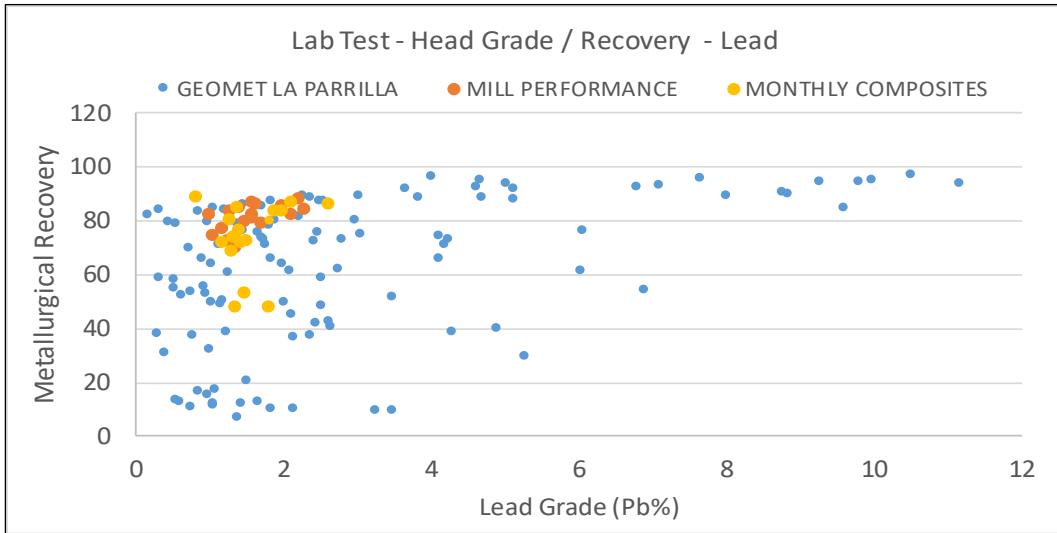
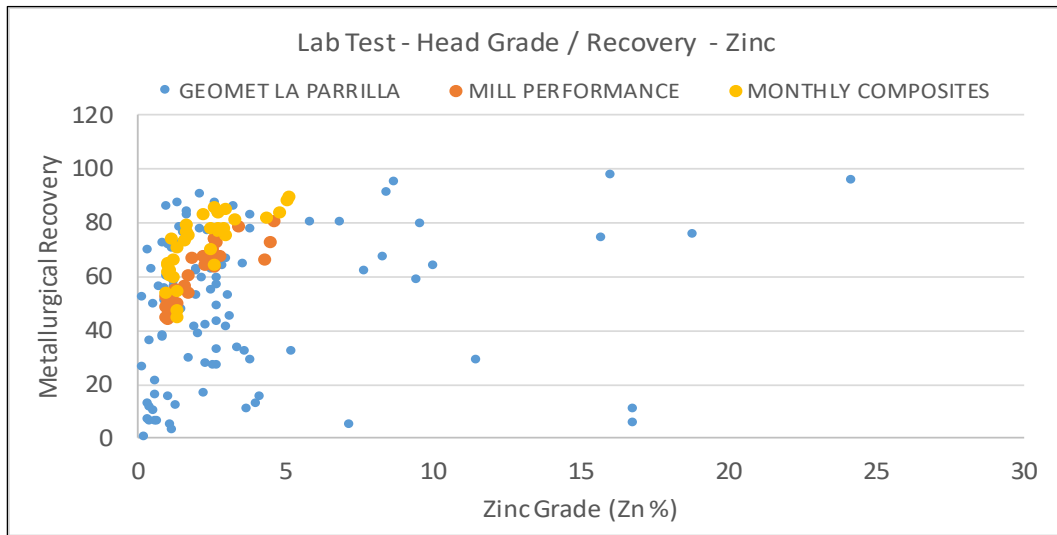


Figure 34: Pb Recovery in Terms of Head Grade (FMS 2017)



**Figure 35: Zn Recovery in Terms of Head Grade (FMS 2017)**

Department of silver to lead concentrate shows major variations over the 34-month evaluation period. Silver recovery ranged from 68% to 81%. Similarly, the department of lead to the lead concentrate varied significantly over the same period. Recovery of lead ranged from a low of 70% to a maximum of approximately 89%.

Recovery of zinc to lead concentrate ranged from approximately 2.7% up to approximately 9.9% with an overall upward trend in the first half of 2016. Note that zinc in the lead concentrate is not a payable metal and is typically considered an impurity by smelters and may be subject to penalties. Zinc recovery in the plant ranged from a low of 41% to a maximum of approximately 81%.

Department of silver to zinc concentrate shows major variation over the 34-month evaluation period, as shown in Figure 14.0. In early 2015, silver recovery ranged between 8% and 16%, with a low of 6% in mid-2016 before returning to the 8 to 9% range at the end of 2016. Zinc recovery to zinc concentrate shows a downward trend, similar to declining head grades. Zinc recoveries peaked at 81% in early 2015, stabilized in the 65–75% range for the remainder of 2015 and second half of 2017, and then declined to the 44–56% range.

A constant gold recovery at 80% is assumed at La Parrilla as gold is not assayed in the fresh feed stream as its concentration is typically marginal. Also, gold or lead recoveries to the zinc concentrate are not tracked at La Parrilla as neither is a payable metal.

### 13.6.3 Cyanidation Recoveries

The head grades from oxide ore sources at the cyanidation circuit have been reasonably stable over the 34-month evaluation period. From January 2015 to October 2017, silver head grades varied between 100 g/t and 140 g/t (Figure 36). The gold head grades were relatively low, ranging from approximately 0.06 g/t to 0.14 g/t (Figure 37). A general ratio of silver-to-gold ratio of 1,000 was observed during the evaluation period. This data covers the period between 2015 and 2017.



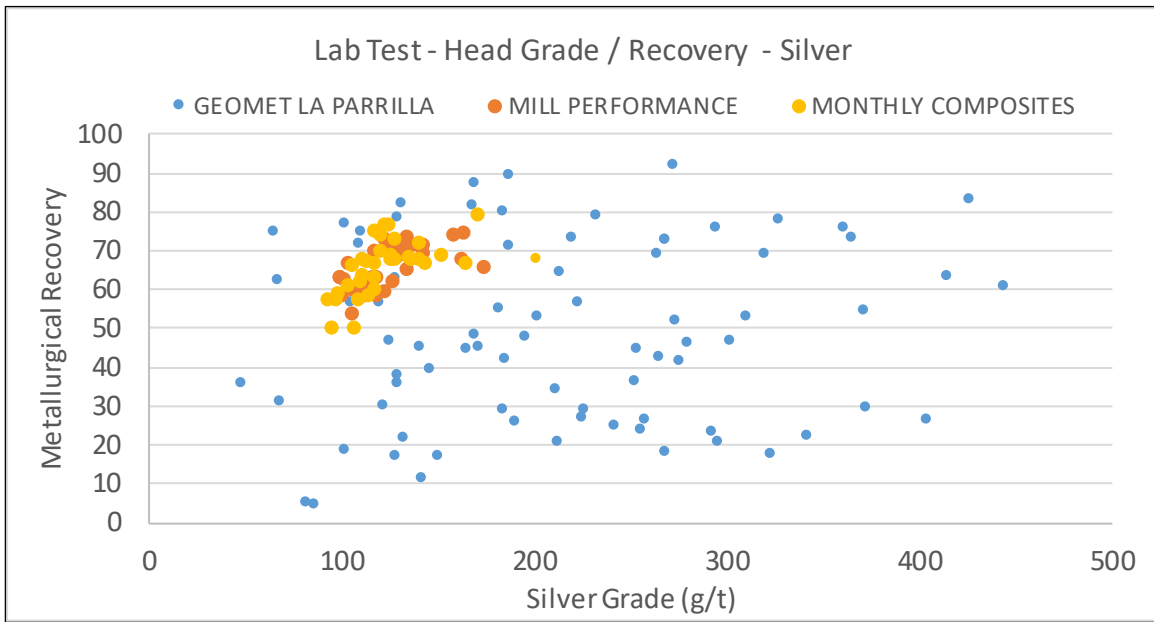


Figure 36: Ag Recovery in Terms of Head Grade (FMS 2017)

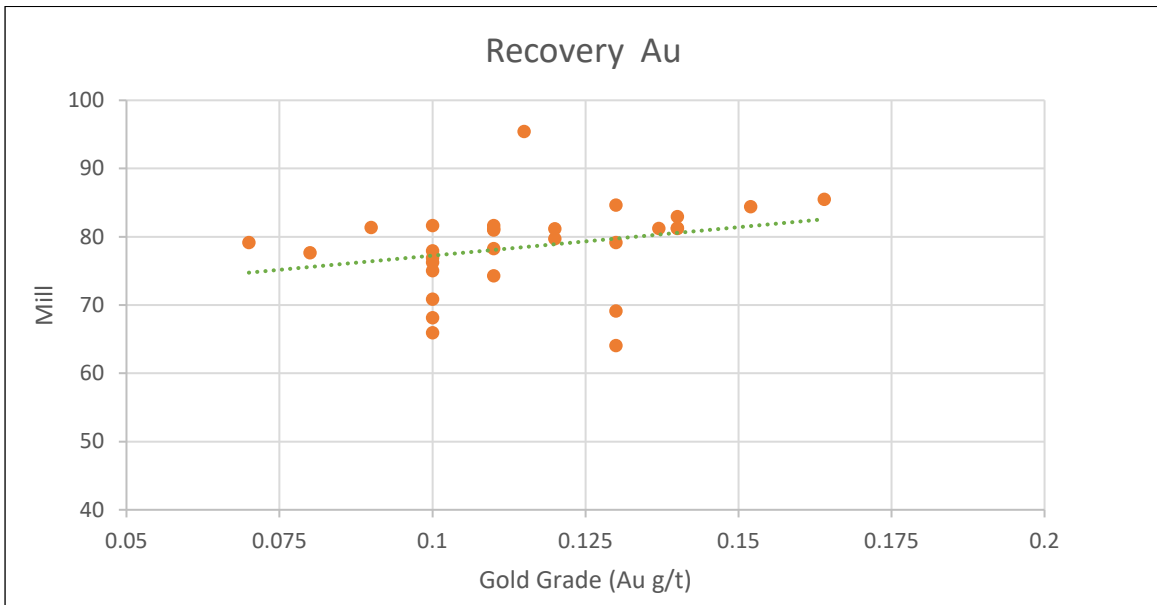


Figure 37: Gold Recovery (FMS 2017)

The data shows that silver recovery at the plant increases with increasing head grade, and varied in the 54% to 75% range during the evaluation period. Gold metallurgical performance also shows a tendency of increasing recovery with increasing head grade, and varied in the 64% to 95% range during the evaluation period.

## 13.7 Deleterious Elements

### 13.7.1 Flotation

Sales of concentrates are carried on a 12-months basis and some amendments for their validity have occurred a couple of times given the interests of both parties, seller and buyer. As for zinc concentrate, payable elements include Ag and Zn and since 2015 the returnable values have been the same according to the market standards. Although La Parrilla regularly commercializes its flotation concentrates, it has incurred penalties in the past due to As, Cd, Fe, SiO<sub>2</sub>, Cl and F contained the concentrates, particularly since 2015.

### 13.7.2 Cyanidation

There are no known deleterious elements in the doré produced at La Parrilla. Since 2013 and under current agreements with the smelter, there has been no penalty incurred that related to deleterious elements that would increase smelting and refining costs.

## 13.8 Metallurgical Research

Current metallurgical research focuses on:

- Cyanidation of flotation tails to increase overall Ag recovery
- Implementation of flotation tank cell technology to improve metallurgical recoveries, particularly Zn as Figure 35 suggests that Zn recovery could increase at least by 10%
- Improve flotation recoveries and concentrates grades through the implementation of microbubble flotation technologies
- Modernization studies of the crushing and grinding circuit to reduce energy consumption, production costs and improve metallurgical recoveries through finer particle size (improved mineral liberation)
- Implementation of ultra-fine grinding to significantly improve the quality of the flotation concentrates

# 14 Mineral Resource Estimates

## 14.1 Introduction

This Technical Report for the La Parrilla Silver Mine represents the first reporting of a mineral resource for this property estimated from a modern three-dimensional block model that was developed using advanced geostatistics, variography, and advanced software applications such as Leapfrog<sup>®</sup> and Datamine Studio RM<sup>®</sup>. All previously published mineral resource estimates were estimated using two-dimensional polygonal estimation methods.

As the process of transitioning all known mineral resources from polygonal estimates to block model estimates will take a number of years to complete, this report represents a transitional period where a number of the mineral resources have been estimated using block modelling techniques, but many of the smaller mineral resources have not yet been converted. Therefore, this report includes mineral resources based on both block model estimates and polygonal estimates. Section 14.1 discusses the mineral resources based on block model estimates and Section 14.2 discusses the mineral resources based on polygonal estimates. Section 14.4 presents a consolidated Mineral Resource Statement with an effective date of December 31, 2016.

Table 21 shows the mineral resource estimation method used by deposit. The Qualified Person (QP) taken responsibility for all mineral resources estimated by block modelling methods is Mr. Sébastien Bernier, PGeo (APGO #1847), a Principal Consultant (Resource Geology) with SRK Consulting (Canada) Inc. The Qualified Person (QP) taken responsibility for all mineral resources estimated by polygonal estimation methods is Mr. Jesús M. Velador Beltrán, MMSA (MMSA #01470QP), FMS QP for geology.

**Table 21: Mineral resource estimation method by deposit**

Deposit	Estimation Method	
	Block Model	Polygonal
Rosarios-Intermedia	X	
San Marcos	X	
Quebradillas		X
San Nicolas		X

## 14.2 Block Model Estimation

The resource estimation work for San Marcos and Rosarios-Intermedia was completed by Mr. Dominic Chartier, PGeo (APGO #2775) and Mr. Sébastien Bernier, PGeo (APGO #1847), who are appropriate independent Qualified Persons as defined in National Instrument 43-101.

In the opinion of SRK, the block model based resource evaluation reported herein is a reasonable representation of the global silver, lead, zinc, and gold mineral resources found in the La Parrilla mine at the current level of sampling. The mineral resources have been estimated to be in conformity with CIM’s generally accepted CIM Definition Standards for Mineral Resources & Mineral Reserves (May, 2014) and they are reported in accordance with the Canadian Securities Administrators’ National Instrument 43-101. Mineral resources are not mineral reserves and have not demonstrated

economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

Copper was also estimated to help with metallurgical recoveries while estimation of iron was required for the specific gravity equation.

The database used to estimate mineral resources at La Parrilla was audited by SRK. SRK is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for the vein mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

Leapfrog Geo 4.0 was used to construct the three-dimensional geological solids. Datamine Studio RM was used to prepare assay data for geostatistical analysis, construct the block model, estimate metal grades, and tabulate mineral resources. The Geostatistical Software Library (GSLib) family of software was used for geostatistical analysis and variography.

### 14.2.1 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification
- Construction of wireframe models for the boundaries of vein mineralization
- Definition of resource domains
- Data conditioning (compositing and capping) for geostatistical analysis and variography
- Block modelling and grade interpolation
- Resource classification and validation
- Assessment of “reasonable prospects for eventual economic extraction” and selection of appropriate cut-off grades
- Preparation of the Mineral Resource Statement

### 14.2.2 Resource Database

The La Parrilla database considered by SRK includes only the drilling data for San Marcos and Rosarios-Intermedia as of December 31, 2016. The database comprises 79 core drillholes for San Marcos (13,883 metres) and 238 for Rosarios-Intermedia (51,020 metres). Limited underground chip samples were also considered locally to adjust the geological wireframes but were not considered for the mineral resource estimation.

The exploration drilling data was received as a set CSV-format tables; these included header, survey (directional survey data), lithology, and assay data. The data was imported into Leapfrog Geo™ and Datamine Studio RM database for plotting, modelling, and validation. Validation tools were used to check for gaps in information, overlapping records, and data beyond the end of drillholes. Some minor errors were found but were corrected by FMS prior to the geological modelling and mineral resource evaluation. The database includes 343 survey records and 11,216 assay records.

Based on observations during the site visit and the review of the drilling database, SRK is satisfied that the exploration and infill drilling work carried out at La Parrilla mine by FMS has been conducted in a manner consistent with generally recognized industry best practices and that the drilling data is sufficiently reliable for supporting a mineral resource evaluation.

### 14.2.3 Geological Modelling

The mineralized veins of the San Marcos and Rosarios-Intermedia deposits were constructed by FMS as geological models in Leapfrog Geo™, and reviewed and edited by SRK. The individual veins were built as explicit wireframes using interval selection of assay data. Extents were modified for resource purposes to reflect drilling and underground working extents. The modelled veins are shown in Figure 38. The domains were not modelled as grade interpolants.

Weathering profiles were modelled by FMS as surfaces based on data collected from underground mining activities.

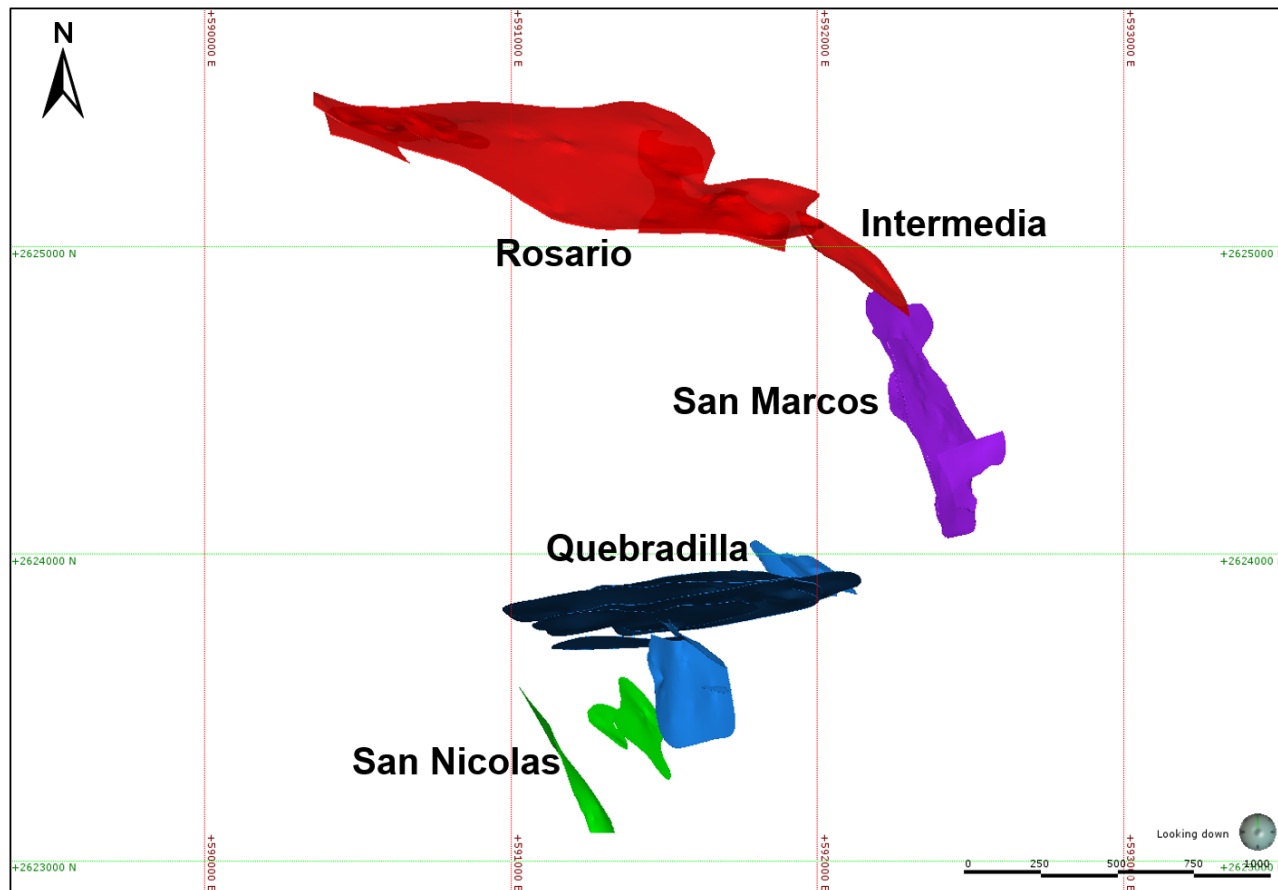
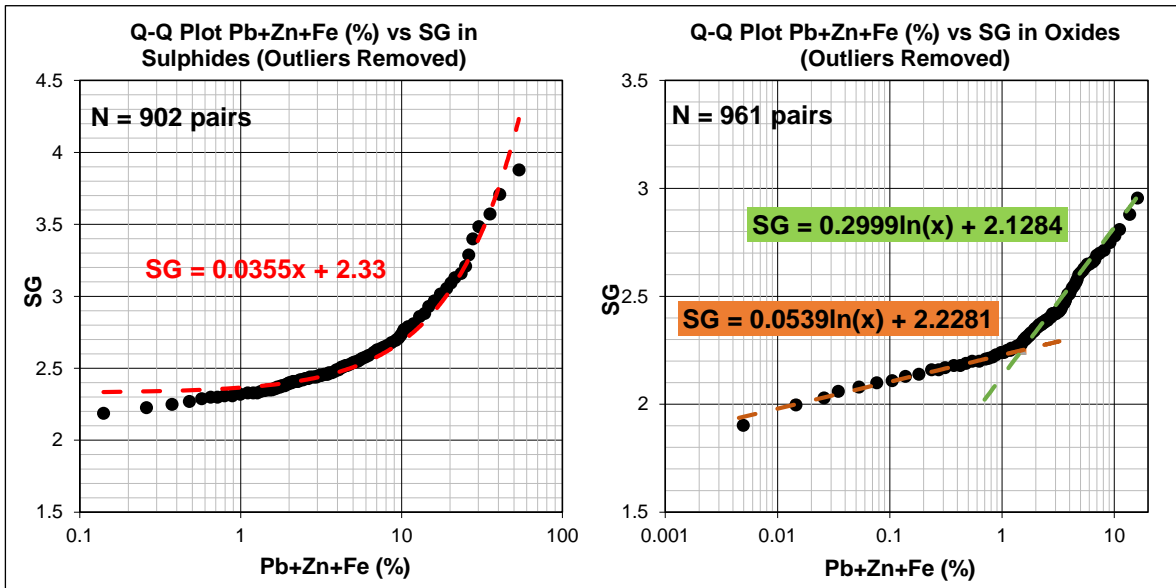


Figure 38: La Parrilla Mine – Vein wireframes (SRK 2017)

### 14.2.4 Specific Gravity Database

Specific gravity was measured at the mine laboratory using a standard weight in water/weight in air methodology on core. A total of 902 specific gravity measurements were taken in sulphide zones, and an additional 961 measurements were taken in oxide zones. There is a strong bilinear relationship between lead, zinc, and iron content and density within the domains. Figure 39 shows the relationship of lead, zinc, and iron content with specific gravity measurements on semi-log quantile-quantile plots. Formulas were derived to estimate block density based on lead, zinc, and iron content:

- In sulphide material:  $SG = 0.0355(Pb+Zn+Fe [\%]) + 2.33$
- In oxide material if lead, zinc, and iron content is:
  - less than 1.5 percent:  $SG=0.0539 \cdot \ln(Pb+Zn+Fe [\%]) + 2.2281$ ; or
  - greater or equal than 1.5 percent:  $SG=0.2999 \cdot \ln(Pb+Zn+Fe [\%]) + 2.1284$



**Figure 39: Relationship between lead, zinc, iron, and specific gravity (SRK 2017)**  
 Left: Quantile-quantile plot in sulphides with linear regression.  
 Right: Quantile-quantile plot in oxides with two log normal regressions around 1.5% Pb+Zn+Fe.

### 14.2.5 Compositing and Capping

Drillhole assay data for silver, lead, zinc, and gold for the different veins of each deposit were extracted individually and examined for determination of an appropriate composite length. Considering the relative thickness variation of the veins and the current mining approach of extracting the entire vein, all assays were composited to a single intersection per drillhole per vein, honouring the boundary of the vein.

The impact of grade outliers was examined on composite data for each element using log probability plots and cumulative statistics, but also considered the three-dimensional location of the potential outlier values. Basic statistics for silver, lead, zinc, and gold assays, composites, and capped composites are summarized in Table 22 to Table 27 (Figure 40, using silver in Vein 100 at San Marcos as an example).

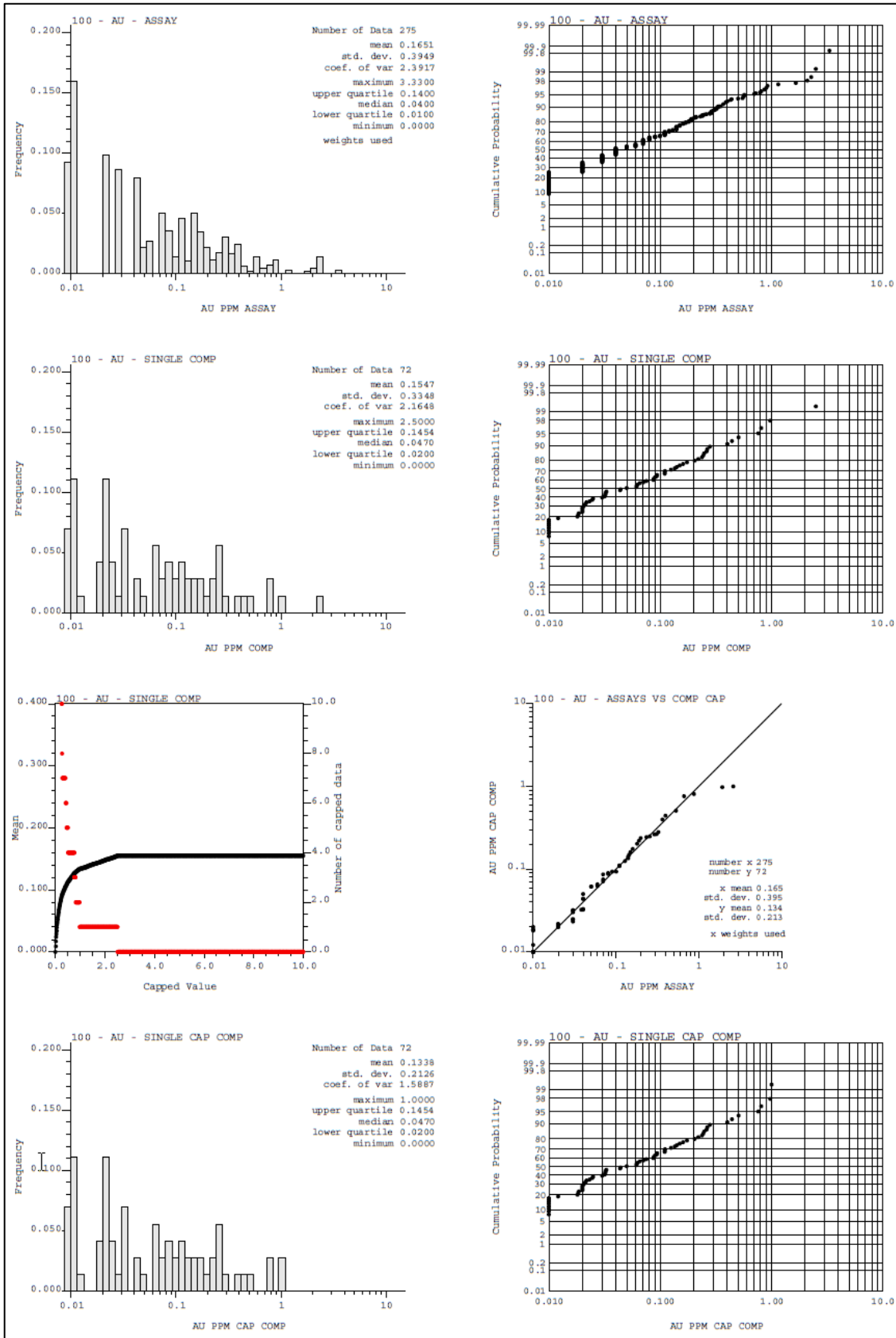


Figure 40: San Marcos Vein 100 – Summary of basic statistics for silver (SRK 2017)

**Table 22: Basic statistics – San Marcos assays (SRK 2017)**

Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
100	Ag	275	0.05	2,200.00	210.92	344.64	1.63
200	Ag	124	0.05	907.00	125.86	167.97	1.33
210	Ag	15	5.70	94.40	43.90	26.25	0.59
300	Ag	90	0.05	667.00	49.48	92.59	1.87
310	Ag	14	0.05	179.00	44.12	55.45	1.25
400	Ag	17	9.20	1,432.00	288.55	379.43	1.31
100	Au	275	0.00	3.33	0.17	0.39	2.39
200	Au	124	0.00	0.78	0.11	0.16	1.46
210	Au	15	0.00	1.16	0.18	0.37	1.95
300	Au	90	0.00	2.50	0.05	0.24	4.33
310	Au	14	0.00	1.79	0.15	0.45	3.00
400	Au	17	0.00	0.92	0.15	0.25	1.62
100	Cu	275	0.50	3,380.00	140.28	296.79	2.11
200	Cu	124	0.50	690.00	78.09	100.28	1.28
210	Cu	15	11.00	171.00	45.93	45.86	0.99
300	Cu	90	0.50	849.00	44.01	92.09	2.09
310	Cu	14	0.50	105.00	21.22	18.92	0.89
400	Cu	17	5.00	890.00	144.35	241.70	1.67
100	Pb	275	2.00	101,000.00	3,417.91	9,238.68	2.70
200	Pb	124	2.00	21,500.00	2,107.79	2,799.80	1.32
210	Pb	15	5.00	14,600.00	2,654.11	3,845.17	1.44
300	Pb	90	2.00	6,000.00	642.99	1,146.04	1.78
310	Pb	14	2.00	841.00	158.85	261.38	1.64
400	Pb	17	510.00	99700.00	10,108.73	21,186.58	2.0959
100	Zn	275	2.50	39,700.00	1,871.29	4,329.91	2.31
200	Zn	124	2.50	39,700.00	1,760.76	3,627.37	2.06
210	Zn	15	66.00	8,904.00	1,526.36	2,664.91	1.74
300	Zn	90	2.50	14,900.00	574.63	1,418.06	2.46
310	Zn	14	2.50	730.00	246.64	244.65	0.99
400	Zn	17	90.00	43,500.00	5,101.58	9,273.96	1.81



**Table 23: Basic statistics – San Marcos composites (SRK 2017)**

Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
100	Ag	72	0.05	877.21	181.75	167.45	0.92
200	Ag	58	0.05	612.20	104.22	117.20	1.12
210	Ag	11	5.70	80.85	41.64	21.47	0.51
300	Ag	51	0.05	474.20	60.93	93.89	1.54
310	Ag	9	0.05	106.00	38.65	43.60	1.12
400	Ag	9	35.70	782.00	312.81	256.31	0.81
100	Au	72	0.00	2.50	0.15	0.33	2.16
200	Au	58	0.00	0.58	0.08	0.11	1.35
210	Au	11	0.00	1.16	0.15	0.32	2.10
300	Au	51	0.00	2.50	0.09	0.36	3.88
310	Au	9	0.00	1.25	0.16	0.38	2.36
400	Au	9	0.00	0.49	0.08	0.14	1.67
100	Cu	72	0.50	1,239.00	129.52	176.85	1.36
200	Cu	58	0.50	242.50	68.95	65.56	0.95
210	Cu	11	19.00	90.08	40.00	21.13	0.52
300	Cu	51	0.50	849.00	53.92	123.00	2.28
310	Cu	9	0.50	50.30	20.15	15.46	0.76
400	Cu	9	28.50	720.00	160.22	208.56	1.30
100	Pb	72	2.00	24,502.66	2,723.10	4,459.49	1.63
200	Pb	58	2.00	12,504.79	1,964.59	2,653.18	1.35
210	Pb	11	5.00	6,051.36	1,610.98	2,112.87	1.31
300	Pb	51	2.00	4,650.00	750.68	1,058.69	1.41
310	Pb	9	2.00	770.00	197.53	232.45	1.17
400	Pb	9	552.79	99,700.00	15,215.91	30,192.75	1.98
100	Zn	72	2.50	20,372.33	1,727.01	3,132.30	1.81
200	Zn	58	2.50	39,700.00	1,881.22	5,223.04	2.77
210	Zn	11	90.00	6,769.22	880.42	1,876.30	2.13
300	Zn	51	2.50	14,900.00	815.51	2,114.46	2.59
310	Zn	9	2.50	579.13	269.48	218.03	0.80
400	Zn	9	137.00	43,500.00	7,002.78	13,104.71	1.87

**Table 24: Basic statistics – San Marcos capped composites (SRK 2017)**

Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation	Capped Count
100	Ag	72	0.05	877.21	181.75	167.45	0.92	-
200	Ag	58	0.05	355.00	99.78	101.74	1.01	1
210	Ag	11	5.70	80.85	41.64	21.47	0.51	-
300	Ag	51	0.05	474.20	60.93	93.89	1.54	-
310	Ag	9	0.05	106.00	38.65	43.60	1.12	-
400	Ag	9	35.70	782.00	312.81	256.31	0.81	-
100	Au	72	0.00	1.00	0.13	0.21	1.58	1
200	Au	58	0.00	0.27	0.07	0.08	1.12	3
210	Au	11	0.00	1.16	0.15	0.32	2.10	-
300	Au	51	0.00	0.20	0.03	0.05	1.61	2
310	Au	9	0.00	1.25	0.16	0.38	2.36	-
400	Au	9	0.00	0.49	0.08	0.14	1.67	-
100	Cu	72	0.50	1,239.00	129.52	176.85	1.36	-
200	Cu	58	0.50	242.50	68.95	65.56	0.95	-
210	Cu	11	19.00	90.08	40.00	21.13	0.52	-
300	Cu	51	0.50	93.00	33.99	31.74	0.93	3
310	Cu	9	0.50	50.30	20.15	15.46	0.76	-
400	Cu	9	28.50	720.00	160.22	208.56	1.30	-
100	Pb	72	2.00	9,700.00	2,234.13	2,624.97	1.17	3
200	Pb	58	2.00	12,504.79	1,964.59	2,653.18	1.35	-
210	Pb	11	5.00	6,051.36	1,610.98	2,112.87	1.31	-
300	Pb	51	2.00	4,650.00	750.68	1,058.69	1.41	-
310	Pb	9	2.00	770.00	197.53	232.45	1.17	-
400	Pb	9	552.79	12,900.00	5,571.46	5,110.86	0.91	1
100	Zn	72	2.50	20,372.33	1,727.01	3,132.30	1.81	-
200	Zn	58	2.50	2,040.00	947.71	696.72	0.73	9
210	Zn	11	90.00	960.00	352.30	299.40	0.84	1
300	Zn	51	2.50	2,040.00	533.35	641.65	1.20	2
310	Zn	9	2.50	579.13	269.48	218.03	0.80	-
400	Zn	9	137.00	43,500.00	7,002.78	13,104.71	1.87	-

**Table 25: Basic statistics – Rosarios-Intermedia assays (SRK 2017)**

Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
100	Ag	555	0.05	3,421.30	138.43	341.60	2.46
200	Ag	188	0.05	1,035.70	63.72	128.85	2.02
300	Ag	6	34.00	622.00	295.38	194.74	0.65
340	Ag	55	0.05	450.30	71.59	88.75	1.23
1100	Ag	174	0.05	1,779.50	128.17	259.51	2.02
100	Au	555	0.00	1.54	0.07	0.14	1.80
200	Au	188	0.00	1.65	0.04	0.13	3.08
300	Au	6	0.00	0.00	0.00	0.00	undefined
340	Au	55	0.00	0.87	0.14	0.23	1.63
1100	Au	174	0.00	1.48	0.09	0.20	2.14
100	Cu	555	0.50	4,600.00	152.51	364.56	2.39
200	Cu	188	0.50	7,387.00	189.44	658.27	3.47
300	Cu	6	0.50	0.50	0.50	0.00	0.00
340	Cu	55	0.50	990.00	265.39	284.14	1.07
1100	Cu	174	0.50	5,368.00	114.99	315.11	2.74
100	Pb	555	2.00	263,000.00	7,813.94	20,334.33	2.60
200	Pb	188	2.00	175,400.00	5,698.43	19,213.61	3.37
300	Pb	6	2,530.00	81,000.00	31,364.28	23,339.26	0.74
340	Pb	55	2.00	90,800.00	18,013.49	21,010.93	1.16
1100	Pb	174	2.00	110,600.00	3,986.31	10,601.24	2.65
100	Zn	555	2.50	143,800.00	4,648.89	11,192.91	2.40
200	Zn	188	2.50	75,400.00	2,694.39	7,848.36	2.91
300	Zn	6	3,020.00	44,000.00	19,906.66	15,043.48	0.75
340	Zn	55	2.50	65,400.00	10,397.75	16,295.83	1.56
1100	Zn	174	2.50	152,900.00	7,861.20	19,785.83	2.51

**Table 26: Basic statistics – Rosarios-Intermedia composites (SRK 2017)**

Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
100	Ag	134	0.05	2,408.75	138.36	275.55	1.99
200	Ag	57	0.05	426.80	66.86	102.31	1.53
300	Ag	3	135.80	459.00	339.93	145.00	0.42
340	Ag	12	0.05	107.95	54.27	39.83	0.73
1100	Ag	30	0.05	670.27	145.61	153.98	1.05
100	Au	134	0.00	0.46	0.07	0.09	1.25
200	Au	57	0.00	0.32	0.04	0.07	1.66
300	Au	3	0.00	0.00	0.00	0.00	undefined
340	Au	12	0.00	0.55	0.13	0.18	1.31
1100	Au	30	0.00	0.38	0.09	0.10	1.06
100	Cu	134	0.50	1,139.47	155.58	233.76	1.50
200	Cu	57	0.50	1,610.00	149.11	317.91	2.13
300	Cu	3	0.50	0.50	0.50	0.00	0.00
340	Cu	12	0.50	723.83	207.35	209.97	1.01
1100	Cu	30	0.50	657.45	131.75	154.24	1.17
100	Pb	134	2.00	89,401.86	7,153.05	13,471.97	1.88
200	Pb	57	2.00	42,522.16	3,765.04	8,404.10	2.23
300	Pb	3	14,608.00	56,870.00	35,249.33	17,267.28	0.48
340	Pb	12	2.00	49,000.00	15,640.87	15,404.75	0.98
1100	Pb	30	2.00	41,551.76	5,430.72	8,269.23	1.52
100	Zn	134	2.50	33,542.53	4,002.88	6,486.96	1.62
200	Zn	57	2.50	18,616.92	2,068.02	4,092.52	1.97
300	Zn	3	5,290.00	34,960.00	19,477.66	12,147.27	0.62
340	Zn	12	2.5	49,119.41	8,064.74	12,803.61	1.58
1100	Zn	30	2.50	61,104.94	7,606.43	12,087.92	1.58

**Table 27: Basic statistics – Rosarios-Intermedia capped composites (SRK 2017)**

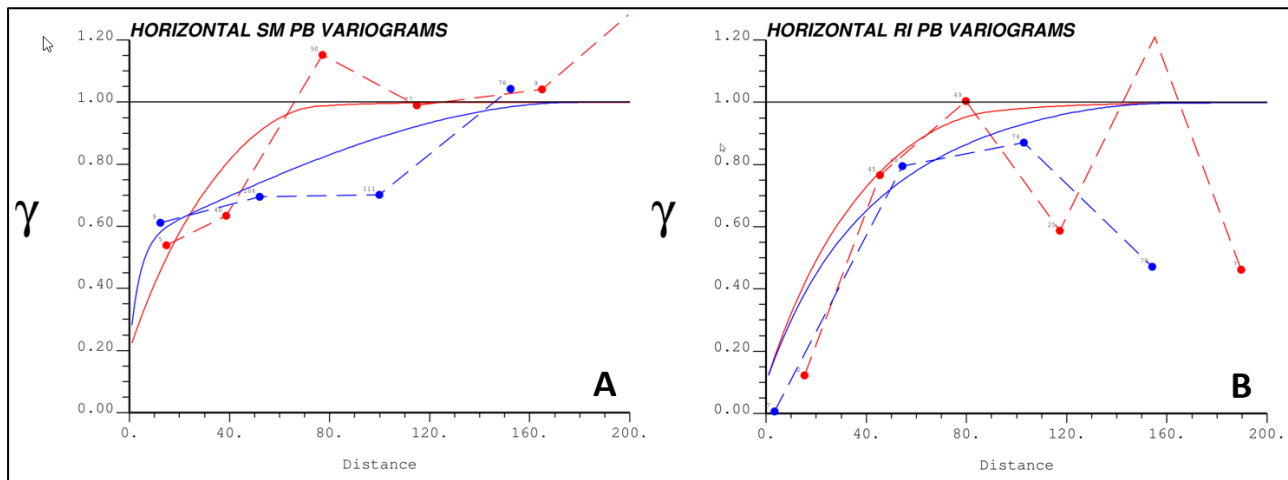
Vein	Element (g/t)	Sample Count	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation	Capped Count
100	Ag	134	0.05	676.00	118.47	158.85	1.34	2
200	Ag	57	0.05	204.00	53.59	63.62	1.18	4
300	Ag	3	135.80	459.00	339.93	145.00	0.42	-
340	Ag	12	0.05	107.95	54.27	39.83	0.73	-
1100	Ag	30	0.05	670.27	145.61	153.98	1.05	-
100	Au	134	0.00	0.37	0.07	0.08	1.22	2
200	Au	57	0.00	0.26	0.04	0.07	1.60	2
300	Au	3	0.00	0.00	0.00	0.00	undefined	-
340	Au	12	0.00	0.36	0.12	0.14	1.22	1
1100	Au	30	0.00	0.38	0.09	0.10	1.06	-
100	Cu	134	0.50	1,139.47	155.58	233.76	1.50	-
200	Cu	57	0.50	400.00	90.71	123.45	1.36	4
300	Cu	3	0.50	0.50	0.50	0.00	0.00	-
340	Cu	12	0.50	410.00	181.20	156.83	0.86	1
1100	Cu	30	0.50	657.45	131.75	154.24	1.17	-
100	Pb	134	2.00	52,000.00	6,630.23	10,767.06	1.62	2
200	Pb	57	2.00	42,522.16	3,765.04	8,404.10	2.23	-
300	Pb	3	14,608.00	56,870.00	35,249.33	17,267.28	0.48	-
340	Pb	12	2.00	18,500.00	11,027.00	7,787.72	0.70	2
1100	Pb	30	2.00	41,551.76	5,430.72	8,269.23	1.52	-
100	Zn	134	2.50	21,400.00	3,836.95	5,908.99	1.54	4
200	Zn	57	2.50	18,616.92	2,068.02	4,092.52	1.97	-
300	Zn	3	5,290.00	34,960.00	19,477.66	12,147.27	0.62	-
340	Zn	12	2.50	10,400.00	4,838.12	3,676.79	0.76	1
1100	Zn	30	2.50	24,600.00	6,389.60	7,672.04	1.20	1

## 14.2.6 Statistical Analysis and Variography

Continuity directions were assessed based on the interpreted steep plunge of the veins as determined from core observations, three-dimensional geological modelling, and underground mapping. SRK further evaluated the spatial distribution of the lead mineralization using variogram and correlogram modelling of the original capped composite data within the domains. Further, variogram calculations considered sensitivities on orientation angles prior to finalizing the correlation orientation. All variogram analysis and modelling was performed using Datamine Studio RM and the GSLib.

Considering the nature of the sulphide mineralization at La Parrilla and the relative nugget-like nature of the silver, SRK found that variograms modelled on lead yield a reasonably clear continuity of long-range structures allowing fitting of variogram models. The lead variogram were applied to all other metals. However, the orientations were adjusted to match the azimuth and dip of the vein wireframes and other underground information, where applicable (Table 28).

These models are oriented in the plane of the lead mineralization, representing the direction of maximum continuity. Consequently, in Figure 41, the horizontal blue model corresponds to the long axis of the variogram plunging steeply down dip, while the horizontal red model is perpendicular to this direction. The vertical model could not be modelled due to the single composite dataset. The range was derived from the thickness of the vein wireframe.



**Figure 41: Lead variogram for (A) San Marcos and (B) Rosarios-Intermedia (SRK 2017)**

Note: The solid lines correspond to the fitted model, while the dashed lines correspond to the experimental variogram in those same directions.

**Table 28: La Parrilla – Lead variogram parameters (SRK 2017)**

Deposit	Structure	Contribution	Model	R1x	R1y	R1z	Angle <sup>1</sup>	Angle <sup>1</sup>	Angle <sup>1</sup>	Axis	Axis	Axis
				(m)	(m)	(m)	1	2	3	1	2	3
San Marcos	C <sub>0</sub>	0.20	Nugget	-	-	-	245	-64	0	3	1	3
	C <sub>1</sub>	0.35	Exp	4	23	5	245	-64	0	3	1	3
	C <sub>2</sub>	0.45	Sph	180	75	20	245	-64	0	3	1	3
Rosarios-Intermedia	C <sub>0</sub>	0.10	Nugget	-	-	-	200	-55	-20	3	1	3
	C <sub>1</sub>	0.60	Exp	30	30	5	200	-55	-20	3	1	3
	C <sub>2</sub>	0.30	Sph	160	90	20	200	-55	-20	3	1	3

1 The rotation angles are shown in Datamine RM convention.

### 14.2.7 Block Model Definition

The criteria used in the selection of the block size included: the drillhole spacing, geological understanding of the deposit, geometry of the modelled veins, and current underground mining techniques. In collaboration with FMS, SRK chose a block size of 5 x 5 x 10 metres for San Marcos and Rosarios-Intermedia.

The block models have been rotated to be oriented parallel to the general azimuth and dip of each of the deposits. Subcells were used with 10, 10, and variable splits in X, Y, and Z, respectively, allowing a resolution of 0.5 metres in X and Y directions to honour the geometry of the modelled vein, and variable on Z to fully honour the true thickness of the vein. Subcells were assigned the same grade as the parent cell. The characteristics of the final block model are summarized in Table 29.

**Table 29: La Parrilla – Block model specifications (SRK 2017)**

Deposit	Axis	Block size (m)		Origin*	Number of cells	Rotation angles	Rotation priority	Rotation Angle
		Parent	Subcell					
San Marcos	X	5	0.5	592,573	170	245	1	3
	Y	5	0.5	2,624,102	94	-64	2	1
	Z	10	Variable	1,670	24	0	-	-
Rosarios-Intermedia	X	5	0.5	592,403	416	200	1	3
	Y	5	0.5	2,625,050	201	-55	2	1
	Z	10	Variable	1,350	31	0	-	-

\* Datamine RM based on NAD83 UTM coordinates

## 14.2.8 Estimation Strategy

For San Marcos and Rosarios-Intermedia, SRK adopted an ordinary kriging estimation approach for all metals. Table 30 summarizes the general estimation parameters used for all the metals. In all cases, three estimation passes were required, informed by capped composites. The first pass was the most restrictive in terms of search radii and number of drillholes required. Successive passes usually populated areas with less dense drilling, using relaxed parameters with generally larger search radii and less data requirements. SRK assessed the sensitivity of the block estimates to changes in minimum and maximum number of data, use of octant search, and the number of informing drillholes. Results from these studies show that globally, the model is relatively insensitive to the selection of the estimation parameters and data restrictions.

For the first estimation pass, composites from at least seven drillholes were necessary to estimate a block. This highly restrictive approach was designed to obtain a local accuracy where the drilling density was sufficient. This pass also used restrictive octant search options (Table 30). For subsequent passes, the criteria were significantly relaxed. In all cases, the search radii were chosen to reflect variogram continuity structure, ranges, and orientation. Due to their distinct geological identity, all veins were estimated independently, using a hard boundary.

**Table 30: Estimation strategy applied to all resource domains (SRK 2017)**

Axis	1 <sup>st</sup> Pass	2 <sup>nd</sup> Pass	3 <sup>rd</sup> Pass
<b>Interpolation Method</b>	<b>OK</b>	<b>OK</b>	<b>OK</b>
Octant Search	Yes	No	No
Search Volume			
X (metres)	100% Sill	100% Sill	1000% Sill
Y (metres)	100% Sill	100% Sill	1000% Sill
Z (metres)	100% Sill	100% Sill	1000% Sill
Minimum number of octants	3	-	-
Minimum number of composites per octant	1	-	-
Maximum number of composites per octant	12	-	-
Minimum number of composites	7	3	1
Maximum number of composites	12	12	8
Maximum number of composites per drillhole	-	-	-

## 14.2.9 Model Validation and Sensitivity

To validate the block estimates, SRK constructed parallel block models using an inverse distance algorithm (power of two), and a nearest neighbour function. SRK visually compared ordinary

kriging model results on plans and sections and found trends in veins similar to those confirmed by stoping. SRK also checked that the global quantities and average grade for each metal from each method were reasonably comparable. Block estimates were also checked against the declustered mean informing composite data (Figure 42, using silver in Vein 100 at San Marcos as an example).

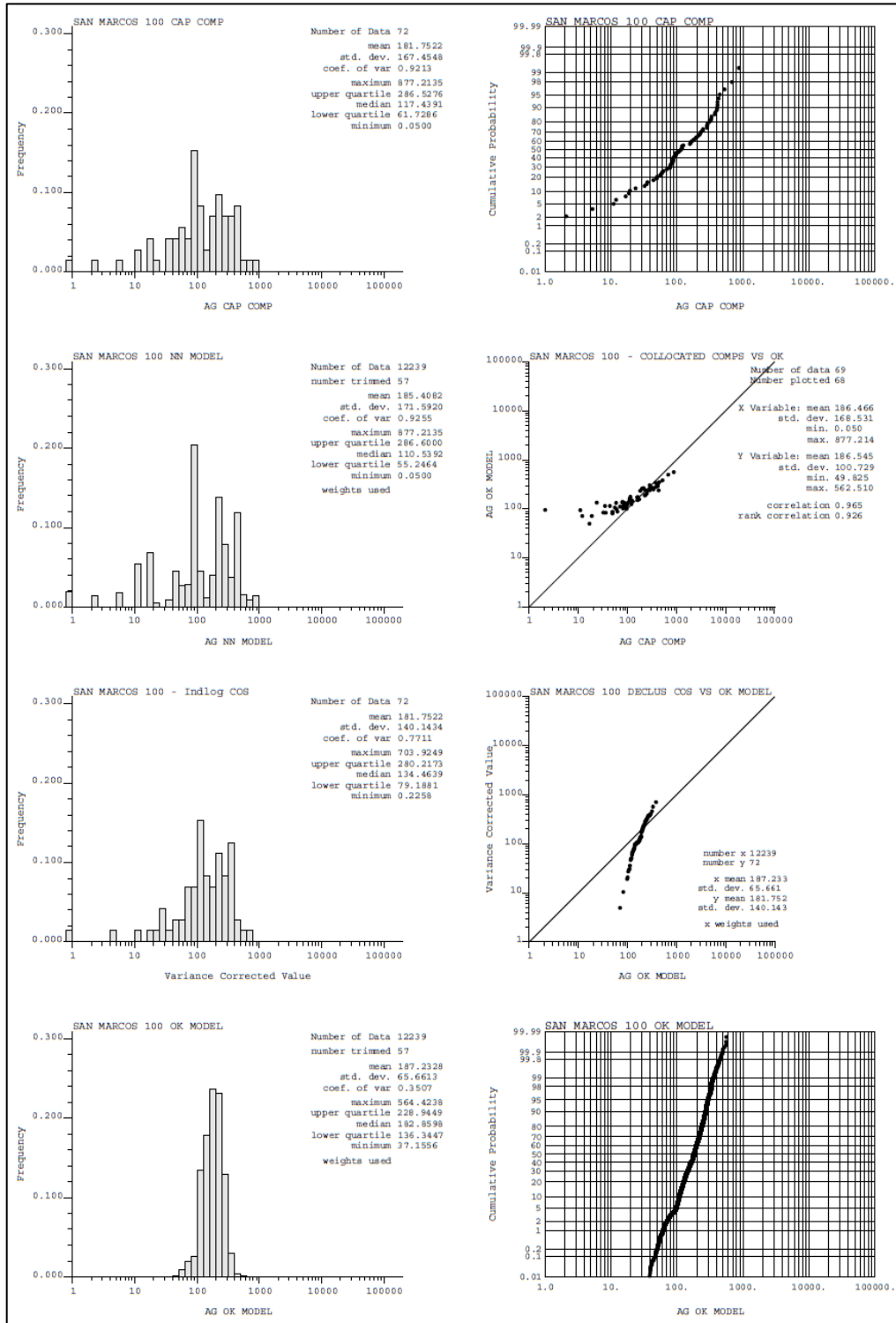


Figure 42: San Marcos Vein 100 – Summary of block model validation for silver (SRK 2017)

### 14.2.10 Mineral Resource Classification

Block model quantities and grade estimates for the San Marcos, Rosarios-Intermedia and San Nicolas deposits at La Parrilla were classified according to the *CIM Definition Standards for Mineral Resources and Mineral Reserves* (May 2014) by Sébastien Bernier, PGeo (APGO #1847), an appropriate independent Qualified Person for the purpose of National Instrument 43-101.

Mineral resource classification is typically a subjective concept. Industry best practices suggest that resource classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas of similar resource classification as well as the continuity of the targeted mineralization at the reporting cut-off grade.

SRK is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by core drilling, generally on 40 to 50 metre-spaced sections.

Generally, for mineralization exhibiting good geological continuity, and investigated at an adequate spacing with reliable sampling information accurately located, SRK considers that blocks estimated during the first estimation run considering full variogram ranges and exhibiting estimated grade above the reporting cut-off grade can be classified in the Indicated category within the meaning of the *CIM Definition Standards for Mineral Resources and Mineral Reserves*. For those blocks, SRK considers that the level of confidence is sufficient to allow appropriate application of technical and economic parameters to support mine planning and to allow evaluation of the economic viability of the deposit. Those blocks can be appropriately classified as Indicated.

Conversely, blocks estimated during the second and third pass considering search neighbourhoods set with more relaxed estimation parameters should be appropriately classified in the Inferred category because the confidence in the estimate is insufficient to allow for the meaningful application of technical and economic parameters or to enable an evaluation of economic viability.

### 14.2.11 Grade Sensitivity Analysis

The mineral resources of the La Parrilla Silver Mine are sensitive to the selection of the reporting cut-off grade. To illustrate this sensitivity, the block model quantities, grade estimates and total in-situ contained metal expressed as millions of silver equivalent ounces is presented in the following tables by classification and mineral type. Typically, a global grade tonnage curve would also be illustrated, but in this case, the relevant information is not available for the polygonal mineral resources.

The results at different cut-off grades for the Rosarios-Intermedia block model are presented in:

- Table 31 – Inferred Oxide material (there is no Measured or Indicated oxide material)
- Table 32 – Indicated Sulphide material (there is no Measured sulphide material)
- Table 33 – Inferred Sulphide material

The results at different cut-off grades for the San Marcos block model are presented in:

- Table 34 – Indicated Oxide material (there is no Measured oxide material)
- Table 35 – Inferred Oxide material
- Table 36 – Inferred Sulphide material



The reader is cautioned that the figures presented in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of cut-off grade.

**Table 31: La Parrilla Silver Mine – Rosarios-Intermedia block model quantities and grade estimates\* at various cut-off grades for Inferred oxide material (SRK 2017)**

Cut-off Grade	Quantity	Grades			Metal Content	
		Ag-Eq (g/t)	(kt)	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)
100	162	134	0.09	141	0.73	
110	97	158	0.08	165	0.52	
120	91	162	0.08	168	0.49	
130	77	170	0.08	176	0.44	
140	66	176	0.08	183	0.39	
150	41	203	0.06	208	0.27	
160	35	212	0.06	218	0.24	
170	27	227	0.06	232	0.20	
180	25	233	0.06	238	0.19	
190	24	234	0.06	239	0.18	
200	16	256	0.05	260	0.14	
210	14	265	0.05	269	0.12	
220	11	280	0.04	283	0.10	
230	10	286	0.03	289	0.09	

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

**Table 32: La Parrilla Silver Mine – Rosarios-Intermedia block model quantities and grade estimates\* at various cut-off grades for Measured and Indicated sulphide material (SRK 2017)**

Cut-off Grade	Quantity	Grades				Metal Content	
		Ag-Eq (g/t)	(kt)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)
100	1,018	160	0.09	0.89	0.53	210	6.87
110	915	170	0.10	0.93	0.54	222	6.53
120	813	181	0.10	0.97	0.55	235	6.15
130	737	191	0.11	1.00	0.56	247	5.85
140	669	201	0.11	1.03	0.56	258	5.55
150	616	210	0.11	1.05	0.57	268	5.31
160	570	218	0.11	1.07	0.58	277	5.08
170	530	225	0.12	1.10	0.59	285	4.86
180	492	232	0.12	1.12	0.60	294	4.65
190	453	241	0.12	1.13	0.60	303	4.42
200	419	249	0.12	1.15	0.60	312	4.20
210	384	259	0.13	1.15	0.60	322	3.97
220	346	270	0.13	1.15	0.60	333	3.71
230	316	280	0.13	1.16	0.60	344	3.50

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

**Table 33: La Parrilla Silver Mine – Rosarios-Intermedia block model quantities and grade estimates\* at various cut-off grades for Inferred sulphide material (SRK 2017)**

Cut-off Grade	Quantity	Grades				Metal Content	
		Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag-Eq (Moz)
100	1,874	116	0.09	0.98	0.63	171	10.31
110	1,674	121	0.09	1.03	0.65	179	9.64
120	1,458	128	0.09	1.07	0.67	189	8.83
130	1,171	143	0.09	1.12	0.66	204	7.68
140	989	153	0.09	1.17	0.68	217	6.90
150	825	164	0.10	1.24	0.72	231	6.14
160	693	177	0.10	1.27	0.72	246	5.48
170	594	189	0.10	1.31	0.73	259	4.96
180	522	199	0.10	1.37	0.74	271	4.55
190	470	207	0.10	1.41	0.74	281	4.24
200	380	228	0.09	1.45	0.69	301	3.68
210	346	236	0.09	1.49	0.69	311	3.45
220	317	243	0.09	1.52	0.70	320	3.25
230	280	255	0.09	1.56	0.68	332	2.99

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

**Table 34: La Parrilla Silver Mine – San Marcos block model quantities and grade estimates\* at various cut-off grades for Indicated oxide material (SRK 2017)**

Cut-off Grade	Quantity	Grades			Metal Content	
		Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag-Eq (Moz)	
100	472	176	0.14	187	2.85	
110	446	181	0.15	192	2.76	
120	413	186	0.15	199	2.63	
130	380	192	0.16	205	2.50	
140	345	199	0.16	212	2.35	
150	308	206	0.17	220	2.18	
160	271	214	0.18	229	2.00	
170	234	224	0.19	239	1.80	
180	202	233	0.20	249	1.62	
190	174	242	0.21	259	1.45	
200	149	253	0.22	270	1.29	
210	125	265	0.22	283	1.14	
220	107	276	0.22	294	1.02	
230	96	284	0.22	303	0.93	

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

**Table 35: La Parrilla Silver Mine – San Marcos block model quantities and grade estimates\* at various cut-off grades for Inferred oxide material (SRK 2017)**

Cut-off Grade	Quantity	Grades			Metal Content	
		Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag-Eq (g/t)	Ag-Eq (Moz)
100	745	182	0.09	189		4.54
110	691	188	0.09	196		4.36
120	638	195	0.09	203		4.16
130	575	203	0.10	211		3.91
140	538	209	0.10	217		3.75
150	489	216	0.10	224		3.52
160	462	220	0.10	228		3.39
170	435	224	0.10	232		3.24
180	410	227	0.10	235		3.10
190	363	234	0.10	242		2.82
200	304	243	0.10	251		2.45
210	268	249	0.10	257		2.21
220	229	256	0.10	264		1.94
230	187	264	0.10	273		1.64

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

**Table 36: La Parrilla Silver Mine – San Marcos block model quantities and grade estimates\* at various cut-off grades for Inferred sulphide material (SRK 2017)**

Cut-off Grade	Quantity	Grades				Metal Content	
		Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag-Eq (Moz)
100	224	186	0.10	0.37	0.40	216	1.56
110	208	195	0.10	0.36	0.41	225	1.50
120	195	202	0.10	0.36	0.43	232	1.45
130	183	208	0.10	0.36	0.44	239	1.41
140	169	215	0.10	0.38	0.46	247	1.35
150	158	222	0.10	0.38	0.48	255	1.29
160	144	231	0.10	0.39	0.49	264	1.23
170	131	240	0.10	0.40	0.51	274	1.15
180	123	246	0.11	0.41	0.52	281	1.11
190	119	249	0.11	0.41	0.52	284	1.09
200	116	250	0.11	0.41	0.53	286	1.07
210	111	254	0.11	0.42	0.55	290	1.03
220	104	258	0.11	0.43	0.57	295	0.99
230	94	265	0.11	0.44	0.59	303	0.91

\* The reader is cautioned that the figures in this table should not be misconstrued for a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of a cut-off grade.

### 14.3 Polygonal Estimate

Mineral resource estimation of the Quebradillas and San Nicolas deposits at La Parrilla was undertaken by First Majestic using a polygonal method. The estimation is supported by 16 core drillholes and more than 1,500 chip samples across mineralization, and underground geological mapping carried out between September 2011 and December 31, 2016. The polygonal method was used to construct longitudinal sections of vein structures.

Polygons of Indicated mineral resources are projected 40 metres vertically (up and down) from mine levels informed by channel and chip samples and 20 metres around drillhole intercepts where there is continuity of mineralization, based on drilling information or mine levels with sample lines reporting potentially economic grades. Inferred mineral resources are projected 50 metres from drillhole intercepts or polygons of Indicated mineral resources.

Drillhole spacing generally varies from 15 to 75 metres in zones of Indicated mineral resources, whereas chip sample lines are spaced between 1.5 and 3.0 metres in those mine levels with Indicated mineral resources.

The December 31, 2016, Mineral Resource Estimate does not report Measured mineral resources.

Polygons for Indicated and Inferred mineral resources are drawn on longitudinal sections using BRISCAD Pro V12 © software, after which the area, average width, volume, and weighted mean grade are estimated.

Grade capping is defined by analyzing cumulative frequency histograms; the grade at the 95<sup>th</sup> percentile is selected. Capping is done per sample before compositing by length of channel line or drill-hole intercept. Tonnage is calculated using the calculated volume and an average specific gravity of 2.7.

Longitudinal sections for Quebradillas/Herradura pit area, Quebradillas 550, Quebradillas 460, Quebradillas Veta Tiro, Quebradillas Veta, Quebradillas Veta N-S, Quebradillas Q-38 and San Nicolas are provided in Appendix C

### 14.4 Mineral Resource Statement

CIM *Definition Standards for Mineral Resources and Mineral Reserves* (May 2014) defines a mineral resource as:

*“A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.*

*The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.”*

The “reasonable prospects for eventual economic extraction” requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade that takes into account extraction scenarios and processing recoveries. In order to meet this requirement, FMS considers that major portions of the La Parrilla

mine are amenable for underground extraction with the exception of the material identifies within and around the Quebradillas open pit which is considered amenable to open pit mining.

Table 37 below summarized the assumptions used for developing the underground oxide mineral resources, while Table 38 summarizes the assumptions used for underground sulphide mineral resources. A lower cut-off grade was allowed for the block modeled mineral resources by not including certain sustaining costs to reflect the fact that block modelling is much more stringent than polygonal estimates. These sustaining costs are included for the polygonal estimates in order to maintain a certain level of conservatism.

**Table 37: Conceptual assumptions considered for underground resource reporting (Oxides) (FMS 2017)**

Parameter	Block Model	Polygonal	Unit
Cut-off grade	130	160	Ag-Eq (g/t)
Silver price	19.00	19.00	\$/oz
Lead price	1.00	1.00	\$/lb
Zinc price	1.20	1.20	\$/lb
Gold price	1300	1300	\$/oz
Mining costs	17.88	17.88	\$ per tonne milled
Process cost	17.70	17.70	\$ per tonne milled
Indirect costs	11.39	11.39	\$ per tonne milled
General and administrative costs	5.32	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	3.87	\$ per tonne milled
Sustaining development	0	5.30	\$ per tonne milled
Infill exploration drilling	0	1.75	\$ per tonne milled
Closure cost allocation	0.30	0.30	\$ per tonne milled
Process recovery Ag	65.9	65.9	%
Process recovery Au	80.8	80.8	%
2016 tonnes processed by leaching	193,900	193,900	tonnes milled
2016 Processing rate	530	530	tpd

**Table 38: Conceptual assumptions considered for underground resource reporting (Sulphides) (FSM, 2017)**

Parameter	Block Model	Polygonal	Unit
Cut-off grade	135	155	Ag-Eq (g/t)
Silver price	19.00	19.00	\$/oz
Lead price	1.00	1.00	\$/lb
Zinc price	1.20	1.20	\$/lb
Gold price	1300	1300	\$/oz
Mining costs	17.88	17.88	\$ per tonne milled
Process cost	13.97	13.97	\$ per tonne milled
Indirect costs	11.39	11.39	\$ per tonne milled
General and administrative costs	5.32	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	3.87	\$ per tonne milled
Sustaining development	0	5.30	\$ per tonne milled
Infill exploration drilling	0	1.75	\$ per tonne milled
Closure cost allocation	0.30	0.30	\$ per tonne milled
Process recovery Ag	86.6	86.6	%
Process recovery Pb	82.5	82.5	%
Process recovery Zn	64.2	64.2	%
Process recovery Au	80.0	80.0	%
2016 tonnes processed by flotation	416,600	416,600	tonnes milled
2016 Processing rate	1,140	1,140	tpd

Table 39 below summarized the assumptions used for developing the open pit oxide mineral resources at Quebradillas.

**Table 39: Conceptual assumptions considered for open pit resource reporting from polygonal estimates (Oxides) (FMS 2017)**

<b>Parameter</b>	<b>Polygonal</b>	<b>Unit</b>
Cut-off grade	95	Ag-Eq (g/t)
Silver price	19.00	\$/oz
Lead price	1.00	\$/lb
Zinc price	1.20	\$/lb
Gold price	1300	\$/oz
Mining costs	4.83	\$ per tonne milled
Process cost	17.70	\$ per tonne milled
Indirect costs	11.39	\$ per tonne milled
General and administrative costs	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	\$ per tonne milled
Closure cost allocation	0.30	\$ per tonne milled
Process recovery Ag	65.9	%
Process recovery Au	80.8	%
2016 tonnes processed by leaching	193,900	tonnes milled
2016 Processing rate	530	tpd

**Table 40: Mineral Resource Statement\*, La Parrilla Mine, Mexico, with an Effective Date of December 31, 2016 (FMS, 2017)**

Deposit/Vein	Category	Estimation Method	Mineral Type	Cut-off Ag-Eq (g/t)	Mineral Resource						Metal				
					Quantity (ktonnes)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag (koz)	Au (koz)	Pb (ktonnes)	Zn (ktonnes)	Ag-Eq (koz)
San Marcos	Indicated (Underground)	Block Model	Oxides	130	380	192	0.16	-	-	205	2,350	1.9	-	-	2,500
Quebradillas 550	Indicated (Underground)	Polygonal	Oxides	160	49	254	0	-	-	254	400	0	-	-	400
Quebradillas Open Pit	Indicated (Open Pit)	Polygonal	Oxides	95	357	129	0.02	-	-	131	1,480	0.2	-	-	1,500
<b>Sub-Total Indicated (Oxides)</b>	<b>UG + OP</b>				<b>787</b>	<b>167</b>	<b>0.08</b>	-	-	<b>174</b>	<b>4,230</b>	<b>2.1</b>	-	-	<b>4,400</b>
Rosarios - Intermedia	Indicated (Underground)	Block Model	Sulphides	135	703	196	0.11	1.01	0.56	254	4,430	2.4	7.1	4.0	5,730
Quebradillas 460	Indicated (Underground)	Polygonal	Sulphides	155	144	288	0	3.11	3.26	488	1,330	0	4.5	4.7	2,260
Quebradillas 550	Indicated (Underground)	Polygonal	Sulphides	155	44	186	0	2.87	4.02	400	270	0	1.3	1.8	570
Quebradillas Veta	Indicated (Underground)	Polygonal	Sulphides	155	28	185	0	2.94	2.30	352	170	0	0.8	0.6	320
Quebradillas Veta N-S	Indicated (Underground)	Polygonal	Sulphides	155	16	173	0	2.72	1.88	321	90	0	0.4	0.3	170
Quebradillas Veta Tiro	Indicated (Underground)	Polygonal	Sulphides	155	42	422	0	4.96	3.94	706	570	0	2.1	1.7	960
San Nicolas	Indicated (Underground)	Polygonal	Sulphides	155	58	303	0	1.37	1.96	407	560	0	0.8	1.1	750
<b>Sub-Total Indicated (Sulphides)</b>	<b>UG only</b>				<b>1,036</b>	<b>223</b>	<b>0.07</b>	<b>1.64</b>	<b>1.37</b>	<b>323</b>	<b>7,420</b>	<b>2.4</b>	<b>17.0</b>	<b>14.2</b>	<b>10,760</b>
<b>Total Measured and Indicated (All Mineral Types)</b>					<b>1,823</b>	<b>199</b>	<b>0.08</b>	<b>0.93</b>	<b>0.78</b>	<b>259</b>	<b>11,650</b>	<b>4.6</b>	<b>17.0</b>	<b>14.2</b>	<b>15,160</b>
Rosarios - Intermedia	Inferred (Underground)	Block Model	Oxides	130	77	170	0.08	-	-	176	420	0.2	-	-	440
San Marcos	Inferred (Underground)	Block Model	Oxides	130	575	203	0.10	-	-	211	3,760	1.8	-	-	3,900
Quebradillas 550	Inferred (Underground)	Polygonal	Oxides	160	202	244	0	-	-	244	1,580	0	-	-	1,580
San Nicolas	Inferred (Underground)	Polygonal	Oxides	160	67	244	0	-	-	244	530	0	-	-	530
<b>Total Inferred (Oxides)</b>	<b>UG only</b>				<b>922</b>	<b>212</b>	<b>0.07</b>	-	-	<b>218</b>	<b>6,290</b>	<b>2.0</b>	-	-	<b>6,450</b>
Rosarios - Intermedia	Inferred (Underground)	Block Model	Sulphides	135	1,076	148	0.09	1.14	0.67	212	5,120	3.1	12.3	7.2	7,340
San Marcos	Inferred (Underground)	Block Model	Sulphides	135	176	212	0.10	0.37	0.46	244	1,200	0.6	0.6	0.8	1,380
Quebradillas 460	Inferred (Underground)	Polygonal	Sulphides	155	291	239	0	3.76	4.19	489	2,240	0	11.0	12.2	4,580
Quebradillas 550	Inferred (Underground)	Polygonal	Sulphides	155	312	122	0	2.06	2.93	277	1,220	0	6.4	9.1	2,780
Quebradillas Q-38	Inferred (Underground)	Polygonal	Sulphides	155	63	148	0	1.60	1.40	244	300	0	1.0	0.9	490
Quebradillas Veta	Inferred (Underground)	Polygonal	Sulphides	155	135	185	0	2.94	2.30	352	800	0	4.0	3.1	1,530
Quebradillas Veta N-S	Inferred (Underground)	Polygonal	Sulphides	155	177	173	0	2.72	1.88	321	990	0	4.8	3.3	1,830
Quebradillas Veta Tiro	Inferred (Underground)	Polygonal	Sulphides	155	130	269	0	4.15	2.32	479	1,120	0	5.4	3.0	2,000
San Nicolas	Inferred (Underground)	Polygonal	Sulphides	155	304	303	0	1.37	1.96	407	2,970	0	4.2	6.0	3,980
<b>Sub-Total Inferred (Sulphides)</b>	<b>UG only</b>				<b>2,664</b>	<b>186</b>	<b>0.04</b>	<b>1.86</b>	<b>1.71</b>	<b>302</b>	<b>15,960</b>	<b>3.7</b>	<b>49.7</b>	<b>45.7</b>	<b>25,910</b>
<b>Total Inferred (All Mineral Types)</b>					<b>3,586</b>	<b>193</b>	<b>0.05</b>	<b>1.38</b>	<b>1.27</b>	<b>281</b>	<b>22,250</b>	<b>5.7</b>	<b>49.7</b>	<b>45.7</b>	<b>32,360</b>

- \*
- (1) Block model estimates prepared under the supervision of Sebastien Bernier, PGeo, Principal Consultant (Geology), SRK Consulting (Canada) Inc.
  - (2) Updated polygonal estimates prepared under the supervision of Jesus M. Velador Beltran, MMSA, QP Geology for First Majestic Silver Corp.
  - (3) Mineral Resources have been classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101
  - (4) Metal prices considered were \$19.00 /oz Ag, \$1,300 /oz Au, \$1.00 /lb Pb and \$1.20 /lb zinc.
  - (5) Cut-off grade considered for oxide block model estimates from underground operation was 130 g/t Ag-Eq, based on actual costs excluding sustaining costs.
  - (6) Cut-off grade considered for sulphides block model estimates was 135 g/t Ag-Eq and is based on actual costs excluding sustaining costs.
  - (7) Cut-off grade considered for oxide polygonal estimates from underground operation was 160 g/t Ag-Eq and 95 g/t Ag-Eq for open pit operations, both are based on actual and budgeted operating and sustaining costs.
  - (8) Cut-off grade considered for sulphides polygonal estimates was 155 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.
  - (9) Metallurgical recovery used for oxides based on 2016 actuals was 65.9% for silver and 80.8% for gold.
  - (10) Metallurgical recovery used for sulphides based on 2016 actuals was 86.6% for silver, 80% for gold, 82.5% for lead and 64.2% for zinc.
  - (11) Metal payable used was 99.6% for silver and 95% for gold in doré produced from oxides.
  - (12) Metal payable used was 95% for silver, gold and lead and 85% for zinc in concentrates produced from sulphides.
  - (13) Silver equivalent grade is estimated as:  $Ag-Eq = Ag\ Grade + [(Au\ Grade \times Au\ Recovery \times Au\ Payable \times Au\ Price / 31.1035) + (Pb\ Grade \times Pb\ Recovery \times Pb\ Payable \times Pb\ Price \times 2204.62) + (Zn\ Grade \times Zn\ Recovery \times Zn\ Payable \times Zn\ Price \times 2204.62)] / (Ag\ Recovery \times Ag\ Payable \times Ag\ Price / 31.1035)$ .
  - (14) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces or thousands of tonnes.
  - (15) Totals may not add up due to rounding.
  - (16) Measured and Indicated Mineral Resources are reported inclusive of Mineral Reserves.

## **14.5 Recommendations for Conversion of Mineral Resources into Mineral Reserves**

FMS QP Geology recommends that the exploration program be continued to look for lateral and at-depth extension of the known structures. Also, a program is recommended to test identified prospects and assess the possibility of delineating economically-mineable deposits. Details of these programs are discussed in section 26.



## 15 Mineral Reserve Estimates

This Technical Report for the La Parrilla mine represents the first reporting of a mineral reserve for this property estimated from a modern three-dimensional block model that was developed using advanced geostatistics, variography, and advanced software applications such as Leapfrog® and Datamine Studio RM®. All previously published mineral resource and mineral reserve estimates were estimated using two-dimensional polygonal estimation methods.

As the process of transitioning all known mineral resources from polygonal estimates to block model estimates will take a number of years to complete, this report represents a transitional period where a number of the mineral resources have been estimated using block modelling techniques, but other mineral resources have not yet been converted. Therefore, this report includes mineral resource and mineral reserve estimates based on both block model estimates and polygonal estimates. Section 15.1 discusses the mineral reserves based on block model estimates and Section 15.2 discusses the mineral reserves based on polygonal estimates. Section 15.3 presents a consolidated mineral reserve statement. Table 41 shows the mineral resource/mineral reserve estimation method used by deposit.

**Table 41: MRMR estimation method by deposit (SRK 2017)**

Deposit	Estimation Method	
	Block Model	Polygonal
Rosarios	X	
Intermedia	X	
San Marcos	X	
Quebradillas		X
San Nicolas		X

All mineral reserve estimates are based on processing using the existing on-site processing facility (i.e., “mill feed”).

### 15.1 Mineral Reserve Estimates based on Three-Dimensional Block Modelling Techniques

This section summarizes the key assumptions, parameters, and methods used by SRK in the preparation of the mineral reserve estimates based on block models for the La Parrilla Silver Mine. The Mineral Reserve Statement presented herein has been prepared for public disclosure.

*CIM Definition Standards for Mineral Resources and Mineral Reserves* defines a mineral reserve as:

*“A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.”*

The underground mine-planning work supporting the preparation of the mineral reserve estimates based on block modelling techniques discussed herein was prepared by Mr. Stephen Taylor, PEng (PEO# 90365834) of SRK (Canada) Ltd., with contributions by FMS staff under Mr. Taylor’s

guidance. Mr. Taylor is the Qualified Person (QP) accepting the professional responsibility for Mineral Reserve Estimates based on block modelling techniques.

This section presents a summary of the methodology used to prepare the apportion of the mineral reserve statement for the La Parrilla Silver Mine based on block modelling techniques. This is the first mineral resource and mineral reserve statement ever produced for the La Parrilla mine that uses modern three-dimensional geostatistical block modelling techniques. All previous estimates have been based on polygonal estimation techniques.

### 15.1.1 Mineral Reserve Estimation Methodology

The conversion of mineral resources to mineral reserve estimate involves the following procedures:

- Review geological information, resource block models and operational information for selection of applicable mining methods and other mine design criteria.
- Determine appropriate Net Smelter Return (NSR) formulas and Cut-Off Values (COVs) based on 2016 cost data, process plant recoveries, and smelter contracts provided by FMS for the La Parrilla Silver Mine.
  - Review metal price assumptions approved by FMS management for mineral resource and mineral reserve estimates.
  - SRK independently verified that the metal price assumptions were reasonable and complied with the “2015 CIM *Guidance on Commodity Pricing used in Resource and Reserve Estimation and Reporting*” document as adopted by the CIM Council on November 28, 2015.
- Determine key mine design parameters such as minimum mining widths, pillar sizing and overbreak.
- Determine modifying factors such as dilution and mining recovery via benchmarking and underground observations. No reconciliation data was available.
- Prepare the block models by adding NSR field and ensuring “Inferred resources” will not influence the reserve estimation process.
- Outline potentially mineable areas from the block model based on Measured and Indicated mineral resource classifications.
- Refine potentially mineable areas using mineable shape-optimizing software to account for vein width and economic factors.
- Refine potentially mineable areas by removing permanent sill and rib pillars, remove areas identified as inaccessible or unmineable by site mine engineering staff, remove areas isolated from more substantial mining areas.
- Generation of mine design, sequence, and schedule.
- Validate the economic viability of the overall plan in a cash flow model.
- Preparation of the Mineral Reserve Statement.

## 15.1.2 Preparation of Mineral Reserve Estimate for Block Modelled Deposits

### Assumptions

Mineral reserve estimates were developed separately for both oxide and sulphide ores with the majority of the assumptions and modifying factors being the same for both types.

The key assumptions and parameters considered for the preparation of the Mineral Reserve Statement for oxide ores are summarized in Table 42.

The key assumptions and parameters considered for the preparation of the Mineral Reserve Statement for sulphide ores are summarized in Table 43.

**Table 42: Assumptions for underground mineral reserve reporting (Oxide Ores) (FMS 2017)**

Parameter	Value	Unit
Silver price	18.00	\$ per ounce
Gold price	1,250	\$ per ounce
Mining costs	17.88	\$ per tonne milled
Process cost	17.70	\$ per tonne milled
Indirect costs	11.39	\$ per tonne milled
General and administrative costs	5.32	\$ per tonne milled
Sustaining and closure costs	9.27	\$ per tonne milled
Sustaining plant and infrastructure	3.87	\$ per tonne milled
Sustaining development	5.30	\$ per tonne milled
Infill exploration drilling	1.75	\$ per tonne milled
Closure cost allocation	0.30	\$ per tonne milled
Off-site costs*	1.19	\$ per tonne milled
Minimum mining width	1.3	metres
Calculated average mining dilution	22	percent
Mining recovery	95	percent
Process recovery Ag	65.9	percent
Process recovery Au	80.8	percent
Payable Ag	99.6	percent
Payable Au	95.0	percent
2016 tonnes processed by leaching	193,900	tonne milled
2016 Processing rate	530	tonnes per day

\* Doré refining charges, freight, insurance and representation

**Table 43: Assumptions for underground mineral reserve reporting (Sulphides Ores) (FMS 2017)**

Parameter	Value	Unit
Silver price	18.00	\$ per ounce
Gold price	1,250	\$ per ounce
Lead price	1.00	\$ per pound
Zinc price	1.15	\$ per pound
Mining costs	17.88	\$ per tonne milled
Process cost	13.97	\$ per tonne milled
Indirect costs	11.39	\$ per tonne milled
General and administrative costs	5.32	\$ per tonne milled
Sustaining plant and infrastructure	3.87	\$ per tonne milled
Sustaining development	5.30	\$ per tonne milled
Infill exploration drilling	1.75	\$ per tonne milled
Closure cost allocation	0.30	\$ per tonne milled
Off-site costs**	17.29	\$ per tonne milled
Minimum mining width	1.2	metres
Calculated average mining dilution	15	percent
Mining recovery	95	percent
Process recovery Ag	86.6	percent
Process recovery Au	80.0	percent
Process recovery Pb	82.5	percent
Process recovery Zn	64.2	percent
Payable Ag	95.0	percent
Payable Au	95.0	percent
Payable Pb	95.0	percent
Payable Zn	85.0	percent
2016 tonnes processed by flotation	416,600	tonne milled
2016 Processing rate	1,140	tonnes per day

\*\* Pb and Zn concentrate treatment and refining charges, penalties, price participation, freight, insurance and representation

Certain La Parrilla concessions were purchased from Grupo México and were subject to NSR royalty of 1.5% payable to Grupo México. The royalties payable thereunder were capped at a total of \$2,500,000. The royalty commitment of \$2,500,000 was fulfilled in 2016 and the royalty has now expired. There are no other encumbrances on La Parrilla mining concessions.

### Development of Net Smelter Revenue (NSR) Formulas

SRK used NSR values as an indicator to determine if a mining shape met the economic cut-off criteria for inclusion into the mining plan. NSR formulas for both oxide and sulphide mineralization, based on the assumptions listed above, were developed and coded into the block models.

Table 44 shows the development of the NSR formula for oxide ores.

**Table 44: Calculation of NSR formula components for oxide ores (SRK 2017)**

	Description	Value	Unit	Formula
<b>Silver Unit Contribution</b>				
	Ag Grade	1.00	g/t Ag	
A	Conversion	31.1035		
B	Metal price	\$18.00	/oz Ag	
<b>Leaching Circuit</b>				
C	Leach circuit recovery	65.9%		2016 Actuals
D	Recovered metal value	\$11.85	/oz Ag	B x C
<b>Refining</b>				
E	Payable Ag	99.6%		
F	Recovered Metal Value	\$11.81	/oz Ag	D x E
<b>G</b>	<b>NSR Coefficient Ag</b>	<b>\$0.38</b>	<b>/g/t Ag</b>	<b>F / A</b>
<b>Gold Unit Contribution</b>				
	Au Grade	1.00	g/t Au	
H	Metal price	\$1,250	/oz Au	
<b>Leaching Circuit</b>				
I	Leach circuit recovery	80.8%		2016 Actuals
J	Recovered metal value	\$1,010	/oz Au	H x I
<b>Refining</b>				
K	Payable Au	95.0%		
L	Recovered Metal Value	\$960	/oz Au	J x K
<b>M</b>	<b>NSR Coefficient Au</b>	<b>\$30.85</b>	<b>/g/t Au</b>	<b>L / A</b>
<b>Fixed Cost Contribution</b>				
N	Refining Charge (RC)	\$10.29	/kg of doré	
O	Freight, Insurance, Representation	\$3.63	/kg of doré	
P	Total Fixed Cost	\$13.92	/kg of doré	N + O
Q	Doré produced per tonne milled	0.086	kg/tonne	2016 Actuals
<b>R</b>	<b>Total Fixed Cost per tonne milled</b>	<b>\$1.19</b>	<b>/tonne</b>	<b>P x Q</b>

Therefore, the NSR formula for oxide ores can be expressed as:

$$\text{NSR (\$/tonne milled)} = \$0.38 \times \text{Ag} + \$30.85 \times \text{Au} - \$1.19$$

Where:

- Ag is the silver grade in g/t.
- Au is the gold grade in g/t.
- \$1.19 per tonne milled represents the fixed costs for refining charges, freight, insurance and representation.

Table 45 and Table 46 show the development of the NSR formula for sulphide ores from the lead concentrate and zinc concentrate, respectively.

**Table 45: Calculation of NSR formula components for sulphide ores from lead concentrates (SRK 2017)**

	Description	Value	Unit	Formula
<b>Silver Unit Contribution</b>				
	Ag Grade	1.00	g/tonne	
A	Conversion	31.1035		
B	Metal price	\$18.00	/oz	
<b>Flotation Circuit</b>				
C	Recovery to Pb concentrate	78.5%		
D	Recovered Metal Value	\$14.12	/oz	B x C
<b>Refining</b>				
E	Payable Ag	95%		Contract
	Minimum deduct of 50 grams per dmt			Contract
F	Typical concentrate grade	4651	g/t Ag	2016 Actuals
G	Concentrate grade after deduction	4601	g/t Ag	F – 50
H	Minimum deduct Payable Ag	99%		G / F
I	Lesser of E or H	95%		Min (E, H)
J	Payable Metal Value	\$13.42	/oz	D x I
K	Ag Refining Charge (RC) \$/oz Payable Ag	\$1.40	/oz	Contract
L	Ag Refining Charge (RC) \$/oz milled	\$1.04	/oz	K x I x C
M	Payable Metal Value	\$12.37	/oz	J – L
<b>N</b>	<b>NSR Coefficient Ag</b>	<b>\$0.40</b>	<b>/g/t Ag</b>	<b>M / A</b>
<b>Gold Unit Contribution</b>				
	Au Grade	1.00	g/t Au	
O	Metal Price	\$1,250	/oz Au	
<b>Flotation Circuit</b>				
P	Recovery to Pb concentrate	80.0%		2016 Actuals
Q	Recovered Metal Value	\$1,000	/oz Au	O x P
<b>Refining</b>				
R	Payable Au	95%		Contract
	Minimum deduct of 1 gram per dmt			Contract
S	Typical concentrate grade	1.29	g/t Au	2016 Actuals
T	Concentrate grade after deduction	0.29	g/t Au	S – 1
U	Minimum deduct payable	23%		T / S
V	Lesser of R or U	23%		Min (R, U)
W	Payable Metal Value	\$225.67	/oz	Q x V
X	Au Refining Charge (RC) \$/oz Payable Au	\$ 17.50	/oz	Contract
Y	Au Refining Charge (RC) \$/oz	\$3.16		X x V x P
Z	Payable Metal Value less Refining Charges	\$222.51	/oz	W – Y
<b>AA</b>	<b>NSR Coefficient Ag</b>	<b>\$7.15</b>	<b>/g/t Ag</b>	<b>Z / A</b>
<b>Lead Unit Contribution</b>				
	Pb Grade	1.00%	%/tonne	
BB	Conversion (%/tonne to lb/tonne)	22.0462		
CC	Metal price	\$1.00	/lb	
<b>Flotation Circuit</b>				
DD	Recovery to Pb concentrate	82.5%		2016 Actuals
EE	Recovered Metal Value	\$0.83	/lb	CC x DD
<b>Refining</b>				
FF	Payable Pb	95.0%		Contract
	Minimum deduct of 3 units per dmt			Contract
GG	Typical concentrate grade	45%	% Pb	2016 Actuals
HH	Concentrate grade after deduct	42%	% Pb	GG - 3%
II	Minimum Deduct Payable	93%		HH / GG
JJ	Lesser of FF or II	93%		Min (FF,II)
KK	Payable Metal Value	\$0.77	/lb	JJ x EE

Description	Value	Unit	Formula
<b>LL NSR Coefficient Au</b>	<b>\$16.97</b>	<b>%/tonne</b>	<b>KK x BB</b>
<b>Fixed Cost Contribution</b>			
MM Treatment Charge (TC)	\$173.50	/dmt	Contract
NN Typical penalties	\$15.00	/dmt	2016 Actuals
OO Price participation	\$45.33	/dmt	Contract
PP Freight, Insurance, Representation	\$65.29	/dmt	2016 Actuals
QQ Total fixed cost per dmt	\$299.12	/dmt	Sum (MM,PP)
RR Tonnes of Pb concentrate (dmt)/tonne Milled	0.02565		2016 Actuals
<b>SS Total fixed cost per tonne milled</b>	<b>\$7.67</b>	<b>/tonne</b>	<b>QQ x RR</b>

**Table 46: Calculation of NSR formula components for sulphide ores from zinc concentrates (SRK 2017)**

Description	Value	Unit	Formula
<b>Silver Unit Contribution</b>			
Ag Grade	1.00	g/tonne	
A Conversion	31.10		
B Metal price	\$18.00	/oz	
<b>Flotation Circuit</b>			
C Recovery to Zn concentrate	8.1%		2016 Actuals
D Recovered Metal Value	\$1.47	/oz	B x C
<b>Refining</b>			
E Typical concentrate grade	14.69	oz/dmt	2016 Actuals
F Deduct 3 units	11.69	oz/dmt	Contract
G Pay 70% of remainder	70%		Contract
H Payable Metal Value	56%		E / F x G
I Payable Metal Value	\$0.82	/oz	H x D
<b>J NSR Coefficient Ag</b>	<b>\$0.03</b>	<b>/g/t Ag</b>	<b>I / A</b>
<b>Zinc Unit Contribution</b>			
Zn Grade	1.00%	%/tonne	
K Conversion (%/tonne to lb/tonne)	22.0462		
L Metal price	\$1.15	/lb	
<b>Flotation Circuit</b>			
M Recovery to Pb concentrate	64.2%		2016 Actuals
N Recovered Metal Value	\$0.74	/lb	L x M
<b>Refining</b>			
O Payable Zn	85%		Contract
Minimum deduct of 8 units per dmt			Contract
P Typical concentrate grade	43%	% Zn	2016 Actuals
Q Concentrate Grade after deduct	35%	% Zn	P - 8%
R Minimum Deduct Payable	81%		Q / P
S Lesser of O or R	81%		Min (O, R)
T Payable Metal Value	\$0.60	/lb	N x S
<b>U NSR Coefficient Zn</b>	<b>\$13.22</b>	<b>%/tonne</b>	<b>T x K</b>
<b>Fixed Cost Contribution</b>			
V Treatment Charge (TC)	\$155.00	/dmt	Contract
W Typical penalties	\$15.00	/dmt	2016 Actuals
X Price participation	\$119.83	/dmt	Contract
Y Freight, Insurance, Representation	\$65.29	/dmt	2016 Actuals
Z Total fixed cost per dmt	\$355.12	/dmt	Sum (V,Y)
AA Tonnes of Zn concentrate (dmt) /tonne milled	0.027		2016 Actuals
<b>BB Total fixed cost per tonne milled</b>	<b>\$9.62</b>	<b>/tonne</b>	<b>Z x AA</b>

Therefore, by adding the contributions from the lead concentrate and zinc concentrate, the NSR formula for sulphide ores can be expressed as:

$$\text{NSR (\$/tonne milled)} = \$0.42 \times \text{Ag} + \$7.15 \times \text{Au} + \$16.97 \times \text{Pb} + \$13.22 \times \text{Zn} - \$17.29$$

Where:

- Ag is the silver grade in g/t.
- Au is the gold grade in g/t.
- Pb is the lead grade in percent.
- Zn is the zinc grade in percent.
- \$17.29 per tonne milled represents the fixed costs for treatment charges, price participation, penalties, freight, insurance and representation for both concentrates.

### Cut-Off Value (COV)

As some of the potential mineral reserves are located in areas in proximity to existing development, and some are located in new mining areas, a two-tier COV was utilized:

- A COV excluding sustaining development and diamond drilling costs was applied to the areas that are already developed.
- A COV including sustaining development and diamond drilling costs was applied to any new areas requiring ramp development and infill diamond drilling before mining could begin.

Table 47 lists the various components used for both COV's.

**Table 47: Cut-off values for oxide and sulphide ores in \$ per tonne milled (FMS 2017)**

Description	Oxide	Sulphide
Mining cost	\$17.88	\$17.88
Milling cost	\$13.97	\$17.70
Indirect costs	\$11.39	\$11.39
Site G&A costs	\$5.32	\$5.32
Sustaining Plant & Closure	\$4.17	\$4.17
<b>COV (without sustaining)</b>	<b>\$52.73</b>	<b>\$56.46</b>
Sustaining Development & DDH	\$7.05	\$7.05
<b>COV (with sustaining)</b>	<b>\$59.78</b>	<b>\$63.51</b>

### Stope Design

FMS has been using mechanized cut and fill mining methods (MCF) since acquiring the property. The stope shapes that support the mineral reserve estimates based on block modelling methods were therefore created considering the MCF mining method using a two-step process.

Step 1: The maximum potential mineable volumes were outlined in a longitudinal view, extruded into a solid and used to clip-out the appropriate vein wireframes based on Measured and Indicated mineral resources above COV (without sustaining) using Boolean operations. This results in the maximum potential mineable resource that may be convertible to mineral reserves.



As a practical consideration, Datamine’s Mineable Stope Optimizer V3 software (MSOv3) was used in this case as a tool to identify areas with sufficient continuity in grade and vein width to meet the economic criteria. Table 48 and Table 49 below list the critical MSO parameters used for oxides and sulphides respectively.

Step 2: The stope shapes created in step 1 were then refined by overlaying the 3D volumes generated from the block models using MSOv3. This refinement adjusts the initial 3D volumes based on economic parameters, and accounts for the impact of vein width on dilution. The shapes were also adjusted to account for mining losses such as permanent sill pillars, rib pillars and for areas that are no longer accessible or are otherwise considered unmineable.

Mineral reserves were developed separately for each deposit and mineralization type.

The stope designs targeted only Measured and Indicated mineral resources, but where Inferred mineral resources were unavoidably included within mining shapes, they were treated in the same manner as external dilution. This was achieved by setting the NSR value of all Inferred mineral resource blocks to equal the off-site costs, i.e., the NSR value of all Inferred mineral resource blocks is negative. Total Inferred resourced included in the mineral reserve estimate from block models is less than 2%.

Variables such as sub-level spacing, sill pillar sizing, and minimum mining width were based on current mining practices at site.

**Table 48: Mine design criteria used in MSOv3 for oxide ores (SRK 2017)**

Parameter	Value	Unit
Mining method (vein width > 2.0 m)	MCF	
Mining method (vein width 0.9–2.1 m)	MCF with resuing	
Total hangingwall/footwall dilution	0.4	metres
Sub-level spacing	12 to 15	metres
Minimum mining width (diluted resuing)	1.3	metres
Minimum mining width (diluted MCF)	2.4	metres
Cut-off value (without sustaining costs)	\$52.73	\$ per tonne
Cut-off value (with sustaining costs)	\$59.78	\$ per tonne

**Table 49: Mine design criteria used in MSOv3 for sulphide ores (SRK 2017)**

Parameter	Value	Unit
Mining method (vein width > 2.1 m)	MCF	
Mining method (vein width 0.9–2.1 m)	MCF with resuing	
Total hangingwall/footwall dilution	0.3	metres
Sub-level spacing	12 to 15	metres
Minimum mining width (diluted resuing)	1.2	metres
Minimum mining width (diluted MCF)	2.4	metres
Cut-off value (without sustaining costs)	\$56.46	\$ per tonne
Cut-off value (with sustaining costs)	\$63.51	\$ per tonne

## The Mineral Reserve Estimate

The final stope shapes were processed using Datamine Studio 5D Planner software to evaluate the tonnes and grade by mineral resource category. These evaluation results represent the in-situ mineral

resources available to be mined. The evaluation results were imported into Microsoft Excel in order to apply the modifying factors and compile the final mineral reserve estimate for the deposits based on block models.

The modifying factors applied to the evaluation results were external dilution and mining recovery. Internal dilution is already accounted for within the 3D stope shapes and is included in the evaluation results. Dilution percentages are defined as waste tonnes/ore tonnes (W/O) in all cases.

External dilution on the total mineral reserves averages 22% for oxides and 15% for sulphides. The external dilution is based on the true width of the vein, with a constant overbreak added to estimate the final mining width to be broken. For oxide ores, the minimum mining width possible using resuing is 0.9 m + 0.4 m of overbreak, or 1.3 m. As the sulphide ores are not as friable as the oxide ores, the minimum mining width for sulphides is 0.9 m + 0.3 m overbreak, or 1.2 m. An additional 5% external dilution was added to account for dilution from other sources, such as backfill dilution from mucking operations.

Mining recovery for mechanized cut and fill (MCF) stopes was set at 95%.

Both the external dilution and mining recovery applied are based on site observations and experience. No reconciliation data was available on site.

SRK is not aware of any known mining, metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral reserve estimates, other than discussed herein.

The consolidated Mineral Reserve Statement is presented in Section 15.3. This section presents both the Mineral Reserve Estimates based on block models and those based on polygonal estimation techniques.

## **15.2 Mineral Reserve Estimates based on Polygonal Estimation Methods**

This section summarizes the key assumptions, parameters, and methods used by FMS in the preparation of the mineral reserve estimates based on polygonal estimation methods for the La Parrilla Silver Mine. The Mineral Reserve Statement presented in 15.3 has been prepared for public disclosure.

The underground mine-planning work supporting the preparation of the mineral reserve estimates based on polygon estimation methods discussed herein was prepared by FMS staff under the supervision of Mr. Ramón Mendoza Reyes, PEng., Vice President of Technical Services for FMS. Mr. Mendoza is the Qualified Person (QP) accepting the professional responsibility for Mineral Reserve Estimates based on polygonal estimation methods.

This section presents a summary of the methodology used to prepare the apportion of the mineral reserve statement for the La Parrilla Silver Mine based on polygonal estimation methods.

### **15.2.1 Mineral Reserve Estimation Methodology**

The conversion of mineral resources to mineral reserve estimate involves the following procedures:

- Review geological information, 2D resource blocks and operational information for selection of applicable mining methods and other mine design criteria.
- Determine appropriate Cut-Off grades (COGs) based on 2016 cost data, process plant recoveries, and smelter contracts for the La Parrilla Silver Mine.
- Review metal price assumptions approved by FMS management for mineral resource and mineral reserve estimates.
- Determine key mine design parameters such as minimum mining widths, pillar sizing and overbreak.
- Determine modifying factors such as dilution and mining recovery via benchmarking and underground observations. No reconciliation data was available.
- Prepare an Excel spreadsheet for each mining area listing the mineral resource blocks with Measured and Indicated mineral resource classifications.
- For each mineral resource block to be considered, the insitu tonnes, grades, true vein width and long-sectional area are listed.
- External dilution and mining recovery are then calculated in the same manner as described in Section 15.1.2 to determine the potentially mineable tonnes and grades for each block
- Each block is then tested against the appropriate COG to determine if the block is economic.
- Refine estimate by remove areas identified as inaccessible or unmineable by site mine engineering staff, remove areas isolated from more substantial mining areas.
- Generation of mine design, sequence, and schedule.
- Validate the economic viability of the overall plan in a cash flow model.
- Preparation of the Mineral Reserve Statement.

## 15.2.2 Preparation of Mineral Reserve Estimate for Deposits using the Polygonal Method

### Assumptions

Mineral reserve estimates were developed separately for both oxide and sulphide ores with the majority of the assumptions and modifying factors being the same for both types.

The key assumptions and parameters considered for the preparation of the Mineral Reserve Statement for oxide ores are summarized in Table 42 (Section 15.1.2).

The key assumptions and parameters considered for the preparation of the Mineral Reserve Statement for sulphide ores are summarized in Table 43 (Section 15.1.2).

### Silver Equivalent (Ag-Eq)

Based on the data presented in Table 42 and Table 43, the silver equivalent (Ag-Eq) for each mineral resource block can be calculated.

$$\text{Ag-Eq (g/t)} = \text{Ag Grade (g/t)} + [ (\text{Au Grade (g/t)} \times \text{Au Recovery} \times \text{Au Payable} \times \text{Au Price} / 31.1035) + (\text{Pb Grade (\%)} \times \text{Pb Recovery} \times \text{Pb Payable} \times \text{Pb Price} \times 2204.62) + (\text{Zn Grade (\%)} \times \text{Zn Recovery} \times \text{Zn Payable} \times \text{Zn Price} \times 2,204.62) ] / (\text{Ag Recovery} \times \text{Ag Payable} \times \text{Ag Price} / 31.1035)$$

### Cut-Off Grade (COG)

A silver equivalent (Ag-Eq) cut-off grade (COG) was estimated to identify the mineral resource polygons suitable for consideration as a potential mineral reserve. The COG's for underground

oxides and sulphides was developed using the all-in-sustaining mining costs of \$59.78 and \$63.51 per tonne milled respectively. These all-in-sustaining mining costs include sustaining development and sustaining capital as shown in Table 47.

The all-in-sustaining mining cost for open pit mining of oxides was \$37.33 per tonne milled, which includes sustaining capital and sustaining waste stripping, details shown in Table 50.

**Table 50: Cost values for oxide ores to be mined by open pit, \$ per tonne milled (FMS 2017)**

Description	Oxide (\$)
Mining cost	3.15
Milling cost	13.97
Indirect costs	8.61
Site G&A costs	5.32
Sustaining plant & closure	4.43
Sustaining stripping & DDH	1.85
<b>COV (with sustaining)</b>	<b>37.33</b>

A COG estimate based on the actual 2016 financial numbers was generated for the underground cut-and-fill mining method and the open pit mining method as presented in Table 51.

**Table 51: Cut-off grade for oxide and sulphide ores in Ag-Eq (g/t) (FMS 2017)**

Description	Oxide	Sulphide
Underground mining	160	160
Open pit mining	100	

## The Mineral Reserve Estimate

The mineral reserve estimation process for polygonal estimates were done in the same manner as for the block model estimates once the mineral resources to be converted had been identified. The polygonal blocks to be converted were listed in Microsoft Excel in order to apply the modifying factors and compile the final mineral reserve estimate for the deposits based on polygonal estimates.

The modifying factors applied were external dilution and mining recovery. Internal dilution is not accounted for specifically within the polygonal estimate. Dilution percentages are defined as waste tonnes/ore tonnes (W/O) in all cases.

External dilution on the underground mineral reserves averages 21% for oxides and 23% for sulphides. The external dilution is based on the true width of the vein, with a constant overbreak added to estimate the final mining width to be broken. For oxide ores, the minimum mining width possible using resuing is 0.9 m + 0.4 m of overbreak, or 1.3 m. As the sulphide ores are not as friable as the oxide ores, the minimum mining width for sulphides is 0.9 m + 0.3 m overbreak, or 1.2 m. An average of 15% external dilution was considered for open pit mining to account for blasting overbreak. An additional 5% external dilution was added to account for dilution from other sources, such as backfill dilution from mucking operations or waste dilution from surface loading and handling.

Mining recovery for mechanized cut and fill (MCF) stopes and open pit mining was set at 95%.

Both the external dilution and mining recovery applied are based on site observations and experience. No reconciliation data was available at the time of preparation of this report.

FMS is not aware of any known mining, metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral reserve estimates, other than discussed herein.

The consolidated Mineral Reserve Statement is presented in Section 15.3. This section presents both the Mineral Reserve Estimates based on block models and those based on polygonal estimation techniques.

### **15.3 Mineral Reserve Statement**

The mineral reserves are estimated in conformity with *CIM Estimation of Mineral Resources and Mineral Reserves Best Practices Guidelines* (November 2003) and are classified according to CIM Definition Standards for *Mineral Resources and Mineral Reserves* (May 2014) guidelines. The Mineral Reserve Statement is reported in accordance with National Instrument 43-101. FMS is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that may materially affect the mineral reserves. The effective date of the Mineral Reserve Statement shown in Table 52 is December 31, 2016.

**Table 52: Mineral Reserve Statement\*, La Parrilla Silver Mine, Mexico, with an Effective Date of December 31, 2016 (FMS 2017)**

Deposit/Vein	Category	Estimation Method	Mineral Type	Cut-off NSR (\$) or Ag-Eq (g/t)	Mineral Reserve						Metal				
					Quantity (ktonnes)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Ag-Eq (g/t)	Ag (koz)	Au (koz)	Pb (ktonnes)	Zn (ktonnes)	Ag-Eq (koz)
San Marcos	Probable (underground)	Block Model	Oxides	\$59.78/52.73	187	181	0.16	-	-	194	1,090	0.95	-	-	1,170
Quebradillas UG	Probable (underground)	Polygonal	Oxides	160	50	208	0	-	-	208	340	0	-	-	340
Quebradillas OP	Probable (open pit)	Polygonal	Oxides	100	408	108	0.02	-	-	109	1,410	0.21	-	-	1,430
<b>Total Probable (Oxides)</b>	<b>UG + OP</b>				<b>645</b>	<b>137</b>	<b>0.06</b>	<b>-</b>	<b>-</b>	<b>141</b>	<b>2,840</b>	<b>1.17</b>	<b>-</b>	<b>-</b>	<b>2,940</b>
Rosarios/ La Blanca	Probable (underground)	Block Model	Sulphides	\$63.51/56.46	402	200	0.09	1.02	0.43	255	2,580	1.21	4.1	1.7	3,300
Intermedia	Probable (underground)	Block Model	Sulphides	\$63.51/56.46	41	168	0.13	0.63	0.88	225	220	0.17	0.3	0.4	300
Quebradillas	Probable (underground)	Polygonal	Sulphides	160	320	224	0	2.70	2.70	401	2,310	0	8.7	8.6	4,130
San Nicolas	Probable (underground)	Polygonal	Sulphides	160	69	241	0	1.08	1.55	325	530	0	0.7	1.1	720
<b>Sub-Total Probable (Sulphides)</b>	<b>UG only</b>				<b>832</b>	<b>211</b>	<b>0.05</b>	<b>1.65</b>	<b>1.42</b>	<b>316</b>	<b>5,640</b>	<b>1.38</b>	<b>13.8</b>	<b>11.8</b>	<b>8,450</b>
<b>Total Proven and Probable (All Mineral Types)</b>					<b>1,477</b>	<b>179</b>	<b>0.05</b>	<b>0.93</b>	<b>0.80</b>	<b>239</b>	<b>8,480</b>	<b>2.55</b>	<b>13.8</b>	<b>11.8</b>	<b>11,390</b>

- \*
- (1) Block model based estimates prepared under the supervision of Stephen Taylor, PEng, Principal Consultant (Mining), SRK Consulting (Canada) Inc.
  - (2) Update polygonal estimates prepared under the supervision of Ramón Mendoza Reyes, PEng, QP Mining for First Majestic Silver Corp.
  - (3) Mineral Reserves have been classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101
  - (4) Metal prices considered for Mineral Reserves estimates were \$18.00 /oz Ag, \$1250 /oz Au, \$1.00 /lb Pb, and \$1.15 /lb Zn
  - (5) Metallurgical recovery used for oxides based on 2016 actuals was 65.9% for silver and 80.8% for gold.
  - (6) Metallurgical recovery used for sulphides based on 2016 actuals was 86.6% for silver, 80% for gold, 82.5% for lead and 64.2% for zinc.
  - (7) Metal payable used was 99.6% for silver and 95% for gold in doré produced from oxides.
  - (8) Metal payable used was 95% for silver, gold and lead and 85% for zinc in concentrates produced from sulphides.
  - (9) Silver equivalent grade is estimated as:  $Ag-Eq = Ag\ Grade + [(Au\ Grade \times Au\ Recovery \times Au\ Payable \times Au\ Price / 31.1035) + (Pb\ Grade \times Pb\ Recovery \times Pb\ Payable \times Pb\ Price \times 2204.62) + (Zn\ Grade \times Zn\ Recovery \times Zn\ Payable \times Zn\ Price \times 2204.62)] / (Ag\ Recovery \times Ag\ Payable \times Ag\ Price / 31.1035)$ .
  - (10) The modifying factors used are consistent for each estimation method, but different for each ore type as described in Section 15.1
  - (11) Cut-off NRS values considered for oxide block model estimates from underground operation was US\$63.51 with Sustaining and US\$56.46 without Sustaining, based on actual costs. See Section 15.1 for more information.
  - (12) Cut-off NSR values considered for sulphides block model estimates from underground operations was US\$59.78 with Sustaining and US\$52.73 without Sustaining, based on actual costs. See Section 15.1 for more information.
  - (13) Cut-off grade considered for oxide polygonal estimates from underground operation was 160 g/t Ag-Eq and 100 g/t Ag-Eq for open pit operations, both are based on actual and budgeted operating and sustaining costs.
  - (14) Cut-off grade considered for sulphides polygonal estimates was 160 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.
  - (15) The Mineral Reserves information provided above for deposits based on block models represent an independent estimate prepared as of Dec 31, 2016. The information provided was reviewed and validated by Mr. Stephen Taylor, PEng of SRK Consulting (Canada) Inc, who has the appropriate relevant qualifications, and experience in mining and reserve estimation practices.
  - (16) The Mineral Reserves information provided above for deposits based on polygonal estimation techniques is based on internal estimates prepared as of Dec 31, 2016. The information provided was reviewed and validated by the Company's internal Qualified Person, Mr. Ramón Mendoza Reyes, PEng, who has the appropriate relevant qualifications, and experience in mining and reserve estimation practices.
  - (17) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces or thousands of tonnes.
  - (18) Totals may not add up due to rounding.

## 16 Mining Methods

### 16.1 Overview

Mining activity in the La Parrilla mining district began during the Spanish colonial times of the 16<sup>th</sup> century. Numerous discoveries were made during this time including the mines at Fresnillo, San Martin, Sombrerete, La Colorada and Cerro del Mercado.

Underground silver-gold-lead mines and a processing facility were originally constructed in 1956 at La Parrilla. In 1960, the mining claims were acquired by Minera Los Rosarios, S.A. de C.V. (MLR) who operated several small underground mines until 1999, which were eventually put on a care and maintenance program due to low silver prices.

In 2004, FMS acquired the mining rights and the plant from Minera Los Rosarios, and in 2006 successfully negotiated the acquisition of the mineral rights held by Grupo México which surrounded the original La Parrilla mine.

Commercial production at La Parrilla under FMS resumed in 2005 at 180 tpd of oxide ores using the existing mill built in 1960. With the commissioning of an 800 tpd mill in 2007, mining capacity ramped up to 400 tpd for the oxide ores and 400 tpd for the sulphide ores.

With the commissioning of a major expansion to La Parrilla's mill capacity in early 2012, mining capacity was ramped up to 1,000 tpd oxide ores and 1,000 tpd sulphide ores. The oxide ores were initially provided largely by a new open pit located at Quebradillas and at the San Marcos underground mine. The Rosarios, Intermedia and Vacas mines were expanded to provide sulphide ores.

Production in 2016 was from five underground sources and from the Quebradillas open pit. Oxide ores were supplied mainly by the Quebradillas open pit, and Quebradillas and San Marcos underground mines, while sulphide ores were supplied from Rosarios, Intermedia, Vacas and Quebradillas underground mines. Both the Quebradillas open pit and Vacas were mined out in 2016.

### 16.2 Historical Mining Methods

Historical underground mining at La Parrilla consisted of conventional shrinkage and cut and fill mining methods based on track haulage.

### 16.3 Current Mining Methods

Since restarting mining operation in 2004, FMS has invested in developing the ramp and ventilation infrastructure required to utilize modern mobile equipment and have been using mechanized cut and fill methods (MCF).

This is the mechanized version of a classic method for mining narrow orebodies and involves extracting the ore in small slices, 2 to 4 m high, working from the bottom of the mining block upwards. As each cut is extracted, the void is filled with waste rock from development to stabilize the walls and create a working platform for the next lift.

MCF mining for a new mining block begins by driving a 4 x 4m ramp on the footwall side of the ore body and establishing sub-levels at regular vertical intervals. A typical mining block at La Parrilla will have the main haulage levels every 50 m with three sub-levels at 12 m intervals as shown in Figure 43. The main haulage levels will include any ventilation infrastructure, a remuck for storing broken ore, a truck loading area, electrical substations and sumps.

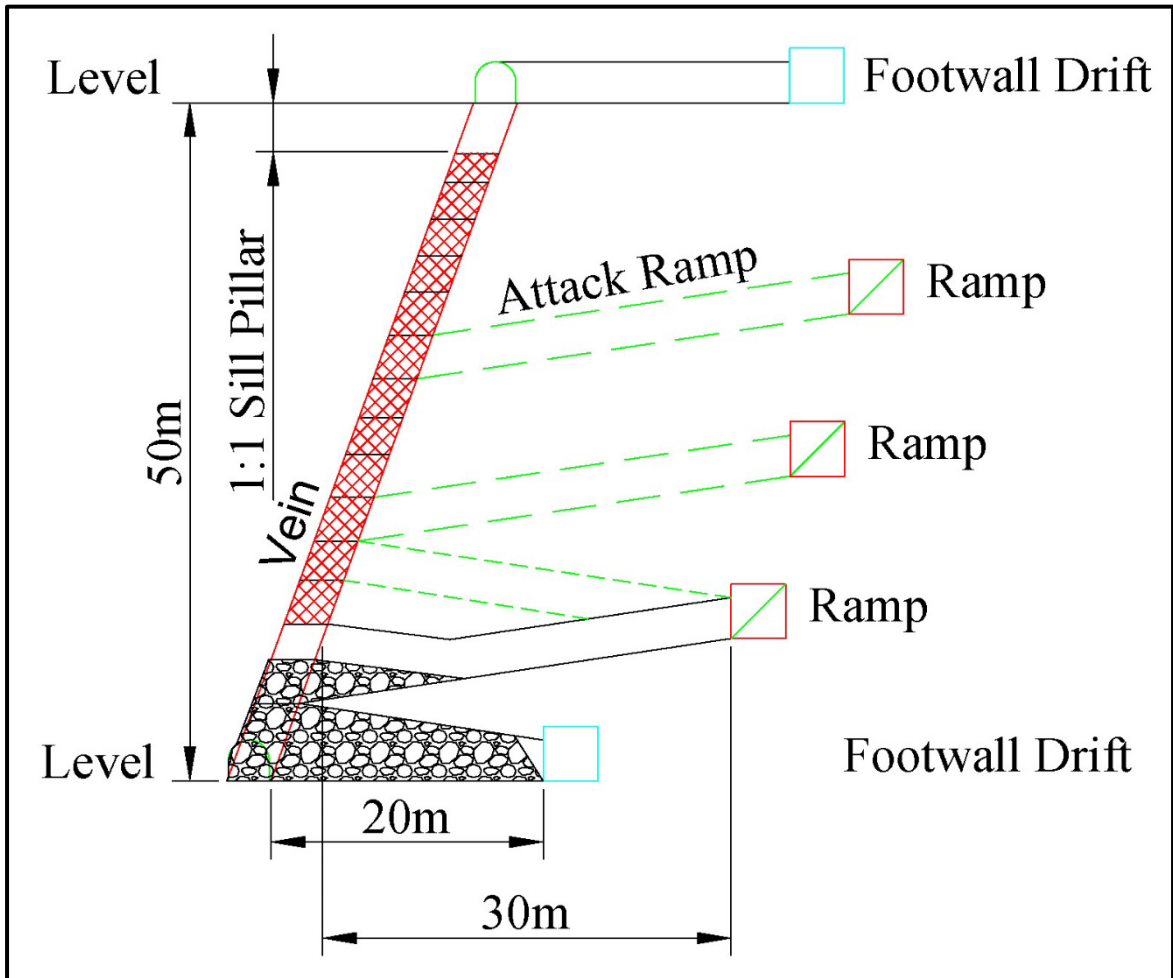
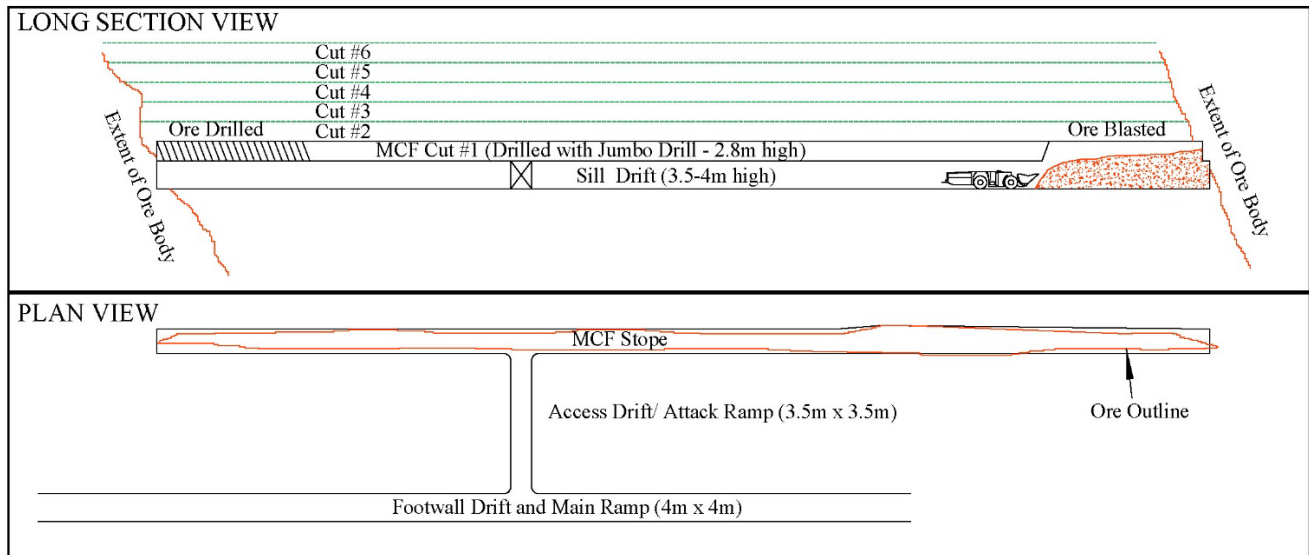


Figure 43: Typical Section through an MCF stope (FMS 2017)

To access the ore body, an initial access drift or attack ramp is driven from the lower main level to near the middle of the bottom elevation of the MCF stope. Typical development methods are then used to drive sill drifts in ore to each extent of the ore body as shown in Figure 44. Sill drifts are typically driven 3.5 to 4 m high to accommodate the production drilling.

At La Parrilla, production drilling is carried out by hydraulic jumbo drills where the veins are wider, and by handheld pneumatic jackleg drill in narrower sections. Blast holes are generally drilled as inclined up holes in the back of the stope (Figure 44). When drilling inclined up holes with jumbos (48 mm diameter x 3.6 m long drillholes), each lift of the MCF stope is nominally 2.8 m high, and when drilling with jackleg drills (32 mm diameter x 2.4 m long drillholes), each lift is nominally 2 m high.





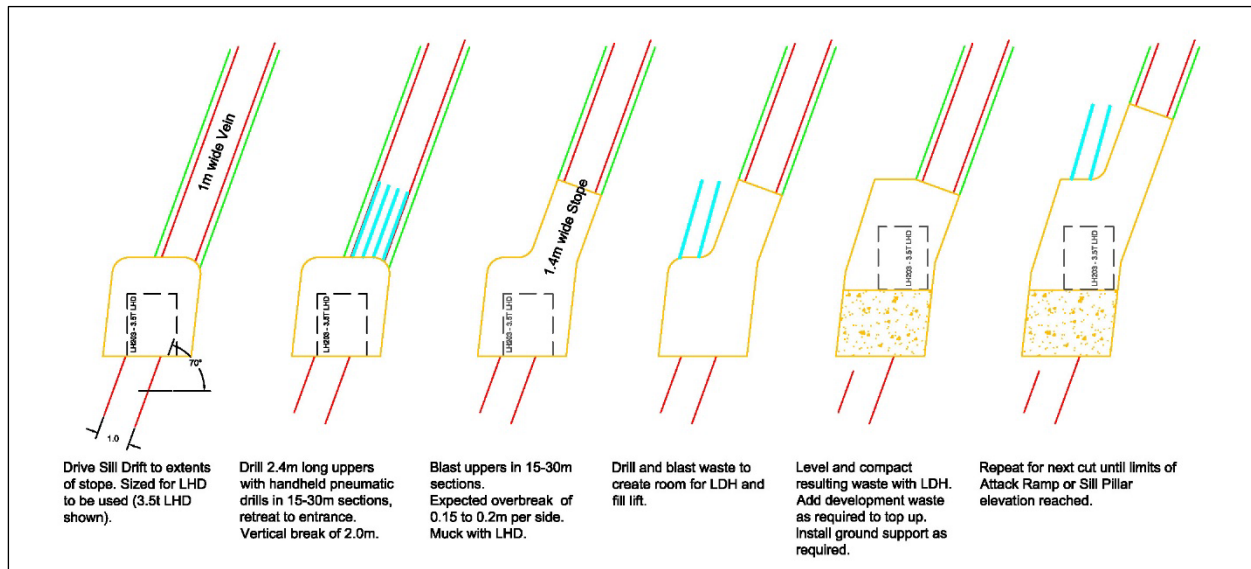
**Figure 44: Typical Plan and Long Section through an MCF Stope (SRK 2017)**

Depending on the location of local ventilation, a conventional raise may be driven at one end of the ore body from the sill drift up to the next level in order to provide flow-through ventilation; such a raise may also be located beside the access drift or attack ramp and auxiliary ventilation fans may be used to ventilate the stope.

The MCF cuts are mined by drilling and blasting inclined up holes with a jumbo in 15–30 m long sections starting at the extents of the ore body and retreating to the access. This drill, blast, muck cycles continues until the whole cut has been mined. With the stope now two cuts high, the stope is backfilled with waste rock from development to the required height to facilitate production drilling of the next cut, and the back of the access drift or attack ramp is drilled and blasted to allow access on top of the backfill.

This process is repeated cut by cut, with access being gained through the various access drifts or attack ramps until the sill pillar elevation is reached. A 1:1 sill pillar is left to contain the rockfill above as the mining block above has generally already been mined out.

FMS also employs MCF with resuing when the vein width is narrower than the minimum mining width required by the mobile equipment. All areas where resuing is used are drilled by handheld pneumatic drills. The only real difference between MCF and MCF with resuing is that waste rock is blasted in the stope to create enough room for the LHD (load-haul-dump machine) to operate, which creates some or all of the rockfill required for the cut. Figure 45 illustrates the sequence used at La Parrilla when resuing.



**Figure 45: MCF with Resuing Sequence (SRK 2017)**

The major advantages of MCF are:

- A very selective method with minimal dilution, especially when resuing is used in narrow areas.
- Skills required are generally the same as development, greater flexibility
- Good regional ground stability as the stopes are filled
- Local support can be installed as required
- Resuing methods may allow economic recovery of narrower veins

The major disadvantages are:

- Relatively low productivity method, especially when using resuing
- Dependent on availability of rockfill, mining must cease while each void is filled
- Personnel entry method with high exposure to freshly mined backs, required ground support varies widely depending on rock mass quality and local regulations

In 2016, one longhole open stopes was excavated at San Marcos as a trial. FMS plans to continue implementing the longhole mining method as there are many areas that are suited to the application of longhole open stopes mining methods. One such area is the La Blanca area of the Rosarios mine where ground conditions are excellent, and the steeply dipping vein is 3 m wide or more as shown in Figure 46. For purposes of this report and the mineral reserves reported herein, the underground mining method has been assumed as MCF.

In 2012, the Quebradillas open pit was also started in order to supply a steady source of oxide ores. This open pit was mined using small-scale equipment and was largely mined out by the end of 2016, with some ore remaining in the pit floor and in the pit wall.

### 16.3.1 Hydrogeology

The climate in the vicinity of the La Parrilla mine is a desert climate with an average annual rainfall of 441 mm (town of Nombre de Dios), with the majority of the rainfall occurring between May and October. FMS has not commissioned any hydrogeology studies on the property and is unaware of any historical studies.

The Rosarios vein system has been in production for many decades with no significant flooding issues, though occasional heavy rainstorms may partially interrupt underground operations. Most water observed underground is process water from mining operations, there are generally little to no passive inflows except during heavy rainstorms.

Mine dewatering for the San Marcos, Intermedia, and Rosarios deposits consists of small local sumps located on the main levels which pump contact water to a central station for decanting and recycling. Any excess is pumped to the surface water tank that provides make-up water to the mill.

Process water for the site is pumped from wells to the main surface water tanks which service the site. The San Marcos, Intermedia, and Rosarios deposits are supplied via pipe lines in the ventilation raises from the main tanks. The satellite deposits have smaller process water tanks located at the ventilation raises on surface, these smaller tanks were originally filled by water truck but have been converted to surface pipeline from the main tanks.

### 16.3.2 Mine Geotechnical

The La Parrilla Silver Mine currently employs a geotechnical engineer who is responsible for overseeing the development, implementation, and monitoring of the ground support strategy used on site. To this end, the site has developed a set of ground control standards based on the Norwegian Geotechnical Institute's Q rock mass classification system (Barton et al 1974) which also allows the application of a number of empirical design methods for mine design parameters such as allowable spans in the stopes and stope stability analysis using Mathew's method (Mathews et al 1981).

The current ground control standards account for six geotechnical domains: three for oxidized areas and three for sulphide areas. Areas with good quality rockmass ratings or better typically have no ground support installed. Areas with poor to very poor rockmass rating will be supported using rockbolts in the sulphide areas and shotcrete in the oxide areas. Failure mechanisms in the sulphide areas tend to be wedges failures due to gravity. Failure mechanisms in the oxide areas include wedge failures due to gravity and continuous spalling of the oxidized material due to exposure to oxygen and water; this is mitigated by using a 50-mm layer of fibre-reinforced shotcrete.



**Figure 46: Excellent Quality Rockmass - Sulphide MCF Stope at Rosarios (SRK 2017)**



**Figure 47: Good Rockmass Quality in Oxide MCF Stope at Quebradillas (SRK 2017)**

FMS has not commissioned any structural geology or geotechnical studies at La Parrilla and is not aware of any such studies by previous owners. FMS does not routinely conduct geotechnical drilling or geotechnical core logging.

### 16.3.3 Underground Mine Design Criteria

Mine development is done using a basic fleet of mobile equipment consisting of a jumbo, LHD and haulage trucks. Ground support installation is not mechanized. Table 53 summarizes the development sizes and level spacings. The stope design criteria are summarized in Table 54 for oxide ore and Table 55 for sulphide ore.

**Table 53: Development Design Criteria (FMS 2017)**

<b>Development Design Criteria</b>	<b>Dimensions</b>
Main ramps (15% grade)	4.0 x 4.0 m
Levels, footwall drifts and other infrastructure	3.5 x 3.5 m
Stope access drifts & attack ramps	3.5 x 3.5 m
Main ventilation raises (raisebored)	3.0 m diameter
Ventilation raises/manways (open raising)	1.8 x 1.8 m
Level spacing	50 m
Sub-level spacing	12 m

**Table 54: Stope Design Criteria for Oxide Ores (FMS 2017)**

<b>Parameter</b>	<b>Value</b>
Mining method (vein width > 2.0 m)	MCF
Mining method (vein width 0.9–2.0 m)	MCF with Resuing
Total hangingwall/footwall dilution (oxides)	0.4 m
Minimum mining width (diluted resuing) (oxides)	1.3 m
Minimum mining width (diluted MCF)	2.4 m

**Table 55: Stope Design Criteria for Sulphide Ores (FMS 2017)**

<b>Parameter</b>	<b>Value</b>
Mining method (vein width > 2.1 m)	MCF
Mining method (vein width 0.9–2.1 m)	MCF with Resuing
Total hangingwall/footwall dilution (sulphides)	0.3 m
Minimum mining width (diluted resuing) (sulphides)	1.2 m
Minimum mining width (diluted MCF)	2.4 m

Resuing is used when the final stope width, including dilution, is between 1.2 to 2.4 m wide. The narrowest that one can practically drill and blast using handheld pneumatic drills is 0.9 m wide, with an expected overbreak of 0.3 m in sulphide ores and 0.4 m in oxide ores.

Resuing is used up to a final stope width of approximately 2.4 m wide, with the 2.4 m width being based on the width in which a 3.5 tonne LHD or one boom jumbo can safely operate.

Therefore, when the true width of a sulphide vein is more than 2.1 m wide (2.0 m for oxide ores), the stope will be mined as an MCF stope without resuing.

## 16.4 Underground Mine Model (Rosarios Deposit)

The Rosarios deposit is the oldest of the operating mines located at La Parrilla, with development down to around 470 m depth at 14 Level. As this deposit was historically mined by different operators, some areas of the deposit are known by other names such as La Blanca and San José; FMS considers all of these areas as part of Rosarios.

The current mine plan calls for the current mineral reserves to be mined at a rate of 120 ktpa of sulphide ores. The current mineral reserves are largely in areas already developed, and represent stopes currently in production or extension and remnants of past stopes.

### 16.4.1 Underground Mine Layout

The current mineral reserves shown in Figure 48 below in red have been estimated from a 3-dimensional block model. Due to a lack of sufficient drilling density and areas with few diamond drillholes, some large areas have been classified as Inferred mineral resources (Figure 49).

Some of these Inferred mineral resources may have been previously classified as Measured and Indicated resources by polygonal estimation methods.

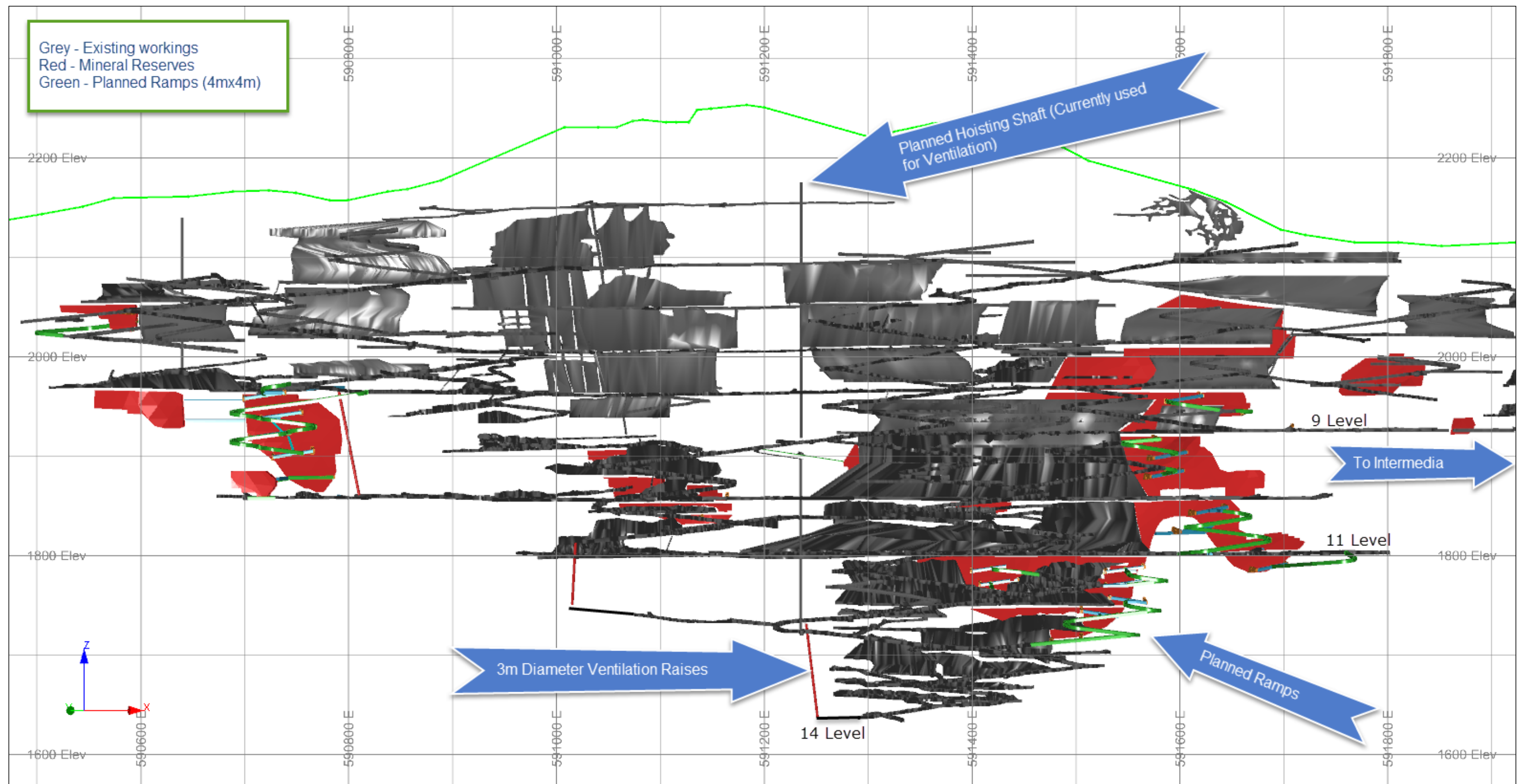


Figure 48: Rosarios Long Section Looking North (SRK 2017)

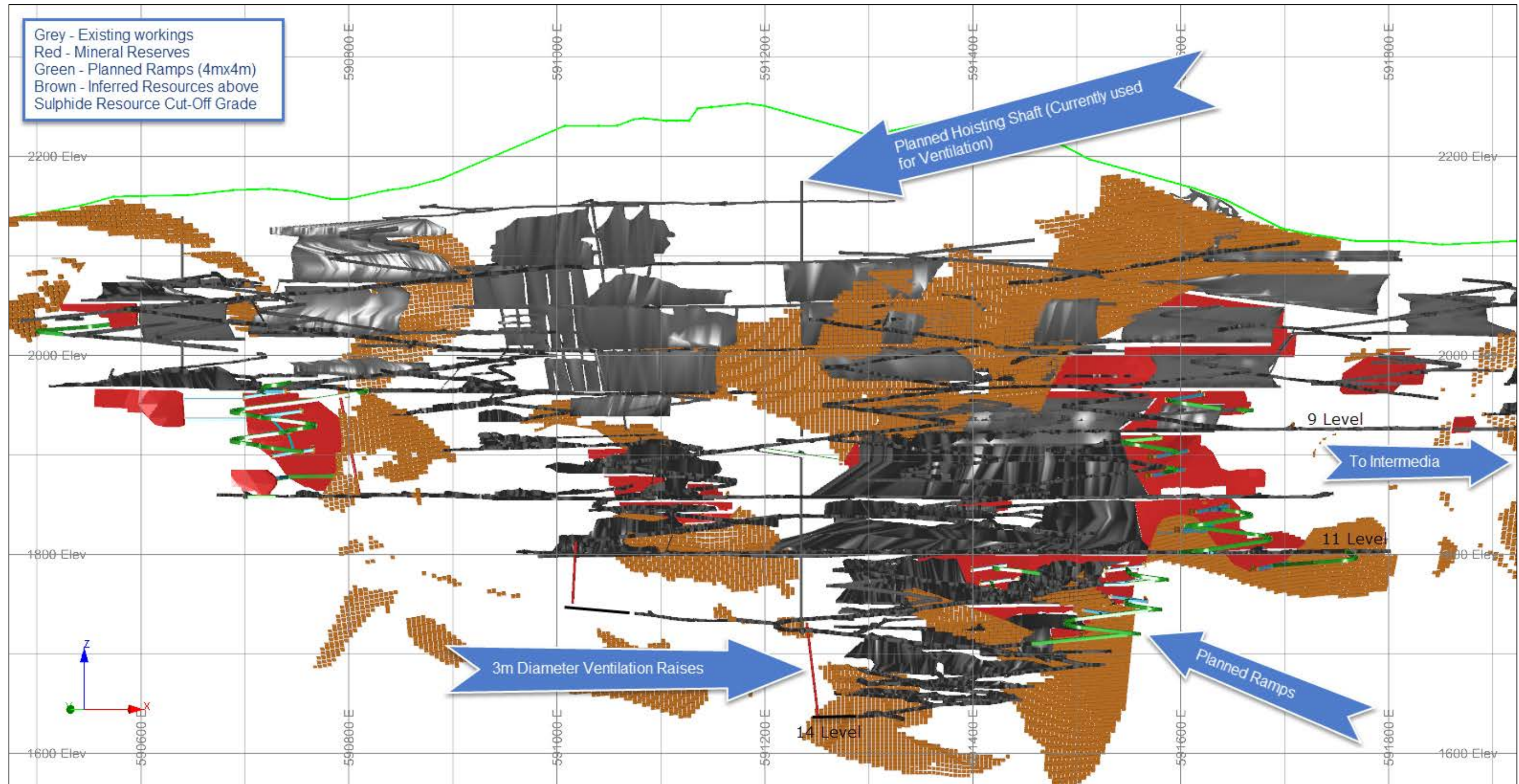


Figure 49: Rosarios Long Section Looking North with Inferred Resources (SRK 2017)



### 16.4.2 Capital and Operating Development

The total capital and operating development required to extract the mineral reserves as shown in Figure 48 is summarized in Table 56.

**Table 56: Capital and Operating Development Requirements for Rosarios (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>Markup</b>	<b>Total (m)</b>
Main ramp	4 x 4	10%	2,370
Main level/infrastructure	3.5 x 3.5	10%	980
Auxiliary vent/access raise	1.8 x 1.8	10%	250
Main ventilation raise (raisebored)	3 m dia.	10%	320
<b>Operating Development (m)</b>			
MCF attack ramps	3.5 x 3.5	10%	2,510
Stope access drifts	3.5 x 3.5	10%	250

### 16.5 Underground Mine Model (Intermedia Deposit)

The Intermedia deposit is a newer discovery; it is an extension of the Rosarios Deposit and connects to the San Marcos deposit.

The current mine plan calls for the remaining 113 kt of mineral reserves to be mined out in 2017. The current mineral reserves are largely in areas already developed and represent stopes currently in production, or extension and remnants of past stopes.

#### 16.5.1 Underground Mine Layout

The current mineral reserves shown in red in Figure 50 have been estimated from a 3-dimensional block model. Due to a lack of sufficient drilling density and areas with few diamond drillholes, some areas have been classified as Inferred mineral resources (Figure 51).

Some of these Inferred mineral resources may have been previously classified as Measured and Indicated resources by polygonal estimation methods.

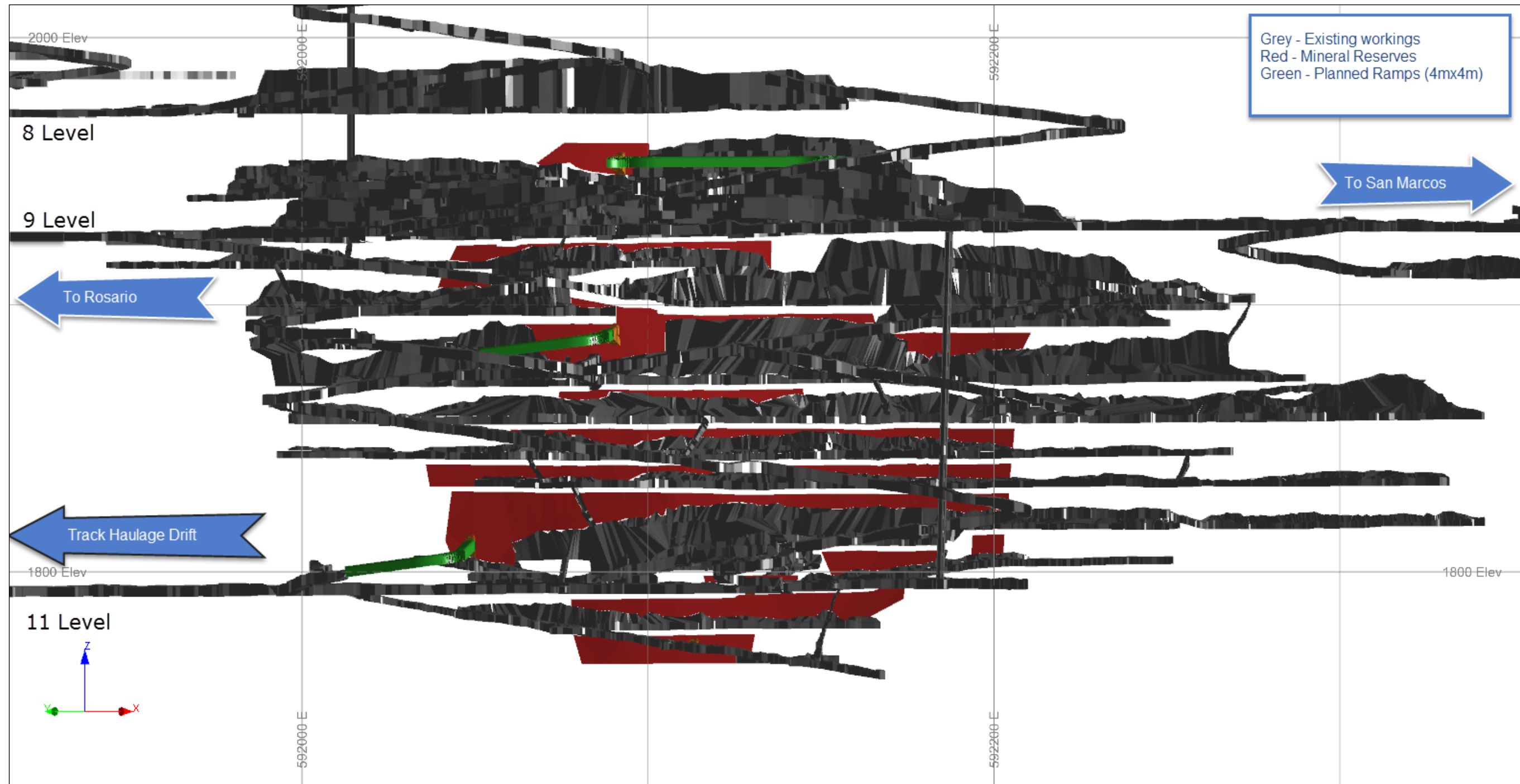


Figure 50: Intermedia Long Section Looking North East (SRK 2017)

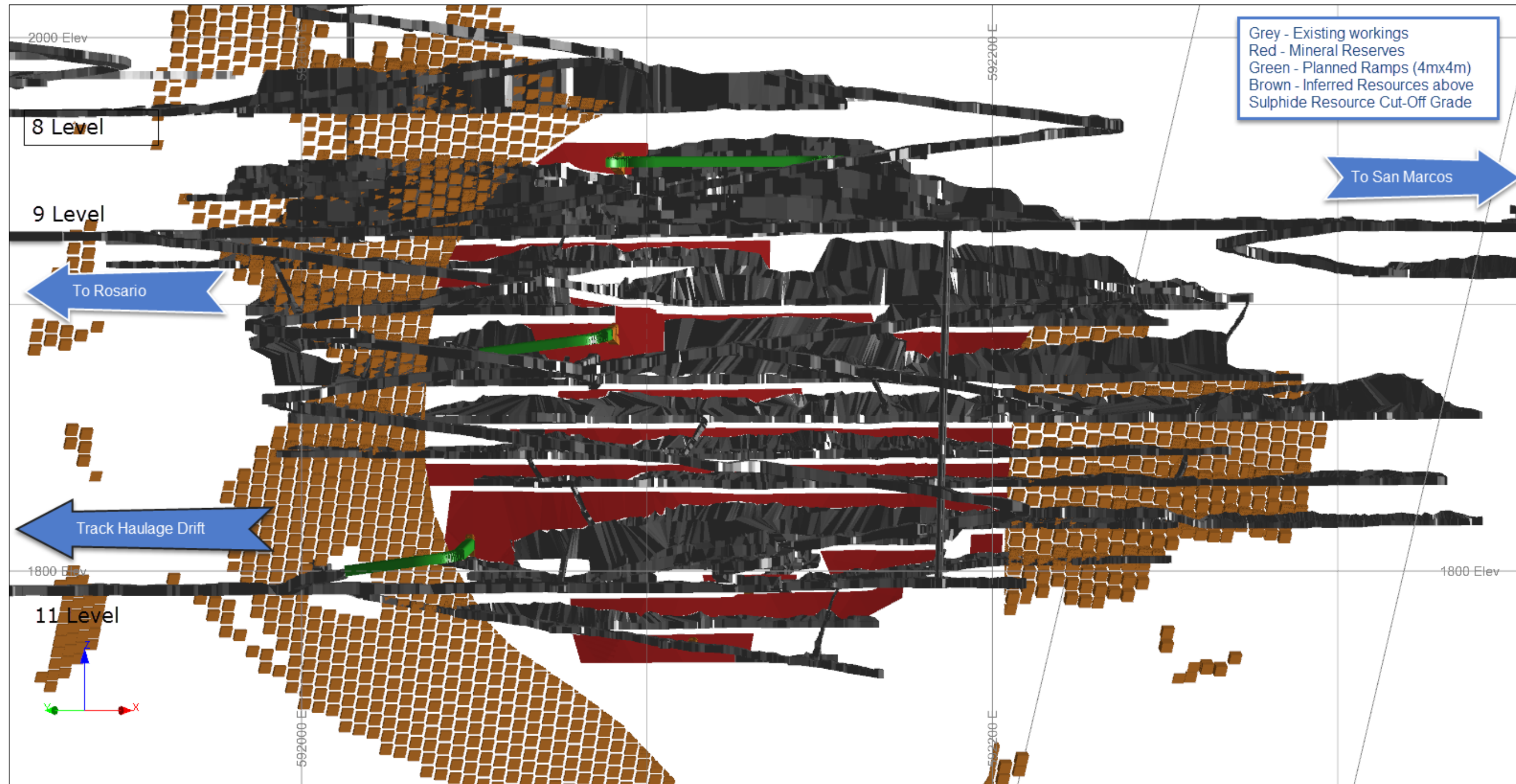


Figure 51: Intermedia Long Section Looking North East with Inferred Resources (SRK 2017)

## 16.5.2 Capital and Operating Development

The total capital and operating development required to extract the mineral reserves shown in Figure 50 is summarized in Table 57.

**Table 57: Capital and Operating Development Requirements for Intermedia (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>Markup</b>	<b>Total (m)</b>
Main ramp	4 x 4	10%	290
<b>Operating development (m)</b>			
MCF attack ramps	3.5 x 3.5	10%	200

## 16.6 Underground Mine Model (San Marcos Deposit)

The San Marcos deposit is an older mine which was worked by previous operators, prior to acquisition by FMS. In recent years, the development and mining of the Intermedia deposit has connected the San Marcos to the Rosarios deposit on 9 Level.

The current mine plan calls for the remaining 213 kt of oxide mineral reserves to be mined out over a period of four years at a rate varying between 30 ktpa and 78 ktpa. The current mineral reserves are largely in areas already developed and represent stopes currently in production or extension and remnants of past stopes.

### 16.6.1 Underground Mine Layout

The current mineral reserves shown in red in Figure 52 have been estimated from a 3-dimensional block model. Due to a lack of sufficient drilling density and areas with few diamond drillholes, some areas have been classified as Inferred mineral resources (Figure 53).

Some of these Inferred mineral resources may have been previously classified as Measured and Indicated resources by polygonal estimation methods.

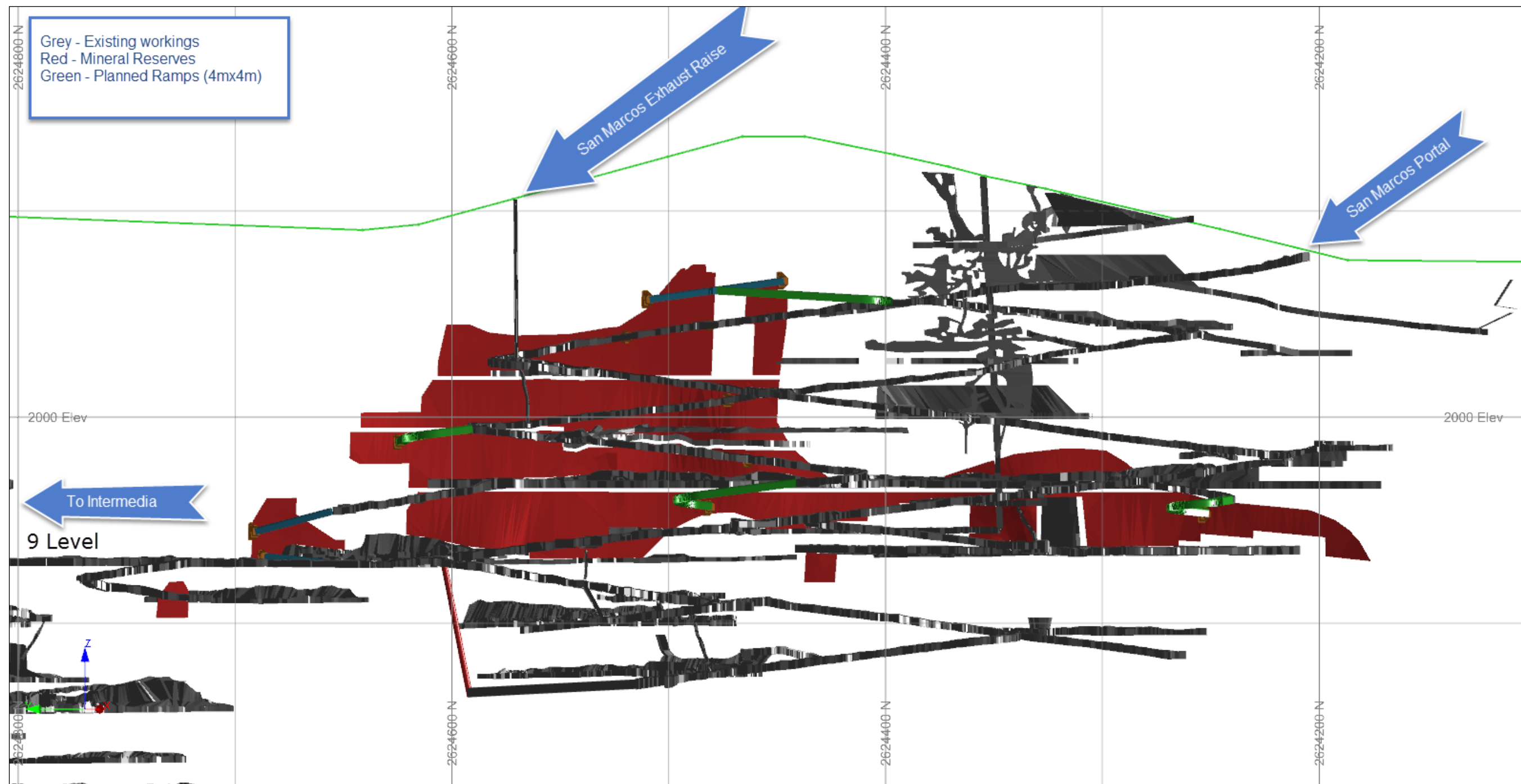


Figure 52: San Marcos Long Section Looking East (SRK 2017)

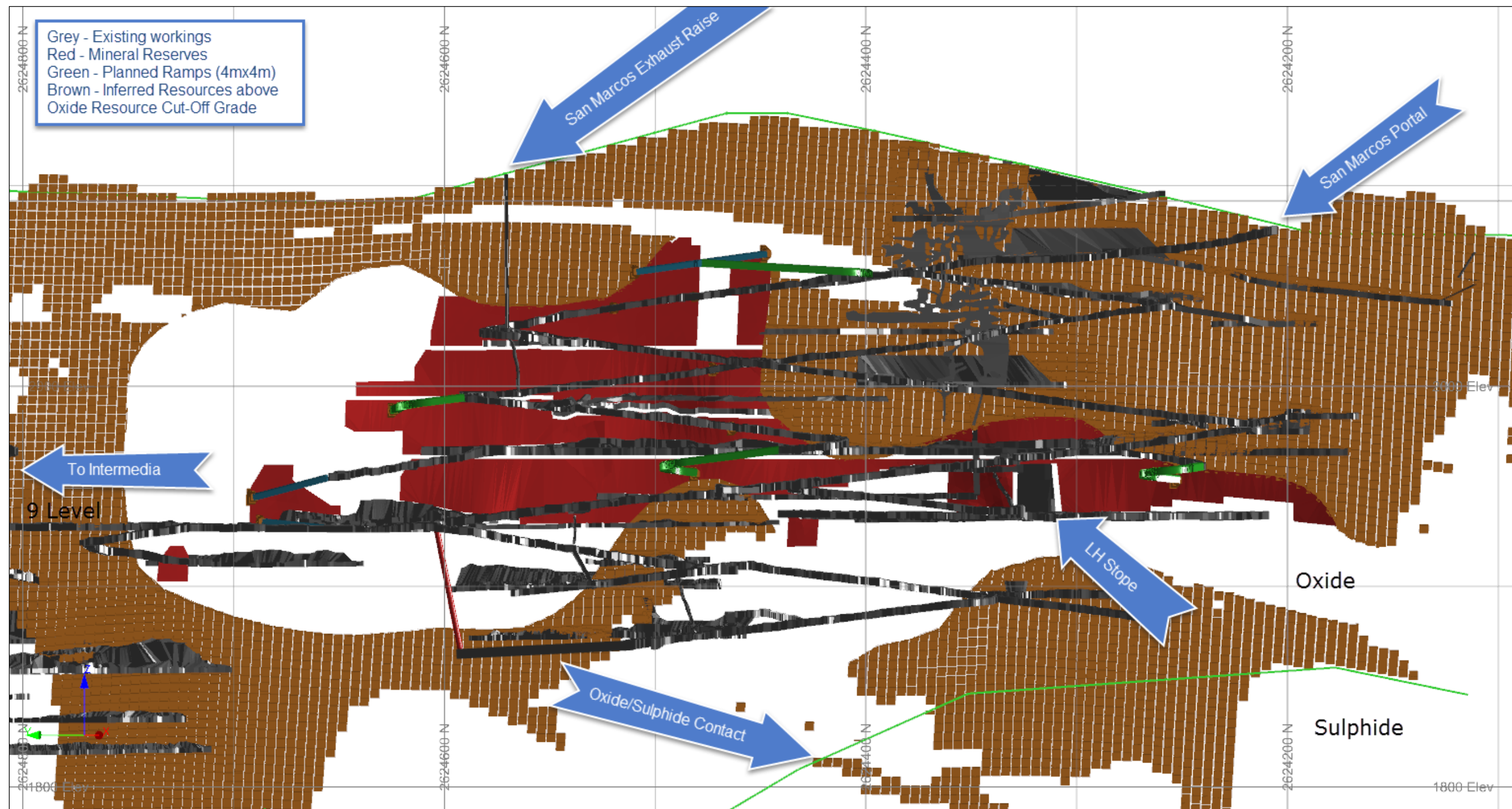


Figure 53: San Marcos Long Section Looking East with Inferred Resources (SRK 2017)

## 16.6.2 Capital and Operating Development

The total capital and operating development required to extract the mineral reserves shown in Figure 52 is summarized in Table 58.

**Table 58: Capital and Operating Development Requirements for San Marcos (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>Markup</b>	<b>Total (m)</b>
Main ramp	4 x 4 m	10%	620
Main level/infrastructure	3.5 x 3.5 m	10%	200
Main ventilation raise (raisebored)	3 m dia.	10%	80
<b>Operating development (m)</b>			
MCF attack ramps	3.5 x 3.5 m	10%	770

## 16.7 Underground Mine Model (Quebrilladas Deposit including San Nicolas)

The Quebradillas deposit was discovered in 2011 and includes both oxide and sulphide mineral reserves. The nearby San Nicolas deposit has been grouped with the Quebradillas deposit, as it is accessed from the existing Quebradillas ramp system.

The remaining 50 kt of oxide mineral reserves from underground sources are from the Quebradillas 550 vein which is planned to be mined at rate of up to 30 ktpa over the next three years.

The 320 kt of sulphide mineral reserves are from the Quebradillas 460 vein, Quebradillas 550 vein, Quebradillas Tiro (shaft) vein, Quebradillas N-S vein, and the original Quebradillas vein. These areas will be mined at a combined rate of up to 180 ktpa over a three-year period.

### 16.7.1 Underground Mine Layout

The current mineral reserves for Quebradillas and San Nicolas have been estimated by polygonal estimation methods. A plan view of the relative location of the veins and existing workings are shown in Figure 54. Long section views of each of the polygonal estimates are shown in Figure 55 through Figure 60.

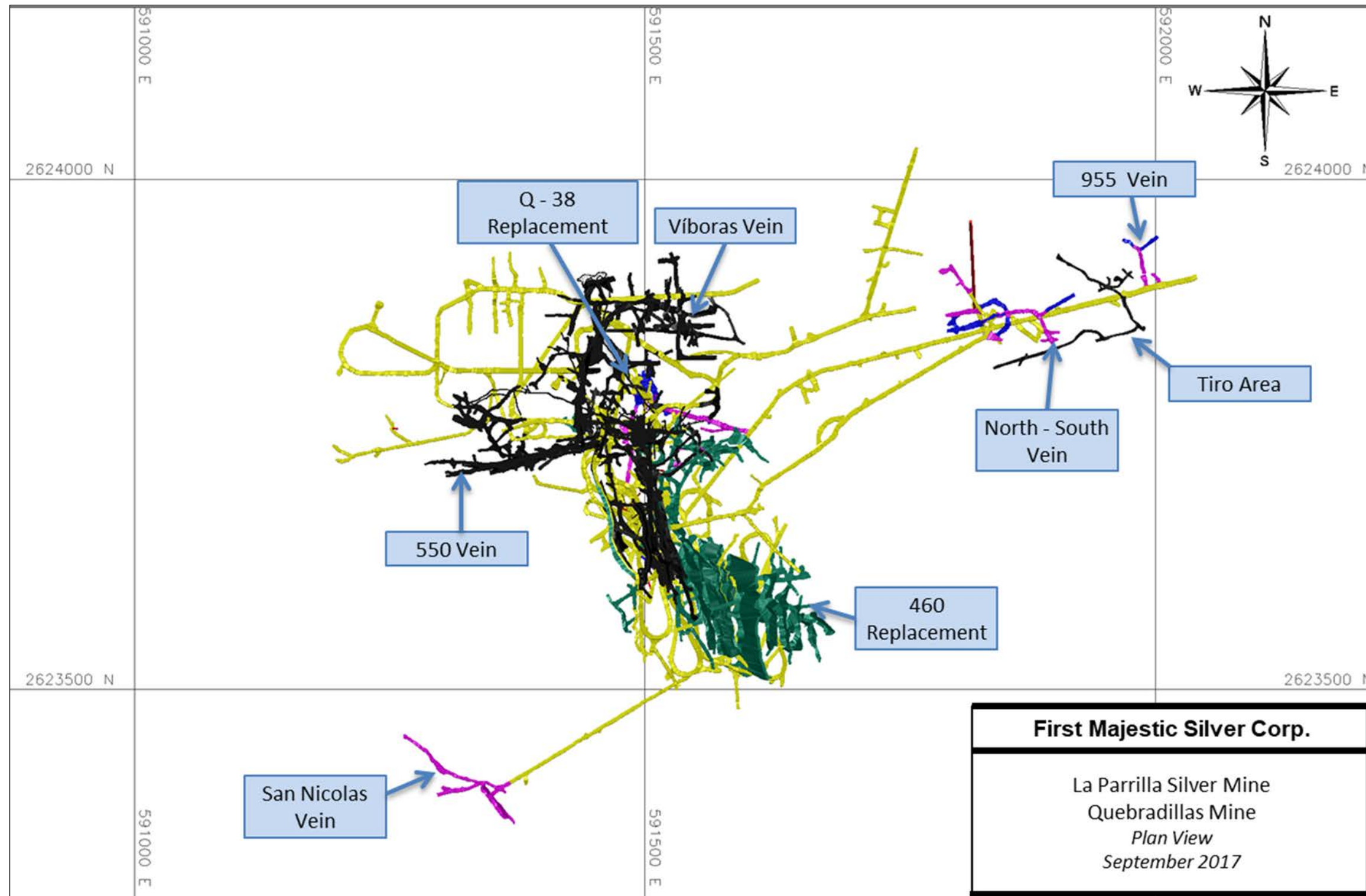


Figure 54: Plan View – Quebradillas and San Nicolas (FMS 2017)



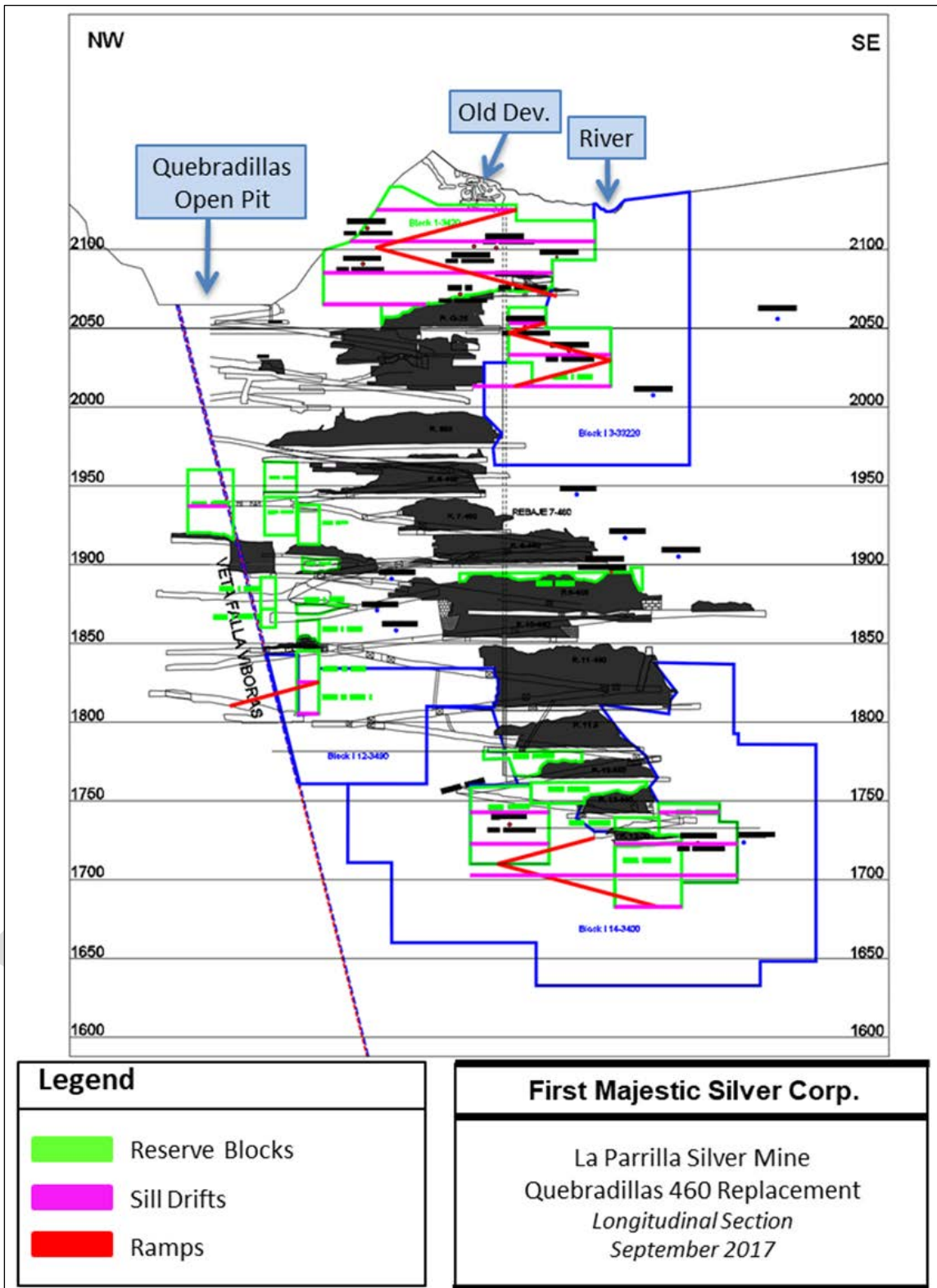


Figure 55: Polygonal Long Section View for Quebradillas 460 Replacement looking North East (FMS 2017)

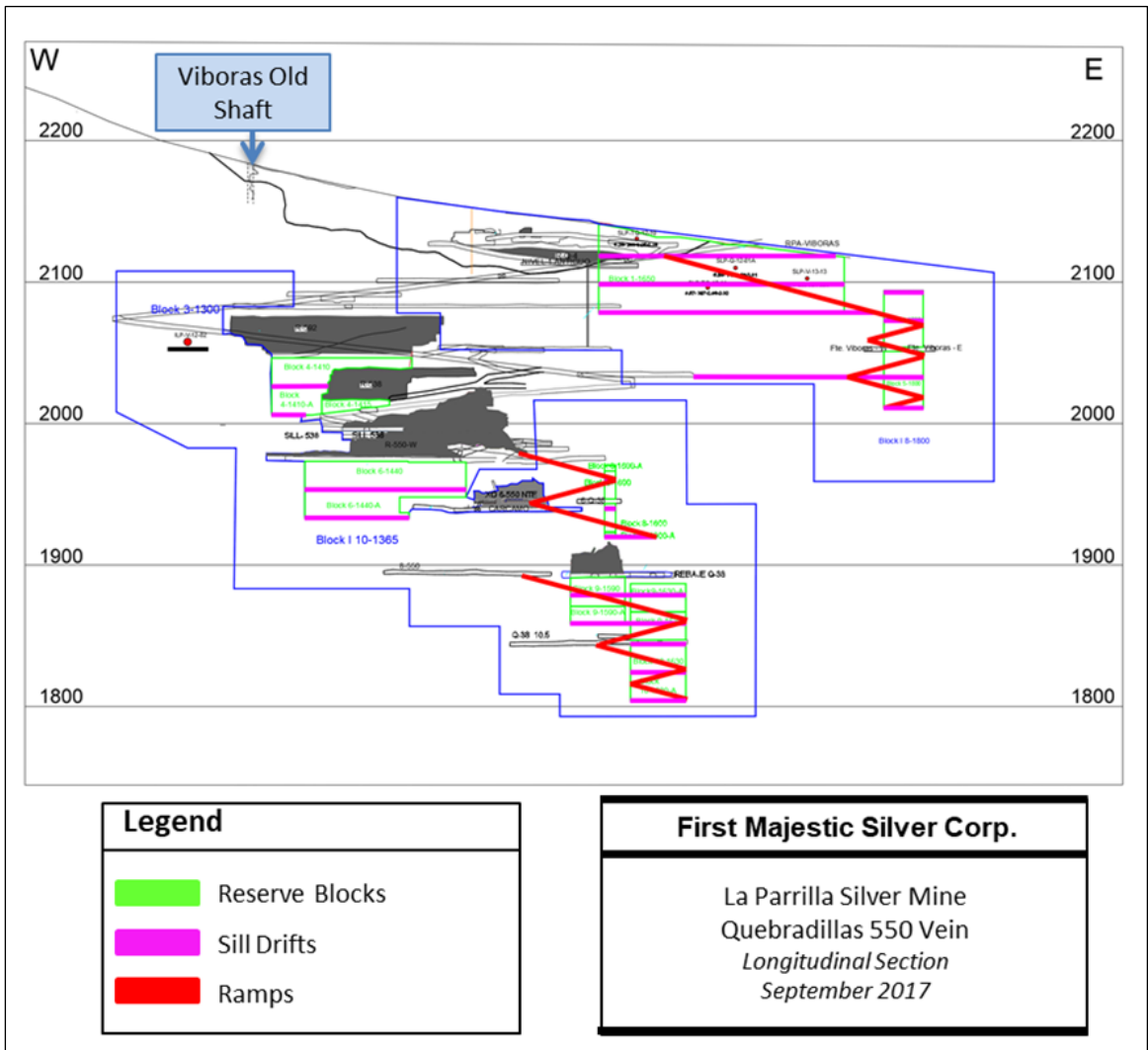


Figure 56: Polygonal Long Section View for Quebradillas 550 Vein looking North (FMS 2017)

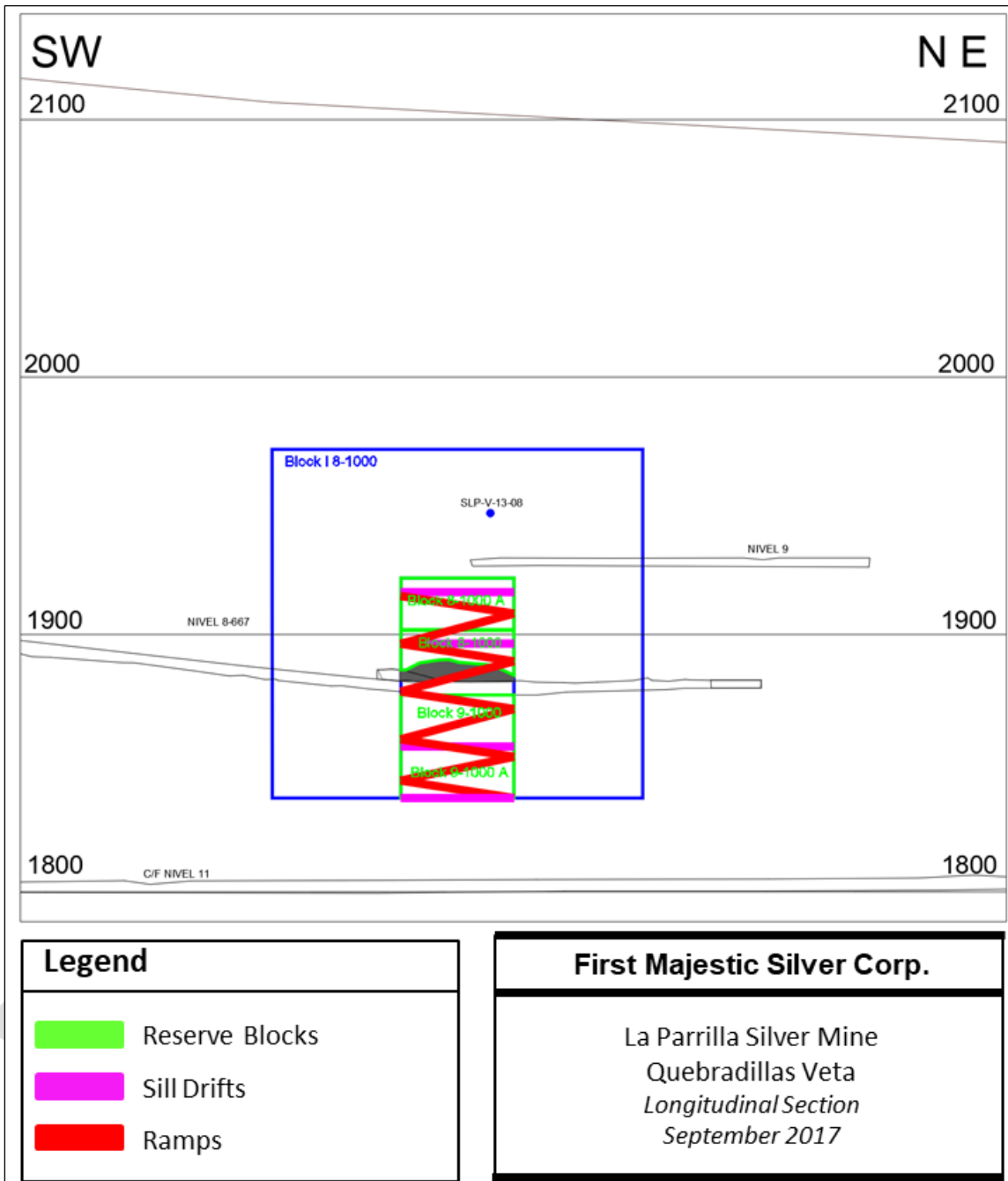


Figure 57: Polygonal Long Section View for Quebradillas Vein looking North West (FMS 2017)

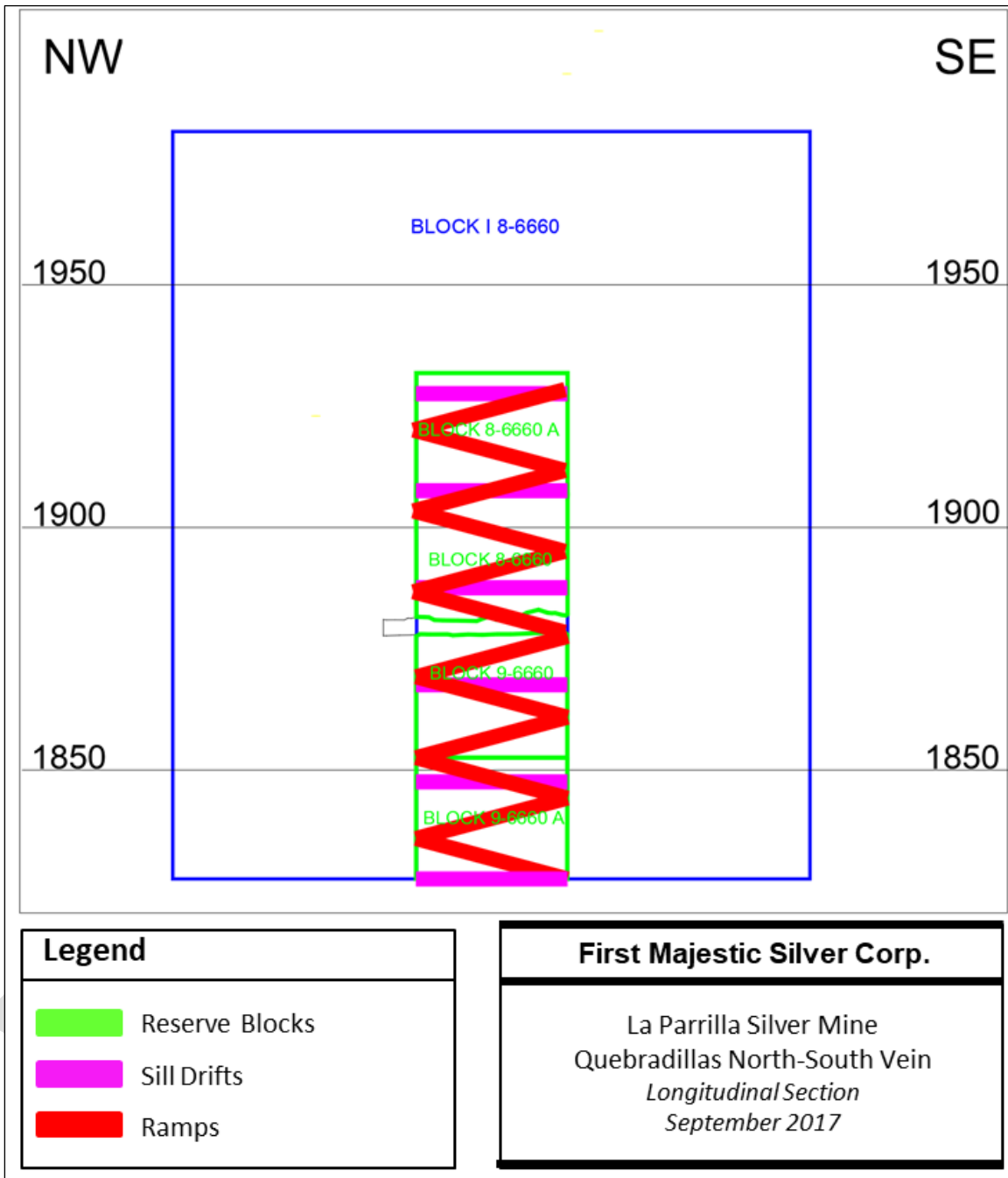


Figure 58: Polygonal Long Section View for Quebradillas N-S Vein looking North East (FMS 2017)

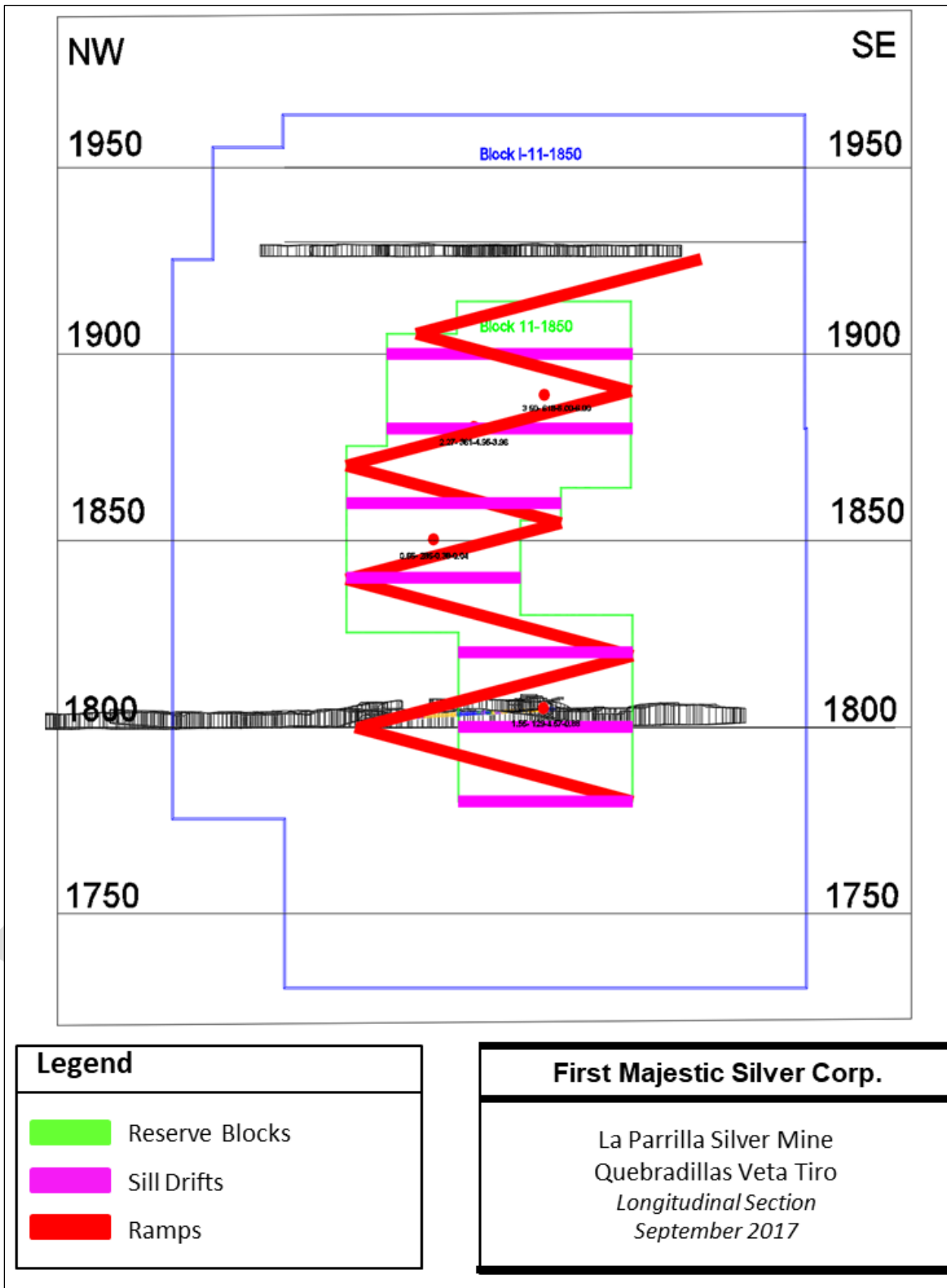


Figure 59: Polygonal Long Section View for Quebradillas Tiro Vein looking North East (FMS 2017)

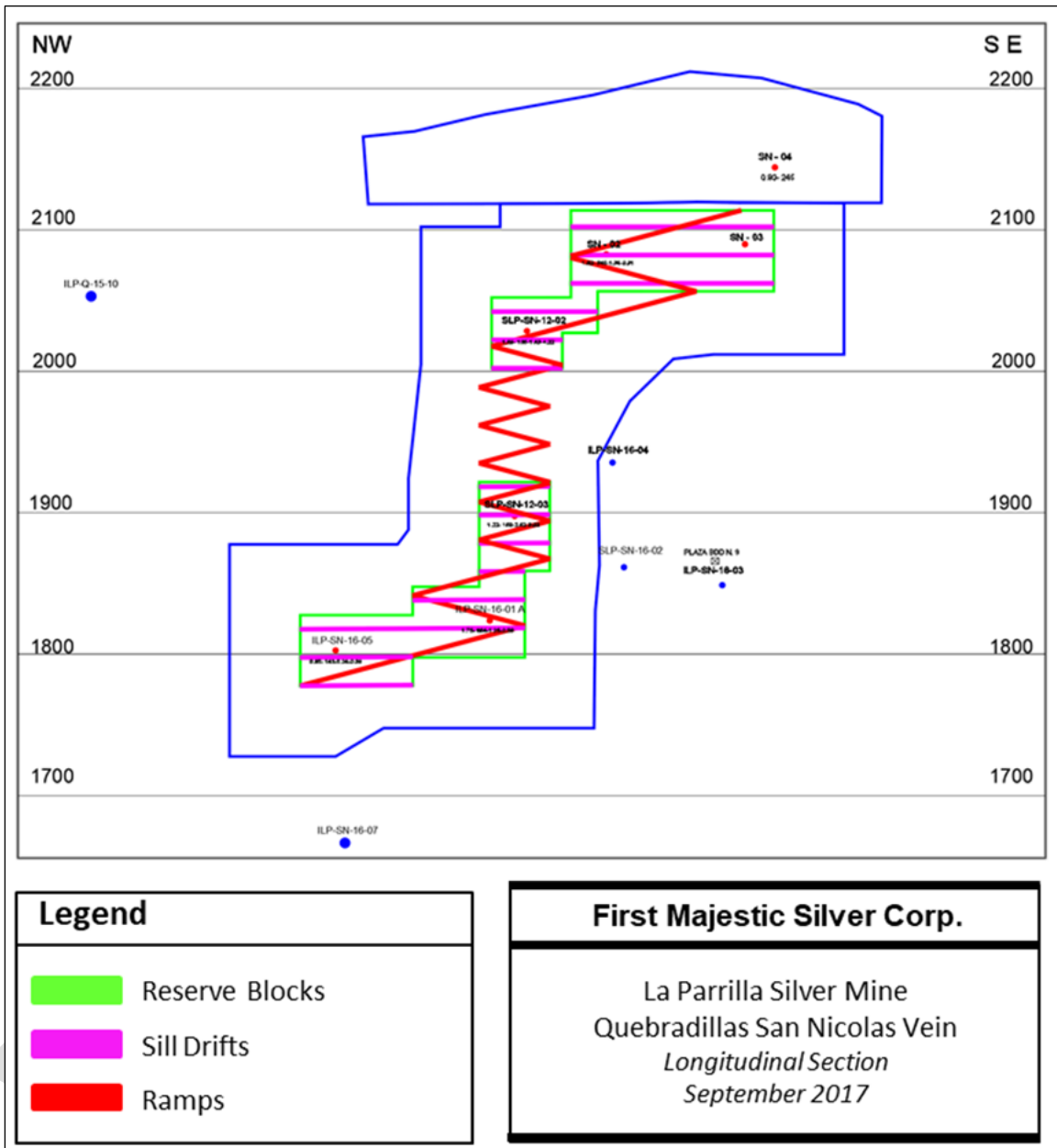


Figure 60: Polygonal Long Section View for San Nicolas Vein looking North East (FMS 2017)

## 16.7.2 Capital and Operating Development

The total capital and operating development required to extract the mineral reserves shown in Figure 55 through Figure 60 is summarized in Table 59.

**Table 59: Capital and Operating Development Requirements for Quebradillas and San Nicolas (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>Markup</b>	<b>Total (m)</b>
Main ramp	4 x 4	10%	4,920
Main level/infrastructure	3.5 x 3.5	10%	1,940
Auxiliary vent/access raise	1.8 x 1.8	10%	440
Main ventilation raise (raisebored)	3 m dia.	10%	180
<b>Operating Development (m)</b>			
MCF attack ramps	3.5 x 3.5	10%	3,960
Stope access drifts	3.5 x 3.5	10%	630

## 16.8 Open Pit Mine Model (Quebradillas Deposit)

Mining of the Quebradillas open pit will extract oxide mineralized material using conventional open pit methods. Equipment includes track drills, front-end-loaders, backhoe excavators, bulldozers and conventional 20 m<sup>3</sup> trucks operated by local contractors.

The remaining 407 kt of oxide mineral reserves from open pit sources are from the Quebradillas and La Herradura deposits, which are planned to be mined over the next three years at rates up to 180 ktpa.

### 16.8.1 Open Pit Mine Layout

The Quebradillas pit and La Herradura-Quebradillas mineral reserves are constrained by a pitshell designed with the following parameters:

- 7.5 m-high benches
- 2.5 m-wide berms
- 60° slope angles

This results in an overall slope angle of 49°.

The planned design results in a stripping ratio of 2:1 (waste to ore ratio). Figure 61 shows an isometric view of the pit design prepared for the extraction of the La Herradura deposit.

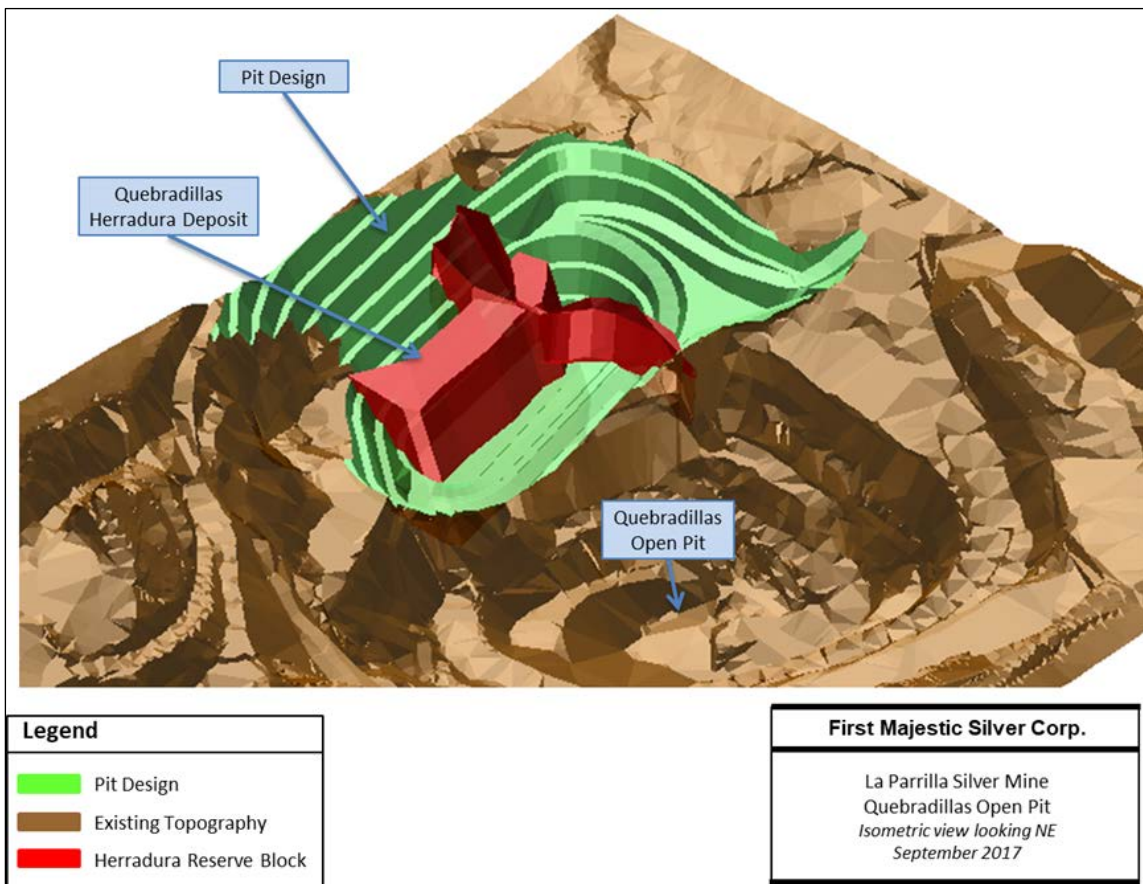


Figure 61: Isometric View of Quebradillas Open Pit looking North West (FMS 2017)

## 16.9 Underground Development and Production Schedule

A basic development and production schedule was developed in Excel based on site mine design standards and previous performance metrics for production and development. The schedule tracks and reports development metres and stope production for both oxide and sulphide ore types on a monthly basis. The main purpose of the schedule is to provide inputs to the Technical Economic model (TEM).

The production schedule is based on the assumption that the MCF stopes will continue to perform as they have historically and that all mining will be from the mineral reserves. Based on historic performance, it is expected that FMS will be mining material that is not currently classified as mineral reserves, but this material is not considered in the production schedule incorporated into the TEM.

Based on the current Life-of-mine plan, La Parrilla will develop a total of 5 to 7 km of lateral waste development per year for three years, dropping to 1 km in the last year of production. Life-of-mine total is 19.6 km of lateral waste development, including 11.3 km of capital development and 8.3 km of operating development as shown in Table 60. Capital vertical waste development totals 34 km as shown in Table 61. The overall production schedule shown in Table 62.



**Table 60: Total Capital and Operating Development Metres Required (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Main ramp	4 x 4	2,830	2,720	2,130	520	8,200
Main level/infrastructure	3.5 x 3.5	1,240	1,200	660	-	3,100
Auxiliary vent/access raise	1.8 x 1.8	1,080	1,200	450	80	2,810
Main ventilation raise (raisebored)	3 m dia.	400	180	-	-	580
<b>Total Capital Development (m)</b>		<b>5,550</b>	<b>5,300</b>	<b>3,240</b>	<b>600</b>	<b>14,710</b>

<b>Operating Development (m)</b>	<b>Size (m)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
MCF attack ramps	3.5 x 3.5	2,580	2,090	2,100	670	7,440
Stope access drifts	3.5 x 3.5	400	360	120	-	880
<b>Total Operating Development (m)</b>		<b>2,980</b>	<b>2,450</b>	<b>2,220</b>	<b>670</b>	<b>8,320</b>

<b>Grand Total (m)</b>		<b>8,530</b>	<b>7,750</b>	<b>5,460</b>	<b>1,270</b>	<b>23,030</b>
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**Table 61: Total Lateral and Vertical Development (FMS 2017)**

<b>Capital Development (m)</b>	<b>Size (m)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Total lateral development (m)	Variable	7,050	6,370	5,010	1,190	19,620
Total vertical development (m)	Variable	1,480	1,380	450	80	3,390
<b>Grand Total (m)</b>		<b>8,530</b>	<b>7,750</b>	<b>5,460</b>	<b>1,270</b>	<b>23,030</b>

**Table 62: Life-of-mine Production Schedule (FMS 2017)**

<b>Oxide Sources</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Tonnes mined/milled ('000)	236	240	139	29	645
Ag (g/t)	124	128	165	180	137
Au (g/t)	0.02	0.06	0.09	0.15	0.06
Ag-Eq (g/t)	125	133	173	192	141
Contained Ag-Eq (koz)	952	1,025	772	181	2,930
<b>Sulphide Sources</b>					
Tonnes mined/milled ('000)	300	300	190	42	832
Ag (g/t)	228	221	171	199	211
Au (g/t)	0.06	0.04	0.05	0.08	0.05
Pb (%)	1.60	1.87	1.53	1.02	1.65
ZN (%)	1.41	1.81	1.04	0.36	1.42
Ag-Eq (g/t)	324	335	254	249	308
Contained Ag-Eq (koz)	3,125	3,227	1,556	334	8,244

## 16.10 Equipment, Manpower, Services and Infrastructure

### 16.10.1 Contractor Involvement

Some of the underground mining activities at La Parrilla are performed by local contractors. These activities include ramp, lateral and vertical development, stoping, haulage, shotcreting, maintenance activities and open pit mining. FMS staff and employees provide technical, administrative and supervisory support for the underground mines, while the processing plant is largely operated by FMS staff and employees.

## 16.10.2 Mining Equipment

Table 63 showing company and contractor equipment on site as of Dec 31, 2016.

**Table 63: Major Underground Mining Equipment on Site December 31, 2016 (FMS 2017)**

Description	Model	Company	Contractor	Total
Jacklegs		32	0	32
Jumbos	Sandvik DD311	4	0	4
	Sandvik DD210	2	0	2
Scoop trams	Sandvik 207	10	0	10
	Sandvik 307	10	0	10
	Sandvik 410	2	0	2
Low profile UG Trucks	Size 15 T	3	0	3
	Size 20 T	2	0	2
Shotcrete machine		1	3	4
Tractors		3	0	3
Tandem dump trucks	Various 20 T	0	6	6

## 16.10.3 Manpower

Table 64 shows the total company and contractor manpower on site as of Dec 31, 2016.

**Table 64: Company and Contractor Manpower as of December 31, 2016 (FMS 2017)**

Description	Union	Contractors	Staff	Total
Mine	86	252	16	354
Plant	134	7	39	180
Services	60	79	45	184
Total	280	338	100	718

## 16.10.4 Underground Mine Services and Infrastructure

### Ore and Waste Handling

Ore is mucked from the stope or development face to the closest ramp remuck, where it is then loaded into either an UG mine truck or a contractor's tandem dump truck at a dedicated truck loadout. The trucks then haul the ore to surface via the ramp system, and dump the ore into either the oxide ore stockpile or the sulphide ore stockpile, both located above the processing plant. A front-end loader then feeds the stockpiles to the appropriate coarse ore bin.

Waste rock is mucked from the development face to the closest ramp remuck where it will either be moved to a stope as backfill, or loaded onto a truck and hauled to one of the surface waste rock dumps.

### Ventilation

Ventilation for the various mines are generally setup as a pull system where a return air fan on surface pulls exhaust air from the ramp at depth via a 3 m-diameter raise. This pulls fresh air into the ramp portal and down the ramp. Local auxiliary fans are then used to distribute fresh air from the

ramp above the return air raise into the workings, with the contaminated air then being pulled to the return air raise back to surface.

As Rosarios, Intermedia, and San Marcos have all been connected in recent years, the ventilation system has become more complex.

Ventilation for Mina Rosarios consists of a main exhaust raise with the 750 hp Zitron fan (Figure 62) which connects to 11 Level; a second return air raise connects 11 Level to 14 Level.

This fan currently draws in fresh air through the following openings:

- the San José portal
- a 3-m diameter raisebored fresh air raise at the north-west end of the ore body called Robbins la Blanca
- the pilot hole for the hoisting shaft project, also 3-m diameter



**Figure 62: Rosarios Main Exhaust Fan (FSM 2017)**

Ventilation for Mina Intermedia consists of a main return air raise connected to 9 Level, with a second return air raise from 9 Level to 11 Level. A 200 hp Jet-Air extractor fan is installed on surface at the top of this exhaust raise (Figure 63). As there is no ramp to surface for Mina Intermedia, fresh air is drawn from Mina Rosarios and Mina San Marcos across 8 Level, 9 Level or 11 Level. There is also an internal fresh air raise at the south-east end of the Mina Intermedia ore body connecting 9 Level and 11 level. This raise is at the end of the 11 Level track haulage drift.



**Figure 63: Intermedia Exhaust Fan (SRK 2017)**

Ventilation for Mina San Marcos consists of a main return air raise connected to 9 Level. A 200 hp Jet-Air extractor fan is installed on surface at the top of this exhaust raise, similar to Figure 63. Fresh air is drawn from surface via the San Marcos ramp.

Ventilation for Qubradillas and the San Nicolas deposit consists of a main return air raise connected to 11 sub Level. A 200 hp Jet-Air extractor fan is installed on surface at the top of this exhaust raise (see Figure 64). Fresh air is drawn from surface via the Quebradillas ramp and through the portal located in the Quebradillas open pit.



**Figure 64: Quebradillas Exhaust Fan (SRK 2017)**

In Q4 of 2016, FMS initiated a ventilation improvement program that included training of site staff and development of a ventilation model using VnetPC software for Rosarios, Intermedia, and San Marcos.

Measurements taken at that time indicated that the ventilation volume into the main mine (Rosarios, Intermedia, and San Marcos) was 324,000 cubic feet per minute (cfm) or 152 cubic metres per second (CMS). The ventilation consultant (Ventilation Innovation LLC, 2016) recommended that the ventilation flows be increased to 520,000 cfm or 245 CMS in order to provide proper ventilation as the mine moves deeper.

Recommendations on how to achieve this include:

- Installation of ventilation controls, including regulators and ventilation doors
- Improved management of air flows to provide ventilation where it is required and avoid ventilating abandoned areas.
- Improved installation and maintenance of auxiliary ventilation systems
- Cleaning waste rock out of main ventilation paths to reduce resistances
- Make electrical changes to the 750 hp Zitron fan (Figure 62) so that it operates as designed (60 hz/1180 rpm)

## 17 Recovery Methods

La Parrilla operates two parallel processing circuits that recover metals from the two types of ore, as described in Section 13. The two ore types are oxide ores and sulphide ores; both types are polymetallic, containing silver, lead, zinc, and gold.

The flotation plant receives sulphide ores and produces a silver-rich lead concentrate and a zinc concentrate as saleable products. Precious metals are preferably deported to the lead concentrate with both concentrates showing payable values of silver.

The leaching plant receives oxide ores and produces doré bars as a saleable product.

The processing plants were originally designed to process 1,000 tonnes per day (tpd) per circuit for a combined throughput of 2,000 tpd. Total throughput was generally maintained at 2,000 tpd until mid-2015 when production from the Quebradillas open pit neared completion. After this time, the mining operations have been unable to provide 1,000 tpd of oxide ore from the remaining underground sources. FMS has partially offset this by working to increase the throughput of sulphide ores through the flotation plant. The 2016 average throughput for oxide ores was 520 tpd and 1,146 tpd for sulphide ores (Figure 65).

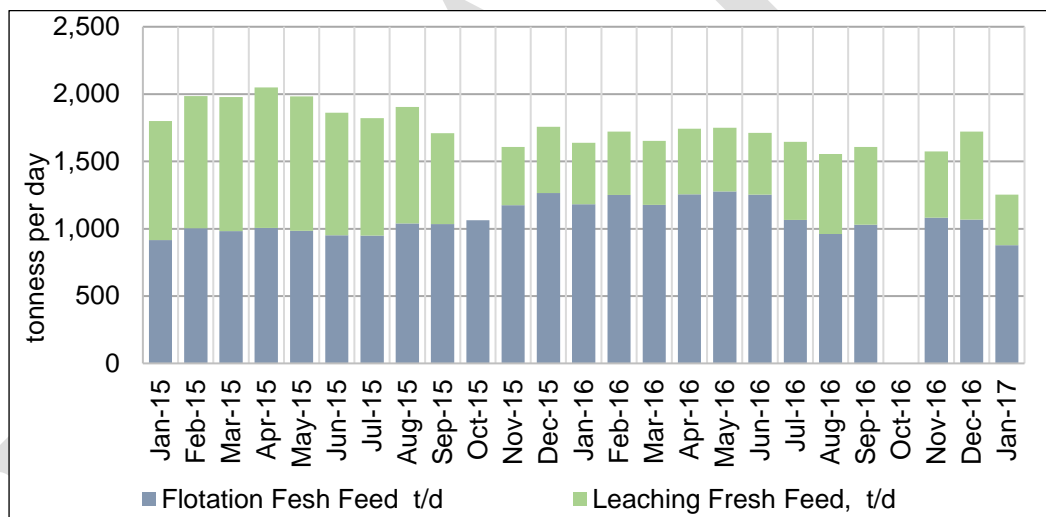


Figure 65: La Parrilla – Combined processing throughput (SRK 2017)

Ore is currently fed to the La Parrilla processing plants from two coarse ore bins, one for oxide ores and one for sulphide ores. There is a single crushing plant that batch feeds the two processing plants using a conventional three-stage crushing operation. The primary crusher operates in open circuit, the secondary crusher operates in open circuit with pre-classification using a vibrating screen, and the tertiary crushing stage operates in closed circuit with a vibrating screen.

Both processing lines at La Parrilla present a conventional flowsheet. The flotation plant consists of a conventional multi-stage flotation plant; the leaching plant uses conventional agitated leaching, followed by Merrill-Crowe.

Tailing from both circuits are filtered separately before being dry-stacked in the tailings storage facility. Water for each circuit is managed independently.

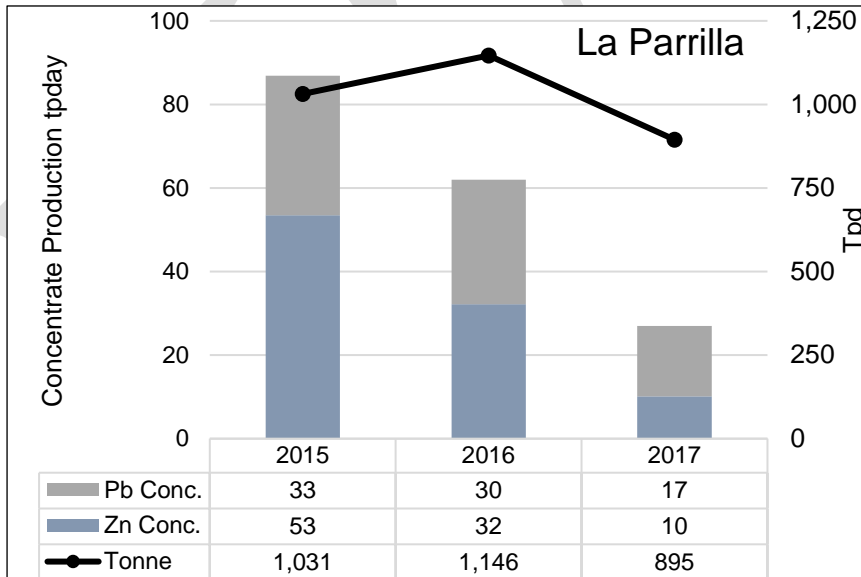
### 17.1 Operational Results – Flotation Circuit

Overall, mill throughput for the flotation circuit has been reasonably consistent since 2015. The flotation circuit processed 376,366 tonnes during 2015, or equivalent to approximately 1,031 tpd. In 2016, the flotation circuit processed 418,459 tonnes or equivalent to 1,146 tpd (Table 65 and Figure 66).

**Table 65: La Parrilla flotation circuit – 2015 to 2017 metallurgical performance (SRK 2017)**

Period	Stream	Tonnes	Throughput (tpd) (@ 365 d/y)	Concentrate grade				Recovery (%)			
				Au (g/t)	Ag (kg/t)	Pb (%)	Zn (%)	Au (%)	Ag (%)	Pb (%)	Zn (%)
2015	Fresh Ore	376,366	1,031	0.039	0.164	1.56	2.96				
	Zn Conc	19,510	53.5		0.31		39.3		10.63		71.30
	Pb Conc	12,204	33.4	0.934	3.83	38.6	4.40	80.00	77.43	80.56	4.81
2016	Fresh Ore	418,459	1,146	0.044	0.152	1.42	1.85				
	Zn Conc	11,749	32.2		0.43	1.31	42.5		8.35	2.11	65.71
	Pb Conc	10,880	29.8	1.268	4.5	45.2	4.5	80.00	78.06	82.68	4.36
Jan 2017	Fresh Ore	27,212	895	0.031	0.133	1.29	0.95				
	Zn Conc	309	10.1		0.89	3.36	41.2		7.65	3.00	49.01
	Pb Conc	513	16.9	1.313	5.1	50.2	7.4	80.00	72.39	73.15	4.07

Production of concentrates has been declining, mostly due to lower head grades for the sulphide ores. The average production of lead concentrate in 2015 was 33 tpd, and slightly lower in 2016 at 30 tpd. The average production of zinc concentrate was 53 tpd in 2015, dropping to 32 tpd in 2016.



**Figure 66: Daily mill throughput and concentrate production (SRK 2017)**

Silver grades in the lead concentrates increased from 3.83 kg/t in 2015 to 4.5 kg/t in 2016. During 2015, lead grade in the lead concentrates was below typical commercial values at 38.6% Pb,

improving to 45.2% Pb in 2016. Zinc grade in the lead concentrates is at levels that likely trigger penalties from smelters. Gold grades in the lead concentrates increased from 0.934 g/t in 2015 to 1.268 g/t in 2016, which is potentially within levels payable by smelters.

Silver grades in the zinc concentrates increased from 0.31 kg/t in 2015 to 0.43 kg/t in 2016. Zinc grades in the zinc concentrates improved from 39.3% Zn in 2015 to 42.5% Zn in 2016, both grades are below typical industry values. Lead is not a payable metal in zinc concentrate and may potentially trigger a penalty with smelters. Overall, zinc concentrate grades are substandard, and La Parrilla should focus efforts in improving the performance of their zinc flotation circuit.

## 17.2 Operational Results – Leaching Circuit

Since 2015, the leaching circuit at La Parrilla has shown improved recoveries but decreasing availability of oxide ores for processing (Table 66). Throughput in 2015 was 302,729 tonnes, producing 1,145,875 ounces of silver and 978 ounces of gold. During 2016 throughput was reduced to 190,091 tonnes, producing 701,944 ounces of silver and 683 ounces of gold.

**Table 66: La Parrilla leach circuit – 2015 to 2017 metallurgical performance (SRK 2017)**

Period	Stream	Production	Throughput (tpd or oz/d) (@ 365 d/y)	Ore Grade		Recovery	
				Au (g/t)	Ag (g/t)	Au (%)	Ag (%)
2015	Ore (tonnes)	302,729	829	0.100	118		
	Ag (oz)	1,145,875	3,139				62.52
	Au (oz)	978	2.7			71.97	
2016	Ore (tonnes)	190,091	521	0.112	115		
	Ag (oz)	701,944	1,923				65.68
	Au (oz)	683	1.9			80.40	
Jan 2017	Ore (tonnes)	11,642	383	0.137	130		
	Ag (oz)	48,679	1,600				71.01
	Au (oz)	51	1.7			81.21	

## 17.3 Processing Methods

La Parrilla operates a conventional concentration plant consisting of a single multi-stage crushing plant, a flotation circuit, and a leaching circuit (Figure 67).



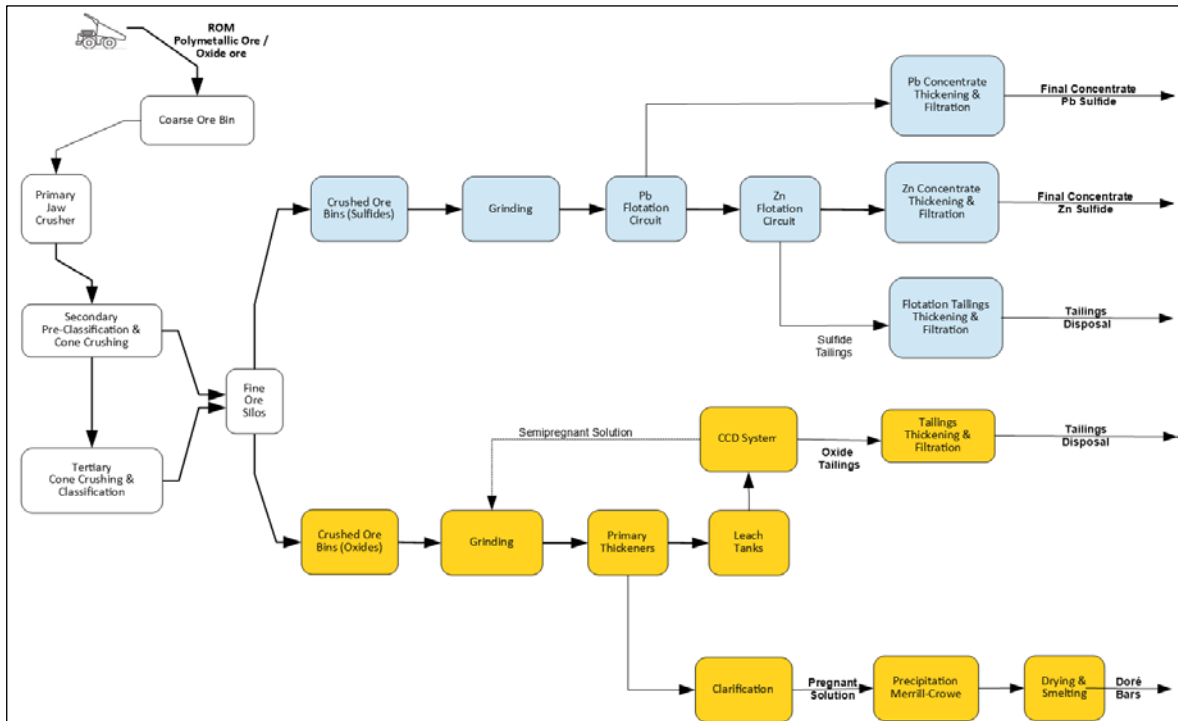
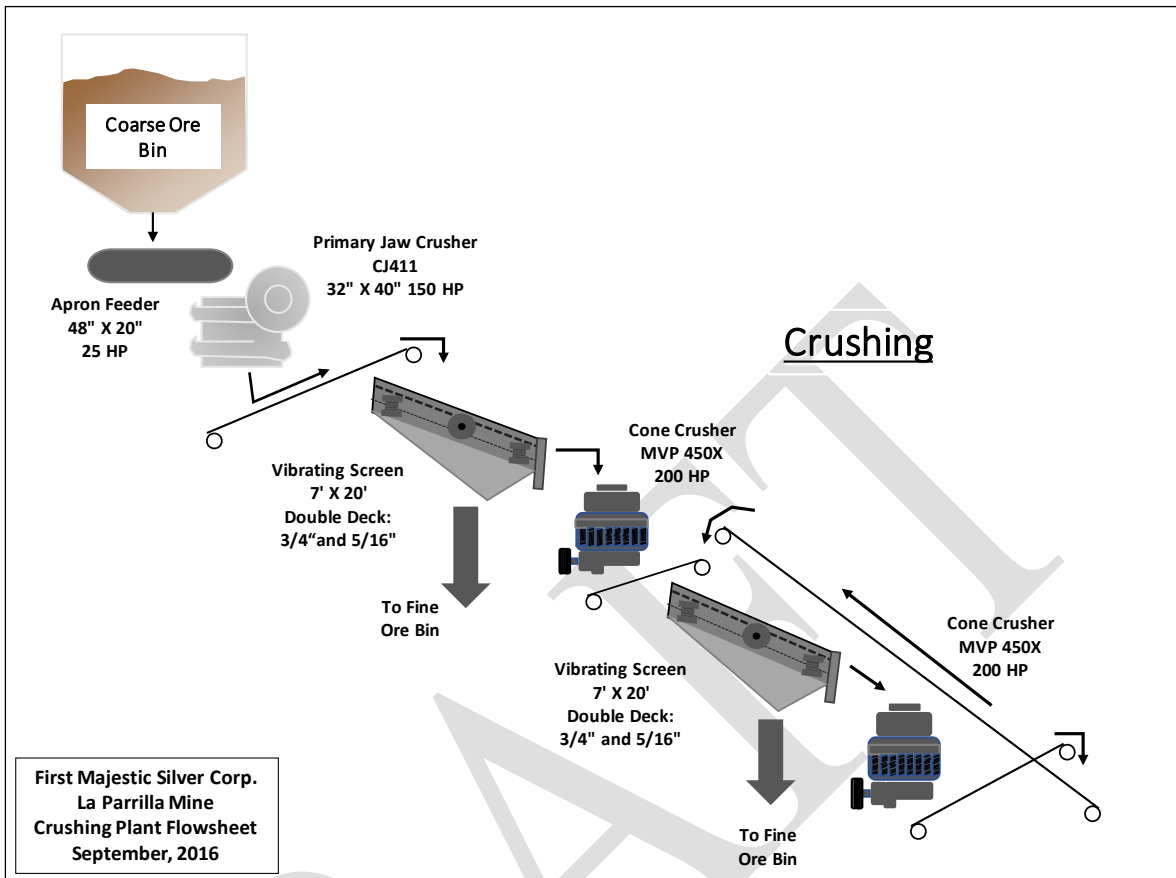


Figure 67: La Parrilla – Mill flow sheet (FMS 2011)

The single crushing plant batches sulphide ore and oxide ore to provide ore to the two parallel circuits. The crushing plant is a conventional three-stage crushing operation as shown in Figure 68. The primary crusher operates in open circuit, the secondary crusher operates in open circuit with pre-classification using a vibrating screen, and the tertiary crushing stage operates in closed circuit with a vibrating screen.



**Figure 68: La Parrilla – Crushing plant flow sheet (FMS 2011)**

The flotation plant consists of a conventional ball mill, a multi-stage flotation plant that floats the lead concentrate first, then the zinc concentrate. After dewatering, the final concentrates are ready for trucking off site. The detailed flowsheet is shown in Figure 69.

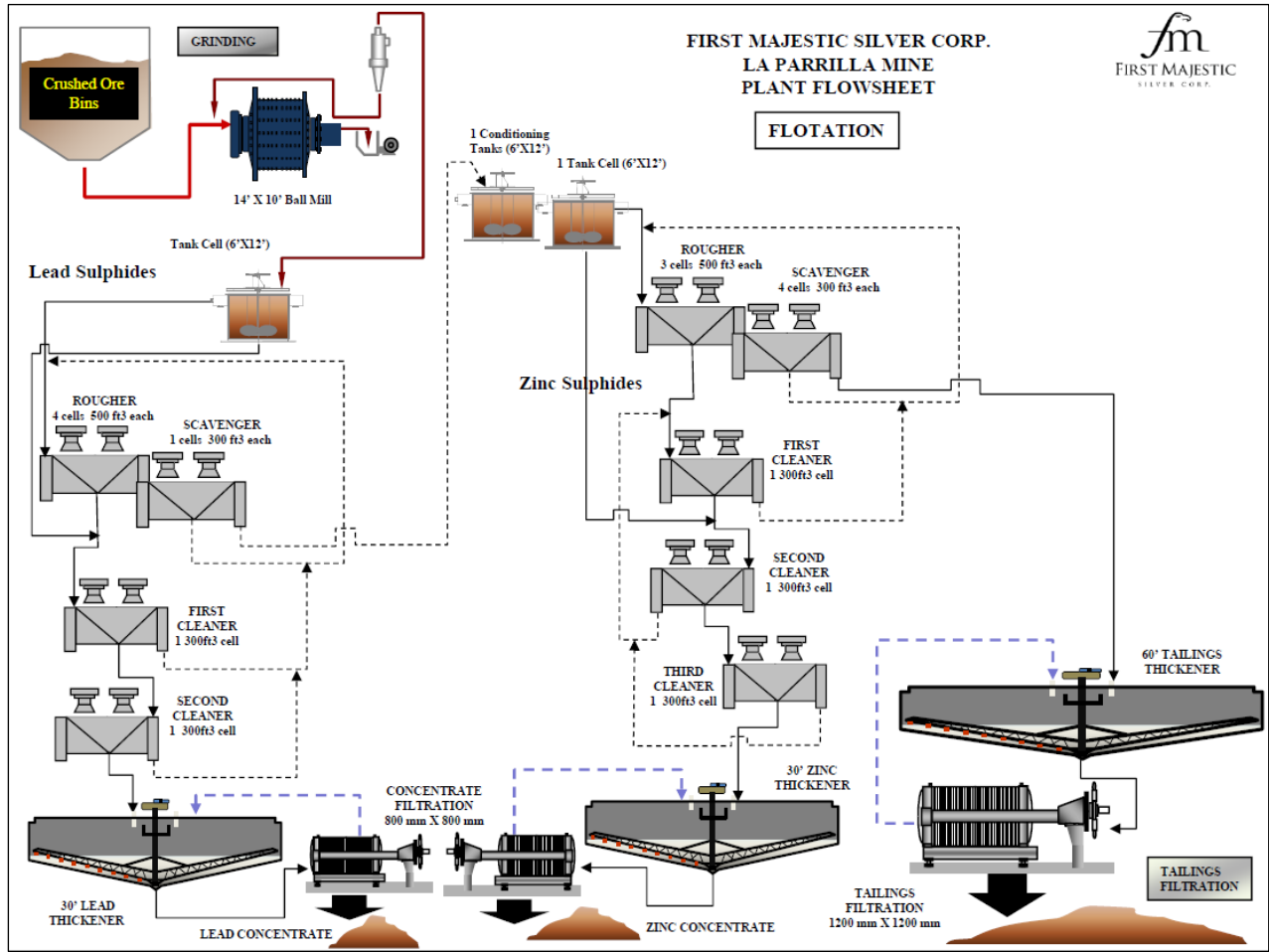


Figure 69: La Parrilla – Flotation plant flow sheet (FMS 2011)

The leaching plant uses conventional agitated leaching, followed by the Merrill-Crowe process to recover precious metals from the pregnant solution. Precious metals are smelted into a doré bar that is trucked off-site. The detailed flowsheet is shown in Figure 70.

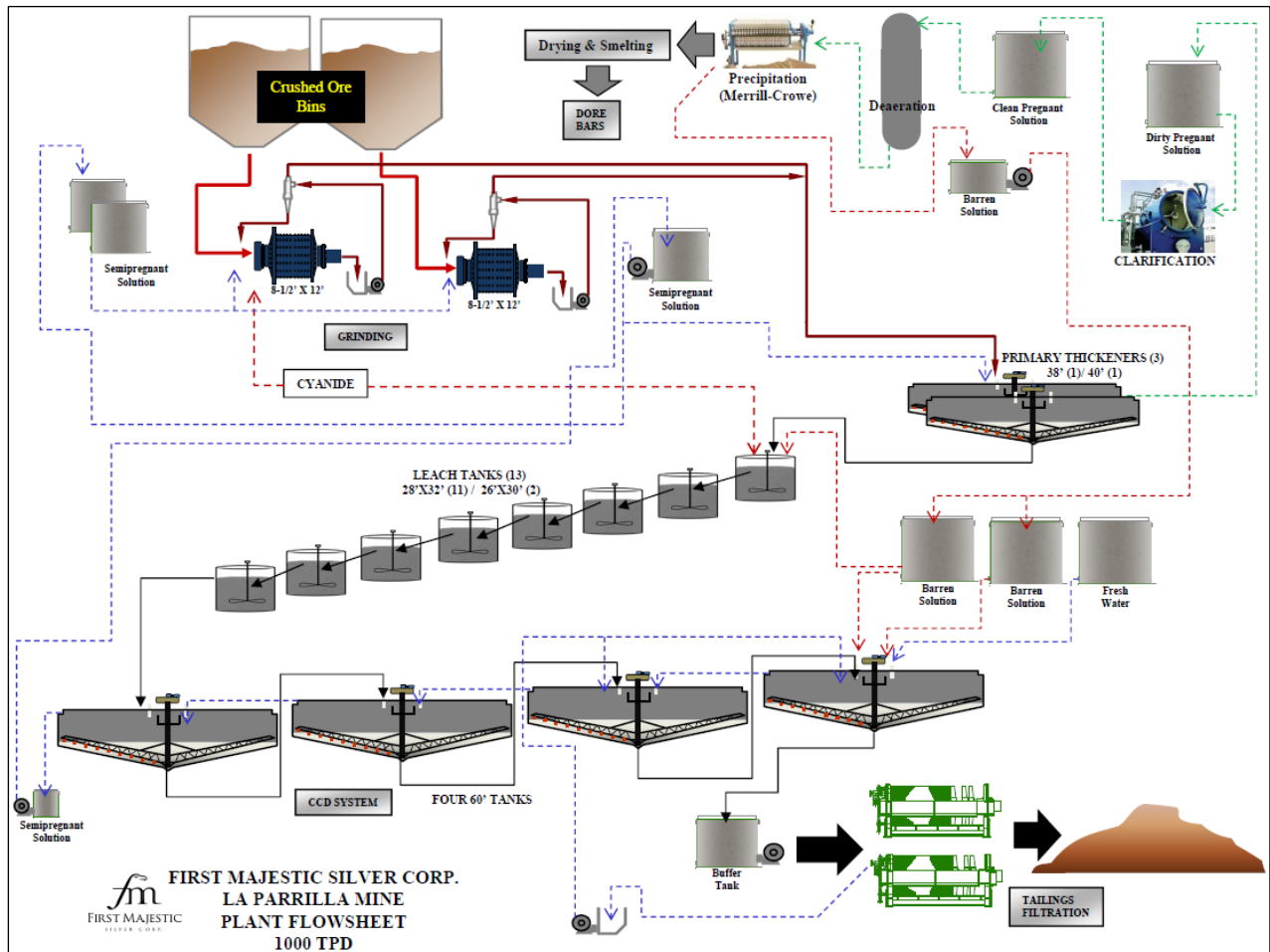


Figure 70: La Parrilla – Leaching plant flow sheet (FMS 2011)

Tailing from both circuits are filtered separately before being dry-stacked in the tailings storage facility. Water for each circuit is managed independently.

## 17.4 Plant Design and Equipment Characteristics

La Parrilla uses conventional processing equipment which was installed in 2011 during the mill expansion. The operation uses no automation or instrumentation to monitor process variables throughout the circuits. Table 67 summarizes the major process equipment at the process facilities.

**Table 67: Summary of major equipment at the process facilities (FMS 2017)**

Area	Description	Make	Size / Type
Crushing	Apron Feeder	Terex	48"X20'
Crushing	Apron Feeder	Terex	48"X20'
Crushing	Jaw Primary Crusher	Svedala	33"X42"
Crushing	Secondary Screen, Double Deck 3/4" & 5/16"	Terex	7'X20' THS7202-38
Crushing	Tertiary Screen, Double Deck 3/4" & 5/16"	Terex	7'X20' THS7202-38
Crushing	Secondary Cone Crusher, 200 hp	Terex	MVP450X
Crushing	Tertiary Cone Crusher, 200 hp	Terex	MVP450X
Milling	Cyclone # 1, Mill 1	Krebs	D-20
Milling	Cyclone # 2, Mill 1	Krebs	D-20
Milling	Cyclone # 1, Mill 2 (Leaching)	Krebs	D-20
Milling	Cyclone # 2, Mill 2 (Leaching)	Krebs	D-20
Milling	Cyclone # 1, Mill 3 (Leaching)	Krebs	D-20
Milling	Cyclone # 2, Mill 3 (Leaching)	Krebs	D-20
Milling	Mill #1, 8'-6" X 12'-0" (Leaching), 350 HP	Marcy/GE	Marcy Ball Mill
Milling	Mill #2, 8'-6" X 12'-0" (Leaching), 350 HP	Marcy/GE	Marcy Ball Mill
Milling	Mill # 3, 10' X 14' (Flotation), 900 hp	Marcy/GE	Marcy Ball Mill
Flotation	Pb - Pre-Rougher Flotation Tank Cell	S/F	6'x12', 300 ft <sup>3</sup>
Flotation	Pb - Rougher Flotation Cell #1	WEMCO	500 ft <sup>3</sup>
Flotation	Pb - Rougher Flotation Cell #2	WEMCO	500 ft <sup>3</sup>
Flotation	Pb - Rougher Flotation Cell #3	WEMCO	500 ft <sup>3</sup>
Flotation	Pb - Rougher Flotation Cell #4	WEMCO	500 ft <sup>3</sup>
Flotation	Pb - Scavenger Flotation Cell #1	WEMCO	300 ft <sup>3</sup>
Flotation	Pb - First Cleaner Flotation Cell #1	S/F	300 ft <sup>3</sup>
Flotation	Pb - Second Cleaner Flotation Cell #1	S/F	300 ft <sup>3</sup>
Flotation	Pb - Concentrate Thickener 190 m <sup>3</sup>	S/F	30 ft
Flotation	Pb - Concentrate Filter Press	Micronics	800 mm x 800 mm
Flotation	Zn - Pre-Rougher Flotation Tank Cell	S/F	6'x12', 300 ft <sup>3</sup>
Flotation	Zn - Rougher Flotation Cell #1	WEMCO	500 ft <sup>3</sup>
Flotation	Zn - Rougher Flotation Cell #2	WEMCO	500 ft <sup>3</sup>
Flotation	Zn - Rougher Flotation Cell #3	WEMCO	500 ft <sup>3</sup>
Flotation	Zn - Scavenger Flotation Cell #1	WEMCO	300 ft <sup>3</sup>
Flotation	Zn - Scavenger Flotation Cell #2	WEMCO	300 ft <sup>3</sup>
Flotation	Zn - Scavenger Flotation Cell #3	WEMCO	300 ft <sup>3</sup>
Flotation	Zn - Scavenger Flotation Cell #4	WEMCO	300 ft <sup>3</sup>
Flotation	Zn - First Cleaner Flotation Cell #1	WEMCO	300 ft <sup>3</sup>
Flotation	Zn - Second Cleaner Flotation Cell #1	S/F	300 ft <sup>3</sup>
Flotation	Zn - Third Cleaner Flotation Cell #1	S/F	300 ft <sup>3</sup>
Flotation	Zn - Concentrate Thickener 190 m <sup>3</sup>	S/F	30 ft
Flotation	Zn - Concentrate Filter Press	Micronics	800 mm x 800 mm
Flotation	Flotation - Tailings Filter Press	Diemme ME 1200	BQ00 C312032
Flotation	Sulphides - Tailings Thickener 835 m <sup>3</sup> Westpro	Westpro	60 ft
Cyanidation	Oxides - Tailings Filter Press	Micronics	1200 mm x 1200 mm
Cyanidation	Standby - Tailings Filter Press	Micronics	1200 mm x 1200 mm
Cyanidation	Induction Furnace	Inductotherm	3000 psi
Cyanidation	Primary Thickener #3	S/F	40 ft 40' X 10'
Cyanidation	Clarification Thickener 25 ft 25' X 7'	S/F	24 ft 25' X 7'
Cyanidation	Primary Thickener #1	S/F	40 ft 40' X 10'
Cyanidation	Primary Thickener #2	S/F	40 ft 40' X 10'
Cyanidation	Leach Tanks	S/F	11 x 28' X 32'
Cyanidation	Leach Tanks	S/F	2 x 26' X 30'
Cyanidation	CCD #1, 835 M3	Westpro	60 ft
Cyanidation	CCD #2, 835 M3	Westpro	60 ft
Cyanidation	CCD #3, 835 M3	Westpro	60 ft
Cyanidation	CCD #4, 835 M3	Westpro	60 ft

## 18 Project Infrastructure

The infrastructure required to support mining and milling operations at a rate of 2,000 tpd was established in 2011 when the mill was expanded. This expansion included upgrades to the electrical supply, water supply, and water storage.

Since the mill expansion was completed, there have also been upgrades to the surface infrastructure, including:

- a new kitchen and cafeteria building
- two additional water tanks
- a central laboratory facility
- a rebuilt core shack and core library facility
- a major expansion of the tailings facility (still under construction as of February 2017)

The mine had also started the development of a hoisting shaft and track haulage level to support future production, but this was suspended due to low metal prices and has not yet been restarted.

The following is a brief description of the existing surface and underground infrastructure at the time of the last site visit in February 2017.

### 18.1 Mine Access

The mine is accessible from a four-lane paved highway between the cities of Durango and Zacatecas, connecting to a paved road which leads to the village of San José de la Parrilla. A gravel road starts near the village which leads to the mine gate.

Most of the main roads around the administration building, central laboratory, and mill are paved.

### 18.2 Haulage and Secondary Roads

All haulage roads on site are gravel roads which are often less than two-lane-wide. Secondary roads for accessing diamond drill sites, ventilation fans and compressors are generally single-lane gravel roads, sometimes with fairly steep grades.

### 18.3 Plant Security/First Aid

There is a security/first aid office in the administration area as well as armed guards at the main gate.

### 18.4 Mine Rescue Facilities

There is a Mine Rescue room with sufficient equipment to outfit a six-person Mine Rescue team. If needed. Additional teams would be mobilized from other mines in the area including:

- San Martin mine (Grupo México)
- Sabinas mine, (Peñoles)
- La Colorada mine (Panamerican Silver)
- San José mine (Avino)

- Fresnillo mine (Fresnillo)
- Del Toro mine (FMS)

## 18.5 Administration Buildings, Maintenance Shops, Warehouse and Storage Areas

Mine management, technical staff and administrative staff work out of a number of single-story buildings on site. There are also a new kitchen and cafeteria building, first aid room with an ambulance, security office, change rooms, and washrooms.

The warehouse facilities are minimal as most items are readily available in Durango and many items are stored outdoors.

The main maintenance facilities for mobile equipment are located near the processing facility. There are also a number of outdoor satellite shops for running repairs, tire changes, etc. The outdoor shops consist of a partially covered concrete slab with lighting, compressed air, and power. It is also possible to send equipment to industrial facilities in Durango if required.

## 18.6 Central Assay Laboratory and Core Shack

In 2013, the core shack was rebuilt and a core library was created so that the core is now easily accessible and properly stored. As of February 2017, expansion to the central assay laboratory building was near completion. The intention is for the expanded assay laboratory to process all sampling from La Parrilla, including daily mine and mill samples. The facility is called “the Central Laboratory” as it is also intended to process the exploration samples from all of FMS’s properties.

## 18.7 Surface Stockpiles and Processing Plant

A major expansion to the processing plant was completed in 2011 which increased the processing capacity to 2,000 tpd, nominally 1,000 tpd of oxide ores and 1,000 tpd of sulphide ores. Standard dump trucks currently haul ore from underground to the stockpile areas on the hill above the mill. There are two stockpile areas, one for oxide ores and one for sulphide ores. A front-end loader is used to feed the crushing circuit the appropriate mill feed.

The processing plant is described in more detail in Section 17.

## 18.8 Tailings Storage Facility

The processing plant produces a dry filter cake which is transported via conveyors to the dry stack tailings storage facility, where a small bulldozer distributes and grades the tailings. The existing facility is nearing capacity, so an expansion to the existing facility has been designed and permitted. Construction was well under way at the time of the site visit in February 2107 (Figure 71). The expansion is designed to extend the life of the facility for 150 months at current production rates.



Figure 71: Tailings facility expansion under construction (SRK, February 2017)

## 18.9 Mine Services

### Compressed Air

Compressed air is provided to the mines by four separate outdoor compressor installations. Most of the compressors are modern Ingersoll Rand High Efficiency units as shown in Figure 72.



Figure 72: Ingersoll Rand compressor (SRK 2017)



The main mines (Rosarios, Intermedia, and San Marcos) are fed by two of these installations that have a combined capacity of 2,880 cfm at 100 psi (four compressors, 1,050 hp total).

Quebradillas and San Nicolas are not connected to the main mine and are fed by two 300 hp Ingersoll Rand compressors capable of providing 1,360 cfm at 100 psi.

Vacas is also not connected to the main mine and is fed by a single 300 hp compressor. This unit is now available as Vacas is mined-out.

## **Process Water**

Process water is fed directly to the main mine (San Marcos, Rosarios, San José, La Blanca) from the surface water tanks. Quebradillas and Vacas are fed from smaller surface tanks located at the return air raises. These tanks are filled from the larger surface tanks via high-density polyethylene (HDPE) piping that has been laid along the roads.

## **Mine Dewatering**

For the main mine, local dirty-water sumps collect water and pump it to a central dewatering station located in Rosarios. The dirty water is decanted and clarified, then the clean water is pumped to surface process water tanks to be recycled.

Because Vacas, Quebradillas and San Nicolas are not connected to the main mine, the local sumps are pumped either to mined-out areas underground or to surface.

## **Underground Communication**

Underground communication currently consists of telephones located in the refuge stations and in shops, as well as a few hardwired LAN connections.

The mine is currently seeking approval to install new infrastructure underground. This would include a fibre-optic cable 1,000-metre-long which would provide wireless radio communications and wireless LAN (WLAN) connectivity.

The new system will be expanded in future years as part of an ongoing improvement initiative.

## **18.10 Water Supply**

### **Raw Water Supply to Site**

Fresh water is supplied to the site by two permitted wells located in the adjoining valley, some seven kilometres from the mine site. Water is pumped into one of four water tanks located on the hill above the processing plant.

One well has a capacity of 180,000 m<sup>3</sup>/year and the other has a capacity of 350,000 m<sup>3</sup>/year. FMS indicates that the capacity of only one of these wells is sufficient to provide the seasonal fresh water make-up needs for the current operation.

## Plant Process Water

Process water for the processing plant is gravity-fed from the largest of the water tanks on site.

## Water Recycling

As the processing plant produces a dry stack tailing with low water content, the majority of the plant process water is recycled. Any water captured in the catchments around the tailings facility is also recycled. Process water underground is also largely recycled.

## Discharge Water Collection and Treatment

There is an existing dirty-water catchment located below the processing plant as shown in Figure 73. Water collected here is recycled as process water through the processing plants. Two new larger catchments are under construction as part of the tailings area expansion (Figure 74).



Figure 73: Dirty-water catchment below processing plant (SRK 2017)

## 18.11 Power Supply

Power to the site is provided by a 115 kV high-voltage transmission line from a major Comisión Federal de Electricidad (CFE) transmission line that runs parallel to the nearby highway. This line feeds a 10/12.5 MVA transformer that steps the voltage down to 13.2 kV before metering and distribution.

There are three main 13.2 kV medium-voltage distribution systems, one for the processing plant and two for the underground mines and surface infrastructure. Local transformers are used to step the voltage down to either 480 V or 277 V as required.

## 18.12 Surface Communication

Surface communication on site consists of typical phone service, cell phone service, and internet services.

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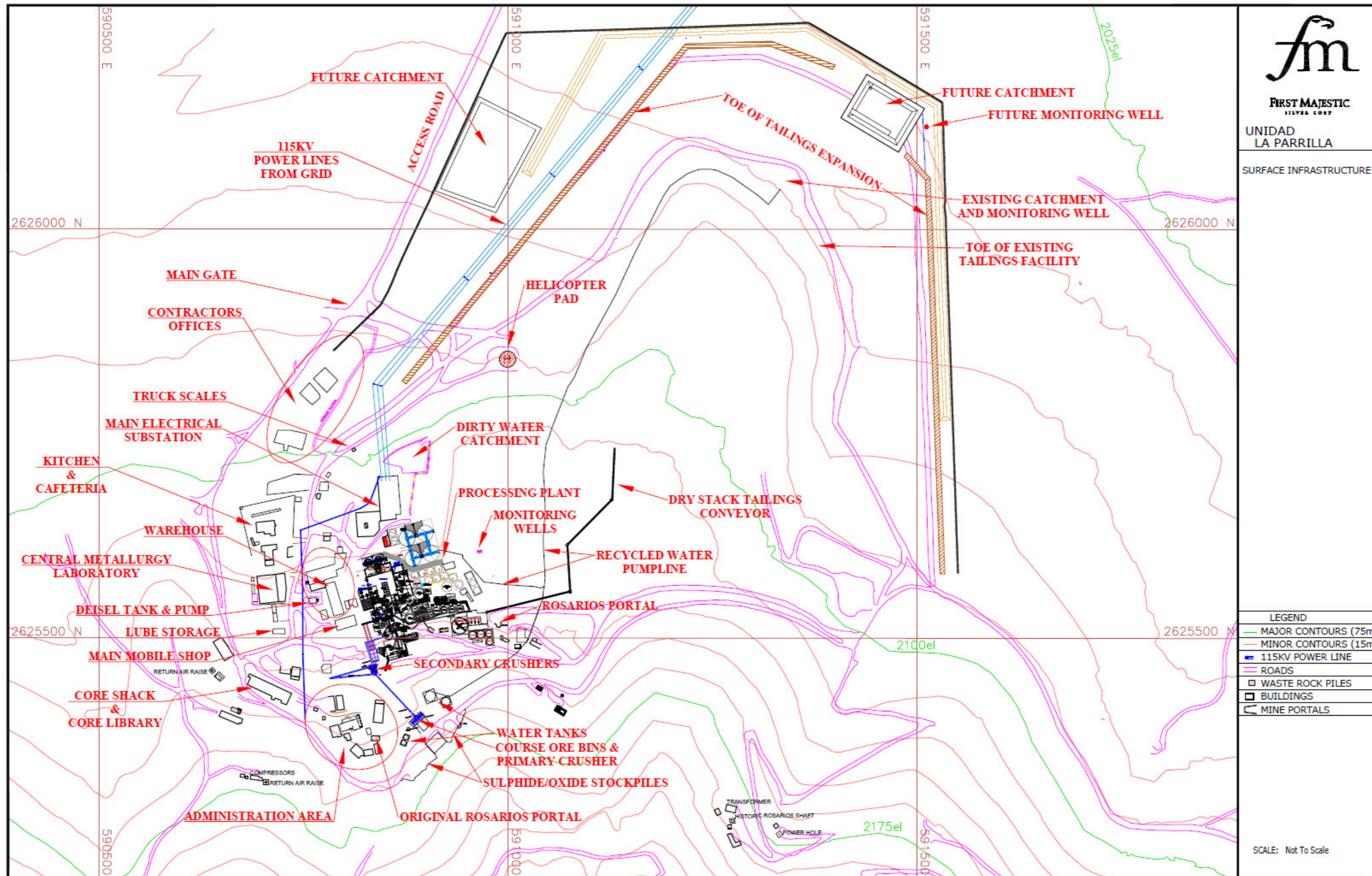


Figure 74: General site plan (FMS 2017)

## 18.13 Hoisting Shaft and Underground Rail Haulage System Project

The development of a dedicated hoisting shaft and underground rail haulage system began in 2013. The goal of this system is to improve the haulage efficiency from underground mining areas to the processing plant as the mining moves deeper, and to connect all the mines to this central hoisting system. This would also reduce the diesel equipment load on the ventilation system significantly.

The work completed in 2013 included the raiseboring of a 3-metre diameter pilot raise from surface to 9 Level and from 9 Level to 11 Level. Some 1,500 metres of the planned 2,500 metres of lateral development for the rail haulage drift were also completed, as well as some surface preparations.

The project was suspended in 2014 due to low metal prices and the raisebore hole was utilized as a fresh air ventilation raise between surface and 11 Level. Figure 75 illustrates the plan that was in execution in 2013.

Should the project be restarted, the following work would be required:

- Completion of the shaft pilot hole via raiseboring methods from 11 Level to the shaft bottom
- Benching out the shaft pilot hole to the final shaft dimensions, as only the top 19 metres has been completed to date
- Development of the shaft bottom access, crusher station, and loading pocket access drifts
- Development of the loading pocket, skip dump station, two fine ore bins below crusher, two fine ore bins below skip dump, Grangesburg-style rail dump, truck dump and various ore passes
- Equipping the shaft and installation with all the electrical and mechanical equipment such as the hoists, skips, crusher, conveyors, loading pocket, skip dump, Grangesburg-style dump, grizzlies, etc.

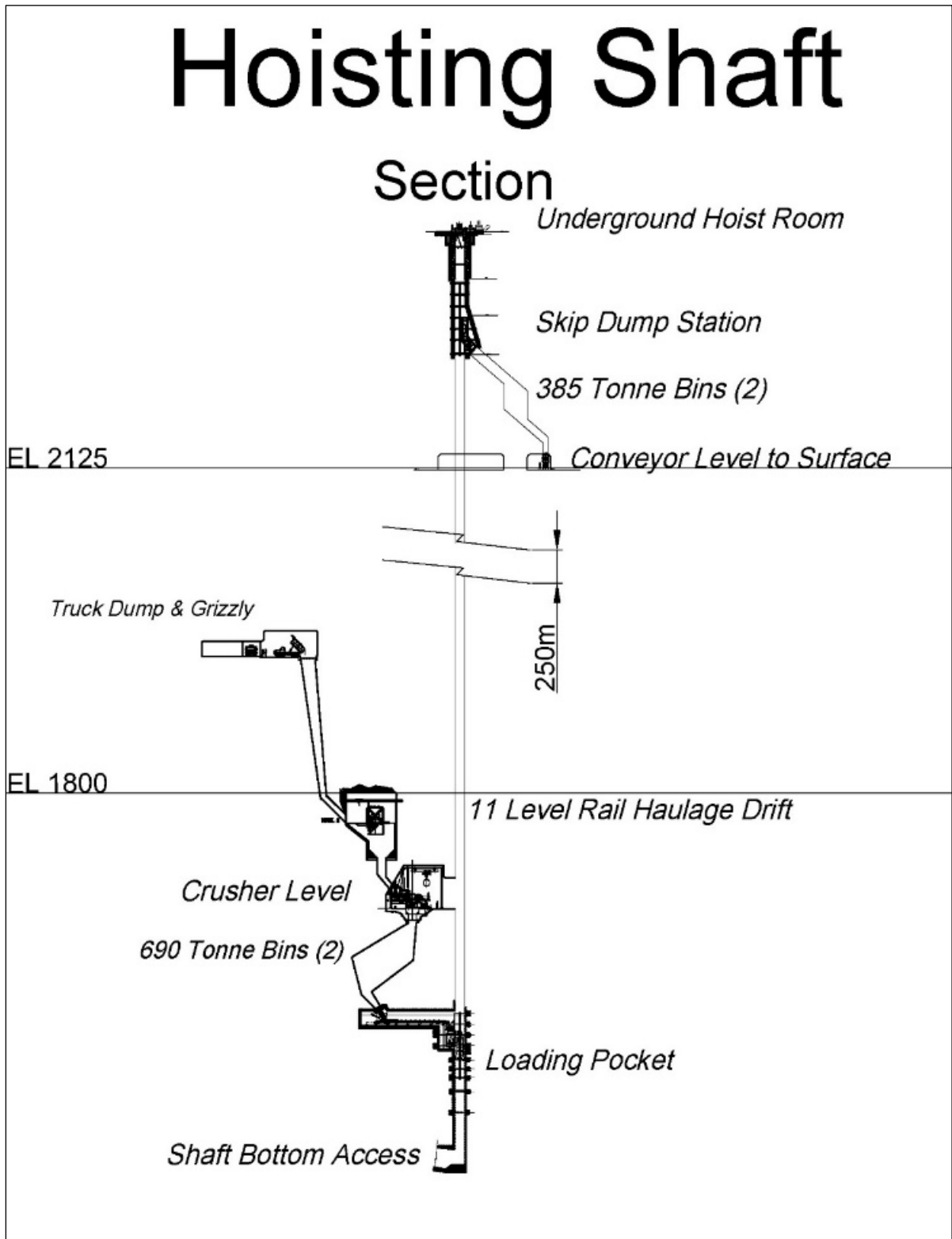


Figure 75: Section through hoisting shaft (FMS 2017)

## 19 Market Studies and Contracts

La Parrilla operates two parallel metallurgical complexes: a cyanidation plant to treat oxide minerals and a flotation circuit to process sulphide minerals.

Three different end products are marketed:

- Doré alloy bars, which are a product of the cyanidation process
- Silver-rich lead concentrates from the flotation process
- Zinc concentrates from the flotation process

The silver doré bars typically contain greater than 90% silver with some gold and other impurities. These are delivered to one of three refineries where doré bars are refined to commercially marketable 99.9% pure silver bars.

The silver-rich lead concentrates and the zinc concentrates produced at La Parrilla are sold under annual contracts to arm's length concentrate traders and smelters. Lead concentrates typically contain a minimum of 40% lead and 3.6 kg of silver per tonne. Zinc concentrates contain a minimum of 40% zinc and less than 1.0 kg of silver per tonne.

### 19.1 Market Considerations

Silver is considered an easily saleable commodity in the global marketplace. As a precious metal, it is desirable for jewellery and investment purposes, and it is also an important industrial commodity. Silver has a unique combination of characteristics which include durability, malleability, ductility, conductivity, reflectivity, and antibacterial properties. These characteristics make silver valuable in numerous industrial applications such as circuit boards, electrical wiring, superconductors, brazing and soldering, mirror and window coatings, electroplating, chemical catalysts, pharmaceuticals, filtration systems, solar panels, batteries, televisions, household appliances, and automobiles.

Silver is predominantly traded on the London Bullion Market Association ("LBMA") and COMEX in New York City. The LBMA is the global hub of over-the-counter trading in silver, and is the metal's main physical market.

Silver-rich lead concentrates and zinc concentrates, such as those produced at La Parrilla, are considered a marketable product commonly sold by mining and processing companies to concentrate traders or to smelting companies.

FMS has proven to be successful in securing concentrate sales contracts for La Parrilla and for two of its other properties, as shown by its ability to continuously sell La Parrilla's concentrates for the last twelve years.

## 19.2 Product and Sales Contracts

FMS senior management in Vancouver, Europe and Mexico tender and negotiate sales contracts with refining companies, metals brokers and traders on at least an annual basis. FMS continually reviews its cost structures and relationships with refining companies and metal traders in order to maintain the most competitive pricing possible, while not remaining completely dependent on any single smelter, refiner or trader.

## 19.3 Doré

Silver and gold produced at La Parrilla in the form of doré is sold by FMS using a small number of international metal brokers who act as intermediaries between FMS and the LBMA. FMS delivers its production via a combination of private aircraft and armoured cars to a number of refineries. Once these have refined the silver to commercial grade, the refineries then transfer the silver to the physical market. FMS transfers risk of ownership at the time it delivers its doré at its plant to the armored cars under contract to the refineries, and in turn receives immediate assignment of provisional contained metals to its brokerage accounts. FMS normally receives 95% of the value of its sales of doré in two payments. An initial payment on the delivery to the refinery with a final settlement once the metals have been refined, less processing costs.

In addition to these commercial sales, FMS also markets a small portion of its silver production in the form of coins and silver bullion products to retail purchasers directly over its corporate e-commerce web site. Less than 1% of FMS production was sold in retail transactions during 2016.

## 19.4 Concentrates

At the Report effective date, La Parrilla had a number of concentrate sales agreements with smelters and concentrate traders. These sales agreements are valid for one year or more, and are reviewed on a regular basis. Terms within the sales contracts are considered by FMS to be within industry norms for such agreements.

La Parrilla receives payment for an agreed-upon percentage of the lead, zinc, and silver contained in the concentrates it sells after deduction of smelting and refining costs, based on stipulated pricing over defined one-month periods.

Selling costs include freight, insurance and representation, as well as treatment charges, refining charges, payable terms, and deductions and penalties terms for La Parrilla concentrates. These have been reviewed by the QP and found to be in line with similar commercial conditions in Mexico. These selling costs have been incorporated into the long-term financial analysis.

## 19.5 Deleterious Elements

No relevant impurities have been recorded in La Parrilla silver doré bars. Considering the characteristics of the ore, and the processing and concentration practice, it is reasonable to expect that La Parrilla silver doré bars will not carry impurities that could be materially penalized at the refineries.

Based on past performance and the characteristics of the ore, the lead-silver concentrates will carry impurities in the form arsenic sulphides that could be penalized at the smelter. In the last three years, the arsenic content has been recorded at a range between 0.7 and 1.4% arsenic. The penalty



thresholds for arsenic in the different contracts are set at 1.0%, the corresponding penalties provisions have been included in the financial model. No other relevant impurities have been recorded.

Based on past performance, the zinc concentrate from La Parrilla will typically carry impurities in the form arsenic sulphides and cadmium that could be penalized at the smelter. In the last three years, the arsenic content has ranged between 0.2 and 0.6% arsenic. The penalty threshold for arsenic is set above 0.3%. In the last three years, the cadmium content has ranged between 0.2 and 0.5% cadmium. The penalty threshold for cadmium is set above 0.3%. The corresponding penalty allowances have been included in the financial model. No other relevant impurities have been recorded.

## 19.6 Other Contracts

As a normal course of business, La Parrilla has contracts in place for some of the services required for mining and processing activities. All these contracts are for agreed-upon one-year or multi-year terms and, in the opinion of the QP, these contracts and commercial terms are in line with industry norms for such contracts.

Table 68 lists the major contracts in place for La Parrilla at the Report effective date.

**Table 68: Main service contracts (FMS 2017)**

<b>Service</b>	<b>Contractor/Supplier</b>
Underground mine development	Argentum Administracion y Minería
Underground mine haulage	Edgar Iván Moreno Hernández
Underground mine haulage	Efraín Guadalupe Moreno Hernández
Underground mine haulage	PASEMIN
Underground mine haulage	Claudia Flores Delgado
Underground mine – Road maintenance	Luis Enrique Reyes Ruiz
Underground mine - Water hauling	Everardo Flores Delgado
Underground mine - Water hauling	Gilberto Gerardo Flores Valverde
Raise Boring	CAUSA
Shotcrete placement in underground excavations	Adra Perforaciones
Shotcrete placement in underground excavations	Miguel Angel Arroyo Pantoja
Exploration diamond drilling	Versa Perforaciones
Maintenance activities	J. Refugio Contreras
Doré Freight	Republic Metals Corporation
Concentrate Freight	Setramex
Concentrate Freight	TUEMSA
Concentrate Freight	Enrique Santos Marentes
Concentrate Freight	Roberto Santos Perez
Industrial Security Services	Seguridad Privada para la Industria Minera
General Construction	Hugo Lopez Garcia

## 19.7 Commodity Price Guidance

The LBMA Silver Price is an electronic auction platform on which the price of silver is calculated. The CME Group provides this platform and Thomson Reuters is responsible for the administration and governance of the LBMA Silver Price. Silver is quoted in US dollars per troy ounce.

FMS has established a standard corporate procedure to determine the medium-term and long-term metal price guidance for silver and gold. This procedure considers the consensus of future metal

prices forecasts from credible sources (including major Canadian and global banks), projections from financial analysts specializing in the mining and metals industry, and metal prices forecasts used by other peer mining companies in public disclosures.

Based on the above information, a recommendation as to acceptable consensus pricing is put forward by FMS’s Qualified Person (QP) to the company executives and a decision is made to set the metal prices guidance for mineral resource and mineral reserve estimates. This guidance is updated at least annually, or on an as-required basis. Metal prices used for mineral resource and mineral reserve estimates are listed in Table 69.

**Table 69: Metal prices used for mineral resource and mineral reserve estimates (FMS 2017)**

<b>Metal Price</b>	<b>Units</b>	<b>Used in Resource Estimation</b>	<b>Used in Reserves Estimation and Mine Plan</b>
Silver	\$/oz Ag	19.00	18.00
Gold	\$/oz Au	1,300	1,250
Lead	\$/lb	1.00	1.00
Zinc	\$/lb	1.20	1.15

Foreign exchange rates utilized in the cost estimates and in the Life-of-mine (LOM) model were USD:CAD=1.30 and USD:MXN=18.70.

## 19.8 Comments

The selling costs, which include freight, insurance and representation, as well as refining charges, payable terms, deductions and penalties terms for La Parrilla selling products, have been reviewed by the QP and found to be in line with similar commercial conditions in Mexico. All these costs have been incorporated into the life-of-mine model.

The QP considers that the likelihood of securing ongoing contracts for silver doré bars and concentrate sales is a reasonable assumption. However, in downturn market conditions, there can be no certainty that La Parrilla will always be able to do so or what terms may be available at the time.

## 20 Environmental Studies, Permitting, and Social or Community Impact

### 20.1 General

This section outlines the general review of existing environmental conditions at site and those conditions potentially affected by future production. Findings are based on a site visit conducted in 2012 by SRK, recent discussions with FMS, and documentation collected for the project in 2012 and 2017.

It is understood that for the purpose of this technical report, that no project expansion is contemplated at this time, only ongoing operations at current production rates. No significant changes are proposed to the mine footprint, processing plant, mining operations or other mine site infrastructure other than discussed herein and in Section 18 Infrastructure.

### 20.2 Project Environment

La Parrilla is a complex of silver-rich polymetallic deposits that have been subject to various mining and processing activities from at least 1956 to 1999. Historical operations consisted of small scale underground mines, a 180 tpd processing facility, and tailings area.

FMS acquired the property and re-established operations in 2004 with several phases of expansion since. Current mining operations include the main underground mine (Rosarios, Intermedia, and San Marcos deposits) and the Quebradillas mine which includes the San Nicolas deposit. The open pit mine at Quebradillas is largely mined out with some remnants remaining to be mined. The ore is processed locally by a dual circuit processing plant with both a flotation circuit and a leach circuit. In 2011, the mill was expanded from 850 tonnes per day (tpd) to 2,000 tpd, although it is understood that actual production rates are currently in the order of 1,500 to 1,700 tpd. Tailings are deposited in the “Presa de Jales 2” dry stacked tailings storage facility (TSF). Expansion of the tailings area “Presa de Jales 2” was permitted in 2015, allowing for an increase in the footprint of the tailings area and its storage capacity.

Recent environmental studies were completed in support of permit applications and development of a closure plan, and consider potential environmental impacts of TSF expansion, physical stability of the structure, and leach testing of the waste rock used to cover the tailings dam.

The findings of these studies are documented in the following:

- *Estudio de Riesgo Ambiental*, Nivel I (Environmental Risk Assessment, First Majestic Resources México, S.A. de C.V, 2006)
- *LP Estudio de Riesgos Ambientales*, Nivel II, (Environmental Risk Assessment Level II, First Majestic Plata, S.A. de C.V, 2012)
- CUST “Ampliacion Presa de Jales La Parrilla” (Technical Study (Land Use Change) – Tailings Dam II Expansion Project, First Majestic Plata, S.A. de C.V, June 2015)
- Plan de Restauracion Y Cierre, (Restoration and Closure Plan, First Majestic Plata, S.A. de C.V, Dec 2015)

Review of the above the available documentation, site visit notes and photographs from the 2012 site visit, additional notes and photographs taken by Mr. Taylor during the February 2017 site visit, and communications with FMS personnel noted the following with respect to the project environment:

- The climate is semi-arid, with average annual rainfall of 400 to 500 mm and average annual evaporation greater than 2000 mm.
- The project is located within the Rio San Pedro sub-basin and only ephemeral water courses are observed proximate to the site.
- No protected natural environment areas or features were noted proximate to the project.
- The mine is located immediately adjacent to the town of San José de La Parrilla with people living proximate to the mining operations; the closest home is located approximately 350 m from the diesel storage facility or closest mill building.
- A site-wide environmental risk assessment report (FMS 2012), noted risks related to the potential risks associated with storage and handling of cyanide. A series of risk mitigation recommendations, including new security measures, were included in the report.
- Air emissions from the site are monitored and reported to regulators.
- Waste from offices, cafeteria, and buildings is removed to the local dump. The dump is shared by the community and the mine. A segregation and recycling program is in place.
- A 33,000-litre site diesel fuel storage facility has proper signage, containment, and impact protection. Design of the facility is covered in the site-wide environmental risk assessment report (FMS 2012).
- Site wide environmental risk assessment report (FMS 2012) noted potential risks associated with the proximity of the fuel storage area relative to the local population. The report follows with a series of risk mitigation recommendations and proposes new security measures.

## 20.3 Water Management

A site-wide water balance is not available for the project. It is understood that process water is largely recycled from the following sources:

- Presa de Jales-tailings facility
- Sanitary waste water (after treatment)
- Dewatering from Rosarios main underground sump which has a clarifier

Two water supply wells are currently permitted to address fresh water make-up requirements. One with a capacity of 180,000 m<sup>3</sup>/year and the other with a capacity of 350,000 m<sup>3</sup>/year. FMS indicates that the capacity of only one of these wells adequately supplies the seasonal fresh water make-up needs for the current operation.

No formal hydrogeology studies have been completed for the mines. Incidental observations indicate these are generally dry, with only the Rosarios, Vacas, and Quebradillas mines having a pumped discharge. Underground dewatering from the main mine is collected in a central settling sump and decanted to clarify the underground water. It is then pumped to the largest surface tank, which is the mill process water. Water from the Quebradillas mine and the mined out Vacas mine are pumped to surface and discharged to local creek beds. These discharges are licensed, monitored and reported on, with respect to both the quality and quantity of the discharge. No water is pumped from the open pit. The amount of water collecting in the pit is sufficiently small that there is no requirement for a water collection sump or pump in the pit bottom.

Tailings from the mill are stored in the tailings facility as dry stacked tailings. Mill process water is extracted from the tailings prior to placement and recycled. The tailings area has a constructed runoff collection system of drains and ditches, and reports to the water reclaim station downstream of the

tailings area, where it is pumped back to the mill for re-use as process water. The tailings are placed in lifts that are subsequently covered with mine waste rock. The historic tailings area is currently being rehabilitated by with a waste rock cover, and will eventually be revegetated.

There is no data available on the metal leaching/acid rock drainage potential of the tailings and waste rock. The waste rock is stockpiled in various locations on site to be used for construction purposes as required.

Two wells have been constructed to monitor seepage downgradient of the tailings facilities. One below the new tailings area beside the reclaim station and the other reported to be downgradient of the old tailings dam. FMS indicates that these wells are dry.

Except for the previously noted mine dewatering discharges (Vacas and Quebradillas) there are no regulated effluent points on site. FMS has indicated that non-point-source surface runoff from mine waste rock piles, tailings areas, the open pit and from the general building areas is not considered to be an environmental concern.

Potable water is provided to site by a local supplier. The water is provided in bottled form from a local well, along with lab certificates documenting its quality. Sanitary waste water is piped to a bioreactor for treatment, and then returned to the process for reuse.

## **20.4 Regulatory Status**

La Parrilla is an operating mine, and as such it currently holds the major environmental permits and licenses required by the Mexican authorities to carry out mineral extracting activities. Table 70 contains a list of the major permits issued to La Parrilla.

**Table 70: Major licenses and permits issued to La Parrilla (FMS 2017)**

Permit	Number	Authority	Status	Date Granted	Validity Period
Environmental License	LAU-10/016-2003	SEMARNAT	Current	May 2012	Indefinite
Environmental Impact: Autorización "Proyecto de construcción y operación de la Presa de Jales La Parrilla II".	SG/139.2.1.1/ 000897	SEMARNAT	Current	April 2007	10 years
Environmental Impact: Autorización proyecto "Ampliación presa de jales La Parrilla II".	SG/130.2.1.1/ 001462/15	SEMARNAT	Current	Sept 2015	11 years
Environmental Impact: Autorización proyecto "Tajo Quebradillas"	SG/130.2.1.1/ 000233/11	SEMARNAT	Current	Feb 2011	7 years
Environmental Impact: Autorización de proyecto "Línea de transmisión eléctrica de 115 KV para servicio de First Majestic Plata, Unidad La Parrilla".	SG/130.2.1.1/ 001638/11	SEMARNAT	Current	Sept 2011	30 years
Environmental Impact: Autorización de proyecto "Relleno Sanitario de la comunidad San José de La Parrilla.	SG/130.2.1.1/ 000975/12	SEMARNAT	Current	April 2012	15 years
Authorization for industrial land use: Proyecto de construcción y operación de la presa de jales La Parrilla II.	SG/130.2.2./ 000979	SEMARNAT	Done	April 2007	12 months
Authorization for industrial land use: Proyecto de construcción y operación del Tajo Quebradillas.	SG/130.2.2/ 000149/11	SEMARNAT	Current	Jan 2011	6 years
Authorization for industrial land use: Proyecto línea eléctrica de 115 Kv para servicio de First Majestic Plata, unidad La Parrilla.	SG/130.2.2/ 002017/11	SEMARNAT	Done	Oct 2011	8 months
Authorization for Industrial Land Use: Proyecto relleno sanitario La Parrilla.	SG/130.2.2/ 002717/12	SEMARNAT	Current	Sept 2012	6 months
Authorization for Industrial Land Use: Proyecto Ampliación Presa de Jales La Parrilla II.	SG/130.2.2/ 000535/16	SEMARNAT	Current	March, 2016	24 months
Registro de obra de aluabramiento (extracción): Santa Rosa	03DGO801201/ 11FMDL12	CONAGUA	Current	July 2014	Indefinite
Registro de obra de aluabramiento (extracción): El Topil, El Frayle y La Rabia.	03DGO800948/ 11FMDL11	CONAGUA	Current	July 2014	Indefinite
Título de concesión de aprovechamiento de agua	03DGO102200/ 11IMDL15	CONAGUA	Current	Dec 2015	10 years
Cesión agua de laboreo Vacas y Quebradillas	BOO.909.01.02/ 1232.-001735	CONAGUA	Current	Aug 2015	Indefinite
Registro de Plan de Manejo de Residuos Peligrosos	10-PMG-I- 1639-2015	SEMARNAT	Current	March 2015	Indefinite
Registro del Plan de Manejo de Residuos Mineros	10-PMM-I- 0124-2014	SEMARNAT	Current	Dec. 2014	9.23 years

## 20.5 Permitting Needs for Continued Operations

It is understood that the permitted capacity of the tailings expansion is able to accommodate 10 years of production at current rates which exceeds the current estimated mineral resources available. The infrastructure footprint, process rate, and fresh water make-up demand will also remain the same. Therefore, no new permitting is required to accommodate production from the current mineral resource or mineral reserve estimates.

## 20.6 Status of Relations with Local Communities

To the extent known, there are no social issues that could materially impact the Company's ability to conduct exploration and mining activities in the district. The economic impact of the La Parrilla mine on the surrounding towns and villages is positive. FMS maintains an active program of support and communications with the nearby communities and relies on its relationship with the local communities, labour unions, and the government regulators, which are presently businesslike and amicable.

In 2017, FMS budgeted approximately \$64,000 for community support, including support of local events, community meetings, infrastructure development, potable water systems, health facilities, and various community programs.

## 20.7 Mine Closure Planning

The Restoration and Closure Plan (FMS 2015) for the La Parrilla Silver Mine is based on the commitments established in the Asset Retirement Obligations (ARO). The plan identifies the principles, standards, and international guidelines to be used in the restoration and closure of the various mining areas forming the La Parrilla site, and includes an estimate of the investment needed for closure activities to return the land to a predetermined state once the activities associated with the mining operation have ceased.

As at December 2015, FMS estimated that the decommissioning liability for La Parrilla is \$3.357M, based on the following closure considerations:

- Earthwork and recontouring
- Stabilization and revegetation
- Detoxification, water treatment, disposal of wastes
- Structure, equipment and facility removal
- Monitoring
- Miscellaneous activities

## 21 Capital and Operating Costs

### 21.1 Capital Costs

#### 21.1.1 Major Capital Projects

FMS categorizes the semi-permanent underground mine development infrastructure as expansionary capital development; this includes the main ramps, main sublevels and ventilation infrastructure. A summary of the expansionary capital estimates is shown in Table 71.

**Table 71: La Parrilla Expansionary Capital Costs Estimates (FMS 2017)**

Type	Total	2017	2018	2019	2020
Total Mining Capital Costs (\$M)	\$9.44	\$3.88	\$3.26	\$1.95	\$0.35

No other major expansionary capital spending is expected at this time in La Parrilla.

#### 21.1.2 Sustaining Capital Costs

Sustaining development costs are estimated based on centre-line designed distances and on the geometry of the ore body, assuming a typical MCF block requires 180 m of ramp and lateral waste development. Infill exploration diamond drilling is based on 5,000 m per year at \$120 per metre.

Sustaining capital projections for equipment and infrastructure costs are based on the annual average for the period 2014 to June 2017. Sustaining capital equipment projections are based on average expenditures in equipment rebuilding, major overhauls or replacements, plant maintenance and on-going refurbishing. Sustaining infrastructure includes allocation for the expansion of tailings management facilities as needed and annual mining rights expenditures.

Closure costs are also included as sustaining capital at a rate of US\$0.30 per tonne milled based on the 2015 Restoration and Closure plan (FMS 2015).

Summary of the sustaining capital cost estimates are shown in Table 72.

**Table 72: La Parrilla Sustaining Capital Costs Estimates (FMS 2017)**

Type	Total (\$)	2017 (\$)	2018 (\$)	2019 (\$)	2020 (\$)
Mine development	6.85	2.45	2.20	1.70	0.50
Exploration	2.28	0.66	0.66	0.66	0.30
Plant equipment	13.69	4.97	5.01	3.05	0.66
Infrastructure	2.40	0.75	0.55	0.55	0.55
Total sustaining capital costs	25.22	8.83	8.42	5.96	2.01



## 21.2 Operating Cost Estimate

### 21.2.1 Underground Cost Estimates

Operating costs for underground mining are based on actual costs reported out of FMS’s cost database for the first half of 2017 (January to June 2017). Table 73 and Table 74 show the operating costs for underground mining of oxides and sulphides, respectively.

**Table 73: Operating cost for oxides mined by MCF (FMS 2017)**

<b>Item</b>	<b>\$ per tonne milled</b>
Mining cost	17.88
Milling cost	17.70
Indirect costs	11.39
General and administrative costs	5.32
<b>Total Site Operating Cost</b>	<b>52.29</b>

**Table 74: Operating cost for sulphides mined by MCF (FMS 2017)**

<b>Item</b>	<b>\$ per tonne milled</b>
Mining cost	17.88
Milling cost	13.97
Indirect costs	11.39
General and administrative costs	5.32
<b>Total Site Operating Cost</b>	<b>48.56</b>

### 21.2.2 Open Pit Cost Estimates

Operating costs for open pit mining are based on actual costs reported out of FMS’s SAP database for the first three quarters of 2017 (January to October 2017). In that time, 173.3kt of oxide open pit ore was mined and milled at a cost of \$4.99 per tonne, at a 1:1 stripping ratio. As the remaining mineral reserves are estimated to require a 2:1 stripping ratio, the direct mining cost has been estimated to be \$7.00 per tonne as shown in Table 75.

**Table 75: Operating Cost for Oxides mined by Open Pit (FMS 2017)**

<b>Item</b>	<b>\$ per tonne milled</b>
Mining Cost	7.00
Milling Cost	17.70
Indirect Costs	11.39
General and Administrative Costs	5.32
<b>Total Site Operating Cost</b>	<b>41.41</b>

### 21.2.3 Consolidated Operating Cost Estimates

A summary of the annual estimated operating expense used in the Technical Economic Model for assessing economic viability is presented in Table 76.

**Table 76: La Parrilla Annual Estimated Operating Costs (FMS 2017)**

Type	Units	Total	2017	2018	2019	2020
<b>Operating Cost - Oxide Ores</b>						
Underground mining cost	\$M	5.18	0.88	1.31	2.35	0.64
open pit mining cost	\$M	2.85	1.37	1.26	0.22	-
processing cost	\$M	10.70	3.92	3.98	2.31	0.49
indirect costs	\$M	5.56	2.04	2.07	1.20	0.25
general and administration costs	\$M	6.48	2.38	2.41	1.40	0.29
<b>Total Site Operating Cost - Oxide Ores</b>	<b>\$M</b>	<b>30.77</b>	<b>10.59</b>	<b>11.03</b>	<b>7.48</b>	<b>1.67</b>
<b>Operating Cost - Sulphide Ores</b>						
Underground mining cost	\$M	18.22	6.57	6.57	4.17	0.91
processing cost	\$M	9.91	3.57	3.57	2.27	0.50
indirect costs	\$M	7.16	2.58	2.58	1.64	0.36
general and administration costs	\$M	8.37	3.02	3.02	1.91	0.42
<b>Total Site Operating Cost - Sulphide Ores</b>	<b>\$M</b>	<b>43.66</b>	<b>15.74</b>	<b>15.74</b>	<b>9.99</b>	<b>2.19</b>
<b>Total Site Operating Cost</b>	<b>\$M</b>	<b>74.43</b>	<b>26.33</b>	<b>26.77</b>	<b>17.47</b>	<b>3.86</b>

## 22 Economic Analysis

FMS is using the provision for producing issuers whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow.

## **23 Adjacent Properties**

There are no adjacent properties that are considered relevant to the La Parrilla Silver Mine.

## 24 Other Relevant Data and Information

There is no other relevant data or information available about the La Parrilla Silver Mine that would make this report more understandable.

## 25 Interpretation and Conclusions

The following interpretations and conclusions are a summary of the QP's opinions, based on the information presented in this Report.

### 25.1 Mineral Tenure, Surface Rights and Agreements

Information provided by FMS legal experts supports that the mining tenure held is valid and is sufficient to support declaration of mineral resources and mineral reserves: La Parrilla has adequate mineral concession and surface rights to support mining operations over the planned underground life-of-mine presented in the Report.

A letter from FMS legal expert is included in Appendix A.

### 25.2 Geology and Mineralization

The current understanding of mineralization and alteration styles, as well as the structural and lithological controls on mineralization, is sufficient to support the mineral resource and mineral reserve estimations.

The La Parrilla Mine area deposits are considered to be examples of intrusion-related carbonate replacement deposits and mesothermal fault-veins.

### 25.3 Exploration, Drilling and Data Analysis

The exploration programs completed to date are appropriate for La Parrilla's mineralization style. Sampling methods (DDH and channel sampling) and data collection are acceptable given the deposit dimensions, mineralization true widths, and the style of the deposits. The programs are reflective of industry-standard practice and can be used in support of mineral resource and mineral reserve estimation.

The lithological, geotechnical, collar, and downhole survey data collected are considered to be reliable. The QA/QC program is adequate but needs further attention to the ongoing corrective actions in order to better address the issues seen in terms of precision, accuracy, and contamination.

The QA/QC program results indicate incidences of contamination with both Central Laboratory and SGS. The QP recommends that an evaluation be undertaken to determine the underlying causes of carryover contamination during sample preparation and analysis at both laboratories and that the laboratories undertake remediation of any issues identified. In addition, consideration should be given to sourcing different blank materials.

The QA/QC results also revealed several instances of gold failures from the Central Laboratory, reflecting an analytical accuracy issue for gold assays from the Central Laboratory. FMS has taken measures to address the assay accuracy issues that were identified at the Central Laboratory.

## 25.4 Metallurgical Testwork

The metallurgical analysis discussed in this report is primarily based on plant operational data. The metallurgical work focused on tailoring the plant to the real run-of-mine mill feed, and analytical laboratory work was not prioritized.

Besides performing laboratory tests using standard plant conditions, metallurgical investigation is conducted on monthly composites to systematically evaluate the effect of key processing variables. The objective of this ongoing program is to explore ways to improve metal recoveries, and to assist operations in diagnosing production issues. Study variables include: grind particle size, cyanide dosage, retention time, reagent type, flotation reagents, etc.

The metallurgical recoveries considered in the LOM plan presented in this technical report and in the economic analysis are shown in Table 77.

**Table 77: Metallurgical recoveries considered in the LOM plan (FMS 2017)**

<b>Metal</b>	<b>Metallurgical Recovery – Cyanidation of Oxides</b>	<b>Metallurgical Recovery – Flotation of Sulphides</b>
Silver	85.9%	86.6%
Gold	80.8%	80.0%
Lead	N/A	82.5%
Zinc	N/A	64.2%

## 25.5 Mineral Resource and Mineral Reserve Estimation

The mineral resource estimation process for the main deposits (Rosarios, Intermedia, and San Marcos) at La Parrilla is in line with standard industry practices.

Deposits in the Quebradillas area were modeled using the polygonal method, which is still a regular practice in some small mines in Mexico. However, the QPs recommend that resource estimation practices be improved by using plans, sections, drilling data, and channel samples to construct wireframe and block models.

FMS has a goal that 80% of all mineral resources will be estimated by block modelling methods by the end of 2018. This will require that FMS continue to build internal capacity and/or hire consultants in order to develop the mineral reserve estimates from three-dimensional block models. FMS has selected Vulcan to be the corporate standard for long term mine planning and scheduling software. Autocad with Promine will continue to be the surveying control, drafting and short-term planning tool at the mine sites.

Approximately 829 holes have been drilled in the La Parrilla Mine area. However, a significant proportion of those drillholes are located in mined-out areas. The historical data have some issues, such as geological logging inconsistencies, collar topographic inconsistencies, questionable downhole surveys or lack of such surveys, and potentially unreliable sample preparation procedures or assay data.

Factors which may affect the geological models and the preliminary stope designs used to constrain the mineral resources include: commodity price assumptions; dilution assumptions; changes to geotechnical, mining, and metallurgical recovery assumptions; changes in interpretations of

geometry and continuity of mineralization zones; changes to assumptions made as to the continued ability to access the site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and retain the social licence to operate.

Some of the issues encountered while developing the block models included:

- Poor correlation between as-built wireframes with those vein wireframes built from diamond drillhole intercepts only
- Development of SG formula was impeded by insufficient SG data

Mineral reserves include considerations for dilution, mining widths, ore losses, mining extraction losses, appropriate underground mining methods, metallurgical recoveries, permitting and infrastructure requirements. Factors which may materially affect the Mineral reserve estimates include: commodity price and exchange rate assumptions used, underground stability conditions, the ability to maintain constant underground access to all working areas, geological variability, and cost escalation.

## 25.6 Mine Operations, Mining Methods and Mine Planning

Mining operations can be conducted year-round. The underground mine plan presented in the Report was designed to deliver an achievable plant feed, based on the current knowledge of geological, geotechnical, hydrological, mining and processing conditions. Production forecasts are based on current equipment and plant productivities.

As the mine has been operating continuously since 2004, the surface and mine infrastructure required to support the current production rate are well established. The MCF mining method has also been proven and performance expectations are well understood. The processing plant has also been operating at the current rates since 2012 with no plans to expand at this time.

The current mine life to 2020 is achievable based on the projected annual production rate and the estimated mineral reserves. There is ample opportunity to increase the mine life if some or all of the Inferred mineral resources can be upgraded to higher-confidence mineral resource categories.

Challenges to the operation of La Parrilla may be experienced if exploration efforts are unsuccessful in defining new mineral resources to provide sufficient underground mining fronts to keep the processing circuits full. This is already being experienced in the leach circuit as there are insufficient oxide ore sources available since the main Quebradillas open pit started to wind down production.

The operation is currently partially mitigating this problem by mining and milling material that is not currently a mineral reserve; roughly 30% of the milled tonnes in 2016 were from outside mineral reserves. A possible way to further mitigate this problem in the short term (1-2 years) would be to implement some small scale longhole open stope mining in selected areas. This would require a certain acceleration in capital ramp development and ventilation raises to establish the mining blocks, but will allow a higher production rate than MCF once production begins. Backfill may be an issue, though there is waste rock on surface that could be backhauled as rockfill if required. The dry stack tailings have not been tested to determine suitability for use as a backfill material.

Another potential challenge is mine ventilation. The existing main ventilation system is still in the process of being monitored and upgraded in order to meet future requirements. The auxiliary ventilation systems are inadequate due to poor design and poor installation practices. Sufficient budget has been allocated in 2017 and 2018 to address this issue by acquiring and installing secondary fans and ventilation control infrastructure.



## 25.7 Mineral Processing, Metallurgical Testing and Recovery Methods

The processing plant has been operating since 2012 with two 1,000 tpd circuits: a leach circuit for treating oxide ores and a flotation circuit for treating sulphide ores. Both circuits are operating reasonably, although the phenomenon known as the “Wemco Wave” is causing flotation recovery issues, particularly in the zinc circuit.

Efforts to improve the recoveries from both circuits are ongoing.

## 25.8 Infrastructure

The existing surface and underground infrastructure are suitable for supporting the extraction of the current mineral reserves. No major capital expenditures other than sustaining capital are envisioned at this time other than the potential restart of the internal hoisting shaft and track haulage level project (see Section 18.13) if a suitable business case can be made based on a successful exploration program.

## 25.9 Markets and Contracts

The end products from the La Parrilla processing facilities are silver doré bars, a silver-rich lead concentrate, and a zinc concentrate. The physical silver doré bars, usually containing greater than 95% silver with some gold and other impurities, are delivered to one of three refineries where doré bars are refined to commercially-marketable 99.9% pure silver bars. The concentrates are delivered by truck to one of two refineries which refine Pb and Zn concentrates. The terms contained within the existing sales contracts are typical and consistent with standard industry practices.

Selling costs, including freight, insurance and representation, as well as treatment charges, refining charges, payable terms, deductions and penalties terms for La Parrilla doré bars and concentrates, have been reviewed by the QP and found to be in line with similar commercial conditions in Mexico. All these costs have been incorporated into the long-term financial analysis and the calculation of NSR values used to estimate mineral reserve from block models.

The likelihood of securing ongoing contracts for concentrate sales is a reasonable assumption; however, in downturn market conditions, there can be no certainty that FMS will always be able to do so or what terms will be available at the time.

## 25.10 Environmental Studies, Permitting, and Social or Community Impact

No major issues were identified with respect to environmental conditions at the site. FMS currently holds all the major environmental permits and licences required by the Mexican authorities to carry out mineral extraction activities, including approvals for ongoing expansion of the tailings facility to accommodate an additional 10 years of production at current processing rates. Adequate water supply is available and is supplied from the underground mine, from recycling from the tailings facility, and from one of two permitted water supply wells. To the extent known, there are no social issues that could materially impact the Company’s ability to conduct exploration and mining activities in the district. FMS has developed a restoration and closure plan for the site, and estimates their current closure liabilities to be US\$3.36 M.

## **25.11 Capital and Operating Cost Estimates**

The capital and operating cost provisions for the LOM plan that supports mineral reserves have been reviewed. The basis for the estimates is appropriate to the known mineralization, mining and production schedules, marketing plans, and equipment replacement and maintenance requirements.

Capital cost estimates include appropriate sustaining estimates.

## **25.12 Economic Analysis**

Under the assumptions used in this Report, La Parrilla has positive project economics for the LOM plan, which supports the Mineral Reserve Statement.

## **25.13 Foreseeable Impacts of Risks**

FMS is not aware of any significant risks and uncertainties that could potentially affect the reliability or confidence of sustainable production for this operating mine other than those discussed herein.

## 26 Recommendations

Recommendations have been separated into two phases. The Phase 1 recommendations are made in relation to exploration activities. Recommendations proposed in Phase 2 are suggestions for improvements in current operating procedures, and these recommendations are not contingent on the results of Phase 1 work.

The total cost for the Phase 1 work is about \$15.4 million. Phase 2 is estimated at about \$4.5 million.

### 26.1 Phase 1

The Phase 1 work program includes allocations for underground drilling, testing of brownfields surface exploration targets, additional geological and alteration mapping, prospect-scale reconnaissance mapping, fluid inclusion and age-dating studies, and acquisition of satellite images.

FMS plans to undertake the following work over the next four years:

1. Underground exploration drilling is required in order to replace and add additional resources for short- and medium-term extraction. A total of 60,000 metres of diamond drilling are needed over the next four years at the Rosario, San Marcos, Quebradillas, Vacas and San Nicolas mines in order to explore the segment of Rosario vein to the west, San Marcos vein at depth, replacement deposits at depth in Quebradillas, Vacas, San Nicolas and San José de Los Muertos. The cost for underground exploration drilling is estimated at \$7.5 million dollars.
2. Surface drilling is needed to explore brownfields targets in the Quebradillas SW area, Las Brillosas, and the Cerro de Santiago-San Marqueña epithermal vein system. A total of 60,000 metres of surface drilling are estimated over the next four years. The cost for surface exploration drilling is estimated at \$7.5 million dollars.
3. In order to generate additional brownfields targets, it is recommended to carryout detailed geological and alteration mapping in the southern and western flanks of the main deposits and main veins . Geologic mapping and sampling is estimated to be completed in one-and-a-half years at an estimated cost of \$80,000 dollars.
4. Prospecting and semi-detailed mapping is also required in the southern part of the property, where multiple rhyolite-rhyodacite domes outcrop, with the objective of generating greenfield exploration targets. The proposed area covers approximately 40,000 hectares and the prospecting and mapping activities are expected to be completed in a period of four years. Total cost is expected to be \$300,000 dollars, which includes hiring a geologist, two field assistants, and purchasing a 4x4 pickup truck.
5. Fluid inclusion study and systematic geochemical sampling of outcropping veins in the Cerro de Santiago-San Marqueña corridor is recommended in order to determine fluid-flow paths and the most favorable elevation for ore shoot location. The fluid inclusion and geochemical studies would require fifty samples, and could be completed in a year at an approximate cost of \$18,000 dollars.

6. An Ar/Ar (argon-argon) and Re-Os (rhenium-osmium) dating study is also recommended to determine mineralization ages for the Cerro de Santiago-San Marqueña epithermal veins and for the mineral deposits in the Rosarios, San Marcos, and Quebradillas mines, in order to determine if they belong to the same event or if they are the result of distinct mineralizing events. The age data can provide support for prospecting of additional epithermal-type targets in the property. The estimated cost for this study is \$7,000 dollars.
7. Acquisition of a multi-spectral Aster satellite imagery is also recommended to aid prospecting of the southern portion of the property. The estimated cost for processed aster data is \$30,000 dollars.

## 26.2 Phase 2

The Phase 2 work program is designed to provide additional support to the mining operations. It is not dependent on the results of the Phase 1 work program and can be conducted concurrently. The Phase 2 work program focuses on various aspects of modernizing the mineral resource and mineral reserve estimation process, improving mine operations, mill performance optimisation, and environmental studies.

FMS plans to undertake the work programs described in the following sub-sections over the next four years.

### 26.2.1 Mineral Resource and Mineral Reserve Estimation

#### Database and QA/QC

The following steps are recommended to improve the effectiveness of the QA/QC protocol:

1. It is recommended that failures identified during the QA/QC review be re-assayed. The estimated cost for re-assays is \$10,000.
2. The source blank materials used in the QA/QC programs should be changed due to the anomalous grade material observed in the current blank materials from both Central Laboratory and SGS. The estimated cost to prepare and analyze new blanks sources is \$15,000.
3. As part of day-to-day mining activities, La Parrilla staff should continue with the current QA/QC program for both drillholes and underground channels samples. Staff should thoroughly and regularly evaluate QA/QC results for any ongoing issues, particularly with respect to analytical accuracy and contamination.

#### Build Internal Capacity

Mineral resources and mineral reserves for Quebradillas and San Nicolas have been estimated using a polygonal method. While resource estimation using the polygonal method is still a regular practice in some small mines in Mexico, these resource estimation practices at La Parrilla should continue to be updated by using plans, sections, drilling data and channel samples to construct wireframe and block models for veins and other deposits in support of the next mineral resource and mineral reserve estimate update. FMS also needs to continue building internal capacity to support ongoing 3-dimensional modelling of geology and mine planning efforts. The cost for software, training and consultants is estimated at \$200,000.

## 26.2.2 Mine Operations, Mining Methods and Mine Planning

It is recommended that the following aspects be considered to further optimise and improve the operation.

### Ventilation

Upgrade the main ventilation systems and install auxiliary ventilation to all work areas in accordance to international best practice. This will allow for more efficient operations, enable exploration and development of mineralization potential at depth, and assist FMS in maintaining its social license to operate with the local communities. An audit should be conducted following the upgrades. The costs of ventilation upgrade are estimated as follows:

- Consultancy services \$ 50,000
- Ventilation equipment \$ 150,000
- Ventilation infrastructure \$ 400,000

### Long-Hole Stopping Trial

Conduct a trial long-hole stopping evaluation at the Rosarios Mine to investigate a potential reduction in operating costs and potential increases in productivity. The costs are estimated as:

- Mine equipment \$ 150,000
- Development and trial mining \$ 150,000

## 26.2.3 Mineral Processing Upgrades

SRK would recommend that La Parrilla focus the improvement of the processing facilities in these main areas:

1. The crushing plant needs to operate at maximum capacity. Operating a crushing plant at any lower rate than maximum capacity means that the circuit will be inefficient and incur additional cost derived from unnecessary wearing and higher maintenance expenditure. If ore is unavailable, the operating time should be reduced, which could allow the opportunity to perform preventive maintenance.
2. The grinding circuit needs a slurry density control to the ball mill and to the hydro cyclone to ensure proper operation of the classification system, i.e., achieving target particle size and minimize overgrinding. The cost savings from reduced electrical energy consumption and steel balls consumption will pay for the new instrumentation in a few months. The major economic benefits of installing density control will be come from improved metallurgical control in the flotation plant, and ultimately improved flotation recoveries and metal department. The cost to add density controls is estimated at \$200,000 for both circuits.
3. Stability of the flotation cells level need to be improved. Intalling flow metres in the flotation air lines and automating the level controls will improve performance in the flotation circuit. Operators will be able to focus their attention on reagent additions to optimize metals department. The cost to add level controls to the flotation cells is estimated at \$100,000.

4. Implementation of tank cell technology such as Outotec's FloatForce or Metso's Reactor Cell System in order to improve Pb and Zn recoveries from the flotation circuit. The expected cost is \$3M for both the Pb and Zn circuits.
5. Implementation of micro-bubble technology in the cleaning circuits to optimize silver, lead and zinc recoveries and improve concentrate grades, including arsenic reduction. The program is estimated to cost \$600,000, and include: testing and design at \$100,000, and equipment and retrofitting at \$500,000.
6. The available metallurgical data suggest that potential mineralogical variations are affecting metal deportment. This scenario could improve if a concentrate regrind stage is incorporated.

SRK is of the opinion that the first five recommendations will be effective in improving the mineral processing at La Parrilla. Based on results, the sixth recommendation, adding a regrind stage, can be evaluated.

### **26.2.4 Environmental Studies, Permitting, and Social or Community Impact**

SRK would recommend that La Parrilla focus on the following areas:

1. Data on the metal leaching/acid rock drainage potential and water quality associated with waste rock and tailings were not available for this review. Relevant geochemical data and monitoring results should be compiled and reviewed for adequacy and to determine whether there are issues that require additional mitigation or closure measures. The cost is estimated at \$20,000 and includes 50 rock samples and 10 water samples. If there is insufficient data, supplemental testing and/or monitoring should be initiated.
2. SRK did not complete an independent evaluation of the closure costs for La Parrilla. An independent review of the closure liabilities and costs is recommended. The cost for this is estimated at \$30,000, and includes a site visit.

### **26.3 Recommendation Cost Estimate Summary**

Table 78 summarizes the cost estimate to implement the recommendations over the next four years.

**Table 78: Phase 1 and Phase 2 Budget Estimate (FMS 2017)**

<b>Work Phase</b>	<b>Description</b>	<b>Units</b>	<b>Total Cost (millions \$)</b>
<b>Phase 1</b>	Exploratory underground drilling	60,000 m	\$7.50
	Exploratory surface drilling	60,000 m	\$7.50
	<b>Subtotal Drilling</b>	<b>120,000 m</b>	<b>\$15.00</b>
	Geological studies		\$0.44
	<b><i>Subtotal Exploration and Geology</i></b>		<b><i>\$15.44</i></b>
<b>Phase 2</b>	Database and QA/QC		\$0.03
	Build internal capacity		\$0.20
	Ventilation improvement		\$0.60
	Mining studies (longhole trial)		\$0.30
	Mineral processing upgrades		\$3.90
	Environmental studies		\$0.05
	<b><i>Subtotal Engineering</i></b>		<b><i>\$5.08</i></b>
<b>Sub-total Phase 1 and Phase 2</b>			<b>\$20.52</b>
	Contingency (10%)		<b>\$2.05</b>
<b>Total Phase 1 and Phase 2</b>			<b>\$22.57</b>

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# **APPENDIX A**

## **First Majestic Certification Legal Opinion**



Durango, Dgo. Mexico, October 30, 2017

**Stephen Taylor, PEng**  
**Principal Engineer (Mining)**  
**SRK Consulting (Canada) Inc.**  
1984 Regent Street  
Sudbury, Ontario, P3E 5S1, Canada

Dear Mr. Taylor:

Upon request, regarding the estimation of Mineral Resources and Mineral Reserves on the different deposits of First Majestic Plata, S.A. de C.V. contained within its mining concessions that is being carried out by SRK Consulting, and as a result of a detailed review of the fulfillment of the obligations of the Mining Act and its Regulations, I can confirm the following:

1. First Majestic Plata, S.A. de C.V., ("FMP"), initially established as First Majestic Resources Mexico, S.A. de C.V. is a Mexican company duly incorporated under the laws of the United Mexican States ("México") as attested in the public deed number 201 dated January 30, 2004, issued by Notary Public number 8 of the city of Durango, Durango, of which Jesus Bermudez Fernandez is holder, recorded before the Public Registry of Property and Commerce of Durango, under commercial number 128 dated February 9, 2004 and on the Mining Public Registry under number 92, pages 46 front and back, of volume XXXVIII of the Book of Mining Companies, of the Mining Public Registry dated February 4, 2004. That First Majestic Resources Mexico, S.A. de C.V. changed its legal name to First Majestic Plata, S.A. de C.V. in the public deed number 3350 dated November 13, 2006 issued by Notary Public number 8 of the city of Durango, Durango, of which Jesus Bermudez Fernandez is holder, recorded before the Public Registry of Property and Commerce of Durango, under electronic number 13236\*1 dated November 14, 2006. In addition, FMP is a First Majestic Silver Corp's subsidiary, which owns the Company that indirectly controls the administration and operation of its activities.
2. Currently FMP owns the rights of 40 mining concessions that are fully registered and currently up to date with its obligations according to the Mexican Mining Act and its Regulations. The 40 mining concessions are listed below containing title number of mining concession, effective date of expiry, area of each concession in hectares and their current status at the General Directorate of Mining Regulation, Mexico Office. In addition, there is an application for a mining concession called Hueco for which registry is in process:

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FIRST MAJESTIC PLATA S.A DE C.V., Fanny Anita #2700 Colonia Los Angeles, c.p. 34076  
Durango, Dgo.



No.	Mining Concession	Title	Expiry Date	Surface (hectares)	Status
1	La Encarnacion	150935	January 16, 2019	16.0000	Valid
2	San Ignacio Dos	158205	February 13, 2023	8.9286	Valid
3	Protectora No. 2	169302	November 5, 2031	32.3560	Valid
4	Extension Rosa	169303	November 5, 2031	6.0000	Valid
5	Rosa y Anexas	169304	November 5, 2031	4.0000	Valid
6	Rosario	169305	November 5, 2031	5.3670	Valid
7	El Salvador	169306	November 5, 2031	1.0000	Valid
8	Ampl. de los Rosarios	169307	November 5, 2031	4.0000	Valid
9	Los Michosos	169308	November 5, 2031	15.9673	Valid
10	San Jose	169309	November 5, 2031	6.0000	Valid
11	San Marcos	169310	November 5, 2031	10.0000	Valid
12	La Protectora	169311	November 5, 2031	83.8767	Valid
13	Ampl. del Rosario No.2	169312	November 5, 2031	7.5000	Valid
14	San Nicolas	169313	November 5, 2031	95.4983	Valid
15	Los Rosarios	171082	August 8, 2032	11.0000	Valid
16	La Ilusión	185136	December 13, 2041	18.0389	Valid
17	Parrilla XIV	198568	November 29, 2043	33.1581	Valid
18	Parrilla Sur	198569	November 29, 2043	874.6880	Valid
19	Parrilla Norte	198570	November 29, 2043	1,742.3879	Valid
20	Parrilla II	203302	June 27, 2046	16.0000	Valid
21	Parrilla V	203987	November 25, 2046	0.4088	Valid
22	Parrilla III	204357	January 30, 2047	32.5267	Valid
23	Parrilla VI	204358	January 30, 2047	10.0000	Valid
24	Parrilla VII	204520	February 27, 2047	20.8434	Valid
25	Parrilla 18	210061	August 30, 2049	9.2208	Valid
26	Parrilla IV	211943	July 27, 2050	38.1396	Valid
27	Parrilla 15	212351	September 28, 2050	8.9420	Valid
28	Parrilla 16	214003	July 12, 2051	44.4244	Valid
29	Parrilla 19	214557	October 1, 2051	30.0068	Valid
30	Parrilla 21	216554	May 16, 2052	26.8962	Valid
31	Parrilla 20	216723	May 27, 2052	9.0000	Valid
32	La Zacatecana	217646	August 5, 2052	88.0107	Valid
33	Parrilla 22	219888	May 6, 2053	53.9870	Valid
34	La Providencia	229493	May 2, 2057	18,465.7120	Valid
35	Michis	230602	September 24, 2057	31,350.0000	Valid
36	La Asuncion de Quebradilla	237121	October 28, 2060	12.0000	Valid
37	Las Vacas	237122	October 28, 2060	40.0000	Valid
38	El Socorro	237123	October 28, 2060	15.3702	Valid
39	El Tecolote	237124	October 28, 2060	20.0000	Valid
40	Altamira	241251	November 21, 2062	20.0000	Valid
41	HUECO	File 25/36029		16,190.6577	In Process

FIRST MAJESTIC PLATA S.A DE C.V., Fanny Anitúa #2700 Colonia Los Ángeles, c.p. 34076 Durango, Dgo.



3. Rafael Araujo Esquivel, Engineer and Bachelor of Law, accredited as mining law expert (“*Perito Minero*”) to perform works as outlined in the Mining Act and its Regulation, authorized under number 1423 of the General Directorate of Mining Regulation, has acted on behalf of First Majestic Plata, S.A. de C.V. since the year 2012, managing all mining concessions matters relative to the compliance with the obligations under the Mining Act and its Regulation, and as legal representative before the General Directorate of Mines of the Mexican Ministry of Economy and all the relevant authorities. And in support to the obligations of the current surface properties contracts and agreements, required to develop exploration, exploitation, processing and commercialization of minerals, considered the main activity of FMP.
4. That to this date, FMP has met all the obligations imposed by the Mining Act to holders of Mining Concessions, including but not limited to, (i) Payments of all amounts and fees for Mining Rights, (ii) presentation and execution of all works, construction activities, exploration and exploitation required by the Mining Act, (iii) presentation of all statistics reports, and (iv) all others required by the applicable law.
5. Also, in order for FMP to carry out its exploration, exploitation and mineral processing activities, owns rights to surface land where its processing plant operations, mine exploitation and mining exploration areas are located according to the following areas:

Acquired from	Area	Surface Has.	Validity	Type
Los Flores	Quebradillas Pit	15.00	Permanent	FMP property
Los Flores	Graceros	15.50	Permanent	
Los Flores	Vacas	30.00	Permanent	
<b>Sub Total FMP Property</b>		<b>60.50</b>		
Los Flores	Quebradillas Portal	15.52	2022	Annual rental agreement
Los Flores	San Marcos Portal	3.40	2022	
Los Flores	La Rosa old mine	3.40	2022	
Los Flores	San Jose old mine	1.93	2022	
Los Flores	4 ventilation raise sites	0.69	2037	
Los Flores	Power line right of way	2.56	2037	
Los Flores	Several accesses right of way	4.15	2037	
Ejido La Parrilla	Quebradillas	5.97	2028	
Ejido La Parrilla	Rosarios	69.00	2021	
<b>Sub Total Rental Agreements</b>		<b>106.62</b>		
<b>Total Surface Land Holdings</b>		<b>167.12</b>		

Surface rights in the area of the mining concessions are held both privately and through group ownership either as communal lands, or Ejido lands.

FIRST MAJESTIC PLATA S.A DE C.V., Fanny Anitúa #2700 Colonia Los Angeles, c.p. 34076 Durango, Dgo.



6. Currently FMP keeps a cordial and respectful relationship with its neighbors of the adjoining lands and mining operations, complying with the best neighbor practices where its mining activities are conducted.

*As such and in accordance with the above, I Rafael Araujo Esquivel certify that the total of the concessions listed in this document are current and up to date in the fulfillment of all obligations under the Mining Act and its Regulations imposed on First Majestic Plata, S.A. de C.V. (FMP) as holder of the rights of the related mining concessions, in addition FMP has complied with the obligations of the surface properties owned by FMP on which exploration, exploitation and mineral processing activities are carried out, so all its obligations under the appropriate law have been fulfilled.*

If you have any comments or questions regarding the above, please feel free to contact me.

**First Majestic Plata S.A. de C.V.**

*“signed”*

Rafael Araujo Esquivel  
Mining Concessions Manager


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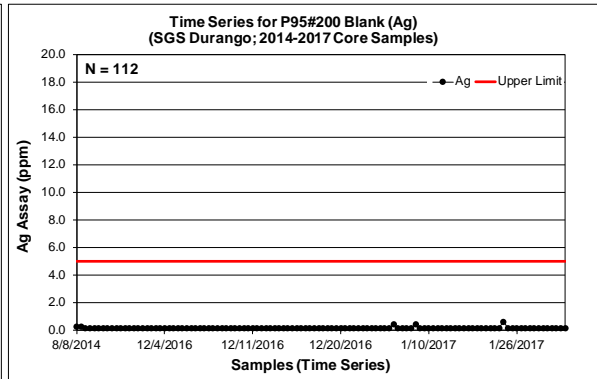
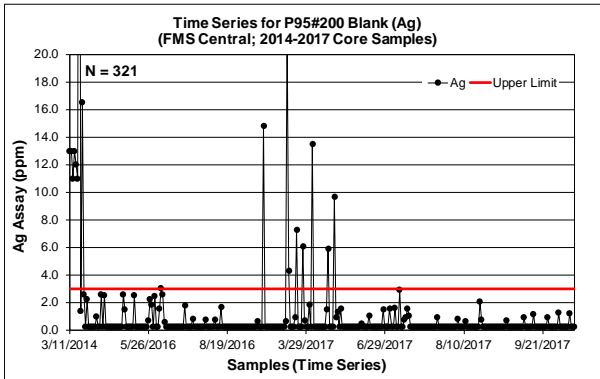
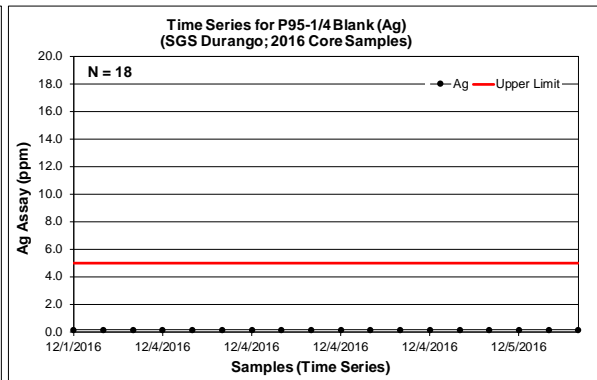
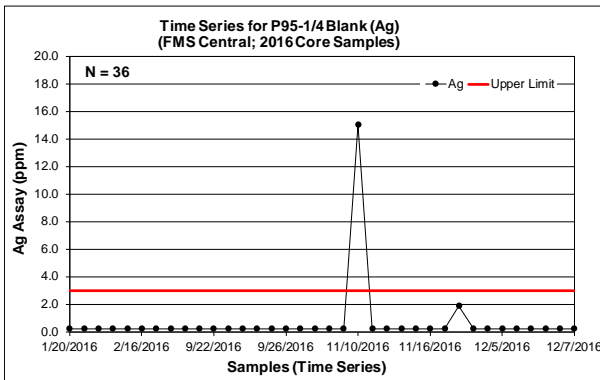
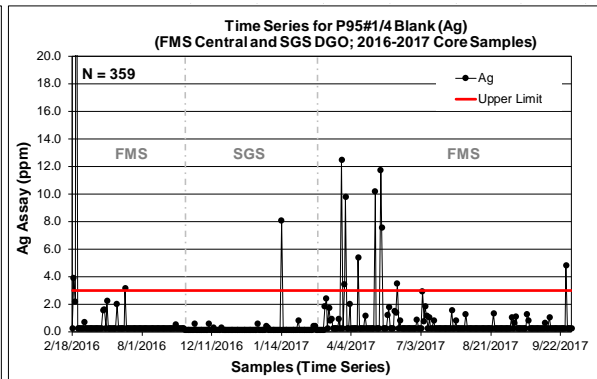
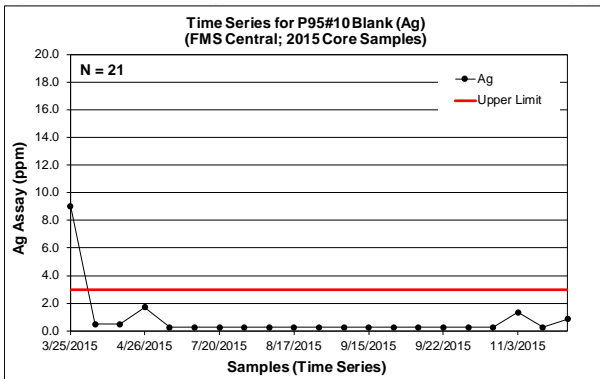
FIRST MAJESTIC PLATA S.A DE C.V., Fanny Anitúa #2700 Colonia Los Ángeles, c.p. 34076  
Durango, Dgo.

## **APPENDIX B**

### **Analytical Quality Control Data and Relative Precision Charts**


Time series plots for various blanks prepared by First Majestic Silver from basaltic material located northeast of the La Parrilla Mine and assayed by the Central Laboratory and SGS Durango.

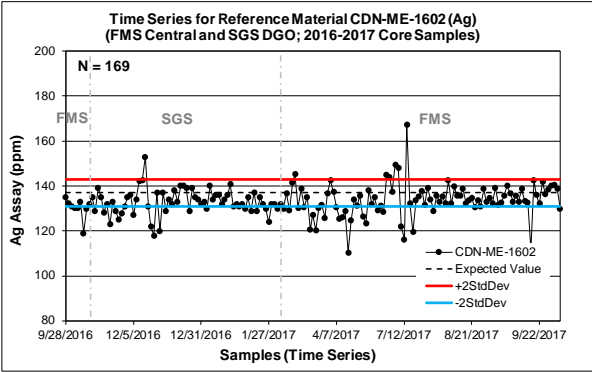
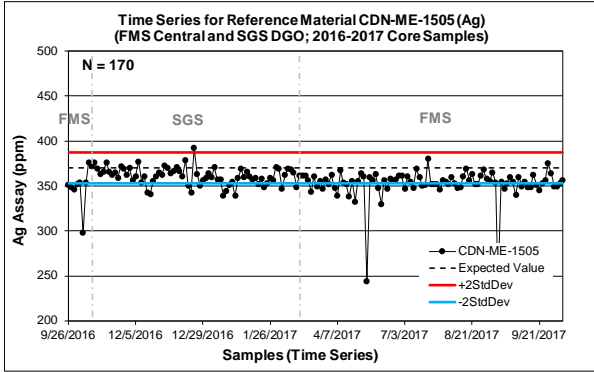
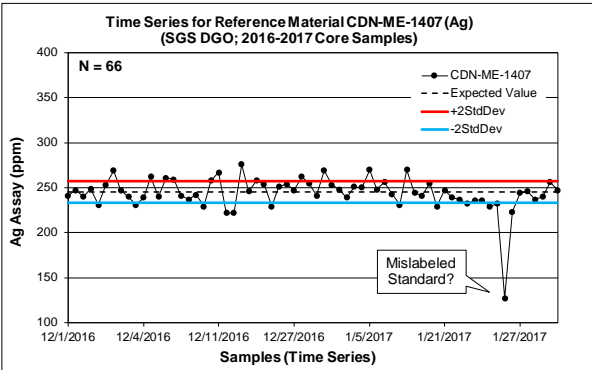
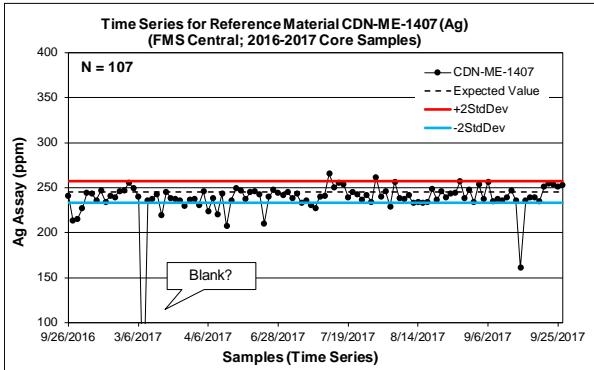
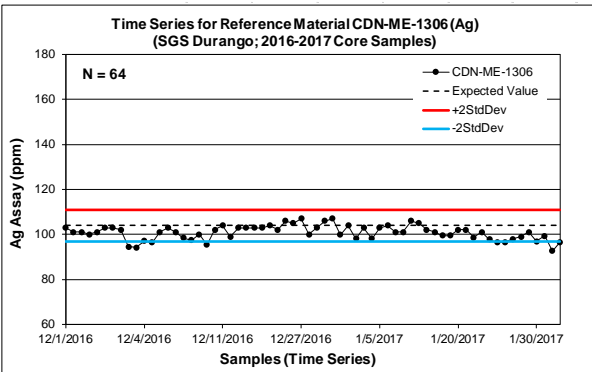
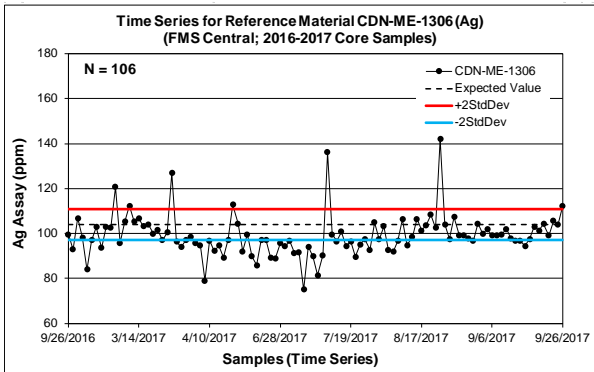
		<b>Statistics</b>						
		<b>P95 #10</b>	<b>P95 #1/4</b>	<b>P95 - 1/4</b>	<b>P95 - 1/4</b>	<b>P95 #200</b>	<b>P95 #200</b>	
<b>Project</b>	First Majestic - La Parrilla	<b>Sample Count</b>	21	359	36	18	321	112
<b>Data Series</b>	2014-2017 Blanks	<b>Expected Value</b>	0.30	0.30	0.30	0.50	0.30	0.50
<b>Data Type</b>	Core Samples	<b>Standard Deviation</b>	-	-	-	-	-	-
<b>Commodity</b>	Ag	<b>Data Mean</b>	0.84	0.72	0.71	0.15	1.18	0.16
<b>Laboratory</b>	FMS Central and SGS Durango	<b>Upper Limit (10xDL)</b>	5%	4%	3%	0%	5%	0%
<b>Analytical Method</b>	various							
<b>Detection Limit</b>	0.3 ppm (FMS); 0.5 ppm (SGS)							






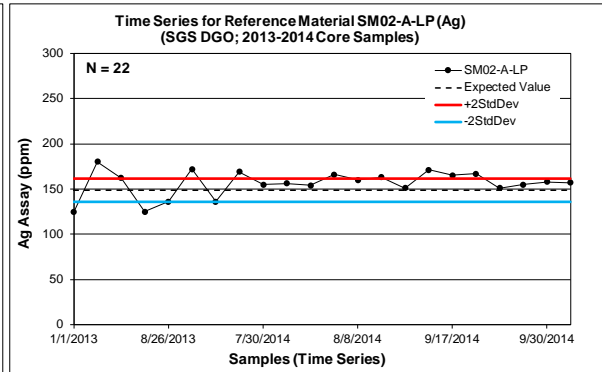
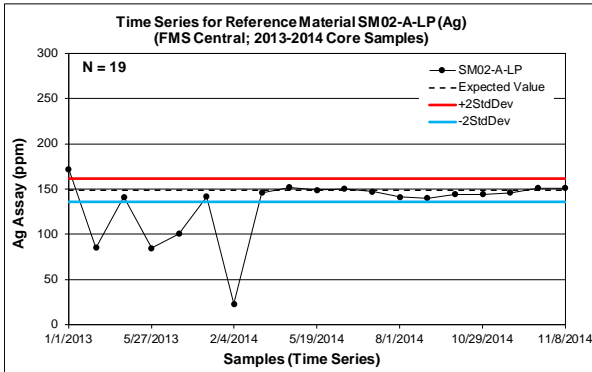
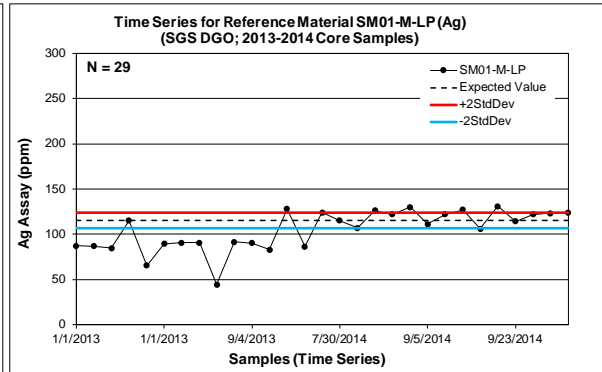
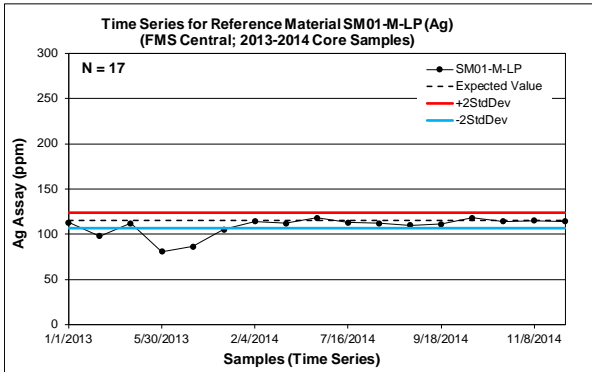
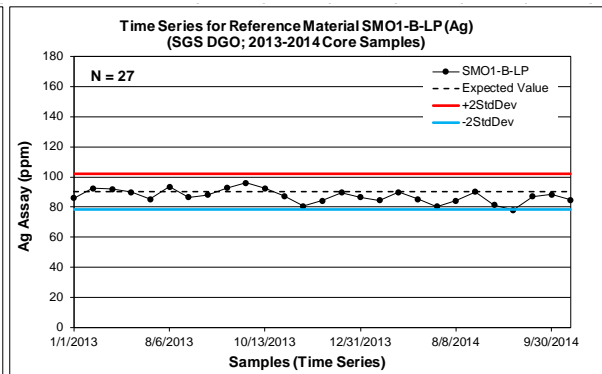
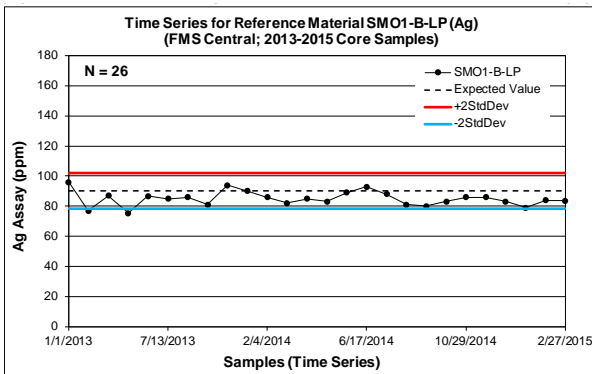
Time series plots for CDN Certified Reference Materials assayed by the First Majestic Central Laboratory and SGS Durango.

		<b>Statistics</b>						
		<b>1306</b>	<b>1306</b>	<b>1407</b>	<b>1407</b>	<b>1505</b>	<b>1602</b>	
<b>Project</b>	First Majestic	<b>Sample Count</b>	106	64	107	66	170	169
<b>Data Series</b>	2016-2017 Standards	<b>Expected Value</b>	104.0	104.0	245.0	245.0	370.0	137.0
<b>Data Type</b>	Core Samples	<b>Standard Deviation</b>	3.5	3.5	6.0	6.0	8.5	3.0
<b>Commodity</b>	Ag	<b>Data Mean</b>	99.2	100.8	237.3	244.0	355.8	133.3
<b>Laboratory</b>	FMS Central and SGS Durango	<b>Outside 2StdDev</b>	46%	13%	18%	38%	34%	34%
<b>Analytical Method</b>	3-Acid Dig AAS finish and FA-grav	<b>Below 2StdDev</b>	42	8	16	13	57	50
<b>Detection Limit</b>	various	<b>Above 2StdDev</b>	7	0	3	12	1	7




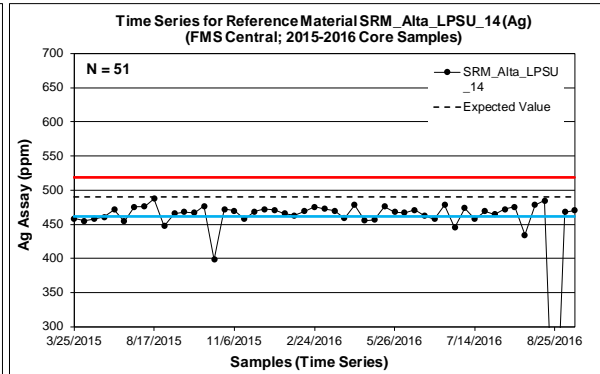
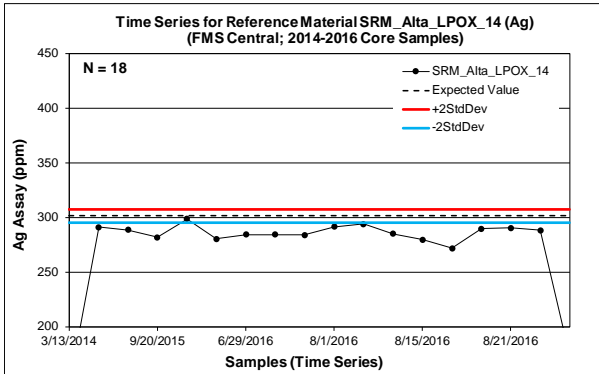
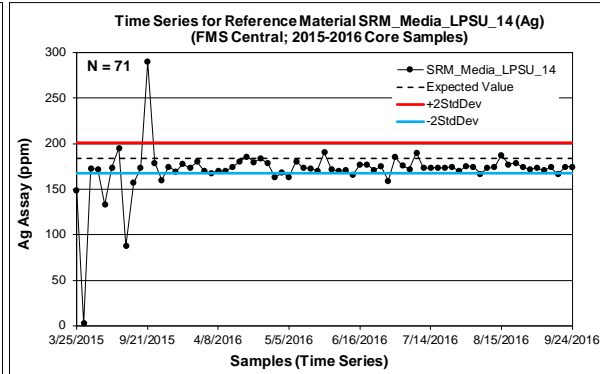
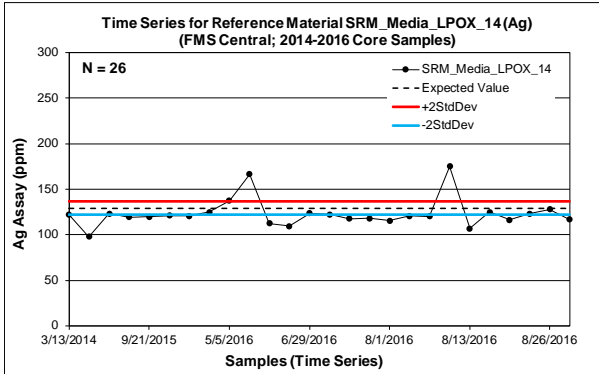
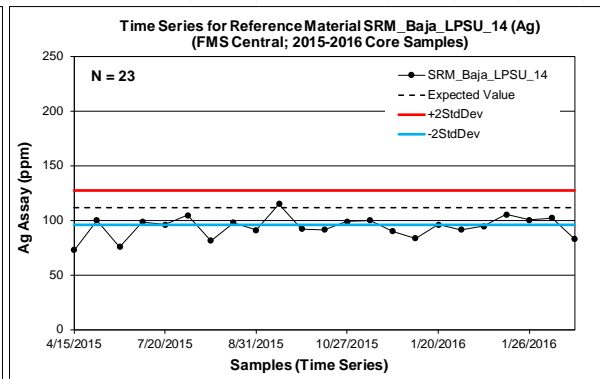
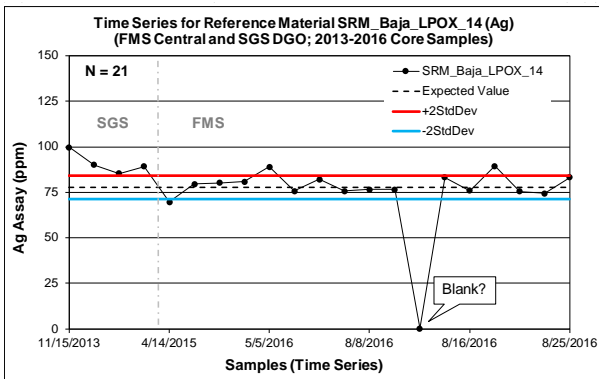
Time series plots for in-house Standard Reference Materials assayed by the First Majestic Central Laboratory and SGS Durango. The material was obtained from underground deposits from La Parrilla Mine and prepared by La Parrilla geologists.

		<b>SMO1 SMO1 SMO1- SMO1- SMO2- SMO2-</b>						
		<b>Statistics</b>	<b>B-LP</b>	<b>B-LP</b>	<b>M-LP</b>	<b>M-LP</b>	<b>A-LP</b>	<b>A-LP</b>
<b>Project</b>	First Majestic	<b>Sample Count</b>	26	27	17	29	19	22
<b>Data Series</b>	2013-2015 Standards	<b>Expected Value</b>	90.3	90.3	115.0	115.0	149.0	149.0
<b>Data Type</b>	Core Samples	<b>Standard Deviation</b>	5.9	5.9	4.4	4.4	6.5	6.5
<b>Commodity</b>	Ag	<b>Data Mean</b>	85.0	87.3	108.6	104.7	132.1	156.1
<b>Laboratory</b>	FMS Central and SGS Durango	<b>Outside 2StdDev</b>	8%	4%	24%	69%	26%	59%
<b>Analytical Method</b>	FA-AAS and 3-Acid digest, AAS finish	<b>Below 2StdDev</b>	2	1	4	13	4	4
<b>Detection Limit</b>	various	<b>Above 2StdDev</b>	0	0	0	7	1	9




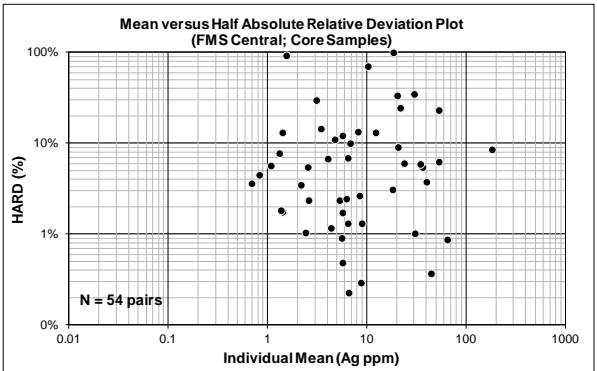
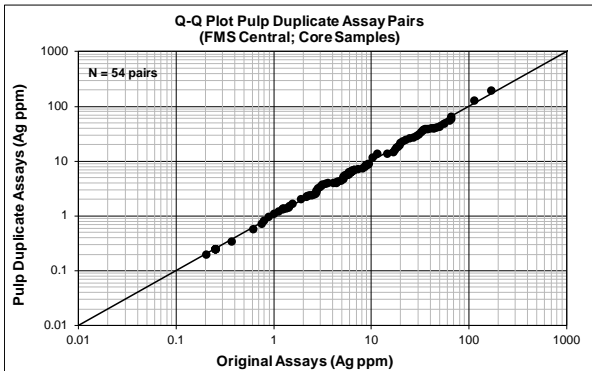
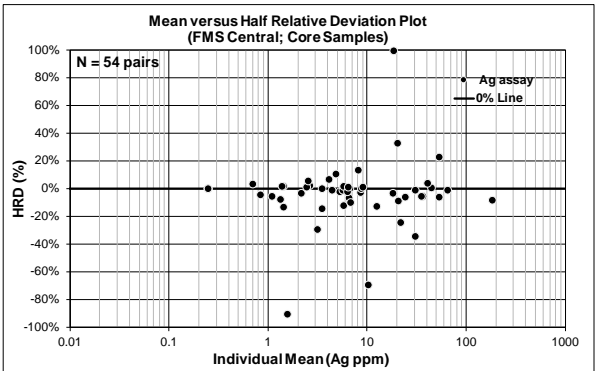
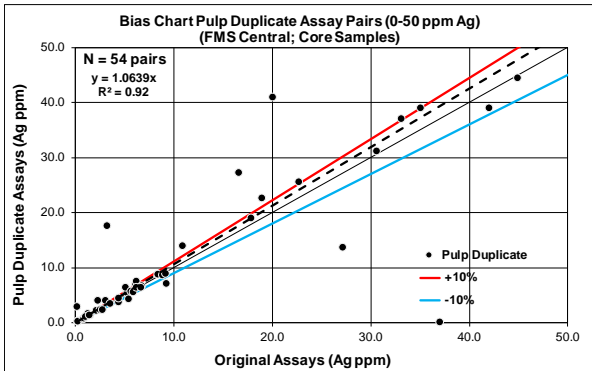
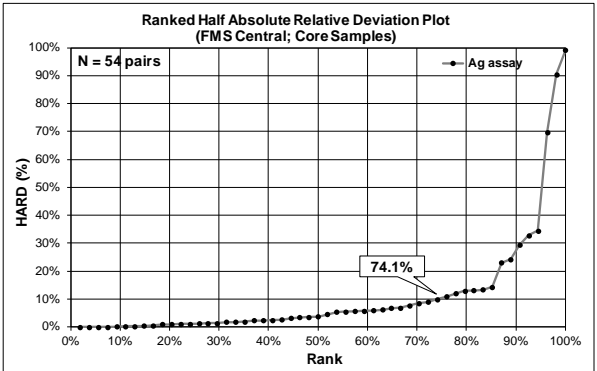
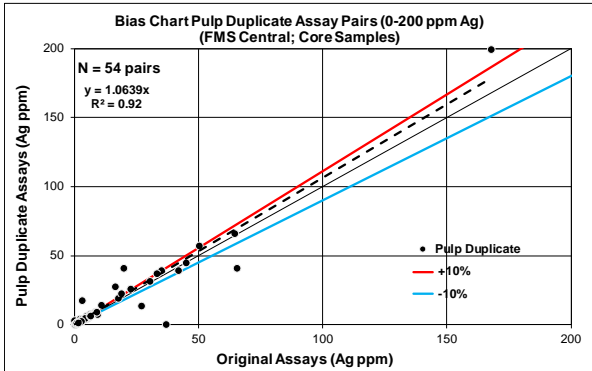
Time series plots for in-house Standard Reference Materials assayed by the First Majestic Central Laboratory and SGS Durango. The material was obtained from La Parrilla Mine from oxide and sulphide rocks with high, medium, and low silver grades. The standards were prepared by Inspectorate Laboratory.

		<b>Statistics</b>						
		<b>Baja LPOX</b>	<b>Baja LPSU</b>	<b>Media LPOX</b>	<b>Media LPSU</b>	<b>Alto LPOX</b>	<b>Alto LPSU</b>	
<b>Project</b>	First Majestic	<b>Sample Count</b>	21	23	26	71	18	51
<b>Data Series</b>	2013-2016 Standards	<b>Expected Value</b>	77.7	111.7	129.3	184.2	301.5	490.5
<b>Data Type</b>	Core Samples	<b>Standard Deviation</b>	3.2	8.0	3.8	8.4	3.0	14.2
<b>Commodity</b>	Ag	<b>Data Mean</b>	77.7	94.1	123	171.1	272.4	458.1
<b>Laboratory</b>	FMS Central and SGS Durango	<b>Outside 2StdDev</b>	38%	48%	69%	18%	94%	31%
<b>Analytical Method</b>	FA-grav and 3-Acid digest, AAS finish	<b>Below 2StdDev</b>	2	11	15	12	17	16
<b>Detection Limit</b>	various	<b>Above 2StdDev</b>	6	0	3	1	0	0




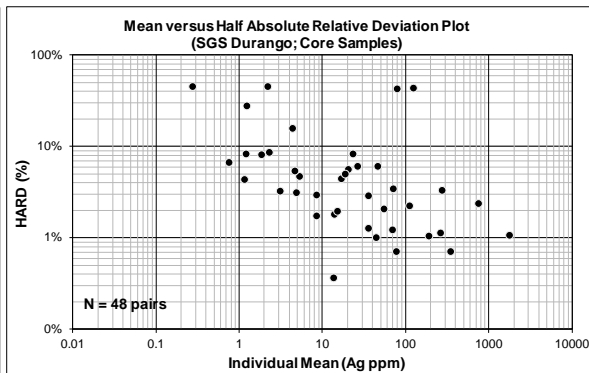
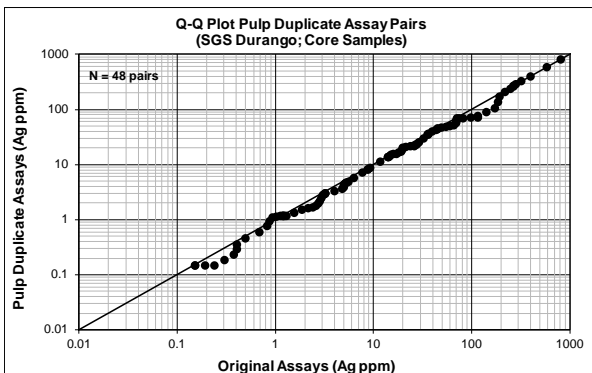
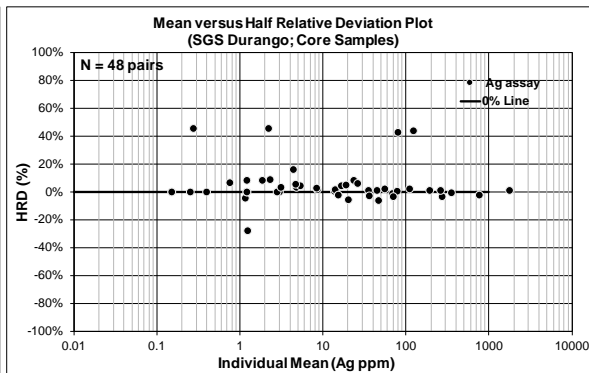
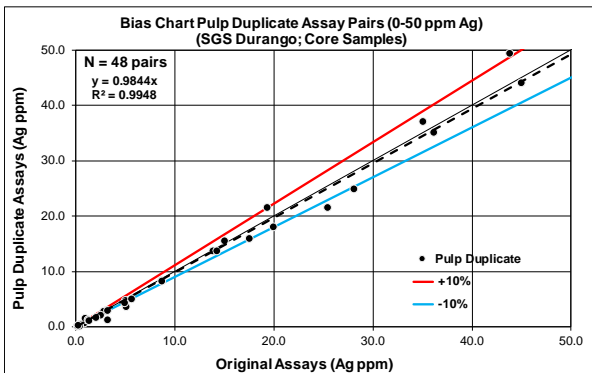
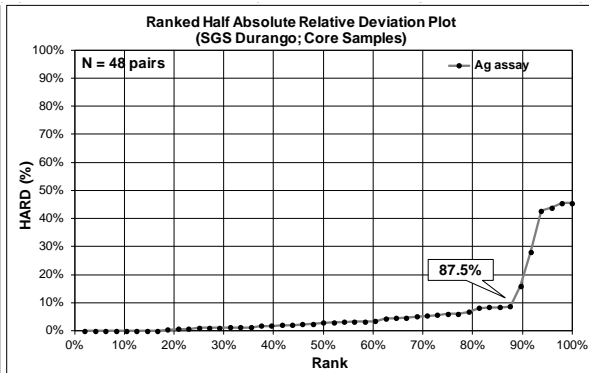
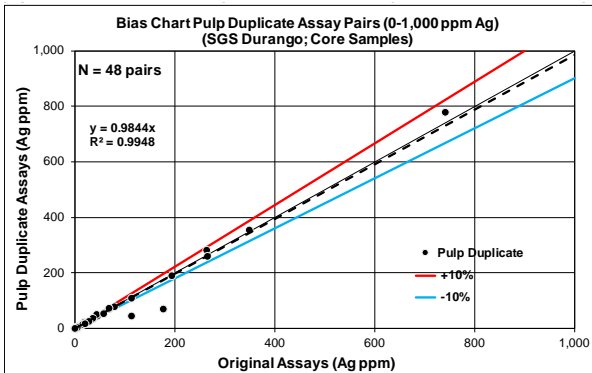
Bias and precision plots for pulp duplicate pairs assayed at the First Majestic Central Laboratory.

		<b>Statistics</b>	<b>Original</b>	<b>Pulp Duplicate</b>
		<b>Sample Count</b>	54	54
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Pulp Duplicate	<b>Maximum Value</b>	168.00	199.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	15.643	16.250
<b>Commodity</b>	Ag in ppm	<b>Median</b>	5.825	6.087
<b>Analytical Method</b>	3-Acid Digest-AAS finish, FA-AA finish	<b>Standard Error</b>	3.641	4.071
<b>Detection Limit</b>	0.3 ppm Ag	<b>Standard Deviation</b>	26.752	29.915
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.9593	
<b>Paired Dataset</b>	Pulp Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	74.1%	




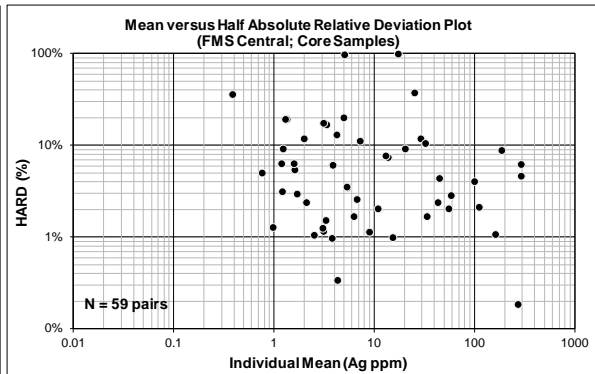
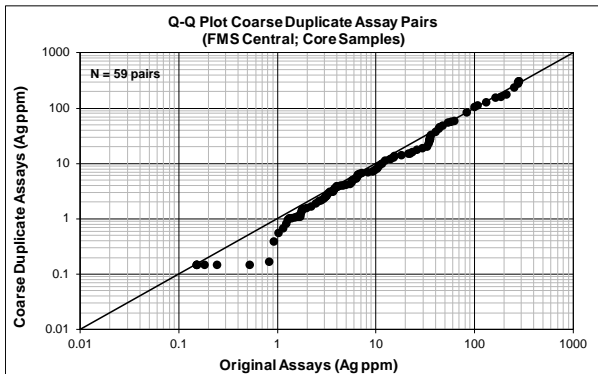
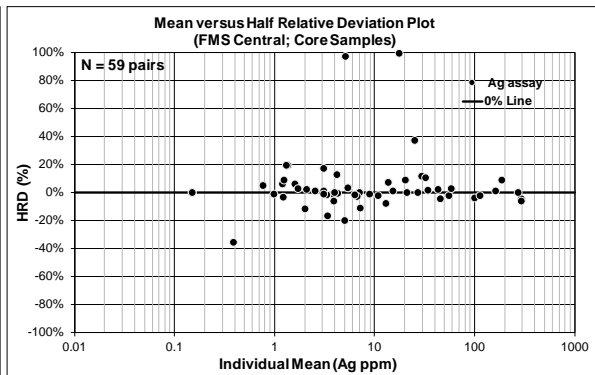
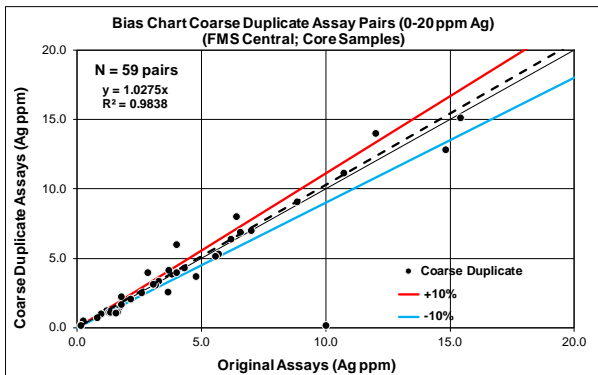
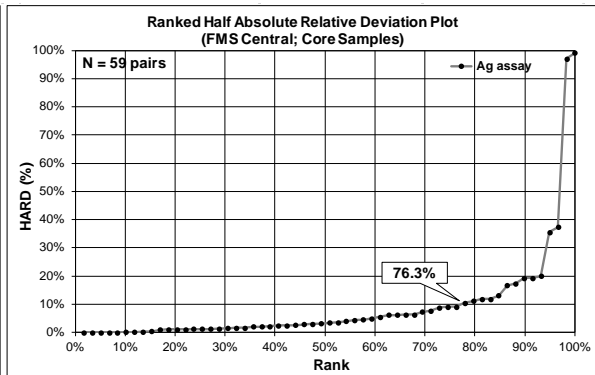
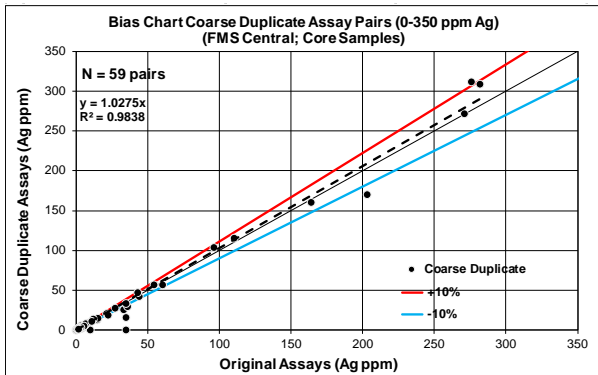
Bias and precision plots for pulp duplicate pairs assayed at the SGS Durango Laboratory.

		<b>Statistics</b>	<b>Original</b>	<b>Pulp Duplicate</b>
		<b>Sample Count</b>	48	48
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Pulp Duplicate	<b>Maximum Value</b>	1,782.00	1,744.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	96.870	93.219
<b>Commodity</b>	Ag in ppm	<b>Median</b>	14.000	13.700
<b>Analytical Method</b>	3-Acid Digest-AAS finish, FA-grav (over-lit	<b>Standard Error</b>	40.287	39.871
<b>Detection Limit</b>	0.5 ppm Ag	<b>Standard Deviation</b>	279.115	276.232
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.9974	
<b>Paired Dataset</b>	Pulp Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	87.5%	




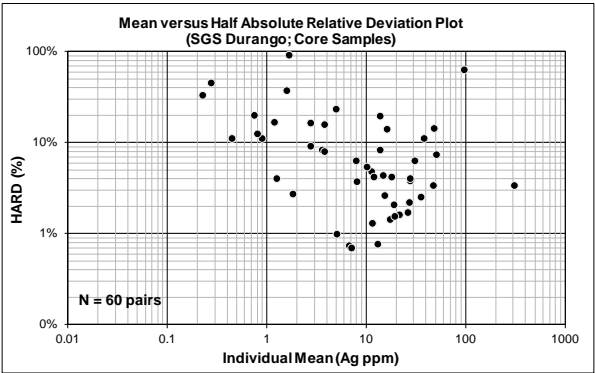
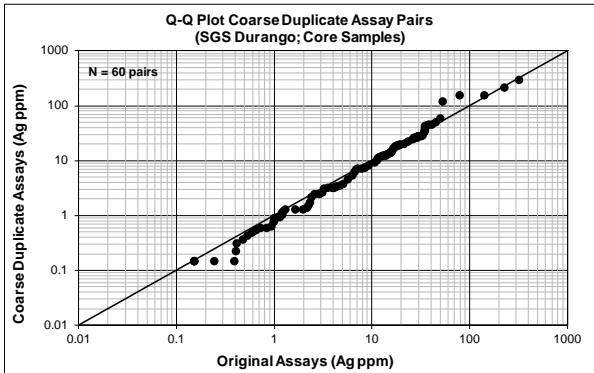
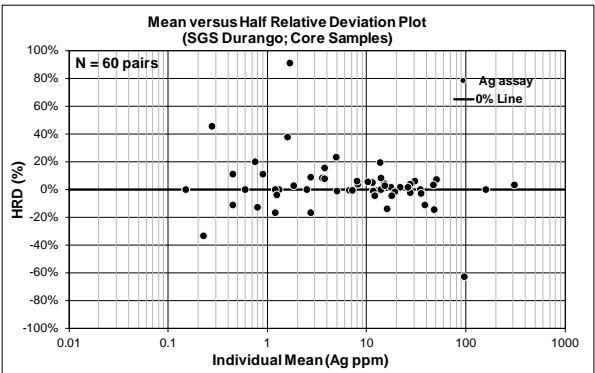
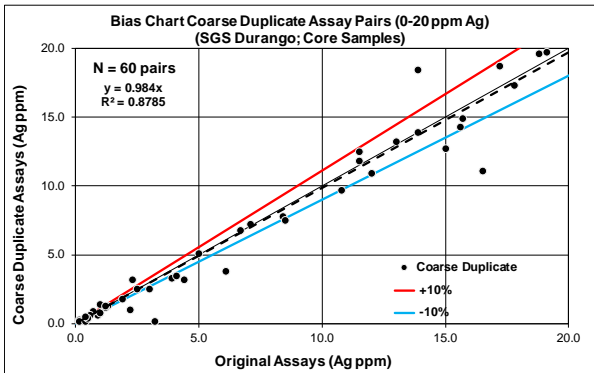
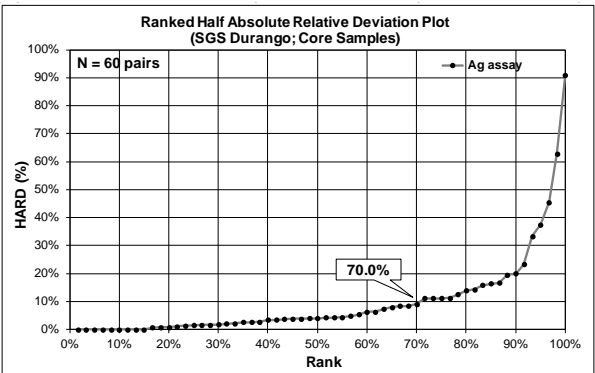
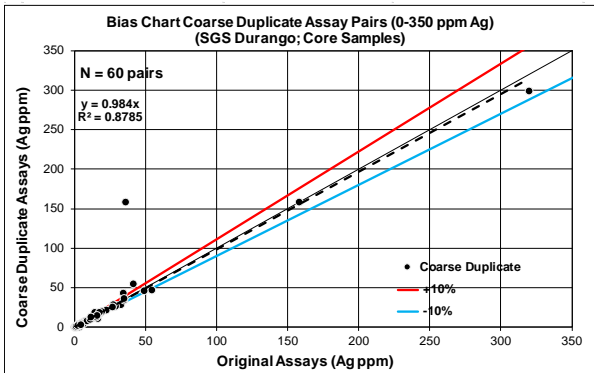
Bias and precision plots for coarse duplicate pairs assayed at the First Majestic Central Laboratory.

		<b>Statistics</b>	<b>Original</b>	<b>Coarse Dup</b>
		<b>Sample Count</b>	59	59
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Coarse Duplicate	<b>Maximum Value</b>	282.00	312.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	34.217	33.558
<b>Commodity</b>	Ag in ppm	<b>Median</b>	5.674	5.175
<b>Analytical Method</b>	3-Acid Digest-AAS finish, FA-AA finish	<b>Standard Error</b>	8.866	9.288
<b>Detection Limit</b>	0.3 ppm Ag	<b>Standard Deviation</b>	68.098	71.346
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.9922	
<b>Paired Dataset</b>	Coarse Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	76.3%	




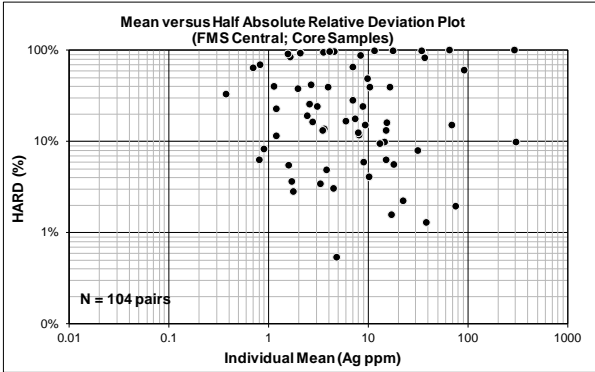
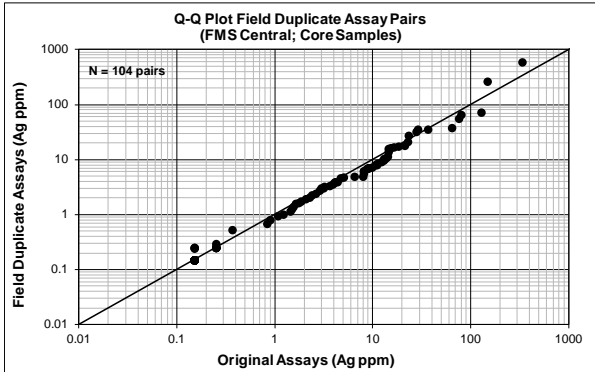
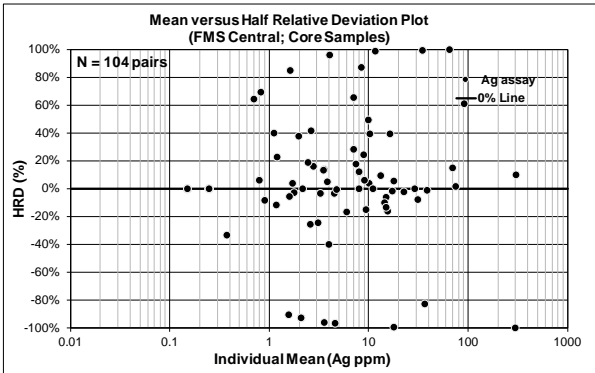
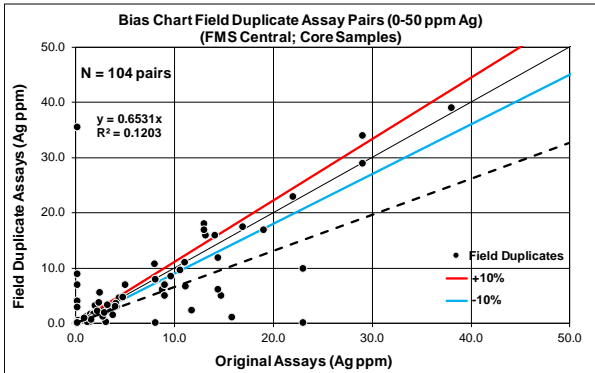
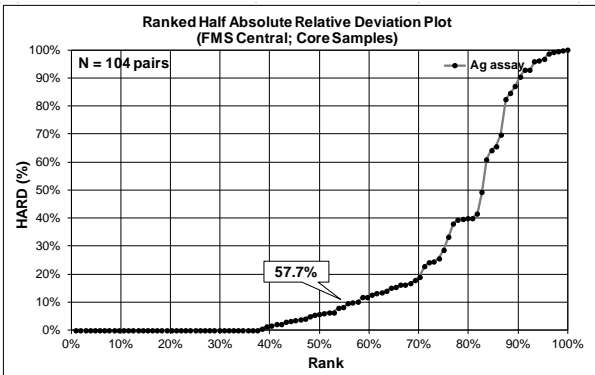
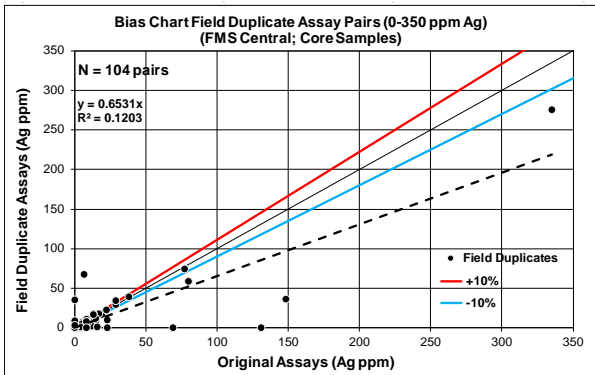
Bias and precision plots for coarse duplicate pairs assayed at the SGS Durango Laboratory.

		<b>Statistics</b>	<b>Original</b>	<b>Coarse Dup</b>
		<b>Sample Count</b>	60	60
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Coarse Duplicate	<b>Maximum Value</b>	320.00	299.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	20.983	22.487
<b>Commodity</b>	Ag in ppm	<b>Median</b>	11.150	10.300
<b>Analytical Method</b>	3-Acid Digest-AAS finish	<b>Standard Error</b>	5.876	6.043
<b>Detection Limit</b>	0.5 ppm Ag	<b>Standard Deviation</b>	45.512	46.809
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.9383	
<b>Paired Dataset</b>	Coarse Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	70.0%	




Bias and precision plots for field duplicate pairs assayed at the First Majestic Central Laboratory.

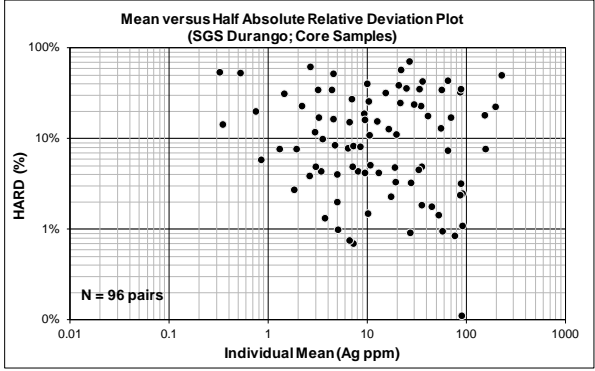
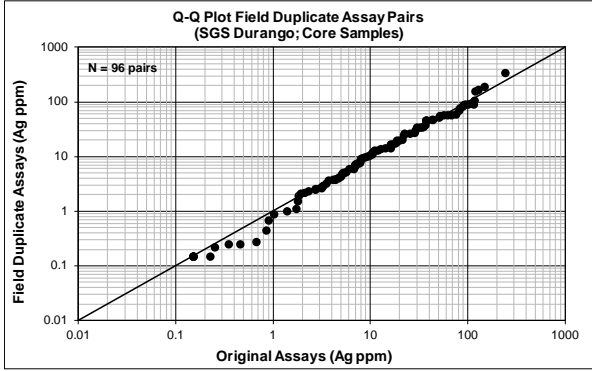
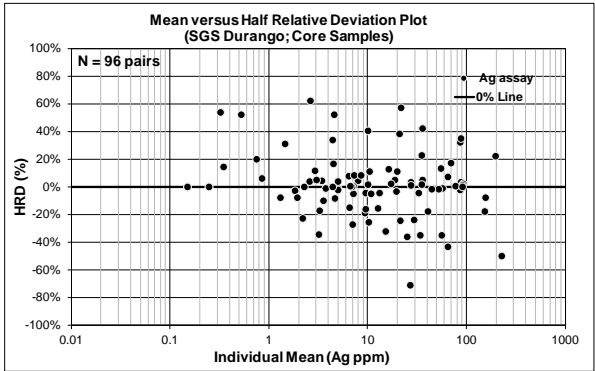
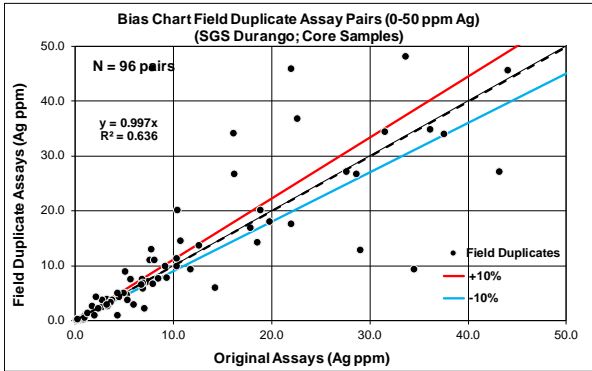
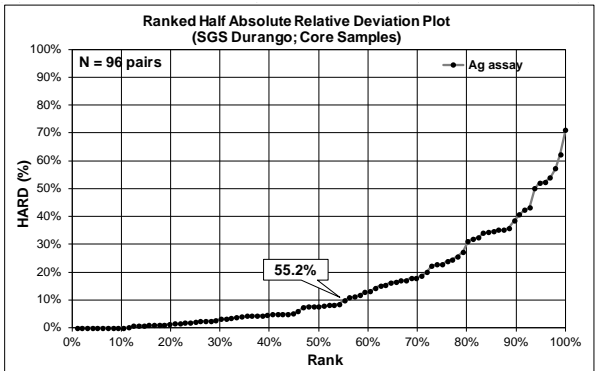
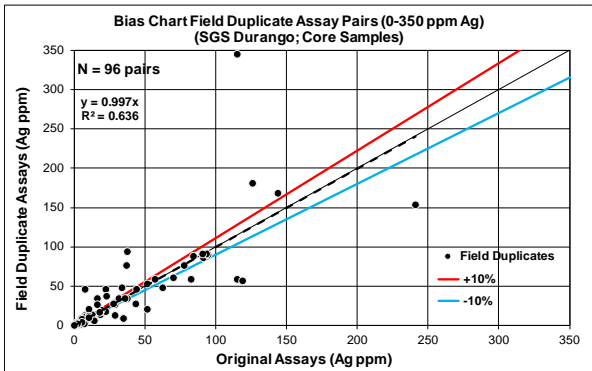
		<b>Statistics</b>	<b>Original</b>	<b>Field Duplicate</b>
		<b>Sample Count</b>	104	104
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Field Duplicates	<b>Maximum Value</b>	335.00	592.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	13.024	15.250
<b>Commodity</b>	Ag in ppm	<b>Median</b>	1.850	1.750
<b>Analytical Method</b>	3-Acid Digest-AAS, FA-AA/grav finish	<b>Standard Error</b>	3.853	6.300
<b>Detection Limit</b>	0.3 ppm Ag	<b>Standard Deviation</b>	39.294	64.249
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.3643	
<b>Paired Dataset</b>	Field Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	57.7%	





Bias and precision plots for field duplicate pairs assayed at the SGS Durango Laboratory.

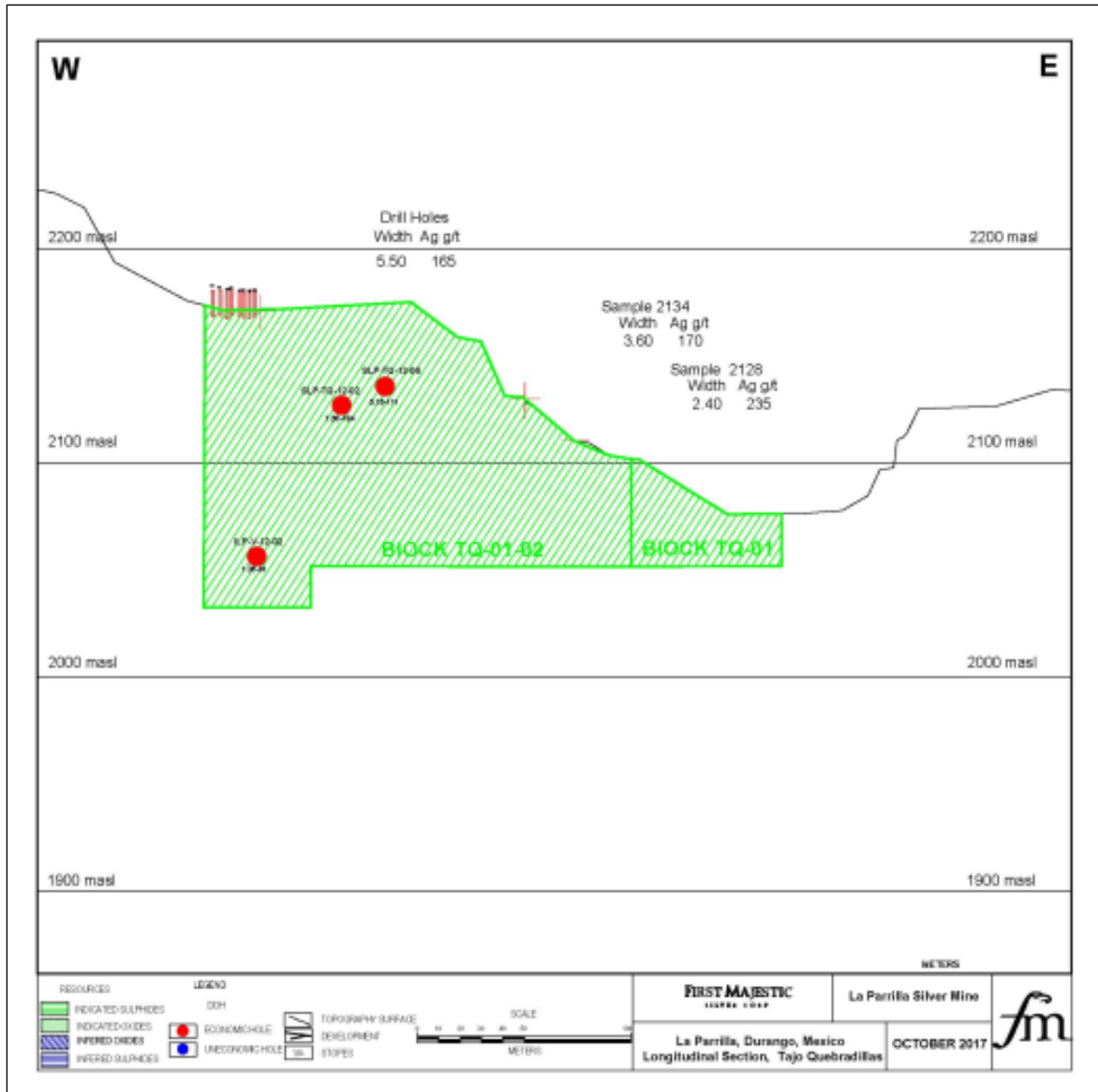
		<b>Statistics</b>	<b>Original</b>	<b>Field Duplicate</b>
		<b>Sample Count</b>	96	96
<b>Project</b>	First Majestic	<b>Minimum Value</b>	0.150	0.150
<b>Data Series</b>	Field Duplicates	<b>Maximum Value</b>	241.00	345.00
<b>Data Type</b>	Core Samples	<b>Mean</b>	27.491	29.290
<b>Commodity</b>	Ag in ppm	<b>Median</b>	8.750	9.650
<b>Analytical Method</b>	3-Acid Digest-AAS, FA-grav (over-limit)	<b>Standard Error</b>	4.122	4.979
<b>Detection Limit</b>	0.5 ppm Ag; 5 g/t	<b>Standard Deviation</b>	40.386	48.781
<b>Original Dataset</b>	Original Assays	<b>Correlation Coefficient</b>	0.7989	
<b>Paired Dataset</b>	Field Duplicate Assays	<b>Pairs ≤ 10% HARD</b>	55.2%	



## **APPENDIX C**

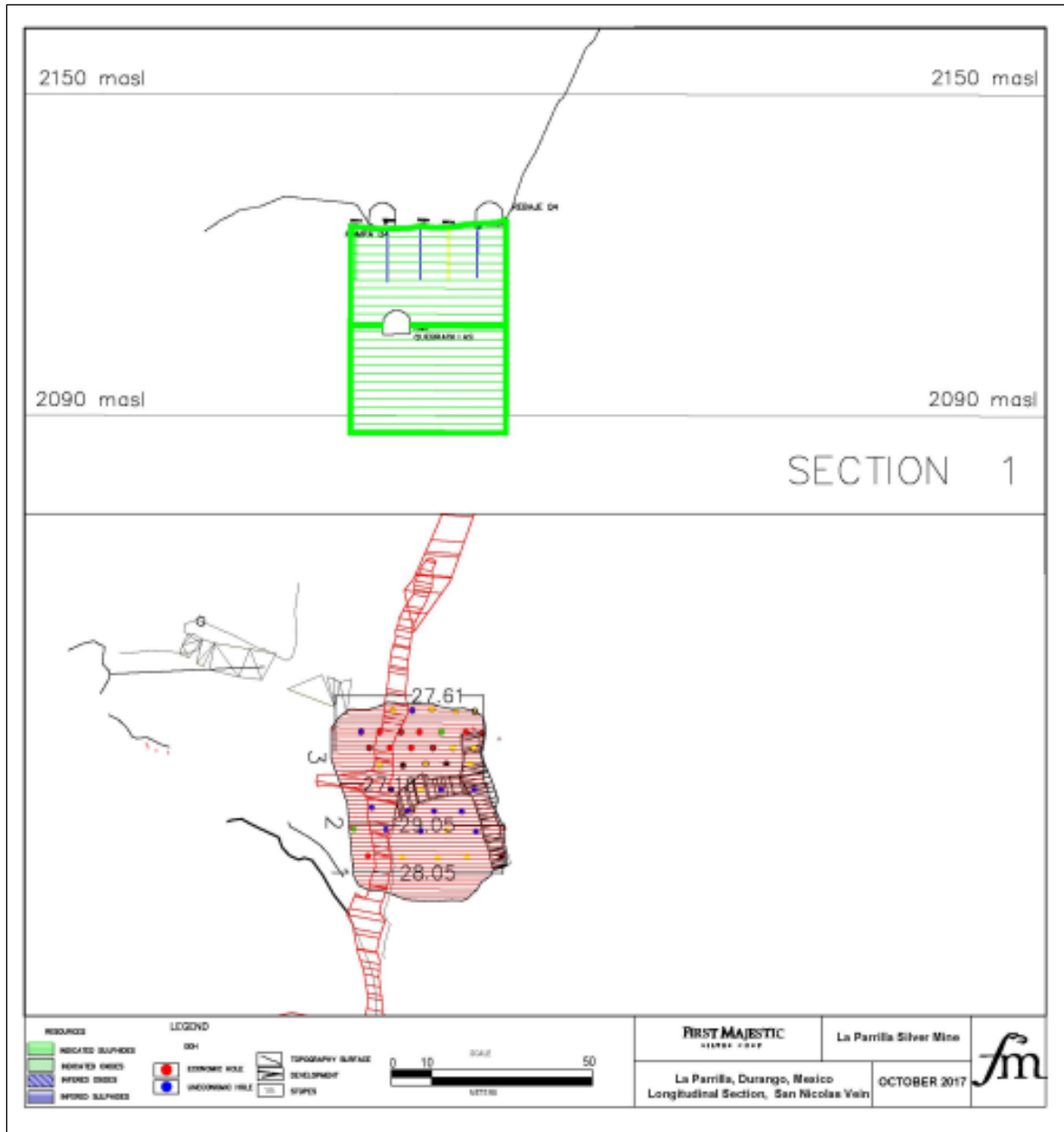
### **Longitudinal Sections of Quebradillas and San Nicolas**

Longitudinal section of Quebradillas pit area



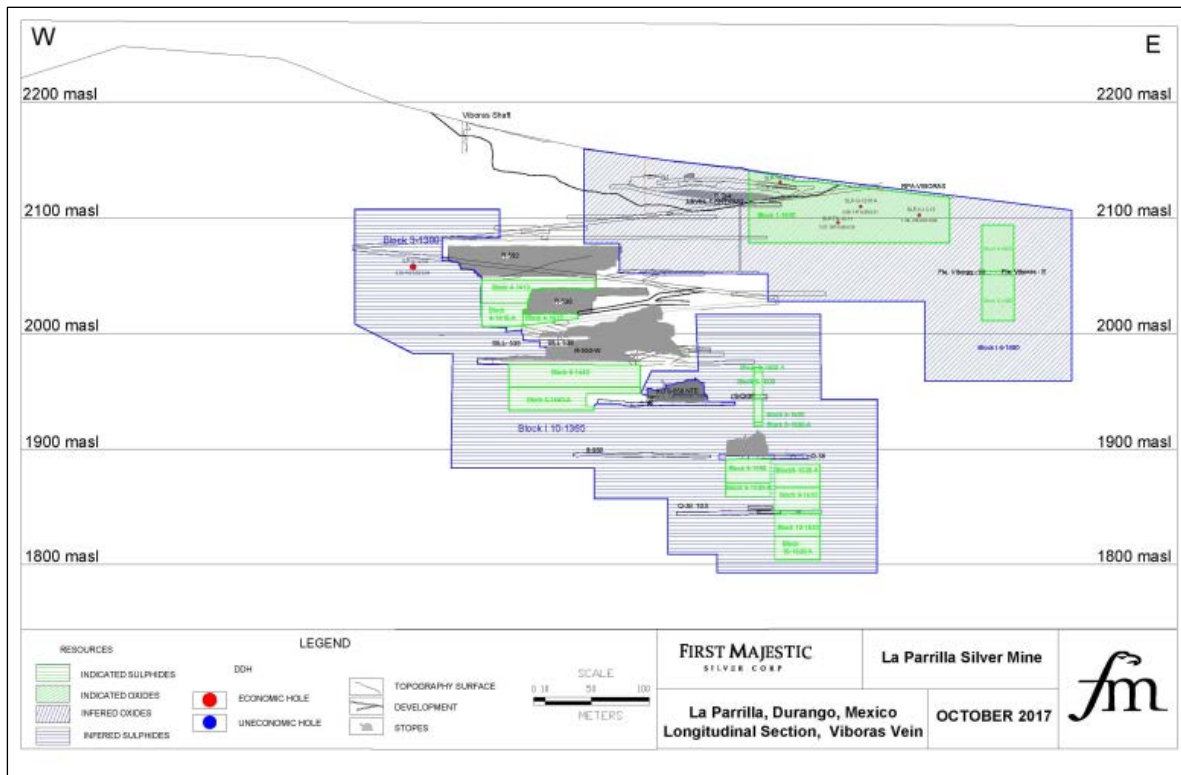
(FMS 2017)

Longitudinal section of Quebradillas Herradura pit area



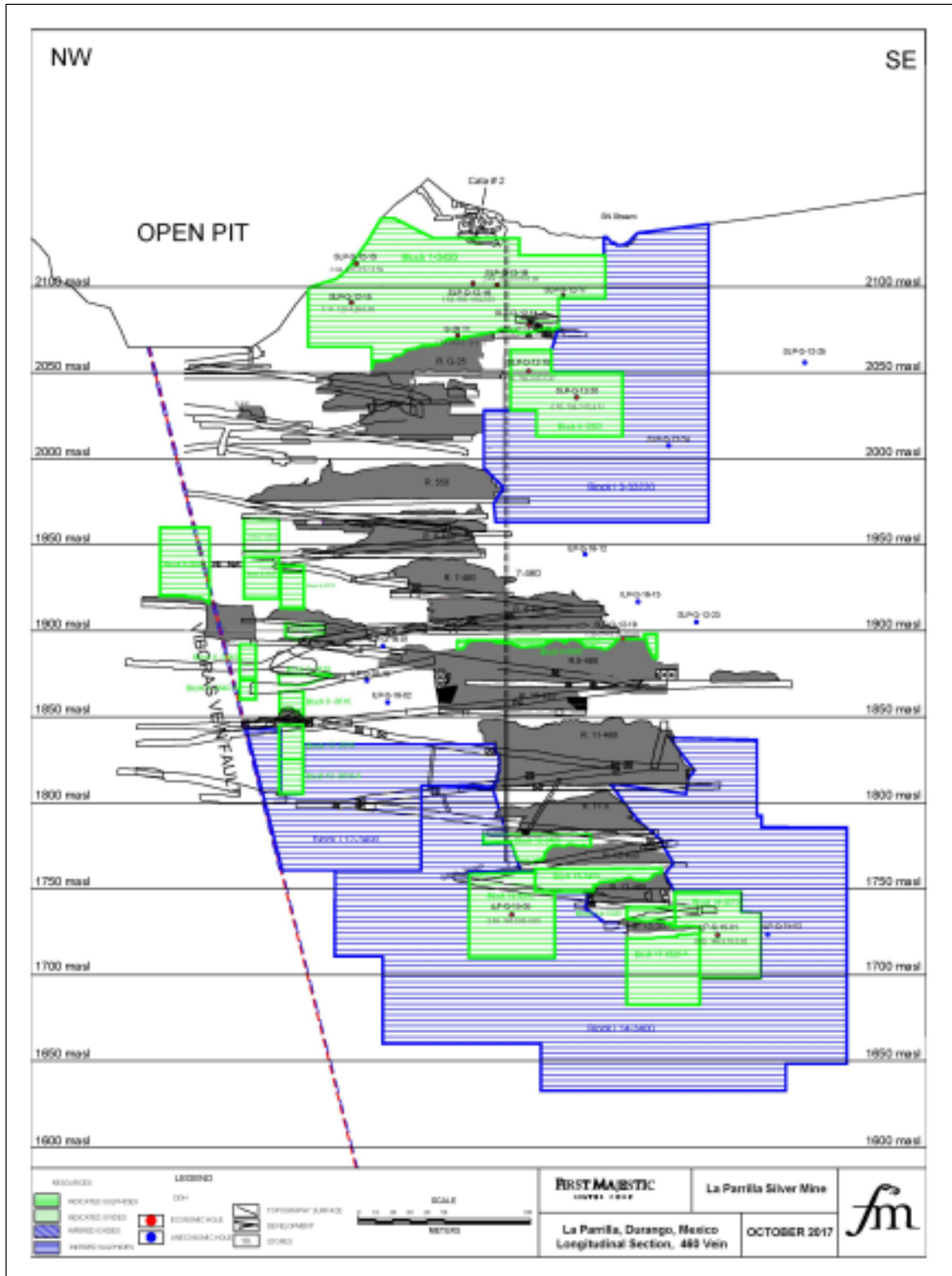
(FMS 2017)

Longitudinal section of Quebradillas 550 vein



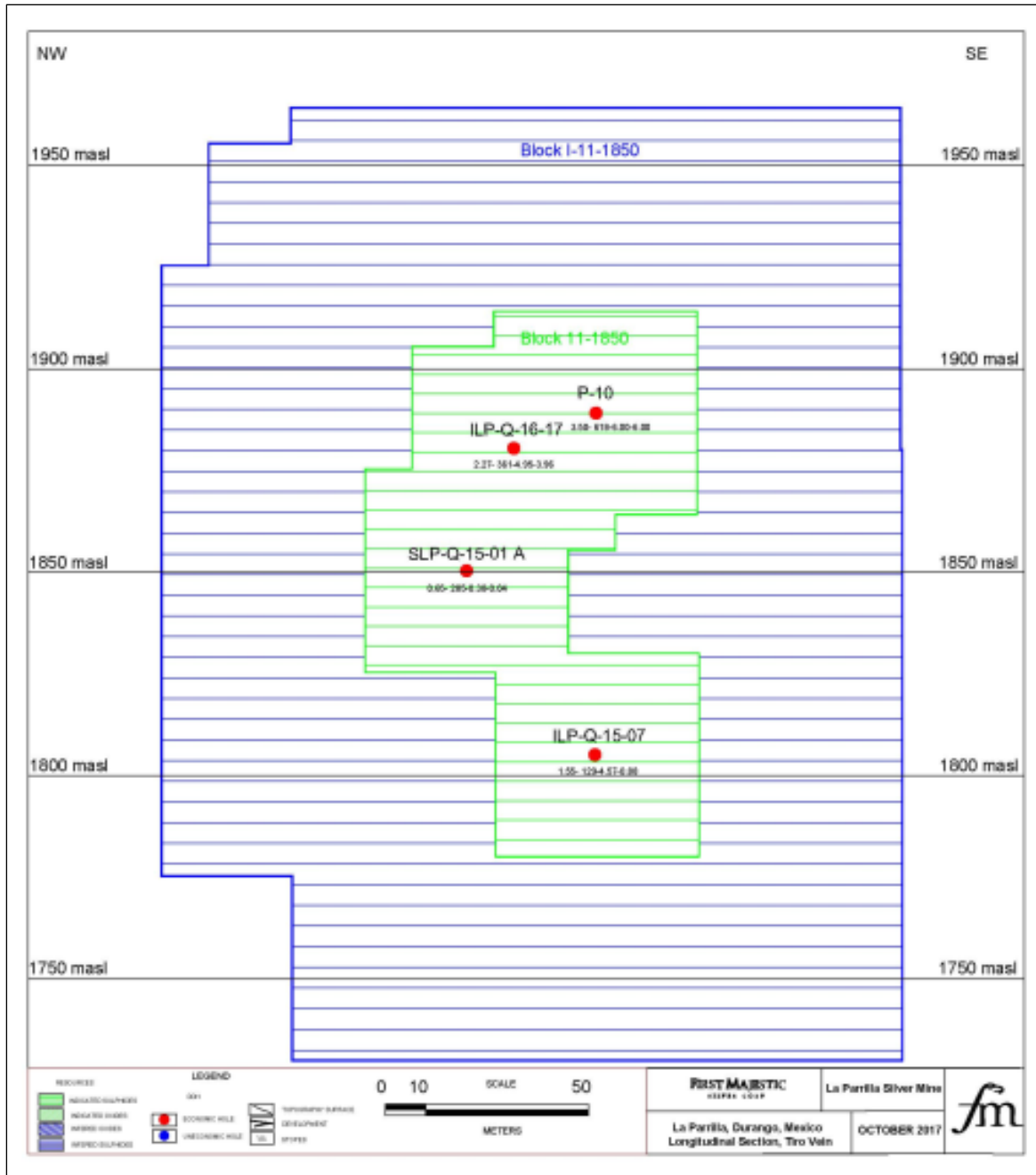
(FMS 2017)

Longitudinal section of Quebradillas 460 vein



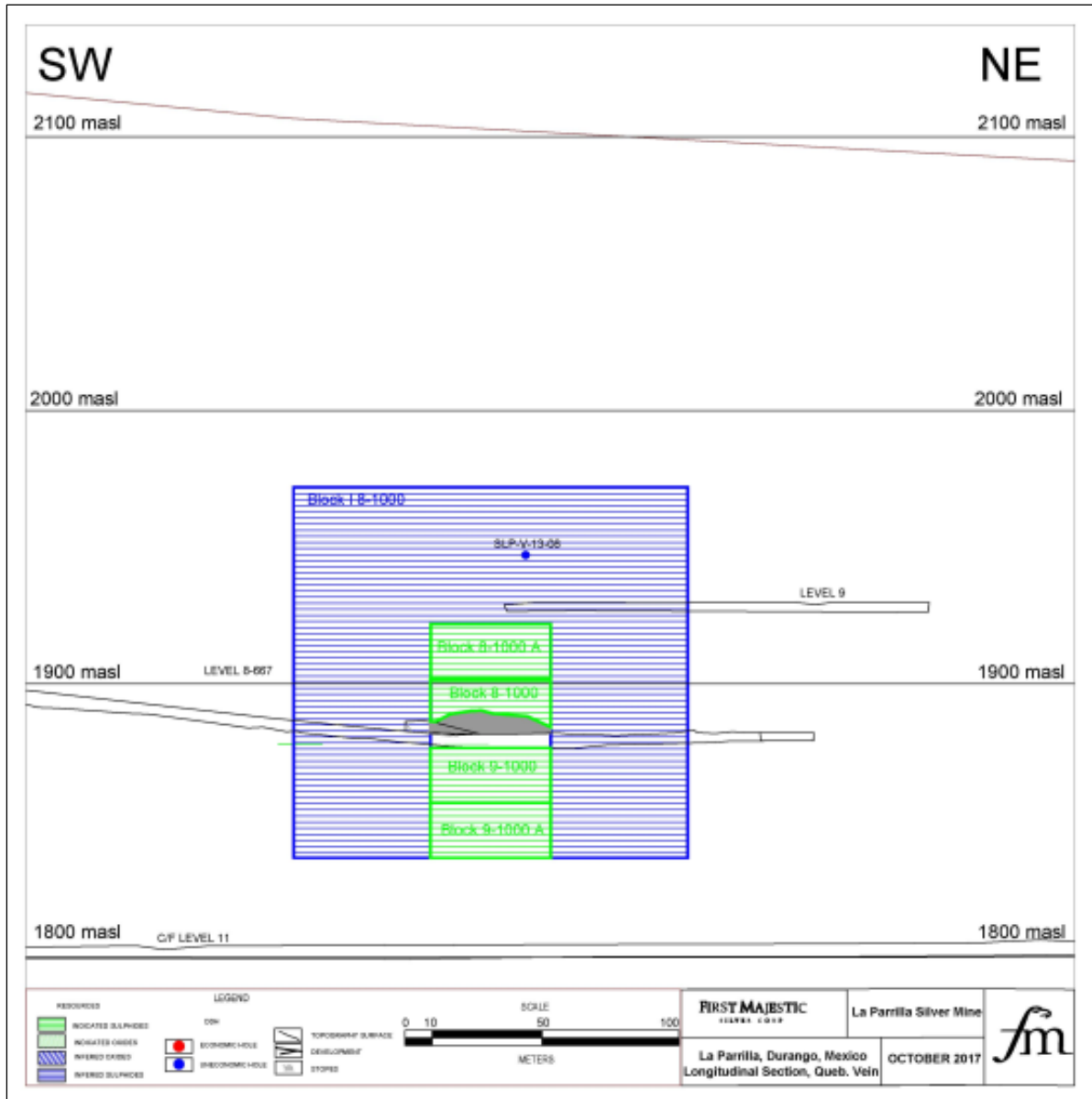
(FMS 2017)

Longitudinal section of Quebradillas Veta Tiro



(FMS 2017)

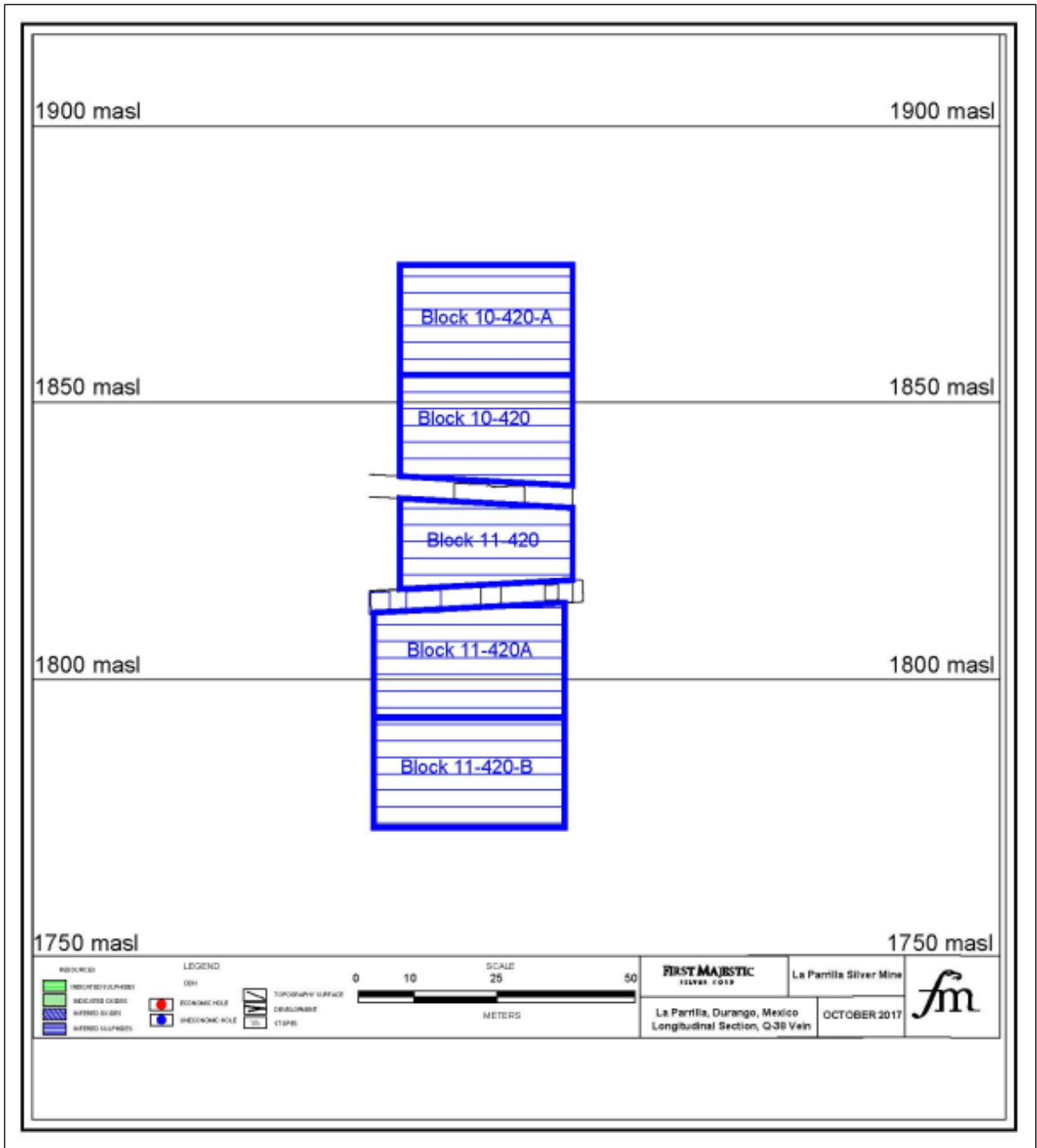
Longitudinal section of Quebradillas Veta



(FMS 2017)

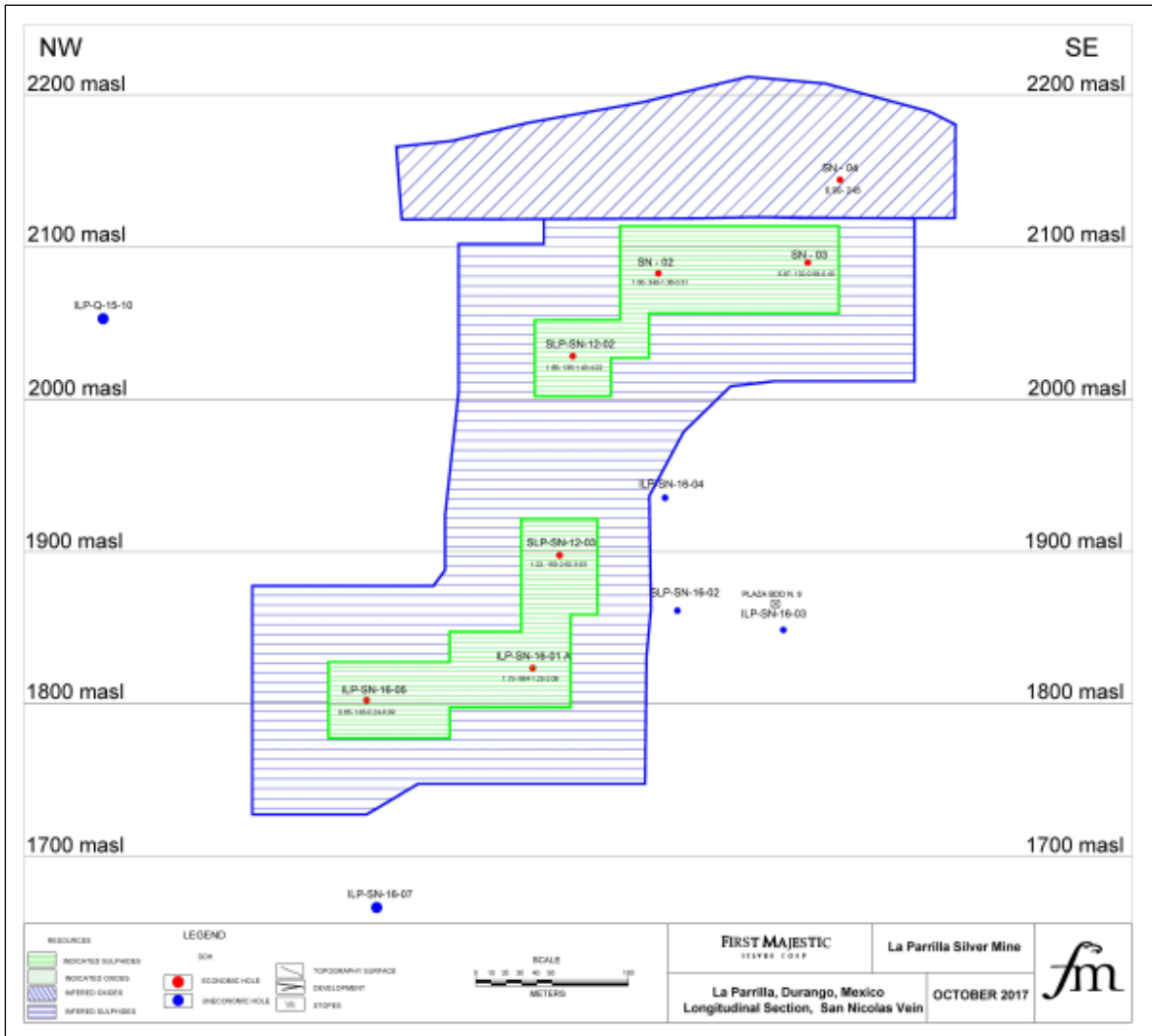


Longitudinal section of Quebradillas Q-38 vein



(FMS 2017)

Longitudinal section of San Nicolas vein



(FMS 2017)