

First Majestic Silver Corp., La Guitarra Silver Mine, Temascaltepec, México, NI 43-101 Technical Report on Mineral Resource and Mineral Reserve Update

Temascaltepec, Estado de México, México UTM zone 14Q, 386,556 E and 2,107,470 N

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Effective date: March 15th, 2015



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I, Ramon Mendoza Reyes, P.Eng., am employed as Vice President Technical Services with First Majestic Silver Corp.

This certificate applies to the technical report entitled "Technical Report for the La Guitarra Silver Mine, Temascaltepec, Mexico" that has an effective date of 15 March 2015 (the "Technical Report").

I graduated from the National Autonomous University of Mexico with a Bachelor of Mining Engineering degree 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, a member of the Canadian Institute of Mining, Metallurgy and Petroleum and a member of the Association of Mining Engineers, Metallurgist and Geologists of Mexico.

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

As a result of my education, qualifications and past relevant work experience mainly in mine operations, mine planning, mine design and mineral reserves estimates, 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 Guitarra Silver Mine on several occasions during 2014. My most recent personal inspection of the property took place on 8-10 of January 2015.

I am responsible for preparation of sections 1, 2, 3, 5, 6, 13, 15, 16, 17, 18, 19, 20, 21, 22, and the Mining and Processing aspects of sections 24, 25, 26 and 27 of the Technical Report.

By reason of my employment with First Majestic Services Corp., the owner of the La Guitarra Silver Mine, I am not considered independent as described in Section 1.5 of NI 43–101.

I have been involved in the La Guitarra Silver Mine as supervisor and coordinator of all disciplines preparing information for the integration into the Technical Report, including geology, mining and metallurgy since April 2014.

I have read NI 43–101 and the Technical Report. I confirm that those sections of the Technical Report which I am responsible for 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, those sections of the Technical Report which I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signed and sealed"

Ramon Mendoza Reyes, P.Eng. Dated: 31 March 2015

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I, Maria Elena Vazquez Jaimes, P.Geo., am employed as Geological Database Manager with First Majestic Silver Corp. since November 2013.

This certificate applies to the technical report entitled "Technical Report for the La Guitarra Silver Mine, Temascaltepec, Mexico" that has an effective date of 15 March 2015 (the "Technical Report").

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 Scientific Research Center and High Education, Ensenada, BC, Mexico, in 2000.

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia and member of the Canadian Institute of Mining, Metallurgy and Petroleum.

I have practiced my profession continuously since 1995. As a Geologist and Geological Database manager, I have been involved in precious and base metal sulphide mine projects and operations in Canada, Mexico, Peru, Ecuador, and Argentina.

As a result of my education, qualifications and past relevant work experience in geological database management, 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 Guitarra Silver Mine on several occasions in 2013 and 2014. My most recent personal inspection of the property took place from 1-3 of December 2014.

I am responsible for preparation of sections 11 and 12 of the Technical Report.

By reason of my employment with First Majestic Services Corp., the owner of the La Guitarra Silver Mine, I am not considered independent as described in Section 1.5 of NI 43–101.

I have been involved in the La Guitarra Silver Mine as geological database manager for the resource estimation work and for the integration of sections 11 and 12 of Technical Report since November 2013.

I have read NI 43–101 and the Technical Report. I confirm that those sections of the Technical Report which I am responsible for 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, those sections of the Technical Report which I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signed and sealed" Maria Elena Vazquez Jaimes.

Dated: 31 March 2015

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I, Jesus M. Velador Beltran, QP, am employed as Regional Exploration Manager with First Majestic Silver Corp.

This certificate applies to the technical report entitled "Technical Report for the La Guitarra Silver Mine, Temascaltepec, Mexico" that has an effective date of 15 March 2015 (the "Technical Report").

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 Doctor degree 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 QP-Geology status, a member of the Society of Economic Geologists, and a member of the Association of Mining Engineers, Metallurgist and Geologists of Mexico.

I have practiced my profession continuously since 1999 and have been involved in exploration and evaluation of precious and base metal sulphide prospects, projects and operations in Mexico.

As a result of my education, qualifications and past relevant work experience mainly in exploration, geology and evaluation of mineral projects, 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 Guitarra Silver Mine on several occasions during 2013 and 2014. My most recent personal inspection of the property took place on 9-12 of February 2015.

I am responsible for preparation of sections 4, 7, 8, 9, 10, 14 for La Guitarra, Nazareno and Mina de Agua areas, 23 and geology aspects of sections 24, 25, 26 and 27 of the Technical Report.

By reason of my employment with First Majestic Services Corp., the owner of the La Guitarra Silver Mine, I am not considered independent as described in Section 1.5 of NI 43–101.

I have been involved in the La Guitarra Silver Mine as supervisor and coordinator of exploration and geology disciplines preparing information for the integration into the Technical Report since April 2014.

I have read NI 43–101 and the Technical Report. I confirm that those sections of the Technical Report which I am responsible for 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, those sections of the Technical Report which I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signed and sealed" Jesus M. Velador Beltran, QP.

Dated: 31 March 2015

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This certificate applies to the technical report entitled Technical Report for the La Guitarra Silver Mine, Temascaltepec, Mexico" that has an effective date of 15 March 2015 (the "Technical Report").

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia. I graduated from the University of British Columbia with a Bachelor of Science in Geology degree in 1988.

I have practiced my profession continuously since 1988 and have been involved in precious and base metal disseminated sulphide deposit assessments in Canada, United States, Australia, Mexico, Chile, Peru, and India.

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 visited the La Guitarra Silver Mine between the 15th and 19th September 2014

I am responsible for preparation of Sub-sections 2.4.2, 12.1.9, 12.3.2, 14.1, 25.1, and 26.1 of the Technical Report.

I am independent of First Majestic Services Corp. as independence is described by NI 43–101.

I have no previous involvement with the La Guitarra project.

I have read NI 43–101 and this report has been prepared in compliance with that Instrument.

As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information related to the Coloso deposit that is required to be disclosed to make the technical report not misleading.

"Signed and sealed"

Greg Kulla, P.Geo.

Dated: 31 March 2015



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1. Summary

This Technical Report was prepared by First Majestic Silver Corp. (First Majestic) in compliance with the disclosure requirements of National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") to release current technical information and updated estimates of Mineral Resources and Mineral Reserves about the La Guitarra Silver Mine.

1.1. Property description and ownership

This technical report refers to the La Guitarra Silver Mine (the "Property" or "La Guitarra"), which consists of two underground silver-gold producing mines: La Guitarra mine and Coloso mine located in the municipality of Temascaltepec, Estado de Mexico, Mexico. The Property is comprised of 43 mining exploitation concessions covering 39,714 hectares (98,135 acres). The La Guitarra Silver Mine is owned and operated by La Guitarra Compañía Minera S.A de C.V. ("La Guitarra Compañía") which is an indirect wholly owned subsidiary of First Majestic.

1.2. Geology and mineralization

The Property is located at the southern intersection between the Sierra Madre Occidental and the Faja Volcanica Transmexicana ("FVTM"). The regional geology is dominated by the Cretaceous age Guerrero Terrane volcanic sedimentary sequence, Eocene – Oligocene age volcanic rocks and intrusions of the Sierra Madre Occidental and the Miocene – Recent age basalts and andesites of the FVTM.

The rocks of the Guerrero terrane have been deformed by the compresional Laramide Orogeny which folded, thrust-faulted and metamorphosed the volcanic sedimentary sequence. The Guerrero Terrane has been partially capped and intruded by volcanic rocks and intrusions of the Sierra Madre Occidental and the FVTM. Following the Laramide Orogeny, three different extensional events reactivated mostly NW trending faults which favor the emplacement of dikes, domes, stocks and epithermal veins.

La Guitarra property contains in excess of one hundred epithermal veins which are either hosted by tuffs, breccias, granite, and metasedimentary rocks of the Guerrero Terrane. The veins trend NW to E-W and are described as Intermediate Sulfidation Epithermal veins containing silver, gold and some lead and zinc. Individual veins pinch and swell and vary in width from tens of centimetres to more than twenty metres whereas ore shoots contained within veins have widths usually between 1 and 4 metres. Intersection of NW to E – W veins with NE and N – S faults and fractures have been suggested as main controls for ore shoot localization.



1.3. Status of exploration, development, and operations

Exploration at La Guitarra property employs prospecting, surface and underground mapping, sampling and drilling (underground and surface). Between July 2012 and December 2014, First Majestic drilled 35,575 metres in 262 diamond drill-holes. In 2014, First Majestic drilled 6,188 metres in 57 holes, 50 holes were drilled from underground in La Guitarra mine and 7 holes were drilled from surface on the Guitarra NW. Most of the drilling by First Majestic has been focused on infill and delineation of known mineralization.

Mining in the Temascaltepec area started and has been ongoing since the 1550's when the Spanish miners first arrived. In the 18th century, the Mina de Agua mine and surrounding areas were one of México's largest silver producers, generating approximately 10% of the country's total mineral wealth. Modern mining resumed in 1990 when the Compañía Minera Arauco conducted exploration and development works on the Guitarra vein with an initial production rate of 30 tpd. In 1993, Luismin S.A. de C.V. (Luismin) acquired the property and began consolidating the Temascaltepec District. Luismin expanded the reserve base in La Guitarra Silver Mine and increased the milling capacity to 320 tpd.

In August of 2003, Genco Resources Ltd. (Genco) purchased the entire Temascaltepec Mining District and the La Guitarra Silver Mine from Luismin. In 2010, Silvermex Resources Inc. ("Silvermex"), gained control over all mineral concessions within the Temascaltepec District and on July 3, 2012, First Majestic acquired all of the issued and outstanding shares of Silvermex, whose primary asset was the La Guitarra Silver Mine located in Mexico State, México.

Since First Majestic became owner of the La Guitarra Silver Mine, it commenced a plan to expand this operation from 350 tpd to 520 tpd. Construction of the foundations commenced in the third quarter of 2012 and the expansion was completed in May 2013. In 2014, First Majestic processed a total of 186,881 tonnes of ore with average silver head grade of 127 g/t and produced a total 1,056,078 equivalent ounces of silver.

1.4. Mineral Resource and Mineral Reserve estimates

Mineral Resources from La Guitarra were classified in order of increasing geological confidence into Inferred, Indicated and Measured categories as defined by the "CIM Definition Standards – For Mineral Resources and Mineral Reserves" in 2014 whose definitions are incorporated by reference into NI 43-101.

Mineral Resources for the Coloso area have been estimated for First Majestic by Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) under the supervision of Greg Kulla, P.Geo. The estimates are based on exploration results from the 2008, 2011 and 2012 exploration campaigns and upon geologically constrained block models. Mineral Resources for La Guitarra,



Nazareno and Mina de Agua areas have been estimated by First Majestic based on exploration results from 2006 to 2014 using the polygonal method to construct longitudinal sections of the vein shoots.

Table 1.1 shows the consolidated Mineral Resources for La Guitarra as at December 31, 2014. The tabulation includes material classified as measured, indicated, and inferred using metal prices of \$22 USD/oz for silver and \$1,350 USD/oz for gold. The Mineral Resources reported herein have an effective date of December 31, 2014. The Mineral Resources reported herein are inclusive of Mineral Reserves.

Table 1.1: La Guitarra Silver Mine Consolidated Mineral Resources, with an effective date of December 31, 2014.

Mine / Project C	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
	Measured (UG)	Sulphides	121	170	2.37	305	660	1,185
T	Total Measured and Indicated (UG)	Sulphides	1,029	335	1.56	424	11,078	14,029

LA GUITARRA MEASURED AND INDICATED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

LA GUITARRA INFERRED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

Mine / Project	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
LA GUITARRA	Inferred Total (UG)	Sulphides	739	197	1.23	267	4,674	6,343

(1) Mineral Resources have been classified in accordance with the CIM Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101.

(2) Cut-off grade considered for sulphides was 180 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.

(3) Metallurgical recovery used was 85% for silver and 79% for gold.

(4) Metal payable used was 95% for silver and 95% for gold.

(5) Metal prices considered were \$22 USD/oz Ag, \$1,350 USD/oz Au.

(6) Silver equivalent grade is estimated as:

Ag-Eq = Ag Grade + (Au Grade x Au Recovery x Au Payable x Au Price) / (Ag Recovery x Ag Payable x Ag Price).

(7) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces.

(8) Totals may not add up due to rounding.

(9) Measured an Indicated Mineral Resources are reported inclusive or Mineral Reserves.

(10) Mineral Resources include estimates for the La Guitarra, Nazareno and Mina de Agua areas prepared under supervision of Jesus M. Velador Beltran, QP of First Majestic, and estimates for the Coloso area prepared under supervision of Greg K. Kulla, P.Geo. of Amec Foster Wheeler.

La Guitarra Compañía has all necessary permits for current mining and processing operations, including an operating license, a water use permit, an Environmental Impact Authorization ("EIA") for the La Guitarra and Coloso mines and exploration permits for Nazareno, Tlacotal, Trancas, La Guitarra NW, Temascaltepec and San Simon projects.

Mineral Reserve is the economically mineable portion of a Measured or Indicated Mineral Resource. Mineral reserves were calculated by First Majestic under the supervision and review of Ramon Mendoza-Reyes P.Eng., Vice President, Technical Services of First Majestic, who is a qualified person as that term is defined by NI 43-101.



Mineral Reserves are estimated after incorporating modifying factors to the mineable blocks. The modifying factors considered in La Guitarra and Coloso mines include: dilution and extraction factors, including mining losses, referred in this Technical Report as mining recovery. Mineral reserves for La Guitarra as at December 31, 2014, comprising material classified as proven and probable reserves using metal prices of \$20 USD/oz for silver and \$1,200 USD/oz for gold. Table 1.2 shows the mineral reserves for La Guitarra as at December 31, 2014.

Table 1.2: La Guitarra Silver Mine Mineral Reserves, with an effective date of December 31, 2014	ŧ.
LA GUITARRA MINERAL RESERVES WITH AN EFFECTIVE DATE OF DECEMBER, 31, 2014	

Mine	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t) Ag	g-Eq (g/t)	Ag (k Oz) A	g-Eq (k Oz)
	Proven (UG)	Sulphides	91	153	1.84	256	446	745
LA GUITARRA	Probable (UG)	Sulphides	1,217	228	1.00	284	8,911	11,098
	Total Proven and Probable (UG)	Sulphides	1,308	223	1.06	282	9,358	11,843

(1) Mineral Reserves have been classified in accordance with the CIM Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101.

(2) Cut-off grade considered for sulphides was 200 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.

(3) Metallurgical recovery used was 85% for silver and 79% for gold.

(4) Metal payable used was 95% for silver and 95% for gold.

(5) Metal prices considered were \$20 USD/oz Ag, \$1,200 USD/oz Au.

(6) Silver equivalent grade is estimated as:

Ag-Eq = Ag Grade + (Au Grade x Au Recovery x Au Payable x Au Price) / (Ag Recovery x Ag Payable x Ag Price).

(7) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces.

(8) Totals may not add up due to rounding.

1.5. Conclusions and Recommendations

First Majestic has been operating La Guitarra since July 3, 2012, and currently processes 520 tpd. In 2014, the company processed a total of 186,881 tonnes of ore with average silver head grade of 127 g/t and produced a total 1,056,078 equivalent ounces of silver.

Between July 2012 and December 2014, First Majestic drilled 35,575 metres in 262 diamond drill-holes. In 2014, First Majestic drilled 6,188 metres in 57 holes. Most of the drilling by First Majestic has been focused on infill and delineation of known mineralization.

Mineral Resources for the Coloso area have been estimated for First Majestic by Amec Foster Wheeler under the supervision of Greg Kulla, P.Geo., upon geologically constrained block models. Mineral Resources for La Guitarra, Nazareno and Mina de Agua areas have been estimated by First Majestic using polygonal methods.

La Guitarra Compañía has all necessary permits for current mining and processing operations. The mineral resources reported herein are inclusive of mineral reserves. Mineral Reserves were estimated after incorporating modifying factors, such as dilution and extraction factors, to the mineable blocks. Mineral Reserves were calculated by First Majestic under the supervision and review of Ramon Mendoza-Reyes P.Eng. Mineral Resources and Mineral Reserves reported herein have an effective date of December 31, 2014.



2. Introduction

2.1. Technical Report Issuer

The La Guitarra Silver Mine ("the Property") is owned and operated by La Guitarra Compañía Minera S.A de C.V. ("La Guitarra Compañía") which is an indirect wholly owned subsidiary of First Majestic Silver Corp. ("First Majestic"). First Majestic acquired ownership of the La Guitarra Silver Mine through the acquisition of all of the issued and outstanding common shares of Silvermex Resources Inc. (Silvermex) on July 3, 2012.

First Majestic is a publicly listed company incorporated in Canada with limited liability under the legislation of the Province of British Columbia. The Company is in the business of silver production, development, exploration, and acquisition of mineral properties with a focus on silver production in Mexico. The Company's shares trade on the Toronto Stock Exchange under the symbol "FR", on the New York Stock Exchange under the symbol "AG", on the Frankfurt Stock Exchange under the symbol "FMV" and on the Mexican Stock Exchange under the symbol "AG".

The La Guitarra Silver Mine comprises two operating mines, La Guitarra and Coloso, and three past producing areas, the Nazareno, Mina de Agua and El Rincón, which are now considered as exploration areas.

2.2. Terms of Reference

This Technical Report was prepared by First Majestic in compliance with the disclosure requirements of NI 43-101 to release technical information about the La Guitarra Silver Mine, its current operating conditions and updated estimates of Mineral Resources and Mineral Reserves.

The effective date of this Technical Report is March 15, 2015 which represents the cut-off date for the scientific and technical information used in the Report. The effective date of the Mineral Resources and Mineral Reserves estimates included in this Technical Report is December 31, 2014.

2.3. Sources of Information

For the purposes of the Technical Report, all information, data, and figures contained or used in its integration have been provided by First Majestic, unless otherwise stated. See also Section 27 of this Technical Report for references.

The Mineral Resource estimates for the La Guitarra, Nazareno and Mina de Agua areas of the La Guitarra Silver Mine were prepared by First Majestic. The Mineral Resource estimate for the



Coloso area of the La Guitarra Silver Mine was prepared by Amec Foster. The Mineral Reserves estimates for all areas were prepared by First Majestic.

Previously filed technical reports and studies on the Property include the following:

- La Guitarra Mine Technical Report, Temascaltepec, Mexico, dated January 29, 2010. Prepared for Genco Resources Ltd. by Glenn R. Clark, P.Eng, Glenn R. Clark & Associates Ltd. and John C. Thornton, SAIIM, Thor Resources LLC., (the "2010 Technical Report")
- La Guitarra Feasibility Study dated August 2009. Prepared for Genco Resources Ltd. by Kappes, Cassiday and Associates.

Note that in the previously filed technical reports the management of First Majestic considered that the open pit mine plan contained in the 2010 Technical Report commissioned by Silvermex for the Property was not the optimal development plan considering permitting and socioeconomic issues that would likely be involved. Consequently, the Mineral Resources and Mineral Reserves estimates contained in previous technical reports on the La Guitarra Silver Mine have been re-assessed on the basis of underground mining methods only and the processing plant utilizing only a flotation circuit. This review has resulted in a revised mine plan which is the basis of this Technical Report.

The Property's infill and delineation drilling program is ongoing as of the effective date of the Report. Where applicable, results received to date from this recent drilling activity have generally corroborated the updated resource model.

2.4. Qualified Persons and Site Visits

This Technical Report has been prepared by employees of First Majestic under the supervision of Ramon Mendoza Reyes, P.Eng., Vice President of Technical Services, Jesus M. Velador Beltran, MMSA, Regional Exploration Manager, and Maria E. Vazquez Jaimes, P.Geo., Geological Database Manager. The Mineral Resource estimate for the Coloso area of the Property was prepared by Amec Foster Wheeler under the supervision of Gregory Kenneth Kulla, P.Geo.

Table 2.1 below shows the list of Qualified Persons contributing to the listed sections of the Report, their affiliation and area of expertise and the dates of the relevant site visits to the Property.



Table 2.1: List of Qualified Persons

Author	Company	Area of Expertise	Sections Responsibility	Site Visits
Ramon Mendoza Reyes	First Majestic	Mining, Reserve estimates	Sections 1, 2, 3, 5, 6, 13, 15, 16, 17, 18, 19, 20, 21, 22, and the Mining and Processing aspects of sections 24, 25, 26 and 27	Several occasions during 2014. Most recent inspection on 8 th to 10 th of January 2015
Jesus M. Velador Beltran	First Majestic	Geology Exploration	Sections 4, 7, 8, 9, 10, 14 La Guitarra area, 23 and geology aspects of sections 24, 25, 26 and 27	Several occasions during 2013 and 2014. Most recent inspection on 9 th to 12 th of February 2015
Maria E. Vazquez Jaimes	First Majestic	Database Management	Sections 11 and 12	Several occasions during 2013 and 2014. Most recent inspection on 1 st to 3 rd of December 2014
Gregory K. Kulla	Amec	Resource modeling, Resource estimates	Section 14 of the Coloso area	16 th to 19 th of September 2014

2.4.1. First Majestic Employees Site Visits

Messrs. Mendoza Reyes, Velador Beltran, Vazquez Jaimes and Kulla are qualified persons as that term is defined by NI 43-101, for the sections of the Report that they take responsibility.

Messrs. Mendoza Reyes, Velador Beltran and Vazquez Jaimes are employees of First Majestic and as such are not independent as described in Section 1.5 of NI 43–101.

Mr. Ramon Mendoza visited the La Guitarra property on several occasions during 2014 and during these visits, he coordinated the integration of information for Mineral Resource and Mineral Reserves estimates. Information including but not limited to: mining methods, productivity, operating and capital costs and metallurgical recoveries. During the most recent visit on the 8th to 10th of January, 2015, he supervised the stope optimization process to constrain the Mineral Reserves of the Coloso area and reviewed the production depletion estimates of La Guitarra and Coloso mines.

Mr. Jesus Velador visited La Guitarra property on several occasions during 2013, 2014 and 2015, the most recent visits being between the 10th and 12th December, 2014 and the 9th and 12th February, 2015. Mr. Velador conducted field visits to the Nazareno and Rincón areas, Coloso mine, La Guitarra mine, he inspected drill core from 11 holes from Coloso with special emphasis on mineralization, alteration, structures and paragenesis, inspected the channel sampling procedure at Coloso mine and examined longitudinal sections and plan views from Coloso and La Guitarra mines.

Ms. Maria Vazquez visited the site on several occasions from December 2013 to December 2014 conducting database audits for the Coloso and Nazareno areas and observed exploration practices to support mineral resource estimates. During the most recent visits, between the 1st



and 3rd of December, 2014 she conducted training in Database Management to La Guitarra geological personnel.

2.4.2. Amec Foster Wheeler Site Visits

Mr. Greg Kulla visited the property between the 15th and 19th September 2014. During this visit he reviewed drilling, logging, and sampling procedures, and assay quality control procedures. While at site he also reviewed several drill core intersections of the Joya Larga and Jesicca veins of the Coloso deposit. While at site another Amec Foster Wheeler employee completed an inspection of the Joya Larga underground workings where he observed the vein mineralization.

2.5. Units and Currency and Abbreviations

Units of measurement are metric. All costs are expressed in United States dollars unless otherwise noted. Only common and standard abbreviations were used wherever possible. A list of abbreviations used is as follows:

Distances:	mm – millimetre				
	cm – centimetre				
	m – metre				
	km – kilometre				
	masl – metres above sea level				
Areas:	m ² – square metre				
	ha – hectare				
	km ² – square kilometre				
Weights:	oz – troy ounces				
	k oz – 1,000 troy ounces				
	lb - pound				
	g – grams				
	kg – kilograms				
	t – tonne (1,000 kg)				
	kt – 1,000 tonnes				
	Mt – 1,000,000 tonnes				
Time:	min – minute				
	hr – hour				
	op hr – operating hour				
	d – day				
	yr – year				
Volume/Flow:	m ³ – cubic metre				
	m ³ /hr – cubic metres per hour				
	cu yd – cubic yards				

La Guitarra Silver Mine Temascaltepec, Edo. Mexico, Mexico NI 43-101 Technical Report



- Assay/Grade: g/t grams per tonne g/L – grams per litre ppm - parts per million ppb - parts per billion Currency: \$ - United States dollar Other: tpd - tonnes per day ktpd - 1,000 tonnes per day Mtpa - 1,000,000 tonnes per year kW - kilowatt MW - megawatt kVA - kilovolt-ampere MVA – Megavolt-ampere kWh - kilowatt hour MWh - megawatt hour °C – degrees Celsius Ag - silver Au – gold Pb - lead Zn – zinc Cu - copper
 - Ag-Eq silver equivalent



3. Reliance on Other Experts

First Majestic qualified persons' opinion contained herein is based on information provided to them by other First Majestic employees and consultants. The qualified persons used their experience to guide and supervise the work performed for the integration of this information and to determine if the information was suitable for inclusion in the Report. Portions of the general information and geology descriptions from previous reports were suitable for inclusion in the Report. In general, information that required updating included most of the information related to the mine plan, which is based on underground mining methods for extraction of the mineralized material and the flotation process for the recovery of metals.

Greg Kulla of Amec Foster Wheeler has fully relied upon, and disclaims responsibility for information regarding environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors provided through by First Majestic's experts through the following documents:

- Email from Ramon Mendoza titled "Reliance" dated 31 March 2015
- Letter from Rafael Araujo Esquivel titled "Mining Concessions and Surface Agreements Status" dated 31 March 2015

Information in these documents has been used in Section 14 of the Report in consideration of factors that might materially affect the Coloso Mineral Resource estimate.



4. Property Description and Location

4.1. Property location

The La Guitarra Silver Mine is a producing mine located in the historic Temascaltepec mining district (the "Temascaltepec District") in the municipality of Temascaltepec, Estado de Mexico, Mexico, approximately 130 kilometres southwest of Mexico City (Figure 4.1). The Mine portal is located at approximately 100°04'39"W Longitude and 19°03'23"N Latitude, at an elevation of approximately 1,990 metres. The processing plant is located at 100° 04' 42" W and 19° 03' 24" N or UTM zone 14Q, 386,556 E and 2,107,470 N at an elevation of 1960 metres above sea level. The project site can be accessed by asphalt road from Temascaltepec (5 km), from Tejupilco (30 km) and from the major metropolitan areas of Toluca (70 km) and Mexico D.F. (130 km). Travel time from the international airport in Mexico City ranges from 2.5 hours to 4 hours depending on traffic.



Figure 4-1: Location map of La Guitarra Silver Mine



4.2. Mining concessions

The Property is comprised of 43 exploitation concessions covering 39,714 hectares (98,135 acres), which are operated and owned by La Guitarra Compañía. Most of the mining concessions are located within the Municipality of Temascaltepec while some concessions extend to the municipalities of Valle de Bravo and San Simón de Guerrero (Figure 4.2)

In Mexico, mining concessions are granted by the Economy Ministry, and these are considered exploitation concessions with a 50-year term. Mining concessions have an annual minimum investment to complete and an annual mining rights fee to be paid to keep the concessions effective. Valid mining concessions can be renewed for an additional 50-year term as long as the mine is active. According to Mr. Rafael Araujo, legal and technical representative for First Majestic (*Perito Minero*), all 43 concessions are currently in good standing. Of the La Guitarra Compañía concessions, the oldest were granted in 1983 and the most recent in 2007. Table 4.1 shows a detailed list of the concessions with covered surface and current expiration dates. There are no royalties in effect over First Majestic's concessions at La Guitarra.



Figure 4-2: La Guitarra Compañía Mining Concessions

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JIIL
First Majestic
SILVER CORP.

Table 4.1: List of Mining Concessions

	NAME	TITLE	HECTARES	FROM	TO
1	EL REY	172361	7.6746	15/12/1983	14/12/2033
2	LA CRUZ	179607	3.7811	11/12/1986	01/12/2036
3	EL NUEVO REY	180496	6.0000	13/07/1987	13/07/2037
4	VETA GRANDE No. DOS	185878	8.0000	14/12/1989	14/12/2039
5	JESÚS NAZARENO	189684	6.0000	05/12/1990	14/12/2040
6	DEMASIAS DEL PROGRESO	191124	3.3472	29/04/1991	28/04/2041
7	FRACC. II DE TERESA I	191224	1.3325	19/12/1991	18/12/2041
8	TERESAII	191225	1.6874	19/12/1991	18/12/2041
9	TERESAI	191235	35.0969	19/12/1991	18/12/2041
10	AMPLIACION DEL PROGRESO	191334	3.0171	19/12/1991	18/12/2041
11	GUADALUPE	191482	43.0000	19/12/1991	18/12/2041
12	EL GUITARRON	191488	138.4904	19/12/1991	18/12/2041
13	LA GUITARRILLA	192325	7.5403	19/12/1991	18/12/2041
14	EL SALVADOR	192797	7.3149	19/12/1991	18/12/2041
15	AMPLIACION DEL REY	193970	0.3533	20/12/1991	19/12/2041
16	AMPL. DE LOS COMALES	195409	151.4325	14/09/1992	29/12/2033
17	LA TOSCA	196113	30.0000	23/09/1992	22/09/2042
18	LA ALBARRADA	196548	1.5419	23/07/1993	22/07/2043
19	EL PROGRESO	198404	2.5698	26/11/1993	25/11/2043
20	SAN JOSÉ	198961	35.0000	11/02/1994	10/02/2044
21	EL VIOLIN	199934	10.0000	17/06/1994	16/06/2044
22	JESSICA	203986	25.0000	26/11/1996	25/11/2046
23	EL CONTRABAJO	206547	3.1967	23/01/1998	22/01/2048
24	NAZARENO DE ANECAS	208817	279.8508	15/12/1998	14/12/2048
25	EL COLOSO III	210464	154.7519	08/10/1999	07/10/2049
26	EL COLOSO II	211448	157.9183	23/05/2000	22/05/2050
27	EL COLOSO IV	212370	1.6048	04/10/2000	04/10/2050
28	SAN LUIS SUR 88	212556	1,538.9474	31/10/2000	30/10/2050
29	LA GUITARRILLA DOS FRAC.I	215219	9.0992	14/02/2002	13/02/2052
30	LA GUITARRILLA DOS FRAC.II	215220	20.4517	14/02/2002	13/02/2052
31	EL VIRREY	216193	4.6048	12/04/2002	12/04/2052
32	EL NAZARENO SUR	216635	17.1998	17/05/2002	16/05/2052
33	EL NAZARENO	217506	897.3527	16/07/2002	16/07/2052
34	LOS TIMBRES	217766	383.5042	13/08/2002	12/08/2052
35	EL PEÑON FRAC. 1	217796	94.3021	23/08/2002	23/08/2052
36	EL NUEVO RINCÓN	217986	465.4087	18/09/2002	17/09/2052
37	EL PEÑON	218282	185.0801	17/10/2002	16/10/2052
38	MINA DE AGUA	218797	2,239.4495	17/01/2003	16/01/2053
39	EL COLOSO	221269	276.0000	14/01/2004	13/01/2054
40	JODY	228902	100.0000	16/02/2007	15/02/2057
41	TERE	228903	329.5814	16/02/2007	15/02/2057
42	LUCIA	228904	327.5000	16/02/2007	15/02/2057
43	RENACIMIENTO	229918	31,700.2962	28/06/2007	27/06/2057
	TOTAL HECTARES		39,714.2802		

4.3. Surface Rights

Surface rights in the area of the mining concessions are held both privately and through group ownership either as communal lands, or Ejido lands.



La Guitarra Compañía currently leases surface rights covering 62 hectares from the community of La Albarrada under a Temporary Occupation Agreement in effect for 15 years commencing January 1, 2012. The current areas of operations, the existing mill and the majority of the existing infrastructure are located within these 62 hectares. La Guitarra Compañía holds 420 hectares of surface rights covering the Nazareno area of the property. La Guitarra Compañía also owns 34 hectares of surface rights in the Municipality of San Simon de Guerrero, which cover part of the Santa Ana Vein. Negotiations with the community of Mina de Agua are being conducted in order to allow the Company to access the old Mina de Agua mine. Figure 4.3 shows the surface rights owned and leased by First Majestic. In order to expand operations in other areas, First Majestic may need to purchase additional surface rights or negotiate additional temporary occupation agreements.



Figure 4-3: Map of La Guitarra Compañía Surface Rights

4.4. Permits and other liabilities

La Guitarra Compañía has all necessary permits for current mining and processing operations, including an operating license, a water use permit, an Environmental Impact Authorization ("EIA") for the La Guitarra and Coloso mines and exploration permits for Nazareno, Tlacotal, Trancas, La Guitarra NW, Temascaltepec and San Simon projects.



An application to obtain an EIA for mining operations in Mina de Agua is in the assessment stage at the Mexican environmental agency. A request to increase the authorized volume of water use has also been submitted to the authorities.

Exposure to environmental liabilities exists in the form of:

(1) discharge of acid drainage water pumped from the underground mine workings. At present this flow is discharged after being passed through a retaining facility, which is built into the drainage area below the portal and utilizes limestone-filled gabions to neutralize the acidic underground mine water.

(2) an impoundment containing over one million tonnes of tailings from the flotation processing plant. The tailings impoundment produces an acid seepage, which is also passed through the limestone-filled gabions.

(3) a mine waste rock dump located near the San Rafael mine portal. Some waste rock in the dump contain sulfides, which may produce acid mine drainage in the future although current levels are within tolerance.

To the extent known, there are no environmental or social issues that could materially impact the Company's ability to conduct exploration and mining activities in the district; on this respect, the Company relies on its relationship with the local communities, labour unions, and the government regulators, which are presently businesslike and amicable.



5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1. Accessibility

The Temascaltepec District and La Guitarra Silver Mine are located approximately 130 kilometres southwest of México City and approximately 65 kilometres from Toluca, México state's capital. La Guitarra is at an elevation of approximately 1,990 metres. The nearest local town is Temascaltepec, which is approximately 5 kilometres from La Guitarra Silver Mine.

International airports are located in both México City and Toluca. Major population centres in the area include Temascaltepec, San Simon de Guerrero and Valle de Bravo. There are paved roads throughout the Temascaltepec District. Current areas of operations are situated less than 2 kilometres from paved roads and are easily accessible by two-wheel drive vehicles. As the Temascaltepec District has a long history of mining, most areas of potential interest are located within a few hundred metres of gravel or paved roads.

5.2. Climate

The climate in the area is moderate in temperature and relatively humid. The average annual temperature is about 18°C. The warm season registers an average of 26°C with the month of May having an average high of 28°C; the cold season average is in the order of 8°C with the month of January registering the average low of 4°C.

Average annual precipitation is 1,200 mm with a wet season in summer usually during the months of June through October (rainfall greater than 60 mm per month) and a dry season usually during the months from November to May (less than 60 mm per month).

5.3. Local Resources, Infrastructure

The La Guitarra Silver Mine has good access to local infrastructure and services within the local center of Temascaltepec, where there are schools, shops, markets, banks, post offices, hotels, gas stations, and some professional services. Telephone and high speed internet connection at the mine site are provided by a link to the town of Temascaltepec.

The local communities provide a large labour pool and sufficient accommodation to support any current or anticipated levels of staffing. The national power grid crosses the property within 700 metres of the existing mill and offices. All current and projected production centres are near natural water sources. Medical clinics are located in the communities of Temascaltepec and San Simon de Guerrero, and hospitals are located in Valle de Bravo and Toluca. Proximity to the major industrial centres of Toluca and México City provides access to a large variety of suppliers. The lakeside resort of Valle de Bravo is located 14 km to the North and on weekends



caters to Mexico City residents. Valle de Bravo traffic does not pass the project site, nor is the project site visible from Valle de Bravo.

The infrastructure at the mine site consists of an analytical laboratory, drill core storage facilities, a flotation plant and mill, offices, repair shops, and warehouses. The various buildings at the mine site are joined together and supported by a computer network. Water is supplied from the mine workings and surface streams. The mine holds the right to take 192,000 cubic metres of water per annum from the Temascaltepec River.

5.4. Physiography

The mine and the plant facilities at La Guitarra are located in rough, hilly terrain. The elevation at the plant is approximately 1,990 metres. The topographic relief in the area is 500 metres. Much of the area is forest covered with pine trees that are less than 260 centimetres in diameter. In some areas, the underbrush is dense and difficult to pass through. The stream valleys have broad, relatively flat flood plains that are used for agriculture.



6. History

6.1. Mining in Temascaltepec through 1990

Mining in the Temascaltepec area started in the mid-1500s when the Spanish miners first arrived. Old tools, ancient buildings and antiquated mining shafts are found throughout the area. Early Spanish operations were focused in an area 4 kilometres southeast of La Guitarra in an area called Mina de Agua, where much softer rock made it easier to access the underlying silver and gold. Production in the Temascaltepec District has been ongoing since the 1550s.

In the 18th century, the Mina de Agua mine and surrounding areas were one of México's largest silver producers, generating approximately 10% of the country's total mineral wealth. The mine was well known for its very high, or 'bonanza'-type, grades of silver and gold, and historical records from the period refer to several kilograms of silver per tonne and several tens of grams of gold per tonne. Historical documents indicate that the production was valued in excess of \$100 per tonne, when prices were approximately \$15 per ounce for gold and \$1 per ounce for silver. One of these areas at the Cinco Senores shaft was abandoned due to flooding while in the midst of mining bonanza grade ore. Two efforts were made to finance the recovery of this mine; one in 1831 by London mine financiers and another in 1907 by financiers from France. Both efforts were thwarted by financial crises in those respective countries and the mine remains closed to this day.

Mining in the Temascaltepec District came to a halt in the early 19th century for two primary reasons: technology was unable to handle the underground flooding that occurred in several mining shafts and the 1810 War of Independence in México caused political upheaval in the Temascaltepec District.

Temascaltepec remained more or less idle from 1810 until the early 20th century when the American Rincón Mining Company began significant mining and smelting operations at Rincón, in the southeast portion of the Temascaltepec District. This operation continued until the mid-1930s, when it closed as a result of inadequate capital reinvestment. Over the life of the Rincón mine the Temascaltepec District was the third largest silver producer in México.

6.2. Modern Mining After 1990

Modern mining resumed in 1990 when the Compañía Minera Arauco returned to where the Spaniards were purported to have begun, as early as 1555, conducting exploration and development work on the Guitarra vein with an initial production rate of 30 tpd.



In 1993, Luismin S.A. de C.V. ("Luismin") acquired the property and began consolidating the Temascaltepec District. Luismin expanded the reserve base in La Guitarra Silver Mine and increased the milling capacity to 320 tpd.

In August of 2003, Genco Resources Ltd. ("Genco") purchased the entire Temascaltepec Mining District and the La Guitarra Silver Mine from Luismin. During the last few years that Luismin operated the mine, insufficient reinvestment was made to maintain or increase the Reserve base and thus the mining rate slowly began to decrease.

In 2003/2004, under Genco's direction, three surface drilling campaigns were conducted to expand reserves, test mineralization along the under-explored Nazareno vein, and to test a previously unexplored section of the Guitarra vein. The drilling efforts led to the discovery of the San Rafael and the San Rafael II zones. Underground mining was mainly sustained from these zones until 2013.

6.3. Corporate History

In 2010, Silvermex Resources Inc. ("Silvermex"), a publicly traded company listed on the Toronto Stock Exchange (the "TSX") gained control over all mineral concessions within the Temascaltepec District.

On July 3, 2012, First Majestic completed a plan of arrangement under which First Majestic acquired all of the issued and outstanding shares of Silvermex, whose primary asset was the La Guitarra Silver Mine located in Mexico State, México. Shareholders of Silvermex received 0.0355 First Majestic shares and C\$0.0001 for each share of Silvermex, with First Majestic issuing a total of 9,451,654 First Majestic shares and paying C\$26,623 in cash. The transaction was implemented by way of a plan of arrangement under the Business Corporations Act (British Columbia).

6.4. First Majestic Expansion

Since First Majestic became owner of the La Guitarra Silver Mine, it commenced a plan to expand this operation from 350 tpd to 520 tpd. Underground development in late 2012 was expanded and a spare ball mill from La Parrilla Silver Mine and some spare flotation tanks from the La Encantada Silver Mine were shipped to the La Guitarra Silver Mine. Construction of the foundations commenced in the third quarter of 2012 and all equipment for this expansion arrived on site in the fourth quarter of 2012. This expansion was completed in May 2013.



6.5. Modern Mining Production Statistics

Production figures since 1993 are presented in Table 6.1.

Table 0.1. La Guilaria Silver Mille production inquies since 133.	Table 6.1: La	Guitarra	Silver	Mine	production	figures	since	1993
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Year	Operator	k tonnes	tonnes tonnes per		Au
			day	(g/t)	(g/t)
1993	Luismin	8	22	320	5.2
1994	Luismin	25	69	256	3.6
1995	Luismin	65	179	321	3.2
1996	Luismin	94	259	286	3.6
1997	Luismin	107	294	299	4.3
1998	Luismin	107	292	331	3.9
1999	Luismin	105	288	298	3.6
2000	Luismin	114	312	255	3.3
2001	Luismin	102	278	227	3.9
2002	Luismin	80	218	209	3.6
2003	Luismin ⁽¹⁾	41	113	252	3.1
2004	Genco	42	115	273	3.6
2005	Genco	46	126	327	5.5
2006	Genco	54	148	341	3.1
2007	Genco	59	163	192	3.2
2008	Genco	68	185	176	1.5
2009	Genco	-	-	-	-
2010	Silvermex ^(2,3)	40	109	131	1.1
2011	Silvermex	81	222	196	1.8
2012	First Majestic ⁽⁴⁾	114	314	258	1.4
2013	First Majestic	172	470	152	1.4
2014	First Majestic	187	512	127	1.3

(1) Luismin handed operation of La Guitarra over to Genco effective August 1, 2003

(2) In 2010, Silvermex Resources gained contriol over Genco's mining concessions

(3) Operations at La Guitarra resumed in May 2010 following a work stoppage started in 2009

(4) First Majestic acquired the La Guitarra Silver Mine through the acquisition of Silvermex on July 3, 2012



7. Geological Setting and Mineralization

7.1. Regional Geology

The La Guitarra mine is located almost at the intersection of the NW trending Sierra Madre Occidental province ("SMO") and the southern edge of the E-W trending Faja Volcanica Transmexicana ("FVTM"). The portion of the SMO located south of the FVTM is also referred to as the Sierra Madre del Sur ("SMS") and is considered to be a separate province by some authors due to a slightly different subduction-tectonic history occurring after the Eocene and because the SMO is partially capped by the younger FVTM between the latitudes 18°30'N and 21°30'N. Herein we will use SMO to refer to the igneous province that runs from the north in Northern Chihuahua State to the south into Michoacán, Guerrero and Mexico states (Figure 7-1).

The SMO province formed as a result of the subduction of the Farallon plate under North America and consists of five main igneous complexes: (1) Late Cretaceous to Paleocene plutonic and volcanic rocks; (2) Eocene andesites and lesser rhyolites, traditionally grouped into the so-called Lower Volcanic Complex; (3) silicic ignimbrites mainly emplaced during two pulses in the Oligocene (ca. 32-28 Ma) and Early Miocene (ca. 24-20 Ma), and grouped into the "Upper Volcanic Supergroup"; (4) transitional basaltic-andesitic lavas that erupted toward the end of, and after, each ignimbrite pulse, which have been correlated with the Southern Cordillera Basaltic Andesite Province of the southwestern United States; and (5) postsubduction volcanism consisting of alkaline basalts and ignimbrites emplaced in the Late Miocene, Pliocene, and Pleistocene (Ferrari et al., 2007). The FVTM, located between the latitudes 18°30'N and 21°30'N is a closely E-W trending volcanic arc related to the subduction of the Rivera and Cocos plates under North America and consists of basalts and andesites with ages that span the Late Miocene to Recent (Figure 7-1). The basalt and andesite flows were erupted from volcanic centers related to faulting such as the NE trending Temascaltepec fault which is one of the most important structural features in the region. In the region, the SMO and the FVTM partially cap the Guerrero Terrane ("GT"). The GT is a composite terrane that was accreted to western Mexico in the Late Cretaceous during the Laramide Orogeny; it is submarine volcanic arc, characterized by submarine and rarely subaerial volcanic and sedimentary sequences that range in age from the Upper Jurassic to the Middle - Upper Cretaceous.




Figure 7-1: Map showing the Sierra Madre Occidental (SMO), Faja Volcanica Transmexicana (FVTM) and Guerrero Terrane (GT) modified from Bryan et al. (2008) and Campa and Coney (1983)

7.2. Local Geology and Stratigraphy

The stratigraphy exposed in the La Guitarra property consists low grade metamorphic and sedimentary rocks (schist, slates, phyllites, black shales and siltstones) of the Taxco Group, part of the Tierra Caliente Complex of the GT (Camprubí et al., 2001). For simplicity we will refer to these rocks as GT. The GT in the Taxco region, located approximately 75 km to the SE, have yielded 206 Pb/ 238 U ages of 137.1 ± 0.9 Ma to 135.6 ± 1.4 Ma which constrains this part of the GT to the Early Cretaceous (Campa et al. 2012). Outcrops of the GT in La Guitarra property occur to the southeast (SE; Mina de Agua - El Rincón areas) of the Temascaltepec fault and GT rocks have been detected by diamond drilling at the northwest area (NW; Coloso area). The GT hosts many of the veins southeast of Temascaltepec in the Mina de Agua and Rincón areas. The metamorphic and sedimentary rocks outcropping southeast of the Temascaltepec fault are typically thin bedded and weathered to a tan or reddish (hematite - jarosite) color due to



oxidation of syngenetic pyrite. The bedding is well defined in most outcrops but less so in areas where veining and hydrothermal alteration is more intense. Due to its tectonic setting and history the GT not only hosts epithermal deposits such as La Guitarra, but also Volcanogenic Massive Sulfide (VMS) and Sedimentary Exhalative (SedEx) deposits eg. Tizapa, a VMS deposit, is located only 16.5 km WSW from La Guitarra mine.

Resting on top of the GT it is the Balsas Formation, a conglomerate that is correlative with other conglomerates in Mexico such as those in Guanajuato, Zacatecas and Fresnillo. These conglomerates were deposited as a result of uplift and concomitant erosion during the Laramide orogeny. The Balsas Formation was sparsely and discordantly deposited on top of the GT during the Eocene (Camprubí et al., 2001). The Balsas Formation outcrops to the northwest of La Guitarra but it has not been recognized in the Mina de Agua and Rincón areas. Southeast of the Temascaltepec fault the GT is partially capped and intruded by the volcanic rocks of the SMO, FVTM and a granitic stock respectively. Northwest of the fault the GT and Balsas formations are almost totally covered by the volcanic rocks and intruded by stocks, felsic dikes and subaerial domes (Figure 7.2). A biotite - K feldspar (orthoclase - anorthoclase) bearing stock of granite-quartzmonzonite composition along with quartz bearing porphyritic dikes and domes intruded the older GT and Balsas formation during the Eocene and Oligocene. This stock has a massive structure with coarse-equigranular texture and contains K feldspar, quartz, plagioclase feldspar, biotite and hornblende in that order of abundance; some of the K feldspar and biotite in the rock may be due to high temperature potassic alteration predating the vein type epithermal mineralization. This granite is the host to the NW trending silver-gold bearing epithermal veins of La Guitarra area. Additionally, in some areas the granite is intruded by the porphyritic dykes that often follow the same structures that host the veins. The intrusion has not been dated at La Guitarra but an outcrop of presumably the same granite that is located 4.5 km SW from the mine yielded a K-Ar age (biotite) of 46.6 +/- 1.2 Ma (Chavez-Aguirre and Mendoza-Flores, 1998). Andesite flows and rhyolite ignimbrites, tuffs, lithic tuffs and volcanic breccias of the SMO rest unconformably on top of the GT, the Balsas conglomerate and the granite-stock. Andesites representing the base of the SMO are more clearly exposed SE of the Temascaltepec fault. Several veins nearby San Simon and Real de Arriba villages are hosted or partially hosted by andesite. At the La Guitarra area, the andesite package has a maximum thickness of 300 metres, according to García-Rodríguez (1982). Ignimbrites, tuffs, lithic tuffs and volcanic breccias of rhyolite composition lie on top of the andesites. The thickness of the rhyolite package in area is estimated to be 350 metres. Tuffs and volcanic breccias host mineralization at the Coloso and Nazareno areas. An outcrop of rhyolite tuff located nearby the Valle de Bravo Lake, 12 km NW from the mine, was K-Ar dated at 33.6 +/- 0.9 Ma by Chavez-Aguirre and Mendoza-Flores (1998). Rhyolites from and around the "El Peñon" dome, located 3.5 km west of the mine, were K-Ar dated at 31.6 +/- 0.8 Ma (Chavez-Aguirre and Mendoza-Flores, 1998) and ⁴⁰Ar/³⁹Ar dated at 34.87 +/- 0.15 Ma (Blatter et al., 2001). Since the domes and dikes in the



area both have rhyolite composition, it is possible that they are coeval, and therefore that implies that the GT, the 46.6 Ma-granite and probably the basal andesites of the SMO were intruded by the domes and dikes in the Oligocene between 34.87 and 31.6 Ma.

Miocene to Recent age basalts and andesites of the FVTM are the youngest rocks in the region, no dates for these rocks are reported around the area. The volcanic rocks of the FVTM partially cap all of the previous rocks and fill topographic depressions such as valleys and creeks. The basalts and andesites were erupted from volcanic centers associated with N and NE trending faults such as the Temascaltepec fault. Locally the basalts form two units; 1) a massive and relatively fresh flow unit and; 2) a mainly tuffaceous unit that is heavily weathered and forms rounded buff to reddish tinged outcrops. This tuff unit is aerially the most extensive and appears to overlie the less-weathered flow basalts.



Figure 7-2: Geology map of the La Guitarra property, Faja Volcanica Transmexicana (FVTM) and Sierra Madre Occidental (SMO).





Figure 7-3: Stratigraphic column of La Guitarra property, Sierra Madre Occidental (SMO), Faja Volcanica Transmexicana (FVTM) and Guerrero Terrane (GT). Refer to text for absolute ages of some units.

7.3. Structural Geology

Two models for the distribution of terrane boundaries in Mexico have been proposed by Campa and Coney (1983) and by Sedlock et al. (1993). The Sedlock model is very useful for outlining the tectonic evolution of the Mexican basement but the Campa and Coney model appears to tie in much more closely with the structural data (Starling, 2005). A description of the tectonic evolution of Mexican basement is beyond the scope of this report but can be reviewed in Sedlock et al. (1993) and Campa and Coney (1983). The Campa and Coney model suggests that the GT was accreted to western Mexico in the Late Cretaceous due to ENE to NE compressional stresses related to the Laramide orogeny. Additionally, the model proposes (based on mapping) a N-S trending terrane boundary, or suture, between the GT and the Mixteca and Toliman terranes that is located approximately 40 km west of La Guitarra mine.

Recent passive seismic studies and gravity studies have mapped the thickness of the crust and the geometry of the Rivera and Cocos tectonic plates (Ferrari et al, 2011). According to Ferrari et al (2011), the geophysical studies resolved that west of longitude 100°30' W, below the FVTM, the crust is thicker (50 km in average) whereas east of the longitude 100°30' W, the crust is thinner (40 km or less). The unconformity resolved by the geophysical studies is located approximately 70 km west from the interpreted western terrane boundary of the GT by Campa and Coney (1983) and approximately 40 km west from La Guitarra. A terrain boundary or suture



may be diffuse and have a width of tens of kilometres; the surface expression may not necessarily match the geophysical signature 40 km below surface. Thus, La Guitarra is located in between the geophysical unconformity proposed by Ferrari et al. (2011) and the interpreted terrain boundary of Campa and Coney (1983) which has important exploration implications, since sutures or crustal scale faults control the localization of important mineral deposits (Figure 7.4).



Figure 7-4: Map showing the terrain boundaries proposed by Campa and Coney (1983) and the crustal thickness variations from Ferrari et al. (2011)

A structural and remote sensing analysis carried out at La Guitarra by Starling in 2005, recognized five deformation events at La Guitarra area:

- 1. Early Laramide ENE to NE compression (D1) resulting in the main stage of fold-thrust contractional deformation affecting the GT;
- 2. Later Laramide NNE to N-S compression (D2) affecting the GT;



- 3. Early post-Laramide N-S to NNE extension (D3) affecting the GT and granite;
- 4. Main stage early Basin and Range NE to ENE extension (D4) affecting the GT, granite and SMO volcanic rocks, and
- 5. Recent (<12 Ma) to present day WNW extension (D5) associated with the dextral movement of the San Andreas fault system and the drift of the Baja California peninsula to the NW and affecting the GT, granite, SMO rocks and FVTM basalts and andesites.

According to Starling (2005), the emplacement and localization of intrusions in the region like the granite stock that occurs in the La Guitarra area may have been controlled by D1 NW fault zones that during D2 deformation were reactivated as dextral transpressional structures with dilatant jogs. The most important effect of the Laramide deformation in the La Guitarra granite was the development of a series of major WNW-trending faults across the district. These structures are clearly evident from satellite imagery and were the main fluid channels for the epithermal fluids that formed the veins at La Guitarra (Figure 7.5). The origin of these structures is unknown but may be related to a basement fault zone, perhaps developed as dextral structures in tandem with sinistral NE structures as a conjugate pair in response to D2 compression and thrusting (Starling, 2005).

The N-S to NNE extension D3 event is present at La Guitarra and also controls several intermediate-sulphidation epithermal and Carbonate Replacement (CRD) deposits in the Mexican Altiplano such as Fresnillo, Guanajuato, Velardeña and Naica. This phase of extension may have originated as a phase of relaxation following late-Laramide N-S to NNE compression or as a late back-arc extensional component of D2 deformation (Starling, 2005). This phase of extension developed the structures with open spaces that served as channels for Oligocene dikes and quartz veins. The location of ore shoots is controlled by structural intersections developed in a NNW to WNW-trending system of structures reactivated as a sinistral transtensional faults (i.e. left lateral strike-slip with a significant component of extension; Starling, 2005). The Basin and Range type, D4 deformation event, is most likely post mineralization and is best represented by the Temascaltepec fault which probably uplifted and exposed to deeper erosion levels the veins located at Mina de Agua and Rincón areas (this hypothesis should be further tested with geochemical and fluid inclusions work). The recent D5 deformation event (post mineralization) is evidenced in some exposures of the FVTM units that are locally tilted towards the east.





Figure 7-5: Aster imagery showing NW structures and the Temascaltepec Fault in the La Guitarra property.

7.4. Mineralization

Vein mineralization in the La Guitarra property is classified as Intermediate Sulfidation (IS) epithermal (see Item 8 for more details on epithermal deposits). There are in excess of one hundred epithermal veins within the property in five main vein systems: Comales–Nazareno, Coloso (Jessica and Joya Larga veins), La Guitarra (NW, Central and SE zones), Mina de Agua and El Rincón. The vein systems at La Guitarra property form a belt with an approximate width of 4 km that strikes NW – SE in excess of 15 km. Individual veins pinch and swell and vary in width from tens of centimetres to more than twenty metres. Economic zones, widths usually between 1 and 4 metres, are embedded in quartz (vein structure) having widths up to 20 metres (e.g. Guitarra vein). The ore shoots or economic zones can either be localized in the hanging wall or the foot wall of the vein structure.

Gangue mineralogy consists of banded quartz, amethyst quartz, colloform chalcedony, finegrained crystalline quartz, calcite, fluorite, pyrite, marcasite, barite, anhydrite, illite – smectite, adularia and alunite. Anhydrite and alunite veins are observed mostly filling narrow fractures. The ore mineralogy consists of proustite – pyrargyrite solid solution, electrum, acanthite, polybasite, sphalerite, galena and chalcopyrite. Secondary minerals such as malachite and smithsonite – hydrozincite (calamines) have been observed in some of the veins at Mina de Agua. According to Camprubí et al. (2006), the vein stratigraphy of the La Guitarra deposit can



be grouped in three mineralization stages: a) stage I is dominated by a base-metal sulfide association whereas stages II and III contain most of the precious-metal assemblages. Relative mineral abundance in each mineralization stage shows an increase on the content of Ag–Au bearing phases with time (Camprubí et al., 2006). Stage II is the most important in volume and contains the main mineralization. Base-metal sulfides precipitated early in all mineralization stages, their relative content increases with depth at any stage (Camprubí et al., 2006). Figure 7.6 shows a cross section of Guitarra vein consisting of a wide quartz vein with narrow shoots bearing gold and silver mineralization.



Figure 7-6: Cross section of the central portion of Guitarra vein, showing gold and silver shoots hosted by quartz vein. Notice the association of the Guitarra vein with a dike, which is typical for La Guitarra.

The main textures observed in the veins are coarse banding, fine banding, colloform, bladed quartz, and breccia textures. Fine banding, colloform banding (particularly dark bands containing fine grain sulfides) and bladed quartz textures have been observed to correlate with higher silver and gold concentrations. This association is not surprising since colloform banding



(chalcedony) and bladed textures are commonly associated with boiling and boiling is an important mechanism for deposition of precious metals in the epithermal environment. The breccias usually contain angular quartz clasts that range in size from a few millimetres to tens of centimetres and are supported by a silicified matrix or cemented by quartz or quartz and marcasite. Figure 7-7 shows some of the textures and minerals occurring in La Guitarra epithermal veins. Spatial association, orientation, mineralogy as well as gas chemistry and microthermometry analysis suggest that the veins along the property may have had a common source and therefore could be cogenetic. Thus, the aforementioned characteristic could apply to the five vein systems.



Figure 7-7: Mineral textures from La Guitarra epithermal veins; A) Galena and acanthite vein cross cut by late stage quartz, B) Banded quartz and colloform chalcedony textures with earlier breccia texture on the right, C) Bladded quartz textures, E) Banded quartz with thin band of acanthite and other sulfides (galena, sphalerite, pyrite, etc.), and E) Breccia made up of quartz clasts with open vugs partially filled by late stage marcasite.

Spatial association, orientation, mineralogy as well as gas chemistry and microthermometry analysis suggest that the veins along the property may have had a common source and therefore could be cogenetic. Thus, the aforementioned characteristic could apply to the five vein systems.



7.4.1. Comales – Nazareno system

The Comales – Nazareno system is located to the NW of the property and runs NW-SE for approximately 3.7 km. The system contains the Comales vein to the NW and the Nazareno, Nazareno del Alto and three more vein splays to the SE; the structures are hosted by SMO tuffs, breccias and granite. The vein and splays have been recognized with mapping sampling, diamond drilling and drifting by Luismin, Genco and Silvermex. Drilling by Silvermex, in 2011 and 2012, was carried out only along 1 km of the Nazareno veins and splays.

7.4.2. Coloso system

The Jessica – Joya Larga veins in the Coloso system, strike NW – SE and have a recognized length of approximately 2 km based on mapping and diamond drilling. The vertical extent of mineralization is known to a depth of 420 metres. Both veins are hosted by SMO tuffs and volcanic breccias although GT has been intercepted with deeper holes. Jessica dips to the SW and Joya Larga dips to the NE which indicates that both veins should intercept at depth although this possibility has not been explored with drilling. Figures 7.8 and 7.9 show two cross sections of Jessica and Joya Larga veins, these were interpreted based on drill-hole information; since the veins have opposite dip directions they may intercept at depth. Several vein splays have been recognized in the system, being the most explored; Jessica FW, Jessica HW and Joya Larga HW; usually the vein splays are narrower than the main veins (1 metre in average). Therefore the possibility is open for additional splays and the exploration potential remains open laterally and at depth.





Figure 7-8: Cross section of Jessica and Joya Larga veins, and splays with main geologic features as interpreted from drill-hole information





Figure 7-9: Cross section of Jessica and Joya Larga veins showing drill-hole intercepts and main geologic features.

7.4.3. Guitarra vein system

The Guitarra vein system consists of the W – E trending Guitarra NW and the NW – SE trending Guitarra Centro and Guitarra SE. These veins dip at angles between 70° and 90° to the SE. The Guitarra NW is recognized as a single vein in part due to soil coverage and little exploration, whereas the Guitarra Central and Guitarra SE (La Cruz, Guitarra and San Rafael mines) consist of the main vein and several splays at the hanging wall and the footwall; e.g. Santa Lucia vein. Figures 7.10 and 7.11 show cross section from Santa Lucia, these were interpreted based on underground geologic mapping and drill-hole information. The entire system has a recognized length of approximately 3.5 km and several ore shoots have been mined along approximately 2.4 km, mostly at Guitarra Centro. La Guitarra SE, Guitarra Central and the explored portion the Guitarra NW are hosted by granite. The known vertical extent of mineralization from surface to the deepest diamond drill-hole intersection is 700 metres.





Figure 7-10: Cross section of Santa Lucia vein and splays interpreted based on underground mapping and underground drilling. Notice that the vein and splays are interpreted to be bounded by faults.





Figure 7-11; Cross section of Santa Lucia vein and splays. Notice that the fault at the hanging wall shown on figure 7-10 probably merges with the fault at the foot wall in this section suggesting that the faults and veins have different strike orientations

7.4.4. Mina de Agua and El Rincón systems

The Mina de Agua and El Rincón systems located SE from the Temascaltepec fault are considered mid – long term exploration prospects. The main recognized veins at Mina de Agua are Veta Rica, Santa Ana, Maravillas, Animas and Sayas and the main recognized veins at El Rincón are Marmajas, San Luis and Nuevo Descubrimiento. The veins in the Mina de Agua and El Rincón systems have recognized lengths of 100 metres to 800 metres and widths of tens of centimetres to two - three metres. The veins trend NW and dip either NE or SW at angles between 70° and 90°. Mineralization at Mina de Agua and El Rincón is hosted by GT.

7.5. Hydrothermal alteration

The following descriptions of alteration mineralogy and processes are mostly based on field and core observations done in the Guitarra and Coloso vein systems. In the La Guitarra mine area many parts of the granite are altered, mainly comprising high-level silicification and argillic alteration. Hydrothermal alteration at the Coloso mine has been mainly observed in drill core and underground developments. The host tuff and breccia of the Jessica and Joya Larga veins



is usually strongly silicified for a few metres to tens of metres away from the vein. Away from the silicified envelope the host rock bears argillic and advanced argillic alteration, evidenced by the presence of smectite, illite-smectite, kaolinite, alunite and anhydrite. Alunite, kaolinite and anhydrite were observed filling fractures mostly at shallow elevations in some of the drill-holes. The alunite, kaolinite and anhydrite veins are most likely related to down-draping steam-heated meteoric waters which are common in many IS deposits in Mexico such as Fresnillo. Propylitic alteration is the most distal alteration assemblage with respect to the vein and consists of chlorite alteration with disseminated pyrite and calcite veining. Alteration within the veins is usually seen as strong silicification (particularly affecting rock clasts and matrix in breccias) and illite, illite-smectite. Supergene alteration develops mainly jarosite, goethite, hematite and sulfur.



8. Deposit Types

Vein deposits at La Guitarra have physiochemical and mineralogical characteristics of the Intermediate Sulphidation (IS) epithermal type and fit the vein deposit model proposed by Buchanan(1981) (Figure 8.1). Epithermal deposits form at shallow depths in volcanic-hydrothermal and geothermal environments. They define a spectrum with two end members, low and high sulfidation (Hedenquist et al., 1998). Figure 8.2 shows the genetic model for epithermal deposits proposed by Hedenquist et al., (1998). IS epithermal deposits form part of the epithermal spectrum and their genesis is complex due to the involvement of fluids with meteoric or magmatic origin during their formation and to the fluid evolution. According to several authors the fluids that formed the Mexican epithermal deposits represent a mixture of fluids with diverse origins varying from meteoric to magmatic (Simmons et al., 1988; Benton, 1991; Norman et al., 1997; Simmons, 1991; Albinson et al., 2001; Camprubí et al., 2006; Camprubí and Albinson, 2007; Velador, 2010). Camprubí et al. (2006) resolved that magmatic, crustal meteoric and surficial meteoric fluids were involved in the formation of epithermal veins at La Guitarra. Camprubi's conclusion was based on gas chemistry data from fluid inclusion study combined with the study of oxygen and hydrogen stable isotope data.





Figure 8-1: Geologic model for Mexican epithermal veins adapted from Buchanan (1981)





Figure 8-2: Genetic model for epithermal deposits proposed by Hedenquist et al. (1998). Green ellipse represents the approximate environment for the La Guitarra veins.

The epithermal veins of La Guitarra are spatially associated with the Oligocene age volcanic and subvolcanic rocks of the SMO. 40 Ar/ 39 Ar ages obtained from adularia samples were 32.9 +/-0.1 Ma and 33.3 +/- 0.1 Ma (Camprubí et al., 2003). These results indicate that epithermal mineralization at La Guitarra is coeval with the "El Peñon" dome (31.6 +/- 0.8 Ma to 34.87 +/-0.15 Ma), the tuff NW from mine (33.6 +/- 0.9 Ma) and probably other domes and the rhyolite dikes of the SMO in the area. The temporal relation between the mineralization and the domes suggests a genetic relation between the two. A genetic relationship between rhyolite domes and epithermal mineralization has been suggested also at Fresnillo (Velador et al. 2010).



9. Exploration

Exploration at the La Guitarra property employs prospecting, surface and underground (including abandoned mines and adits) mapping and sampling and drilling (underground and surface). Previous Exploration works following the 2010 Technical Report were carried out in the property between January 2011 and June 2012 by Silvermex and consisted of soil MMI (Mobile Metal Ions; 1,583 samples) geochemistry on the Comales-Nazareno, Coloso and Guitarra NW areas.

First Majestic has been carrying out exploration activities such as prospecting, mapping and sampling in abandoned mines and at the Mina de Agua and Nazareno areas. Surface mapping and prospecting have also been performed in the Guitarra area (Concha vein and Timbres), Nazareno and Mina de Agua.

Vein structures are recognized on surface on outcrops and old pits that are very common in the property; mapping of old pits and outcrops helps defining lateral continuity of veins. Outcropping quartz veins and/or silicified breccias are sometimes easily identified because they form linear outcrops that stand out from the softer soil since they are more resistant to erosion; in fact some veins such as La Guitarra, La Concha and others can be traced on the Light Detection and Ranging Digital Elevation model ("LiDar™") due to the high resolution of the images. Additionally, since the soil and vegetation cover is common, the identification and mapping of vein floats is commonly employed to target new veins or lateral continuity of vein structures. Once the continuity of a vein is inferred or defined, trenching is used to remove the soil cover and be able to sample the bedrock.

Hydrothermal alteration is not easily identified on the wall rock since the vegetation cover is common. Therefore, veins, breccias and rhyolite dikes that are occasionally associated with veins and fault structures show strong silicification and traces of quartz – alunite alteration. Supergene alteration is commonly associated with vein structures in the form of iron oxides (hematite – goethite) jarosite, and sometimes traces of copper oxides such as malachite – brochantite.



10. Drilling

10.1. Drilling campaigns

Between July 2006 and August 2008, Genco conducted a large scale extensive exploration program within the La Guitarra property. Initial surface mapping and sampling was followed by surface diamond and reverse circulation drilling. A total of 85,645 metres were drilled in 452 drill-holes, of these 289 were diamond drill-holes and 163 were reverse circulation drill-holes. The RC drilling campaign was focused on, but not limited to, testing the Creston target. The diamond drilling campaign was designed to explore Coloso, Nazareno, Santa Ana, La Guitarra and part of the Creston target.

In August 2011, Silvermex resumed exploration activities and completed a drill program of 7,645 metres in the Coloso and Nazareno areas. In 2012, Silvermex completed a diamond drill program of 32,828 metres, 20,596 metres of these targeted Coloso and Nazareno and 12,232 metres were drilled underground at La Guitarra mine. Silvermex drilling program consisted of a total of 262 diamond drill-holes for a total of 40,473 metres drilled between January 2011 and June 2012.

In 2014, First Majestic drilled 6,188 metres in 57 holes, 50 holes were drilled from underground in La Guitarra mine and 7 holes were drilled from surface on the Guitarra NW area. Most of the drilling by First Majestic between July 2012 and December 2014 (27,536 metres) has been focused on infill and delineation of known mineralization at the La Guitarra mine and some expansionary holes (8,039 metres) were drilled to explore the NW and SE extensions of the La Guitarra vein (Figure 10.1). First Majestic has drilled 35,575 metres in 262 diamond drill-holes for the period between July 2012 and December 2014.





Figure 10-1: Map showing areas drilled by Silvermex and First Majestic during drilling campaigns 2011 to 2014

10.2. Drilling categories

First Majestic categorizes drill-holes into "delineation holes" (used to guide and support the mine operation), "infill holes" (to improve quality of known resources) and "exploration holes" (to add new resources). Figure 10.2 shows the classification of diamond drill-holes used by First Majestic. The core diameters used for drilling at La Guitarra are 36.4 millimetres ("TT46"), 47.6 millimetres ("NQ") or 63.5 millimetres ("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. No reverse circulation ("RC") drilling has been carried out by First Majestic. First Majestic uses a contractor for most infill and exploration holes whereas delineation holes utilize the Company's own rigs and personnel.





Figure 10-2: Diamond drilling classification applied by First Majestic

10.3. Core handling and storage

The standard practice followed by First Majestic's drillers and contractors under First Majestic's supervision is to extract the core every 3.05 metres (length of two drilling rods, "the runs"), the core is extracted from the core barrel and placed onto a sample collection device, break the core to make pieces that fit into the core box (when necessary), mark the core, using a coloured pencil, at the place where it was broken, place the core into the core boxes and place a wooden block at the end of the run with the total depth and core length recovered being noted. The core box, once full, is closed with a top lid and stacked for transportation, core boxes and lids used by First Majestic are made of plastic.

Core boxes from underground drilling are transported and delivered to the core shed by drillers every morning. The core boxes are properly closed and box lids are secured with raffia fiber or rubber bands before transportation. The condition of the boxes and core is checked by one of the exploration geologists at the core shed upon receiving them. 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. In both cases, the core boxes are properly closed and the box lids are secured with raffia fiber or rubber bands to prevent core from falling out of the box during transportation. After the core has been logged and sampled the relevant boxes are placed on racks within the secure environment of the core shed.

Upon acquisition of La Guitarra, First Majestic rebuilt and expanded the capacity of the old core shed in order to improve the core handling and storage practices.



10.4. Data collection

Data collected at La Guitarra includes, but is not limited to, collar surveys, downhole surveys, logging (lithology, alteration, mineralization, structure, RQD, sample intervals, etc.), specific gravity ("SG"), and geotechnical information. The data collection practices employed by First Majestic are consistent with standard exploration and operational practices. The data collection practices followed in the past by Genco and Silvermex are also considered standard practices.

10.4.1. Collar survey

Since 2010, drill-hole collars are surveyed by the engineering department at La Guitarra mine using a Leica total station. Prior to 2010, a Sokia total station was used by Genco. Collected information includes X, Y, Z coordinates, azimuth and dip angle. Collar data is downloaded from the total station and then uploaded into a mine server. A certificate is also prepared, stored and shared in the mine server since 2012.

10.4.2. Downhole survey

Between 2008 and 2012 downhole surveying at La Guitarra for the exploration of Jessica – Joya Larga and Comales – Nazareno was done by the drilling contractor at 50 metre intervals or less using a Reflex tool. Downhole surveying from July 2012 to December 2013 was performed using a Reflex tool and a PeeWee tool was used in 2014. Downhole surveys were collected at 50 metre intervals or less in infill and exploration holes between July 2012 and December 2014. Downhole surveying was not done for short and small diameter delineation holes. The Reflex tool reports: programed depth of reading in metres, azimuth in degrees, dip in degrees and magnetic field in nanoteslas. A six degrees correction to the East is applied to every azimuth reading to compensate for magnetic declination. Between 2008 and February 2014, the downhole surveys were reported handwritten in paper along with the daily drilling reports turned in by the drillers. Digital reporting was implemented in March 2014.

10.4.3. Logging and sampling

Core logging takes place in a core shed facility located close to the mine offices and consists of labelling depth intervals (from-to) on core boxes and lids, checking that the wooden blocks annotated with depth information are not misplaced, estimating Rock Quality Designation (RQD), estimating core recovery, describing geology (lithology, structures, mineralization, alteration, etc.), photographing core and sampling for chemical assays and SG. Core logging is initially recorded by hand (paper copy) and then transcribed to electronic spread-sheet templates. Before sampling the core is oriented and marked for assay and SG samples by the geologist. Afterwards, the core boxes with intervals selected for assay or SG sampling are taken to the sampling facility located within the core shed where the samples are cut with an electrical-powered diamond saw. In the case of assay samples, one half of the core is retained in the core



box for further consideration and the other half is placed in a properly marked sample bag for shipment to the laboratory; sample number and intervals are also recorded in the core box. The length of the assay samples ranges between 0.15 and 1.5 metres in mineralized or moderately to strongly hydrothermally altered zones and between 1.0 and 3.0 metres in weakly altered or visibly barren zones. The length of SG samples ranges between 10 to 25 centimetres.

10.4.4. Specific Gravity

Traditionally, Genco and Silvermex used an SG of 2.5 for tonnage estimation at La Guitarra; according to the 2010 Technical Report, this SG was determined by a series of tests performed. In May 2014, First Majestic implemented a SG determination procedure based on the water immersion method. Core fragments measuring 10 to 25 centimetres are cut with the diamond saw, weighted in air (dry weight), then wrapped with plastic (kp; kleen pack), weighted again in air (air kp) and finally weighted under water (kpH₂O). The formula for calculation of SG is as follows:

Additionally, First Majestic has recently implemented a quality assurance and quality control (QA/QC) protocol for SG determination that consists of: SG determinations in duplicate, weighing the sample again after removing the plastic (to ensure that water did not make it through the plastic), and the use of piece of metal as standard. Sample checks are also shipped to SGS Lab for SG determination using the wax coating immersion method. Correlations greater than 0.9 were observed for duplicate pairs and checks compared against primary samples using regression plots. The SG data is collected on paper and then transcribed into spread-sheets. Specific gravities were determined for rock and vein material from all the drill-holes of the Coloso area and for a selection of samples from the La Guitarra mine. All data were collected in paper and then transcribed into electronic spread-sheets.

10.4.5. Core Recovery and Geotechnical logging

Core recoveries are estimated by geologists at the core shack. The process consists on assembling or putting back together pieces of core, measuring the real core length recovered and then capturing the recovered lengths per drill run on paper. After the recoveries are captured in paper, the information is transcribed into an spread-sheet template were the percent recoveries are calculated by dividing the measured length of core recovered over the length of the drill run. Typical core recoveries in host rock and quartz veins is over 95% whereas in brittle fault structures the recoveries can be in the range of 20 to 50%.



Geotechnical core logging was implemented late in 2014 by First Majestic. All of the core from the Jessica and Joya Larga drill campaigns conducted by Genco and Silvermex was re-logged for available geotechnical data at the end of 2014. Data collected includes RQD, quantitative and qualitative data on joints and fractures and rock hardness. The data was initially recorded in hard copy format and then transcribed into electronic spread-sheets for estimation of rock quality.



11. Sample Preparation, Analyses, and Security

This section covers the sampling program from which the data used in the 2014 Resource Estimation for the Coloso, La Guitarra, Nazareno and Mina de Agua (Veta Rica and La Tuna veins) areas was derived. The sampling, handling and assaying methods used at La Guitarra during the 2008, 2011and 2012 drilling exploration campaigns were generally consistent with industry standards. From 2009 to 2010 there was no exploration drilling program. The following subsections describe the sample preparation procedures and analysis in each drilling campaign:

11.1. 2008 Sample Preparation, Analysis and Security

In 2008, Genco conducted the exploration program at La Guitarra property. Diamond drill core samples and channel samples were used at La Guitarra for mining control as well as for resource estimation.

Investigation of possible vein extensions, the search for new veins and the delineation of the veins between mine levels was accomplished by various diamond drill campaigns. Drill core was logged in La Guitarra's facility at the mine site by the geologist, the core was oriented properly and marked before sampling. All drill core intervals selected for sampling were cut in half using either a diamond saw, or a mechanical splitter, by the designated core sampler. The mechanical splitter was used on samples where it was suspected that the cooling water for the saw might wash out the mineralization. One half of the core was retained in the core box for further consideration and the other was placed in properly marked sample bags for shipment to the laboratory. Collars of all diamond drill-holes were surveyed and the holes were surveyed down the hole.

Drill core was sampled across the vein at various lengths depending on the vein width; in general, 1.5 metre long samples were taken from mineralized structures such as veins, stockworks, veinlets and disseminations with strong alteration. Some samples were less than one metre however when a change in the mineralization was evident. Samples of 3 metres to 5 metres lengths were taken for that rock which exhibited neither alteration nor evident mineralization.

Chip samples were taken underground by a trained sampler when new exposures of the veins were evident in the workings. Samples were taken by chipping with hammer and chisel across the sample length in a channel fashion with lengths set so that the individual veins and the waste sections within the veins were sampled separately. The samples were normally less than a metre in length. The wall rocks at the sides of the veins were sampled separately from the veins. Samples were placed in appropriately marked bags and transported to the laboratory. The samples were marked and located using the underground survey markers for control. Due to the normal production priorities not all of the stope lifts were sampled.



Genco implemented a quality control system that included the insertion of blanks, duplicates and reference material in the sample stream. To check the assay results, the La Guitarra laboratory inserted 3% of laboratory check samples.

A program to send samples to external laboratories for analysis checks was under the direction of La Guitarra's Superintendent of Geology and included the following: one half of the sawn core was sent to the mine site lab for preparation, after the initial preparation, crushed and pulverized samples were split into two, one half sent to the mine lab and the other half to ALS Chemex ("ALS"), a commercial laboratory. The check samples sent to ALS were either crushed lab' rejects or ground pulp rejects. The samples were sent to Hermosillo where they were pulverized in the ALS lab, and then the prepared pulps were sent to ALS lab in Vancouver to be fire assayed. All sample rejects and pulps were returned to the mine for storage after analysis.

La Guitarra assay laboratory followed standard protocols for sample preparation and assaying. At La Guitarra laboratory the samples were prepared as below:

- Crushed to 1/8 inch with a jaw and cone crusher
- Riffle split to approximately a 200 gm sample
- Dried
- Pulverized in a disk pulverizer with 90-95% passing 200 mesh screens.
- The pulverizer and crusher were cleaned by compressed air after each sample.

La Guitarra laboratory analyzed all samples by fire assay with gravimetric finish. However, no documented analytical procedures are available from the time of this analysis.

ALS analysed all samples by 4-Acid ICP-AES. Samples containing more than 10 g/t Au or more than 100 g/t Ag were re-analyzed using a fire assay with a gravimetric finish for both silver and gold, or an acid digestion with an AA finish for silver.

All core samples from the 2008 drilling campaign were kept and stored at La Guitarra core storage facility.

It is the author's opinion that sample handling, storage and shipping procedures carried out by Genco followed industry standards at that time. However, some of the earlier drill-hole samples with analytical procedures that were not well documented have since been mined out.

11.2. 2011 and 2012 Sample Preparation, Analysis and Security

Sample Preparation

In 2011 and 2012, Silvermex conducted the exploration program at La Guitarra property. Sample handling, storage and shipping procedures carried out by Silvermex, followed the current industry protocols and standards. Diamond drill core samples and channel samples



were used by Silvermex for mining control as well as for resource estimation. The drill core samples collected during the 2011 surface exploratory drilling campaign were prepared and analysed by ALS. The drill core samples from the 2012 exploratory underground diamond drilling program were sent to Inspectorate for preparation and analysis

The chip and channel samples that were collected during the 2011 rock geochemical sampling work and other underground samples were prepared and analyzed at the La Guitarra mine assay laboratory by La Guitarra personnel. The drill core samples from delineation holes were also prepared and analysed at the on-site laboratory but the results from this sampling are not documented in this technical report.

La Guitarra personnel collected drill core samples during the various phases of the 2011 and 2012 exploration programs.

The 2011 and 2012 drill cores were placed in wooden boxes at each drill site and transported by either the drillers or the supervising geologist to the core logging facility at the La Guitarra mine site. The core recovery lengths and percentages were calculated and lithology, structure, alteration and mineralization were logged.

The core recovery percentages were determined following which additional geotechnical data was obtained. The lithology, structure, alteration and mineralization of the drill core was then logged. These observations were recorded as written notes on pre-prepared log sheets. During the geological logging the geologist marked the drill core intervals that should be sampled, controlled by the recognition of lithological contacts, mineralization, alteration and structural features. The drill core was cut in half lengthwise using a diamond rock saw for those sections deemed worthy of sampling and analysis. One half of the sawn drill core was placed in a 6-mil sample bag and the other half of the drill core was returned to its correct position in the core box. A unique sample assay tag was placed in each core sample bag before the bag was securely sealed. The drill-hole number, drilling interval and sample assay tag number were recorded for later transcribing to "Chain of Custody" documents that accompanied the samples to the assay laboratory. Quality control standard and blank samples were scheduled to be inserted into the sample sequence at an average rate of 1 standard or 1 blank per 20 drill core samples, representing approximately five percent of the total samples.

After the drill core had been logged the observations recorded in hand-written drill logs were entered into a matrix-style spreadsheet. The core boxes were labelled with the drill-hole number, box number and drilled interval contained in each box. The core boxes were stored in pre-constructed core racks. The sealed, documented and bagged drill core samples were placed in larger poly sacks that were securely sealed and stored in the drill core warehouse prior to shipping them to their respective preparation and assay laboratories. Shipping documents accompanied each drill core sample shipment and any differences between the



shipping documents and that received by the laboratory were to be reported immediately to the company.

The drill core samples collected during the 2011 surface diamond drilling program were sent to ALS' sample preparation facilities in Guadalajara, Jalisco, Mexico where they were prepared prior to being air-shipped to ALS' assay laboratory in North Vancouver, British Columbia, for analysis.

Drill core samples from the early 2011 underground exploratory diamond drilling program were sent to Activation Laboratories Ltd.'s sample preparation facilities in Zacatecas, Zacatecas, Mexico. The samples were prepared and then air-shipped directly to Activation Laboratories' assay laboratory in Ancaster, Ontario, Canada, for analysis. Later, the underground exploratory drilling samples were sent to Inspectorate sample preparation facilities in Hermosillo, Sonora, Mexico where they were prepared prior to being air-shipped to Inspectorate's assay facilities in Sparks, Nevada, U.S.A. for analysis.

The drill core samples from the 2012 exploratory surface drilling program were sent to ALS laboratory at the Mexico and Canada facilities. Inspectorate laboratory in Nevada was used as secondary lab for check samples.

Drill core samples from the underground diamond drilling program were sent to ALS and Inspectorate laboratories for preparation and analysis.

11.3. 2011-2012 Sample Analysis and Assays

The 2011 and 2012 rock geochemical samples and the drill cores from delineation diamond drilling were analysed by La Guitarra personnel at the La Guitarra mine assay laboratory. The in-house rock geochemical and drill core samples were dried and then crushed to minus 1/8 inch with jaw and cone crushers. The crushed material was then riffle split producing a 200-gram sub-sample which was pulverized to 90 to 95% passing the 200 mesh. All the crushers and pulverizers were blown clean using compressed air after processing each sample. Normal fire assay digestion and gravimetric procedures were employed for each sample using a 20-gram subsample. The resultant dore bead was weighed using a micro balance, the silver was removed from the bead using nitric acid, and then the remaining gold prill was weighed to determine grade. The on-site La Guitarra laboratory routinely re-assayed approximately 3% of all of the samples with additional check-assaying of anomalous precious metal values. The program to check-assay samples at an independent laboratory was directed by the Superintendent of Geology. The La Guitarra laboratory does not have ISO certification but follows industry standard sample preparation and assaying protocols.



La Guitarra personnel implemented a quality control system for the in-house assaying procedures that included the insertion of blanks, duplicates and reference material into the sample stream.

The drill core samples collected during the 2011 surface diamond drilling program were sent to ALS' sample preparation facilities in Guadalajara, Jalisco, Mexico where they were logged into ALS' sample tracking database. Each sample was placed into a stainless steel tray and dried for approximately 4 to 8 hours, depending upon its moisture content. Then each sample was progressively crushed by primary and secondary crushers until more than 70% of the crushed sample passed through a 2 mm (Tyler 10 mesh) screen. Standard crushing practices also included repeatedly cleaning the crusher, prior to, during and after each sample batch using coarse quartz material, and air cleaning the crushers after each sample. The sample material was then riffle split to obtain approximately 250 to 500 grams and the remaining coarse reject material was returned to La Guitarra for storage in their warehouse for possible future use. The 250 to 500 gram sample, size dependent upon requested analyses, was pulverized using a disk pulverizer until 85% of the pulverized material passed through a 75 micron (Tyler 200 mesh) screen. Then 250 grams of finely pulverized material was transferred to a paper envelope. The bagged sample pulps were later air-shipped directly to the ALS' facilities in North Vancouver, Canada for analysis. All of the sample pulps were initially analyzed for 33 elements using conventional ICP-AES analysis (ALS' Procedure ME-ICP61). This analytical procedure uses a mixture of four acids to digest the sample pulp. The elements and their concentration are determined by inductively coupled plasma and atomic emission spectroscopy ('ICPAES'). The determined elements are: Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W and Zn.

Gold values were determined using a combination of fire assay fusion with atomic absorption spectroscopy analysis (ALS' Procedures Au-AA23). The Au-AA23 fire assay/AA procedure utilizes a 30-gram weight of sample pulp for analysis with 0.005 and 10 ppm as the lower and upper detection limits. The procedure involves the fusion of a metal bead that is then digested in acids, cooled, diluted and analysed by atomic absorption spectroscopy versus matrix-matched standards. Silver values were determined using ICP-AES and Fire Assay Gravimetric Finish methods. When the analytical results exceeded over limits of 10 ppm for gold or 100 ppm for silver a re-analysis is automatically carried out using gravimetric procedures (ME-GRA21) which is a fire assay of a 30-gram charge with a gravimetric finish.

The later 2011 and 2012 underground exploratory diamond drill core samples that were sent to Inspectorate sample preparation facilities in Hermosillo, Sonora, Mexico were handled in much the same way as those sent to ALS. Drill core samples were weighed, and dried prior to crushing to less the ½ inch diameter. The primary crushed material was then further crushed in roll crushers to less than 10 mesh. A 300- to 400-gram portion of the crushed material from



each sample was extracted using a Jones riffle. The remaining 'reject' crushed rock was returned to its original plastic sample bag and packed in containers for return to La Guitarra at periodic intervals. The split sample portion was then pulverized by a ring and puck pulveriser to 90 to 95 percent less than 100 mesh, and a 30-gram portion was extracted to use as a sample aliquot. The bagged sub-samples were then air-shipped to Inspectorate's assay facilities in Sparks, Nevada, USA for analysis.

The underground drill core samples were analysed for gold, silver, lead and zinc plus a suite of 30 elements using Inspectorate assay procedures Au-1AT-AA, Ag-4A-TR and GV, Zn-4A-OR-AA, Pb-4S-OR-AA and 30- 4A-TR. The gold assays were obtained using a 30g sample, using standard fire assay fusion and digestion with a mixture of 4 acids and analysing by atomic absorption finish procedures. Over-limit gold values resulted in the sample pulp being reassayed using fire assay fusion and gravimetric finish procedures. The silver values were initially determined by digesting a sample with a mixture of four acids, doing a fire assay fusion and atomic absorption finish procedures. If a sample returned an over-limit silver value then the sample pulp was re-assayed using fire assay fusion and gravimetric finish procedures.

Thirty trace elements were analysed using four acid digestion and ICP finish procedures. Inspectorate routinely performs its own QA/QC procedures on approximately five per cent of the total samples submitted for analysis.

There is no information related to the analytical procedures by Activation Laboratories.

11.4. 2011 and 2012 Sample Security

The 2011 and 2012 drill core samples were stored in the secure core processing and storage warehouse on the Property prior to their shipment via bonded courier to the sample processing laboratories of either ALS in Guadalajara, Jalisco, Mexico or Inspectorate in Hermosillo, Sonora, Mexico. All of the samples were securely sealed and Chain of Custody documents accompanied all shipments. The analytical results from these samples were received by authorized Silvermex and La Guitarra personnel using secure digital transfer transmissions, and these results were restricted to qualified Silvermex personnel prior to their publication.

Upon completion of the drilling program the diamond drill core and assay sample rejects were catalogued and securely stored in the core storage facility at the La Guitarra mine site.

It is the author's opinion that the sample preparation, analysis and security of the 2011 and 2012 drilling campaign met the industry standard at the time and can support the current mineral resource and mineral reserves.



11.5. 2014 Sample Preparation, Analysis and Security

Underground drilling core samples and channel samples were used for ore control at La Guitarra and Santa Lucia. Channel samples were used at Veta Rica and La Tuna in Mina de Agua areas. Since 2014, the selection of primary and external laboratory, sample preparation and selection of analytical methods have been reviewed by First Majestic internal QP's.

Core logging takes place in the La Guitarra's core shed facility located close to the mine offices and consists of labelling of from-to (depth intervals) on core boxes, estimating RQD (Rock Quality Designation), estimating core recovery, describing geology (lithology, structures, mineralization and alteration), photographing core boxes and marking of assay and SG (specific gravity) samples. The core is oriented and marked for assay sampling by the geologist. Afterwards, the core boxes with intervals selected for assay or SG sampling are taken to the sampling facility located also within the core shed, where the samples are cut with a diamond saw. In the case of assay samples, one half of the core is retained in the core box for further consideration and the other half is placed in a properly marked sample bag for shipment to the laboratory. The length of the assay samples ranges between 0.15 and 1.50 meters in mineralized or moderately to strongly hydrothermally altered zones and between 1.00 and 2.00 meters in weakly altered or visibly barren zones. The length of SG samples ranges between 0.15 meters.

Channel samples are marked and collected underground and sometimes at surface across veins by trained samplers. Channel samples are first marked with paint by samplers being supervised by a geologist; sample limits should honor vein/wall rock contacts and/or textural/mineralogical variations. The sample lengths applied are range from 0.15 to 1.50 meters within mineralized or hydrothermally altered material and from 1.00 to 1.50 meters in weakly altered to visibly barren material. The channels are first cut with a handheld (1,300 watts) Hilti brand diamond saw and afterwards, the sample is chipped with a hand held (2,300 watts) Hilti brand percussion hammer.

The channel samples are collected by chipping with a hammer across the sample length in a channel like fashion. The sample lengths are set so that the individual veins and the waste sections within the veins are sampled separately. Similar to channel sampling, the wall rocks at the sides of the veins are sampled separately from the veins. Distinction between vein and wall rock is generally easy due to very sharp textural and mineralogical differences between quartz vein and host rock (granite, volcanic rock, volcanic breccia, shales, etc).

During 2013 and 2014 a total of 4,3024 and 4,5470 samples from underground delineation holes and surface were sent to La Guitarra's Lab. Underground samples include back and wall channel samples and muck samples whereas surface samples include samples collected on outcrops, stock piles and plant. During 2013, 1057 blanks, 1052 field duplicates and 17



standards were inserted in the sample stream which represents an insertion rate of quality controls of 5%. During 2014, 1607 blanks and 424 field duplicates were inserted in the sample stream which represents an insertion rate of 4% in the sample stream. La Guitarra's laboratory is not a certified laboratory; however, it follows the standard protocols for sample preparation used by First Majestic's Central Lab, which is in the process of obtaining the ISO 9001 certification.

Underground core samples were sent to SGS laboratory located in Durango Mexico. Channel samples were submitted to La Guitarra laboratory.

At SGS, samples are prepared as follow:

SGS analyzes a maximum of 60 samples per batch. Samples at SGS are prepared using the PRP89 preparation method and WGH79 for sample weights. This method is described as follows:

- 1. The entire sample is dried at temperature of 100°C from six to eight hours or until the weight sample is constant.
- 2. The sample is weighted using method WGH79. The PRP89 method is applicable for all sample weights.
- 3. The entire sample is crushed to 75% passing to 2mm using a Rocklabs Boyd Crusher and a Terminator jaw crushers.
- 4. A 250g sub-sample of the crushed material is split using a riffle splitter.
- The 250g sub-sample is pulverized to 85% passing 75 microns using a Labtech ESSA LM2 pulveriser. About 100g is used for analysis and laboratory internal quality control. The remaining 150 g are stored in boxes for 90 days. After the pulps are returned to La Guitarra Mine.

All coarse reject and pulp reject material is stored at SGS for 90 days. After this period, pulps and rejects are sent back to the La Guitarra mine. At the La Guitarra, the samples are stored in a secured core-shack.

The analytical methods for the samples submitted to SGS laboratory are listed in table 11.1.



Code	Element	Limits	Description
FAA313	Au	0.01 g/t	30 g, Fire Assay, AAS finish.
AAS21E	Ag	0.5-300 g/t	2 g, 3-Acid digest, AAS finish. Samples with over detection limits results are analyzed by FAG313.
FAG313*	Ag	10-1000000 g/t	30 g, Fire Assay Gravimetric Finish. Used only for AAS21E, Ag upper detection limits.
ICP14B	multi-element	Range from 0.5-10000 ppm	0.25 g, 2-Acid/Aqua Regia Digestion/ICP-AES Package.
ICP90Q**	Mn	0.01%	0.20 g, Sodium Peroxide Fusion/ICP- AES Package. Used only for ICP14B, Mn upper detection limits. 0.20 g, Sodium Peroxide Fusion/ICP- AES Package. Used only for ICP14B.
	Pb	0.05%	Pb upper detection limits. 0.20 g, Sodium Peroxide Fusion/ICP- AES Package. Used only for ICP14B,
	Zn	0.05%	Zn upper detection limits.

Table 11.1: SGS 2014 Analytical Methods and Detection Limits

* AAS21E over limit analysis; ** ICP14B over limit analysis

All samples were analyzed by AAS21E and ICP14B. Over limit AAS21E results were also analyzed by FAG313. Since April 2014 samples returning greater than 270 g/t Ag were analyzed by FAA313 to ensure there is overlapping in reporting between the fire assay and the acid digestion methods.

Over limit ICP14B manganese, lead and zinc results were also analyzed by ICP90Q.

At La Guitarra laboratory samples are prepared as follow:

- 1. The samples are weighted. Usually the lab received samples weighting between 1,000 and 3,000 grams.
- 2. Samples are dried for 8 hours at 105°C in an electric oven.
- 3. Once the samples have been dried, control blank samples are inserted every 20 samples in the sample batch.
- 4. Samples and blanks are then crushed using a Terminator crusher to 80% passing the 6 mesh (~3.3 millimeters). Sieve checks are performed every 50 samples. After crushing, samples and blanks are homogenized, split and further reduced from 250 to 300 gram samples using a Jones splitter.
- 5. The crushed samples and blanks are then pulverized to 80% passing the -150 mesh; sieve checks are performed every 50 samples.
- 6. The pulverized samples and blanks are homogenized, split and reduced to 80 100 grams pulp samples. The crusher, pulverizer, splitter, trays, sieves and other materials



and utensils used during sample preparation are cleaned between samples using compressed air.

The analytical methods and detection limits employed by La Guitarra are shown in Table 11.2. Aqua Regia digestion with Atomic Absorption Spectroscopy (AAS) is used for lead, zinc, copper, iron and arsenic, whereas Fire Assay methods with gravimetric finish are used for gold and silver for all the concentrations of the precious metals.

a,			
	METHOD	DESCRIPTION	DETECTION LIMITS
	AW-AA100	Aqua Regia Digestion	Pb (0.002-2%) Zn(0.002-2%),Cu (0.002-2%), Fe (0.002-6%) As(0.02-4%)
	ASAG-12	Fire Assay Gravimetric Finish	Ag (0.3-3 ppm)
	ASAG-13	Ag by Fire Assay Gravimetric Finish and Au by AAS finish	Au (0.1-10ppm), Ag (0.3-3 ppm)
	ASAG14	Ag and Au by Fire Assay Gravimetric Finish	Au (>10 ppm), Ag (0.3-3 ppm)
	ASAG-15	Au by Fire Assay Gravimetric Finish for Ag over limit	Au (>10 ppm), Ag (>3 ppm)

Table 11.2: La Guitarra Laboratory 2014 Analytical Methods and Detection Limits



12. Data verification

12.1. Data Verification Coloso Area

The La Guitarra's Coloso area sample database has been verified on three occasions: in 2010 for the mineral resource estimation by Genco and Mintec, in 2011 for an exploration report done by Minorex and GeoSpark consultants, and in 2014 by First Majestic for the December 31, 2014 resource estimation.

12.1.1. Historical Data Verification

The 2008 exploration data were reviewed and verified by Genco and Mintec consultants using MineSight 3D[™] modelling software. The review concluded that the assay database used for La Guitarra mineral resource estimation was sufficiently free of error to be adequate for resource estimation. Genco performed a check analysis by comparing assay results from the 2006 assay results with the 2008 results. Genco concluded that significantly less drilling was done in 2008 than in 2006/2007, consequently there were less check assays done in 2008. The 2008 results were comparable to the 2006 check sampling results, which provided confidence in the sampling and assaying procedures used.

In the 2010 Technical Report, Clark and Thorton compared results between drill-holes that intersected high-grade veins at depth versus channel samples and the mill feed results. The report stated that the comparison indicated no evident biases between the overall drill assays and those assays taken at the mill head and from channel samples.

During 2006 and 2007 check samples from La Guitarra laboratory were submitted to ALS. The results from the two laboratories were reported to be similar. The authors of the 2010 Technical Report concluded that the nearly 86,000 metres of sample data taken over the Genco operational and exploration years used for modeling the seven underground deposits and three open pit areas were fairly represented by the assay databases, and that the data were properly assayed and reported.

The 2011-2012 drilling and sampling data were reviewed and verified by Minorex and GeoSpark consultants in 2011. The electronic assay results were verified using the available original certificates of assay, and drilling data were cross-checked with original drill logs. A verification of quality control data was also conducted. The 2011 QA/QC data consisted of primary samples prepared and analyzed by ALS, field duplicates, standards, blanks and check samples submitted to Inspectorate lab in Nevada as a secondary lab. The 2012 QA/QC data consisted of primary samples, duplicate samples, standards and blanks; primary samples were prepared and analyzed by Inspectorate. Field duplicate samples and repeat analyses have been reviewed in order to determine the precision of the primary sample results reported by ALS in 2011 and by


Inspectorate in 2012. Standard and blank samples were reviewed to assess accuracy of the reported analytical results. Check assays were reviewed to monitor the bias in the original sample results analyzed by ALS. Using Thompson-Howarth Precision versus Concentration (THPVC) and XY scatter plots, the authors confirmed good precision with the repeat results and poor to moderate precision inferred through the duplicate sample review. The poor to moderate precision for the duplicates was attributed to the distribution of the mineralization, which was reported to be nugget prone. Notwithstanding this aspect the overall precision was considered satisfactory. Blank samples and standard materials were reviewed for Au and Ag. Acceptable accuracy was inferred for both elements in this review. The authors recommended the use of coarse certified blanks and to apply corrective actions for the standards out of compliancy.

The overall conclusions for the 2011 and 2012 data verification were that the analytical results from the 2011 and 2012 primary sample results reported by ALS and Inspectorate can be considered of sufficient quality to be used in support of mineral resource estimates in the Coloso, Nazareno, Comales, Joya Larga and La Guitarra Projects.

12.1.2. Drilling Data Verification 2014

First Majestic commenced the database verification process for the Coloso area from the 2008, 2011 and 2012 surface drilling programs at the end of 2013 and continued during 2014. The database verification consisted of 1) database integrity verification, 2) verification for transcription errors, 3) conducting site visits to check core, sample security and location, 4) assay and QA/QC data review.

Electronic files from drill data, such as collar information, sample data and assay certificates, were provided by La Guitarra personnel and compiled into a master database (The 2014 La Guitarra Resource Database).

12.1.3. The 2014 La Guitarra Resource Database – Coloso Area

La Guitarra Resource Database is in MS-Access format and is located in the First Majestic Vancouver office. La Guitarra Resource Database contains drilling data from the 2008, 2011 and 2012 drilling campaigns from the Coloso area with the database closure dated as October 31, 2012 from last laboratory certificate. Core logging data was initially recorded in hard copy and was, then transferred into electronic format spread-sheets. The core logs are described in intervals for main lithology, veins, structures, minerals and alteration. RQD and core recovery data from the 2011 and 2012 drill-holes were recorded in paper format and then transferred into electronic format spread-sheets are filed at La Guitarra Silver Mine offices.



Electronic copies are available at the La Guitarra's local server as well as at First Majestic's corporate servers in Durango. These copies are accessible through remote desktop connections.

The resource database tables and number of records are shown in Table 12.1.

Table	No. of Records
LG_TblCollar	151
LG_TblDHSurvey	894
LG_TblLithology	9,321
LG_TblAlteration	8,239
LG_TbIDHMinerals	4,185
LG_TbIDHStruct	2,188
LG_TblDHGeoTech	16,011
LG_TbIDHVeins	1,617
LG_TblDHSamples	9,595
LG_TbIDHSG	481
LG_TblQCSamples	2,081
LG_TblAssay_Master_CO	5,628
LG_TblAssay_Master_GDH	6,190
LG_Tbl_Assay_Master_Inspectorate	434
LG_TbIDHSamp_Assays	9,596
LG_tblQCSamples_Assays	1,602

Table 12	2 1 - 1	Tables	of the	2014	La Guitarra	Resource	Database
	<u> </u>	anies	or the	2014	La Guilarra	Resource	Dalabase

12.1.4. Database Structure Verification

First Majestic verified all records for the DHSurvey, Lithology, GeoTech, Sample and Assay tables for overlapping intervals and depths that exceed the total depth reported in the collar table. No overlaps or exceeded depths were identified. The drill-hole names and sample IDs were verified for consistency in all tables to keep the integrity of the database.

12.1.5. Verification for transcription Errors

The number of drill-holes by drilling campaign is shown in Table 12.2.



Campaign	No. of Drill-holes in Database	Exploration Company	Total Length (m)
2008	29	Genco	10,340
2011	35	Silvermex	6,005
2012	87	Silvermex	15,640
Totals	151		31,985

Table 12.2: Number of Drill-holes by Drilling Campaign

Collar Survey Verification

A total of 151 drill-hole collars, representing all drill-holes from the 2008, 2011 and 2012 drilling campaigns, were checked for data entry errors by comparing collar locations reported in the survey certificates issued by the First Majestic Engineering and Planning department. No errors were found in this check.

First Majestic carried out a comparison of the collar elevations recorded in the database and the projected elevation of the drill collars on a topographic surface. The purpose of this comparison was to confirm if the collar elevations reasonably reflect the topographic surface model. The topographic surface model was prepared by McElhanney in 2011 from an aerial LiDar[™] survey with a 1.0 m contour, vertical accuracy of 10 to 15 cm in open terrain and from 0.5 to 1.0 m on vegetated surfaces. The topographic contours were imported into Surpac[™] and converted to a digital topographic model (DTM). Cross sections were built with collars and the DTM surface to check for elevation differences. The comparison between the elevations from the surface projection of the drill-hole collars with the elevation stored in the collar table shows that 88 of 151 collars had a difference less than 1 metre. Considering that the surface in La Guitarra vicinity is moderately vegetated, these differences are within the expected tolerance of the topographic surface.

Manual GPS readings were taken by First Majestic from drill-hole monuments from the 2008, 2011 and 2012 drilling campaigns. First Majestic was unable to locate eight drill-holes from 2008 due to the actual surface changes. A difference of less than 2 metres was found in this comparison among all drill-holes.

Down-Hole Surveys Verification

A total of 62 records of the down-hole surveys for the 2008, 2011 and 2012 drill campaigns were checked for data entry errors by comparing the Hole-ID, depth, azimuth and dip values from the DhSurvey table and the original hardcopy reports. Those 62 records represent 7% of



the total records in the DHSurvey table (Table 12.3). The original reports contain magnetic azimuths and were recorded in the Original_Azimuth field in the DHSurvey table. The magnetic azimuths were converted to true-north azimuths by adding 6° to the magnetic azimuth. The true-north azimuths were recorded in the Corrected_Azimuth field in the database. Magnetic azimuths from the 2008 were obtained using a Flex-It multi-shot and for the 2011 and 2012 drill-holes a Reflex tool.

All down-hole survey records were checked for anomalous measurements that could cause unusual kinks or bends in the drill-holes. Azimuths from the unusual kinks were checked to confirm transcription errors. All transcriptions errors were corrected in the database.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. of Entries Checked	No. Errors	% Errors
2008	29	6	20	203	7	3	28	0	0
2011	35	9	25	190	13	7	52	0	0
2012	87	35	43	501	42	8	168	1	<1
Totals	151	50	33	894	62	7	248	0	0

Table 12.3: DHSurvey Data Entry Error Frequency

Lithology Verification

A random selection of 466 records of the lithology table from 100 of the 151 drill-holes for the 2008, 2011 and 2012 drilling campaigns were checked for data entry errors. The randomly selected records represent 5% of all lithology records. The check was completed by re-typing the interval (from-to) and the lithology code from the original logs into a spread-sheet. Once typed, the data were compared with the data in the lithology table.

A total of eight errors were found in the lithology verification. Eight errors represent 2% of error rate. The total amount of records verified for transcription errors and error rates are shown in Table 12.4. First Majestic verified and corrected the intervals associated with these errors.



Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	29	29	100	6,768	336	5	1,864	0	0
2011	35	14	40	488	27	5	108	0	0
2012	87	57	66	2,065	103	5	412	8	2
Totals	151	100	66	9,321	466	5	1,864	8	2

Table 12.4: Lithology Data Entry Error Frequency

*Hole-ID, From-To, Lithology Code

During 2014, First Majestic conducted a field inspection and verified the lithology intervals with existing core boxes, core photographs and interpreted geological cross sections. Some errors were found and corrections were made in the database.

Veins Verification

A random selection of 1,612 records of the Veins table (LG_TblDHVein) from 80 of the 150 drillholes for the 2008, 2011 and 2012 drill campaigns were checked for data entry errors. The randomly selected records represent 10% of all vein records. The check was completed by typing the interval (from-to) and the vein code from the original logs into electronic spreadsheets. Once typed, the data were compared with the data in the veins table. No differences were found in the comparison between the records from the vein table and the veins reported in the core logs. Drill-hole CO-127 did not intersect any veins. The total amount of records verified for transcription errors and error rates is shown in Table 12.5.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	29	15	52%	464	46	10%	184	0	0
2011	35	18	51%	248	30	12%	120	0	0
2012	86	47	55%	900	85	9%	340	0	0
Totals	150	80	53%	1,612	161	10%	644	0	0

Table 12.5: Veins Data Entry Error Frequency

*Hole-ID, From-To, vein code

Structures Verification

A random selection of 107 records of the structures table (LG_TblDHStructures) from 60 drillholes for the 2008, 2011 and 2012 drill campaigns were checked for data entry errors. The randomly selected records represent 5% of all structure records. The check was completed by



typing the interval (from-to) and the structure code from the original logs into an electronic spread-sheet. Once typed, the data was compared with the data in the Structure table.

The total amount of records verified for transcription errors and error rates are shown in Table 12.6. Only one error was found in the comparison between the database and the core logs. The error was corrected in the database.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	29	21	72%	898	47	5%	188	0	0
2011	35	10	29%	357	16	4%	64	0	0
2012	86	29	34%	892	44	5%	176	1	<0
Totals	150	60	40%	2,147	107	5%	428	1	<0

Table 12.6: Structure Data Entry Error Frequency

*Hole-ID, From-To, structure code

Alteration Verification

A random selection of 412 records of the alteration table (LG_TblDHStructures) from 81 drillholes for the 2008, 2011 and 2012 drill campaigns were checked for data entry errors. The randomly selected records represent 5% of all alteration interval records. The check was completed by typing the interval (from-to) and the main alteration code from the original logs into an electronic spread-sheet. Once typed the data were compared with the data in the alteration table. A total of 6% of transcription errors related to the alteration code were found in the database (Table 12.7). The errors in the alteration code will not affect the resource estimate.

Table 12.7: Alteration Data Entry Frequency

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked	No. Errors	% Errors
2008	29	29	100%	6,845	336	5%	1,344	102	14
2011	35	17	49%	448	24	5%	96	1	0
2012	87	35	40%	946	52	5%	208	8	10
Totals	151	81	54%	8,239	412	5%	1,648	111	6

*Hole-ID, From-To, alteration code

RQD and Core Recovery Verification

A random selection of 801 records of the geotechnical table (LG_TblDHGeoTech) from 146 drillholes from the 2008, 2011 and 2012 drill campaigns were checked for data entry errors. The



randomly selected records represent 5% of all records. The check was completed by capturing into the interval (from-to) the recovery length and RQD from the original logs. Once typed, the data were compared with the data in the GeoTech table.

No differences were found in the comparison between the records from the Geotech table and the core recoveries and RQDs reported in the core logs. The total amount of records verified for transcription errors and error rates are shown in Table 12.8.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	29	29	100%	7,684	364	5%	1,456	0	0
2011	35	34	97%	2,701	142	5%	568	0	0
2012	87	83	95%	5,626	295	5%	1,180	0	0
Totals	151	146	97%	16,011	801	5%	3,204	0	0

Table 12.8: RQDs and Core Recovery Data Entry Error Frequency

*Hole-ID, From-To, Recovery Length, RQD

Sample Interval Verification

All sample IDs and intervals from the 2008 drilling campaign were verified for transcription errors by comparing the sample IDs and intervals recorded in the paper core logs and laboratory certificates. Only one error was found in this comparison and the record was corrected in the database. A random selection of 188 records from the 2011 and 2012 drilling campaigns were checked for data entry errors. The randomly selected records represent 5% of all records. The check was completed by typing the interval into an electronic spread-sheet (from-to), the sample ID and by comparing the values with the data recorded in the sample table in the database. No errors were found in this comparison (Table 12.9).

Table 12.9:	Sample	Data	Entry	Error	Frequency

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	29	29	100%	5,770	288	5%	864	1	<1
2011	35	27	77%	1,071	57	5%	171	0	0
2012	87	61	70%	2,754	131	5%	393	0	0
Totals	151	117	77%	9,595	476	5%	1,428	0	0

*Hole-ID, From-To, Sample ID



Assay Verification

All samples and assay results for the elements Au, Ag, As, Pb, and Zn recorded in LG_tblDHSamp_Assay table were verified against electronic copies from ALS, Inspectorate and SGS certificates, and against electronic spreadsheet files from La Guitarra laboratory.

Electronic copies of the ALS lab results were compiled into a MS Access[™] table to check transcription errors in the LG_tbIDHSamp_Assay table. The values of Au, Ag, As, Pb and Zn from analytical methods (Au-AA23, ME-GRA21, ME-ICP61, Pb-OG62, and Zn-OG62) were compared with the results in LG_tbIDHSamp_Assay table. No errors were found in this comparison.

Electronic copies of the lab certificates re-submitted by SGS lab were compiled into a MS Access[™] table (SGS_Orig_Cert) to check for transcription errors in LG_tblDHSamp_Assay. SGS only analyzed Au and Ag by atomic absorption and gravimetric finish respectively. No transcription errors were found in this comparison.

The electronic spread-sheet files with results from la Guitarra laboratory were compiled into a single file to check for transcription errors in LG_tblDHSamp_Assay table. No transcription errors were found in this comparison. However, the electronic spread-sheet files containing laboratory results from la Guitarra laboratory used in this verification were not the original certificates issued by this laboratory.

Sample intervals and assay results were verified with the vein intervals to detect errors during logging and sampling. Only 3% of the identified veins were not sampled.

Density Verification

In 2014, First Majestic completed density measurements from the 2012 drill core of the Coloso Area. Densities were recorded directly in electronic spreadsheets. To verify the density results, density control samples such as duplicates, checks, and standards readings were inserted. Density sampling and density determination procedures are described in Section 10. All sample intervals and density determinations were verified for transcription errors. Errors detected during the QA/QC procedures and verification for transcription errors were directly corrected in the electronic spreadsheet tables and the data is free of errors.

Chanel Sample verification

Previous to 2013, La Guitarra mine did not apply industry standard procedures for ore control. Starting in 2014 First Majestic has been implementing procedures following best practices for channel sampling collection and a QA/QC program. During 2013 and 2014 field duplicates,



standard and blanks were inserted in the sample stream, geology staff personnel carries out spot verifications of these results. A detailed data verification and QA/QC analysis is in progress.

It is the author's opinion that channel sample collection in 2013 and 2014 followed the industry best practices and the assay data may be reliable for resource estimation, completion of the detailed data verification and quality control analysis for the assay results is recommended.

12.1.6. QA/QC Review

First Majestic conducted a verification of the quality control sample data and assay results from the 2008, 2011 and 2012 drilling campaigns. The review covered only the data set provided by La Guitarra personnel during 2013 and 2014 and compiled in the 2014 resource estimation database for the Coloso area.

During the 2008 drilling campaign at the Coloso area mainly primary samples were submitted to ALS and SGS laboratories as described in Section 11. There were 64 repeat samples submitted to La Guitarra laboratory. All assay results from the repeats samples were verified against the original certificates. No differences were found in this verification.

During 2011 and 2012, quality control samples including pulp duplicates, coarse duplicates, standards, blanks and checks were inserted by the geologist at La Guitarra in the sample submissions. In 2014 First Majestic was able to compile all control samples with analytical results except for 106 check samples. All assay results from all control samples results were verified against the original certificates. No errors found in the database.

According to the 2010 Technical Report, during the 2008 drilling campaign, Genco implemented a quality control system that includes the insertion of blanks, duplicates including some checks and reference materials in the sample streams. Genco however did not generate QA/QC reports to show precision, accuracy and contamination during the 2008 sampling program.

In 2012 GeoSpark Consulting performed a QA/QC analysis of the 2011 and 2012 drilling data. The results and conclusions were reported in the Exploration Report on the La Guitarra Mine Property (Blanchflower and Vallat, 2012). The report stated that the precision was inferred to be satisfactory and the accuracy strong. Instrument contamination was not present and calibration issues were not found. The bias in results was not significant enough to cause concern with the quality of results.

In 2014 First Majestic prepared control charts with the assay data recorded in the 2014 resource estimation database. These charts are presented in detail in La Guitarra Drilling Program, Drilling Period 2008, 2011, 2012, Quality Control Sample Results Report 2014.



Duplicate Precision Conclusion

Results from ALS have an acceptable level of precision for coarse and pulp duplicate types for samples above 0.5 g/t Au using (method Au-AA-23).

Results are close to acceptable thresholds for coarse and pulp duplicates. Precision is acceptable for values above 75 g/t Ag (Method Ag ME-GRA21).

Field duplicates did not meet an acceptable precision for all Au and Ag grade ranges and may reflect natural sample heterogeneity. Table 12.10 summarizes the precision for each element.

First Majestic will apply new sampling protocols to improve precision for field duplicates.

Table 12.10: Summary of Precision, Duplicate Samples, ALS Laboratory

	Pulp Duplicates Cumulative Frequency at 10% ARD	Coarse Reject Duplicates Cumulative Frequency at 20% ARD	Field Duplicates Cumulative Frequency at 30% ARD
	(Au 1.3 ppm-Ag 75 ppm cut-off)	(Au 1.3 ppm-Ag 75 ppm cut-off)	All Data
Au AA23	87%	90%	71%
Ag MEGRA-21	90%	86%	64%

12.1.7. Standard Reference Material Conclusions

Au AA23 biases range from minus 2.8% to 9.1% with an average bias of 2.8%. Standards CND-ME-6 and CND-GS-2G show marginal biases. Ag ME-GRA21 and Ag ICP biases range from-2.2% to 2.1% with the average bias of 0.7%. First Majestic concludes accuracy at ALS for the period 2011 and 2012 is acceptable after removing outliers. Exceptions are standards Au CND ME-6 and Au CND-GS-2G with marginal biases. The marginal bias (9.1%) in standard CND GS-2G indicates the standard could not be suitable for the type of deposit. The number of samples however is small which impacts the ability to confirm the biases. A summary of the SRMS performance at ALS Laboratory is shown in Table 12.11.



Laboratory	Standard ID	Element	Best Value	Mean	Standard Deviation	Bias*	Number of Outliers	Number of Suspects	Confirmed swaps
ALS	ME-11	Au	1.38	1.34	0.07	-2.8%	0	0	0
ALS	ME-11	Ag	79.3	79.06	8.64	-0.3%	0	0	0
ALS	ME-15	Au	1.386	1.37	0.06	-1.0%	1	0	1
ALS	ME-15	Ag	34	34.7	2.55	2.1%	2	0	1
ALS	ME-5	Au	1.07	1.09	0.19	1.9%	0	0	0
ALS	ME-5	Ag	206	201.42	5.01	-2.2%	3	0	0
ALS	ME-6	Au	0.27	0.28	0.021	5.3%	3	0	1
ALS	ME-6	Ag	101	98.74	4.83	-2.2%	1	0	0
ALS	GS-1P5C	Au	1.56	1.62	0.038	4.4%	0	0	0
ALS	GS-2G	Au	2.26	2.46	0.06	9.1%	0	0	0

Table 12.11: Summary of Standards

*After removing Outliers

12.1.8. Contamination Conclusions

First Majestic concludes that contamination from Au and Ag at ALS for coarse duplicates samples is acceptable. None of the charts show significant contamination trends. There is a small amount of carry-over contamination related to increasing grades in the previous samples. The preceding samples added an amount well below half of the economic cut-off grades. The 19% of samples returning Au and the number of the samples returning 7% Ag grades above the detection limit may indicate that the blank may not have been entirely free of Au and Ag.

Between-Procedure and Between-Laboratory Bias Check Conclusion

RMA results are summarized in Table 12.12

RMA Regression	Bias	No. of Exclusions
1AT-AA (INSPECT) vs. AA23 (ALS)	0.2%	7
Ag 4A-TR (INSPECT) vs. Ag ME-GRA21(ALS)	-5.6%	9
Ag 4A-TR (INSPECT) vs. Ag ME-GRA21 (<500 ppm)(ALS)	-2.8%	10
Au FA GRAV (LG)vs. Au FAG323 (SGS)	18%	2
Ag FA-GRAV (LG) vs. Ag FAG323 (SGS)	19%	0
Ag FA-GRAV (LG) vs. Ag FAG323 (SGS) (>3 ppm)	7.54%	0

Table 12.12: Summary of Bias Assessed with RMA Charts

No significant bias is observed at all ranges for Au results from ALS after removing outliers. Marginal bias was observed from all ranges of Ag results from all pairs. Ag shows an acceptable



bias for ALS results less than 500 ppm after exclusion of outliers. This observation supports laboratory bias assessment of ALS.

There are insufficient sample results from standard ME-15 to confirm the minus 5.6% marginal bias for Au from ALS. None of the control charts from check samples show any significant contamination trends, all show results above the threshold limit (2 x LDL). All results are well below half of the economic grade for Au and Ag.

The results from samples submitted to LG lab in 2008 show an unacceptable bias for methods Au-FAG 323 and Ag FAG323. After removing lower detection limit results from Ag FAG323, there is a marginal bias of minus 7.54%.

It is the author's opinion that the assay results from 2008, 2012 and 2012 drilling campaign at the Coloso area can be considered to be of sufficient quality to be used in mineral resource estimation.

12.1.9. Amec Foster Wheeler Verification Supporting Coloso Mineral Resources

Mr. Greg Kulla visited the property between the 15th and 19th September 2014. During this visit he reviewed drilling, logging, and sampling procedures, and assay quality control procedures. While at site he also reviewed several drill core intersections of the Joya Larga and Jessica veins of the Coloso deposit. Subsequent to the site visit Mr. Kulla reviewed the drill-hole database and assay quality control results. The database is considered suitable to support the Coloso Mineral Resource estimation.

While at site another Amec Foster Wheeler employee completed an inspection of the Joya Larga underground workings where he observed the vein mineralization, orientation, and dimensions. Subsequent inspection of geologic cross sections and underground mapping plans provided by First Majestic confirmed his observations.

Mr. Kulla concludes the drilling logging and sampling procedures are appropriate for the style of mineralization at Coloso, that the assay data is reasonably accurate, and that the database is reasonably free of errors.

12.2. Data Verification – Nazareno Area

The resource database for the Nazareno area was verified in three occasions: In 2010 during the resource estimation carried out by Genco and Mintec, in 2011 for an exploration report prepared by Minorex and GeoSpark consultants and in 2014 by First Majestic for the current resource estimates. There is no evidence for data verification for the 2000 and 2003 drilling data. In 2007, Genco conducted re-logging of 15 drill-holes.



12.2.1. Historical Data Verification

The 2008 exploration data from Nazareno were reviewed and verified by Genco and reported in the 2010 Technical Report. The data verification applied to the Nazareno data set followed the same procedure as described for the Coloso data set.

The 2011-2012 drilling and sampling data from Nazareno was included in the Minorex and GeoSpark verification. The verification followed the same procedure as for the Coloso data set.

The Nazareno data set verification process concluded that the analytical results from the 2011 and 2012 primary sample results reported by ALS Chemex and Inspectorate were considered with sufficient quality to represent the Nazareno project.

12.2.2. Drilling Data Verification 2014

First Majestic commenced the database verification process for the Nazareno area from the 2000, 2003, 2008, 2011 and 2012 surface drilling programs at the end of 2014. The database verification consisted of 1) Database integrity verification, 2) verification for transcription errors, 3) conducting site visits to check core and samples security and location, 4) Assay and QA/QC data review.

Electronic files from drilling data such as collar information, sample data and an assay certificates were provided by La Guitarra personnel and imported to the First Majestic DataShed Database.

12.2.3. The 2014 La Guitarra Resource Database Nazareno Area

La Guitarra resource database for the Nazareno Area is in a MS SQL platform located in a terminal server in Monterrey, Mexico. La Guitarra resource database contains drilling data from 2000, 2003, 2007 re-logging, 2008, 2011 and 2012 drilling campaigns from the Nazareno area as the database closure date 18 October 2012 from last laboratory certificate. Core logging data was paper recorded by the geologists and transferred into electronic spreadsheets. Subsequently, the data was imported into SQL using DataShed[™]. The paper core logs contain core intervals for main lithology, veins, structures, minerals and alteration. RQD and core recovery data from the 2007 re-logging campaign, 2008, 2011 and 2012 drillholes were recorded in paper log within the lithology intervals. Core recovery and RQD data from the paper logs were captured into electronic spreadsheets and transferred to SQL. Paper copies of core logs, driller's reports, sample tags and assay certificates are filed at La Guitarra mine.

Electronic copies are available at La Guitarra server and corporate servers in Durango. These copies are accessible through remote desktop connections. The resource database tables and number of records are shown in Table 12.13.



Table	No. of Records
tblDHCollar	70
tbIDHSurv	237
tbIDHLithology	3,089
tbIDHAlteration	2,545
tbIDHMinerals	421
tbIDHStructure	1, 033
tbIDHCoreRecoveryRun	4,677
tbIDHVeins	549
tbIDHSamples	3,707
tbIDHSG	388
tbIDHSampQC	523
tblStandardSamp	152
tblAssayFlat	4,071

Table 12.13: 2015 Resource Database-Nazareno Area

12.2.4. Database Structure Verification

First Majestic checked all records in all for the DHSurvey, Lithology, GeoTech, Sample and Assay tables for overlapping intervals and depths that exceed the total depth reported in the tblDHcollar table. No overlaps or exceed depths were identified. The drillhole names and samples IDs were verified for consistency in all tables to keep the integrity of the database.

12.2.5. Verification for transcription Errors

Collar Survey Verification

The number of drillholes by drilling campaign is shown in Table 12.14.

Table 12.14: Drillholes by Drilling Campaign

Campaign	No. of Drillholes in Database	Exploration Company	Total Length (m)
2000-2003	16	Genco Resources Ltd.	942
2008	15	Genco Resources Ltd.	3,455
2011	10	SILVERMEX	1,640
2012	29	SILVERMEX	4,957
Totals	70		10,994



A total of 70 drillhole collars, representing all holes from the 2000, 2003, 2008, 2011 and 2012 drilling campaigns were checked for data entry errors by comparing collar locations reported in the survey certificates issued by the First Majestic Engineering and Planning department. No errors were found in this check.

Down-Hole Surveys Verification

No DHSurveys measurements were taken in 2000 and 2003. A total of 24 records of the downhole survey records for the 2008, 2011 and 2012 drill campaigns were checked for data entry errors by comparing the Hole-ID, depth, azimuth and dip values from the DhSurvey table and the original DHsurvey hardcopy reports. Twenty-four records represent 10% of the total records in the DHSurvey table (Table 12.15). The original reports contain magnetic azimuths and were recorded in the Original_Azimuth field in the DHSurvey table. The magnetic azimuths were converted to True North azimuths by adding 6° to the magnetic azimuth. The true north azimuths were recorded in the Corrected_Azimuth field in the Database. Magnetic azimuths from the 2008 were obtained using a Flex-It multi-shot and for the 2011 and 2012 drillholes a Reflex tool.

All down-hole survey records were checked for anomalous measurements that could cause unusual kinks or bends in the drill holes. Azimuth from the unusual kinks were checked to confirm transcription errors. Al transcriptions errors were corrected in the database.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked	No. Errors	% Errors
2008	15	2	13	25	5	20	20	0	0
2011	10	2	20	52	2	4	8	0	0
2012	29	13	45	153	17	11	68	0	0
Totals	54	17	30	237	24	7	10	0	0

Table 12.15: DHSurvey Data Entry Error Frequency

Lithology Verification

A random selection of 309 records from 56 of 61 drillholes for the 2000, 2007 re-logging (2003 drilling campaign), 2008, 2011 and 2012 drill campaigns from the lithology table was checked for data entry errors. The randomly selected records represent 10% of all lithology records in the Lithology table (tblDHLithology). The check was completed by capturing the interval (from-to)



and the lithology code from the original logs into electronic spread-sheets. The data was compared with the data in the lithology table.

Only one error was found in the Lithology verification. One error represents 0.32% of error rate. The total amount of records verified for transcription errors and error rates are shown in Table 12.16. First Majestic verified and fixed the intervals associated with these errors.

During 2014, First Majestic conducted a field inspection and verified the lithology intervals with existing core boxes, core photographs and interpreted geological cross sections. Some errors were found and corrections were made in the database.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2000-2003	7	1	14	52	1	2	4	0	0
2008	15	14	90	2,389	238	5	952	1	<1
2011	10	7	70	100	9	5	36	0	0
2012	29	24	80	548	61	5	244	0	0
Totals	61	46	75	3,089	466	5	1,236	1	<1

Table 12.16: Lithology Data Entry Error Frequency

*Hole-ID, From, To, Lithology Code

Veins Verification

A random selection of 55 records from 29 of 58 drillholes for the 2003, 2008, 2011 and 2012 drilling campaigns from the Veins table (tbIDHVeins) was checked for data entry errors. The randomly selected records represent 10% of all veins records. The check was completed by capturing the interval (from-to) and the vein code from the original logs into electronic spreadsheets. The data was compared with the data in the veins table, no differences were found in the comparison between the records from the vein table and the veins reported in the core logs. The total amount of records verified for transcription errors and error rates is shown in Table 12.17.



2003 6 1 16 16 2 12 8 0 0 2008 13 3 23 136 9 6 36 0 0 2011 10 5 50 95 8 8 32 0 0 2012 20 20 100 302 36 10 144 0 0 Totals 58 29 50 549 55 10 220 0 0	Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008 13 3 23 136 9 6 36 0 0 2011 10 5 50 95 8 8 32 0 0 2012 20 20 100 302 36 10 144 0 0 Totals 58 29 50 549 55 10 220 0 0	2003	6	1	16	16	2	12	8	0	0
2011 10 5 50 95 8 8 32 0 0 2012 20 20 100 302 36 10 144 0 0 Totals 58 29 50 549 55 10 220 0 0	2008	13	3	23	136	9	6	36	0	0
2012 20 20 100 302 36 10 144 0 0 Totals 58 29 50 549 55 10 220 0 0	2011	10	5	50	95	8	8	32	0	0
Totals 58 29 50 549 55 10 220 0	2012	20	20	100	302	36	10	144	0	0
	Totals	58	29	50	549	55	10	220	0	0

Table 12.17: Veins Data Entry Error Frequency

*Hole-ID, from-to, vein code

Structures Verification

A random selection of 104 records from 38 drillholes for the 2000-2003, 2008, 2011 and 2012 drilling campaigns from the structures table (tbIDHStructures) was checked for data entry errors. The randomly selected records represent 10% of all Structure records. The check was completed by capturing the interval (from-to) and the Structure code from the original logs into electronic spread-sheets. The data was compared with the data in the Structure table.

The total amount of records verified for transcription errors and error rates are shown in Table 12.18. No errors were found in the comparison between the database and the core logs.

			•	-	•					
_	Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
-	2000-2003	7	1	14	24	1	4	4	0	0
	2008	13	6	46	136	11	8	44	0	0
	2011	10	8	80	207	21	10	84	0	0
	2012	29	23	80	666	71	10	284	0	0
	Totals	59	38	64	1,033	104	10	416	0	0

Table 12.18: Structure Data Entry Error Frequency

*Hole-ID, From, To, structure code

Alteration Verification

A random selection of 255 records from 49 drillholes for the 2000-2003, 2008, 2011 and 2012 drilling campaigns from the Alteration table (tbIDHAlteration) was checked for data entry errors. The randomly selected records represent 10% of all alteration interval records. The check was completed by capturing the interval (from-to) and the main alteration code from the original logs



into electronic spread-sheets. The data was compared with the data in the alteration table. One transcription error was found and the database was corrected (Table 12.19).

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked	No. Errors	% Errors
2000-2003	7	5	70	30	5	16	20	1	20
2008	15	15	100	2,015	203	10	812	0	0
2011	10	6	60	108	11	10	44	0	0
2012	29	23	80	392	36	9	144	0	0
Totals	61	49	80	2,545	412	16	1,020	1	<0

Table 12.19: Alteration Data Entry Frequency

*Hole-ID, From, To, alteration code

RQD and Core Recovery Verification

A random selection of 319 records from 56 drillholes for the 2008, 2011 and 2012 drilling campaigns from the Core Recovery table (tblCoreRecoveryRun) was checked for data entry errors. The randomly selected records represent 10% of all records. No records have been verified from the 2000 and 2003 drilling campaign. The check was completed by capturing into electronic spread-sheets the interval (from-to) the recovery length and RQD from the original logs. The data then, was compared with the data in the Core Recovery table.

Four errors were found in the comparison between the records from the Core Recovery table table and the core recoveries and RQDs reported in the core logs. The total amount of records verified for transcription errors and error rates are shown in Table 12.20.

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2000-2003	10	0	0	299	0	0	0	0	0
2008	15	15	100	2,393	153	6	612	0	0
2011	10	10	100	543	39	7	156	1	2
2012	29	29	100	1,741	125	7	500	3	2
Totals	151	54	36	4,677	317	7	1,268	4	1

 Table 12.20: RQDs and Core Recovery Data Entry Error Frequency

*Hole-ID, From, To, Recovery Length, RQD



Sample Interval Verification

Only samples from the 2008, 2011 and 2012 drilling campaign were verified for the 2014 resource estimation. A random selection of 371 sample records were checked for data entry errors. The randomly selected records represent 10% of all records. The check was completed by capturing into electronic spread-sheets the interval (from-to) and sample ID and compare the values with the data recorded in the sample table in the database. No errors were found in this comparison (Table 12.21).

Drilling Campaign	No. of Holes in Database	No. of Holes Checked	% of Holes Checked	No. of Records in Database	No. of Records Checked	% of Records Checked	Total No. Entries Checked*	No. Errors	% Errors
2008	15	15	100	2,373	248	10	992	0	0
2011	10	10	100	361	32	9	128	0	0
2012	29	26	90	973	91	9	364	0	0
Totals	54	51	94	3,707	371	10	1,484	0	0

Table 12.21: Sample Data Entry Error Frequency

*Hole-ID, From, To, Sample ID

Assay Verification

A random selection of 204 samples with assay results from the 2008, 2011 and 2012 drilling campaigns were checked for data entry errors. The randomly selected records represent 5% of all records. Five percent of samples with assay results above 75g/t Ag were also randomly selected to verify for transcription errors. The selected samples and assay results from elements of Au, Ag, As, Pb, Cu, Fe, and Zn recorded in tblAssay Flat table were checked against electronic copies from ALS, Inspectorate and SGS certificates. No errors were found in this comparison. Sample intervals and assay results also were verified with the vein intervals to detect errors during logging and sampling. Only 3% of the identified veins were not sampled.

Density Verification

In 2014, First Majestic completed density measurements from the 2012 core. Density measurements were obtained from 288 samples from 18 drillholes. Densities were recorded directly in electronic spread-sheets. To verify the density results, density control samples such as duplicates, checks, and standards readings were inserted. Density sampling and density determination procedures are described in section 10. All sample intervals and density determinations were verified for transcription errors. Errors detected during the QA/QC procedures and verification for transcription errors were directly corrected in the electronic spread-sheets tables and the data is free of errors.



12.2.6. QA/QC Review

First Majestic conducted a verification of the quality control sample data and assay results from the 2008, 2011 and 2012 drilling campaigns. This verification covered the Nazareno data set provided by La Guitarra personnel during 2013 and 2014.

In the 2014 Nazareno database review, only primary sample data was found from the 2008 drilling campaign. The samples were submitted to ALS and SGS laboratories and analyzed as described in section 11.

According to the LG technical Report for the 2010 resource estimate, during the 2008 drilling campaign, Genco implemented a quality control system that includes the insertion of blanks, duplicates, some checks and reference materials in the sample streams. However, Genco did not reproduce QA/QC reports to show precision, accuracy and contamination during the 2008 sampling program.

During 2011 and 2012, quality control samples including pulp duplicates, coarse duplicates, standards, blanks and checks were inserted by geologists at La Guitarra in the sample submissions. All assay results from all control samples were verified against the original certificates. No errors were found in the database.

In 2012, GeoSpark consulting performed a QA/QC analysis of the 2011 and 2012 drilling data. The results and conclusions were resumed and reported in the Exploration Report on the La Guitarra Mine Property (Blanchflower and Vallat, 2012). The report stated that the precision was inferred to be satisfactory and the accuracy strong. Instrument contamination was not present and calibration issues were not found. The bias in results was not significant enough to cause concern with the quality of the results.

In 2014 First Majestic prepared quality control charts with the assay data recorded in the 2014 Resource Estimation database. These charts are presented in detail in the 2014 La Guitarra Drilling Program - Nazareno Area, Drilling Period 2011 and 2012, Quality Control Sample Results Report.

Sample insertion rates are shown in Table 12.22. Sample rates were calculated over the total amount of primary samples.



Sample Type	2008	2008			2012		
	# Samples	% Rate	# Samples	% Rate	# Samples	% Rate	
Primary	2,076	100%	361	100%	973	100%	
DUPLICADO (Field Duplicate)		0%	18	5%	47	5%	
Coarse_Dup (Coarse Duplicate)		0%	0	0%	119	12%	
Pulp_Dup (Pulp Duplicate)		0%	0	0%	105	11%	
Standards:							
ME-11 (Au 1.38 g/t, Ag 79.3 g/t)		0%	0	0%	5	<1%	
ME-15 (1.386 g/t, Ag 34 g/t)		0%	0	0%	7	<1%	
ME-5 (Au 1.07 g/t, Ag 206.1 g/t)		0%	12	3%	20	2%	
ME-6 (Au 0.270 g/t, Ag 101 g/t)		0%	9	2.5%	21	2%	
BLANK		0%	22	6%	55	5%	
Check*	0	0%	0	0%	98	10%	
Lab Check	123	6%	0	0%	0	0%	
Grand Total	2,199		422		3,838		

Table 12.22: Quality Control Samples Insertion Rates. 2008, 2001-2012 Drilling Campaigns

The conclusions of the quality control review are described as follow:

Duplicate Precision Conclusion

Au-AA-23 results from ALS laboratory have an acceptable level of precision for coarse and pulp duplicate types for samples above 0.25 g/t.

Ag ME-GRA21 and Ag ICP results are close to acceptable thresholds for coarse and pulp duplicates. Precision is acceptable for values above 50 g/t.

Field duplicates did not meet an acceptable precision for all Au and Ag grade ranges and may reflect normal sample heterogeneity. Table 12.23 summarizes the precision for each element.

For the oncoming exploration stages at La Guitarra, First Majestic is providing training in sampling methods to the geological staff and applying new sampling protocols that follows the best exploration practices for mineral resources. Better Sampling practices and protocols will intend to improve precision for field duplicates.

Table 12.23: Summary of Precision. Duplicate Samples. ALS Laboratory

	Pulp Duplicates Cumulative Frequency at 10% ARD	Coarse Reject Duplicates Cumulative Frequency at 20% ARD	Field Duplicates Cumulative Frequency at 30% ARD
Au AA23 (0.1- 2 g/t)	90%	70%	71%
Ag MEGRA-21 (2.5-300 g/t)	50%	70%	80%
Ag ICP (10-100g/t)	80%	80%	70%



Standard Reference Material Conclusions

Au AA23 biases range from minus 1% to 2.96% with an average bias of 2 %. Standard CND ME-6 for Au shows four samples outside the bias safety limit lines. There are is no evidence if the samples outside compliancy were sent to re-analyze to confirm results. The results out of limits could indicate a transcription error in the sample labels or possible contamination during analyzes. After removing the outliers, the standard has an acceptable bias of 3%. Ag ME-GRA21 and Ag ICP biases range from minus 3.4% to 5.1% with the average bias of 2%. First Majestic concludes that accuracy at ALS for the period 2011 and 2012 is acceptable. A summary of the SRMS performance at ALS Laboratory is shown in Table 12.24.

Laboratory	Standard ID	Element	Best Value	Mean	Standard Deviation	Bias*	Number of Outliers	Number of Suspects	Confirmed swaps
ALS	ME-11	Au	1.38	1.36	0.07	-1%	0	0	0
ALS	ME-11	Ag	79.3	83.35	8.86	5.11%	0	0	0
ALS	ME-15	Au	1.386	1.40	0.09	1.32%	0	0	0
ALS	ME-15	Ag	34	34.6	3.3	1.74%	1	0	0
ALS	ME-5	Au	1.07	1.07	0.27	0.22%	4	16	0
ALS	ME-5	Ag	206.1	199	20.28	-3.43%	1	1	0
ALS	ME-6	Au	0.27	0.28	0.0324	2.96%	9	1	0
ALS	ME-6	Ag	101	105.64	24.64	4.6%	4	4	0

Table 12.24: Summary of Standards

*After removing Main Outliers

Contamination Conclusions

First Majestic concludes that contamination from Au and Ag at ALS for coarse duplicates is acceptable. None of the charts shows significant contamination trends. There is no indication of carry-over contamination related to increasing grades in the previous samples. A total of 50% Au results analyzed by AA23 returned values above 2 times the laboratory detection limit. The 50% of the samples returning Au above the detection limit may indicate the blank may not be entirely free of Au. All Ag ME-GRA-21 blank results are below the 2 times laboratory detection limit.

Between-Procedure and Between-Laboratory Bias Check Conclusion

RMA results are summarized in Table 12.25.



Table 12.25: Summ	ary of Bias Assesse	d with RMA Charts
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RMA Regression	Bias	No. of Exclusions
Au1AT-AA (INSPECT) vs. AA23 (ALS)	5%	4
Ag 4A-TR (INSPECT) vs. Ag ME-GRA21(ALS)	-3%	9
Ag 4A-TR (INSPECT) vs. Ag ME-GRA21 (50-500 ppm)	-1%	0
Ag 30-4A-TR (INSPECT) vs. Ag ME-ICP61 (ALS)	-0.7%	0

No significant bias observed at all ranges for Au results from ALS after removing outliers. No bias was observed from all ranges Ag results from all pairs. Ag ME-GRA-21 results shows acceptable bias for ALS results less from 50 to 500 ppm. This observation supports laboratory bias assessment of ALS. No control samples were submitted to Inspectorate Laboratory.

It is the author's opinion that the assay results from 2012 and 2012 drilling campaign at the Nazareno area can be considered to be of sufficient quality to be used in mineral resource estimation. Early sampling from 2000 and 2008 was not supported by a quality control program, First Majestic carried out data verification as reported in previous sections and it was concluded that assay results reported are free of transcription errors.

12.3. Site Visits

12.3.1. First Majestic Site Visits

Ms. Maria Vazquez conducted three site visits in 2014. The purpose of these visits was to collect and verify all data available for the Coloso and Nazareno area as well as to do an inspection of the core kept from the 2008, 2011 and 2012 drill campaigns. During this inspection it was noted that the core and reject samples were kept in a safe and protected area. Ms. Vazquez performed specific data verification, including database construction, drill-hole location, downhole survey validation and density determinations.

12.3.2. Amec Site Visits

Mr. Greg Kulla visited the property between the 15th and 19th September 2014. During this visit he reviewed drilling, logging, and sampling procedures, and assay quality control procedures. While at site he also reviewed several drill core intersections of the Joya Larga and Jesicca veins of the Coloso deposit. Subsequent to the site visit Mr. Kulla reviewed the drill hole database and assay quality control results. The database is considered suitable to support the Coloso Mineral Resource estimation.



While at site another Amec Foster Wheeler employee completed an inspection of the Joya Larga underground workings where he observed the vein mineralization, orientation, and dimensions. Subsequent inspection of geologic cross sections and underground mapping plans provided by First Majestic confirmed his observations.

Mr. Kulla concludes the drilling logging and sampling procedures are appropriate for the style of mineralization at Coloso, that the assay data is reasonably accurate, and that the database is reasonably free of errors.



13. Metallurgical Testing

Metallurgical testing at La Guitarra Silver Mine is performed periodically and includes mineralogical investigation and metallurgical testing.

In order to determine the metallurgic behaviour of the mineralized material fed into the processing plant three types of samples are taken:

- Monthly composites samples
- Short term mining samples
- Long term mining samples (drill-hole samples)

The samples are sent to the La Parrilla Central Lab for additional testing.

13.1. Mineralogical Investigations

In order to identify and estimate the distribution of the different minerals in the plant feed, First Majestic has undertaken a series of mineralogical characterization tests performed on polished thick sections. A total of 21 samples have been analysed in two institutions, five samples were analysed by CM5 Consultores Metalurgicos in San Luis Potosi, Mexico between 2012 and 2013. CM5 utilised a petrographic microscope to analyse the polished thick sections. The other 16 samples were analysed at the San Luis Potosi University's Metallurgical Institute in 2013; this Institute utilized a scanning electron microscope to analyse the polished samples.

The results indicate that the ore minerals are predominantly composed of sulphides. The main mineralogical species that are found in the ore are listed as follows in the order from major to minor in their relative proportion: Quartz (SiO₂), Pyrite (FeS₂), Marcasite (FeS₂), Pyrrhotite (FeS₂), Sphalerite (ZnFeS), Hematite (Fe₂O₃), Galena (PbS), Chalcopyrite (CuFeS₂), Arsenopyrite (FeAsS), Covellite (CuS), Pyrargyrite (AgSbS₃), Argentite (AgS), Native Silver (Ag) and Native Gold (Au).





Figure 13-1: Typical distribution of minerals in La Guitarra ore.

13.2. Monthly Composites Samples

A sample is taken from the material fed into the mills on a daily and on a per shift basis. A representative amount from each sample is taken based on the milled tonnage of each shift and a monthly composite is accumulated.

The monthly composite sample is prepared by the plant's metallurgist, with the support of the La Guitarra laboratory staff, and is forwarded to the La Parrilla Central Lab for metallurgical testing.

One of the objectives of this program is the compilation of a database that will enable to assess the relationship between the results of the metallurgical tests in the Central Lab and the actual performance of the industrial flotation plant of La Guitarra to be established. Figure 13-2 below shows the correlation between the mill performance and the Central Lab monthly composites results in terms of metallurgical recovery for silver and gold. Although slightly dispersed, the results show no significant bias; therefore the lab results are considered representative.





Figure 13-2: Metallurgical Recovery comparison between the mill performance and the Central Lab tests.

13.3. Short term mining samples

Each month staff from the Geology Department collect samples from those areas that are to be mined to supply feed to the processing plant in accordance with the 3-month rolling mining plan as prepared by the Planning Department personnel. These samples are denoted "Geometallurgical Samples", and are sent to the Central Lab each month for metallurgical testing.

With the results of these tests, a database is established and analyses are performed to investigate the relationship between the metallurgical performance of the samples grouped by the different geological domains identified in the mine. This information facilitates the projection of the metallurgical behaviour of the mineralized material that will be fed to the plant in subsequent months.

13.4. Long term mining samples (drill-hole samples)

At the end of 2014 a sample testing program was undertaken using coarse reject material from a group of exploration drill-holes from those different geological domains into which the deposits in the Coloso mine had been divided. These domains were defined in accordance with their lithology and mineralogy.

The samples were gathered by the Exploration personnel and sent to the Central Lab for metallurgical tests. This information will facilitate the projection of the metallurgical behaviour of the mineralized material that will be fed to the plant in the long term.



13.5. Metallurgical investigation

13.5.1. Sample preparation

The following procedure is undertaken after arrival of the samples to the Central Lab: sample reception, drying and preparation to minus 10 mesh. Subsequently grinding tests are carried out.

13.5.2. Grindability Testing

Since December 2012, First Majestic has been running tests to estimate the Bond Ball Work Index ("BWi") for the samples that are received from La Guitarra, monthly composites samples and short term mining samples are tested. Figure 13-3 shows the results of the gindability tests for the period from December 2012 to February 2015. The average BWi for the monthly composites for this period was 15.8 kWh/t. Although the short term samples denote a larger dispersion, the average BWi of the samples is 15.1 kWh/t. This dispersion is expected to be mitigated after the compositing effect that blending production from different stopes has on the plant feed.



Figure 13-3: Grindability test results for different samples of La Guitarra Silver Mine

13.5.3. Monthly Composites Samples Testing

Besides the analysis of repetitivity for the metallurgical recovery of silver and gold, for each monthly composite, and depending on the problems or needs experienced during the precedent months, a series of tests is developed that may include the following:



- Standard flotation tests: under similar conditions to those in the plant (grinding size, addition of reagents and flotation times)
- Testing with different reagents
- Testing with different grinding sizes

Results are shared with the plant operation personnel to facilitate continuous improvement iniciatives.

13.5.4. Short Term Mining Samples Testing

Figure 13- and Figure 13-4 shows the results of short term mining sample tests for the period between September 2014 and February 2015. In general a similar behaviour is observed in the recovery of silver between the actual mill performance and the short term mining samples, also known as geometallurgical samples. Metallurgical recovery of gold appears more dispersed for values below 1.0 g/t Au and good correlation for values between 1.0 and 3.0 g/t Au.



Figure 13-4: Silver Recovery for Short Term Mining Samples





Figure 13-5: Gold Recovery for Short Term Mining Samples

13.5.5. Long Term Mining Samples Testing

The metallurgical performance of the ore at depth was investigated with samples from coarse drill core rejects. Figure 13-3 and 13-4 show the series of samples identified by the green triangles.

The metallurgical recovery of silver is well aligned with the actual mill performance; the average recovery from the selected drill core samples at depth is 80% compared with the average of the actual performance in the mill of 83% for the period January 2014 to February 2015.

The metallurgical recovery of gold is more dispersed, nevertheless the average recovery obtained from the drill core samples is 76% compared with the average of the actual performance in the mill of 79% for the period January 2014 to February 2015.



14. Mineral Resource Estimates

Mineral Resources from La Guitarra, Nazareno, Mina de Agua and Coloso areas were classified in order of increasing geological confidence into Inferred, Indicated and Measured categories as defined by the "CIM Definition Standards – For Mineral Resources and Mineral Reserves" in May 10, 2014, in compliance with NI 43-101. CIM Mineral Resource definitions are given below:

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

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.

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of



confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

14.1. Mineral Resource Estimates Coloso

Three-dimensional wireframe models of the Coloso silver and gold mineralization were constructed using lithological and assay information from 127 diamond drill holes. Collar, survey, lithology, and assay files were exported from a Microsoft Access® database as comma-separated-values files ("csv files"), then imported into Vulcan® and combined into a drill-hole assay file.

Block models for the mineral resource estimate were constructed and initialized inside 3D wireframe interpretations of the mineralization. Block grades were estimated and validated.

Ag and Au grades were estimated using Ordinary Kriging (OK), Inverse Distance to the power 2 (ID2) and power 3 (ID3) methods. ID3 was determined to provide the best estimate and was used for reporting Mineral Resources.

14.1.1. Wireframe Model

Geological interpretations for Coloso were provided by First Majestic in the form of 1:500 scale, cross sections. Geological underground mapping of developments was also provided. Amec Foster Wheeler reviewed the geological interpretations and underground mapping and considered them appropriate as a guide to wireframe modeling.

Amec Foster Wheeler prepared wireframes of the Jessica and Joya Larga veins using logged intervals of vein material. These vein wireframes were subsequently used as a guide while preparing grade shell wireframes. High grade wireframes were created at nominal 150 Ag-Eq g/t (Ag + Au * 57.03). Low grade wireframes enclosing the high grade domains were prepared at a nominal 30 Ag-Eq g/t. Leapfrog® modelling software was used to prepare the following grade shell wireframes:

- Jessica Main High Grade
- Jessica Upper High Grade
- Jessica Splay High Grade
- Joya Larga Main High Grade
- Joya Larga Upper High Grade
- Low Grade

The high grade domains are shown in Figure 14-1 to Figure 14-3. Country rock lithologies were not wireframed as the host lithology appears to have little influence on mineralization.





Figure 14-1: Oblique Plan View Looking North East of Modeled High Grade Domains



Figure 14-2: Oblique Plan View Looking North West of Modeled High Grade Domains





Figure 14-3: Oblique Plan View Looking South East of Modeled High Grade Domains

14.1.2. Assay Data and Composites

Assay intervals for Ag and Au were composited down the hole to a fixed length of 0.5 m. Pre and post compositing length-weighted statistics are summarized in Table 14.1.

Table 14.1: Comparison of Assay and Composite Length-Weighted Statistics

		Assa	iys					Compo	sites		
Count	Mean	Min	Мах	CV	Std Dev	Count	Mean	Min	Max	CV	Std Dev
227	277	2	5740	1.8	509	369	262	2	5168	1.8	479
227	1.731	0.003	17.400	1.7	2.888	369	1.626	0.003	17.400	1.6	2.673
	Count 227 227	Count Mean 227 277 227 1.731	Count Mean Min 227 277 2 227 1.731 0.003	Assays Count Mean Min Max 227 277 2 5740 227 1.731 0.003 17.400	Assays Count Mean Min Max CV 227 277 2 5740 1.8 227 1.731 0.003 17.400 1.7	Assays Count Mean Min Max CV Std Dev 227 277 2 5740 1.8 509 227 1.731 0.003 17.400 1.7 2.888	Count Mean Min Max CV Std Dev Count 227 277 2 5740 1.8 509 369 227 1.731 0.003 17.400 1.7 2.888 369	Count Mean Min Max CV Std Dev Count Mean 227 277 2 5740 1.8 509 369 262 227 1.731 0.003 17.400 1.7 2.888 369 1.626	Count Mean Min Max CV Std Dev Count Mean Min 227 277 2 5740 1.8 509 369 262 2 227 1.731 0.003 17.400 1.7 2.888 369 1.626 0.003	Count Mean Min Max CV Std Dev Count Mean Min Max 227 277 2 5740 1.8 509 369 262 2 5168 227 1.731 0.003 17.400 1.7 2.888 369 1.626 0.003 17.400	Count Mean Min Max CV Std Dev Count Mean Min Max CV 227 277 2 5740 1.8 509 369 262 2 5168 1.8 227 1.731 0.003 17.400 1.7 2.888 369 1.626 0.003 17.400 1.6

Jessica All

Joya	Larga	All
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			Assa	ays					Compo	sites		
	Count	Mean	Min	Мах	CV	Std Dev	Count	Mean	Min	Мах	CV	Std Dev
Ag	162	289	3	6200	2.2	637	274	287	3	4422	1.9	535
Au	162	0.759	0.013	11.000	1.5	1.126	274	0.744	0.012	7.900	1.4	1.032



Compositing has resulted in more composites than assays and average composite grades 5% to 7% less than average assay grades. This is a result of splitting of assays greater than 0.5m long during compositing. Split assays have an average grade less than non-split assays, a consequence of selectively sampling of short, high grade intervals. The 0.5m composite interval was selected to reflect planned block size used for grade estimation.

14.1.3. Capping

Outlier analysis determined that capping was required to limit the influence of high grade Ag and Au outliers. The choice of capping value was based on visual inspection of histograms, probability plots, correlation and coefficient plots, as well as decile analysis plots. The following capping was applied to composites:

Capping applied to High Grade zones:

- Ag was capped at 2300 g/t
- Au was capped at 10 g/t

Capping applied to Low Grade Zones:

- Ag was capped at 150 g/t
- Au was capped at 2 g/t

The predicted metal reduction in composites due to proposed capping limits ranges from of <1.0% to 7.5% for Ag and 0.0% to 4.0% for Au within the high grade domains. This is a reasonable amount of metal reduction for the drill hole spacing and mineral deposit style. The impact of grade capping is summarized in Table 14.2.

		A	g			Au	
Domain	Number of Samples	Cap Threshold (g/t)	Composites Above Threshold (%)	Metal Removed (%)	Cap Threshold (g/t)	Composites Above Threshold (%)	Metal Removed (%)
All High Grade Mineralization*	643	2300	1.6	5	10	2.2	3
Jessica Main	257	2300	1.2	7.5	10	1.9	4
Joya Larga Main	239	2300	1.7	7	10	0	0
Splays	147	2300	6.6	<1	10	16.7	3
Low Grade Mineralization	1881	150	1.1	14	2	1	7

Table 14.2:Impact of Grade Capping

*All High Grade Mineralization includes Jessica and Joya Larga Main as well as Splays



14.1.4. Exploratory Data Analysis

Exploratory data analysis (EDA) was performed on the declustered capped composites. Table 14.3 contains a summary of statistics for Ag and Au in the high grade domains. Figure 14-4 and Figure 14-5 show Ag arithmetic and log histograms and probability plots of the Jessica and Joya Larga Main domains.

Table 14.3: Summary Statistics by Domains (assay values in g/t)

		Jess	sica Main						Joya Lar	ga Main		
		Dec	lustered	Compos	sites			Dec	lustered	Compos	ites	
	Count	Mean	Min	Мах	cv	Std Dev	Count	Mean	Min	Мах	CV	Std Dev
Ag Cap	257	215	3	2300	1.6	351	239	204	3	2300	1.6	327
Au Cap	257	1.211	0.003	10	1.7	2.081	239	0.716	0.012	8	1.3	0.934

Jessica Upper Splay

Joya Larga Upper Splay

		Dec	lustered	Compos	sites			Dec	lustered (Composi	ites	
	Count	Mean	Min	Max	CV	Std Dev	Count	Mean	Min	Max	CV	Std Dev
Ag Cap	58	213	2	1175	1.1	231	35	444	44	2300	1.2	548
Au Cap	58	0.896	0.003	8	1.3	1.204	35	0.520	0.088	2	0.8	0.436

Jessica Splay 2

		Dec	lustered	Compos	ites	
	Count	Mean	Min	Мах	CV	Std Dev
Ag Cap	54	398	43	2300	1.3	525
Au Cap	54	3.927	0.011	10	1.0	3.769

CV is the Coefficient of Variation and is equal to the standard deviation divided by mean.




Figure 14-4: Jessica Main Ag g/t Histograms and Probability Plot: Declustered Capped Composites





Figure 14-5: Joya Larga Main Ag g/t Histograms and Probability Plot: Declustered Capped Composites

14.1.5. Block Model Dimensions

A block model was created for the Jessica and for the Joya Larga systems. The models were rotated to match the average strike and dip of the Joya Larga and Jessica Main domains. The block model parameters are listed in Tables 14.5 and 14.6.



Jessica Block Model						
	Y	Х	Z			
Minimum Coordinates	2109300	383635	2060			
Maximum Coordinates	2110900	383775	2560			
Block Extents (m)	1600	140	500			
Block Size (m)	2.5	0.25	2.5			
Rotation (ZXY LRL)	-32	0	120			

Table 14.5: Jessica Block Model Dimensions

Table 14.6: Joya Larga Model Dimensions

Joya Larga Block Model						
	Y	Х	Z			
Minimum Coordinates	2109350	383750	2025			
Maximum Coordinates	2110950	383850	2475			
Block Extents (m)	1600	100	450			
Block Size (m)	2.5	0.25	2.5			
Rotation (ZXY LRL)	15	0	120			

14.1.6. Assignment of Domain and Specific Gravity to Blocks

Blocks were coded by grade shell domains (Table 14.7). A block was tagged with a particular domain code if at least 50% of the block was within the wireframe domain.

Table14.7: Block Model Grade Domain Coding

Domain Name	Block model	Minzone Flag
Jessica Main	Jessica	1
Jessica Upper	Jessica	3
Jessica Splay	Jessica	5
Joya Larga Main	Joya Larga	2
Joya Larga Upper	Joya Larga	4
Low Grade	Jessica and Joya Larga	0



The volume of each mineralized wireframe was then compared with the volume of the blocks inside a particular wireframe. The block model and corresponding domain wireframe volumes compared within $\pm 0.2\%$.

A specific gravity value of 2.44 was assigned to all blocks in the block model. This represents the average of 45 vein and breccia drill core samples specific gravity measurements from Coloso that were measured using water immersion methods. These results were supported by wax-coated water immersion measurements by an independent laboratory.

14.1.7. Block Model Grade Estimate

Ag and Au grade estimation in the Main domains were undertaken in unfolded space to remove the effect of the variable geometry of the mineralized domains. All other estimations were conducted in normal space. Ordinary Kriged (OK), Inverse Distance Squared (ID2), and Inverse Distance Cubed (ID3) estimates were prepared. ID3 was used for reporting Ag and Au.

A two-pass interpolation approach was used for Ag and Au within the Jessica and Joya Larga Main domains. A three-pass interpolation approach was used for Jessica and Joya Larga Upper and Jessica Splay domains. A four-pass interpolation approach was used within the Low Grade domain. Each successive pass has greater search distances and smaller sample selection requirement.

A hard estimation boundary was used for all domains, meaning that composites from outside domains were not used in the interpolation of grade within the domains. Estimation was done separately within each domain.

Table 14.8 and Table 14.9 show the estimation search parameters for Joya Larga and Jessica Block Models.



						Search	Ellipse					
				Rotat	ion (°) (z	XY LRL)	R	anges(n	n)	Min	Max	Max
Domain	Metal	Estimation Method	Pass	Axis 1 (L)	Axis 2 (R)	Axis 3 (L)	x	Y	Z	No. Comp	No. Comp	Comp. /Hole
Jessica		ID3, unfolded	1	0	0	0	70	70	1.5	2	4	2
Main	space	space	2				300	300	3	1	3	-
Jessica Upper		ID3, normal space	1				10	30	10	5	8	2
Jessica			2				20	60	20	3	6	2
Splay	Ag, Au		3				80	240	80	1	3	2
			1**				0.5	2.5	2.5	1	5	2
Low Grade		ID3, normal	2	120	0	-32	10	30	10	5	8	2
		space	3				20	60	20	3	6	2
		4				80	240	80	1	3	2	
All As, Domains*** Zn	ID2, normal space	1				10	30	10	5	8	2	
		2				20	60	20	3	6	2	
			3				80	240	80	1	3	1

Table 14.8: Estimation Parameters for Jessica Block Model

** Pass 1 in Low Grade domain is for outlier restriction.

***As, Pb, and Zn are potential penalty metals and are estimated to determine if penalty thresholds are likely to be reached.



				Search Elli				Ellipse				
				Rotat	ion (°) (2	ZXY LRL)	R	anges(n	n)	Min	Mox	Mox
Domain	Metal	Estimation Method	Pass	Axis 1 (L)	Axis 2 (R)	Axis 3 (L)	x	Y	z	No. Comp	No. Comp	Max. Comp. /Hole
Joya Larga	a Larga ID3, unfolded	ID3, unfolded	1	0	0	0	70	70	1.5	2	4	2
Main		space	2				300	300	3	1	3	-
Joya Larga Upper		Ag, Au ID3, normal space ID3, normal	1				10	30	10	5	8	2
Joya Larga			2) 0		20	60	20	3	6	2
Splay	Ag, Au		3				80	240	80	1	3	2
			1**	120			0.5	2.5	2.5	1	5	2
Low Grade			2			15	10	30	10	5	8	2
		space	3				20	60	20	3	6	2
		4				80	240	80	1	3	2	
All As, Domains*** Pb,	ID2,	1				10	30	10	5	8	2	
	As, Pb,	normal space	2				20	60	20	3	6	2
			3				80	240	80	1	3	2

Table 14.9: Estimation Parameters for Joya Larga Block Model

** Pass 1 in Low Grade domain is for outlier restriction.

****As, Pb, and Zn are potential penalty metals and are estimated to determine if penalty thresholds are likely to be reached.

14.1.8. Block Model Validation

The block model grades were validated by visual inspection comparing composites to block grades in normal space on-screen, global and local grade bias checks, and model selectivity checks. Transformation from unfolded to normal space was also checked.

14.1.8.1. Visual Validation

Visual validation comprised inspection of composites and blocks in vertical sections and plan views. Figure 14-6 to Figure 14-11 show colour-coded Ag-Eq composites and corresponding ID3 block models for Jessica and Joya Larga High grade domains on plan and in section. The



model honours the data well, and grade extrapolation is well-controlled where sufficient data exist.



Figure 14-6: Jessica Block Model Plan Section: Ag-Eq g/t Blocks and Composite points Displayed at 2340m Elevation.

See next Figure for detailed view of area enclosed by red oval.





Figure 14-7: Jessica Block Model Detailed Plan Section: Ag-Eq g/t Blocks and Composite Points Displayed at 2340m Elevation.

Note: Block in upper right show Jessica Upper zone estimated in normal space. Blocks in lower right show Jessica Main zone estimated in unfolded space.



Figure 14-8: Jessica Block Model Cross-Section: Ag-Eq g/t Blocks and Composite Points Displayed at 383200m E. Inset Cross-Section Highlights Area Detailed.





Figure 14-9: Joya Larga Block Model Plan Section: Ag-Eq g/t Blocks and Composite Points Displayed at 2290m Elevation.

See next Figure for detailed plan view of area enclosed by red oval.



Figure 14-10: Jessica Block Model Detailed Plan Section: Ag-Eq g/t Blocks and Composite Points Displayed at 2290m Elevation.





Figure 14-11: Joya Larga Block Model Cross-Section: Ag-Eq g/t Blocks and Composite Points Displayed at 383220m E. Inset Cross-Section Highlights Area Detailed.

14.1.8.2. Global Grade Bias Check

Global grade bias was checked by comparing the ID3 average block grade with nearestneighbour (NN) average block grade. The NN estimator produces a globally unbiased estimate of the average value when no cut-off grade is imposed and is considered a good basis for checking the performance of different estimation methods. The global grade bias check results are summarized in Table 14.10.

Table 14.10:	Jessica Main Zone Global Grade Bias Check
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Jessica	ID3 Ag Block	Grade Estimat	te CV	Nearest Neighbour Ag Block Grade Estimate			Ag Declustered Composites			ID3 - NN Mean Realative Difference	ID3 - Declustered Composite Mean Relative Difference
Connod	104 162	226.66	1.27	104 162	228.00	1.65	257	215.20	1.62	10/	109/
Capped	194,103	230.00	1.27	194,103	230.90	1.00	237	210.29	1.05	-170	10%
Uncapped	194,163	258.03	1.59	194,163	275.71	2.25	257	237.21	2.12	-6%	9%
Joya Larga	ID3 Ag Block	Grade Estimat	te	Nearest Neight	Nearest Neighbour Ag Block Grade Estimate			Ag Declustered Composites			ID3 - Declustered Composite Mean Relative Difference
	Point/Block Count	Mean	CV	Sample Count	Mean	CV	Sample Count	Mean	CV		
Capped	118,975	226.58	1.31	118,975	250.18	1.69	239	204.12	1.60	-9%	11%
Uncapped	118,975	235.77	1.45	118,975	276.05	2.01	239	215.73	1.92	-15%	9%

Note: composites were cell-declustered in unfolded space.



The ID3 Ag estimate shows a slight to moderate low bias relative to the NN model and a moderate high bias relative to declustered composite statistics. These two validation checks for global grade bias provide inconclusive results but do not indicate a global bias is present.

14.1.8.3. Local Grade Bias Check

Local grade bias was checked using swath plots comparing ID3 and NN block grade estimates and composite grades in east-west, north-south and vertical swaths. Swath plots for Jessica and Joya Larga Main domains are shown in Figure 14-12 to Figure 14-15. Swath intervals are 50 m in the northerly and easterly directions, and 10 m in elevation.



Figure 14-12: Swath Plot for Ag Jessica ID3 Model





Figure 14-13: Swath Plot for Au Jessica ID3 Model



Figure 14-14: Swath Plot for Ag Joya Larga ID3 Model





Figure 14-15: Swath Plot for Au Joya Larga ID3 Model

Swath plot checks show that there are minor but acceptable local biases between ID3 and NN models for estimated Ag and Au within Jessica and Joya Larga Main Zones.

14.1.8.4. Selectivity Check

Selectivity analysis for Ag was completed using the Discrete Gaussian Model for change of support from composite size to a selective mining unit ("SMU") size. This was done using inhouse software ("Herco"). The aim of this analysis was to assess whether the estimated resource reasonably represents the recoverable resources relative to the proposed mining method. The selectivity analysis assumed a 5 m by 5 m by 0.5 m block as the smallest SMU size for Jessica and Joya Larga based on current mining practices.

The results of the Herco analysis are discussed in terms of smoothness. An over-smoothed model may over-estimate the tonnes and under-estimate the grade. The model with an appropriate amount of smoothing will follow the Herco grade and tonnage curves for values corresponding to different economic, or grade cut-offs.

The Herco analyses were undertaken using only Indicated blocks. Inferred blocks are not recommended for use in this analysis. Herco grade-tonnage curves the Jessica and Joya Larga Main Zone ID3 Ag models are shown in Figure 14-16 and Figure 14-17. The upward-trending



blue line in these plots represents the ID3 model grades, while the paired magenta line represents the Herco model grades. The downward trending blue line represents the ID3 model tonnage, while the paired magenta line represents the Herco model tonnes.

The Herco selectivity analyses show that the Jessica Ag ID3 model has the appropriate level of smoothing at the proposed cut-off grade of 180 g/t. The Joya Larga Ag ID3 model is slightly smooth relative to the Herco target at the 180 g/t cut-off suggesting the model is calibrated for a slightly larger SMU.



Figure 14-16: Herco Grade Tonnage Curves for Jessica Main Zone ID3 Model





Figure 14-17: Herco Grade Tonnage Curves for Ag ID3 Joya Larga Main Zone ID3 Model

14.1.8.5. Unfolding Transformation Validation

The transformation from unfolded space to normal space was validated by comparing Ag ID3 block grades with the average grade of composites within the block in unfolded space and in normal space (Figure 14-18 and Figure 14-19).





Figure14-18: Joya Larga Main Zone Ag ID3 Block Grade versus Average Ag Composite Grade in Unfolded Space



Figure 14-19: Jessica Main Zone Ag ID3 Block Grade versus Average Ag Composite Grade in Unfolded Space



Both scatter plots are similar and exhibit a high degree of correlation. The lower correlation seen in the normal space scatterplot is due to an averaging process used to populate the blocks after transforming to normal space.

14.1.9. Mineral Resource Classification

The Mineral Resource is classified in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 10, 2014). According to the Definition Standards, Mineral Resources are required to be classified as Inferred, Indicated, and Measured, according to increasing confidence in geological information, grade continuity, and other aspects impacting the resources.

In addition to criteria such as sufficient geological continuity, grade continuity, and data integrity, the principle of confidence in the estimate to support mine planning is included in the definitions of Measured and Indicated Mineral Resource. Amec Foster Wheeler uses an assessment of the drill hole spacing that is sufficient to predict potential production of the mineral resource with reasonable probability of precision over a selected period of time. A statistical drill hole spacing study conducted by Amec Foster Wheeler indicated 30 m sample spacing may be required to support Indicated Mineral Resources. In developing final classification criteria consideration was also given to observed continuity in the mineralized structure, comparison of expected results with actual results from development and production at Coloso, the proposed mine plan for Coloso, and previous successful mining in the La Guitarra. The following criteria for classification of the Coloso Mineral Resources were used:

Indicated Mineral Resources:

- Minimum two drill holes
- Distance to the closest composite less than 47 m
- Distance to the second closest composite less than 66 m

This equates to an approximate sample spacing of 60 m. All other estimated blocks were assigned an Inferred classification. No Measured Mineral Resources were classified.

Figure 14-20 and Figure 14-21 show examples of the classified Mineral Resource in the Jessica and Joya Larga models respectively.





Figure 14-20: Jessica Mineral Resource Classification. Main Domain Long Section



Figure 14-21: Joya Larga Mineral Resource Classification. Main Domain Long Section



14.1.10. Reasonable Prospects for Eventual Economic Extraction

The Mineral Resources have been assessed for reasonable prospects for eventual economic extraction using assumptions based on mining and processing information from 2014 La Guitarra mine operations. Operating costs and metallurgical recovery assumptions are as follows:

•	Mining cost	\$17.93/tonne
•	Processing and refining cost	\$15.84/tonne
•	G&A, Indirect, Sustaining Capital	\$46.12/tonne
•	Silver metallurgical recovery	85%
•	Gold metallurgical recovery	79%
•	Smelter payable silver and gold	94.7%
•	Treatment and refining charges	\$4.43/oz

An overhand cut-and-fill underground mining method with a minimum selective minable shape approximately 0.5 m wide by 5 m long by 5 m high is assumed. First Majestic has successfully used selective overhand cut-and-fill methods at the adjacent La Guitarra deposit which hosts similar style of mineralization. Development of the Coloso deposit began in January 2014 and mining began in April 2014. Exposures indicate good rock conditions are expected.

The La Guitarra mine processes 520 tonnes per day through conventional flotation producing a silver and gold bearing lead concentrate. It is assumed this process will continue and that 95% of the production at the la Guitarra mine will eventually be derived from the Coloso deposit.

Metal prices of \$22/oz Ag and \$1,350/oz Au are assumed.

These economic assumptions result in a Block Unit Value cut-off of approximately \$80/t or approximately 180g/t silver.

The tool "Stope Analyzer" from Vulcan® was utilized to identify the blocks that exceed the cutoff value while complying with the aggregation constraint of minimum stope size. This tool "floats" a stope with the specified dimensions and flags each block when the average block unit value of the contained blocks within a stope exceeds the designated cut-off value.

For constraining resources deemed to be mined by underground methods, the use of this tool as an alternative to a conventional economic grade-shell provides an advantage based on the ability to aggregate blocks into the minimum stope dimensions and the automatic elimination of outliers that do not comply with this condition.



14.1.11. Mineral Resource Statement

Table 14.11 and Table 14-12 show the estimated Indicated and Inferred Mineral Resources of the Coloso deposit. There is no Measured Mineral Resource estimate at this time.

 Table 14.11: Coloso Indicated Mineral Resource; Effective Date 31 December 2014, Greg Kulla

 P.Geo

Domain (Main & Splays)	Confidence Category	Tonnes [1000's]	Ag [g/t]	Au [g/t]	Ag-Eq [g/t]	Contained Ag [1000's of oz]	Contained Au [1000's of oz]	Contained Ag-Eq [1000's of oz]
Jessica	Indicated	564	369	2.03	485	6,696	36.8	8,790
Joya Larga	Indicated	203	393	1.00	450	2,563	6.5	2,940
Total	Indicated	767	376	1.76	476	9,259	43.3	11,730

 Table 14.12: Coloso Inferred Mineral Resource; Effective Date 31 December 2014, Greg Kulla

 P.Geo

Domain (Main & Splays)	Confidence Category	Tonnes [1000's]	Ag [g/t]	Au [g/t]	Ag-Eq [g/t]	Contained Ag [1000's of oz]	Contained Au [1000's of oz]	Contained Ag-Eq [1000's of oz]
Jessica	Inferred	96	278	1.18	345	857	3.6	1,065
Joya Larga	Inferred	83	341	1.08	403	912	2.9	1,078
Total	Inferred	179	307	1.13	372	1,770	6.5	2,143

Notes for Tables 14.11 and 14.12:

- Assumptions include commodity prices of US\$22/oz Ag, US\$1,350/oz Au, process recoveries of 85% for Ag and 79% for Au, US\$17.93/tonne mining cost, US\$15.84/tonne process cost, US\$46.12/tonne G&A, Indirect cost and Sustaining Capital cost, Payable Ag and Au 94.7%, Treatment and Refining US\$4.43/oz
- 2. Formula for Ag metal equivalent is Ag-Eq (g/t) = Ag (g/t) + Au (g/t) x 57.032 (using metal prices and metallurgical recoveries stated above)
- 3. Mineral resources are amenable to underground mining methods and are mined using a cut-and-fill method with a minimum mining width of 0.5m
- An economic cut-off was based on the estimated operating costs and selective mining method. The cut-off grade is 180 g/t silver equivalent (which is equivalent to approximately US\$80/t)
- 5. No allowances were made for mining losses or external dilution; planned internal dilution within minable shapes is included



Table 14-13 shows the sensitivity of the Coloso Mineral Resource to Ag-Eq cut-off change. Sensitivity to variable Ag-Eq metal could represent metal price changes as well as sensitivity to varying mining or processing costs, or varying metallurgical recoveries, or a combination of all of these factors.

AgEq [g/t] Cut-off	Confidence Category	Tonnes [1000's]	Ag [g/t]	Au [g/t]	Ag-Eq [g/t]	Contained Ag [1000's of oz]	Contained Au [1000's of oz]	Contained Ag-Eq [1000's of oz]
100	Indicated	1,076	299	1.43	380	10,327	49.4	13,147
120	Inferred	297	233	0.93	285	2,220	8.9	2,726
	Indicated	969	320	1.52	407	9,977	47.4	12,682
140	Inferred	261	250	0.98	306	2,093	8.2	2,561
	Indicated	855	348	1.64	441	9,556	45.0	12,125
160	Inferred	220	274	1.04	333	1,937	7.4	2,358
	Indicated	767	376	1.76	476	9,259	43.3	11,727
180	Inferred	179	307	1.13	372	1,770	6.5	2,143
	Indicated	712	390	1.81	493	8,934	41.3	11,292
200	Inferred	148	339	1.23	409	1,607	5.8	1,940
	Indicated	654	411	1.88	518	8,634	39.6	10,891
220	Inferred	122	373	1.33	449	1,462	5.2	1,759
	Indicated	606	429	1.95	541	8,364	38.1	10,535
240	Inferred	107	397	1.40	477	1,371	4.8	1,646

Table 14-13:	Coloso Sensitivity of Estimated Mineral Resources to Ag-Eq Cut-of
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Note: Base case is in bold.

14.1.12. QP Comment on Coloso Mineral Resource Estimate

Amec Foster Wheeler is not aware of any environmental, permitting, legal, title, taxation, socioeconomic or political factors that could materially affect the Coloso Mineral Resource estimate. The Jessica and Joya Larga veins and mineralization have good continuity and visual observations and initial production from underground are confirming the grade shell interpretation and grade estimations. First Majestic's drilling and sampling procedures and mine plan allow for variations in the actual location and grade typically encountered in narrow vein underground mining operations.



14.2. Mineral Resources La Guitarra, Nazareno and Mina de Agua Areas

Mineral Resources for La Guitarra, Nazareno and Mina de Agua areas have been estimated by First Majestic based on chip and channel samples across mineralized veins, recent diamond drill-holes and underground mapping. The polygonal method herein described was used to construct longitudinal sections of the vein shoots. The Nazareno Mineral Resource estimate is based on the same polygonal method and uses drill-hole information from the 2000, 2003, 2008, 2011 and 2012 drilling campaigns carried out by Genco and Silvermex. Mineral Resources for Veta Rica and La Tuna veins in the Mina de Agua area were estimated based on channel sampling and underground mapping carried out by First Majestic in 2014.

Cross and longitudinal sections are drawn using drill-hole data, mine maps and channel samples. Polygons of Measured Resources are projected vertically (up and down) 12.5 metres or less away from mine levels that have channel sample lines. Indicated Resources are projected a maximum of 12.5 metres away from mine levels with channel sample lines, from drill-hole intercepts or from the limit of the measured resources polygons only if there is continuity of mineralization as indicated by drilling information or mine levels with sample lines reporting economic grades at widths of 1.0 metre for Mina de Agua and Santa Lucia veins and 1.5 metres for Nazareno and Guitarra veins. Inferred resources are projected 50 metres or less from drill-hole intercepts or polygons of indicated resources. In some cases in the Guitarra vein polygons of inferred resources are projected up to 100 metres away from drill-hole intercepts or polygons of indicated resources but only if there is potential for mineralization or if based on geologic information that there are possibilities for mineralization to continue for more than 50 metres. The Guitarra vein, which is a massive quartz vein, has strong lateral and vertical continuity containing ore shoots with vertical extents of up to 300 metres. Drill-hole spacing varies from 15 to 75 metres in zones of measured and indicated resources. Channel sample lines are spaced between 1.5 and 3.0 metres in those mine levels with measured or indicated resources.





Figure 14-22: Longitudinal section of the Guitarra vein showing resource blocks



Figure 14-23: Longitudinal section of La Tuna vein showing resource blocks





Figure 14-24: Longitudinal section of Veta Rica vein showing resource blocks



Figure 14-25: Longitudinal section of Nazareno vein showing resource blocks



Once the polygons for Measured, Indicated and Inferred resources are drawn on longitudinal sections (using CAD software), the area, average width, volume and weighted mean grade is calculated for every polygon using electronic spread-sheets. Capping of outlier grades is done before calculation of the weighted mean grades. Capping grades are defined by analyzing cumulative frequency histograms, the grade at the 95% percentile is selected and capping is done per sample before compositing by length of channel line of drill-hole intercept. Tonnage is calculated using the calculated volume and an SG of 2.5 tonnes per cubic metre. An SG of 2.5 has been used for La Guitarra veins since 1993; estimated SG for 29 mineralized samples from Coloso using the water immersion method reported minimum SG of 2.19, maximum SG of 2.97 and mean of 2.42. Once the tonnage is calculated, the metallic contents (measured in ounces) are calculated using the summary of the estimated Mineral Resources for the Nazareno, La Guitarra, Santa Lucia, Veta Rica and La Tuna veins.

Table 14.15 shows the consolidated Mineral Resources for La Guitarra Silver Mine.

Table 14.14: Mineral Resources for La Guitarra, Nazareno and Mina De Agua Areas

LA GUITARRA, NAZARENO AND MINA DE AGUA AREA MEASURED AND INDICATED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

Mine / Project	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
LA GUITARRA	Measured (UG)	Sulphides	121	170	2.37	305	660	1,185
NAZARENO	Indicated (UG)	Sulphides	262	216	1.00	273	1,820	2,302
MINA DE AGUA	Total Measured and Indicated (UG)	Sulphides	383	201	1.44	283	2,480	3,487

LA GUITARRA - NAZARENO INFERRED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

Mine / Project	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
LA GUITARRA NAZARENO MINA DE AGUA	Inferred Total (UG)	Sulphides	560	161	1.26	233	2,904	4,201

(1) 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 National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101").

(2) Cut-off grade considered for sulphides was 180 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.

(3) Metallurgical recovery used was 85% for silver and 79% for gold.

(4) Metal payable used was 95% for silver and 95% for gold.

(5) Metal prices considered were \$22 USD/oz Ag, \$1,350 USD/oz Au.

(6) Silver equivalent grade is estimated as:

Ag-Eq = Ag Grade + (Au Grade x Au Recovery x Au Payable x Au Price) / (Ag Recovery x Ag Payable x Ag Price).

(7) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces.

(8) Totals may not add up due to rounding.

(9) Measured an Indicated Mineral Resources are reported inclusive or Mineral Reserves.



Table 14.15: La Guitarra Silver Mine Consolidated Mineral Resources

LA GUITARRA MEASURED AND INDICATED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

Mine / Project	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
LA GUITARRA	Measured (UG)	Sulphides	121	170	2.37	305	660	1,185
	Indicated (UG)	Sulphides	1,029	335	1.56	424	11,078	14,029
	Total Measured and Indicated (UG)	Sulphides	1,150	318	1.65	412	11,738	15,214

LA GUITARRA INFERRED MINERAL RESOURCES WITH AN EFFECTIVE DATE OF DECEMBER 31, 2014

Mine / Project	Category	Mineral Type	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Ag-Eq (k Oz)
LA GUITARRA	Inferred Total (UG)	Sulphides	739	197	1.23	267	4,674	6,343

(1) Mineral Resources have been classified in accordance with the CIM Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101.

(2) Cut-off grade considered for sulphides was 180 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.

(3) Metallurgical recovery used was 85% for silver and 79% for gold.

(4) Metal payable used was 95% for silver and 95% for gold.

(5) Metal prices considered were \$22 USD/oz Ag, \$1,350 USD/oz Au.

(6) Silver equivalent grade is estimated as:

Ag-Eq = Ag Grade + (Au Grade x Au Recovery x Au Payable x Au Price) / (Ag Recovery x Ag Payable x Ag Price).

(7) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces.

(8) Totals may not add up due to rounding.

(9) Measured an Indicated Mineral Resources are reported inclusive or Mineral Reserves.

To the extent known, there are no environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral resources that are not mineral reserves do not have demonstrated economic viability.



15. Mineral Reserves Estimates

15.1. Conversion of Mineral Resources to Mineral Reserves

A Mineral Reserve is the economically mineable portion of a Measured or Indicated Mineral Resource. To convert from Mineral Resources to Mineral Reserves the resource blocks are interrogated by applying economic criteria as well as geometric constraints based on the mining method envisioned. Mineable blocks are defined by following this process.

Mineral Reserves are estimated after incorporating modifying factors to the mineable blocks. The modifying factors considered in La Guitarra and Coloso mines include dilution and extraction factors, in addition to mining losses, referred to in this Technical Report as mining recovery.

15.1.1. Dilution

Mined material that is extracted and delivered to the processing plant is known as run-of-mine material (ROM). ROM material includes dilution ie. material below cut-off grade or waste material which is involuntarily added to the mined mineralized material due to the mining width being greater than the vein width, ground conditions, over-break of hanging-wall and foot-wall, over-digging of floors and/or misrouted loads.

Based on historical records and reconciliation practices in La Guitarra mine, dilution in La Guitarra mine is estimated at 20%. Based on historical records, in La Guitarra mine the grade of the diluting material is estimated at 10% of the grade of the corresponding minable block.

In the Coloso mine, the grade of the diluting material is taken from the grade contained in the corresponding block of the estimated block model if it is contained in the main zones or in the low grade zone; if the diluting material is taken from outside these zones, all metal grades are considered zero. Dilution was estimated at 20% after applying a minimum width constraint of 1.5 metres.

15.1.2. Mining Recovery

Extraction factors are estimated by analyzing the minable blocks and taking into consideration their geometry and position against the access ramp and the designed sublevels. Most underground mining methods require the consideration of pillars between excavations to reduce the risk of ground collapse. In La Guitarra and Coloso mines, the main mining method is overhand cut-and-fill which requires the consideration of horizontal pillars between extraction levels, these are known as crown pillars. The height of the crown pillars in La Guitarra and Coloso mines range between 2 to 4 metres depending on ground conditions and thickness of



the veins. This geometric consideration is considered when estimating reserves for the minable blocks.

Mining losses occur when the geometry of the stopes are unable to follow the orientation and dip of the mineralized portions of the veins or when operational conditions preclude the recovery of the mineralized material contained in the minable blocks. Based on historical records at La Guitarra mine, mining losses for La Guitarra and Coloso mines are estimated at 5% of the minable blocks of Measured or Indicated Mineral Resources after consideration of the mining pillars.

15.2. Cut-off Grade Estimate

Cut-off grade estimates used for conversion of resources to reserves incorporates the following main components:

- Metal prices
- Metallurgical recoveries
- Smelting and refining terms
- Operating costs

15.2.1. Metal Prices

Metal prices considered for La Guitarra Silver Mine's Mineral Reserves estimates were: \$20.00 per ounce of silver and \$1,200.00 per ounce of gold.

The silver price used in this analysis is conservative in comparison to the 3-year trailing average of approximately \$25.00 per ounce of silver at the beginning of December 2014 when the cut-off grade estimates were prepared.

15.2.2. Metallurgical recoveries

ROM material from the Coloso mine has been sent to the processing plant since January 2014. Starting in August, the Coloso mine has contributed approximately 50% of the plant feed as shown in figure 15-1.





Figure 15-1: La Guitarra 2014 Mine Production by domain

Metallurgical recoveries used for cut-off grade estimates were based on the plant performance for the period of August to November 2014. This period was selected after considering that the plant will be processing a blend of ROM material from the La Guitarra mine and the Coloso mine. Metallurgical recovery of silver was set to 85%, which is close to the average for the period of August to November 2014 as depicted in Figure 15-2. Metallurgical recovery for gold was set to 79%, which is close to the average for the same period.



Figure 15-2: Metallurgical Recovery for Silver and Gold during 2014



15.2.3. Smelting and refining terms

A Net Smelting Return (NSR) model was prepared to estimate the net payment received for the silver and gold contents in the concentrate. In terms of silver-equivalent, the treatment and refining charges, payable terms and transport and insurance costs add to \$5.30 per ounce of silver contained in the concentrate.

15.2.4. Operating costs

Actual operating costs from January to October 2014 in association with the 2015 operating budget were used to derive the cut-off grade. Table 15.1 lists the cost utilized to calculate the cut-off grade.

Area / Concept	US\$/t milled
Mining	17.93
Milling	15.84
Indirect	14.54
G&A	6.96
Subtotal	55.27
Sustaining Plant & Infrastructure	7.15
Sustaining Development	13.61
Infill Exploration	1.64
Closure Cost Allocation	2.22
Subtotal	24.62
Total Cost per Tonne	79.89

Table 15.1: La Guitarra Operating Costs Assumptions

15.3. Economic Constraints

The cut-off grade was derived from the NSR model prepared with the parameters described above, for this purpose the grades of silver and gold were expressed in terms of silver-equivalent. The silver equivalent formula used was:

Ag-Eq = Ag Grade + (Au Grade * Au Recovery * Au Payable * Au Price) / (Ag Recovery * Ag Payable * Ag Price)

Ag-Eq = Ag Grade + (Au Grade * 0.79 * 0.95 * 1200) / (0.85 * 0.95 * 20)

The resulting cut-off grade for constraining the Measured and Indicated Resources was 200 g/t Ag-Eq.



15.4. Geometric Constraints

The geometric constraints used for the delineation of practical mining shapes take into consideration the mining method employed at La Guitarra Silver Mine which is overhand cut-and-fill.

For the Coloso mine, practical mining shapes were built using the Vulcan Stope Optimizer[™] tool, the dimensions of each shape are a minimum of 1.5 metres wide, a minimum of 5 metres long and 15 metres high.

The stope optimization tool generates 3D triangulations bundling blocks from the block model that conform to the minimum geometric constraints while satisfying the economic constraint of 200 g/t Ag-Eq of the Measured and Indicated Resource blocks.



Figure 15-3: Longitudinal Section of the Jessica vein in Coloso showing the constraining shapes for reserve estimation





Figure 15-4: Longitudinal Section of the Jessica vein in Coloso showing the reserve blocks after considering pillars and access.



Figure 15-5: Longitudinal Section of the Joya Larga vein in Coloso showing the constraining shapes for reserve estimation





Figure 15-6: Longitudinal Section of the Joya Larga vein in Coloso showing the reserve blocks after considering pillars and access.

For the La Guitarra mine plan, the blocks of Measured and Indicated Resources were analyzed in longitudinal sections. The area was modified using CAD software taking into account the accessibility and requirements for crown pillars. The resulting area was used to estimate the tonnage by applying the average thickness and the average density of the block. Modifying factors for dilution and mining recovery were applied.

15.5. Mineral Reserves Estimates

An inventory of the minable material that conforms to the minimum geometric constraints while satisfying the economic constraint of 200 g/t Ag-Eq was completed. This inventory was modified by applying the modifying factors described above.

Table 15.2 shows the tabulation of Mineral Reserves for the La Guitarra and Coloso mines as of December 31, 2014.



Table 15.2: La Guitarra Silver Mine Mineral Reserves with an effective date of December 31, 2014

Mine	Category	k tonnes	Ag (g/t)	Au (g/t)	Ag-Eq (g/t)	Ag (k Oz)	Au (k Oz) 🛛	Ag-Eq (k Oz)
LA GUITARRA MINE	Proven (UG) Probable (UG)	91 269	153 182	1.84 0.84	256 228	446 1,568	5.4 7.2	745 1,971
	Subtotal Proven and Probable (UG)	359	174	1.09	235	2,014	12.6	2,716
COLOSO MINE	Proven (UG) Probable (UG) Subtotal Proven and Probable (UG)	- 949 949	- 241 241	- 1.05 1.05	- 299 299	- 7,343 7,343	1.0 32.0 33.0	- 9,127 9,127
TOTAL LA GUITARRA SILVER MINE	Proven (UG) Probable (UG)	91 1,217	153 228	1.84 1.00	256 284	446 8,911	6.4 39.2	745 11,098
	Total Proven and Probable (UG)	1,308	223	1.06	282	9,358	45.6	11,843

(1) Mineral Reserves have been classified in accordance with the CIM Definition Standards on Mineral Resources and Mineral Reserves, whose definitions are incorporated by reference into NI 43-101.

(2) Cut-off grade considered for sulphides was 200 g/t Ag-Eq and is based on actual and budgeted operating and sustaining costs.

(3) Metallurgical recovery used was 85% for silver and 79% for gold.

(4) Metal payable used was 95% for silver and 95% for gold.

(5) Metal prices considered were \$20 USD/oz Ag, \$1,200 USD/oz Au.

(6) Silver equivalent grade is estimated as:

Ag-Eq = Ag Grade + (Au Grade x Au Recovery x Au Payable x Au Price) / (Ag Recovery x Ag Payable x Ag Price).

(7) Tonnage is expressed in thousands of tonnes, metal content is expressed in thousands of ounces.

(8) Totals may not add up due to rounding.



16. Mining Methods

16.1. Mining Methods

Given the narrow vein conditions, mining in La Guitarra Silver Mine is undertaken using primarily the conventional overhand cut-and-fill mining method, with limited application of longhole stoping in areas where the vein is found with thickness of 3 or more metres in width.

The cut-and-fill stoping cycle is started with blast holes drilled using hand held jackleg drills followed by blasting using conventional mining explosives. After blasting, LHD's are used to muck the blasted ore. The cut and fill stopes are generally 100 m in length along strike and extend between levels which are typically spaced 15 to 30 m apart vertically. Each cut is 2.5 to 3.0 m in height. Depending on ground conditions, the blast holes are drilled either upward or horizontally. Waste and mineralized material below cut-off grade is blasted down and used as backfill as needed. Figure 16-1 shows and schematic of the overhand cut-and fill mining method.



Figure 16-1: Schematic of the cut-and-fill mining method utilized in La Guitarra



The minimum mining width is 1.5 m and planned dilution is included in the mine design, which varies according to the ground conditions, mining method, vein width, and the dip of the vein. The dilution factors range from approximately 15% to 40%, with an average of approximately 20%. Mined areas are measured to compare the width of the vein and the width of the cut on a regular basis as mining advances, this comparison is used as means of reconciliation and to build the historical database of the dilution and mining recovery factors. Sills and access drifts are excavated at 2.5 m wide by 3.0 m high, cross-cuts and access ramps to the stopes are excavated 3.0 m wide by 3.0 m high, main access ramps are excavated 4.0 m wide by 4.5 m high.

Diesel haul trucks are used for haulage of the ore to the ROM pad at the mine portal. Ore from the mine portal pads is hauled to the primary crusher pad using conventional diesel haul trucks.

Employee and material movement in and out of the mine is via the mine portals driven into the side of the mountains.

16.2. Coloso Mine Design

Access to the underground mine is through a ramp driven from the Coloso portal located in fresh rock on a side of the mountain. The ramp is designed at -12%.

A single ramp layout was selected to access the main blocks of Jessica and Joya Larga veins. The access ramp started on the footwall side of Joya Larga vein, intersecting the vein from the southwest towards the northeast. Once production started in Joya Larga, ramps were driven to access Jessica vein which was intersected on the highwall side (Figure 16-2).




Figure 16-2: Transversal section view showing the main ramps to access the Joya Larga and Jessica veins in Coloso mine

Access ramps planned below the 2315 elevation will be developed on the highwall side of both veins to reduce the length of crosscuts. Figure 16-3 is a longitudinal section of Coloso showing actual and planned development. A summary of the planned development by level for the Coloso mine is shown in Table 16.1.



Figure 16-3: Longitudinal section view of the Coloso mine showing the as-mined and the planned development.



Development in waste for access and preparation totals approximately 15 kilometres over the life-of-mine ("LOM"). The mine plan accounts for a development rate of approximately 2,500 metres per year. The excavated waste is retained inside the mine as backfill in the stopes. Waste encountered while mining cut-and-fill stopes is blasted and left in the stope as backfill. No excess waste rock is anticipated.

Overall mine design is shown in Figures 16-4 and 16-5 for the Jessica and Joya Larga veins respectively. The design incorporates ancillary infrastructure for the operation including, exhaust ventilation raises extends from the bottom of the mine to surface. It includes inclined raises that work as ore passes, mucking bays, sumps and general underground infrastructure excavations.



Vein	Development	Level	Width	Height	Length
	Туре				
	Main Ramp 2350	2,350	4.0	4.5	690
	Main Ramp 5450	2,300	3.0	3.0	295
JESSICA	Access drifts		2.5	3.0	142
	Access Ramps		3.0	3.0	100
	Ore Pass Raises		1.5	1.5	25
	Cross-cuts		3.0	3.0	60
	Ventilation Raises		3.0	3.0	70
	Main Ramp 5330	2,330	4.0	4.5	1,521
JESSICA	Access drifts		2.5	3.0	525
	Access Ramps		3.0	3.0	350
	Ore Pass Raises		1.5	1.5	124
	Cross-cuts		3.0	3.0	160
	Ventilation Raises		3.0	3.0	160
	Main Ramp 5050	2,300	3.0	3.0	535
JESSICA	Access drifts		2.5	3.0	596
JOYA LARGA	Access drifts		2.5	3.0	198
	Access Ramps		3.0	3.0	170
	Ore Pass Raises		1.5	1.5	80
	Cross-cuts		3.0	3.0	144
	Ventilation Raises		3.0	3.0	72
	Main Ramp 4900	2,300	3.0	3.0	1,070
JESSICA	Access drifts		2.5	3.0	515
JOYA LARGA	Access drifts		2.5	3.0	500
	Access Ramps		3.0	3.0	375
	Ore Pass Raises		1.5	1.5	90
	Cross-cuts		3.0	3.0	294
	Ventilation Raises		3.0	3.0	164
	Main Ramp 4650	2,260	3.0	3.0	610
JESSICA	Access drifts		2.5	3.0	435
	Access Ramps		3.0	3.0	200
	Ore Pass Raises		1.5	1.5	75
	Cross-cuts		3.0	3.0	145
	Ventilation Raises		3.0	3.0	160
	Main Ramp 4500	2,300	3.0	3.0	452
JESSICA	Access drifts		2.5	3.0	153
	Access Ramps		3.0	3.0	150
	Ore Pass Raises		1.5	1.5	60
	Cross-cuts		3.0	3.0	146
	Ventilation Raises		3.0	3.0	203
	Magazines		4.0	4.5	45
	Sumps		4.0	4.5	150
	General Infrastructure		4.0	4.5	50
	Main Ramp				5.173
	Access drifts				3.064
	Access Ramps				1.345
Subtotals	Ore Pass Raises				454
	Cross-cuts				949
	Ventilation Raises				829
	Other				245
	Total				12.059





Figure 16-4: Longitudinal section view of the Jessica vein showing planned development and minable blocks.



Figure 16-5: Isometric view looking southwest of the Joya Larga vein showing planned development and minable blocks.



16.3. Life-of-Mine Plan

The LOM plan is based on an annual processing rate of 190,000 tonnes of plant feed, corresponding to approximately 520 tonnes per day. Considering the Mineral Reserves presented in Section 15.5 it represents a mine life of 7 years. Table 16.2 shows the LOM production schedule.

The top elevation of the estimated mineral reserves for the Coloso area is 2380 metres above sea level (2380 level); current operation in the Joya Larga vein is at level 2325 and in the Jessica vein at level 2350. The life-of-mine plan is assumed to reach the 2185 level in both veins. The veins and mineralized structures that have been mined on the Coloso mine do not appear to be significantly different in terms of grade and width to the structures encountered in La Guitarra mine.



Table 16.2: Life-of-Mine Plan

		LOM Plan							
La Guitarra Silver Mine	2015	2016	2017	2018	2019	2020	2021	Total	
ROM Mine Production	kt	187	190	190	190	190	190	171	1,308
Silver grade	g/t Ag	189	185	203	237	265	263	206	223
Gold grade	g/t Au	0.91	1.00	0.97	1.40	1.28	1.14	0.84	1.06
Silver-Equivalent grade	g/t Ag-Eq	239	241	257	315	336	327	253	282
Silver metal content	M oz Ag	1.13	1.13	1.24	1.45	1.62	1.61	1.14	9.31
Gold metal content	k oz Au	5.5	6.1	5.9	8.5	7.8	7.0	4.6	45.4
Silver-Equivalent metal content	M oz Ag-Eq	1.44	1.47	1.57	1.92	2.05	2.00	1.39	11.84
Guitarra SE	kt	5	12	18	18	15	-	-	68
Silver grade	g/t Ag	240	216	218	219	221	-	-	220
Gold grade	g/t Au	1.65	1.64	1.74	1.80	1.94	-	-	1.78
Silver-Equivalent grade	g/t Ag-Eq	332	307	315	319	329	-	-	319
Guitarra SE / Sta Lucia	kt	-	9	14	14	12	-	-	48
Silver grade	g/t Ag	-	232	232	232	232	-	-	232
Gold grade	g/t Au	-	1.82	1.82	1.82	1.82	-	-	1.82
Silver-Equivalent grade	g/t Ag-Eq	-	333	333	333	333	-	-	333
Guitarra Centro	kt	15	12	12	4	-	-	-	44
Silver grade	g/t Ag	173	117	117	117	-	-	-	137
Gold grade	g/t Au	1.29	1.84	1.84	1.84	-	-	-	1.65
Silver-Equivalent grade	g/t Ag-Eq	245	220	220	220	-	-	-	229
Guitarra NW / La Cruz	kt	4	5	-	-	-	-	-	10
Silver grade	g/t Ag	216	79	-	-	-	-	-	140
Gold grade	g/t Au	1.10	2.59	-	-	-	-	-	1.93
Silver-Equivalent grade	g/t Ag-Eq	277	224	-	-	-	-	-	247
Nazareno	kt	-	-	-	18	24	48	72	162
Silver grade	g/t Ag	-	-	-	169	169	169	169	169
Gold grade	g/t Au	-	-	-	0.12	0.12	0.12	0.12	0.12
Silver-Equivalent grade	g/t Ag-Eq	-	-	-	175	175	175	175	175
Veta Rica	kt	-	-	-	-	-	-	7	7
Silver grade	g/t Ag	-	-	-	-	-	-	209	209
Gold grade	g/t Au	-	-	-	-	-	-	0	0
Silver-Equivalent grade	g/t Ag-Eq	-	-	-	-	-	-	222	222
Coloso / Joya Larga Bajo	kt	13	18	34	39	44	6	-	154
Silver grade	g/t Ag	176	154	219	330	424	401	-	302
Gold grade	g/t Au	0.48	0.48	0.45	0.65	1.00	1.16	-	0.69
Silver-Equivalent grade	g/t Ag-Eq	203	181	244	366	480	466	-	341
Coloso / Joya Larga Alto	kt	5	12	5	3	-	-	-	25
Silver grade	g/t Ag	149	163	279	170	-	-	-	184
Gold grade	g/t Au	0.44	0.38	0.71	0.66	-	-	-	0.50
Silver-Equivalent grade	g/t Ag-Eq	174	184	318	207	-	-	-	212
Coloso / Jessica	kt	98	88	72	59	60	127	92	596
Silver grade	g/t Ag	204	204	206	250	254	298	236	239
Gold grade	g/t Au	0.92	0.86	0.77	2.36	1.91	1.54	1.44	1.35
Silver-Equivalent grade	g/t Ag-Eq	255	252	249	382	361	384	316	314
Development in Ore (Sills)	kt	46	35	35	35	35	9	-	194
Silver grade	g/t Ag	163	178	178	178	178	178	-	178
Gold grade	g/t Au	0.84	0.88	0.88	0.88	0.88	0.88	-	0.88
Silver-Equivalent grade	g/t Ag-Eq	210	227	227	227	227	227	-	227



16.4. Manpower and Mining Fleet

La Guitarra is and owner operated mine working seven days a week, three shifts per day. Workforce is available in the surrounding communities hence standard rosters of 48 hours per week are applied. Current workforce is comprised of 306 employees and 87 contractors.

The mining fleet currently in operation at La Guitarra is listed in table 16.3. A sustaining capital allocation is in place to replace the equipment when it reaches the end of its useful life.

#	ТҮРЕ	MODEL	BRAND	CAPACITY	MANUFACTURED
ST # 11	Scoop Tram	LT-410	MTI	3.5 cu yd	2000
ST # 20	Scoop Tram	LT-410	MTI	3.5 cu yd	2012
ST # 21	Scoop Tram	LT-270	MTI	1.7 cu yd	2012
ST # 22	Scoop Tram	LT-270	MTI	1.7 cu yd	2012
ST # 24	Scoop Tram	LH-307	SANDVIK	3.5 cu yd	2012
ST # 27	Scoop Tram	LH-307	SANDVIK	3.5 cu yd	2014
ST # 28	Scoop Tram	LH-307	SANDVIK	3.5 cu yd	2014
ST # 29	Scoop Tram	LH-307	SANDVIK	3.5 cu yd	2014
ST # 30	Scoop Tram	LH-203	SANDVIK	2.0 cu yd	2010
ST # 31	Scoop Tram	LH-100	SANDVIK	0.5 cu yd	
ST # 32	Scoop Tram	LH-203	SANDVIK	2.0 cu yd	2011
ST # 33	Scoop Tram	LH-203	SANDVIK	2.0 cu yd	2011
CBP #4	Low Profile Truck	D-10	ELMAC	10 t	1990
CBP # 5	Low Profile Truck	D-10	ELMAC	10 t	1990
CBP #6	Low Profile Truck	JCI-1504	ELMAC	15 t	2000
CBP # 7	Low Profile Truck	EJC-417	SANDVIK	15 t	2010
J # 3	Jumbo	DD-210	SANDVIK	14 foot	2010
J#4	Jumbo	DD-210	SANDVIK	14 foot	2010
J # 5	Jumbo	AXERA-5	SANDVIK	16 foot	2010
L#2	Front End Loader	WA-200-6	KOMATSU	3.0 cu yd	2007
D#1	Dozer	D65-EX	KOMATSU		2007
EX #1	Excavator	PC-220-LC	KOMATSU	2 t	2007
L#4	Mini Skid	SK-820	KOMATSU	0.5 t	2001
U # 2	Telehandler	IR	IR	3 metres	90
U # 3	Compactor		DINAPAC		2005
U#4	Compactor		CATERPILLAR		2005
EX # 2	Excavator	430-D 4X4	CATERPILLAR	1.5 t	2003

Table 16.3: Mining Fleet

16.5. Geotechnical Considerations

A geotechnical analysis of the Coloso mine was carried out to investigate the ground conditions of the Jessica and Joya Larga veins. The objective was to establish the geo-mechanical bases for the design, construction and development of mining excavations and to provide design guidance for ground support.



Geological information from the Coloso mine was compiled by mapping portions of the general ramp and the 2080 drift, as well as by the integration of the logged geotechnical information from the 2011 and 2012 campaigns drill-holes. The quality of the rock mass was determined utilizing the Q-System method (Barton et al. 1974) ("Q-System"). Based on the Q-system of classification, different geotechnical units were defined, as well as the type and quantity of support estimated for each of the geotechnical units. Two main geotechnical units for the Coloso mine were defined referred below as units UG1 and UG2.

UG-1: This unit corresponds to the quartz veins at Joya Larga ad Jessica, the texture is brecciated containing clasts of volcanic tuffs and lithic volcanic tuffs, mineralized material is supported in a quartz matrix. The veins are encased in lithic volcanic tuffs that show a moderate to strong silicification. Q Values obtained for this geotechnical unit go from 2 to 33, therefore classifying the quality of the rock as fair to good. Image 16-5 below shows lithic volcanic tuffs encasing the brecciated quartz vein.



Figure 16-6: Image of Joya Larga vein drill core.

UG-2: This geotechnical unit is formed by lithic volcanic tuffs presenting weak zones with a slight argillite alteration. Q values were estimated within the range of 0.35 to 8, classifying the quality of the rock as poor to fair.





Figure 16-7: Argillized volcanic tuffs encasing brecciated quartz vein.

16.5.1. Ground Support

A ground support standard was prepared for the designed mining excavations. Considering that development of the access ramps and cross-cuts will be typically carried out in rocks represented by UG-1 and UG-2 units.

Support requirements were estimated applying empirical techniques for excavations of a nominal width of 3 m. The estimations were based on the tunnelling quality index Q (Grimstad and Barton, 1993). The estimated support requirement include systematic bolting spaced 1.5 m to 2.0 m mostly without the need of shotcrete, with some shotcrete required when the Q index falls below 4 for the geotechnical unit UG-1. Support requirements for geotechnical unit UG-2 include systematic bolting spaced 1.5 m to 2.0 m mostly with reinforced shotcrete when the Q index is below 2, and bolting without shotcrete when the rock's Q index is above 2. Results are shown in figure 16-7.

Empirical techniques offer a good reference for the selection of the ground support, but these should only be utilized as a guide, as the design must always be subject to the local conditions of each area.

16.5.2. Stope Design

For a cut-and-fill application, the critical span is considered the dimension of the hangingwall face along the stope. An estimation of the critical dimension was performed using empirical methods. For geotechnical unit UG-1, the critical span is not reached when mining stope heights of 2 m to 3 m and stope lengths of 200 m to 300 metres. For geotechnical unit UG-2, the critical span resulted in the range of 40 m to 200 m long for stope heights of 2 m to 3 metres.





Figure 16-8: Estimated support requirement for UG-1 and UG-2, adapted from Palmstrom and Broch (2006).



17. Recovery Methods

17.1. Processing Method

The mill at the La Guitarra flotation plant processes a silver and gold–bearing mineral through a flotation method producing a bulk Au/Ag concentrate. The installed plant capacity of the processing plant is 520 tonnes per day.

17.1.1. Process Flowsheet

The processing plant flowsheet consists of two-stage crushing, ball mill grinding, and a bulk flotation of the ore to concentrates, followed by thickening and filtering of the concentrates.



Figure 17-1: La Guitarra Processing Plant Flowsheet



17.2. Processing Plant Configuration

17.2.1. Plant Feed

ROM material delivered from the mine is dumped into a masonry coarse ore bin of a 100 tonnes capacity. The coarse ore bin is equipped with a steel rails grizzly in its upper part. The grizzly has openings of 10" x 10"; oversize material is reduced in size using a hydraulic hammer.

17.2.2. Crushing

The coarse ore bin has a lower discharge chute that discharges into a vibrating feeder 24" wide, 24" high by 98" long. The minus 10" material is fed into a 24" x 36" primary jaw crusher and it is reduced to a minus $2-\frac{1}{2}$ " to 3". This product is transported by conveyor-1, a 24" wide belt conveyor, to the vibrating screens. Conveyor-1 also receives the discharge from conveyor-3 (width 24"), which transports the undersize product from the short head secondary cone crusher, size.

The products from both crushers are fed to a 4' x 10' double mesh vibrating screen. This screen has 2 sieves,: the upper one with an aperture of $\frac{3}{4}$ " x 2- $\frac{3}{4}$ " and the lower one with an aperture of $\frac{5}{8}$ " x $\frac{5}{8}$ ". The lower discharge of the screen contains material from 80% to 90% minus $\frac{3}{8}$ " (9525 µm).

The upper discharge of the vibrating screen (rejects from both meshes), flows into conveyor-2 (width 24") which feeds this material to the 4-1/4' secondary short head cone crusher which reduces the size to minus 3/8". Product from this secondary crusher discharges in Conveyor-1.

The lower discharge of the vibrating screen is transported through conveyor-4 (width 18") and discharged into the fine ore bin, constructed of steel plates with a 200 tonnes capacity. The fine ore material is considered 80% to 90% minus 3/8" with average moisture of 5%.

17.2.3. Grinding

The grinding section is comprised of four independent milling circuits. The dimensions and sizes of the equipment that form the 4 milling circuits are listed below:

- 5' x 9' Marcy Mill (100 HP), 10" cyclone, SRL Denver 3"x3" 15 HP pumps
- 8' x 6' Allis Chalmers Mill (300 HP), 15" cyclone, SRL Denver 5"x4" 20 HP pumps
- 6' x 6' Marcy Mill (100 HP), 10" cyclone, SRL Denver 3"x3" 15 HP pumps
- 7' x 10' Chinese manufacture mill, 15" cyclone, Goulds 5"x4" 25 HP pumps



The fine ore is discharged through three chutes into conveyor-5 (width 24") which is equipped with a Ramsey Micro-Tech load cell used to record the mill feed tonnage. Conveyor-5 feeds three of the four ball mills: the 5'x9'; 8'x6' y 6'x6'. Conveyor-9 feeds ball mill 7'x10'.

Each ball mill is equipped with a cyclone classification system and a pair of pumps (one in operation the second on stand-by). All four mills use 3" diameter steel mill balls.

The average percentage of solids that are handled at each point of the circuit are as follows: mill discharge 75%, coarse ore cyclone 78% and fine ore cyclone 25%. The final milled product is approximately 60% at minus 200 mesh, equivalent to a P80 of 115 μ m. The product of the four grinding circuits is fed into an 8' x 8' conditioning tank.

17.2.4. Sampling

Sample cutting is carried out of material in conveyor-5 with a sample cut every 20 minutes. A sample is composited for every 8-hour shift. The samples are prepared and assayed in the La Guitarra laboratory. With this information a daily balance is calculated, this balance shows the silver grade, the gold grades and the metal contents of the material fed to the plant, the final concentrate as well as the tailings.

17.2.5. Flotation

The following reagents and dosage are added to the grinding product in the conditioning tank: Aeropromoter 404 Cytec (40 to 50 g/ton), Aerofloat 31Cytec (10 to 20 g/ton), Aeropromoter 3473 Cytec (60 to 80 g/ton), additionally a foaming reagent is added to the conditioning discharge.

The discharge from the conditioning tank flows by gravity towards two Wemco primary rougher flotation cells, each cell has a capacity of 300 ft³ and is powered by 30 HP motors. The concentrate of both cells is considered a final concentrate and is sent directly to the concentrate thickener via a Goulds 2"x2" pump.

The tailings from both rougher cells are pumped into the next flotation step (Scavenger #1) by a Goulds $5^{\circ}x4^{\circ}$ pump. This stage consists of an unbranded 150 ft³ cell. The concentrate of this cell is considered final and is mixed with concentrates from the two primary rougher cells and pumped into the final concentrate thickener.

Tailings from the scavenger #1 cell are sent to a third stage (Scavenger #2) by a Goulds 5"X4" pump. Scavenger #2 is made up of 2 Wemco cells 300 ft³, each equipped with 30 HP motors. The concentrate from both cells is pumped into a cleaning stage.



The tailings from the scavenger #2 bank are considered final and are pumped to the tailings impoundment by a Goulds 4"x3" centrifuge pump.

The concentrate of the scavenger #2 cell bank is sent to a 150 ft³ Wemco cleaning cell. The concentrate of the cleaning cell is pumped into the final concentrate thickener together with the 2 primary cells concentrate.

Samples are taken in the flotation circuit using in-house constructed pneumatic samplers, plant feed, final concentrates and tailings are sampled with cuts taken every 10 minutes. Samples are sent to the La Guitarra laboratory to be analyzed for: Ag, Au, Pb, Zn, Fe, Cu and As. The production balance is calculated solely with the Au and Ag tests.

17.2.6. Concentrate Handling

The final concentrate, composed of the primary concentrate composite, Scavenger #1 plus the concentrate from the cleaner, is pumped into a 25' thickener tank with a thickening area of 490 ft2. The concentrate pulp is typically 13% solids having a specific gravity of 3.4, although it can vary depending of the grade of the final concentrate.

According to laboratory tests the capacity of the thickener is 40 dry tonnes per day, therefore the capacity of the tank is sufficient for the 520 tonnes per day feed. Considering a relative concentration ratio equal or higher than 20 to 25 tonnes of concentrate are produced daily.

The density of the thickener tank discharge is 48% solids. The thickened material is sent to an Ertel Alsop filter press with 35 plates of 1m x 1m each. The filter press cycle varies from 50 to 60 minutes and has a capacity of 1.1 dry tonnes per cycle. Therefore, the filter's capacity is approximately 26 tonnes per day. Humidity of the filtered concentrate is approximately 10%.

Water overflow from the thickener is recovered and falls into a general water recovery pool situated between the plant and the tailings impoundment. The water recovered in the filter returns to the concentrate thickener to be recovered by its overflow.

The filtered concentrate is stored in a pad located at the bottom of the filter. The concentrate is shipped in 30 to 25 tonnes trucks to the client's storage facility located in the port of Manzanillo, Colima, Mexico. Weekly shipments consist of 4 to 5 batches. Each truck is sampled independently.

17.2.7. Tailings Management

Tailings are pumped to the impoundment located 1.3 km away, through a 5" diameter duct. A conical strainer acts as a collector to gather the clarified water from the shallow part of the impoundment. The water also drains to the bottom of the impoundment and flows through a



piping network spilling into a general pool situated between the impoundment and the plant. In this pool recovered water converges with water recovered from the concentrate thickener and is recycled to the process.

The tailings facilities are continually reviewed and expansions are engineered and constructed to ensure geotechnical stability by First Majestic's independent consultants,

Recycled water accounts for 92% of the plant requirements and only 8% is made up from fresh water. All the fresh water that feeds the plant comes from mine dewatering stations. Water usage in the mill is estimated at 3.6 m³/t, this is made up of 3.3 m³/t of recycled water and 0.3 m³/t of fresh water pumped from the underground dewatering stations. Recycled water is pumped back to the plant, from the recycled water pond, using a Crane Deming D50 pump with a pumping capacity of 90 m³/hour, the recycled water is received in a storage tank for its distribution to the mills and the general mine operation.



18. Project Infrastructure

18.1. General infrastructure

Access to La Guitarra is by a 3 kilometre gravel road which starts from the paved highway connecting the town of Temascaltepec with the city of Zacazonapan. Temascaltepec, the nearest town, has a population of approximately 3,000 people. Most of the La Guitarra employees and contractors are habitants of the Temascaltepec municipality which has a population of approximately 33,000 people. Commute to La Guitarra is done via company sponsored buses, company vehicles, or privately owned vehicles. Materials, fuel, consumables and produced metal concentrates are transported to their destinations by road. La Guitarra Silver Mine surface infrastructure is shown in Figure 18-1.



Figure 18-1: La Guitarra general infrastructure arrangement



18.2. Mine facilities

There are two main portals to access the mines: The San Rafael mine portal to access La Guitarra mine and the Coloso portal to access the Coloso mine. Figure 18-2 shows an image of the San Rafael mine portal. The existing infrastructure includes workshops, analytical laboratory, storage facilities, offices, drill core and logging sheds, water ponds, power substations and power lines. Figure 18-3 shows a detail of the mine and mill infrastructure.



Figure 18-2: Image of the San Rafael mine portal





Figure 18-3: Detail of the La Guitarra infrastructure

18.3. **Processing facilities**

The process plant consists of crushing, grinding, flotation, thickening, filtration, and concentrate storage areas. The building also includes offices and a reagent preparation area. Figure 18-4 shows a general view of the processing facilities.





Figure 18-4: Image of the La Guitarra processing facilities

Other processing facilities include the tailings impoundment facility, an analytical and metallurgical lab, a building for general administrative offices, a recycled water pond for industrial use, and a sewage water treatment plant.

18.4. Power and water

The primary source of power for the mine is from the Mexican national power grid, administered by Comision Federal de Electricidad (CFE), the Mexican utility entity. The power consumption is approximately 1.1 million kilowatt hours per month. The mine and mill operation consume up to 400 cubic metres of fresh water per day.



19. Market Studies and Contracts

The main product obtained from the flotation process at La Guitarra is a silver-gold concentrate, which is sold under annual contracts to arm's length concentrate traders. La Guitarra concentrates are hauled to the delivery point in Manzanillo, a port on the Pacific coast of México.

Typical freight, insurance costs, treatment charges and payable terms for La Guitarra are summarized in Table 19-1.

Concept	Units	Value
Transport Land	\$/t concentrate	71.75
Insurance	\$/t concentrate	2.45
Concentrate Treatment Charge	\$/t concentrate	239.00
Silver Refining Charge	\$/oz Ag	1.50
Silver Payable	%	95.00
Silver Minimum Deduction	g/t	50.00
Gold Refining Charge	\$/oz Au	20.00
Gold Payable	%	95.00
Gold Minimum Deduction	g/t	1.00
Penalty SiO ₂	\$/t concentrate	88.20

Table 19.1: La Guitarra concentrates treatment charges and payable terms.

The silver-gold concentrate is expected to contain about 3.6 kilograms of silver per tonne and about 26 grams of gold per tonne. Based on past performance and the characteristics of the ore, the silver-gold concentrates will carry impurities in the form of silicate oxides (SiO_2) that could be regularly penalized at the smelter. The arsenic content has been recorded at a range between 0.6 and 0.9 percent; the threshold for penalization is 1.0 percent. No other relevant impurities have been recorded.

La Guitarra receives payment for an agreed upon percentage of the silver and gold contained in the concentrates it sells after deduction of smelting and refining costs, based on average spot prices over defined 1-month periods.

Silver-gold concentrates are considered a product with high liquidity, therefore securing contracts for the sale of the concentrates produced in the future is likely, however, there can be no certainty that La Guitarra will always be able to do so or what terms will be available at the time.



Ramon Mendoza Reyes, P.Eng., Vice President Technical Services of First Majestic Silver Corp. and Qualified Person responsible for this section of the report has reviewed the commercial terms of the La Guitarra concentrate sales contract, as well as the performance of the concentrate quality for the shipments in 2014, period during which the material mined from the Coloso area was incorporated into the plant feed. The information reviewed is considered sufficient to support the assumptions utilized in this Technical Report.

Table 19-2 below lists the current relevant contracts that La Guitarra Compañía has in place with third parties to carry out relevant operational activities. In the opinion of the Company's Qualified Person, the terms of the contracts and rates charged are within industry customs.

Contract Activity	Contractor		
Ore haulage	Jose C. Hernandez Alvarez		
Drilling	Hidroperforaciones CEVAL, S.A. de C.V.		
Civil works, Construction	Alejandro Almanza Perez		
Civil works, Construction	Sergio Montero Lopez		
Housekeeping, Catering	Lucero Caballero Aviles		
Security	Seguridad Privada para la Industria Minera, S.A. de C.V.		

Table 19.2: 0	Operational	contracts	in La	Guitarra
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20. Environmental Studies, Permitting and Social or Community Impact

20.1. Environmental Compliance in Mexico

Mining in Mexico is primarily regulated by Federal laws, although some areas require State or local approval. The principal agency promulgating environmental standards and regulating environmental matters in Mexico is the Secretariat of Environment and Natural Resources ("SEMARNAT"). There are Federal delegations or State agencies of SEMARNAT.

An Environmental Impact Manifest ("MIA") must be prepared and submitted to SEMARNAT before applying for a license for a mining operation. The MIA must include an analysis of local climate, air quality, water, soil, vegetation, wildlife and cultural resources in the project area as well as a socioeconomic impact assessment. The Unique Environmental License ("LAU") is based on an approved MIA and is required before the start of an industrial operation.

A permit must be obtained from SEMERNAT for Risk Analysis ("RA"). A study must be conducted to identify and assess any potential environmental discharges and risks and develop a plan to prevent and mitigate these risks, as well as to respond to potential environmental emergencies. A strong emphasis is placed on the storage and handling of hazardous materials such as chemical reagents, fuel and tailings.

The Federal Prosecutor's office for the Protection of the Environment ("PROFEPA") is the responsible body for enforcement, public participation and environmental education. After receiving an operation license, an agreement is setup between the operating company and the PROFEPA as a way to follow-up obligations, commitments and monitoring preventative activities.

A division of SEMARNAT, the National Water Commission ("CONAGUA") is the authority over all water related matters including activities which may impact surface water supply or quality, including water use permits and fees, diversion of surface waters, constructions in significant drainages or water discharge.

In Mexico, all land has a designated use. The majority of the land covering La Guitarra Silver Mine's mining claims is designated as agricultural or forest land. A Change of Land Use ("CUS") permit is required for all areas of production and potentially areas of expanded production. The CUS study is based on federal forestry laws and regulations, and requires an in depth analysis of the current use of the land, native flora and fauna, and an evaluation of the current and proposed uses of the land and their impact on the environment. The study requires that agreements exist with all affected surface rights holders and that an acceptable reclamation and restoration plan is in place.

The National Commission for the Protected Natural Areas ("CONANP") is the agency responsible for planning, research, development and conservation of the national protected



areas. If an industrial activity is planned close to one of the protected areas, an assessment and a permit from the CONANP is required.

An Accident Prevention Program ("PPA") is a study based on the risk analysis and is a compendium of general and specific protocols tailored to the operations, aimed at the prevention and response to hazardous conditions.

Mexican regulations require that prior to construction the National Institute of Anthropology and History ("INAH") review the project plans and inspect the project area for historic and archeological resources.

20.2. Pre-existent Environmental Conditions

The Temascaltepec District is an area that has registered mining activity since colonial times. This is evident in the surrounding area where some of the old mining works can be identified. In June 1990 the first authorization from an environmental impact point of view was issued for the exploitation and the processing of minerals by the mining company: "Minera Arauco, S.A. de C.V. which in 2003, became La Guitarra Compañía Minera, S.A. de C.V.

20.3. Relevant Environmental Impact Aspects

20.3.1. Discharge of waste water, La Guitarra mine

Control and treatment of the present water discharge is paramount to continue to maintain the particular conditions established in the concession title granted by CONAGUA. This is an aspect which to date is controlled and is positive. To guarantee the continuity of the operations, the company requires authorization to increase the volume of water discharged, an application to achieve this is now being processed.

20.3.2. Discharge of waste water, Coloso mine

The discharge of waste water running under the mine could impact sensitive property zones used for tourist, agricultural and grazing activities. The application for the water discharge has been submitted and the authorization from CONAGUA for the discharge of process water is pending resolution.

20.3.3. Current Tailings Impoundment

The potential failure of the retaining curtain or a tailings landslide, is a risk which may have a serious environmental impact to the basin or water bodies such as the El Cajón stream. To mitigate this risk, measures are being taken such as, structural improvements are in progress and improvements to the recovery procedure of water coming in from the cyclone, also the contact between the decanted water and the slope of the tailings impoundment has been minimized.



20.3.4. New tailings impoundment

The design of a new tailings impoundment is in process with special attention given to the possible presence of historic mining infrastructure that may physically impinge on the new operations. The time that it may take to design and to produce the environmental impact and technical studies required to justify the change of land use application, is a key factor. It is estimated that this process could take 12 to 14 months; consequently it has a high priority due to the projected life span of the present tailings impoundment of approximately 16 months.

20.3.5. Operation in Tlacotal

Tlacotal is the community where the Mina de Agua exploration and exploitation mining project is located. To date, there is no current permit for change of use of land or environmental impact assessment. Tlacotal is part of a long term project to substitute the production in La Guitarra and Coloso mines. The relevant studies are in progress.

20.4. Environmental Management Program

In order to have an adequate Environmental Management Program, the mining unit of La Guitarra is in the development and implementation phase of an Environmental Administration System, which is based on the international norm ISO 14001:2004 and the requirements to obtain the Clean Industry Certification, issued by SEMANART through PROFEPA.

20.5. Summary of relevant environmental obligations

The following is a description of the principal obligations relating to environmental matters for La Guitarra Silver Mine.

- Yearly operation licence (COA). Report presented annually and contains environmental information on the operation of the mine: water, air, waste discharge, materials, and production.
- Dangerous waste declaration. Official document that controls the operation of dangerous waste from the mining installation to the site where it will be disposed (final disposal site).
- Quarterly payment for water use.
- Quarterly payment for water disposal.
- Monitoring plan for water, air, waste discharge and noise. Done in accordance with the different authorizations and conditions of the Official Mexican Norms.
- Those established in the authorizations obtained and/or Official Mexican Norms.



20.6. Permitting

20.6.1. Current Permits

La Guitarra is an operating mine, as such it already holds all major environmental permits and licenses required by the Mexican authorities to carry out mineral extracting activities. Table 20.1 contains a list of the major permits issued to La Guitarra.

Permit	Number	Authority	Status	Date Granted	Validity Period
Environmental License	DFMARNAT/ SGPARN/ F0530/3897/03	SEMARNAT	Current	Jun. 2003	Indefinite
Environmental Impact Authorization for Mining and Metallurgical activities, including Tailings Management Facilities and Waste Rock Management Facilities for the La Guitarra Silver Mine site	DFMARNAT/ 3124/2012	SEMARNAT	Current	Aug. 2012	20 years operation
Environmental Impact Authorization for the Extension of Infrastructure to the Coloso Area	DFMARNAT/ 5289/2012	SEMARNAT	Current	Dec. 2012	10 years for construction and operation
Authorization for industrial land use in La Guitarra	DFMARNAT/ 3990/2012	SEMARNAT	Current	Oct. 2012	5 years
Authorization for industrial land use in Coloso	DFMARNAT/ 5286/2012	SEMARNAT	Current	Dec. 2012	5 years
Authorization for Exploration Activities in La Guitarra NW Area	DFMARNAT/ 2215/2014	SEMARNAT	Current	May 2014	2 years
Authorization of Land Use in Federal Zones	04MEX109110/ 18EDDL12	CONAGUA	Current	Dec. 2012	10 years
Concession title for water rights	5MEX101984/ 18FNGE97	CONAGUA	Current	Mar. 1997	10 years renewals Mar. 2017
Concession title for water discharge	04MEX150031/ 18FDDL11	CONAGUA	Current	Jul. 2011	10 years
Authorization for Purchase, Use and Storage of Explosives for Mining Activities	3840-Mexico	SEDENA	Current	Yearly renewals Jan. 2014	Yearly renewals Dec. 2014

20.6.2. Permits in Process

The following is a list of the permits in process for La Guitarra Silver Mine.

• Environmental Impact Assessment and Land Change Use for the expansion of mining infrastructure in Tlacotal. This document is currently being evaluated by SEMARNAT.



Recently, a request form to increase the authorized volume of water discharged (from 426,685 m³ to 520,340 m³ of water from the mine) was submitted to SEMARNAT. A resolution is expected by May 2015.

20.7. Mine Closure Plan

The plan for Restoration and Closure of the mining unit of La Guitarra is based on the policies and terms documented in the commitments established in the Asset Retirement Obligations (ARO). The Restoration plan has as an objective the calculation of the investment that will be applied in the support and execution of those works and activities that will return the land to a predetermined state once any and all activities associated with the mining project have ceased.

The estimated closure cost as of December 2014 is \$2.0 million dollars and is based on the following considerations:

- Underground mines and associated installations
- Processing plant and above ground associated installations
- Tailings impoundment
- Ancillary service buildings (offices, general service infrastructure, shops)



21. Capital and Operating Costs

21.1. Capital Costs

The La Guitarra Silver Mine has been in operation continuously since 2010 when Silvermex acquired the property from Genco. Subsequently, First Majestic secured indirect ownership of the La Guitarra on July 3, 2012 when it acquired all of the issued and outstanding common shares of Silvermex. Right after the acquisition, First Majestic started an expansion project to increase the throughput capacity from 350 to 520 tpd. After finishing this expansion in May 2013, the Company has been incurring sustaining capital expenditures in three main areas: maintenance of the processing plant, mine development and infill exploration.

In late 2013, the Company started the development of the Coloso mine incurring some expansionary capital expenditures in the areas of mine development, mine infrastructure and a 5 km power line. Any further expansionary capital expenditures are considered on hold due to the current silver market conditions.

Sustaining capital expenditures throughout the projected life of mine are assumed to average \$4.26 million per year, including maintenance of the processing plant, equipment replacement in the mine, mine development, for tailings facility expansions and infill exploration.

The sustaining capital budget includes an allocation of an estimate of \$1.0 million for the development of an 800 metre tunnel to connect the Coloso mine with the Nazareno area, in addition, an estimate of \$1.5 million for mine developing and preparation in Nazareno to bring this mine into production as replacement of the La Guitarra mine production after the depletion of reserves in this area.

21.2. Operating Costs

The assumptions for the operating costs for mining and processing are based on the actual operating costs and considerations to the approved operating budget. These assumptions are supported by the consideration of a constant throughput of 190,000 tonnes per year.

The long term assumptions for operating costs are based on the breakdown shown in Table 15.1. The annual cost projection is shown in Table 21.1 below.



Table 21.1: Estimated Annual Costs

Area / Concept	Estimated Unit Costs	Estimated Annual Costs	
	US\$/t milled	millions US\$/year	
Mining	17.93	3.41	
Milling	15.84	3.01	
Indirect	14.54	2.76	
G&A	6.96	1.32	
Subtotal	55.27	10.50	
Sustaining Plant & Infrastructure	7.15	1.36	
Sustaining Development	13.61	2.59	
Infill Exploration	1.64	0.31	
Subtotal	22.40	4.26	
Total Cost	77.67	14.76	



22. Economic Analysis

According to NI 43-101, in reference to Item 22: Economic Analysis:

"Producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production unless the technical report includes a material expansion of current production."

Since La Guitarra Silver Mine is a producing operation and there is no ongoing material expansion of the production capacity and the assumptions of this Technical Report are based on current production capacity and current operating practices, there is thus no requirement to disclose information related to Item 22.



23. Adjacent properties

There are no adjacent properties from which exploration and or mining activities would provide a better understanding of the Coloso, Nazareno, La Guitarra, or Mina de Agua areas.



24. Other Relevant Data and Information

There is no other relevant data or information to be contained in the Technical Report.



25. Interpretation and Conclusions

25.1. Coloso Mineral Resource Estimate

Estimating the Coloso Main domains in unfolded space resulted in increased Ag and Au grade continuity relative to estimation in normal space. Grade continuity observed in current underground vein exposures through mapping and sampling suggests the actual grade continuity is less than that estimated in unfolded space and more than that estimated in normal space. Preliminary comparison of the estimated model with production from Joya Larga, and to a lesser amount Jessica, shows reasonable agreement in contained metal. The actual location of the veins locally differs from the interpreted model by a few metres. The model has been successfully used to guide drilling to locate off-sets and splays. Infill drilling to improve understanding of local grade continuity and establish the location of the vein with better accuracy would be required to support Measured Mineral Resources.

First Majestic has been successful in developing mine plans based on current drill spacing and development work. In-fill drilling in advance of mine planning may be beneficial in identifying areas where variations or higher complexity of the vein system may exist.

25.2. La Guitarra, Nazareno and Mina de Agua areas Mineral Resource Estimate

The resource estimates for La Guitarra, Nazareno and Mina de Agua areas were carried out using a polygonal method based on drill-hole and channel samples information.

25.3. Mineral Reserve Estimates

There are several aspects that could increase the life of the mine while maintaining current production levels: the conversion of inferred resources into reserves and the production from areas not included in reserves. The historic conversion factor of inferred mineral resources into mineral reserves has been registered in approximately 50%. The production of material from areas not in reserves accounts for approximately 30% in the last two years. Provided that the exploration programs are maintained at current levels and the development of adjacent undrilled areas with economic potential is maintained, there is a possibility that the mine life can be extended.

25.4. Risks

Mineral resource and mineral reserve estimates are based on assumptions that included mining, metallurgical, and economic parameters including operating costs, taxation and metal prices; other considerations include the ability to continue utilizing the existing infrastructure and the preservation of the permit to operate, the availability of labour and the business-like relationship with the union and neighboring surface owners. In the best of the Company's Qualified Persons, there are no known environmental, permitting, legal, title, taxation, socio-



economic, marketing, political, or other factors or risks that could materially affect the ability to extract the mineral resources and mineral reserves at La Guitarra.

Increasing dilution, increasing costs, reduced mining recovery, reduced metallurgical recovery, presence of deleterious elements and taxation and lower metal prices will have a negative impact on the quantity of estimated mineral resources and mineral reserves. Nevertheless, other than the typical fluctuations in the metal prices, there are no other known factors that may have a material impact on the estimate of mineral resources and mineral reserves at La Guitarra.



26. Recommendations

26.1. Coloso Mineral Resource Estimate

The vein and grade shell model should be updated quarterly and annually incorporating underground mapping and drilling results. Consideration should be given to estimating the Joya Larga Upper and Jessica Upper and the Jessica Splay domains in unfolded space. The estimated model and mine production should be reconciled annually to assist in model validation and improvements. These programs could be completed with data collected through the normal course of operations and are not expected to require additional funding to complete.

26.2. La Guitarra, Nazareno and Mina de Agua areas Mineral Resource Estimate

Since 2013 First Majestic has been implementing best industry practices in data collection procedures (geologic core logging, SG determination, etc.), as well as QA/QC protocols and data verification practices. The Company's Qualified Persons recommend that these improved exploration practices are maintained in future drilling campaigns. Additionally, other practices such as geotechnical and geometallurgical classifications should be improved.

26.3. Exploration Potential

The Company's Qualified Persons are of the opinion that La Guitarra property has the potential for hosting additional resources laterally at the Guitarra vein, at depth at Coloso and laterally and at depth at Nazareno, Mina de Agua and El Rincón. The mineral potential at depth in La Guitarra mine may be restricted to some ore shoots in Guitarra NW and Guitarra SE. Additionally, the Comales – Nazareno, Coloso, and Guitarra systems appear to occur in anastomosing fault structures (based on all the parallel structures associated with them) and therefore they could have the potential for additional subsidiary veins on both the hanging wall or the footwall. These potential structures at the hanging wall and the footwall should be explored with diamond drill-holes or cross cuts. Further exploration at Nazareno and Coloso areas may result in a near term increase in the recognized resources from this area.

26.3.1. Coloso Exploration Potential

Coloso's Jessica and Joya Larga veins are open to depth. A study of the resource potential below the 2200 level and the economics of mining this potential considering the necessary development and infrastructure (including ventilation and pumping) has not yet been conducted. The Company's Qualified Persons recommend continuing the exploration of these areas to assess the potential extensions. The estimated cost of an exploration program is estimated at \$3,000,000, this estimate includes the following items:



•	development and preparation	\$	350,000
•	drilling and sampling	\$2	,500,000
•	geological modeling and engineering	\$	150,000

26.3.2. Nazareno Exploration Potential

The Company's Qualified Persons recommend going forward with exploration works required for Nazareno and the permitting works required for Mina de Agua in order to facilitate the upgrading of current resources and potentially generate additional resources. A program of \$1,000,000 is estimated, including:

•	4000 metres of	of diamond	drilling for	\$500,000
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- 200 m of exploration development \$300,000
- geological modeling and engineering \$200,000

26.3.3. Mina de Agua and El Rincón Exploration Potential

The Mina de Agua and El Rincón are highly prospective given the history of production from these areas. The Company's Qualified Persons recommend going forward with exploration works required for Mina de Agua and El Rincon, and the permitting and exploration works required for Mina de Agua in order to work in the upgrading of current resources and potentially generate additional resources.

The Company's Qualified Persons recommend the development of a 2 km tunnel from Mina de Agua to El Rincón plus a comprehensive exploration program to develop the resources and potentially increase the delineation of resources and reserves in these areas. The estimated cost for an exploration program at Mina de Agua and El Rincón is estimated at \$10,000,000, including the following elements:

•	surface rights for exploration and development	\$	600,000
•	environmental studies and permitting	\$	400,000
•	access tunnels and development	\$ 2	,500,000
•	dewatering of old workings	\$	500,000
•	exploration, drilling and sampling	\$6	,000,000.

26.4. Throughput Expansion

A series of conceptual studies have been conducted to investigate the potential of increasing the throughput capacity of the processing plant to 1,000 tpd. Preliminary estimates indicate a potential reduction of the operating costs driven by the economy of scale, mainly in the processing and general and administration areas; however, the economics of the mine capacity expansion and the plant expansion have not been completed. An increase in the annual throughput could reasonably be expected to increase the total costs but to reduce unit operating



costs. The Company's Qualified Persons recommend continuing the conceptual studies and progressing to an internal pre-feasibility level study to assess the economic viability of this expansion. The cost of a pre-feasibility analysis of an expansion to 1,000 tpd of La Guitarra capacity is estimated at \$500,000, including de following elements:

•	sampling	\$100,000
•	crushing and grinding testwork	\$150,000

• engineering studies and designs for \$250,000.

26.5. Alternative Refining Process

The Company has initiated an intensive leaching optimization testwork for the La Guitarra concentrate. The purpose of the work is to investigate the leachability of the concentrates using an intensive leaching circuit to recover silver and gold and the suitability to precipitate and produce Dore. The cost of the preliminary optimization testwork is estimated at \$80,000. If the leaching testwork results are positive in terms of increasing the net smelting terms of the La Guitarra concentrate, then the Company's Qualified Persons recommend continuing the testwork to advance this project to a pre-feasibility stage.

An intensive leaching process could generate potential savings in the following areas, reduction of the transportation cost of the concentrates from the mine to the smelter, reduction on the smelter and refining costs and an increase in the net recovery of metals in the concentrates. Capital investment will be required for a leaching reactor, electrowinning infrastructure and cyanide detoxification infrastructure.

A pre-feasibility study will facilitate estimating the capital and operating costs and to assess the economic merit of this option. The cost of a pre-feasibility analysis of an intensive leaching process for the La Guitarra operation is estimated at \$350,000, including the following items:

•	sampling	\$100,000
•	metallurgical testwork	\$120,000
•	engineering studies and designs	\$130,000.


27. References

La Guitarra Mine Technical Report, Temascaltepec, Mexico, dated January 29, 2010. Prepared for Genco Resources Ltd. by Glenn R. Clark, P.Eng, Glenn R. Clark & Associates Ltd. and John C. Thornton, SAIIM, Thor Resources LLC.

La Guitarra Feasibility Study dated August 2009. Prepared for Genco Resources Ltd. by Kappes, Cassiday and Associates.

Albinson T., Norman D. I., Cole, D., and Chomiak B., 2001, Controls on Formation of Low-Sulfidation Epithermal Deposits in Mexico: Constraints from Fluid Inclusion and Stable Isotope Data: ECONOMIC GEOLOGY, Special Publication 8, p. 1 - 32.

Barton, N.R., Lien, R. and Lunde, J. 1974. Engineering classification of rock masses for the design of tunnel support. Rock Mech. 6(4), 189-239.

Benton L. D., 1991, Composition and source of the hydrothermal fluids of the San Mateo vein, Fresnillo, Mexico as determined from 87Sr/ 86Sr, stable isotope and gas analyses: Unpublished Master's Thesis, New Mexico Institute of Mining and Technology, 55 p.

Blatter D. L., Carmichael, I. S. E., Deino A. L., Renne P. R., 2001, Neogene volcanism at the front of the central Mexican volcanic belt: basaltic andesites to dacites, with contemporaneous shoshonites and high–TiO2 lava: Geologic Society of America Bulletin, vol. 113, pp. 1324-1342.

Buchanan L. J., 1981, Precious metal deposits associated with volcanic environments in the Southwest, in Dickson W. R., Payne, W. D. (eds.), Relations of tectonics to ore deposits in the southern cordillera: Arizona Geological Society Digest, vol. 14, pp. 237-262.

Bryan S. E., Ferrari L., Reiners P. W., Allen C. M., Petrone C., Ramos-Rosique A., and Campbell I. H., 2008, New Insights into Crustal Contributions to Large-volume Rhyolite Generation in the Mid-Tertiary Sierra Madre Occidental Province, Mexico, Revealed by U-Pb Geochronology, Journal of Petrology, vol. 49, pp. 47 – 77.

Campa M. F., and Coney P. J., 1983, Tectono-stratigraphic terranes and mineral resource distributions in Mexico: Canadian Journal of Earth Sciences, v. 20, p. 1040–1051.

Campa M. F., Torres de León R, Iriondo A., and Premo W. R., 2012, Caracterización geológica de los ensambles metamórficos de Taxco y Taxco el Viejo, Guerrero, México, Boletin de la Sociedad Geologica Mexicana, Vol. 64, núm. 3, p. 369-385.

Camprubí A., Cardellach E., Canals A., and Lucchini R., 2001, The La Guitarra Ag-Au Low-Sulfidation Epithermal Deposit, Temascaltepec District, Mexico: Fluid Inclusion and Stable Isotope Data: ECONOMIC GEOLOGY, special pub. 8, p. 159–185.



Camprubí A., and Albinson T., 2007, Epithermal deposits in Mexico: Update of current knowledge, and an empirical reclassification: Geological Society of America, Special Paper 422, p. 377–415.

Camprubí A., Chomiak B. A., Villanueva-Estrada R. E., Canals A, Norman D. I, Cardellach E., Stute M., 2006, Fluid sources for the La Guitarra epithermal deposit (Temascaltepec district, Mexico): Volatile and helium isotope analyses in fluid inclusions, Chemical Geology, vol. 231, Issue 3,pp. 252–284.

Chávez-Aguirre J. M. and Mendoza-Flores, A., 1998, Dataciones de rocas ígneas y metamórficas de la región de Valle de Bravo, Estado de México, in Ajaníz-Álvarez, Susana A., Ferrari, Luca, Nieto-Samaniego, Angel Francisco, y Ortega-Rivera, Ma. Amabel, eds., Ubro de Resúmenes, Primera Reunión Nacional de Ciencias de la Tierra: Sociedad Geológica Mexicana, Instituto Nacional de Geoquímica, Sociedad Mexicana de Mineralogía, Asociación Mexicana de Geólogos Petroleros, México, D. F., pp. 144.

Ferrari L., Orozco-Esquivel T., and Levresse G., 2011, Síntesis de la información geológica, geofísica y geoquímica de la Faja Volcánica Transmexicana y de los yacimientos minerales asociados, Centro de Geociencias, Universidad Nacional Autónoma de México Campus Juriquilla, Querétaro, Qro. México, Informe para Hochschild Mining Plc., 97 p.

Ferrari L., Valencia-Moreno M. & Bryan, S. E., 2007, Magmatism and tectonics of the Sierra Madre Occidental and their relation to the evolution of the western margin of North America. Geological Society of America, Special Papers 442, 1-39.

García-Rodríguez P., 1982, Estudio geológico del distrito minero de Temascaltepec (Edo. de México): San Luis Potosí, Universidad Autónoma de San Luis Potosí, Tesis profesional, 51 p.

Hedenquist J. W., Arribas, A., Jr., and Reynolds, J. T., 1998, Evolution of an Intrusion-Centered Hydrothermal System: Far Southeast-Lepanto Porphyry and Epithermal Cu-Au Deposits, Philippines: Economic Geology, vol. 93, p. 373–404.

Norman D. I., Moore J. N. and Musgrave J., 1997, More on the use of fluid inclusion gaseous species as tracers in geothermal systems, Twenty-second workshop on geothermal reservoir engineering, Stanford University, Stanford, California, pp. 27 – 29.

Palmstrom, A. and Broch, E., 2006. Use and misuse of rock mass classification systems with particular reference to the Q-system. Tunnels and Underground Space Technology, 21, 575-593.

Sedlock R., Ortega-Gutierrez F. and Speed R. C., 1993, Tectonostratigraphic Terranes and Tectonic Evolution of Mexico. Geological Society of America, Special Papers 278, 153 pp.



Simmons S.F., Gemmell J.B., and Sawkins F.J., 1988, The Santo Niño silver-lead-zinc vein, Fresnillo district, Zacatecas, Mexico: Part II: Physical and chemical nature of ore-forming solutions: ECONOMIC GEOLOGY, v. 83, p. 1619–1641.

Simmons S.F., 1991, Hydrologic implications of alteration and fluid inclusion studies in the Fresnillo district, Mexico: Evidence for a brine reservoir and a descending water table during the formation of hydrothermal Ag-Pb-Zn orebodies: ECONOMIC GEOLOGY, v. 91, p. 204–212.

Starling A., 2005, Structural and Remote Sensing Study of the La Guitarra Mine District, Mexico State, Mexico, Internal Report Prepared for Genco Resources Ltd., 48 p.

Vazquez J. M.E., 2014, La Guitarra Drilling Program - Coloso Area, Drilling Period 2008, 2011, 2012, Quality Control Sample Results Report. Internal Document.

Vazquez J. M. E., 2014, La Guitarra Drilling Program - Nazareno Area, Drilling Period 2011 and 2012, Quality Control Sample Results Report. Internal Document.

Velador J. M., 2010, Timing and Origin of Intermediate Sulfidation Epithermal Veins and Geochemical Zoning in the Fresnillo District, Mexico: Constrained by 40Ar/39Ar Geochronology, Fluid Inclusions, Gas Analysis, Stable Isotopes, and Metal Ratios, Unpublished Doctoral Dissertation, New Mexico Institute of Mining and Technology, 170 p.

Velador J. M., Heizler M. T., and Campbell A. R., 2010; Timing of Magmatic Activity and Mineralization and Evidence of a Long-Lived Hydrothermal System in the Fresnillo Silver District, Mexico: Constraints from 40Ar/39Ar Geochronology, ECONOMIC GEOLOGY, vol. 105, pp. 1335-1349.