

# **ENDEAVOUR SILVER CORP.**

# TECHNICAL REPORT ON THE PARRAL PROJECT, STATE OF CHIHUAHUA, MEXICO

NI 43-101 Technical Report

Qualified Persons: José M. Texidor Carlsson, M.Sc., P.Geo. Valerie Wilson, M.Sc., P.Geo.

March 14, 2020

55 University Ave. Suite 501 | Toronto, ON, Canada M5J 2H7 | T + 1 (416) 947 0907 www.rpacan.com



Report	Control	Form
--------	---------	------

**Client Name & Address** 

**Document Title** 

Technical Report on the Parral Project, State of Chihuahua, Mexico

Endeavour Silver Corp., P.O. Box 10328, 1130-609 Granville Street, Vancouver, B.C. V7Y 1G5

Document Reference	Project #3205	Status & Issue No.		FINAL Version	
Issue Date	March 14, 2020				
Lead Author	José M. Texidor Car Valerie Wilson	lsson	(Signed) (Signed)		
Peer Reviewer	David Ross		(Signed)		
Project Manager Approval	Normand L. Lecuyer		(Signed)		
Project Director Approval	Jason J. Cox		(Signed)		

 Report Distribution
 Name
 No. of Copies

 Client
 RPA Filing
 1 (project box)

#### Roscoe Postle Associates Inc. now part of SLR Consulting Ltd 55 University Avenue, Suite 501 Toronto, ON M5J 2H7 Canada Tel: +1 416 947 0907 Fax: +1 416 947 0395 mining@rpacan.com



# TABLE OF CONTENTS

#### PAGE

1 SUMMARY Executive Summary Technical Summary	1-1
2 INTRODUCTION	
Sources of Information	
List of Abbreviations	
3 RELIANCE ON OTHER EXPERTS	
4 PROPERTY DESCRIPTION AND LOCATION	4-1
Mining Rights in Mexico	4-1
Land Tenure	4-2
Licences, Permits, and Environment	4-5
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND	
PHYSIOGRAPHY	
Accessibility and Local Resources	
Physiography and Climate Infrastructure	
6 HISTORY	
7 GEOLOGICAL SETTING AND MINERALIZATION Regional Geology	
Property Geology	
Structure	
Mineralization	
8 DEPOSIT TYPES	
9 EXPLORATION	
10 DRILLING	
Introduction	
11 SAMPLE PREPARATION, ANALYSES, AND SECURITY	11-1
Quality Assurance/Quality Control.	
12 DATA VERIFICATION	12-1
Database Verification	12-1
13 MINERAL PROCESSING AND METALLURGICAL TESTING	13-1
SGS de Mexico, 2007	
PRA, 2007	13-2
SGS de Mexico, 2008	
SGS Mineral Services, 2010	
ALS, 2018	



ALS, 2019	13-6
14 MINERAL RESOURCE ESTIMATE	14-1
Resource Database	
Palmilla	14-4
Veta Colorada	
El Cometa	-
San Patricio	
Sierra Plata	
15 MINERAL RESERVE ESTIMATE	15-1
16 MINING METHODS	
17 RECOVERY METHODS	17-1
18 PROJECT INFRASTRUCTURE	
19 MARKET STUDIES AND CONTRACTS	19-1
20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY	Y IMPACT
	20-1
21 CAPITAL AND OPERATING COSTS	21-1
22 ECONOMIC ANALYSIS	
23 ADJACENT PROPERTIES	23-1
24 OTHER RELEVANT DATA AND INFORMATION	24-1
25 INTERPRETATION AND CONCLUSIONS	
26 RECOMMENDATIONS	
27 REFERENCES	27-1
28 DATE AND SIGNATURE PAGE	
29 CERTIFICATE OF QUALIFIED PERSON	

# LIST OF TABLES

#### PAGE

Summary of Mineral Resources – December 31, 2019	
Proposed Budget	1-3
Summary of Exploration Activities at Parral	
Drilling Summary	10-3
Additional Underground Drill Hole Summary for the Sierra Plata Area	10-6
Endeavour QA/QC Samples Insertion Rate 2017-2019 - Parral	11-3
Protocol for Monitoring Standard Performance	11-4
Endeavour Certified Reference Material	11-4
Re-Assay Results for 2017 Silver Blank Failure	11-9
ALS 2018 Test Work Sample Head Assays	13-3
	Summary of Mineral Resources – December 31, 2019 Proposed Budget Mining Concessions and Taxes Summary of Endeavour Silver's Surface Access Rights Summary of Exploration Activities at Parral Drilling Summary Additional Underground Drill Hole Summary for the Sierra Plata Area Endeavour QA/QC Samples Insertion Rate 2017-2019 - Parral Protocol for Monitoring Standard Performance Endeavour Certified Reference Material Re-Assay Results for 2017 Silver Blank Failure ALS 2018 Test Work Sample Head Assays



Table 14-1	Summary of Mineral Resources – December 31, 2019	14-2
Table 14-2	Summary of Resource Database	14-4
Table 14-3	Summary of Palmilla Area Assay Statistics	14-6
Table 14-4	Summary of Palmilla Area Full Length Composite Statistics	14-9
Table 14-5	Summary of Palmilla Area Grade Interpolation Plan	14-10
Table 14-6	Summary of Palmilla Area Density Measurements	14-11
Table 14-7	Palmilla Area Block Model Dimensions	
Table 14-8	Comparison of Block and Composite Grades in the Palmilla Area	14-14
Table 14-9	Palmilla Area Mineral Resource Estimate as of December 31, 2019	14-16
Table 14-10	Palmilla Area Current vs. Previous Mineral Resources	14-18
Table 14-11	Summary of Veta Colorada Silver Assay Statistics	14-19
Table 14-12	Summary of Veta Colorada Grade Interpolation Plan	14-21
Table 14-13	Basic Statistics of Bulk Density Measurements at Veta Colorada	14-22
Table 14-14	Veta Colorada Block Model Dimensions	14-22
Table 14-15	Comparison of Block and Composite Grades at Veta Colorada	14-24
Table 14-16		
Table 14-17	Current vs. Previous Mineral Resources at Veta Colorada	14-28
Table 14-18	Summary of El Cometa Area Assays Statistics	14-29
Table 14-19	Average Grade of El Cometa Full Length Composites	14-32
Table 14-20	Summary of El Cometa Grade Interpolation Plan	
Table 14-21	Summary of El Cometa Bulk Density Measurements	
Table 14-22	, , , , , , , , , , , , , , , , , , ,	
Table 14-23		
Table 14-24		
Table 14-25		
Table 14-26	Summary of San Patricio Assay Statistics	14-45
Table 14-27	Summary of San Patricio Full Length Composites and High Grade Rest	
Probabilities		
Table 14-28	Summary of San Patricio Interpolation Plan	
Table 14-29	Basic Statistics of Bulk Density Measurements at San Patricio	
Table 14-30	Block Model Dimensions of San Patricio	
Table 14-31	Comparison of Block and Composite Grades at San Patricio	14-51
Table 14-32	•	
Table 14-33		
Table 14-34	Summary of Sierra Plata Silver Assay Statistics	14-58
Table 14-35	Summary of Sierra Plata Lead Assay Statistics	
Table 14-36	Summary of Sierra Plata Zinc Assay Statistics	
Table 14-37	Summary of Sierra Plata Silver Full Length Composite Statistics	
Table 14-38	Summary of Sierra Plata Lead Full Length Composite Statistics	
Table 14-39	•	
Table 14-40	Summary of Sierra Plata Grade Interpolation Plan	
Table 14-41	Basic statistics of Bulk Density Measurements at Sierra Plata	
Table 14-42		
Table 14-43		
Table 14-44		
Table 26-1	Proposed Budget	



# LIST OF FIGURES

PAGE

Figure 4-1	Location Map	4-4
Figure 4-2	Surface and Land Tenure Map	
Figure 7-1	Regional and Local Geology	7-2
Figure 8-1	Alteration and Mineralization Distributions within a Low Sulphidation Epithe	
Vein Syster		
Figure 9-1	Parral Project Areas	
Figure 10-1	•	
Figure 11-1	•	
rigule 11-1	ALO Quality Control Flowsheet of Core Sampling, Freparation and Analys	
Eiguro 11 2	Parral CDN-ME-1407 CRM Gold Performance for 2017 to 2019 Period	11 6
	Parral CDN-ME-1407 CRM Gold Performance for 2017 to 2019 Period	
•		
Figure 11-4		
Figure 11-5		
Figure 11-6	· · ·	
Figure 11-7		
Figure 13-1		
Figure 13-2		
Figure 13-3		
Figure 13-4		
Figure 14-1		
Figure 14-2	Palmilla Area Vein Models and Historical Workings	14-5
Figure 14-3	Capping Analysis of Silver Assay Values in the Palmilla Area	14-7
Figure 14-4	Capping Analysis of Gold Assay Values in the Palmilla Area	14-8
Figure 14-5	Comparison of Block and Composite Gold and Silver Grades within the P	almilla
Area		
Figure 14-6	Underground Shapes Used for Mineral Resource Reporting in the Palmill	
Figure 14-7	Capping Analysis of Silver Assay Values at Veta Colorada	14-20
Figure 14-8		
Figure 14-9		
i igui e i i e		
Figure 14-1	4 Comparison of Block and Composite Silver and Zinc Grades at El Come	14-37
Figure 14-1		
	5 Departing Change at La Comata	
Figure 14-1		
Figure 14-1		
Figure 14-2	4 Classification at Sierra Plata	14-66

Figure 14-25	Comparison of Block and Composite Silver Grades within Sierra Plata Area



## **1 SUMMARY**

## **EXECUTIVE SUMMARY**

Roscoe Postle Associates Inc. (RPA), now part of SLR Consulting Ltd (SLR), was retained by Endeavour Silver Corp. (Endeavour Silver) to prepare an independent Mineral Resource estimate and supporting Technical Report on the Parral Project (the Project), located in the state of Chihuahua, México. The purpose of this report is to disclose updated Mineral Resource estimates prepared for the Palmilla, Veta Colorada (Argentina-Remedios area), El Cometa, and San Patricio areas, and an initial Mineral Resource estimate for the Sierra Plata area of the Veta Colorada vein. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the Project on November 20 and 21, 2019.

Endeavour Silver is a mid-tier precious metals mining company listed on the New York Exchange (NYSE:EXK) and Toronto Stock Exchange (TSX:EDR). Endeavour Silver owns three underground silver-gold mines and a number of near production and development projects in Mexico, and exploration projects in both Mexico and Chile, including the Parral Project.

The Project is located within the municipality of Hidalgo de Parral, an historic silver and gold mining district in Mexico. Endeavour Silver first acquired the El Cometa claim areas in 2006, and in 2016, expanded its land holdings in the area with the acquisition of the past producing silver mine of Grupo Mexico (IMMSA) that closed in 1990, which included the historical mines and showings of Veta Colorada (including the Argentina-Remedios and Sierra Plata areas), San Patricio, and Palmilla. The Project has seen periodic exploration and drilling activities from 2006 to 2019.

Table 1-1 summarizes the Mineral Resource estimate for the Project prepared by RPA, based on drill hole data available as of December 31, 2019. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification.



	Tonnes		Gra	ade			Contain	ed Metal	
Category/Zone	(Mt)	(g/t Ag)	(g/t Au)	(% Pb)	(% Zn)	(Moz Ag)	(koz Au)	(MIb Pb)	(MIb Zn)
Indicated									
El Cometa	0.18	55	1.17	3.20	3.30	0.3	6.8	12.8	13.2
Sierra Plata	0.43	271		0.49	0.35	3.7		4.7	3.4
Total	0.61	207	0.35	0.63	0.608	4.0	6.8	<b>1</b> 7.5	<b>1</b> 6.5
Inferred									
Palmilla	0.89	219	0.58			6.3	16.7		
San Patricio	0.76	512	0.21			12.5	5.2		
Veta Colorada	1.36	291				12.7			
El Cometa	0.88	74	1.45	3.27	3.24	2.1	41.0	63.4	63.0
Sierra Plata	0.17	263		0.42	0.37	1.4		1.6	1.4
Total	4.04	269	0.48	0.35	0.35	35.0	62.8	65.0	64.3

#### TABLE 1-1 SUMMARY OF MINERAL RESOURCES – DECEMBER 31, 2019 Endeavour Silver Corp. – Parral Project

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

 Mineral Resources are estimated at a cut-off grade of 130 g/t silver equivalent (AgEq) for Palmilla, Veta Colorada, and San Patricio, 200 g/t Ag for Sierra Plata, and a net smelter return (NSR) cut-off value of US\$55/t for El Cometa.

3. The NSR and AgEq values are based on estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges. Metal price assumptions were: US\$17/oz Ag, US\$1,275/oz Au, US\$1.15/lb Zn, and US\$1.00/lb Pb.

4. A minimum mining width of 1.5 m was used for Sierra Plata, and 1.75 m for all other veins.

5. Bulk density varies by vein.

6. Numbers may not add due to rounding.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

### CONCLUSIONS

RPA has the following conclusions:

- The Project district comprises classic, high grade silver, epithermal vein deposits, characterized by low-sulphidation mineralization
- The sampling, sample preparation, analyses, security, and data verification meet industry standards and are appropriate for Mineral Resource estimation.
- The Mineral Resource estimate conforms to CIM (2014) definitions.
- As of December 31, 2019, Indicated Mineral Resources are estimated to total 0.61 million tonnes, containing 4.0 million ounces of silver, 6,800 ounces of gold, 17.5 million pounds of lead, and 16.5 million pounds of zinc. Inferred Mineral Resources are estimated to total 4.04 million tonnes containing 35.0 million ounces of silver, 62,800 ounces of gold, and 65.0 million pounds of lead, and 64.3 million pounds of zinc.



• The Project will likely need additional Mineral Resources to advance to the next phase of study.

### RECOMMENDATIONS

Endeavour Silver proposes surface and underground drilling of 5,000 m and underground development of 400 m to establish drill platforms during 2020 to test extensions of Veta Colorada vein for a total budget of approximately US\$1.4 million (Table 1-2). RPA concurs with this program and budget.

Item	Cost per Unit	No. Units	Cost (US\$)
Drilling (inc. Logging, Sampling, Assaying)	US\$150/m	5,000	750,000
Underground Development	US\$1000/m	400	400,000
Permits			50,000
Metallurgical Test work			100,000
Subtotal			1,300,000
Contingency	10%		130,000
Total			1,430,000

# TABLE 1-2PROPOSED BUDGETEndeavour Silver Corp. – Parral Project

Other recommendations are as follows:

- Focus exploration efforts on Mineral Resource expansion, with an initial focus on the Veta Colorada trend.
- Conduct additional work on metallurgy and metal recoveries.

## TECHNICAL SUMMARY

### PROPERTY DESCRIPTION AND LOCATION

The Project is located within the Parral mining district, in the municipality of Hidalgo del Parral (Parral), a city of approximately 105,000 inhabitants located in the southern portion of the State of Chihuahua, Mexico.

### LAND TENURE

The Project comprises 48 concessions representing a total area of 3,458 ha (34 km<sup>2</sup>). Endeavour Silver, via its wholly owned subsidiary, Minera Plata Adelante, S.A. de C.V. (MPA), holds 100% of 46 of the concessions. The ownership of the other two concessions, Dolores



and Ampliacion de San Juanico (with a combined area of 14.1 ha), is under dispute but these are outside of the area for which Mineral Resources are defined. All of the 48 mineral concessions are valid for a 50 year period from the date of titling.

### EXISTING INFRASTRUCTURE

The location of the Project is excellent due to its proximity to the cities of Parral and Chihuahua. The Project hosts power and telephone lines, as well as several historic mining buildings.

#### HISTORY

The Parral mining district is situated in the centre of the Mexican silver belt characterized by epithermal silver and gold veining. The Parral area has undergone sporadic periods of mining since the colonial era with multiple mines operated by various entities over time. All significant mining in the district had ceased by the end of 1990.

Endeavour Silver first acquired the El Cometa claim area in 2006, and in 2016, expanded its holdings in the area with the acquisition of the past producing silver mine of IMMSA that closed in 1990, and which included the historical mines and showings of Veta Colorada (including Sierra Plata), San Patricio, and Palmilla.

#### GEOLOGY AND MINERALIZATION

The Project is comprised of classic, high grade silver, epithermal vein deposits, characterized by low-sulphidation mineralization and adularia-sericite alteration. The veins are typical of most other epithermal silver-gold vein deposits in Mexico in that they are primarily hosted in volcanic flows, pyroclastic and epiclastic rocks, or sedimentary sequences of mainly shale and their metamorphic counterparts.

#### **EXPLORATION STATUS**

From 2006 to 2019, Endeavour Silver's exploration activities at the Project have focussed on geological and structural mapping on surface and in historic mine workings, as well as surveying the historical mine workings themselves. In addition to mapping, surface trenching, underground channel sampling, and grab sample collection programs have taken place over the Project area. The principal areas of focus to date have been El Cometa, Palmilla, San Patricio, and Veta Colorada.



The purpose of the exploration programs has been to identify and confirm new areas of mineralization to be able to prioritize drilling targets. Several veins have been identified, and Veta Colorada and San Patricio are currently the most prospective based on trench, sampling, and mapping results.

#### MINERAL RESOURCES

RPA prepared Mineral Resource estimates of five small areas within the Project based on drilling and sampling results available up to December 31, 2019. Each area hosts silver mineralization, with or without gold, lead, and zinc. The estimates were based on 196 drill holes totalling 56,263 m. Veins were modelled using three-dimensional wireframes of the mineralization using logging and grade. Prior to compositing to full length intervals, high Ag, Au, Pb, and Zn values were cut to appropriate levels. Block model grades within the wireframe models were interpolated by inverse distance cubed (ID<sup>3</sup>). Wireframes were generated using Seequent's Leapfrog software and the interpolation plan was executed using Maptek's Vulcan or Leapfrog software. Blocks were classified as Indicated or Inferred using a drill hole spacing and geological confidence based criterion. RPA validated the estimates using industry standard validation techniques.

Mineral Resources are reported using either a Net Smelter Return (NSR) cut-off value for veins with both precious and base metals, or an AgEq cut-off grade for veins with precious metals only. El Cometa was reported at an NSR value of US\$55/t. Palmilla, Veta Colorada (Argentina-Remedios), and San Patricio were reported at an AgEq cut-off grade of 130 g/t. Sierra Plata was reported at an Ag cut-off grade of 200 g/t.

For all but Sierra Plata, Mineral Resources are reported within underground shapes that have a minimum thickness of 1.75 m. A minimum thickness of 1.5 m was used for the vein interpretation at Sierra Plata. Mineral Resources are reported within the Endeavour Silver claim boundaries and exclude historically depleted areas. Mineral Reserves have not yet been estimated at the Project.



# **2 INTRODUCTION**

Roscoe Postle Associates Inc. (RPA), now part of SLR Consulting Ltd (SLR), was retained by Endeavour Silver Corp. (Endeavour Silver) to prepare an independent Mineral Resource estimate and supporting Technical Report on the Parral Project (the Project), located in the state of Chihuahua, México. The purpose of this report is to disclose updated Mineral Resource estimates prepared for the Palmilla, Veta Colorada (Argentina-Remedios area), El Cometa, and San Patricio areas, and an initial Mineral Resource estimate for the Sierra Plata area of the Veta Colorada vein. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

Endeavour Silver is a mid-tier precious metals mining company listed on the New York Exchange (NYSE:EXK) and Toronto Stock Exchange (TSX:EDR). Endeavour Silver owns three underground silver-gold mines and a number of near production and development projects in Mexico, and exploration projects in both Mexico and Chile, including the Project.

The Project is located within the municipality of Hidalgo de Parral, an historic silver and gold mining district in Mexico. Endeavour Silver first acquired the El Cometa claim areas in 2006, and in 2016, expanded its land holdings in the area with the acquisition of the past producing silver mine of Grupo Mexico (IMMSA) that closed in 1990, which included the historical mines and showings of Veta Colorada (including the Argentina-Remedios and Sierra Plata areas), San Patricio, and Palmilla. The Project has seen periodic exploration and drilling activities from 2006 to 2019.

### SOURCES OF INFORMATION

A site visit was carried out by José M. Texidor Carlsson, M.Sc., P.Geo., on November 20 and 21, 2019.

Discussions were held with personnel from Endeavour Silver:

- Mr. Luis R. Castro Valdez, VP Exploration
- Mr. Manuel Echevarría, P.Eng., MBA, VP New Projects
- Ms. Esperanza Acosta, Exploration Systems Specialist



This report was prepared by Mr. Texidor Carlsson and Ms. Valerie Wilson, M.Sc., P.Geo., who are both independent Qualified Persons (QP) and are jointly responsible for all sections in this report. Mr. Texidor Carlsson was assisted by Mr. Lance Engelbrecht in the preparation of Section 13. RPA would like to acknowledge the excellent cooperation in the transmittal of data and information by Ms. Esperanza Acosta and Mr. Luis Castro of Endeavour Silver.

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.



## LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US\$) unless otherwise noted.

	mieren	Let.	thousand tannas
μ	micron	kt	thousand tonnes
μg	microgram	kVA	kilovolt-amperes
a	annum	kW	kilowatt
A	ampere	kWh	kilowatt-hour
bbl	barrels	L	litre
Btu	British thermal units	lb	pound
°C	degree Celsius	L/s	litres per second
C\$	Canadian dollars	m	metre
cal	calorie	Μ	mega (million); molar
cfm	cubic feet per minute	m <sup>2</sup>	square metre
cm	centimetre	m <sup>3</sup>	cubic metre
cm <sup>2</sup>	square centimetre	MASL	metres above sea level
d	day	m³/h	cubic metres per hour
dia	diameter	mi	mile
dmt	dry metric tonne	min	minute
dwt	dead-weight ton	μm	micrometre
°F	degree Fahrenheit	mm	millimetre
-	foot		
ft ft²		mph	miles per hour
ft <sup>3</sup>	square foot	MVA	megavolt-amperes
	cubic foot	MW	megawatt
ft/s	foot per second	MWh	megawatt-hour
g	gram	oz	Troy ounce (31.1035g)
G	giga (billion)	oz/st, opt	ounce per short ton
Gal	Imperial gallon	ppb	part per billion
g/L	gram per litre	ppm	part per million
Gpm	Imperial gallons per minute	psia	pound per square inch absolute
g/t	gram per tonne	psig	pound per square inch gauge
gr/ft <sup>3</sup>	grain per cubic foot	RL	relative elevation
gr/m³	grain per cubic metre	S	second
ha	hectare	st	short ton
hp	horsepower	stpa	short ton per year
hr	hour	stpd	short ton per day
Hz	hertz	t	metric tonne
in.	inch	tpa	metric tonne per year
in <sup>2</sup>	square inch	tpd	metric tonne per day
J	joule	ŪS\$	United States dollar
k	kilo (thousand)	USg	United States gallon
kcal	kilocalorie	USgpm	US gallon per minute
kg	kilogram	V	volt
km	kilometre	Ŵ	watt
km <sup>2</sup>	square kilometre	wmt	wet metric tonne
km/h	kilometre per hour	wt%	weight percent
koz	thousand ounces	yd <sup>3</sup>	cubic yard
kPa	kilopascal	yu yr	year
Νu	Miopuoui	יען	your



# **3 RELIANCE ON OTHER EXPERTS**

This report has been prepared by RPA for Endeavour Silver. The information, conclusions, opinions, and estimates contained herein are based on:

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

For the purpose of this report, RPA has relied on ownership information provided by Endeavour Silver. RPA has not researched property title or mineral rights for the Parral Project and expresses no opinion as to the ownership status of the property.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.



## **4 PROPERTY DESCRIPTION AND LOCATION**

The Project is located within the Parral mining district, in the municipality of Hidalgo del Parral (Parral), a city of approximately 105,000 inhabitants located in the southern portion of the State of Chihuahua, México (Figure 4-1). The Project is approximately 10 km northwest of the city and is centred on approximately 428,000 m E and 2,991,500 m N (WGS84 Zone 13R) (26° 56' 29.88"N / 105° 42'45.25"W).

The site hosts many historical mining related features, including shafts, underground development, surface trenches, buildings and historical building foundations, a historic tailings dam, and several roads. The property is transected by a small river.

## MINING RIGHTS IN MEXICO

Mining and exploration rights in Mexico are controlled by the Mexican Federal Government. Prior to 2006, a complex system of concession assignment was in place in Mexico and included both exploration and exploitation concessions with differing validity periods, tax, and assessment obligations. The mining law reform of December 2005 simplified the concession regime, and all new concessions are now "mining concessions", valid for a 50 year period and renewable for an additional 50 year period. Upon enactment of the mining law reform, all previously issued exploration and exploitation concessions were converted to mining concessions without changing the effective date of the title.

The application of Mining Law and its Regulations is the responsibility of the Federal Executive (President's Office) through the Ministry of Economy. Mining concessions are administered by the *Dirección General de Minas* (DGM; Mexican Mines Bureau), formed under the Ministry of Economy. To maintain concessions in good legal standing, concession holders are obligated to make semi-annual tax payments and to file annual documentation of exploration and/or development work on the concession, including expenditure, for which there is a required minimum, and production reports. Both the semi-annual tax and the minimum investment increase each year in accordance with rates published by the Mexican Government: older mining concessions require higher taxes annually (maximum rate at year 11) and higher investment expenditure (maximum rate at year 7). In addition, permission to access the mining concession must be granted by the surface rights owner, and the

concession owner must be authorized to conduct work by the relevant environmental authority, which requires the submission of an Environmental Impact Manifest.

## LAND TENURE

The Project comprises 48 concessions representing a total area of 3,458 ha (34 km<sup>2</sup>). Endeavour Silver, via its wholly owned subsidiary, Minera Plata Adelante, S.A. de C.V. (MPA), holds 100% of 46 of the concessions. The ownership of the other two concessions, Dolores and Ampliacion de San Juanico (with a combined area of 14.1 ha), is under dispute but these are outside of the area for which Mineral Resources are defined.

A list of concessions, with expiry dates, areas, and annual taxes, is presented on Table 4-1 and their location is shown in Figure 4-2.

	Title Term of Mineral			2020 Annual Taxes (pesos)		
Concession Name	Number	Concession	Hectares	1st Half	2nd Half	
La Palmilla, Fracc. 1	229284	30/03/07 to 29/03/57	2.23	389	389	
La Palmilla, Fracc. 2	229285	30/03/07 to 29/03/57	5.59	962	962	
La Palmilla, Fracc. 3	229286	30/03/07 to 29/03/57	1.00	180	180	
Socorro	226001	15/11/05 to 14/11/55	422.50	71,932	71,932	
El Refugio	171999	21/09/83 to 20/09/33	3.38	585	585	
San Patricio Dos	213774	15/06/01 to 14/06/51	34.69	5,915	5,915	
San Patricio y Anexas	173719	11/04/85 to 10/04/35	15.95	2,725	2,725	
La Fe Reducción	243999	13/02/15 to 12/02/55	1748.15	297,597	297,597	
La Fe 8	225265	12/08/05 to 11/08/55	4.00	691	691	
La Fe 9	225266	12/08/05 to 11/08/55	388.89	66,211	66,211	
La Fe 10	225268	12/08/05 to 11/08/55	113.83	19,387	19,387	
La Fe 13, Fraccion I	225649	30/09/05 to 29/09/55	78.91	13,443	13,443	
La Fe 13, Fraccion II	225650	30/09/05 to 29/09/55	11.19	1,915	1,915	
Don Hector	201982	11/10/95 to 10/10/45	10.12	1,732	1,732	
Sergio Omar	209801	09/08/99 to 08/08/49	44.15	7,525	7,525	
Molotitos	210495	08/10/99 to 07/10/49	7.30	1,252	1,252	
Don Jesus Dos	210161	10/09/99 to 09/09/49	78.61	13,391	13,391	
San Alberto	244598	04/11/15 to 03/11/65	8.99	226	226	
Veta Grande	192441	19/12/91 to 18/12/41	204.00	34,737	34,737	
La Palmilla	240039	29/03/12 to 28/03/62	4.00	691	691	
Las Guijas	240040	29/03/12 to 28/03/62	4.80	827	827	
Demas. entre Palmilla y Santa Ines	10084	16/08/99 to 15/08/49	0.26	53	53	
La Soledad 2da.	13604	27/04/11 to 26/04/61	2.000	350	350	
La Concordia	14954	09/06/11 to 08/06/61	0.202	44	44	

# TABLE 4-1MINING CONCESSIONS AND TAXESEndeavour Silver Corp. – Parral Project

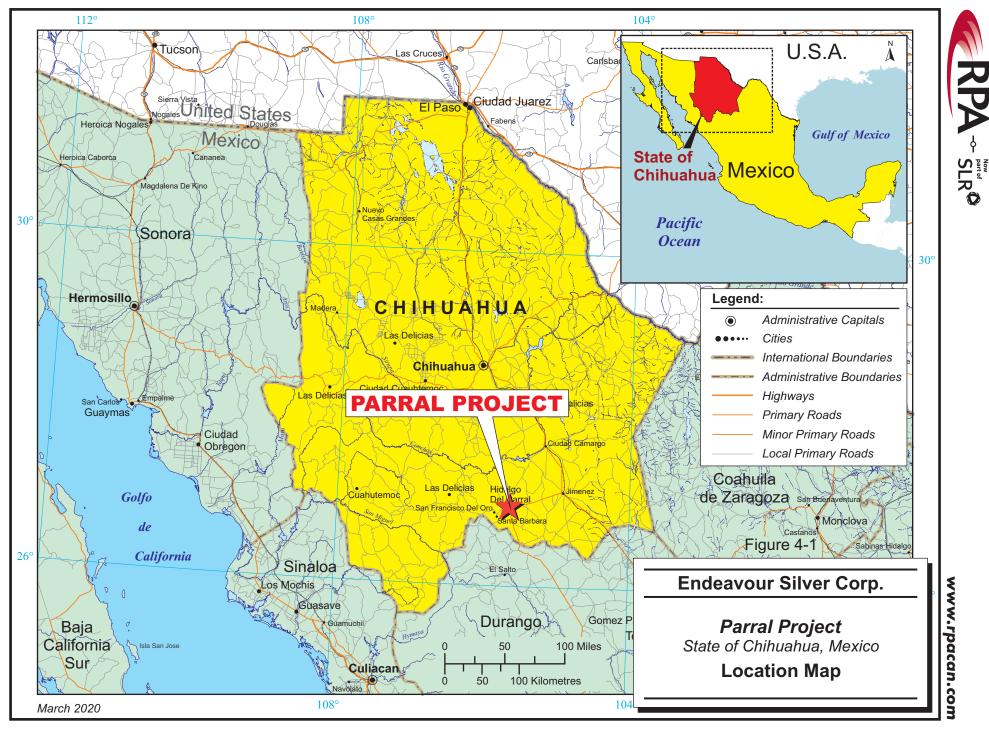


#### www.rpacan.com

Concession Name	Title Number	Term of Mineral Concession	Hectares	2020 Annual Taxes (pesos)	
				1st Half	2nd Half
Virginia	22116	08/07/03 to 07/07/53	1.000	180	180
La Palma Norte	65374	27/07/11 to 26/07/61	1.620	286	286
San Vicente y Capuzaya	141155	02/03/11 to 01/03/61	3.642	630	630
El Sabio	146771	29/11/66 to 28/11/66	1.517	268	268
La Golondrina	146919	20/01/67 to 19/01/67	3.451	598	598
La Palmita	151392	30/04/69 to 29/04/69	4.000	691	691
La Gran Bretaña	151912	06/10/69 to 05/10/69	5.92	1018	1018
Renacimiento Catorce	156089	17/01/72 to 16/01/22	17.42	2,975	2,975
Monte Verde	156094	17/01/72 to 16/01/22	17.68	3,020	3,020
Renacimiento Treinta y Ocho	156102	17/01/72 to 16/01/22	0.92	166	166
Renacimiento Cincuenta y Dos	156310	24/02/72 to 23/02/22	118.15	20,122	20,122
La Nueva Palmilla	156451	16/03/72 to 15/03/22	5.39	928	928
Malta	156868	10/05/72 to 09/05/22	4.39	757	757
Santa Ines	156955	31/05/72 to 30/05/22	1.78	314	314
Ampl. De Yenka	157670	26/09/72 to 25/09/22	1.00	180	180
Yenka	158428	10/04/73 to 09/04/23	3.00	521	521
La Providencia	159027	23/08/73 to 22/08/23	3.00	521	521
San Joaquin	172139	26/09/83 to 25/09/33	24.36	4,157	4,157
Las Catitas	172221	27/10/83 to 26/10/33	4.00	691	691
La Esperanza, Fracc. I	179606	11/12/86 to 10/12/36	4.00	691	691
El Cometa	215021	29/01/02 to 28/01/52	19.55	3,339	3,339
Ampl. De San Juanico <sup>1</sup>	165983	04/02/80 to 03/02/30	8.80	1,508	1,508
Dolores <sup>1</sup>	152815	21/04/70 to 20/04/20	5.32	916	916
El Jazmin	185286	14/12/89 to 13/12/39	2.99	520	520
	Totals		3,457.64	587,757	587,757

Notes:

1. Disputed concession



4-4



## LICENCES, PERMITS, AND ENVIRONMENT

In addition to the mineral rights, Endeavour Silver has agreements with one private surface owner and one local ejido (San Antonio del Potrero) that permit access for exploration purposes. Table 4-2 summarizes the surface access rights.

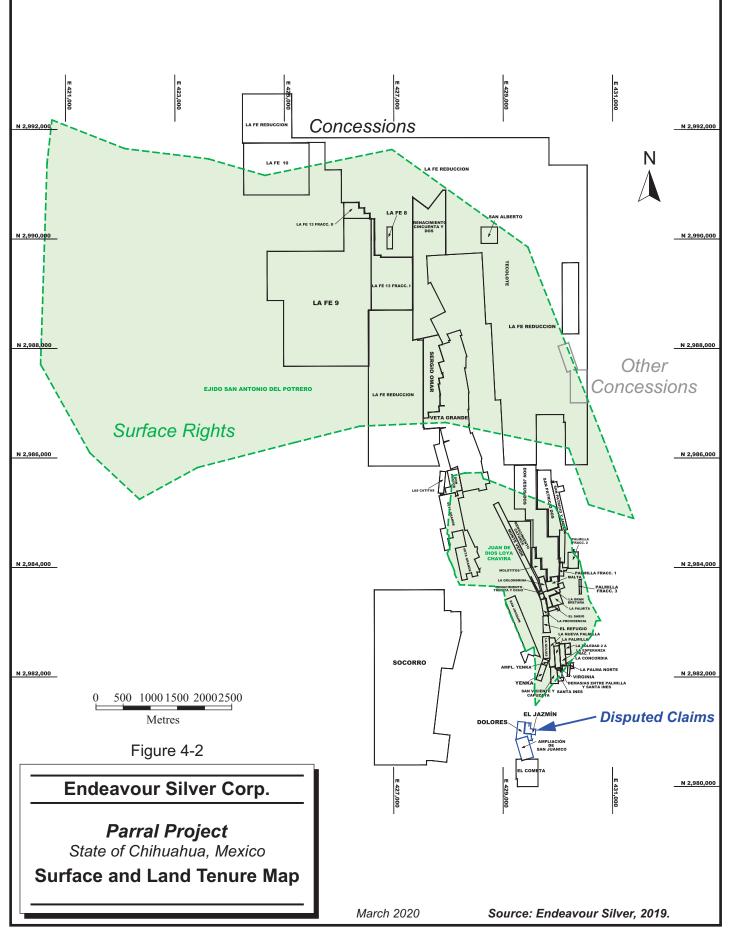
# TABLE 4-2 SUMMARY OF ENDEAVOUR SILVER'S SURFACE ACCESS RIGHTS Endeavour Silver Corp. – Parral Project

Owner	Area Name	Validity	Term	Drill Pads (Pesos)	Annual Payment (Pesos)
Contrato de Ocupación Temporal Ejido San Antonio del Potrero	Veta Grande, El Hallazgo, San Patricio	5 Years	08/12/2017 - 2022	3,000/hole	130,000

RPA is not aware of any environmental liabilities on the property. Endeavour Silver has all required permits to conduct the proposed work on the property. RPA is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.



www.rpacan.com





## 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### ACCESSIBILITY AND LOCAL RESOURCES

The city of Parral can be accessed by a well-maintained paved highway from the city of Chihuahua by travelling 38 km west on route MEX 16D to Cuauhtémoc and then south approximately 200 km on route MEX 24, which is approximately a 2.5-hour drive. The city of Parral is well maintained with numerous hotels, restaurants, and other services. Chihuahua has an international airport with daily flights to the USA and Mexico City, as well as other Mexican destinations.

The municipality of Hidalgo del Parral has a population of approximately 109,000 inhabitants, with approximately 105,000 inhabitants in the city of Parral. The principal industries are livestock farming, agriculture, and mining.

The property is accessed from the city of Parral by a series of short paved and unpaved roads heading northwest over a total distance of approximately 10 km.

### PHYSIOGRAPHY AND CLIMATE

The property is located in the Sierra Madre Occidental province, in the sub-province of Sierras y Llanuras de Durango, inside the Faja Ignimbritica Mexicana. Hydrologically, the property is located inside the Cuenca del Río Conchos. The climate is temperate semi-arid with the majority of the precipitation falling during summer months.

The terrain is moderate in relief due to its location in the eastern flank of the Sierra Madre Occidental mountain range. Close to the Palmilla and San Patricio veins, the terrain is characterized by a valley at 1,840 m elevation with the Palmilla hill in the south (1,960 m elevation) and the San Patricio and Veta Colorada plateaus (2,090 m elevation) in the north. The valley floor contains small thorny brush and the hills and plateaus have sparse clusters of oak trees, shrubs, and grasses.



Any future mining operations could be conducted year-round.

### INFRASTRUCTURE

The location of the Project is excellent due to its proximity to the cities of Parral and Chihuahua. Most of the supplies and labour required for any mining operation could be brought in from either of these cities. The area has a long tradition of mining and there is an ample supply of skilled personnel sufficient for both potential underground mining operations and surface facilities operations.

Power supply to the Project is provided by the National Grid (Comisión Federal de Electricidad CFE).

Telephone communications are integrated into the national land-based telephone system that provides reliable national and international direct dial telephone communications.

The exploration offices and drill core storage facilities are located in the city of Parral, well located to access the different areas in which exploration activities are being conducted. All services, manpower, electrical power, water, telephone, and internet are available.



# 6 HISTORY

The following information is largely summarized from P&E Mining Consultants Inc. (P&E, 2018), which references La Minas de Mexico (1905) and Transactions of the American Institute of Mining Engineers: Volume 32 (1902).

The city of Parral was established in 1600 with the first records dating to 1612. The first official register of mines, in the year 1632, is a volume of 485 pages.

In 1820, a commission was appointed to report on the condition of the mining region of Parral. The objective was to assess the mining potential in the region and as part of the work performed, a large quantity of historical information was obtained. This compilation of information was included in a multi-volume historical overview of the Parral mining district prepared in 1902. Volume 32 of the overview "Transactions of the American Institute of Mining Engineers" cites gold mining present in the areas from at least 1556 and notes that, in 1620, the Santa Barbara area hosted 700 water-powered *arrastres* (a primitive mill for grinding and pulverizing (typically) gold or silver ore), producing from 12 to 14 ounces of gold from a load of 12 *arrobas* (300 lb) of ore. In 1632, the community was incorporated, and the government began to keep archives of the work being performed.

In the 1630s, grades were reported at approximately 12 oz of gold per 100 lb of rock and were processed using amalgamation and smelting. In 1645, ore was carted from Parral to Cuencamé, however, declining grades in both gold and silver caused mining to slow considerably by 1648, when more than 2/3 of the miners had left the region.

Mining continued in the region at a slower pace into the 18<sup>th</sup> century. Some mines were abandoned due to the lack of proper equipment to pump water and sink shafts below the water table, however, the region was heavily affected by transportation limitations due to its relatively isolated location. Up until 1880, when the rail line reached the state of Chihuahua, mineralized material was hauled by wagon from Parral to the town of Jimenez where it was shipped to treatment plants for processing. High transport charges associated with poor infrastructure demanded extremely rich grades for mining to be profitable. Even after the installation of the rail line, stage coaches and mules remained as part of the transportation chain, and required well armed guards to repel bandits.



Beginning in 1905, a number of smelters were built in the State of Chihuahua and in conjunction with the continuous development of rail networks in the region, freight and smelting costs were reduced and the mines in the area became more economic. During the first half of the 20<sup>th</sup> century, mineralization in the area was treated at the Palmilla or Veta Colorada process plants, where cyanidation was used to recover silver and flotation circuits recovered lead and zinc. Both process plants ceased operations in 1929 and all significant mining operations across the district stopped by the end of 1990. It has been proposed that district-wide production between 1929 and 1990 totalled approximately 24 million tons at an average grade of 200 g/t Ag. If correct, approximately 150 million ounces (Moz) of silver would have been produced in this period.

In 2005, Silver Standard Resources Inc. (SSR) acquired the properties and evaluated three areas of interest: Veta Colorada, Palmilla, and San Patricio. Endeavour Silver acquired its first claim in the area in 2006 and subsequent adjacent claim acquisitions and agreements made in 2007, 2008, and 2009 have led to its current 100% ownership position. Endeavour Silver holds the Project through its 100% owned Mexican subsidiary Endeavour Gold Corporation S.A de C.V., which in turn holds 100% of the legal owner, MPA.

In 2008, Endeavour Silver prepared an internal El Cometa Mineral Resource estimate, audited by Micon International Limited (Micon) and disclosed in an NI 43-101 Technical Report in 2010 (Micon, 2010). The Palmilla and Veta Colorada Mineral Resource estimates were prepared by P&E in 2018 (P&E, 2018). These previous Mineral Resource estimates are superseded by the current Mineral Resource estimates reported in Section 14 of this Technical Report.



## 7 GEOLOGICAL SETTING AND MINERALIZATION

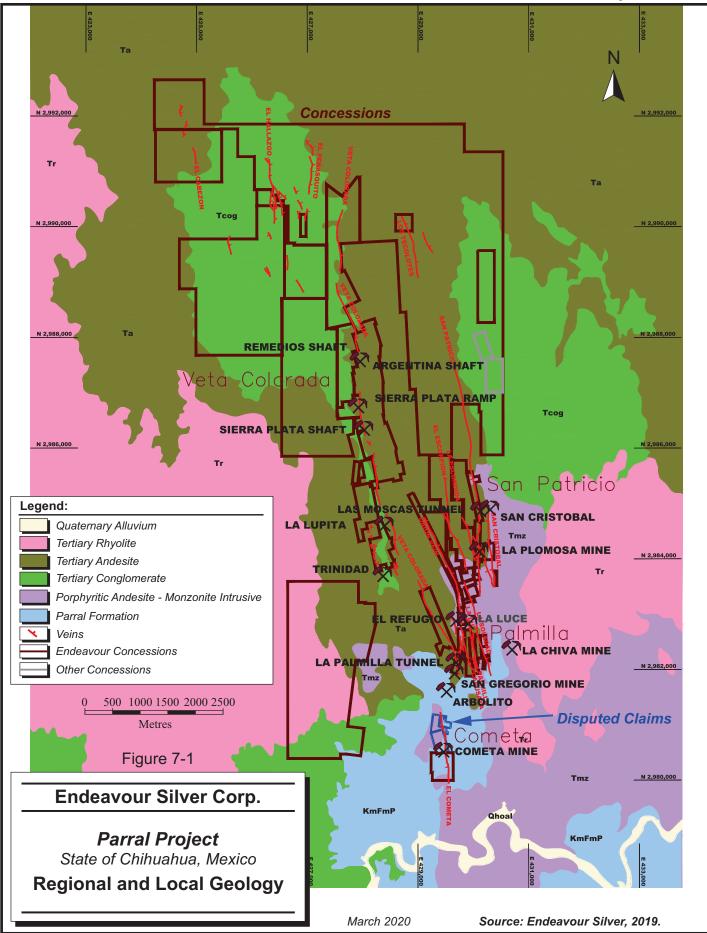
## **REGIONAL GEOLOGY**

The Parral mining district is in the heart of the Mexican silver belt. The geology of this belt is characterized by two volcanic sequences of Tertiary age, discordantly overlying deeply eroded Mesozoic sediments and older metamorphic rocks. The physiography of the belt resembles the basin and range area in the western USA, with wide, flat valleys and narrow, relatively low mountain ranges and hills.

The precious metal-bearing fissure vein type of mineral deposit is the most widespread and economically important type of deposit found in the belt. The belt has been recognized as a significant metallogenic province which has reportedly produced more silver than any other equivalent area in the world. Figure 7-1 is a regional geology map of the Parral mining district.



www.rpacan.com





### PROPERTY GEOLOGY

Two main rock packages outcrop in the Parral mining district, the oldest unit is from the Cretaceous (namely the Parral Formation), which corresponds to a sequence of marine sediments of shales, sandstone, clayed limestone and andesites, covered by a volcanic sequence of rhyolitic-andesitic composition from the Tertiary (Escobedo Volcanic Series). These sequences are intruded by rocks of monzonitic composition associated with the mineralization. An overview of the geology in the Parral area is shown in Figure 7-1.

The deposits of silver-lead-zinc veins in the Parral mining district are mostly hosted in andesitic flows, pyroclastic rocks, and dacites, rhyolites, and tuffs from the Escobedo Volcanic Series.

#### PARRAL FORMATION (CRETACEOUS)

The oldest rocks are carbonaceous greywackes, shales, and thin-bedded limestones of the Parral Formation (Mezcalera Group) from the lower Cretaceous. This thick sequence has an extensive distribution within the region, from Parral southward to the Santa Barbara mining district where it hosts significant silver-lead-zinc mineralization. In the Parral mining district, these rocks are deformed into broad folds with north-south trending axes, except where tight folding is controlled by proximity to compressive structures.

#### ESCOBEDO VOLCANICS (EOCENE)

In the Parral mining district, the Parral Formation is unconformably overlain by a tilted, blockfaulted volcanic package, approximately 950 m thick, known as the Escobedo Volcanic Series which is comprised of basalt flows, rhyolitic ignimbrites, andesite flows, and volcaniclastic units. Major veins of the Parral district such as Veta Colorada and La Prieta are hosted by these volcanics.

The Escobedo Volcanic Series mainly outcrops northwest of Parral, in the intermediates of the Villa Escobedo town. Andesitic rocks are overlain by acid flows in the southeast and outcrop in the north, in the Vesper mines area.

#### IGNEOUS INTRUSIVE

The composition of the Parral intrusive varies from granite, going through quartz monzonite, to diorites and monzonites.



Quartz monzonite is the most abundant rock type and is locally altered on surface with hipidiomorphic texture, with quartz and abundant alkaline feldspar. There are also monzonitic facies, with increased plagioclase and decreased quartz content. In the outcrops between the Almanceña and Esmeralda Mines, quartz monzonite was the host rock of mineralized veins. Quartz monzonite as a host of mineralization is also present in the northern portion of the La Prieta Mine.

Mineralization is hosted within andesite and intrusives in quartz veins, as well as erratically within units of shales and limestone.

## STRUCTURE

Structures generally trend north-south, locally deflecting towards northwest and northeast and dipping from 66° southeast to vertical. Some of these structures are associated with mineralization (such as Veta Colorada) or the emplacement of rhyolitic dikes.

Structures at the Parral property are grouped in systems with similar trend and dip. Three large silver mineralization hosting veins cross the property, which are up to six kilometres long and have a known vertical extent of 400 m and an average width of approximately two metres. Contained silver grades, based on drilling and grab samples are often 200 g/t, with isolated high grades of over 10,000 g/t Ag.

### MINERALIZATION

Mineralization is mainly associated with zones of fracture filling resulting in vein structures, as well as disseminated zones associated with the veins. Brecciated and, to a lesser extent, banded textures predominate.

The mineralogy of mineralized structures (typically quartz veins with chlorite and barite) consists of argentite, galena, and sphalerite, embedded in a FeO+silica+calcite+pyrite+minor barite mix. The gangue minerals are quartz, barite, pyrrhotite, and iron oxides. The principal defined zones of mineralization are Veta Colorada (including Argentina-Remedios and Sierra Plata), Palmilla, San Patricio, and El Cometa.



#### VETA COLORADA

Veta Colorada is the main structure of the project, and has several areas of interest – Sierra Plata, Argentina-Remedios, El Verde, and Alfareña. Veta Colorada is a fault zone six kilometres long, trending N15°W and dipping 55° to the east, which hosts lead, silver, and zinc mineralization. The width of the fault zone and mineralization varies from less than a metre to up to approximately 35 m. Along the known length of the Veta Colorada trend, there are at least four mineralized bodies (from south to north):

- Alfareña: 700 m long.
- El Verde: 500 m along strike. Mined down dip for approximately 325 m, from surface to 1,598 m on level 8. Static water table is at approximately 1,657 MASL, between levels 6 and 7. From level 7 up to surface, the mineralized shoot was almost mined out, with only a few remaining blocks of oxidized mineralization in the upper inaccessible levels.
- Sierra Plata: 850 m long. The central and largest mineralized shoot was mined down dip approximately 280 m to level 7. The water table is at approximately 1,627 MASL as in El Verde mine. Economic mineralization has been largely mined from level 7 to surface, with only a few remaining inaccessible blocks of oxidized mineralization.
- Argentina-Remedios: approximately 550 m long. A mineralized shoot with no extensive mine workings, extending down dip for approximately 500 m. Only silver mineralization has potentially economic grades.

In general, the main mineralized zones can extend over a length of approximately 500 m to a depth of up to 600 m. The true thickness of the mineralized zones varies from a few metres to a maximum of 35 m in the Sierra Plata Mine.

The transition between oxides and mixed zone (sulphides and oxides) is not very clear, however, it is thought to be located at approximately 1,750 MASL, between levels 5 and 6 of the Veta Colorada Mine.

#### PALMILLA

At Palmilla, the precious and base metal mineralization occurs in quartz veins and quartz stockwork in rhyolites and andesites. The quartz veins include two west dipping, north-northwest trending veins located to the east of the Palmilla hill and two east dipping, north-northwest to north-northeast trending veins located to the west to Palmilla Hill. The four quartz veins are described as follows, from west to east:

• La Soledad vein: 600 m long and 1.0 to 2.0 m wide, dipping 75° to 86° west, and locally to the east, composed of quartz, hematite, and jarosite.



- Palmilla and La Luz veins: 900 m long and 0.5 m to 2.0 m wide, located at 1,750 MASL, trending north-northwest, dipping 50° to 87° to the west and locally to the east, and is composed of quartz, hematite, and jarosite.
- San Antonio and Capusaya veins: 600 m long and 1.0 to 2.0 m wide, trending northnorthwest, dipping 38° to 60° to the east, and consisting of quartz, hematite, jarosite and more rarely galena, sphalerite, malachite, and azurite.
- Las Guijas vein: 450 m long and 0.5 m to 2.5 m wide, trending north-northwest to northnortheast, dipping 56° to 85° to the east, characterized by well-developed crustiform and colloform texture, and composed of quartz, hematite, chlorite, galena, and lesser calcite and barite.

A fifth, calcite-siderite vein is located to the east of the Palmilla Hill. It is 850 m long and 2.0 m to 30 m wide, trending north-northeast and dipping 56° to 72° to the east.

### SAN PATRICIO

San Patricio is located 6.5 km to the northwest of downtown Parral and extends for 1,500 m to the north.

The San Patricio vein is parallel to the Veta Colorada vein. Its exposures are observed over a length of more than three kilometres; it strikes north, dips 70° to the west, and extends more than 150 m down dip. The vein is located along the eastern slope of the Mesa San Patricio Hill.

San Patricio has three shafts (from south to north: Plomosas, Campanas, and San Patricio) and several drifts. The structure was mined from these shafts where only minor development was completed.

The geology of the San Patricio Hill is similar to the La Parra Hill; veins are hosted by a sequence of andesites, however, towards the top, the rock becomes more felsic, consisting of rhyolite flows and ignimbrites.

The precious and base metals mineralization occurs along two main north trending veins: San Patricio and San Cristobal.

The paragenetic sequence of the San Patricio vein is determined from crosscutting relationships between the surrounding wall rock veinlets and veins and hydrothermal breccias. Four mineralization events are observed. Quartz ± barite-fluorite veinlets and veins with minor



disseminated sphalerite and galena were first emplaced along the west dipping, north trending San Patricio Fault. The quartz  $\pm$  barite- fluorite veinlets and veins were superimposed by a hematite  $\pm$  chlorite cemented hydrothermal breccia and then by a quartz  $\pm$  barite-calcite cemented hydrothermal breccia, which in turn was superimposed by quartz veinlets and veins.

The San Cristobal vein is a silver rich, north trending discontinuous fault-controlled vein that dips 55° to 72° to the west and is approximately 600 m long and one metre wide. The San Cristobal vein consists of quartz veins and quartz-hematite cemented hydrothermal breccias. Steep cliffs on both side of the San Cristobal vein prevent access to mineralization in the hanging wall and footwall.

### EL COMETA

Zinc, lead, silver, gold, and copper sulphides occur in potentially economic concentrations in many drill hole intercepts throughout the El Cometa area. The distribution of these metals is potentially zoned in vertical and steep southerly plunging features. Also, zinc, and to a lesser extent lead, tend to have higher grades at lower depths and to the south.

Petrographically, El Cometa mineralization consists of early quartz + sphalerite and galena, followed by euhedral pyrite  $\pm$  anhedral chalcopyrite and finally late calcite,  $\pm$  hematite,  $\pm$  pyrolusite. Mineralization is held within brecciated structures, although banded to massive quartz-calcite vein material is not uncommon. Masses of galena-sphalerite occur in breccia and in association with banded white quartz-carbonate with chlorite-pyrite (black) sulphide bands.



# **8 DEPOSIT TYPES**

The Parral mining district is comprised of classic, high grade silver, epithermal vein deposits, characterized by low-sulphidation mineralization and adularia-sericite alteration. The veins are typical of most Mexican epithermal silver-gold vein deposits in that they are primarily hosted in volcanic flows, pyroclastic, and epiclastic rocks, or sedimentary sequences predominantly of shale and their metamorphic counterparts.

Low sulphidation epithermal Au-Ag + base metal deposits (Figure 8-1) develop from near neutral dilute fluids, which are dominated by meteoric waters within cells of circulating hydrothermal fluids, commonly driven by the intrusive source rocks for metals, at considerable depth. Low sulphidation deposits tend to dominate in reactivated dilatational structural settings, and are commonly characterized by banded veins comprising many individual events of hydrothermal mineral deposition. Some events of mineral deposition are dominated by gold bearing fluids derived from the magmatic source, deep circulating meteoric waters entraining a magmatic component and exhibiting lower grade gold mineralization, while shallow circulating meteoric waters are sometimes barren. Ground waters may collapse into the hydrothermal system or otherwise interact with the hydrothermal cells as an important feature of the ore deposition process.

Varying mechanisms of mineral deposition are apparent within multi-generational veins. While boiling or phase separation by rapid pressure decreases has long been proposed as possible mechanism of mineral deposition, detailed character sampling has often failed to identify the bulk of Au-Ag mineralization in the minerals deposited at this stage – adularia, bladed calcite, quartz pseudo-morphing calcite and to a certain extent chalcedony. Rather, these minerals constitute much of the gangue mineralogy. Some authors (Corbett and Leach, 1998) have proposed that gold deposition may be promoted by rapid cooling of the ore fluid, enhanced by wall rock reaction, or mixing with varying ground waters. Rapid cooling of ore fluid, which promotes high grade gold deposition, is often evidenced by the presence of gold within chalcedony. Fluid mixing is apparent from the presence of kaolin for low pH acid sulfate waters, manganese oxide for bicarbonate waters, and hypogene hematite and jarosite for oxygenated ground waters.



Varying styles of low sulphidation epithermal gold deposits, which commonly form in different geological environments, are distinguished on the basis of vein mineralogy. The group of low sulphidation Au-Ag deposits with higher sulphide contents, although in many instances only in the order of 1% to 2%, display a closer association with intrusive source rocks. These display transitional relationships and vary spatially and temporally from early to later in a vein paragenetic sequence, and generally from deeper to shallower levels from: quartz-sulfide Au + Cu, to carbonate-base metal Au, and epithermal quartz Au-Ag deposits.

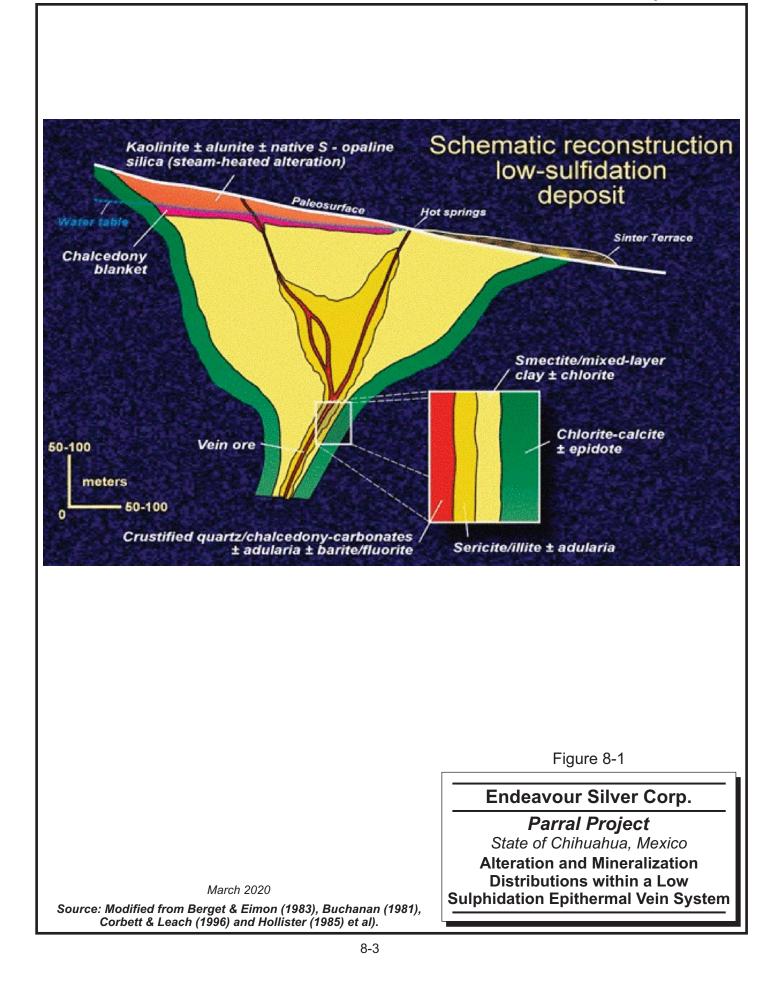
Corbett (2004) further sub-divides the low-sulphidation epithermal gold deposits into the following sub-types:

- Quartz-sulphide Au + Cu deposits.
- Carbonate base metal Au.
- Epithermal quartz Au Ag.
- Sediment-hosted replacement Au.
- Adularia-sericite banded epithermal Au-Ag quartz vein deposits.

Examples of low sulphidation gold deposit includes Hishikari (Japan), Sleeper (Nevada), Round Mountain (Nevada).

For descriptions of these sub-types refer to Corbett (2004).







## 9 EXPLORATION

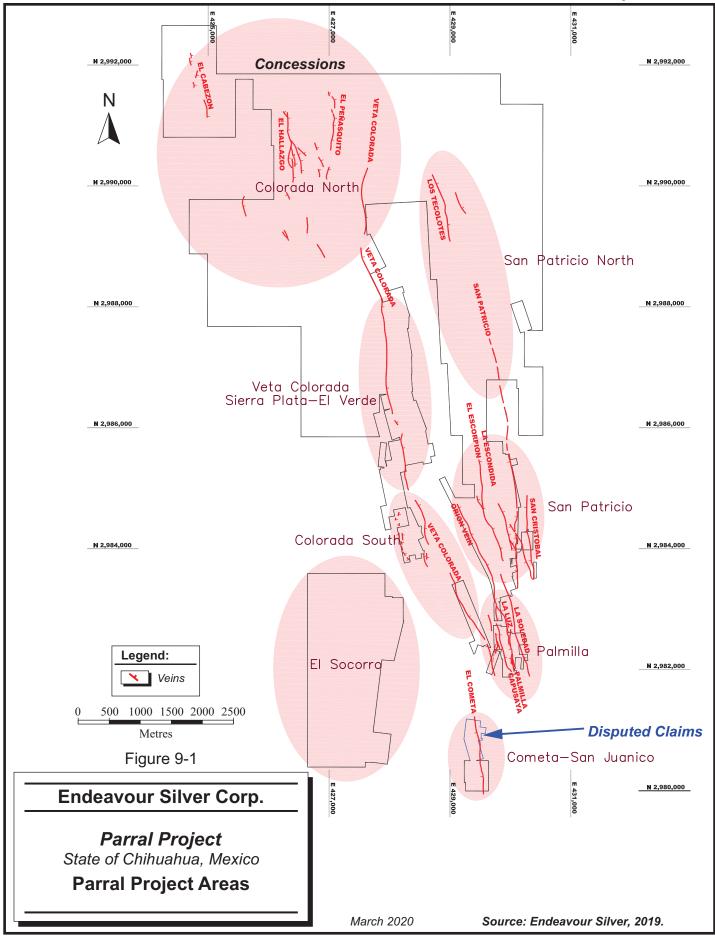
From 2006 to 2019, Endeavour Silver's exploration activities at the Project have focussed on geological and structural mapping on surface and in historic mine workings, as well as surveying the historical mine workings. In addition to mapping, surface trenching, underground channel sampling, and grab sample collection programs have taken place over the Project area. The principal areas of focus to date have been Cometa, Palmilla, San Patricio, and Veta Colorada.

The purpose of the exploration programs has been to identify and confirm new areas of mineralization to be able to prioritize drilling targets. Several veins have been identified, and Veta Colorada and San Patricio are currently the most prospective based on trench, sampling, and mapping results, and require drilling. The northern area of the Project has been designated as a lower priority based on rock sampling campaigns returning lower than expected silver grades.

The location of the exploration target areas described in this section are shown in Figure 9-1. A summary of the exploration areas of focus at the Project is presented in Table 9-1.



#### www.rpacan.com





### TABLE 9-1 SUMMARY OF EXPLORATION ACTIVITIES AT PARRAL Endeavour Silver Corp. – Parral Project

### 2006

#### COMETA-SAN JUANICO

Surface geological mapping on the El Cometa-San Juanico properties. Detailed geological mapping and channel sampling on Level 3 of the San Juanico mine. A total of 132 channel samples were collected on Level 3 of the San Juanico mine (results ranged from 0.1 g/t Au to 15.6 g/t Au, 2.0 g/t Ag to 934.0 g/t Ag, 0.03% Pb to 8.54% Pb and 0.06% Zn to 6.55% Zn), significant results included 2.8 g/t Au, 934.0 g/t Ag, 0.45% Pb and 0.52% Zn over 0.8 m; 15.6 g/t Au, 142.0 g/t Ag, 0.18% Pb and 0.25% Zn over 0.7 m; and 3.6 g/t Au, 631.0 g/t Ag, 8.48% Pb and 2.46% Zn over 0.7 m.

Both surface and underground geological mapping displayed a sinusoidal geometry for the main El Cometa vein on the San Juanico property. The primary host rocks were carbonaceous greywackes, shales and limestones of the Parral Formation (Km). On the surface, the intrusive andesite or monzonite (Tmz) was predominantly observed in the hanging wall of the El Cometa vein. Smaller dykes of this intrusive unit were observed either in contact with or cross-cutting the El Cometa vein on Level 3 in the San Juanico mine.

### 2016

### PALMILLA & COLORADA NORTH (EL HALLAZGO AND EL CABEZÓN)

Grab sample results returned silver grades in the Palmilla area ranging from <0.005 g/t Ag to 703.0 g/t Ag, with samples grading an average of 208.0 g/t Ag, over three structures of interest (Palmilla, Capusaya and Las Guijas). In El Hallazgo and El Cabezon rock sample grades were found to be low overall, with no significant results returned.

Possible exploration drilling targets were examined.

### 2017

#### COLORADA NORTH (EL HALLAZGO, EL PEÑASQUITO, EL CABEZÓN AND VETA COLORADA)

Geological mapping, trenching, and rock sampling was conducted at the Colorada North area, which includes the following structures of interest: El Hallazgo, El Peñasquito, El Cabezón, and Veta Colorada (North extension). The exploration program included 264 surface rock samples and 12 trenches with 214 samples collected.

The El Hallazgo structure with preferential trend N05°W to N30°W, dipping from 57°NE to 67°NE. At the North portion of the area, the structure flexes to a trend N40°W and the continuity is lost. The average width of the structure ranges from 0.30 m to 0.90 m. Small historic mine workings with 2 m to 3 m widths and depths up to 10 m were found in the area. The results indicate ranges from <0.005 ppm Au to 0.36 ppm Au, <2 ppm Ag to 711 ppm Ag and one trench intercepted the vein (the north portion) with anomalous values of silver from 51 ppm Ag to 615 ppm Ag.

The El Peñasquito vein is located at the west end of El Hallazgo and was mapped for approximately 1.4 km; the structure is sub-parallel to El Hallazgo. The general trend of the structure is N02°W to N17°W, dipping 62°SE to 79°SE, with a width that varies from 0.5 m to 1.0 m. At the North portion of the El Peñasquito vein presents a flex at N20°W to N30°W, similar to the north portion of El Hallazgo. Along the vein it is common to locate small "Catas" and old mine workings with minor development. The values of gold range from <0.005 ppm Au to 1.323 ppm Au and silver from <2 ppm Ag to 754 ppm Ag.

The preferential trend of the El Cabezón is N05°W to N22°W, dipping 58°NE to 68°NE and it was mapped for approximately 1.1 km. The width of the structure varies from 0.5 m to 1.2 m. Along the



structure there are small mine workings <2 m wide and from 2 m to 9 m deep. The assays of rock samples collected in the area range from <0.005 ppm Au to 1.076 ppm Au and from 3 ppm Ag up to 3,631 ppm Ag.

The North extension of the Veta Colorada was located approximately 400 m N-NW of the Argentina Shaft. The structure is around 600 m long, up to 3 m wide and has a preferential trend of NW23°SE, dipping NE, continuity is lost at North. Silver analytical results show anomalous values from 34 ppm Ag up to 214 ppm Ag, while gold results are near the detection limit.

#### COLORADA SOUTH (VETA COLORADA "SAN JOAQUÍN" AREA)

Geological mapping and grab sampling were conducted at the Colorada South area, at a scale of 1:1,000, over the southern projection of the Veta Colorada in the San Joaquín Endeavour concession. A total of 15 rock samples were collected in the area.

The San Joaquin Endeavour concession is located approximately 3.2 km SE, in a straight line, from the Sierra Plata shaft and approximately 500 m at west of the Orión vein (south portion). The structure corresponds to the southern projection of the Veta Colorada and was mapped for approximately 1.0 km (over the structure) inside the Endeavour concession. The average width of the structure varies from 0.8 m to 4.0 m, with a preferential trend of N20°W to N35°W, dipping 70°NE to 75°NE. Mine workings are found along the structure. The results of rock samples collected over the projection of the structure range from 0.009 ppm Au to 0.19 ppm Au and 5 ppm Ag to 304 ppm Ag (40% of the samples contained high grade values).

## SAN PATRICIO (SAN PATRICIO, SAN CRISTOBAL, EL ESCORPIÓN, TECOLOTES AND ORIÓN VEINS)

Exploration activities conducted at the San Patricio Target mainly focussed on the continuity of the San Patricio vein and the definition of other five structures of interest located in the area (San Cristobal, El Escorpión, La Escondida, Tecolotes, and Orión). A total of 291 rock samples were collected from the target.

The San Patricio vein is located approximately 3.7 km north of the city of Parral, mapped for approximately 3.5 km over the structure, 1.2 km of which is outside of the Endeavour Silver concessions. The average width varies from 0.4 m to 1.2 m and preferential trend is N05°E up to N15°W, dipping from 66° NW to 80° NW. The San Patricio vein is divided in zones: Plomosas, Campanas and San Patricio, each one of them with shafts >150 m deep. In the San Patricio area, several rock samples returned high grade values of silver (134 ppm Ag to 1,569 ppm Ag), with gold ranging from <0.005 ppm to 0.47 ppm. At the north projection of San Patricio, the results are near the lower detection limit for both gold and silver.

The San Cristobal structure is located 200 m east of and at the south end of the San Patricio vein. The structure was mapped for 1.2 km over the structure, however, only 350 m are within the Endeavour Silver concessions. The general trend of the San Cristobal structure is N05°E to N15°W, dipping 54° to 75° to the southwest, and the width varies between 0.4 m and 2.5 m. Along the structure there are some old workings. The results showed anomalous values of silver (from 12 ppm Ag up to 535 ppm Ag), with gold assays ranging from <0.005 ppm to 0.545 ppm.

La Escondida vein is a narrow silver-rich, north-northwest trending, quartz-barite vein located 100 m west of the San Patricio vein's southern end, dips 57° to 63° to the east, and is approximately 500 m long. The results showed anomalous values of silver, from 19 ppm to 789 ppm; no significant results were returned for gold.

The El Escorpión structure is located 140 to the west of the San Patricio vein, in the south part, and it was mapped for approximately 1.6 km. It is hosted in andesite in the south and north parts, has a width of 0.4 m to 1.5 m, generally trends N15°W to N20°W and dips 60° to 75° NE. Silver varies from <2 ppm up to 212 ppm, and the gold results are not significant (near the detection limits).

The Tecolotes vein is located 3.4 km east of the Ejido San Antonio del Potrero. A total of 12 rock samples collected over the structure, which was mapped for approximately 1.2 km. The structure has a width of 0.3 m to 1.2 m and generally trends N10°W to N30°W, dipping 60° to 75° NE. The values of gold are near the detection limit and silver values range from <2 ppm to 498 ppm.



The Orión structure, located to the west and sub-parallel to the San Patricio vein, has been mapped for approximately 1.9 km. The width of the structure varies from 0.4 m to 2.5 m, the preferential trend is N05°W to N15°W, with a flex towards N25°W to N35°W, dipping 56° to 80° NE. Old mine workings and shafts are located along the structure and a ramp is located on Endeavour Silver's Monte Verde concession. The results show high grade silver values in 66% of the samples (100 ppm to 1,564 ppm), and gold grade values ranging from <0.005 ppm to 0.435 ppm.

### EL SOCORRO

A total of 47 rock samples were collected on the Socorro Endeavour claim, located in the southwest part of the San Patricio area. The concession is mainly covered by andesites from the Escobedo Volcanic Series, and varies from basaltic andesites to andesitic tuffs. No structures of interest or mine workings are found on this claim. The results of the sampling program are overall low, near the detection limit.

### 2018

### COLORADA NORTH (VETA COLORADA)

Geological mapping, trenching, and sampling continued in the Colorada North area, at a scale of 1:1,000, focussed on the projection of the Veta Colorada within the Renacimiento 52 claim, to the north of the Argentina-Remedios mineralized shoot. The structure was mapped for approximately 1.1 km, has an average width of 0.5 m to 3.0 m, trends N09°W to N35°W, and dips 65° to 76° NE. A total of 31 rock samples were collected during the year, and the trenching program included five trenches totalling 205 linear metres and 134 samples collected; the best results are reported in the south part of the claim, in the area known as Brecha Renacimento, with grades from 50 g/t Ag to 214 g/t Ag. In the north part of the claim, most of the values are below the detection limit with some samples up to 7 g/t Ag.

### COLORADA SOUTH (VETA COLORADA "SAN JOAQUÍN" AREA)

Geological mapping and sampling conducted in the Colorada South area, over the south projection of the Veta Colorada in Endeavour Silver's San Joaquín concession, with the objective to have a better understanding of the distribution of grades along the mapped structure (approximately 700 m long). In this area, the structure ranges from 0.90 m to 1.20 m wide and trends N30°W to N20°W, dipping 76° to 81° NE. Sampling results report values from 60 g/t Ag to 70 g/t Ag in the north part of the concession and from 132 g/t Ag to 234 g/t Ag and up to 1,669 g/t Ag around the San Joaquin Shaft (300 m radius).

Prospecting was conducted in the El Refugio Mine area, located in the south end of the Endeavour Silver Veta Grande concession and approximately 400 m west of Veta Colorada. The mine was worked by Zinc de Mexico in the 1970s and until 1990, developed over two structures: a) El Refugio, trending N20°W to N45°W / subvertical, averaging 1.20 m wide, and traced for over 800 m long (200 m outside the Veta Grande claim); laboratory results with values from 157 g/t Ag to 498 g/t Ag, up to 1,189 g/t Ag; and b) Zaragoza, located to the east of the El Refugio vein, subparallel and secondary, trending N10°E / 70° SE, averaging 0.60 m wide, and outcropping for approximately 300 m within the concession, with values of 71 g/t Ag to 139 g/t Ag.

#### VETA COLORADA MINE (HISTORICAL)

Endeavour Silver completed topographical surveys, geological mapping, and rock chip sampling underground in the Sierra Plata part of the historical Veta Colorada mine, mainly on mine levels 5.5, 6.5 and 7, accessed by the original mine access ramp, which remains in good condition. At some levels, cross-cuts and mine workings were encountered at the hanging wall which suggests a larger mineralization width (this mineralization is the one exploited mechanically by Zinc de México on mine levels 5, 5.5, 6, and 6 from mid-1970s until 1990). A total of 98 samples collected in the mine levels located in the hanging wall, 27 of which report grades >200 g/t Ag (28%) up to 1,035 g/t Ag; 16 samples with grades between 100 g/t Ag and 200 g/t Ag (16%) and 55 samples with grades below 100 g/t Ag (56%).



Sampling crews were also able to access portions of levels 2, 4, and 5 where they encountered significant volumes of historic mine fill (previously uneconomic broken rock filling old stopes, known as "chorros").

Endeavour Silver crews resampled these chorros and confirmed that the historic sample results show that some chorros have the potential to be economic. A total of 87 samples were collected, and more than the half report values greater than 100 g/t Ag up to 615 g/t Ag.

Reconnaissance mapping was also conducted in El Verde mine, including sampling of chorros on mine levels 2, 1.5, 1, and 0. A total of 73 samples were collected, 10% reported values from 202 g/t Ag to 387 g/t Ag and 90% had an average grade of 48 g/t Ag (including five samples with values from 114 g/t Ag to 178 g/t Ag). The structure is inaccessible in this area.

### 2019

### VETA COLORADA SURFACE PITS POTENTIAL (SIERRA PLATA AND EL VERDE AREAS)

Surface channel sampling program over the Veta Colorada, with the objective to determine the bulk mining potential over surface pits. A total of 1,100 m mapped over the Sierra Plata and El Verde bodies and 377 samples collected in 51 channels. Results indicate anomalous values in most of the samples, with grades from 1 g/t Ag to 899 g/t Ag in Sierra Plata (23% greater than 100 g/t Ag) and from 6.6 up to 1,745 g/t Ag in El Verde (12% greater than 100 g/t Ag).

#### VETA COLORADA MINE (HISTORICAL)

Endeavour Silver conducted systematic channel sampling in six accessible blocks to test an area 250 m long by 25 m vertically within the north part of the Sierra Plata mine on levels 7 and 8. A total of 751 samples were collected in 102 channels. Only minor work was needed to re-access and make safe the historic main haulage ramp into the mine. Endeavour Silver dewatered the lowest mine levels last year, sampled old mine fill on levels 1 to 6, and recognized the opportunity to drill unmined high grade in all mine levels and sample unmined high grade in the lower mine levels.

Channel sampling highlights include some samples exceeding 1,000 g/t Ag such as 1,705 g/t Ag over 0.55 m true width (tw) in channel 7+66, 1,480 g/t Ag over 0.95 m tw in channel 7+69, 1,760 g/t Ag over 0.8 m tw in channel 7+12, 1,770 g/t Ag over 0.5 m tw in channel 7-1Reb-1, 5,750 g/t Ag over 0.5 m tw in channel 7-Reb-3, 2,460 g/t Ag over 0.6 m tw in channel 7-Reb-19, 1,580 g/t Ag over 0.6 m tw in channel 7-Reb-23, and 1,215 g/t Ag over 0.45 m tw in channel 7-Reb-24. The full width of the vein is not exposed in many of the mine workings so the sampling results are only partly indicative of the silver mineralization.

Mapping of mine workings and levels of the Sierra Plata mine, mostly on the general ramp (a total of 1,620 m mapped), level 2 (580 m mapped), level 7 (750 m mapped), and level 6 (300m mapped). A total of 28 samples were collected on level 7; laboratory results show high grade in 54% of the samples (with values from 141 gt/ Ag up to 1,125 g/t Ag). On level 6, a total of 71 samples collected returned values from 0.4 g/t Ag up to 483 g/t Ag (23% with values greater than 122 g/t Ag).

RPA is of the opinion that there is good exploration potential at Parral, and that exploration efforts should focus on Mineral Resource expansion, initially in the Veta Colorada areas.



## **10 DRILLING**

### INTRODUCTION

Endeavour Silver has carried out several surface and underground diamond drilling programs since 2006 on the Parral property. The Project includes four main mineralized silver vein systems; Veta Colorada (Argentina-Remedios and Sierra Plata areas), Palmilla, San Patricio, and El Cometa that remain open to expand the current resources.

Endeavour Silver's previous drilling programs on the Project have been described in detail in an internal report on the San Patricio area (P&E, 2019) and Technical Reports on the El Cometa area (Micon, 2010) and Palmilla and Veta Colorada areas (P&E, 2018). This section discusses the general drilling and core procedures carried out by Endeavour Silver, with the focus on recent drilling programs.

The drilling and core logging procedures are summarized below.

### DRILLING PROCEDURES

Drill hole procedures are as follows:

- Planned drill holes are developed by Endeavour Silver geologist and are subsequently reviewed and approved by the senior management at Endeavour Silver and by the environmental authorities (Semarnat).
- Surface drill pads are staked out and constructed.
- Drill holes are typically drilled from the hanging wall side of the vein, perpendicular to and passing through the target structure, into the footwall and are extended a further 40 m to 50 m to avoid possible changes on the dip of the structure.
- Drill holes are completed using wireline drilling equipment, with the drill holes typically being of either HQ (63.5 mm) to NQ (47.6 mm) size in diameter.
- Endeavour Silver personnel monitor any active drilling, and record the azimuth and inclination of the collar.
- Downhole survey measurements are taken using a Reflex downhole navigation tool which takes measurements at intervals of 30 m to 50 m from the collar to the end of hole. The survey data is used during drilling and plotted to monitor the drill hole deviation and ensure that the intended target is intersected at the desired location.
- True thicknesses are estimated from the measured inclination of the drill hole intercept and the interpreted dip of the vein.
- Drill core is collected daily and carried to the core logging facilities, always under supervision of the Endeavour Silver's geologists.



• The core storage facilities at Parral are well protected by walls and are under 24 hour security alarm system and camera surveillance. This arrangement minimizes any possibility of tampering with the drill cores.

### **CORE LOGGING PROCEDURES**

Endeavour Silver uses a combination of manual and digital core logging procedures. As the drill core is received in the core facility, geotechnical data is logged manually prior to drill core being logged by geologists, recording lithology and texture, and marked for sampling. All geotechnical, geological, and sampling data is currently collected on paper sheets or by direct entry into Microsoft Excel spreadsheets using laptop computers.

### DRILL PROGRAMS AND RESULTS

From 2006 to 2010, three surface drilling campaigns defined silver-gold-lead-zinc mineralization in the El Cometa vein.

With the acquisition of a set of mining concessions from SSR at the end of 2016, Endeavour Silver focussed on the definition of three main areas of interest: Palmilla, San Patricio, and Veta Colorada (Argentina-Remedios and Sierra Plata areas).

Drilling at Palmilla in 2017 confirmed and further defined two main structures: Palmilla and Capusaya, in a grid of approximately 50 m to 100 m centres over an area of 550 m long by 250 m wide by 150 m deep. This drilling verified the La Luz and Guijas veins, located in the same northwest trend and parallel to the primary structures.

Drilling at San Patricio in 2017 and 2018 defined a mineralized zone in the areas known as San Patricio and Campanas of the San Patricio vein, with a lateral and vertical extent of approximately 500 m long by 200 m deep. Additionally, four holes were drilled with the objective to open possibilities in the Plomosas and the north part of the San Patricio areas.

Drilling at Veta Colorada confirmed the presence of high grades noted historically, located within the Argentina-Remedios area.

The El Hallazgo and El Peñasquito structures were also tested with no positive results.



During 2019, Endeavour Silver conducted both surface and underground drilling programs that focussed on the oxides and mixed zones of the Sierra Plata area of the Veta Colorada system. Every underground drill hole intersected strong silver mineralization, defining mineralization with a lateral and vertical extent of approximately 300 m long by 200 m deep below the lowest mine level. The limits of the mineralization in the Sierra Plata vein remain open along strike and at depth.

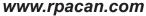
Endeavour Silver's drilling programs include a total of 182 surface and underground drill holes totalling 55,222 m and including 20,513 samples. Historical surface drilling in the Palmilla, San Patricio, and Veta Colorada Argentina-Remedios includes a total of 4,041 m within 14 drill holes and 2,203 samples. Typical sections and intersections are included in Table 14-27 of this report, and Section 14 contains examples of grade intersections of the various veins.

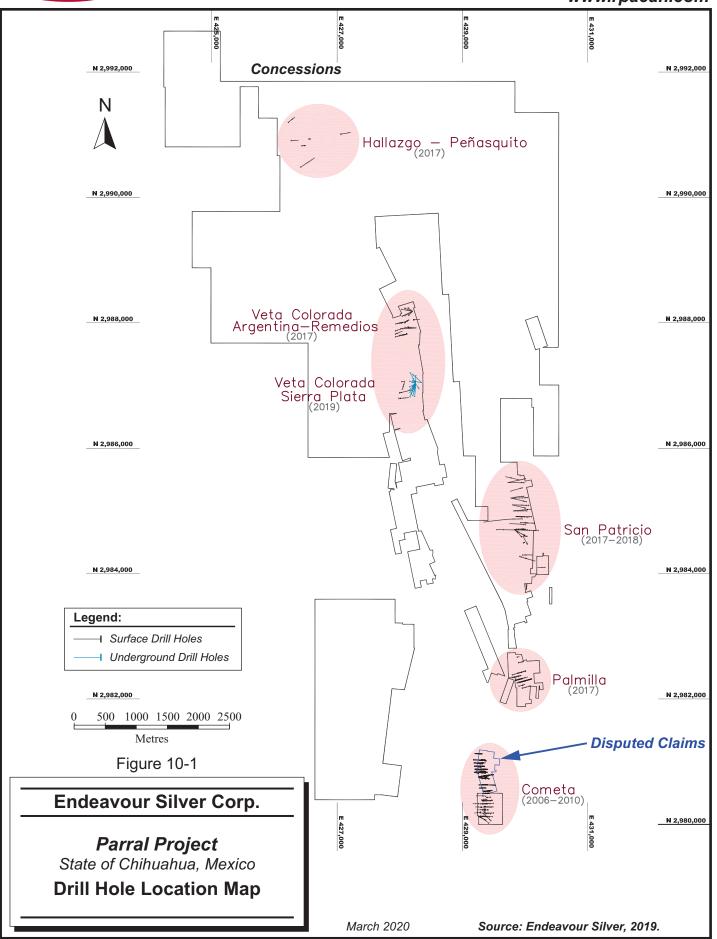
Table 10-1 summarizes the surface and underground drilling programs conducted on the Project, shown in Figure 10-1.

Project Area	Time Period	Number of Holes	Total Metres	Number of Samples Taken
Historical				
Palmilla - San Patricio - Veta	2006-2013	14	4,040.75	2,203
Colorada (Argentina-Remedios)			.,	_,
Endeavour Silver				
El Cometa	2006-2008	33	11,136.05	2,481
San Juanico	2010	34	9,954.25	5,028
Veta Colorada (Argentina- Remedios)	2017	21	6,927.90	1,705
Veta Colorada (Sierra Plata)	2019	25	4,949.30	1,821
Palmilla	2017	32	6,387.85	6,167
San Patricio	2017-2018	31	14,462.90	3,058
Hallazgo-Peñasquito	2017	6	1,404.10	253
Total	2006 - 2019	196	59,263.10	22,716

# TABLE 10-1DRILLING SUMMARYEndeavour Silver Corp. – Parral Project







The majority of the surface diamond drill holes for El Cometa and San Juanico were drilled by Layne de Mexico, S.A. de C.V. (Layne), however, from December 2007 to March 2008, Endeavour Silver used Perforaciones Godbe de Mexico, S.A. de C.V. (Godbe) to conduct an infill drilling program at El Cometa.

The 2017 and 2018 surface diamond drilling programs for Palmilla, San Patricio, and Veta Colorada (Argentina-Remedios) project areas were performed by Layne.

In 2019, surface and underground diamond drilling campaigns mainly used an in-house (Kmb-4) drill rig to test the Veta Colorada structure in the Sierra Plata area, however, four surface drill holes were completed using a Versa Perforaciones S.A. de C.V. (Versa) drill rig.

Neither Layne, Godbe, nor Versa holds an interest in Endeavour Silver and all three are independent of Endeavour Silver.

RPA is of the opinion that the drilling and logging procedures are in line with industry standard practice and appropriate to support a Mineral Resource estimate.

### ADDITIONAL DRILLING PROGRAMS AND RESULTS

Since the effective date of the drill hole database used for Mineral Resource estimation, Endeavor Silver has drilled fourteen underground drill holes, totalling 2,318 m, with the purpose of further defining mineralization within Veta Colorada in the Sierra Plata area. The program tested the south extension of the mineralization around the Sierra Plata shaft below level 7 over an area of 265 m long by 200 m using 50 m spacing. Drill holes were collared using HQ diameter core and reduced to NQ further down the hole. Drill hole details are shown in Table 10-2 but are not included in the Mineral Resource estimates disclosed in this Technical Report.



# TABLE 10-2ADDITIONAL UNDERGROUND DRILL HOLE SUMMARY FOR<br/>THE SIERRA PLATA AREA

Hole	Azimuth (°)	Dip (°)	Diameter	Total Depth (m)
VCU-20	330	-42	HQ-NQ	237
VCU-21	269	-30	HQ-NQ	105
VCU-22	290	-77.5	HQ-NQ	135
VCU-23	230	-26	HQ-NQ	121
VCU-24	305	-22.5	HQ-NQ	130
VCU-25	333	-53	HQ-NQ	144
VCU-26	207	-18	HQ-NQ	141
VCU-27	193	-14	HQ-NQ	192
VCU-28	203	-65	HQ-NQ	136
VCU-29	198	-44.5	HQ-NQ	146
VCU-30	178	-33	HQ-NQ	212
VCU-31	302	-54	HQ-NQ	196
VCU-32	235	-60.5	HQ-NQ	192
VCU-33	198	-44.5	HQ-NQ	232
			Total	2,318

### Endeavour Silver Corp. – Parral Project

Endeavour Silver plans to continue testing the south and north extensions of the Sierra Plata area of the Veta Colorada mineralization, as well as the central part between the Sierra Plata northern mineralization and the Sierra Plata shaft.



## 11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

All of Endeavour Silver's samples of drill core were bagged and tagged at the Parral Exploration warehouse and shipped to the ALS Global (ALS) preparation facility in Chihuahua, Mexico. After preparation, the samples were shipped to the ALS laboratory in North Vancouver, Canada, for analysis.

Depending on the competency of the drill core, it was either cut in half with a diamond bladed saw or split with a pneumatic core splitter.

Upon arrival at the ALS preparation facility, all of the samples were logged into the laboratory's tracking system. Then the entire sample was weighed, dried if necessary, and fine crushed to better than 70% passing 2 mm. The sample was then split through a riffle splitter and a 250 g sub-sample was taken and pulverized to 85% passing 75 microns (-200 mesh).

Samples at ALS were analyzed for gold by fire assay with an atomic absorption spectroscopy (AAS) finish (detection range of 0.005 ppm Au to 10 ppm Au) and for silver by aqua regia digestion with an inductively coupled plasma atomic emission spectrometry (ICP-AES) finish (detection range of 0.2 ppm Ag to 100 ppm Ag). Silver samples returning assay values greater than 100 g/t Ag were further analyzed by fire assay with gravimetric finish.

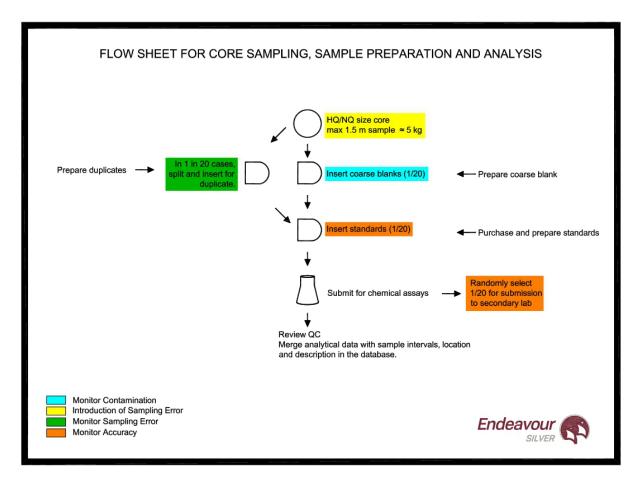
ALS has developed and implemented strategically designed processes and a global quality management system that meets all requirements of International Standards ISO/IEC 17025:2017 and ISO 9001:2015. All ALS geochemical hub laboratories are accredited to ISO/IEC 17025:2017 for specific analytical procedures. ALS is independent of Endeavour Silver.

The ALS quality program includes quality control steps through sample preparation and analysis, inter-laboratory test programs, and regular internal audits. It is an integral part of day-to-day activities, involves all levels of ALS staff, and is monitored at top management levels.



A quality control flowsheet outlining Endeavour Silver's sampling process, including handling of samples, preparation and analysis, is presented in Figure 11-1.

### FIGURE 11-1 ALS QUALITY CONTROL FLOWSHEET OF CORE SAMPLING, PREPARATION AND ANALYSIS



## **QUALITY ASSURANCE/QUALITY CONTROL**

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used in order to have confidence in a resource estimate. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of collecting, preparing, and assaying the exploration drilling samples. In general, QA/QC programs are designed to prevent or detect contamination and allow assaying (analytical), precision (repeatability), and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling-assaying variability of the sampling method itself.



### QA/QC PROTOCOLS

QA/QC protocols have been in place on site in 2006 to 2008, 2010, and 2017 to 2019. The protocols have been updated over time. Since 2017 protocols have included the routine insertion of one randomly inserted certified reference material (CRM), one blank, and one field duplicate within each sample batch of approximately 20 regular samples. Check assays are conducted at a frequency of 5%.

A QA/QC report is prepared quarterly, and batches of samples identified upon receipt of results are actioned upon in a timely manner. In addition, a final QA/QC report is prepared annually.

QA/QC results for 2006–2008 and 2010, supporting drilling over the El Cometa vein were compiled by Endeavour Silver and reviewed by RPA. Results have also been reviewed and compiled by Micon (2010). This section discusses the results from 2017 to 2019, covering the drilling by Endeavour Silver over the Veta Colorada, Sierra Plata, San Patricio, and Palmilla veins.

A total of 1,992 control samples were submitted during Endeavour Silver's surface drilling program at Parral, from January 2017 to December 2019, as shown in Table 11-1.

A total of 690 pulps were also submitted for check assaying to a secondary independent laboratory as discussed under Check Assays below.

### TABLE 11-1 ENDEAVOUR QA/QC SAMPLES INSERTION RATE 2017-2019 -PARRAL Endeavour Silver Corp. – Parral Project

Control Sample	Count	Insertion Rate (%)
Standards	653	5.6%
Field Duplicates	647	5.5%
Blanks	692	5.9%
Total	1,992	
Check Assays	690	5.9%

### CERTIFIED REFERENCE MATERIAL

Results of the regular submission of CRMs, or standards, are used to identify problems with specific sample batches and long-term biases associated with the primary assay laboratory. Endeavour Silver uses commercial CRMs purchased from CDN Resource Laboratories Ltd.



(CDN). Results of the CRMs are plotted in control charts and performance is reviewed and actioned upon according to the protocol outlined in Table 11-2.

# TABLE 11-2 PROTOCOL FOR MONITORING STANDARD PERFORMANCE Endeavour Silver Corp. – Parral Project

Standard Assay Value	Status	Mineralized Zone	Action
< 2 SD	Acceptable	N/A	No action required
< 2 - 3 SD from CL (Single result; not consecutive)	Acceptable	N/A	No action required
< 2 - 3 SD (Two or more		YES	Re-Analyse samples
consecutive samples)	Warning	NO	No action required
> 3 SD (Single result; not		YES	Re-Analyse samples
consecutive)	Warning	NO	No action required
> 3 SD (Consecutive samples)	Failure	N/A	Re-Analyse samples

Notes:

SD: Standard Deviation

CL: Calculated mean of CRM, calculated from a minimum of 25 primary laboratory data points, or the certified mean value of the CRM when less than 25 data points are available.

UL: Greater than two standard deviations higher than the CL.

LL: Greater than two standard deviations less than the CL.

N/A: Not Applicable

From 2017 to 2019, a total of 653 standard samples were submitted at an average frequency of one for every batch of 20 samples. The standard samples were ticketed with pre-assigned numbers in order to avoid inadvertently using numbers that were being used during logging.

Four different CRMs were used during the Parral surface diamond drilling program and were submitted and analyzed for gold and silver as summarized in Table 11-3.

# TABLE 11-3 ENDEAVOUR CERTIFIED REFERENCE MATERIAL Endeavour Silver Corp. – Parral Project

CDN Reference No.	Endeavour Reference No.	Certified Mean Value Au (g/t)	Certified Mean Value Ag (g/t)	2017 Sample Count	2018 Sample Count	2019 Sample Count
CDN-ME-1408	EDR-42	2.94	396	44	-	-
CDN-ME-1407	EDR-44	2.12	245	101	29	52
CDN-ME-1505	EDR-45	1.29	360	139	-	-
CDN-ME-1413	EDR-46	1.01	52	196	27	65

Endeavour Silver was originally monitoring the standards by utilizing the certified mean and standard deviation values resulting from the round robin assaying, undertaken during the certification process for each of the CRMs. In 2013, Endeavour Silver modified its protocol for



monitoring CRMs, updating the expected values to reflect the average value of the CRMs submitted in that year. Although RPA agrees that the laboratory may, over time, reflect a more accurate expected value than the smaller round robin undertaken to certify the CRM initially, caution must be exercised and results of the CRM should be continually evaluated against results of the CRMs at a secondary laboratory to ensure that laboratory bias is not masked by using this methodology.

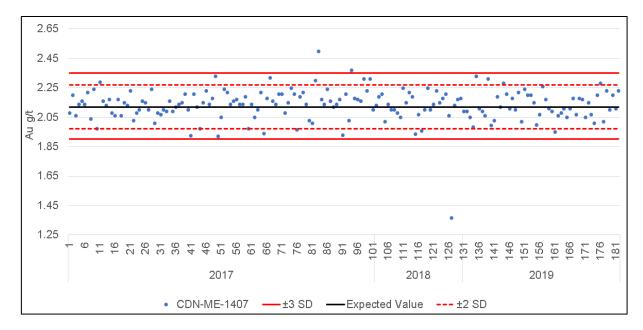
RPA reviewed the QA/QC reports prepared by Endeavour Silver in 2017, 2018, and 2019, and combined the original datasets to ensure reproducibility. Figures 11-2 and 11-3 show the gold and silver performance of the CDN-ME-1407 CRM, plotted against the original certified value, and confidence limits outlined in the CDN certificate.

Four CRMs were used in 2017 and two CRMs were used during 2018 and 2019. During this time, performance for both silver and gold was acceptable, with most of the CRM results falling within acceptable limits. Only three CRMs were flagged as failures and the associated sample batches were re-analyzed in accordance with Endeavour Silver's protocols stated above in Table 11-2.

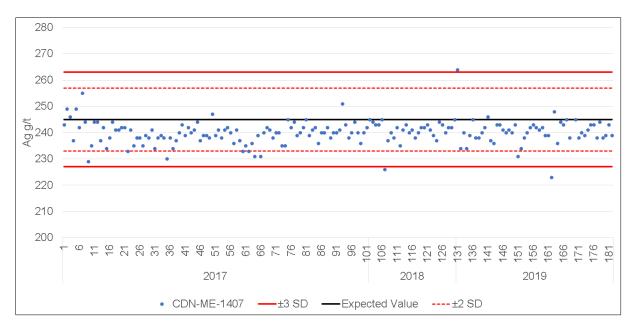
The silver analyses, however, do show a potential low bias when compared to the original expected value of the CRM. This bias may be simply a consequence of the nature of the CRM, and RPA recommends investigating this bias by submitting the CRM to the check assay laboratory at a rate of one per five samples. Results of this analysis would show whether the low bias is occurring as a result of any primary laboratory bias, or of the CRM itself, giving justification to recalculate the expected values for the CRM to a slightly lower value. A comparison of regular silver assay results submitted to the primary and secondary laboratories does not point towards a bias in the primary laboratory.



FIGURE 11-2 PARRAL CDN-ME-1407 CRM GOLD PERFORMANCE FOR 2017 TO 2019 PERIOD



### FIGURE 11-3 PARRAL CDN-ME-1407 CRM SILVER PERFORMANCE FOR 2017 TO 2019 PERIOD



#### Note: One high grade outlier value not shown.



### **BLANK MATERIAL**

The regular submission of blank material is used to assess contamination during sample preparation and to identify sample numbering errors. The blank material used at the Project in 2017 and 2018 was commercial bentonite purchased for Endeavour Silver's drilling programs on the Project. The bentonite used was Star Plug (3/8"). In 2019, Endeavour Silver used blank material sourced from a non-mineralized quarry located in the San Antonio del Potrero locality. This material is described as massive rock of green colour, weathering, volcanoclastic, slightly propylitized, with minor presence of oxidation and disseminated pyrite in traces. This unit is an andesitic agglomerate within the basement of the Escobedo Volcanic Series and is known for being the host rock of the footwall of the Veta Colorada. The results of previous sampling show that the values are below the detection limit (<0.005 ppm Au and <0.2 ppm Ag) and thus adequate to be used in the exploration programs.

Blank samples, for all three years, were inserted at an average rate of approximately one for each 20 original samples, with a total of 692 blank samples (5.9%) submitted.

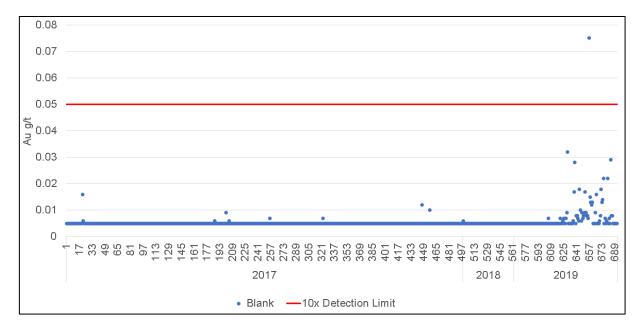
Blank performance is reviewed and actioned upon according to the failure limit set at times the lower detection limit of the analytical method of the element; 0.05 g/t for gold and 2 g/t for silver, over which the results are reviewed. If warranted, the batch is requested to be repeated.

Figures 11-4 and 11-5 depict the performance of the blank material by year and element. One gold and one silver blank sample returned results above the specified control limits. In both incidents, the failure occurred outside of significant mineralization. Endeavour Silver re-ran the samples associated with the failures and found that the results were within acceptable limits. Results in 2019 show a marked increase in the silver and gold assay grades, though they are still generally within acceptable limits.

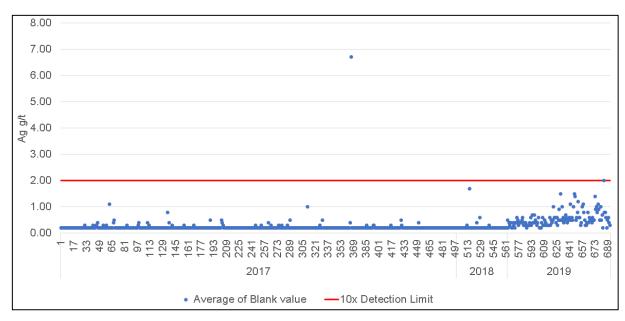
Table 11-4 describes the results of the re-assaying of the sample batch associated with the silver blank failure which occurred in 2017.



FIGURE 11-4 PARRAL GOLD BLANK CONTROL CHART FOR THE 2017 TO 2019 PERIOD



# FIGURE 11-5 PARRAL SILVER BLANK CONTROL CHART FOR THE 2017 TO 2019 PERIOD





Sample	ALS Au (g/t)	ALS Ag (g/t)	ALS Re-assay Au (g/t)	ALS Re-assay Ag (g/t)	Reference Standard
PDH16803	0.01	7.8	0.01	7.5	
PDH16804	0.02	29.8	0.02	29.5	
PDH16805	0.02	32.6	0.02	30.5	
PDH16806	0.01	7.5	0.01	7.7	
PDH16807	0.12	45.8	0.12	41.9	
PDH16808	0.01	6.7	0.01	0.8	BLANK
PDH16809	0.05	6.5	0.05	6.5	
PDH16810	0.01	1.0	0.01	0.9	
PDH16811	0.01	13.0	0.01	12.0	
PDH16812	0.01	8.3	0.01	5.9	
PDH16813	0.01	2.3	0.01	2.2	
PDH16814	0.07	33.7	0.06	31.4	

## TABLE 11-4 RE-ASSAY RESULTS FOR 2017 SILVER BLANK FAILURE Endeavour Silver Corp. – Parral Project

Results from 2017 and 2018 indicate a negligible amount of sample contamination or sample numbering errors associated with samples from the Project, however, bentonite is quite soft (value of 1 on Moh's hardness scale) and may not efficiently capture smeared material from crushing and pulverizing equipment. RPA is of the opinion that the use of bentonite as a blank material is not ideal to assess sample contamination due to smearing and recommends investigating the use of a blank material with a higher hardness value. The migration to the use of andesitic agglomerate in 2019 is an appropriate step away from the use of bentonite, however, although the analyses stayed below the failure threshold, RPA recommends that Endeavour Silver continue its search for a local source of barren quartz or granite, to ensure that any smearing during sample preparation is captured by the blank material, and that the results of the analysis can be relied upon.

### FIELD, COARSE REJECT, AND PULP DUPLICATES

Duplicate samples help to monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. The field duplicate includes the natural variability of the original core sample, as well as all levels of error including core splitting, sample size reduction in the preparation laboratory, sub-sampling of the pulverized sample, and the analytical error. Coarse reject and pulp duplicates provide a measure of the sample homogeneity at different stages of the preparation process (crushing and pulverizing).



To date, a form of field duplicate samples has been collected at site whereby a sawn half of a drill core was manually crushed, mixed and divided by hand into two samples. RPA is of the opinion that this preparation method is likely to cause sample loss and bias and is not an appropriate test to monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. Moving forward, RPA recommends initiating a duplicate program, blind to the assay laboratory which includes:

- Field duplicates (split halved core (2, half sawn core samples)) at an insertion rate of approximately 1 in 50;
- Coarse material duplicates at an insertion rate of approximately 1 in 25; and
- Pulp material duplicates at an insertion rate of approximately 1 in 25.

Results should be analyzed using comparative statistical techniques.

### CHECK ASSAYS

Submitting assays to a secondary laboratory helps monitor bias at the principal laboratory. Endeavour Silver routinely conducts check analyses at a secondary laboratory to evaluate the accuracy of the primary laboratory. Random pulps were selected from original core samples and sent to a second laboratory to verify the original assays and monitor any possible deviation due to sample handling and laboratory procedures. Endeavour Silver uses the Inspectorate (Bureau Veritas) and SGS de México (SGS) laboratories, in Mexico, for check analyses.

The Bureau Veritas preparation facility is located in Durango, Mexico and analysis is conducted at Inspectorate America Corporation facility located in Sparks, Nevada, USA. The SGS sample preparation and analysis laboratory is located in Durango, Mexico. These independent laboratories hold ISO/IEC 17025:2017 accreditation for the procedures used.

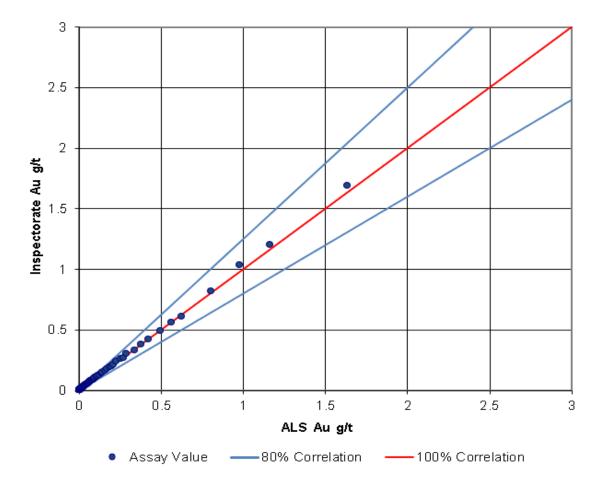
A total of 690 pulp samples during 2017, 2018, and 2019 were sent to a third-party laboratory for check analysis, equating to an insertion rate of approximately 5.9% of the total samples taken during the drilling program.

Correlation coefficients are high (>0.98) for both gold and silver, showing excellent overall agreement between the original ALS assay and the Inspectorate check assay.

The results of the check sampling program are shown by way of scatter diagrams in Figures 11-6 and 11-7.



FIGURE 11-6 PARRAL CHECK ASSAYS ALS VS. INSPECTORATE FOR GOLD 2017 - 2019





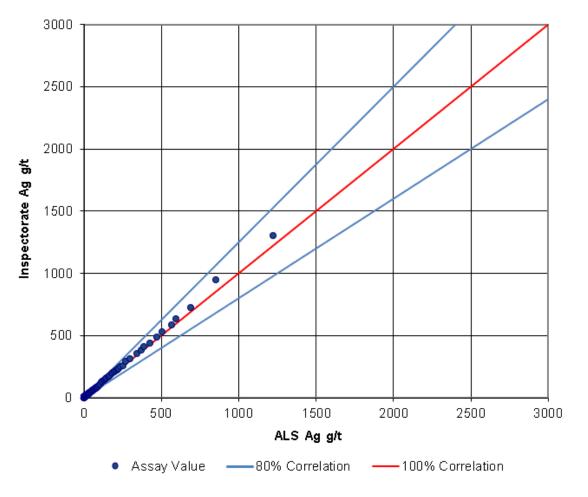


FIGURE 11-7 PARRAL CHECK ASSAYS ALS VS. INSPECTORATE FOR SILVER 2017 - 2019

### **QA/QC CONCLUSIONS**

Endeavour Silver has implemented a reasonable QA/QC program at the Project and the results are sufficient to support Mineral Resource estimation.

### RECOMMENDATIONS TO ENHANCE THE QA/QC PROGRAM

The following recommendations are made from the review and analysis of QA/QC data collected at the Project:

- Investigate the use of a blank material with a higher hardness value than bentonite, such as a local source of barren quartz or granite, which has predictably negligible silver and gold values (unlike the andesite currently in use) to ensure that any smearing during the crushing and pulverizing processes is captured by the coarse blank material, and that the results are reliable.
- Initiate a duplicate program, blind to the assay laboratory which includes field duplicates (split halved core (2, half sawn core samples)) at an insertion rate of



approximately 1 in 50, and coarse and pulp material duplicates at a rate of approximately 1 in 25.

• Investigate the low bias of silver CRM CDN-ME-1407 by submitting standards to the check assay laboratory at a rate of one per five samples. The results may support the conclusion that the low bias observed is due to the CRM itself, which would give justification for the recalculation of the expected value and ranges.



## **12 DATA VERIFICATION**

### DATABASE VERIFICATION

### MICON VERIFICATION (2010)

Micon's data verification during the January 2010 site visit concentrated mainly on the data from the 2008 drilling campaign, although the entire Project drill hole database was examined for errors and consistency:

- Collar coordinates were checked against drill logs.
- Drill logs and electronic files were checked for missing intervals and for overlapping From and To data.
- Geological codes were verified by comparing drill logs to composites used for wireframe construction, to sample composites, and to the block models.
- The assay data pertaining to the 2008 drilling campaign were compared to the original ALS datafiles and laboratory certificates in search of errors. None was found.
- The block models and wireframes generated by Endeavour Silver, using Vulcan modelling software, were imported into Datamine where Micon:
  - Validated the grade estimation process used by Endeavour Silver.
  - Validated the resource classification.
  - Verified the resource tabulation.
  - Verified net smelter return (NSR) and silver equivalent calculations and assumptions.

### P&E VERIFICATION (2018)

P&E conducted verification of the drill hole assay database by comparison of the database entries with assay certificates, which were downloaded in digital format directly from the ALS Webtrieve online data access system by P&E.

Assay data from 2017 were verified for the Project. Approximately 78% (6,726 out of 8,632) of the drilling assay data were checked for both gold and silver, against the ALS laboratory certificates, with 84% (362 out of 432) of this data being constrained. Discrepancies in sample number notation were noted, and follow up from Endeavour Silver resolved the matter as a data entry error and corrections were made to the database. No other errors were identified in the database.



### **RPA VERIFICATION (2020)**

RPA conducted a number of digital and visual queries on the resource database. RPA inspected the drill hole traces, reviewed the drill hole traces in 3D, level plan, and vertical sections and found no unreasonable geometries. RPA also confirmed that there are no duplicate sample numbers and that sample numbers are available for every assayed interval.

In addition, several standard data integrity checks were performed within the software programs on the Parral drill hole database such as:

- Property boundary limits for each deposit.
- Intervals exceeding the total hole length (from-to issue).
- Negative length intervals (from-to issue).
- Out-of-sequence and overlapping intervals (from-to issue; additional sampling/QA/QC/check sampling included in table).
- No interval defined within analyzed sequences (not sampled or missing samples/results).
- Inconsistent drill hole labelling between tables and duplicate drill hole numbers.
- Invalid data formats and out-of-range values.
- Unusual assay results, including excessively long high grade assay intervals.

RPA reviewed the error reports generated by importing the drill hole database into Leapfrog Geo version 4.5 and Vulcan. No discrepancies were found.

RPA conducted verification of the drill hole assay database by comparison of the database entries with assay certificates, which were provided in digital format by Endeavour Silver. No errors were identified in the database.

In RPA's opinion, the database is adequate for Mineral Resource estimation.



## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

Metallurgical test work has been conducted on samples from the various areas on the Project since 2007, most recently in 2019. The results of the test work were described in the following reports:

- SGS de Mexico, Durango, 2007 Determination of the Sensibility of One Ore Sample to the Flotation Process.
- SGS de Mexico, Durango, 2008 Determination of the Sensitivity of One Ore Sample to the Flotation Process (SGS-05-08).
- SGS Mineral Services, Durango, 2010 Determination of the Amenability of One Ore Sample to the Flotation Process (SGS-43-10).
- ALS Metallurgy (ALS), Kamloops, 2018 Metallurgical Test Work on Five Samples from the Parral Project (KM5545).

In addition, test work was conducted by Process Research Associates (PRA) in Vancouver, Canada in 2007 on a single sample from El Cometa, and by ALS in 2019 on four samples from Sierra Plata; the results of this test work were not compiled into reports.

Micon (2010) reported that the samples used in the 2008 to 2010 test work were as follows:

- El Cometa mineralization, used for the 2007 and 2008 test work by SGS and PRA.
- The same sample was used by SGS in 2008 and by PRA in 2007 (due to poorer-thanexpected results achieved at PRA, SGS was tasked with replicating results achieved in the 2007 SGS test work using the same sample as used by PRA).
- San Juanico mineralization, used for the 2010 SGS test work.

The origin of the samples was not reported in the 2008 to 2010 test work reports.

Test work results and conclusions are summarized in the following sections.

### SGS DE MEXICO, 2007

One ore sample was provided to SGS de Mexico in Durango to determine its grinding work index and assess its amenability to flotation. One work index test and 16 flotation tests were completed.



The work index was measured at 15.5 kWh/t.

The test work concluded that it was possible to obtain a lead concentrate grading 55.5% lead and 5.0% zinc, and a zinc concentrate grading 52.4% Zn and 3.1% Fe, and that iron could be depressed in both concentrates using cyanide.

### PRA, 2007

A sample was provided to PRA in Vancouver in 2007 after the completion of the SGS de Mexico test work. PRA conducted one test to measure gravity gold recovery, and five flotation tests following on the SGS tests.

The gravity concentration test obtained recoveries of 20% for gold and 2% for silver using a feed size of 76% passing 74  $\mu$ m. Flotation tests produced lead concentrates with lead grades ranging from 35% to 46% and lead recoveries ranging from 78% to 84%, and zinc concentrates with zinc grades of 35% to 46% and zinc recoveries of 39% to 63%. Recovery of gold to the lead concentrates ranged from 56% to 71% and recovery of silver ranged from 63% to 73%.

### SGS DE MEXICO, 2008

A sample was provided to SGS de Mexico in Durango in 2008. A single flotation test was conducted using the same conditions as the final test in the 2007 SGS test work program, test 16. Based on these results, SGS calculated concentrate compositions and recoveries for a single lead cleaner (as in the 2007 test 16 flowsheet). It was concluded that the sample behaved similarly to the 2007 test work sample, and that it was possible to obtain a lead concentrate grading 59% Pb and 7% Zn, and a zinc concentrate grading 53% Zn and 4% Fe, and that iron could be depressed in both concentrates using cyanide.

### SGS MINERAL SERVICES, 2010

A sample was provided to SGS Mineral Services in Durango to assess its amenability to flotation. Four flotation tests were completed using conditions established in the 2008 test work, but at four different grind sizes.



It was concluded that although the head grades were similar to those of a sample tested in 2008, better results were obtained in the 2008 test work, and that there were significant differences in the metallurgical response of the two samples. It was noted that the 2010 sample was harder than the 2008 sample, although a work index measurement was not reported. In terms of grind, it was noted that lead concentrate results improved as the grind became finer, while the best zinc concentrate results were achieved at a grind of 70% passing 74  $\mu$ m.

### ALS, 2018

Metallurgical test work on five samples from the Project was completed by ALS in Kamloops, British Columbia in 2018. Two samples, PAR 18-02 and PAR 18-05, were identified as mixed zone material, while PAR 18-01, PAR 18-03, and PAR 18-04 were identified as oxide zone material. Assays for the five samples are presented in Table 13-1. The objective of the test program was to investigate the recovery of silver and gold by flotation and cyanidation leach techniques. Kinetic rougher tests were performed, and cyanidation leaching on both whole ore and flotation products was conducted. Coarse bottle roll leach tests were also carried out on selected samples.

Sample ID	Source	Zone	Au g/t	Ag g/t	Pb %	Zn %	Cu %	Fe %	S %	S(s) %
PAR18-01	Sierra Plata	Oxide	<0.01	210	0.15	0.43	0.02	2.3	0.31	0.13
PAR18-02	El Verde	Mixed	0.07	316	4.69	1.09	0.07	8.7	1.31	1.25
PAR18-03	Remedios Argentina	Oxide	0.06	340	0.32	0.47	0.03	3.2	2.27	0.44
PAR18-04	Palmilla	Oxide	0.21	231	0.42	0.38	0.01	2.0	0.09	0.06
PAR18-05	Cometa San Juanico	Mixed	0.42	61	3.42	2.70	0.07	5.4	5.51	5.11
Source: ALS, 2	2018									

# TABLE 13-1 ALS 2018 TEST WORK SAMPLE HEAD ASSAYS Endeavour Silver Corp. – Parral Project

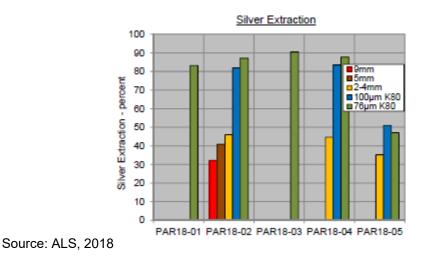
Notes: a) Ag by aqua regia digestion

b) S(s) denotes sulphide sulphur by carbonate leach

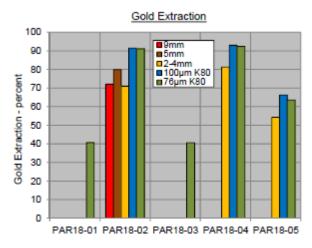
Bottle roll leach tests at various sizes were conducted over 48 hours with oxygen sparging in all tests. A sodium cyanide concentration of 1,000 ppm was employed, and lime was used to maintain the pH at approximately 11. The test results are presented in Figures 13-1 and 13-2.



### FIGURE 13-1 SILVER EXTRACTION IN BOTTLE ROLL LEACH TESTS



### FIGURE 13-2 GOLD EXTRACTION IN BOTTLE ROLL LEACH TESTS



Source: ALS, 2018

Kinetic rougher tests were performed with each sample using a bulk sulphide flotation flowsheet at primary grind K80 between 66 µm and 75 µm and natural pH. Potassium amyl xanthate (PAX) was used as the gold and sulphide mineral collector. For samples PAR 18-01, PAR 18-02, PAR 18-03 and PAR 18-04, a cyanidation leach test was completed on the rougher tails. The test results are presented in Figures 13-3 and 13-4.

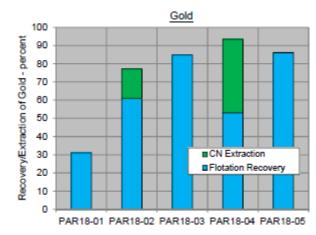


### FIGURE 13-3 OVERALL ROUGHER AND LEACH SILVER RECOVERIES



Source: ALS, 2018

### FIGURE 13-4 OVERALL ROUGHER AND LEACH GOLD RECOVERIES



Source: ALS, 2018

It was concluded from the test work that for combined test results including the bulk rougher concentrate and cyanidation leaching of the rougher tails, overall silver extraction on an aqua regia basis averaged 94%, which was higher than the whole ore leach silver extractions. Overall gold extraction to a bulk rougher concentrate with cyanidation leaching of the rougher tails ranged from 31% for PAR 18-01 where the rougher tails was not subjected to cyanidation leaching due to trace levels of gold, to an average of 85% gold extraction for the other four samples. Sodium cyanide consumption for the leach test with rougher tails was about one quarter of that recorded for the whole ore leach tests.

Although silver and gold extractions by combined bulk rougher flotation followed by cyanidation leaching of the rougher tails were higher than those from whole ore cyanidation leaching,



especially for PAR 18-05, gold and silver content of the bulk concentrate might not meet payment thresholds. The rougher concentrates might require further processing such as regrinding and cleaner flotation of cyanidation leaching to unlock gold and silver values.

### ALS, 2019

Bulk mineral analysis (BMA), whole-ore cyanidation, rougher flotation, and rougher tailings cyanidation test work was completed on four samples from Sierra Plata. The samples were sourced from blocks 7-VC-18, 7-VC-19, level 5 sample SP2, level 6 sample SP3, and drill holes below level 7.

BMA indicated that the samples consisted predominantly of quartz, feldspars, fluorite, and iron oxides. The small amounts of sulphides found were predominantly present as pyrite and galena, with some sphalerite and minor copper sulphides. Whole-ore cyanidation leach tests had silver recoveries ranging from 79% to 92%. Rougher flotation recoveries of silver ranged from 56% to 81%, with cyanidation of the flotation tales resulting in overall silver recoveries of 87% to 97%.



## **14 MINERAL RESOURCE ESTIMATE**

The Project Mineral Resource estimate represents an update, by RPA, of four areas of the Parral deposit: El Cometa, Palmilla, San Patricio, and Veta Colorada, and an initial Mineral Resource estimate for the Sierra Plata area within the Project. Estimates were based on 196 drill holes totalling 56,263 m. Veins were modelled using 3D wireframes of the mineralization based on logging and grade. Prior to compositing to full length intervals, high Ag, Au, Pb, and Zn values were cut to appropriate levels. Block model grades within the wireframe models were interpolated by inverse distance cubed (ID<sup>3</sup>). Wireframes were generated using Seequent's Leapfrog software and the interpolation plan was executed using Maptek's Vulcan or Leapfrog software. Blocks were classified as Indicated or Inferred using a drill hole spacing and geological confidence based criterion. RPA validated the estimates using industry standard validation techniques.

Mineral Resources are reported using either; an NSR cut-off value for veins with both precious and base metals, or a silver equivalent (AgEq) cut-off grade for veins with precious metals only. El Cometa was reported at an NSR cut-off value of US\$55/t. The Palmilla, Colorada, and San Patricio areas were reported at a cut-off grade of 130 g/t AgEq. Sierra Plata was reported at a cut-off grade of 200 g/t Ag.

Mineral Resources for all areas, with the exception of Sierra Plata, are reported within underground shapes that have a minimum thickness of 1.75 m. For vein interpretation in the Sierra Plata area, a minimum thickness of 1.5 m was used. Mineral Resources are reported within the Endeavour Silver claim boundaries and exclude historically depleted areas. Mineral Reserves have not yet been estimated at the Project.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification. A summary of the Project Mineral Resources as of December 31, 2019, is presented in Table 14-1, while their relative locations are shown in Figure 14-1.



Catagory/Arago	Tonnes		Gra	de			Contain	ed Metal	
Category/Areas	(Mt)	(g/t Ag)	(g/t Au)	(% Pb)	(% Zn)	(Moz Ag)	(koz Au)	(MIb Pb)	(Mlb Zn)
Indicated									
El Cometa	0.18	55	1.17	3.20	3.30	0.3	6.8	12.8	13.2
Sierra Plata	0.43	271		0.49	0.35	3.7		4.7	3.4
Total	0.61	207	0.35	0.63	0.608	4.0	6.8	<b>1</b> 7.5	<b>1</b> 6.5
Inferred									
Palmilla	0.89	219	0.58			6.3	16.7		
San Patricio	0.76	512	0.21			12.5	5.2		
Veta Colorada	1.36	291				12.7			
El Cometa	0.88	74	1.45	3.27	3.24	2.1	41.0	63.4	63.0
Sierra Plata	0.17	263		0.42	0.37	1.4		1.6	1.4
Total	4.04	269	0.48	0.35	0.35	35.0	62.8	65.0	64.3

# TABLE 14-1 SUMMARY OF MINERAL RESOURCES – DECEMBER 31, 2019 Endeavour Silver Corp. – Parral Project

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. Mineral Resources are estimated at a cut-off grade of 130 g/t AgEq for Palmilla, Veta Colorada, and San Patricio, 200 g/t Ag for Sierra Plata, and an NSR cut-off value of US\$55/t for El Cometa.

3. The NSR and AgEq values are based on estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges. Metal price assumptions were: US\$17/oz Ag, US\$1,275/oz Au, US\$1.15/lb Zn, and US\$1.00/lb Pb.

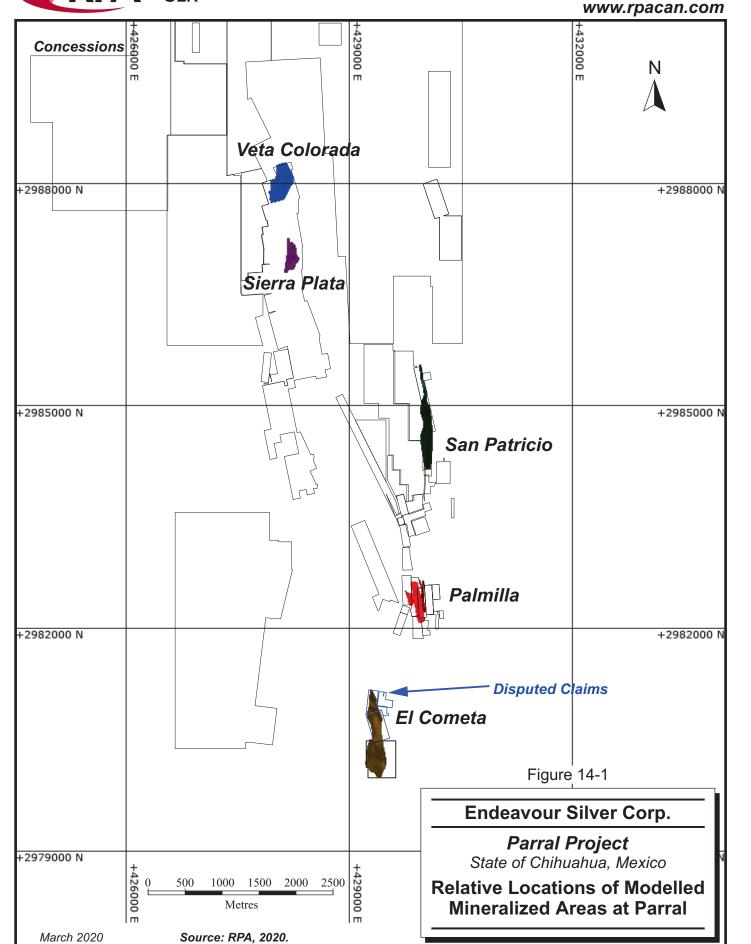
4. A minimum mining width of 1.5 m was used for Sierra Plata, and 1.75 m for all other veins.

5. Bulk density varies by vein.

6. Numbers may not add due to rounding.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.







### **RESOURCE DATABASE**

Table 14-2 outlines the number of intersecting drill holes, and the included meters and samples within each of the areas modelled at the Project.

Areas	No. Veins	No. Drill Holes	No. Surface Trenches	No. Underground Samples	Metres (m)	No. Samples
Palmilla	5	47	3		264	278
Veta Colorada	1	24	-		96	134
El Cometa	3	90	-		179	296
San Patricio	1	25			67	119
Sierra Plata	3	25		643	5,486	2,192

TABLE 14-2 SUMMARY OF RESOURCE DATABASE Endeavour Silver Corp. – Parral Project

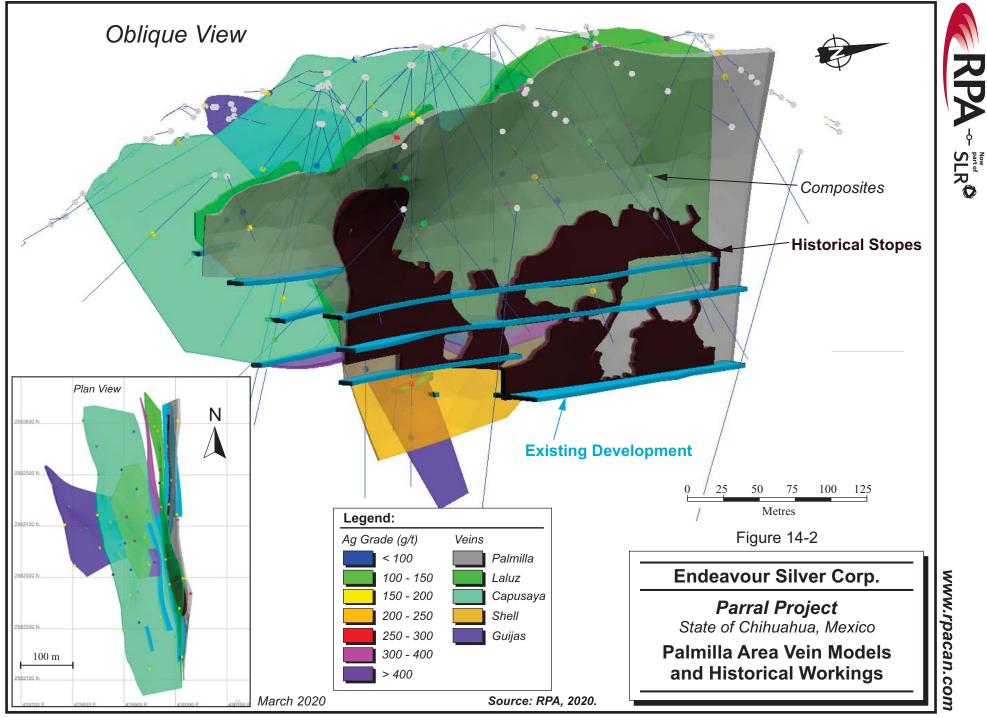
### PALMILLA

### **GEOLOGICAL INTERPRETATION**

The Palmilla area is characterized by five veins, Palmilla, La Luz, Capusaya, Shell, and Guijas; all but Shell outcrop at surface. The wireframes trend north to north-northwest. Palmilla and Laluz veins exhibit near vertical orientation, while all others dip approximately 60°E.

Palmilla area veins were modelled based on surface and drill hole lithology logging and grades, and a minimum thickness was not applied. Veins were modelled using an approximate cut-off grade of 125 g/t AgEq, with lower grades incorporated where necessary for vein continuity. Where historical mining was present, the vein shape was adjusted to follow the general trends and shapes of mined out areas. Vein shapes were extended 50 m beyond drill intercepts, or to existing development. Low grade intercepts at extents were excluded. Wireframes were also extended 10 m above the existing topography, to ensure inclusion of surface samples where small survey discrepancies between the surface topography and sample locations occurred. Results of historical channel samples associated with mine development were not available.

A one metre buffer zone was applied adjacent to the hanging wall and footwall of each vein. Figure 14-2 shows the vein models and historical workings in the Palmilla area.



14-5



### **RAW ASSAYS AND TREATMENT OF HIGH GRADE ASSAYS**

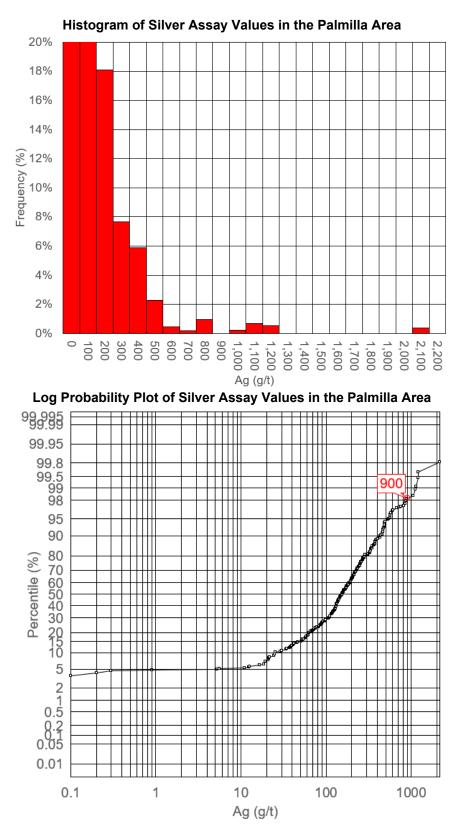
Gold and silver assay values in the Palmilla area are compiled in Table 14-3. Assays were reviewed using histograms, log probability plots, and decile analysis to determine caps of 900 g/t Ag and 6 g/t Au for all veins in the Palmilla area. Assays were reviewed by vein as well as cumulatively. Selected graphs are shown in Figure 14-3 for silver and Figure 14-4 for gold.

Vein	Count			Silver (g/t)					Gold (g/t)		
Veni Count		Min	Mean	Мах	Mean Cap	Мах Сар	Min	Mean	Max	Mean Cap	Мах Сар
Capusaya	83	0	200	2,170	182	900	0.00	0.14	1.17	0.14	1.17
Laluz	71	0	239	1,220	230	900	0.00	0.42	5.65	0.42	5.65
Palmilla	73	0	221	1,115	218	900	0.00	0.65	6.03	0.65	6.00
Guijas	30	11	167	550	167	550	0.01	0.20	2.18	0.20	2.18
Shell	21	16	242	864	242	864	0.01	3.07	15.05	2.05	6.00
Total	278	0	215	2,170	207	900	0.00	0.59	15.05	0.51	6.00

#### TABLE 14-3 SUMMARY OF PALMILLA AREA ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

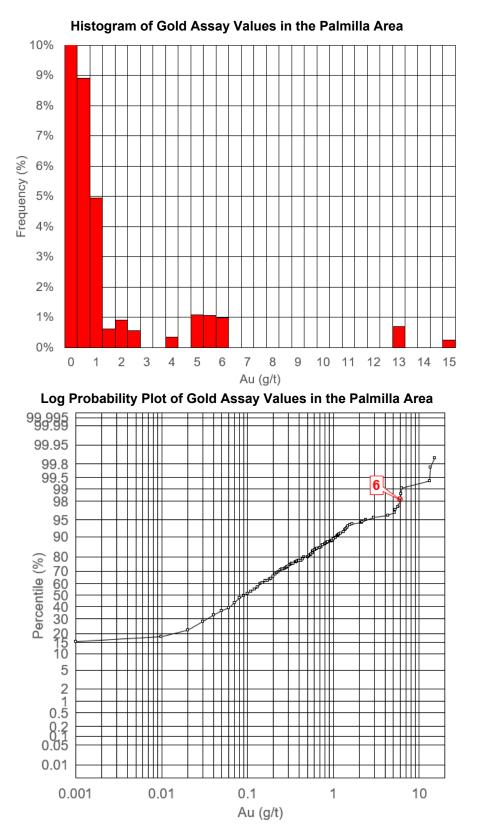


### FIGURE 14-3 CAPPING ANALYSIS OF SILVER ASSAY VALUES IN THE PALMILLA AREA





### FIGURE 14-4 CAPPING ANALYSIS OF GOLD ASSAY VALUES IN THE PALMILLA AREA





### COMPOSITING

Capped assays were composited to the full length of the drill hole intercept, and the horizontal thickness was estimated using the average strike and dip for each vein in the Palmilla area and recorded. Composite statistics, weighted by horizontal thickness, are shown in Table 14-4.

### TABLE 14-4 SUMMARY OF PALMILLA AREA FULL LENGTH COMPOSITE STATISTICS

Vein	Count		Silver (g/t Ag)					old : Au)	
		Min	Max	Mean	CV	Min	Max	Mean	CV
Capusaya	27	0	588	162	0.75	0.00	0.53	0.12	1.15
Palmilla	18	67	354	207	0.37	0.00	3.09	0.55	1.38
Laluz	16	5	324	199	0.48	0.01	2.40	0.51	1.53
Shell	7	96	372	197	0.54	0.01	5.60	0.99	2.07
Guijas	10	42	301	150	0.45	0.01	1.05	0.23	1.60
Combined	78	0	588	182	0.55	0.00	5.60	0.39	2.07

Notes:

1. CV - coefficient of variation

### TREND ANALYSIS

Variography was attempted for the Capusaya vein. Results were deemed unreliable and variography was not further considered. Grade and thickness contours were completed for all veins in the Palmilla area, however no consistent trend directions were identified.

### SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

Silver and gold values of full length composites were estimated in the block model using ID<sup>3</sup> in three passes as listed in Table 14-5. Full length composites were weighted by their calculated horizontal thickness and hard boundaries were applied. Dynamic anisotropy was used to orient the search ellipses based on the hanging wall and footwall orientation of each vein.

Within the one metre buffer zone surrounding each vein in the Palmilla area, grades of 35 g/t Ag and 0.05 g/t Au, were assigned to each block. These grades were based on the average grade of assays within the buffer zone capped at 100 g/t Ag and 0.5 g/t Au. These buffer zones were used in the building of underground shapes to report Mineral Resources.



### TABLE 14-5 SUMMARY OF PALMILLA AREA GRADE INTERPOLATION PLAN Endeavour Silver Corp. – Parral Project

Interpolation Criteria	Pass 1	Pass 2	Pass 3
Search Ellipse Dimensions (m)	75/75/25	150/150/50	225/225/75
Minimum number of composites	2	2	2
Maximum number of composites	4	4	4
Minimum number of drill holes	2	2	2

#### HIGH GRADE RESTRICTION

In addition to capping high grade assays, spatial restriction of high grade composites was applied to a single silver intercept within the Capusaya vein (PAL-29), whereby the full grade of the intercept was limited to within 20 m. Beyond 20 m, the composite was capped to 350 g/t Ag. No other grade restrictions were applied in the Palmilla area. Capping grades for the Capusaya vein were based on a review of the histogram and probability plots of the full length composites and distance was based on a visual review of other high grade intercepts in the Capusaya vein and their influence on grade in the context of more tightly spaced drilling, with consideration given to drill hole spacing, and some trial and error based on visual review and statistics.

### BULK DENSITY

The Palmilla area bulk density measurements were flagged by vein and basic statistics, excluding samples which returned density measurements less than 2.2 t/m<sup>3</sup> or greater than 3.4 t/m<sup>3</sup>, are presented in Table 14-6. Correlation of density values against spatial locations (eastings, northings, elevations) and silver and gold grades was attempted, however, no correlation was found. A bulk density value of 2.7 t/m<sup>3</sup> was assigned to all blocks in the Palmilla area.



### TABLE 14-6 SUMMARY OF PALMILLA AREA DENSITY MEASUREMENTS Endeavour Silver Corp. – Parral Project

Vein	Count	Mean (t/m³)	CV	Minimum (t/m³)	Maximum (t/m³)
Capusaya	62	2.67	0.08	2.34	3.24
Laluz	55	2.62	0.05	2.26	3.01
Palmilla	43	2.67	0.07	2.24	3.24
Guijas	21	2.68	0.08	2.24	3.18
Shell	21	2.96	0.07	2.60	3.31
Outside	1,474	2.72	0.07	2.23	3.40
Total	1,676	2.72	0.07	2.21	3.40

Notes:

1. CV – coefficient of variation

### **BLOCK MODELS**

The block model dimensions and origin, created using Maptek's Vulcan software, are presented in Table 14-7.

Item	Units	X	Y	Z
Parent Block	(m)	1	5	5
Sub-block	(m)	0.25	2.5	2.5
Total Model Dimensions	(m)	350	650	350
Rotation (Bearing of X around Z)	(°)	080		
Origin	(m)	429,800	2,982,000	1,650

### TABLE 14-7 PALMILLA AREA BLOCK MODEL DIMENSIONS Endeavour Silver Corp. – Parral Project

### CUT-OFF GRADE

Silver equivalent (AgEq) grades were calculated by RPA for the purposes of geological interpretation and resource reporting. AgEq grade represents the combined silver and gold grades expressed as silver grade. AgEq grade is estimated by calculating the NSR factors for each metal. An NSR factor represents the value (US\$) per metal unit (per g Ag, for example) after allowance for metallurgical recovery and consideration of smelter terms, including payables, treatment charges, refining charges, price participation, penalties, smelter losses, transportation, and sales charges. These assumptions are dependent on the processing scenario and will be sensitive to changes in inputs from further metallurgical test work. The current processing scenario assumes the production of gold and silver doré bars. Key



assumptions are listed below. Assumed recoveries are based on test work and experience from other operations.

- Metal prices: US\$17 per ounce silver US\$1,275 per ounce gold
- Doré Recoveries:

87% Ag 90% Au

The calculated NSR factors used to determine AgEq grades are presented below:

- Ag: US\$0.43 per g
- Au: US\$36.38 per g

AgEq grades for the Palmilla area were reported using the following equation:

$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times \frac{Au NSR}{Ag NSR})$$
$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times 84)$$

Break-even and incremental AgEq cut-off grades of 170 g/t and 130 g/t respectively were developed from mining, processing, and general and administrative (G&A) operating costs estimates. Underground shapes were generated using the incremental cut-off grade in a stope optimizer. Shapes above break-even cut-off grade were retained for Mineral Resource estimation while shapes above incremental cut-off grade were reviewed on a case by case basis for continuity and included where appropriate.

### CLASSIFICATION

Definitions for Mineral Resource categories used in this Technical Report are consistent with the CIM (2014) definitions and adopted by NI 43-101. CIM classification, defines a Mineral Resource as "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". Mineral Resources are classified into Measured, Indicated, and Inferred categories.

All Mineral Resources in the Palmilla area were classified as Inferred due to:



- Wide drill hole spacing in the Palmilla area (drill hole spacing ranges from 50 m to over 100 m).
- Uncertainty regarding depletion due to historical mining.

### HISTORICAL MINING AND DEPLETION

Historical mining within the Palmilla area has been digitized from longitudinal sections (long sections). RPA added newly identified depletion areas from the 2018 P&E report (P&E, 2018). Additional depletion zones based on mine cavities identified in drill hole logging, as well as sterilizing areas of the Laluz vein, which lies between mapped depletion areas within the Palmilla and Capusaya veins, were also added.

### BLOCK MODEL VALIDATION

Blocks were validated using industry standard validation techniques including a comparison of ID<sup>3</sup> block estimates against the full length composites and a nearest neighbour (NN) estimate using swath plots and basic statistics (Table 14-8; silver only). A longitudinal section comparing block and composite grades for the Palmilla area is shown in Figure 14-5.



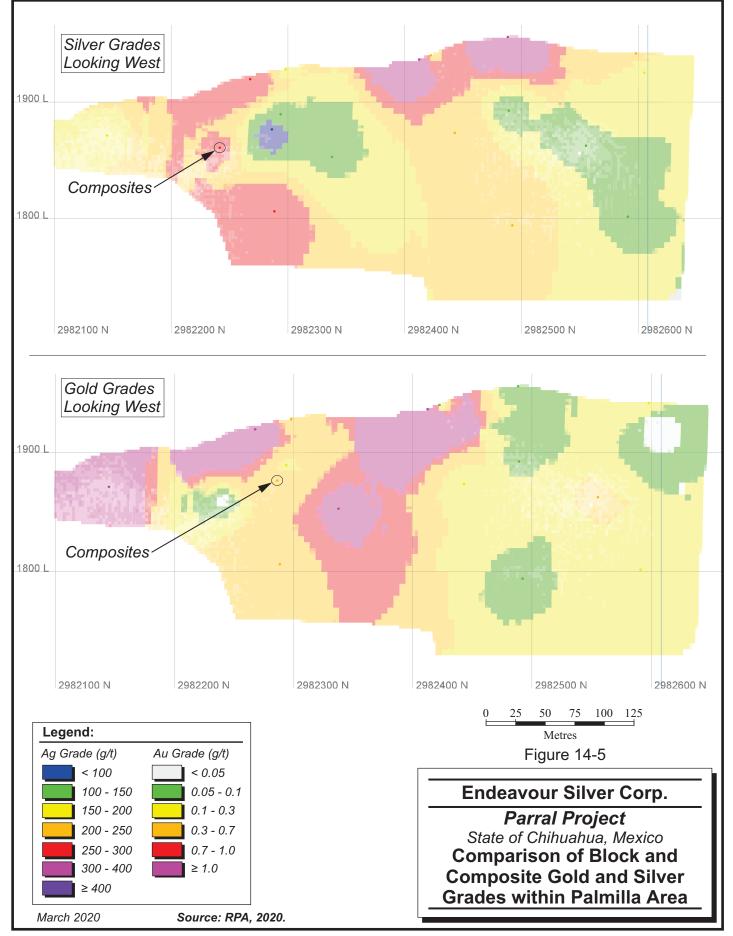
# TABLE 14-8COMPARISON OF BLOCK AND COMPOSITE GRADES IN THE<br/>PALMILLA AREA

Full Length Composites ID<sup>3</sup> Blocks **NN Blocks** Statistic (g/t Ag) (g/t Ag) (g/t Ag) Capusaya Vein Count 27 31,934 31,934 Mean 162 170 162 588 588 Maximum 588 Minimum 0 0 0 Palmilla Vein 27,974 Count 18 27,974 201 Mean 207 204 354 Maximum 354 353 Minimum 67 67 67 La Luz Vein Count 16 20,369 20,369 220 Mean 199 226 Maximum 324 324 324 Minimum 5 6 5 Shell Vein Count 7 8,962 8,962 Mean 197 233 215 Maximum 372 372 372 96 Minimum 96 96 **Guijas Vein** Count 10 17,511 17,511 Mean 150 150 148 Maximum 301 301 301 Minimum 42 42 42

Endeavour Silver Corp. – Parral Project



www.rpacan.com





### MINERAL RESOURCE REPORTING

CIM (2014) definitions were used for Mineral Resource classification. A summary of the Palmilla area Mineral Resource as of December 31, 2019, is presented in Table 14-9.

#### TABLE 14-9 PALMILLA AREA MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2019 Endeavour Silver Corp. – Parral Project

### Endeavour Silver Corp. – Parral Project

Classification	Tonnage	Gr	ade	Contain	ed Metal
Classification	(kt) (g/		(g/t Au)	(koz Ag)	(oz Au)
Inferred	890	219	0.58	6,290	17,000

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. Mineral Resources are estimated at a cut-off grade of 130 g/t AgEq.

3. AgEq values are based on estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges. Metal price assumptions were: US\$17/oz Ag and US\$1,275/oz Au.

4. A minimum mining width of 1.75 m was applied.

5. Bulk density was assigned at 2.7 t/m<sup>3</sup>.

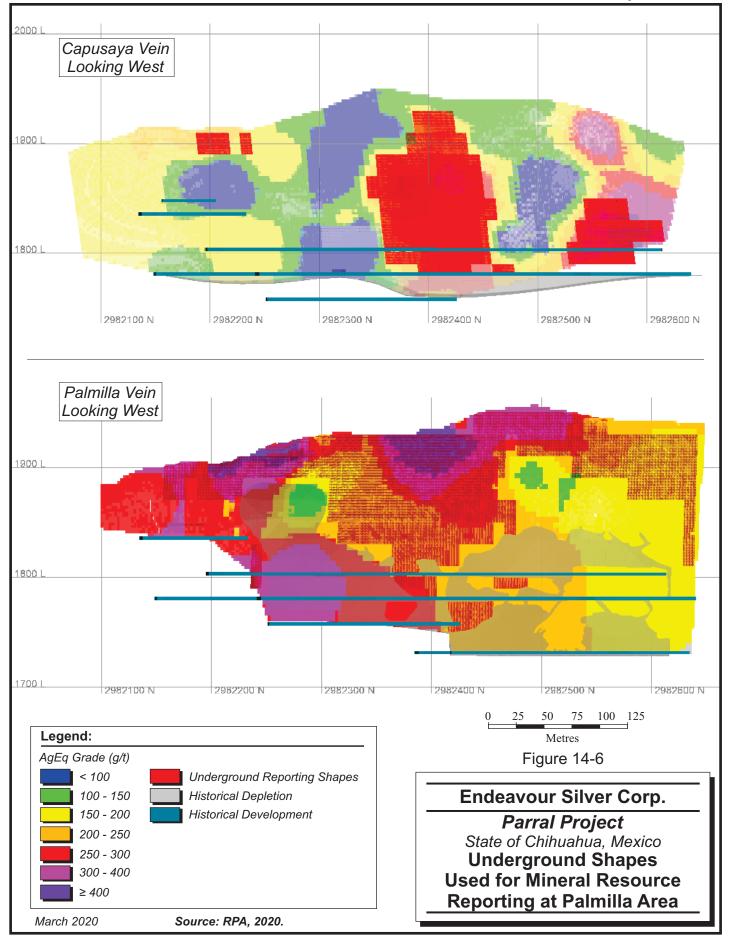
6. Numbers may not add due to rounding.

Since a minimum mining thickness was not applied during vein modelling, Mineral Resources are reported within underground shapes. Underground shapes used to constrain Mineral Resource reporting were generated without dilution, consideration of minimum footwall slope angles, economic cut-off grades (Mineral Resource cut-off grades were applied to generate the shapes), and economic analysis on stope revenue versus capital development, and were allowed to include internal marginal material in some areas to maintain continuity. All material within the shape, including blocks below cut-off in the vein or buffer zone, are reported.

These shapes were created in Deswik software at an approximate Mineral Resource cut-off grade of 130 g/t AgEq. The underground shapes used to report Mineral Resources at the Capusaya and Palmilla veins in the Palmilla area are shown in Figure 14-6.



www.rpacan.com





#### COMPARISON TO PREVIOUS ESTIMATE

Table 14-10 compares the previous estimate at Palmilla, completed by P&E in 2018, to the current estimate.

# TABLE 14-10 PALMILLA AREA CURRENT VS. PREVIOUS MINERAL RESOURCES

	Tonnage	Grade		Containe	ed Metal
	(kt)	(g/t Ag)	(g/t Au)	(koz Ag)	(oz Au)
P&E (2018)					
Indicated	37	184	0.27	219	321
Inferred	994	227	0.57	7,254	18,216
RPA					
Inferred	890	219	0.58	6,290	17,000
(RPA-P&E)/P&E					
Indicated					
Inferred	-10%	-3%	2%	-13%	-8%

### Endeavour Silver Corp. – Parral Project

Notes:

1. RPA Mineral Resources are reported within underground shapes.

2. RPA Mineral Resources exclude historically depleted areas.

3. RPA Mineral Resources are restricted to within Endeavour Silver claim boundaries.

4. RPA numbers may not add due to rounding.

The principal reasons for the differences in the Mineral Resource estimate are as follows:

- 1. RPA did not assign any areas as Indicated.
- 2. The tonnage has decreased due to the depletion of the Capusaya vein below level 5 (1780 elevation) which was not accounted for in previous update, as well as a small volume surrounding PAL-32, and a small area of La Luz vein which lies in between depleted areas of Capusaya and Palmilla.
- 3. Some interpretation differences, particularly at Capusaya, have resulted in a loss of mineralized blocks.
- 4. Although the thinner veins modelled by RPA reported higher silver grades, when including the adjacent material in the underground shapes, the overall grade is similar to the P&E report. The exclusion of the high grade depleted area of Capusaya also contributed to the silver grade decrease.
- 5. Total contained ounces are lower principally due to the tonnage decrease.

### **VETA COLORADA**

### **GEOLOGICAL INTERPRETATION**

The Veta Colorada area is characterized by a single vein which outcrops at surface and dips 50° to the east for approximately 560 m dip extent. Along strike, the vein is currently defined at 500 m, however, the vein is open to the north, south, and at depth.

Mineralization was modelled based on drill hole lithology logging and silver grades, using an approximate cut-off grade of 125 g/t Ag, and a minimum thickness was not applied. Lower grades were incorporated where necessary for vein continuity. Vein thickness ranges from less than one metre at depth to approximately 10 m near surface in the south.

Vein shapes were extended 50 m beyond drill intercepts, or to existing development and a one metre buffer zone was applied adjacent to the hanging wall and footwall of each vein to allow incorporation of diluted material in the estimate.

# RESOURCE ASSAYS, TREATMENT OF HIGH GRADE ASSAYS, AND COMPOSITING

Silver assay values at Veta Colorada are compiled in Table 14-11. Assays were reviewed using histograms, log probability plots, and decile analysis to determine a silver cap of 1,500 g/t, affecting four samples. Histograms, log probability plots, and basic statistics of silver assays are shown in Figure 14-7.

Assays were composited to the full length of the drill hole intercept, and the horizontal thickness was estimated using the average strike and dip for the vein and recorded. Basic statistics of full length composites are shown in Table 14-11.

### TABLE 14-11 SUMMARY OF VETA COLORADA SILVER ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

		Silver (g/t)					
 Source	Count	Min (g/t Ag)	Mean (g/t Ag)	Max (g/t Ag)	Mean Cap (g/t Ag)	Max Cap (g/t Ag)	
Assays <sup>1</sup>	141	5	423	13,117	296	1,500	
Composites <sup>2</sup>	24	12			309	1,089	

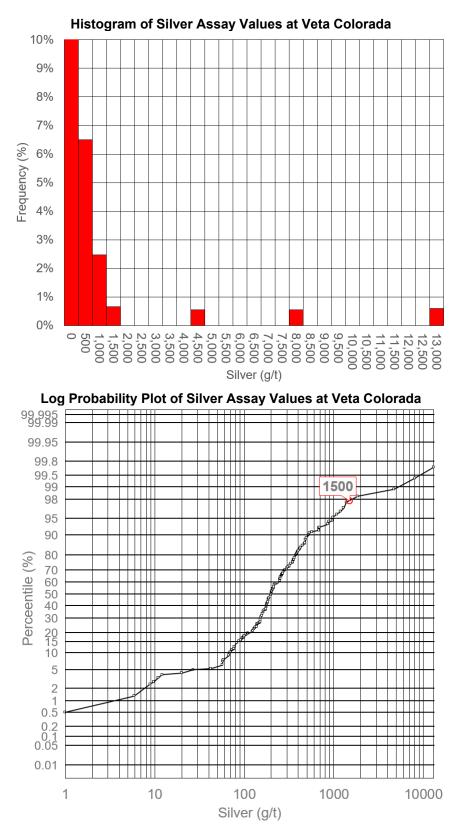
Notes:

1. Assays are length weighted.

2. Composites are weighted by horizontal thickness



### FIGURE 14-7 CAPPING ANALYSIS OF SILVER ASSAY VALUES AT VETA COLORADA





### TREND ANALYSIS

### VARIOGRAPHY

Variography was not completed for the Veta Colorada area due to widely spaced drilling.

#### GRADE CONTOURING

Grade contouring was completed in Leapfrog software to identify mineralization trends. No rakes or plunges in the mineralization were noted.

### SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

Silver values of full length composites were estimated into the block model using ID<sup>3</sup> in three passes as shown in Table 14-12. Full length composites were weighted by their calculated horizontal thickness and hard boundaries were applied. A search ellipse was aligned with the vein.

#### TABLE 14-12 SUMMARY OF VETA COLORADA GRADE INTERPOLATION PLAN Endeavour Silver Corp. – Parral Project

Interpolation Criteria	Pass 1	Pass 2	Pass 3
Search Ellipse Dimensions (m)	75/75/25	150/150/50	225/225/75
Minimum number of composites	2	2	2
Maximum number of composites	4	4	4
Minimum number of drill holes	2	2	2
Search Ellipse Orientation (bearing/dip/plunge; °)	355/-50/0	355/-50/0	355/-50/0

Blocks within one metre of the vein (in the buffer zone) were assigned a silver grade of 40 g/t, following a review of the average grade of assays within the buffer zone capped at 100 g/t Ag. These buffer zones were used in the building of underground shapes to report Mineral Resources.

#### HIGH GRADE RESTRICTION

In addition to capping high grade assays prior to compositing, spatial restriction was applied to a single silver intercept (1,089 g/t) whereby the full grade of the intercept was limited to within 20 m. Beyond 20 m, the composite was capped to 600 g/t Ag. No other grade restriction was applied at Veta Colorada. The restricting grade was based on a review of the histogram and probability plots of the full length composites and the distance was based on a visual review of other high grade intercepts at Veta Colorada, as well as some trial and error based on results of the interpolation.



#### **BULK DENSITY**

Bulk density measurements were flagged and basic statistics, excluding outlier samples, are shown in Table 14-13. Correlation of density values against spatial location (eastings, northings, elevations) and silver grades was performed and no correlation was found. A bulk density of 2.8 t/m<sup>3</sup> was assigned to all blocks at Veta Colorada.

# TABLE 14-13BASIC STATISTICS OF BULK DENSITY MEASUREMENTS AT<br/>VETA COLORADA<br/>Endeavour Silver Corp. – Parral Project

Domain	Count	Min (t/m³)	Max (t/m <sup>3</sup> )	Mean (t/m³)	CV
Vein	112	2.38	4.14	2.82	0.11
Vein Buffer	92	2.19	3.99	2.78	0.13

Notes:

1. CV – coefficient of variation

### **BLOCK MODELS**

The unrotated block model dimensions and origin created using Maptek's Vulcan software are shown in Table 14-14.

### TABLE 14-14 VETA COLORADA BLOCK MODEL DIMENSIONS Endeavour Silver Corp. – Parral Project

Item	Units	X	Y	Z
Parent Block	(m)	1	5	5
Subblock	(m)	0.25	1	1
Total Model Dimensions	(m)	450	700	510
Origin	(m)	427,850	2,987,600	1,400

### **CUT-OFF GRADE**

The NSR factors and AgEq cut-off grades were calculated similarly to Palmilla. The processing scenario for Veta Colorada assumes the production of gold and silver doré bars. Key assumptions are listed below. Assumed recoveries are based on test work and experience from other operations.

Metal prices:

US\$17 per ounce silver US\$1,275 per ounce gold

• Doré Recoveries:



87% Ag 90% Au

RPA used the following NSR factors to calculate a silver equivalent (AgEq) grade.

- Ag: US\$0.43 per g
- Au: US\$36.38 per g

The AgEq grade for the Veta Colorada area was reported using the following equation:

$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times \frac{Au NSR}{Ag NSR})$$
$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times 84)$$

Break-even and incremental AgEq cut-off grades of 170 g/t and 130 g/t respectively were developed from mining, processing, and G&A operating costs estimates. Underground shapes were generated using the incremental cut-off grade in a stope optimizer. Shapes above break-even cut-off were retained for Mineral Resource estimation while shapes above incremental cut-off value were reviewed on a case by case basis for continuity and included where appropriate.

### CLASSIFICATION

All Mineral Resources were classified as Inferred due to the drill hole spacing at Veta Colorada, which is approximately 100 m over the deposit.

### HISTORICAL MINING AND DEPLETION

Minimal historical development has taken place at Veta Colorada and is shown in Figure 14-8.

### BLOCK MODEL VALIDATION

Blocks were validated using industry standard validation techniques including a comparison of ID<sup>3</sup> block estimates against the full length composites and an NN estimate using swath plots and basic statistics (Table 14-15). An oblique long section comparing block and composite grades at Veta Colorada is shown in Figure 14-8. Some "grade flaring" is seen at depth due to the wider spaced drilling but is considered acceptable at the current confidence limit for the Mineral Resources.



# TABLE 14-15COMPARISON OF BLOCK AND COMPOSITE GRADES AT VETA<br/>COLORADA

### Endeavour Silver Corp. – Parral Project

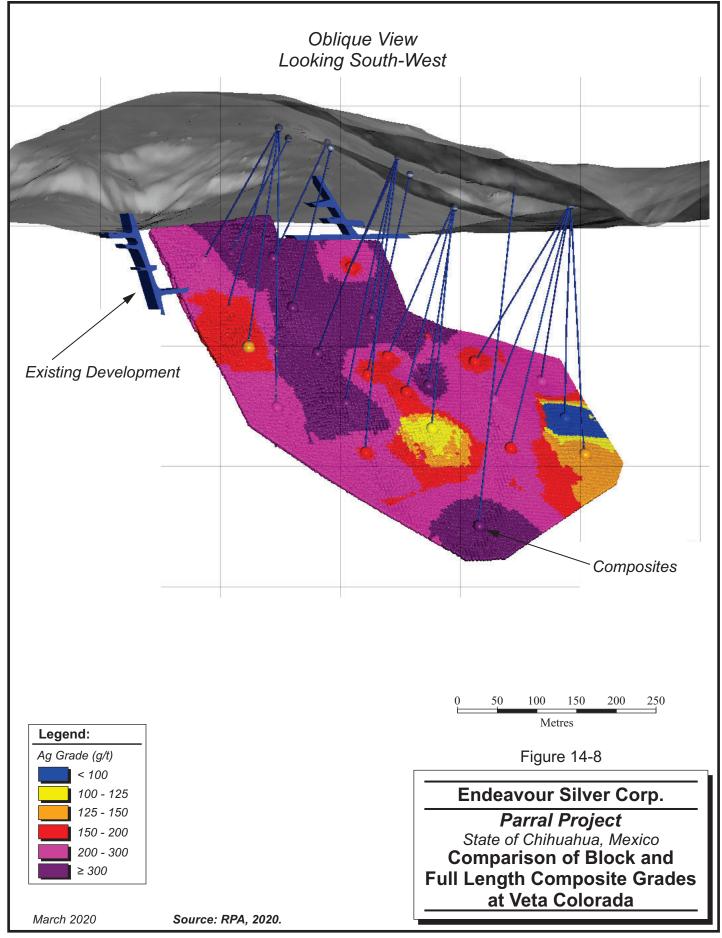
Statistic	Full Length Composites (g/t Ag)	ID <sup>3</sup> Blocks (g/t Ag)	NN Blocks (g/t Ag)
Count	24	175,804	175,804
Mean	309 <sup>1</sup>	299	299
CV	0.75	0.40	0.64
Maximum	1,089	1,089	1,089
Minimum	12	12	12

Notes:

1. Composites are weighted by horizontal thickness

2. CV – coefficient of variation.







### MINERAL RESOURCE REPORTING

CIM (2014) definitions were used for Mineral Resource classification. A summary of the Veta Colorada Mineral Resources as of December 31, 2019, is presented in Table 14-16.

# TABLE 14-16VETA COLORADA MINERAL RESOURCE ESTIMATE AS OF<br/>DECEMBER 31, 2019

#### Endeavour Silver Corp. – Parral Project

Class	Tonnage	Grade	Contained Metal
	(Mt)	(g/t Ag)	(Moz Ag)
Inferred	1.36	291	12.7

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. Mineral Resources are estimated at a cut-off grade of 130 g/t Ag.

3. Silver price assumption was US\$17/oz Ag.

4. A minimum mining width of 1.75 m was used.

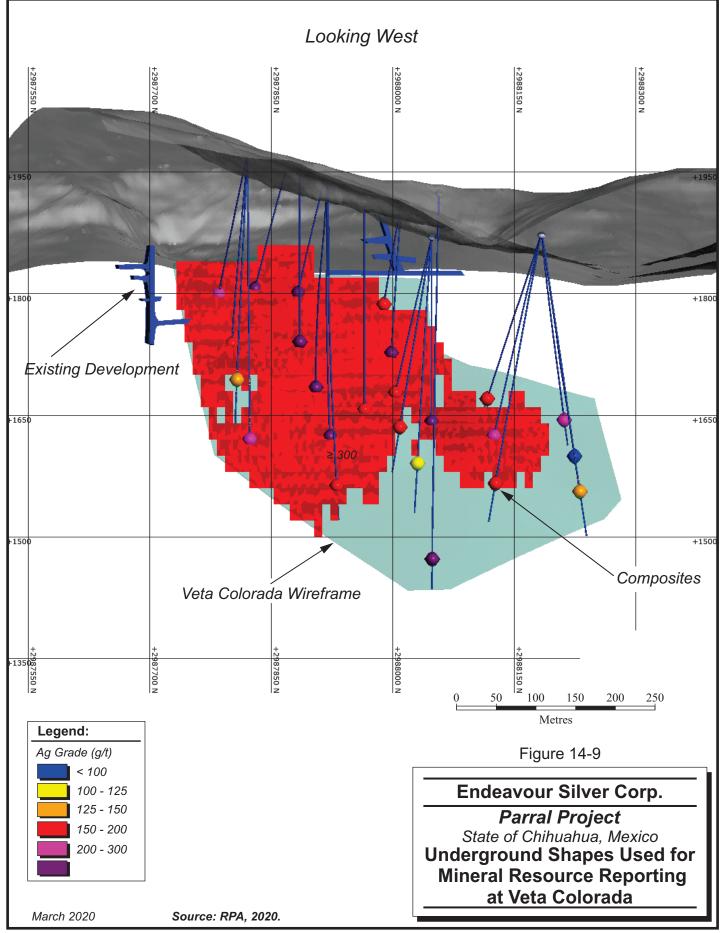
5. Bulk density is 2.8 t/m<sup>3</sup>.

6. Numbers may not add due to rounding.

Since a minimum mining thickness was not applied during vein modelling, Mineral Resources are reported within underground shapes. Underground shapes used to constrain Mineral Resource reporting were generated without dilution, consideration of minimum footwall slope angles, economic cut-off grades (Mineral Resource cut-off grades were applied to generate the shapes), without economic analysis on stope revenue versus capital development, and were allowed to include internal marginal material in some areas to maintain continuity. All material within the shape, including blocks below cut-off in the vein or buffer zone, are reported.

These shapes were created in Deswik software at an approximate Mineral Resource cut-off grade of 130 g/t Ag. The underground shapes used to report Mineral Resources at Veta Colorada are shown in Figure 14-9.







#### COMPARISON TO PREVIOUS ESTIMATE

Table 14-17 compares the previous estimate at Veta Colorada, completed by P&E in 2018, to the current estimate.

#### TABLE 14-17 CURRENT VS. PREVIOUS MINERAL RESOURCES AT VETA COLORADA Endeavour Silver Corp. – Parral Project

#### Tonnage Grade **Contained Metal** (kt) (g/t Ag) (koz Ag) P&E (2018) Inferred 1,290 289 11,965 **RPA** Inferred 1,360 291 12,730 (RPA-P&E)/P&E 5% 1% 6%

The principal reasons for the differences in the Mineral Resource estimate are as follows:

- 1. The tonnage increase is due to the addition of material in the south of the deposit.
- 2. Although the thinner vein modelled by RPA reported higher silver grades, when including the adjacent material in the underground shapes, the overall grade is similar to the P&E report.
- 3. Total contained ounces are higher principally due to the tonnage increase.
- 4. Slightly different reporting methods were used: RPA reported within underground shapes.

### **EL COMETA**

#### **GEOLOGICAL INTERPRETATION**

The El Cometa veins were modelled over three claim areas: Dolores, San Juanico, and Cometa, however, the Cometa claim area is the only claim currently held by Endeavour Silver and is the only area to be included within the Mineral Resources. Despite this, the modelling and estimation is described for the veins as held across all three claims.

The silver, gold, lead, and zinc veins of the El Cometa area were modelled using an NSR cutoff value of US\$50/t. No minimum thickness was applied, and veins were extended 50 m beyond drill hole intercepts, or halfway to intercepting drill holes excluded from the vein wireframe due to their low grade. Where historical mining was present, the vein shape was adjusted to follow the general trends and shapes of mined out areas. Results of historical channel samples associated with mine development were not available.



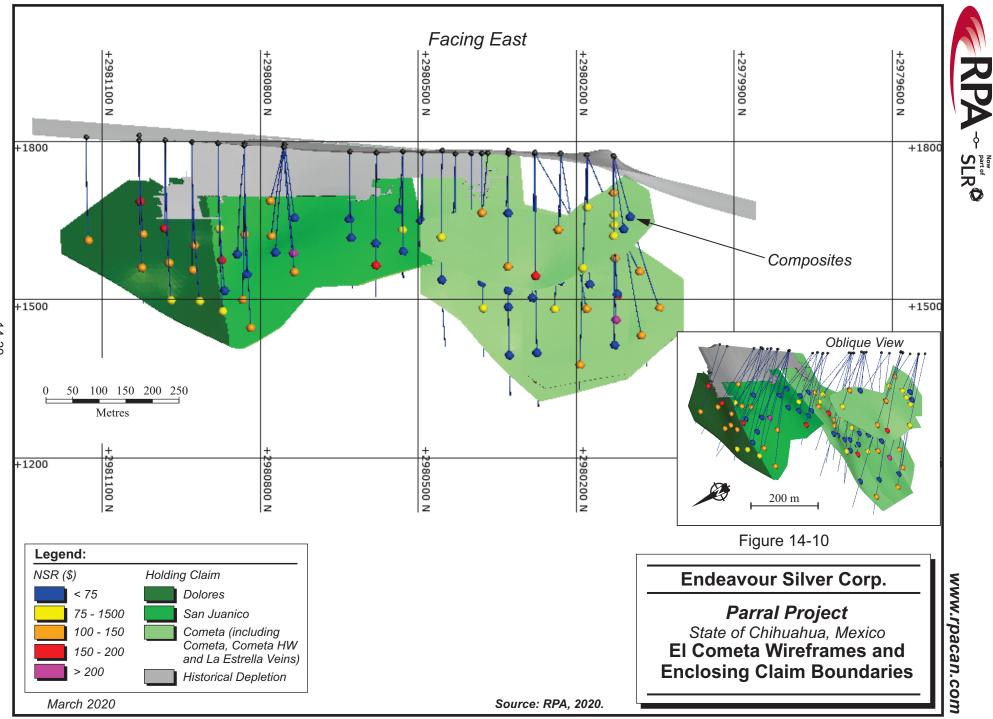
The vein system includes three veins: the principal vein Cometa, and the smaller hanging wall veins Cometa HW and La Estrella. All veins are oriented north-north west and dip approximately 50° to the west. The Cometa vein is approximately 1,200 m in strike extent and extends from approximately 200 m to 425 m down dip. It ranges in thickness from one metre to five metres. Cometa HW lies one metre to 40 m above Cometa. It is approximately 200 m along strike and 250 m down dip; ranging in thickness from less than one metre to 3.5 m. La Estrella lies approximately 150 m above Cometa. It is approximately 400 m along strike and ranges in extent from 150 m to 200 m down dip. It also ranges in thickness from less than one metre to 2.5 m. Wireframes for the El Cometa area veins are shown in Figure 14-10.

# RESOURCE ASSAYS TREATMENT OF HIGH GRADE ASSAYS, AND COMPOSITING

Assay values for the El Cometa area are compiled in Table 14-18. Assays were reviewed using histograms, log probability plots, decile analysis, and spatially within each vein to determine appropriate caps. A histogram and log probability plot of gold assays within the Cometa HW vein is shown in Figure 14-11. The high amount of metal loss in the capping of gold is due to single gold value over 40 g/t in a single intercept.

Variable	Count	Minimum	Maximum	Mean	с٧	Metal Loss	No. Caps
			COMETA				
Ag (g/t)	245	5	862	68.70	1.79		
Au (g/t)	245	0.05	11.4	1.18	1.54		
Pb (%)	245	0.04	25.75	3.42	1.18		
Pb (%) - Capped	245	0.04	15	3.26	1.04	5%	9
Zn(%)	245	0.07	15.75	3.23	0.99		
			COMETA HV	N			
Ag (g/t)	28	5	137	28.70	1.07		
Au (g/t)	28	0.13	43.6	4.26	2.34		
Au (g/t) - Capped	28	0.13	3.5	1.36	0.98	68%	3
Pb (%)	28	0.23	13.4	2.81	1.03		
Zn (%)	28	0.02	10.4	2.42	1.12		
			LA ESTRELL	.Α			
Ag (g/t)	34	5	353	69.24	1.42		
Au (g/t)	34	0.05	2.89	0.67	0.96		
Pb (%)	34	0.09	9.71	3.07	0.87		
Zn (%)	34	0.1	17.85	4.13	0.91		

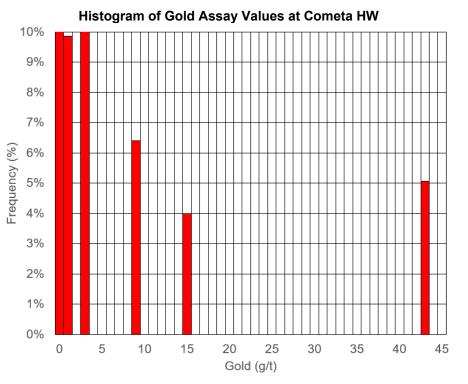
### TABLE 14-18 SUMMARY OF EL COMETA AREA ASSAYS STATISTICS Endeavour Silver Corp. – Parral Project



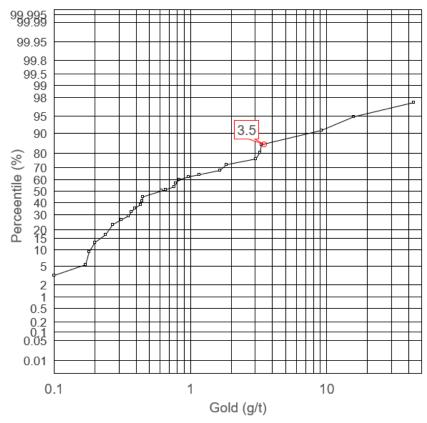
14-30



### FIGURE 14-11 CAPPING ANALYSIS OF GOLD ASSAY VALUES AT COMETA HW VEIN



Log Probability Plot of Gold Assay Values at Cometa HW



Endeavour Silver Corp. – Parral Project, Project #3205 Technical Report NI 43-101 – March 14, 2020



Capped assays were composited to the full length of the drill hole intercept, and the horizontal thickness was estimated using the average strike and dip for the vein and recorded. The average grades of the capped full length composites are shown in Table 14-19.

### TABLE 14-19 AVERAGE GRADE OF EL COMETA FULL LENGTH COMPOSITES

Vein	Count	g/t Ag	g/t Au	% Pb	% Zn
Cometa	65	42	0.63	1.66	1.70
Cometa HW	11	24	0.99	2.41	2.38
La Estrella	14	58	0.60	2.65	3.30
Total	90	42	0.65	1.83	1.94

### Endeavour Silver Corp. – Parral Project

Notes:

1. Values weighted by horizontal thickness

### TREND ANALYSIS

#### VARIOGRAPHY

An omni-directional variogram was modelled using a normal scores transformation for the Cometa vein for both gold and zinc. The results were considered unreliable but pointed towards ranges of approximately 180 m for gold and 140 m for zinc. At 80% of the sill, ranges were 100 m and 75 m for gold and zinc respectively.

### GRADE CONTOURING

Grade contours were created in Leapfrog software for all variables based on full length composites to examine grade trends. A horizontal trend was observed to varying degrees in all variables, at a ratio of approximately 2:1. This trend was acknowledged in the interpolation plan with an anisotropic shape.

### SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

Full length composites were estimated into the block model using ID<sup>3</sup> in three passes as shown in Table 14-20. Full length composites were weighted by their calculated horizontal thickness and hard boundaries were applied. A search ellipse was aligned with the vein.



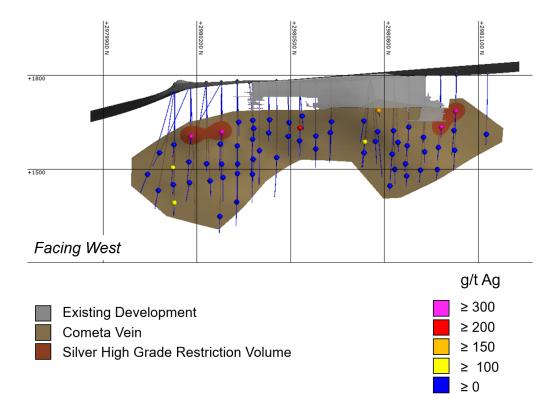
### TABLE 14-20 SUMMARY OF EL COMETA GRADE INTERPOLATION PLAN Endeavour Silver Corp. – Parral Project

Internalistica Criteria		Cometa		Cometa HW / La Estre		
Interpolation Criteria	Pass 1	Pass 2	Pass 3	Pass 1	Pass 2	
Search Ellipse Dimensions (m)	100/50/25	150/75/37.5	200/100/50	50/50/12.5	100/100/25	
Minimum number of composites	2	2	1	2	1	
Maximum number of composites	4	4	4	4	4	
Minimum number of drill holes	2	2	1	2	1	
Search Ellipse Orientation (bearing/dip/plunge; °)	350/-8/-125				55 (HW) ′60 (LE)	

Blocks within one metre of the vein (in the buffer zone) were assigned a silver grade of 9 g/t, a gold grade of 0.18 g/t, a lead grade of 0.35% and a zinc grade of 0.51% following a review of conservatively capped assays within the buffer zone. These buffer zones were used in the building of underground shapes to report Mineral Resources.

### HIGH GRADE RESTRICTION

High grade silver values in the Cometa vein were restricted to the areas shown in Figure 14-12, outside of which they were restricted to 200 g/t Ag. No other high grade restriction was applied.



### FIGURE 14-12 HIGH SILVER GRADE RESTRICTION AREAS OF COMETA VEIN



#### **BULK DENSITY**

Bulk density measurements were flagged by vein and basic statistics, excluding outlier samples, are shown in Table 14-21. Correlation of density values against spatial location (eastings, northings, elevations) and grades was performed. Bulk density was found to have a positive bias within the Cometa claim area, corresponding to a different drilling campaign than density readings from the San Juanico and Dolores claim areas. Density readings in both claim areas were found to have a correlation with base metal grades.

### TABLE 14-21 SUMMARY OF EL COMETA BULK DENSITY MEASUREMENTS Endeavour Silver Corp. – Parral Project

Location	Count	Mean (t/m³)	Max (t/m <sup>3</sup> )	Min (t/m³)	Count	Mean (t/m³)	Max (t/m <sup>3</sup> )	Min (t/m³)
Claim Area	m Area Cometa					an Juanico	and Dolor	es
Cometa	96	3.70	6.00	2.92	101	2.85	4.95	1.71
Cometa HW	20	3.47	4.00	3.14				
La Estrella	32	3.53	4.61	2.81				
Outside	1,558	3.25	5.08	2.30	558	2.65	3.31	2.02
Total	1,706	3.28	6.00	2.30	659	2.68	4.95	1.71

Due to the observed positive bias within the Cometa claim area, compromising the ability to estimate density within the Cometa claim area, all density values were assigned an average density value of 2.85 t/m<sup>3</sup> measured from the San Juanico and Dolores claim areas.

### **BLOCK MODELS**

The block model dimensions and origin created using Maptek's Vulcan software, are shown in Table 14-22.

### TABLE 14-22 EL COMETA AREA BLOCK MODEL DIMENSIONS Endeavour Silver Corp. – Parral Project

Item	Units	X	Y	Z
Parent Block	(m)	1	5	5
Sub-block	(m)	0.25	1	1
Total Model Dimensions	(m)	400	1,250	525
Rotation (Bearing of X around Z)	(°)	none		
Origin	(m)	429,200	2,979,950	1,300



### **CUT-OFF VALUE**

NSR values based on NSR factors were calculated by RPA for the purposes of geological interpretation and resource reporting. NSR is the estimated value per tonne of mineralized material after allowance for metallurgical recovery and consideration of smelter terms, including payables, treatment charges, refining charges, price participation, penalties, smelter losses, transportation, and sales charges. These assumptions are dependent on the processing scenario, and will be sensitive to changes in inputs from further metallurgical test work. The processing scenario for EI Cometa assumes the production of zinc and lead concentrates. Key assumptions are listed below. Assumed recoveries are based on test work and experience from other operations.

• Metal prices:

US\$17 per ounce silver US\$1,275 per ounce gold US\$1.15 per pound lead US\$1.00 per pound of zinc

- Recoveries:
  - Lead Concentrate

Ag
Au
Pb

o Zinc Concentrate

5%	Ag
5%	Au
68%	% Zn

 Net Recovery 70% Ag 72% Au 67% Pb 68% Zn

The NSR factors represent the value (US\$) per metal unit (per % Zn, for example), and are independent of resource grade. RPA used the following factors to calculate NSR:

Ag: US \$0.33 per g Au: US \$24.50 per g Pb: US \$9.72 per % Zn: US \$9.77 per %

The following formula was used to calculate the NSR value of each block for use in underground shape development for reporting purposes:



NSR (US\$/t) = (US\$24.5 \* Au (g/t)) + (US\$0.33 \* Ag (g/t)) + (US\$9.72 \* Pb (%)) + (US\$9.77 \* Zn (%))

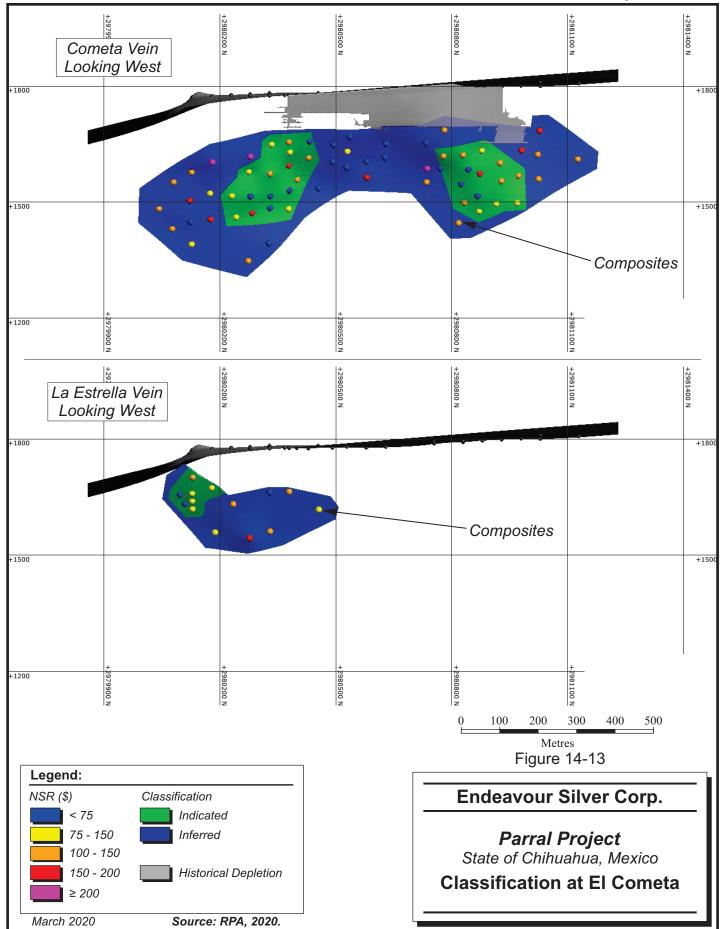
Break-even and incremental cut-off values of US\$75/t milled and US\$55/t milled respectively were developed from mining, processing, and G&A operating costs estimates. Underground shapes above break-even cut-off value were retained for Mineral Resource estimation while shapes above incremental cut-off value were reviewed on a case by case basis for continuity and included where appropriate.

### CLASSIFICATION

A classification of Indicated was assigned to all areas within the Cometa and La Estrella veins where a drill hole spacing of 65 m was used, excluding some areas due to low geological confidence. All other areas within the wireframes were limited to Inferred. All areas of the Cometa HW vein were assigned Inferred classification due to the erratic nature of the grades. Drill hole spacing of 65 m was selected based on a review of variography and observed grade trend continuity. Classification shapes are shown in Figure 14-13.



www.rpacan.com





### HISTORICAL MINING AND DEPLETION

Historical mining within the El Cometa area has been digitized from longitudinal sections and excluded from any reporting. Mineralization wireframes were not extended above the existing shrinkage stopes as future mining is unlikely to occur in those areas.

### BLOCK MODEL VALIDATION

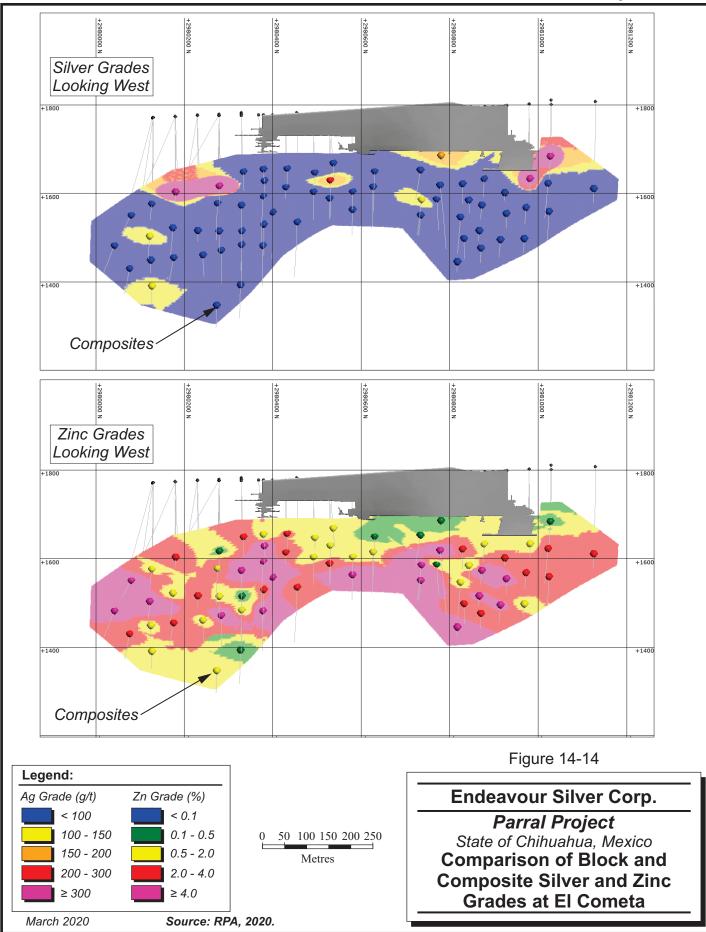
Blocks were validated using industry standard validation techniques including a comparison of ID<sup>3</sup> block estimates against an NN estimate using swath plots and basic statistics (Table 14-23). A longitudinal section comparing block and composite grades within the Cometa vein is shown in Figure 14-14.

<b>TABLE 14-23</b>	COMPARATIVE BLOCK STATISTICS AT EL COMETA
	Endeavour Silver Corp. – Parral Project

	М	in	Mean		Μ	ax	CV	
	ID <sup>3</sup>	NN	ID <sup>3</sup>	NN	ID <sup>3</sup>	NN	ID <sup>3</sup>	NN
			C	OMETA				
g/t Ag	5	5	79	80	564	564	1.24	1.24
g/t Au	0.05	0.05	1.22	1.20	6.23	6.23	0.88	1.04
% Pb	0.16	0.16	2.89	2.81	9.12	9.12	0.62	0.75
% Zn	0.23	0.23	2.77	2.69	8.34	8.35	0.63	0.80
			CO	META HW	1			
g/t Ag	6	6	32	30	58	58	0.49	0.66
g/t Au	0.20	0.20	1.40	1.13	3.50	3.50	0.64	0.90
% Pb	0.82	0.82	2.94	2.55	7.25	7.25	0.43	0.62
% Zn	0.20	0.20	2.47	2.37	5.6	5.6	0.72	0.84
			LA	ESTRELLA	4			
g/t Ag	17	17	58	61	203	203	0.91	1.01
g/t Au	0.22	0.22	0.71	0.72	1.69	1.70	0.47	0.62
% Pb	0.18	0.18	3.58	3.60	7.06	7.07	0.5	0.62
% Zn	0.72	0.72	5.13	4.95	8.84	8.84	0.51	0.58



www.rpacan.com





#### MINERAL RESOURCE REPORTING

CIM (2014) definitions were used for Mineral Resource classification. A summary of the El Cometa Mineral Resources as of December 31, 2019, is presented in Table 14-24.

#### TABLE 14-24 EL COMETA MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2019

#### Endeavour Silver Corp. – Parral Project

	Tonnage		Grade			Contained Metal			
Class	(kt)	(g/t Ag)	(g/t Au)	(% Pb)	(% Zn)	(koz Ag)	(oz Au)	(klb Pb)	(klb Zn)
Indicated	180	55	1.17	3.20	3.30	320	6,800	12,820	13,200
Inferred	880	74	1.45	3.27	3.24	2,100	41,000	63,420	62,980

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. Mineral Resources are estimated at an NSR cut-off value of US\$55/t.

3. The NSR values are based on estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges. Metal price assumptions were: US\$17/oz Ag, US\$1,275/oz Au, US\$1.15/lb Zn, and US\$1.00/lb Pb.

4. A minimum mining width of 1.75 m was applied for all veins.

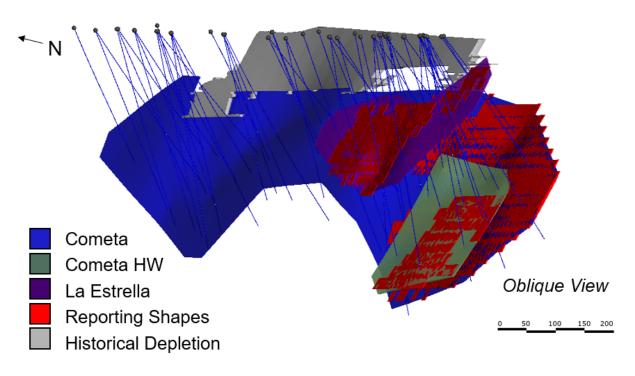
5. Bulk density is 2.85 t/m<sup>3</sup>.

6. Numbers may not add due to rounding.

Since a minimum mining thickness was not applied during vein modelling, Mineral Resources are reported within underground shapes. Underground shapes used to constrain Mineral Resource reporting were generated without dilution, consideration of minimum footwall slope angles, economic cut-off grades (Mineral Resource cut-off grades were applied to generate the shapes), without economic analysis on stope revenue versus capital development, and were allowed to include internal marginal material in some areas to maintain continuity. All material within the shape, including blocks below cut-off in the vein or buffer zone, are reported.

These shapes were created in Deswik software at an approximate Mineral Resource NSR cutoff value of US\$55/t. Shapes were restricted to the Cometa claim area and are shown in Figure 14-15.





#### FIGURE 14-15 REPORTING SHAPES AT LA COMETA



#### COMPARISON TO PREVIOUS ESTIMATE

Table 14-25 compares the previous estimate at El Cometa, completed by Micon in 2010, to the current estimate. Note that the comparison in Table 14-25 pertains to the Cometa claim area only.

#### TABLE 14-25 CURRENT VS. PREVIOUS MINERAL RESOURCES AT COMETA CLAIM AREA Endeavour Silver Corp. – Parral Project

	Tonnage				Grade		Conta	ained Me	tal
Class	(kt)	(g/t Ag)	(g/t Au)	(% Pb)	(% Zn)	(koz Ag)	(oz Au)	(klb Pb)	(klb Zn)
Micon (2010)									
Indicated	1,208	46	1.01	2.82	2.94	1,800	39,256	74,996	78,207
Inferred	956	60	0.92	2.22	2.39	1,843	28,410	46,816	50,364
RPA									
Indicated	180	55	1.17	3.20	3.30	320	6,800	12,820	13,200
Inferred	880	74	1.45	3.27	3.24	2,100	41,000	63,420	62,980
(RPA-Mic	on)/Micon								
Indicated	-85%	19%	16%	14%	12%	-82%	-83%	-83%	-83%
Inferred	-8%	24%	57%	47%	36%	14%	44%	35%	25%

Notes:

1. RPA Mineral Resources are reported within underground shapes.

2. RPA Mineral Resources exclude historically depleted areas.

3. RPA Mineral Resources are restricted to within Endeavour Silver claim boundaries.

4. RPA numbers may not add due to rounding.

The principal reasons for the differences in the Mineral Resource estimate are as follows:

- 1. The decrease of Indicated Mineral Resources is due to a review of classification and drill hole spacing. Indicated Mineral Resources were limited by RPA to areas with a consistent drill hole spacing of 65 m x 65 m. The previous model assigned a classification of Indicated to all blocks within 30 m of a drill hole and Inferred to all blocks within 100 m of a drill hole.
- 2. Tonnage decrease is due to the exclusion of material by RPA adjacent to historically depleted areas (no data), at depth, and to the north (wireframes were limited to 50 m from drill holes), and also from a reduction in density from 2.95 t/m<sup>3</sup> to 2.85 t/m<sup>3</sup>.
- 3. The increase in all grades is due to the exclusion of lower grade areas, and the exclusion of external dilution during wireframe building.
- 4. The reduction in contained metal is due to the loss of tonnes, which is mediated slightly by the increase in grades.



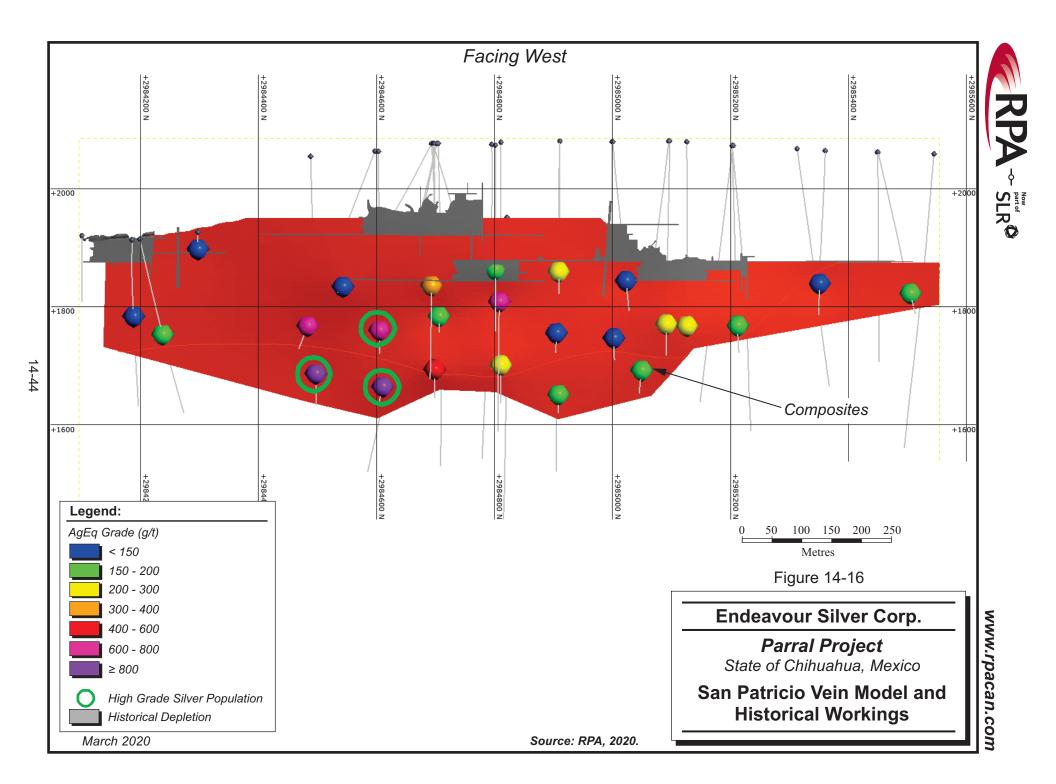
#### **SAN PATRICIO**

#### **GEOLOGICAL INTERPRETATION**

The San Patricio area hosts a single vein which is parallel to the Veta Colorada system. Its northerly strike has been traced using drill hole intercepts for 1,400 m, and further on surface. The vein dips from 60° to 70° to the west extending up to 400 m down dip. Shallow intercepts defining the northern and southern extents of the vein show lower grades, however, the vein remains open at depth.

Mineralization was modelled based on drill hole lithology logging and silver and gold grades, using an approximate cut-off grade of 125 g/t AgEq. A minimum thickness was not applied. Lower grades were incorporated where necessary for vein continuity, and historical development was used to guide vein extents where present. Vein thickness ranges from slightly less than one metre at depth to approximately 3.5 m in the upper part.

Vein shapes were extended 50 m beyond drill intercepts, or to existing development; veins were not extended above existing development as economic extraction is unlikely due to the underlying shrinkage stopes. A 1.5 m buffer zone was applied adjacent to the hanging wall and footwall of each vein to allow incorporation of diluted material in the final Mineral Resource estimate. The vein model is shown in Figure 14-16.





#### RAW ASSAYS AND TREATMENT OF HIGH GRADE ASSAYS

Gold and silver assay values at San Patricio are compiled in Table 14-26. Two silver populations were identified within the vein, high grade and all other assays. Using histograms, log probability plots, decile analysis, and a review of spatial relationships, high grade assays were capped at 3,200 g/t Ag and all other assays were capped at 1,600 g/t Ag. Gold was capped at 2 g/t, affecting two drill hole intercepts. Histograms and probability plots used to support the silver capping is shown in Figure 14-17.

Statistic		Silver (g/t)	Gold (g/t)		
Statistic	Uncapped	Low Cap	High Cap	Uncapped	Capped
Number of Samples	119	119	119	119	119
Minimum	1	1	1	0	0
Maximum	6,910	1,600	3,200	4.65	2
Mean	431	345	406	0.32	0.31
CV	1.86	1.21	1.57	1.58	1.39

## TABLE 14-26 SUMMARY OF SAN PATRICIO ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

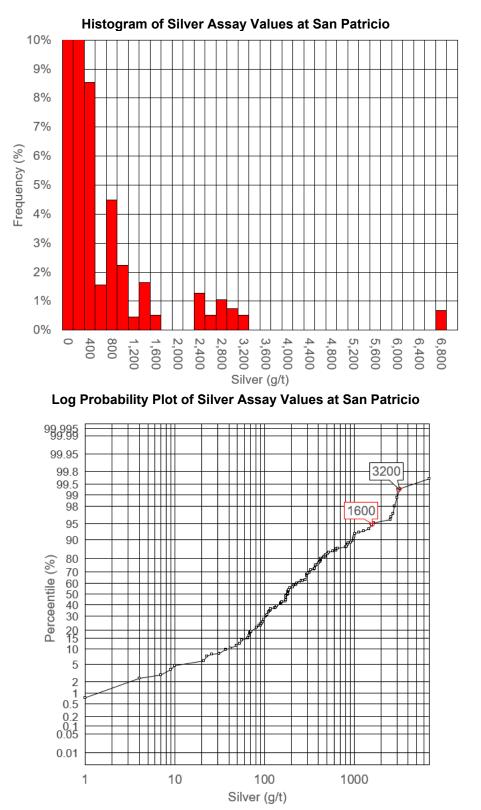
Notes:

1. Length Weighted

2. CV – coefficient of variation



#### FIGURE 14-17 CAPPING ANALYSIS OF SILVER ASSAY VALUES AT SAN PATRICIO





#### COMPOSITING AND HIGH GRADE RESTRICTION

Capped assays were composited to the full length of the drill hole intercept, and the horizontal thickness was estimated using the average strike and dip for the vein and recorded. To further address the dual population of silver grades within the vein, composite intervals were divided above and below 300 g/t Ag (a population break observed in the full length composites) to allow the inclusion of a residual estimate to temper the effect of the high grade silver assays. Full length composites are shown in Table 14-27.

		LINGERV		oorp. – r ai	nai i ioject		
	Length	Horizontal	Gold (g/t)		Silver (g/t)		Probability
Hole ID	(m)	Thickness (m)	(capped)	(capped)	(low cap)	(residual cap)	of ≥ 300 g/t Ag
SPT-20	3.65	2.87	0.72	1,202	300	902	1
SPT-24	9.30	4.75	0.21	934	300	634	1
SPT-19	5.75	3.68	0.24	689	300	389	1
SPT-07	1.25	1.06	0.22	662	300	362	1
SPT-23	3.65	2.28	0.10	660	300	360	1
SPT-09	0.85	0.72	0.11	533	300	233	1
SPT-02	2.20	2.27	0.05	303	300	3	1
SPT-01	3.50	3.31	0.12	256	256	0	0
SPD-04	4.00	3.86	0.09	223	223	0	0
SPT-16	0.50	0.51	0.01	209	209	0	0
SPT-05	2.00	1.38	0.73	203	203	0	0
SPD-03	4.00	3.33	0.03	193	193	0	0
SPT-04	0.55	0.53	0.07	183	183	0	0
SPT-27	0.60	0.52	0.05	173	173	0	0
SPT-18	3.35	2.39	0.56	151	151	0	0
SPD-01	1.70	1.70	0.04	151	151	0	0
SPT-10	1.90	1.93	0.02	149	149	0	0
SPT-03	1.50	1.52	0.12	127	127	0	0
SPD-06	1.00	0.37	0.10	104	104	0	0
SPT-14	1.50	0.59	0.01	98	98	0	0
SPT-15	9.40	2.60	0.99	91	91	0	0
SPD-05	0.60	0.63	0.03	65	65	0	0
SPD-02	1.00	0.96	0.01	23	23	0	0
SPT-06	1.00	0.91	0.01	7	7	0	0
SPT-17	1.50	1.30	0.01	4	4	0	0
Average L	_ength We	ighted	0.32	409			
Average H Weighted	lorizontal	Thickness	0.24	394			

#### TABLE 14-27 SUMMARY OF SAN PATRICIO FULL LENGTH COMPOSITES AND HIGH GRADE RESTRICTION PROBABILITIES Endeavour Silver Corp. – Parral Project



#### TREND ANALYSIS

#### VARIOGRAPHY

Variography was not completed at San Patricio due to widely spaced drilling.

#### GRADE CONTOURING

Grade contouring was completed in Leapfrog software to identify mineralization trends. Horizontal mineralization trends of moderate strength were observed at a ratio of 2:1.

#### SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

Residual and low capped silver values, as well as the probability of silver values lying above or below 300 g/t, in addition to gold values were estimated into the block model using ID<sup>3</sup> in three passes as listed in Table 14-28. Full length composites were weighted by their calculated horizontal thickness and hard boundaries were applied. A search ellipse was aligned with the vein.

## TABLE 14-28 SUMMARY OF SAN PATRICIO INTERPOLATION PLAN Endeavour Silver Corp. – Parral Project

Interpolation Criteria	Pass 1	Pass 2	Pass 3
Search Ellipse Dimensions (m)	200/100/25	300/150/50	400/200/100
Minimum number of composites	2	2	2
Maximum number of composites	4	4	4
Minimum number of drill holes	2	2	2
Search Ellipse Orientation (bearing/dip/plunge; °)	177/0/-65	177/0/-65	177/0/-65

Notes:

1. Pass 3 estimated less than 2% of total blocks.

The final silver grade was represented using the following equation:

 $g/t Ag (final) = low Cap Ag + (Residual Cap \times Probability)$ 

Blocks within 1.5 m of the vein (in the buffer zone) were assigned gold and silver grades of 0.03 g/t and 20 g/t respectively, following a review of the average grade of assays within the buffer zone capped at 0.4 g/t Au or 100 g/t Ag. These buffer zones were used in the building of underground shapes to report Mineral Resources.



#### **BULK DENSITY**

Bulk density measurements were flagged and basic statistics, excluding outlier samples, are presented in Table 14-29. Correlation of density values against spatial location (eastings, northings, elevations) and grades was performed. A low correlation between grade and density was observed.

# TABLE 14-29BASIC STATISTICS OF BULK DENSITY MEASUREMENTS AT<br/>SAN PATRICIO<br/>Endeavour Silver Corp. – Parral Project

Domain	Count	Min (t/m³)	Max (t/m³)	Mean (t/m³)
Vein	102	2.29	3.30	2.76
Vein Buffer	162	2.29	3.09	2.64

Notes:

1. Outliers were removed below 2.20 t/m $^3$  and above 3.5 t/m $^3$ .

Bulk densities of 2.65 t/m<sup>3</sup> and 2.75 t/m<sup>3</sup> were assigned to the buffer zone and vein, respectively.

#### **BLOCK MODELS**

The unrotated block model dimensions and origin created using Maptek's Vulcan software, are shown in Table 14-30.

Item	Units	X	Y	Z
Parent Block	(m)	1	5	5
Subblock	(m)	0.25	1	1
Total Model Dimensions	(m)	275	1,500	425
Origin	(m)	429,900	2,984,100	1,600

## TABLE 14-30 BLOCK MODEL DIMENSIONS OF SAN PATRICIO Endeavour Silver Corp. – Parral Project

#### CUT-OFF GRADE

The NSR factors and AgEq cut-off grades were calculated similarly to Palmilla and the processing scenario for San Patricio correspondingly assumes the production of gold and silver doré bars. Key assumptions are listed below. Assumed recoveries are based on test work and experience from other operations.



• Metal prices:

US\$17 per ounce silver

US\$1,275 per ounce gold

Doré Recoveries:

87% Ag 90% Au

RPA used the following NSR factors to calculate a silver equivalent (AgEq) grade.

- Ag: US\$0.43 per g
- Au: US\$36.38 per g

The AgEq grade for the San Patricio area was reported using the following equation:

$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times \frac{Au NSR}{Ag NSR})$$
$$AgEq (g/t) = Ag(g/t) + (Au(g/t) \times 84)$$

Break-even and incremental AgEq cut-off grades of 170 g/t and 130 g/t respectively were developed from mining, processing, and G&A operating costs estimates. Underground shapes were generated using the incremental cut-off grade in a stope optimiser. Shapes above break-even cut-off were retained for Mineral Resources estimation while shapes above incremental cut-off value were reviewed on a case by case basis for continuity and included where appropriate.

#### CLASSIFICATION

All Mineral Resources were classified as Inferred due to the drill hole spacing at San Patricio, which is approximately 100 m over the deposit.

#### HISTORICAL MINING AND DEPLETION

Historical development and extraction has taken place at San Patricio and is shown in Figure 14-18. These areas were excluded from the Mineral Resource estimate.

#### BLOCK MODEL VALIDATION

Blocks were validated using industry standard validation techniques including a comparison of ID<sup>3</sup> block estimates against the full length composites and an NN estimate using swath plots



and basic statistics (Table 14-31). It is important to note that some low grade clustering is present in the vein, and the approach to high grade restriction does not lend itself well to a basic statistical comparison. Classified blocks were limited to within 50 m of the central drill hole intercepts. Material in the north of the San Patricio vein was excluded due to the wide spacing of drill holes in this area of the vein and its low grade. Material in the south was excluded to prevent smearing of high grade silver to the south. A west facing longitudinal section comparing block and composite grades at San Patricio is shown in Figure 14-18.

#### TABLE 14-31 COMPARISON OF BLOCK AND COMPOSITE GRADES AT SAN PATRICIO Endeavour Silver Corp. – Parral Project

	S	ilver (g/t)		Gold (g/t)			
Statistic	Full Length Composites	ID <sup>3</sup> Blocks	NN Blocks	Full Length Composites	ID <sup>3</sup> Blocks	NN Blocks	
Mean	409	417	408	0.24	0.20	0.22	
CV	0.95	0.81	0.88	1.45	1.26	1.40	
Maximum	1,202	1,202	1,202	0.99	0.99	0.99	
Minimum	4	4	4	0.01	0.01	0.01	

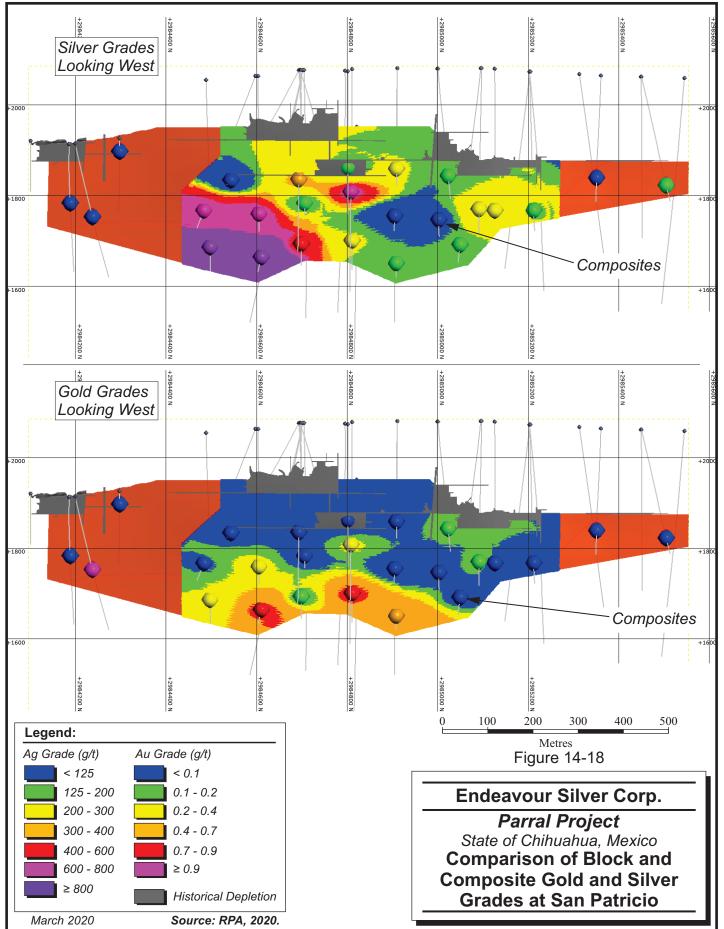
Notes:

1. Composites are weighted by horizontal thickness

2. Includes unclassified blocks



www.rpacan.com





#### MINERAL RESOURCE REPORTING

CIM (2014) definitions were used for Mineral Resource classification. A summary of the San Patricio Mineral Resources as of December 31, 2019, is presented in Table 14-32.

# TABLE 14-32SAN PATRICIO MINERAL RESOURCE ESTIMATE AS OF<br/>DECEMBER 31, 2019<br/>Endeavour Silver Corp. – Parral Project

Cotogony	Tonnage	Gra	ade	Contained Metal		
Category	(kt)	(g/t Ag)	(g/t Au)	(koz Ag)	(oz Au)	
Inferred	760	512	0.21	12,460	5,200	

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

2. Mineral Resources are estimated at a cut-off grade of 130 g/t AgEq.

- 3. AgEq values are based on estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges. Metal price assumptions were: US\$17/oz Ag, and US\$1,275/oz Au.
- 4. A minimum mining width of 1.75 m was applied.

5. Bulk density varies by zone.

6. Numbers may not add due to rounding.

Since a minimum mining thickness was not applied during vein modelling, Mineral Resources are reported within underground shapes. Underground shapes used to constrain Mineral Resource reporting were generated without dilution, consideration of minimum footwall slope angles, economic cut-off grades (Mineral Resource cut-off grades were applied to generate the shapes), without economic analysis on stope revenue versus capital development, and were allowed to include internal marginal material in some areas to maintain continuity. All material within the shape, including blocks below cut-off in the vein or buffer zone, are reported.

These shapes were created in Deswik software at an approximate cut-off grade of 130 g/t AgEq. Shapes were restricted to the San Patricio claim area and are shown in Figure 14-19.



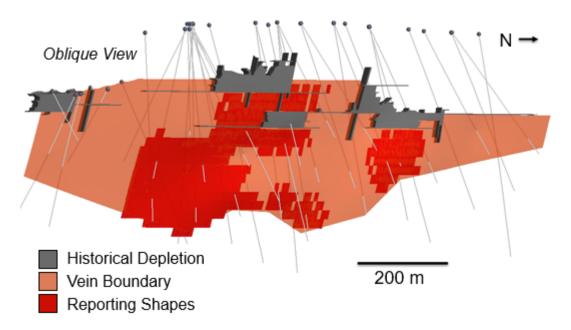


FIGURE 14-19 REPORTING SHAPES AT SAN PATRICIO



#### COMPARISON TO PREVIOUS ESTIMATE

Table 14-33 compares the previous estimate at Veta Colorada, completed by P&E in 2018, to the current estimate.

#### TABLE 14-33 CURRENT VS. PREVIOUS MINERAL RESOURCES AT SAN PATRICIO Endeavour Silver Corp. – Parral Project

	Tonnage	Gra	ade	Contained Metal		
	(kt)	(g/t Ag)	(g/t Au)	(koz Ag)	(oz Au)	
P&E (2018)						
Inferred	854	387	0.32	10,613	8,858	
P&E (2018) Total	854	387	0.32	10,613	8,858	
RPA						
Inferred	760	512	0.21	12,460	5,200	
RPA Total	760	512	0.21	12,460	5,200	
(RPA-P&E)/P&E						
Inferred	-11%	32%	-34%	17%	-42%	
(RPA-P&E)/P&E Total	-11%	32%	-34%	17%	-42%	

Notes:

- 1. RPA Mineral Resources are reported within underground shapes. No cut-off grade was applied prior to reporting.
- 2. RPA Mineral Resources exclude historically depleted areas.
- 3. RPA Mineral Resources are restricted to within Endeavour Silver claim boundaries.
- 4. RPA numbers may not add due to rounding.

The principal reasons for the differences in the Mineral Resource estimate are as follows:

- 1. Tonnage decrease is due to the exclusion of material above historically depleted areas (no data), and an area to the south of the deposit controlled by a single high grade gold intercept (SPT-15).
- 2. The increase in silver grade is due to the exclusion of P&E tonnes that were lower in grade than the average grade of the deposit.
- 3. The decrease in gold grade is due to the exclusion of blocks related to anomalously high grade drill hole intercept SPT-15, located to the south of the high grade silver area at San Patricio.
- 4. Note that there is very little gold overall at San Patricio.



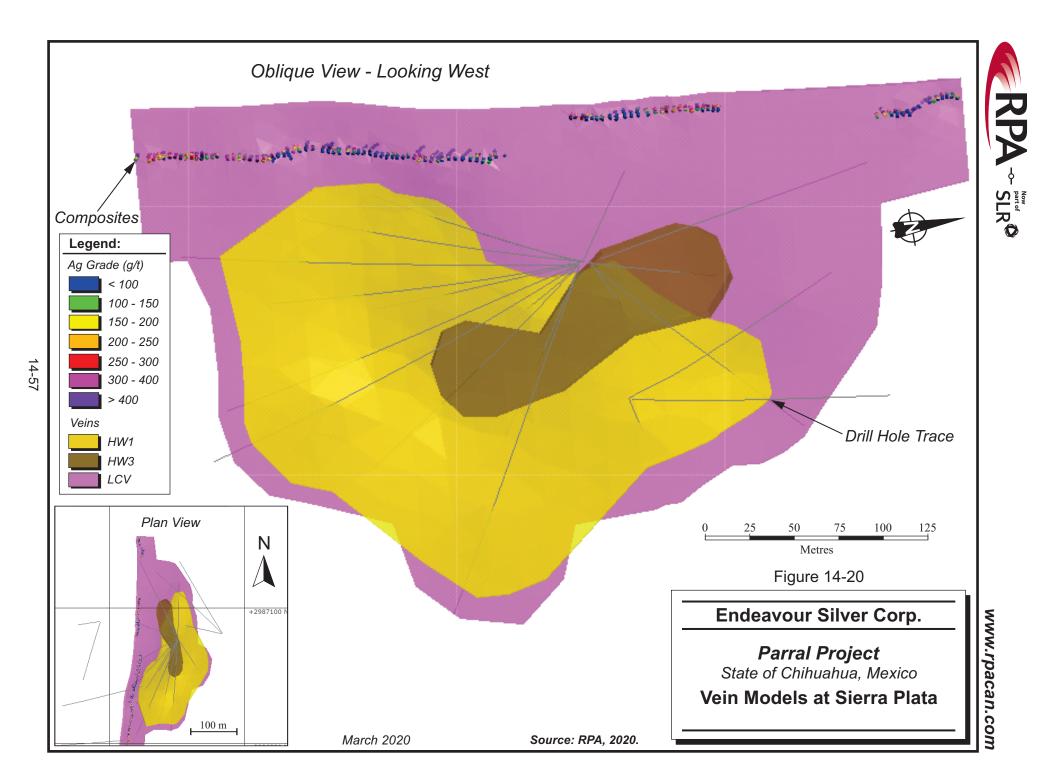
#### SIERRA PLATA

#### **GEOLOGICAL INTERPRETATION**

The Sierra Plata area is made up of three veins: HW1, HW3, and LCV. The wireframes trend north to northeast, and dip approximately 45° to the east.

Veins were modelled based on drill hole lithology logging and channel sampling and grades. A minimum thickness of 1.5 m was applied. Veins were modelled using an approximate cutoff grade of 100 g/t Ag, with lower grades incorporated where necessary for vein continuity. Low grade intercepts at extents were excluded. Vein shapes were extended 50 m beyond drill intercepts, or to existing development. Vein thickness ranges from less than one metre at depth to approximately 8.5 m in the upper part of the LCV vein.

Figure 14-20 shows the vein models at Sierra Plata.





#### **RESOURCE ASSAYS AND TREATMENT OF HIGH GRADE ASSAYS**

Silver, lead, and zinc assay values at Sierra Plata are compiled in Tables 14-34, 14-35, and 14-36. Assays were reviewed using histograms, log probability plots, and decile analysis to determine multiple capping values for silver, lead, and zinc for each vein at Sierra Plata. Assays were reviewed by vein as well as cumulatively. Selected graphs are shown in Figures 14-21 for silver, Figure 14-22 for lead, and Figure 14-23 for zinc.

## TABLE 14-34 SUMMARY OF SIERRA PLATA SILVER ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

	Silver (g/t)							
Vein	Count	Min	Min Mean		Mean Cap	Мах Сар		
HW1	111	19.90	267	801	261	600		
HW3	30	50.60	420	3,770	260	500		
LCV	191	0.00	278	1,355	241	1,000		
Total	333	0.00	287	3,770	249	1,000		

## TABLE 14-35 SUMMARY OF SIERRA PLATA LEAD ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

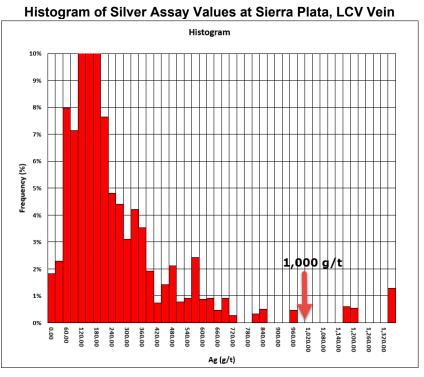
		Lead (%)							
Vein	Count	Min	Mean	Мах	Mean Cap	Max Cap			
HW1	111	0.03	0.53	6.58	0.50	4.00			
HW3	30	0.12	0.41	1.07	0.41	1.07			
LCV	172	0.00	0.74	15.55	0.57	2.00			
Total	333	0.00	0.62	15.55	0.52	4.00			

## TABLE 14-36 SUMMARY OF SIERRA PLATA ZINC ASSAY STATISTICS Endeavour Silver Corp. – Parral Project

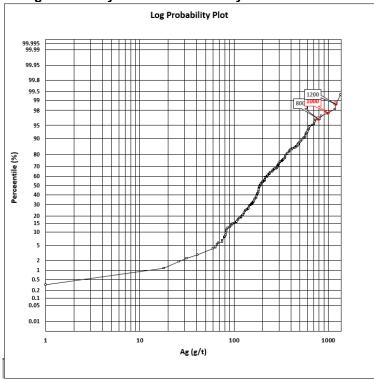
		Zinc (%)					
Vein	Count	Min	Mean	Мах	Mean Cap	Max Cap	
HW1	111	0.05	0.38	1.27	0.37	1.10	
HW3	30	0.19	0.39	0.90	0.39	0.90	
LCV	172	0.00	0.36	1.81	0.36	1.50	
Total	333	0.00	0.38	1.81	0.38	1.50	



#### FIGURE 14-21 CAPPING ANALYSIS OF SILVER ASSAY VALUES AT SIERRA PLATA, LCV VEIN

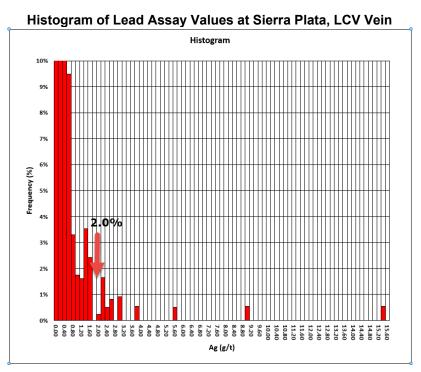


Log Probability Plot of Silver Assay Values at Palmilla

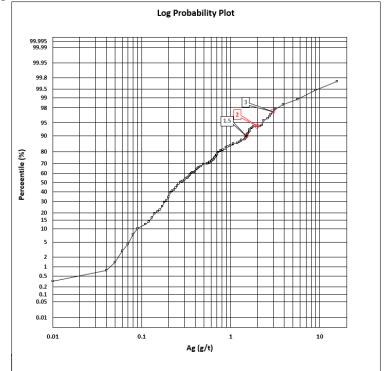




#### FIGURE 14-22 CAPPING ANALYSIS OF LEAD ASSAY VALUES AT SIERRA PLATA, LCV VEIN

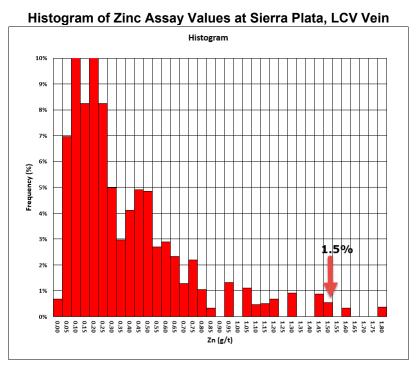


Log Probability Plot of Lead Assay Values at Sierra Plata, LCV Vein

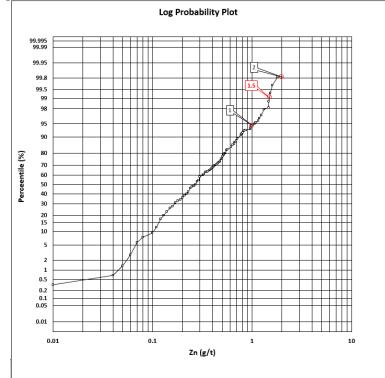




#### FIGURE 14-23 CAPPING ANALYSIS OF ZINC ASSAY VALUES AT SIERRA PLATA, LCV VEIN



Log Probability Plot of Zinc Assay Values at Sierra Plata, LCV Vein





#### COMPOSITING

Capped assays were composited to the full length of the drill hole intercepts. Composite statistics, weighted by drill hole intercept thickness, are shown in Tables 14-37, 14-38, and 14-39.

#### TABLE 14-37 SUMMARY OF SIERRA PLATA SILVER FULL LENGTH COMPOSITE STATISTICS

Endeavour Silver Corp. – Parral Project

Vein	Count	S	ilver (g	/t)
vem	Count	Min	Mean	Max
HW1	14	113	237	426
HW3	4	250	259	275
LCV	488	0.00	219	1,000
Total	506	0.00	233	1,000

#### TABLE 14-38 SUMMARY OF SIERRA PLATA LEAD FULL LENGTH COMPOSITE STATISTICS Endeavour Silver Corp. – Parral Project

Vein	Count	Lead (%)			
vem	Count	Min	Mean	Max	
HW1	14	0.07	0.44	1.63	
HW3	4	0.15	0.36	0.63	
LCV	488	0.02	0.44	2.00	
Total	506	0.02	0.44	2.00	

## TABLE 14-39 SUMMARY OF SIERRA PLATA ZINC FULL LENGTH COMPOSITE STATISTICS

Endeavour Silver Corp. – Parral Project

Vein	Count	Zinc (%)			
vem	Count	Min	Mean	Max	
HW1	14	0.11	0.38	0.88	
HW3	4	0.26	0.38	0.41	
LCV	488	0.02	0.33	1.50	
Total	506	0.02	0.34	1.50	

#### TREND ANALYSIS

Variography was attempted for the LCV vein. Results were deemed unreliable and variography was not considered further. Grade and thickness contours were completed for all veins, however, no consistent trend directions were identified.



#### SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

Silver, lead, and zinc values of full length composites were estimated into the block model using ID<sup>3</sup> in two passes as listed in Table 14-40. Full length composites were weighted by their full intercept thickness and hard boundaries were applied. Dynamic anisotropy was used to orient the search ellipses based on the hanging wall and footwall orientation of each vein.

## TABLE 14-40 SUMMARY OF SIERRA PLATA GRADE INTERPOLATION PLAN Endeavour Silver Corp. – Parral Project

Interpolation Criteria	Pass 1	Pass 2
Search Ellipse Dimensions (m)	60/30/20	120/60/40
Minimum number of composites	3	2
Maximum number of composites	20	20
Minimum number of drill holes	2	2

#### HIGH GRADE RESTRICTION

In addition to capping high grade assays prior to compositing, high grade composites were spatially restricted to the silver second pass whereby composites were limited to within half of the search distance. Beyond the restricted threshold distance, composites were capped to 300 g/t Ag in the LCV and HW1 veins, and 275 g/t Ag in the HW3 vein. The high grade restriction grade thresholds were based on a review of the histogram and probability plots of the full length composites and distance was based on a visual review of other high grade intercepts at Sierra Plata and their influence in the context of more tightly spaced drilling, with consideration to the drill hole spacing, and some trial and error based on visual review and statistics.

#### **BULK DENSITY**

Bulk density measurements were flagged and basic statistics for the larger HW1 and LCV veins are listed in Table 14-41. Correlation of density values against spatial location (eastings, northings, elevations) and grades was performed.



# TABLE 14-41BASIC STATISTICS OF BULK DENSITY MEASUREMENTS AT<br/>SIERRA PLATA<br/>Endeavour Silver Corp. – Parral Project

Domain	Count	Min (t/m³)	Max (t/m³)	Mean (t/m³)
HW1	96	2.19	3.00	2.64
LCV	168	2.06	3.81	2.66
Waste	442	2.10	2.91	2.51

Bulk densities of 2.65 t/m<sup>3</sup> and 2.51 t/m<sup>3</sup> were assigned to the veins from the mean of the two largest veins and to the waste, respectively.

#### **BLOCK MODELS**

The block model dimensions and origin, created using Seequent's Leapfrog Geo software, are shown in Table 14-42.

Item	Units	X	Y	Z
Parent Block	(m)	1	5	5
Sub-block	(m)	0.25	1.0	1.0
Total Model Dimensions	(m)	474	3,700	1,525
Rotation (Bearing of X around Z)	(°)	0	0	0
Origin	(m)	429,800	2,982,000	1,650

## TABLE 14-42 BLOCK MODEL DIMENSIONS OF SIERRA PLATA Endeavour Silver Corp. – Parral Project

#### CUT-OFF GRADE

RPA used silver grades for the purposes of geological interpretation and resource reporting. An NSR factor for silver was calculated for Sierra Plata to estimate the Ag cut-off grade. The processing route envisaged the recovery of silver only. Key assumptions are listed below. Assumed recoveries are based on test work and experience from other operations.

• Metal prices:

US\$17 per ounce silver

• Silver Recoveries:

90% Ag



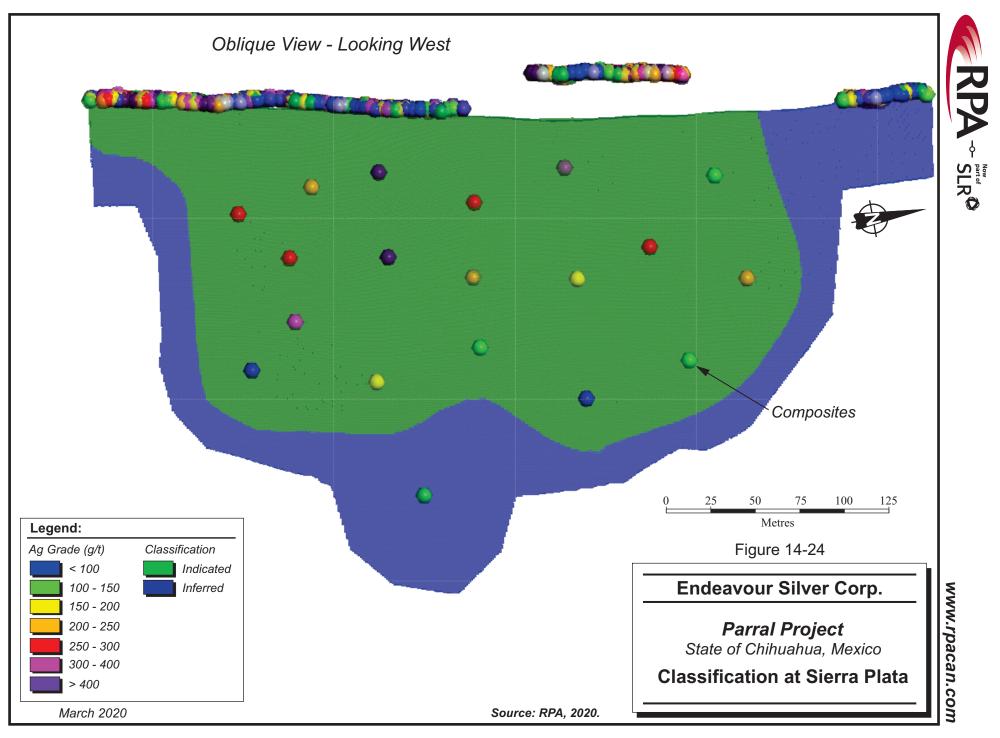
RPA calculated the Ag NSR factor at US\$0.44 per gram. For the purposes of developing cutoff grades, a total unit operating cost of US\$90/t milled was estimated, which includes mining, processing, and G&A expenses.

The Ag cut-off grade for the Sierra Plata area was calculated as 200 g/t using the following equation:

$$Ag \ cutoff \ (g/t) = \frac{Total \ opex}{Ag \ NSR}$$

#### CLASSIFICATION

A classification of Indicated was assigned to areas within LCV and HW1 where a drill hole spacing of less than 60 m was achieved, and extending up to 25 m away from known data points. All other areas within the wireframes were assigned to the Inferred category. Drill hole spacing of 60 m was selected based on a review of variography and observed grade trend continuity. Classification shapes are shown in Figure 14-24.





#### HISTORICAL MINING AND DEPLETION

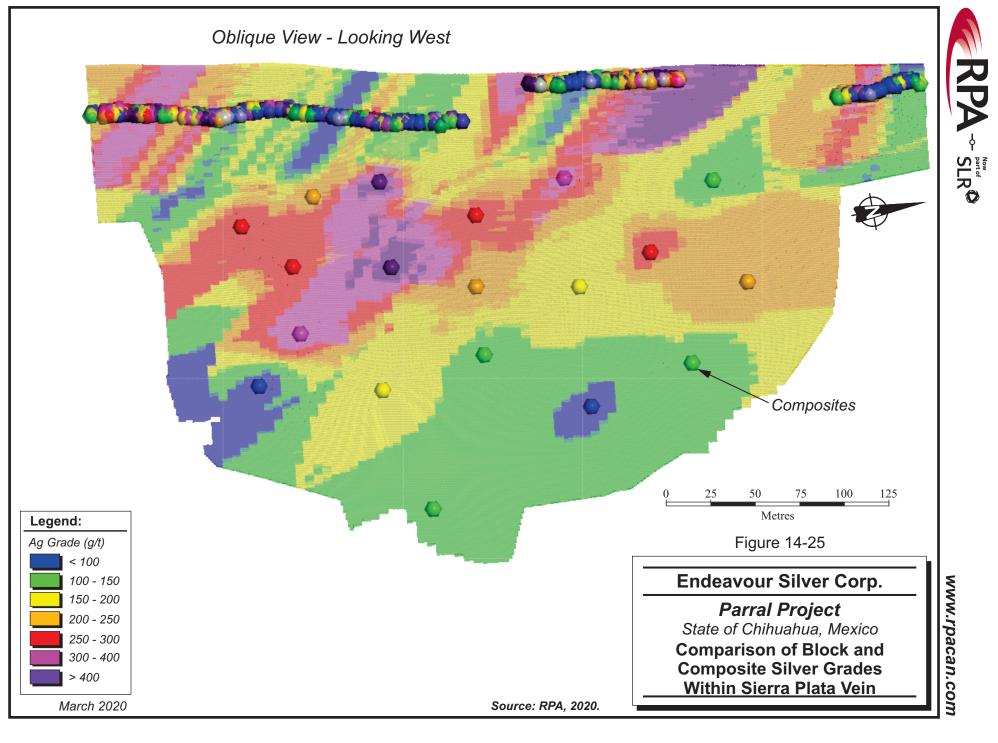
Classified material was clipped to below existing depletion areas.

#### **BLOCK MODEL VALIDATION**

Blocks were validated using industry standard validation techniques including a comparison of ID<sup>3</sup> grade estimates against the full length composites and an NN estimate using swath plots and basic statistics (Table 14-43; silver within the LCV vein only). A longitudinal section comparing block and composite grades for the Sierra Plata area is shown in Figure 14-25.

#### TABLE 14-43 COMPARISON OF BLOCK AND COMPOSITE GRADES AT SIERRA PLATA LCV VEIN Endeavour Silver Corp. – Parral Project

Statistic	Full Length Composites (g/t Ag)	ID <sup>3</sup> Blocks (g/t Ag)	NN Blocks (g/t Ag)
Count	506	1,040,665	1,040,665
Mean	233	209	202
Maximum	1,000	787	1,000
Minimum	0.00	0.00	0.00



14-68



#### MINERAL RESOURCE REPORTING

CIM (2014) definitions were used for Mineral Resource classification. A summary of the Sierra Plata Mineral Resources as of December 31, 2019, is presented in Table 14-44. A minimum mining thickness of 1.5 m was applied during vein modelling.

#### TABLE 14-44 SIERRA PLATA MINERAL RESOURCE ESTIMATE AS OF **DECEMBER 31, 2019** Endeavour Silver Corp. – Parral Project

	Tonnes		Gra	de			Containe	ed Metal	
	(Mt)	(g/t Ag)	(g/t Au)	(% Pb)	(% Zn)	(Moz Ag)	(koz Au)	(MIb Pb)	(Mlb Zn)
Indicated	0.43	271	-	0.49	0.35	3.7	-	4.7	3.4
Inferred	0.17	263	-	0.42	0.37	1.4	-	1.6	1.4

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.

 Mineral Resources are estimated at a cut-on gr
 A minimum mining width of 1.5 m was applied. Mineral Resources are estimated at a cut-off grade of 200 g/t Ag.

4. Bulk density is 2.65 t/m<sup>3</sup> in veins and 2.51 t/m<sup>3</sup> in waste rock.

5. Numbers may not add due to rounding.



### **15 MINERAL RESERVE ESTIMATE**



### **16 MINING METHODS**



### **17 RECOVERY METHODS**



### **18 PROJECT INFRASTRUCTURE**



### **19 MARKET STUDIES AND CONTRACTS**



### 20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT



### **21 CAPITAL AND OPERATING COSTS**



### **22 ECONOMIC ANALYSIS**



### **23 ADJACENT PROPERTIES**



# 24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.



### **25 INTERPRETATION AND CONCLUSIONS**

RPA has the following conclusions:

- The Project district comprises classic, high grade silver, epithermal vein deposits, characterized by low-sulphidation mineralization
- The sampling, sample preparation, analyses, security, and data verification meet industry standards and are appropriate for Mineral Resource estimation.
- The Mineral Resource estimate conforms to CIM (2014) definitions.
- As of December 31, 2019, Indicated Mineral Resources are estimated to total 0.61 million tonnes, containing 4.0 million ounces of silver, 6,800 ounces of gold, 17.5 million pounds of lead, and 16.5 million pounds of zinc. Inferred Mineral Resources are estimated to total 4.04 million tonnes containing 35.0 million ounces of silver, 62,800 ounces of gold, and 65.0 million pounds of lead, and 64.3 million pounds of zinc.
- The Project will likely need additional Mineral Resources to advance to the next phase of study.



### **26 RECOMMENDATIONS**

Endeavour Silver proposes surface and underground drilling of 5,000 m and underground development of 400 m to establish drill platforms during 2020 to test extensions of Veta Colorada vein for a total budget of approximately US\$1.4 million (Table 26-1). RPA concurs with this program and budget.

Item	Cost per Unit	No. Units	Cost (US\$)
Drilling (inc. Logging, Sampling, Assaying)	US\$150/m	5,000	750,000
Underground Development	US\$1000/m	400	400,000
Permits			50,000
Metallurgical Test work			100,000
Subtotal			1,300,000
Contingency	10%		130,000
Total			1,430,000

## TABLE 26-1PROPOSED BUDGETEndeavour Silver Corp. – Parral Project

Other recommendations are as follows:

- Focus exploration efforts on Mineral Resource expansion, with an initial focus on the Veta Colorada trend.
- Conduct additional work on metallurgy and metal recoveries.



### **27 REFERENCES**

- ALS, Kamloops (2018) Metallurgical Test Work on Five Samples from the Parral Project (KM5545), prepared for Endeavour Silver Corp.
- American Institute of Mining Engineers (1902) Transactions of the American Institute of Mining Engineers, Vol. 32: Containing the Papers and Discussions of 1901, Relating to the Mineral Resources and Industries of Mexico.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM) (2014) CIM Definition Standards for Mineral Resources and Mineral Reserves, adopted by the CIM Council on May 10, 2014.
- Corbett, G. J., and Leach, T. M. (1998) Southwest Pacific rim gold-copper systems: structure, alteration, and mineralisation. Society of Economic Geologists Special Publication 6, 234 p.
- Corbett, G.J. (2004) Epithermal and porphyry gold Geological models <u>in</u> Pacrim Congress 2004, Adelaide, The Australasian Institute of Mining and Metallurgy, pp. 15-23.
- Corbett, G.J. (2005) Epithermal Au-Ag Deposit Types Implication For Exploration. Proexplo Conference Peru, May 2005.
- Micon International Limited (2010) NI 43-101 Technical Report Audit on the Mineral Resource Estimate for the Parral Project, Chihuahua State, Mexico for Endeavour Silver Corp. (March 15, 2010).
- P&E Mining Consultants Inc. (2018) NI 43-101 Technical Report and Mineral Resource Estimate on the Parral Project. Chihuahua State, Mexico for Endeavour Silver Corp.
- P&E Mining Consultants Inc. (2019) Internal Report and Mineral Resource Estimate on the San Patricio Property, Chihuahua State, Parral Mining District, Mexico for Endeavour Silver Corp.
- SGS De Mexico, Durango (2007) Determination of the Sensibility of One Ore Sample to the Flotation Process, prepared for Endeavour Silver Corp.
- SGS De Mexico, Durango (2008) Determination of the Sensitivity of One Ore Sample to the Flotation Process (SGS-05-08), prepared for Endeavour Silver Corp.
- SGS Mineral Services, Durango (2010) Determination of the Amenability of One Ore Sample to the Flotation Process (SGS-43-10), prepared for Endeavour Silver Corp.
- Southworth, J.R. (1905) Las minas de México Historia -- geologia -- antigua mineria -- y descripción general de los estados mineros de la República mexicana. Tomo IX., octubre, 1905. Pub. bajo la autorización del gobierno, por J. R. Southworth.
- Michaud, D. (2015) Low Sulphidation Epithermal Gold Deposits. 911 Metallurgist posts July 23, 2015.



### **28 DATE AND SIGNATURE PAGE**

This report titled "Technical Report on the Parral Project, State of Chihuahua, Mexico" and dated March 14, 2020 was prepared and signed by the following authors:

(Signed and Sealed) "José M. Texidor Carlsson"

Dated at Toronto, ON March 14, 2020

José M. Texidor Carlsson, M.Sc., P.Geo. Senior Geologist

(Signed and Sealed) "Valerie Wilson"

Dated at Toronto, ON March 14, 2020

Valerie Wilson, M.Sc., P.Geo. Senior Geologist



### 29 CERTIFICATE OF QUALIFIED PERSON

#### JOSÉ M. TEXIDOR CARLSSON

I, José M. Texidor Carlsson, M.Sc., P.Geo., as an author of this report entitled "Technical Report on the Parral Project, State of Chihuahua, Mexico" prepared for Endeavour Silver Corp. and dated March 14, 2020, do hereby certify that:

- 1. I am Senior Geologist with Roscoe Postle Associates Inc., now part of SLR Consulting Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
- 2. I am a graduate of University of Surrey, United Kingdom, in 1998 with a Master of Engineering, Electronic and Electrical degree and Acadia University, Nova Scotia, in 2007 with an M.Sc. degree in Geology.
- 3. I am registered as a Professional Geologist in the Province of Ontario (Reg. #2143). I have worked as a geologist for a total of 13 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Seven years of experience estimating Mineral Resources for precious and base metals. This experience includes deposits ranging from greenfield projects to operating mines.
  - Mineral Resource estimation and NI 43-101 reporting.
  - Supervision of exploration properties and active mines in Canada, Mexico, and South America.
  - Experienced user of geological and resource modelling software.
- 4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 5. I visited the Parral Project on November 20 and 21, 2019.
- 6. I share responsibility with my co-author for preparation of all sections of the Technical Report.
- 7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
- 8. I have had no prior involvement with the property that is the subject of the Technical Report.
- 9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 14<sup>th</sup> day of March, 2020.

(Signed and Sealed) "José M. Texidor Carlsson"

José M. Texidor Carlsson, M.Sc., P.Geo.



#### VALERIE WISLON

I, Valerie Wilson, M.Sc., P.Geo., as an author of this report entitled "Technical Report on the Parral Project, State of Chihuahua, Mexico" prepared for Endeavour Silver Corp. and dated March 14, 2020, do hereby certify that:

- 1. I am Senior Geologist with Roscoe Postle Associates Inc., now part of SLR Consulting Ltd, of Suite 501, 55 University Ave Toronto, ON M5J 2H7.
- 2. I am a graduate of the Camborne School of Mines, University of Exeter in 2010 with a master's degree in Mining Geology and a graduate of the University of Victoria in 2006 with a bachelor's degree in Geoscience.
- 3. I am registered as a Professional Geologist in the Province of Ontario (Reg. #2113). I have worked as a geologist for a total of nine years since graduation from my bachelor's degree. My relevant experience for the purpose of the Technical Report is:
  - a. Exploration geologist on a variety of gold and base metal projects in Canada, Norway, and Sweden.
  - b. Mineral Resource estimation work and reporting on numerous mining and exploration projects around the world.
- 4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 5. I did not visit the Parral Project.
- 6. I share responsibility with my co-author for preparation of all sections of the Technical Report.
- 7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
- 8. I have had no prior involvement with the property that is the subject of the Technical Report.
- 9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 14<sup>th</sup> day of March, 2020.

#### (Signed and Sealed) "Valerie Wilson"

Valerie Wilson, M.Sc., P.Geo.