

# Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico

Report Prepared for  
**Excellon Resources Inc.**



Report Prepared by



SRK Consulting (Canada) Inc.  
5CE003.001  
September 7, 2018



# Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico

## Excellon Resources Inc.

Suite 900, 20 Victoria Street  
Toronto, ON, Canada, M5C 2N8  
E-mail: [info@excellonresources.com](mailto:info@excellonresources.com)  
Website: [www.excellonresources.com](http://www.excellonresources.com)  
Tel: +416.364.1130

## SRK Consulting (Canada) Inc.

Suite 101, 1984 Regent Street  
Sudbury, ON, Canada, P3E 5S1  
E-mail: [sudbury@srk.com](mailto:sudbury@srk.com)  
Website: [www.srk.com](http://www.srk.com)  
Tel: +705.682.3270

## SRK Project Number 5CE003.001

**Effective date:** March 31, 2018  
**Signature date:** September 7, 2018

## Qualified Persons:

["Original signed"]

Michael Selby, PEng (PEO#100083134)  
Principal Consultant (Mining)  
SRK Consulting (Canada) Inc.

["Original signed"]

Sebastien Bernier, PGeo (APGO#1847)  
Principal Consultant (Resource Geology)  
SRK Consulting (Canada) Inc.

["Original signed"]

Mark Liskowich, PGeo (APEG#10005, PEGNL#09424)  
Principal Consultant (Environment)  
SRK Consulting (Canada) Inc.

["Original signed"]

Blair Hrab, PGeo (APGO#1723)  
Principal Consultant (Structural Geology)  
SRK Consulting (Canada) Inc.

["Original signed"]

Ben Pullinger, PGeo (APGO #2420)  
Senior Vice President Geology  
Excellon Resources Inc.

["Original signed"]

Chantal Jollette, PGeo (APGO#1518)  
Senior Geologist  
Analytical Solutions Ltd.

["Original signed"]

Denis Flood, PEng (PEO#100082766)  
Vice President Technical Services  
Excellon Resources Inc.

## Reviewed by:

["Original signed"]

Gary Poxleitner, PEng (PEO#100059860)  
Principal Consultant (Mining)  
SRK Consulting (Canada) Inc.

["Original signed"]

Glen Cole, PGeo (APGO#1416)  
Principal Consultant (Resource Geology)  
SRK Consulting (Canada) Inc.

## Contributing Authors

Rob Maynard  
Nisha Hasan

Ronald Marino  
Craig Ford

Rupy Dhadwar  
Brendan Cahill

Madeline Stafford-Coyte

Cover: Platosa mine area looking south, mine infrastructure is visible in the centre of the photo.

## IMPORTANT NOTICE

This report was prepared as a National Instrument 43-101 (NI 43-101) *Standards of Disclosure for Mineral Projects* Technical Report for Excellon Resources Inc. (Excellon) by SRK Consulting (Canada) Inc. (SRK). The quality of information, conclusions, and estimates contained herein are consistent with the quality of effort involved in SRK's services. The information, conclusions, and estimates contained herein are based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Excellon subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Excellon to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to National Instrument 43-101. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Excellon. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

### © 2018 SRK Consulting (Canada) Inc.

This document, as a collective work of content and the coordination, arrangement and any enhancement of said content, is protected by copyright vested in SRK Consulting (Canada) Inc. (SRK).

Outside the purposes legislated under provincial securities laws and stipulated in SRK's client contract, this document shall not be reproduced in full or in any edited, abridged or otherwise amended form unless expressly agreed in writing by SRK.

# 1 Executive Summary

## Introduction

The Platosa project is an operating underground polymetallic silver-lead-zinc mine located in northeastern Durango State, Mexico, approximately 45 kilometres north of the city of Torreón. The deposit consists of a series of high-grade carbonate-replacement deposits (CRD) occurring as mantos. Four main zones are currently mined (Rodilla, Pierna, Guadalupe South, and 623 mantos) with another two included in the mine plan and open to expansion (NE-1 and NE-1 south mantos). The 674 manto was discovered in 2017 and accounts for a small portion of the 2018 production.

In February 2018, SRK Consulting (Canada) Inc. (SRK) was retained by Excellon Resources Inc. (Excellon) to provide technical support and collaboration, leading to a revised mineral resource statement for the Platosa mine and support the update of Excellon's technical disclosure.

This report provides a summary of the current Platosa project, including the current Mineral Resource estimate as of the effective date of this report, and an updated mine plan. It also provides an update on the dewatering program implemented at Platosa, which was the subject of the 2015 technical report and preliminary economic assessment (Cox et al. 2015). This 2018 report was prepared according to the guidelines of the Canadian Securities Administrators' National Instrument 43-101 (NI 43-101) – *Standards of Disclosure for Mineral Projects* and Form 43-101F1.

## Property Description and Ownership

The Platosa property is located in the northeast portion of the State of Durango, north-central Mexico, approximately 45 kilometres north of the city of Torreón, and five kilometres north of the village of Bermejillo. The centre of the deposit is located at latitude 25.9 degrees north and longitude -103.66 west (WGS84). The property consists of 80 mining concessions covering a total area of 20,969 hectares. These concessions, including fractional concessions, and the mine are 100 percent-owned by Minera Excellon de Mexico, S.A. de C.V., a fully owned subsidiary of Excellon Resources Inc., a Canadian company listed on the TSX (symbol EXN) with its corporate office in Toronto, Ontario. Excellon reports all applicable concession rental payments and work commitments are up to date.

Excellon is focused on optimizing the Platosa mine and on exploring the Platosa property as well as other properties for additional high-grade silver and CRD mineralization, related skarn, and epithermal silver mineralization. Underground development and mining at Platosa are carried out by Excellon employees using company-owned equipment. Exploration work at Platosa is managed and carried out by Excellon personnel with consultants being hired as needed.

Through the acquisition of Silver Eagle Mines Inc. (Silver Eagle) in 2009, Excellon acquired the Miguel Auza property, located 220 kilometres south of Platosa in Zacatecas State. This property includes the historical (now closed) underground mine, an operating flotation mill, and a tailings management facility. Mineralization from the Platosa mine is crushed on site in a two-stage crushing plant and transported to the Miguel Auza mill where it is processed by Excellon's wholly owned subsidiary, San Pedro Resources S.A. de C.V. (SPR).

Several independent NI 43-101 technical reports were prepared in the past for Platosa by other firms. Previous mineral resource estimates for the Platosa project were released in technical reports dated (effective date of Mineral Resource Statement in parentheses) 2002, 2007 (2006), 2008 (2008), 2010 (2009), 2011 (2011), 2014 (2013), and the most recent version, 2015 (2014), also described the results of a preliminary economic assessment (PEA) related to the dewatering of Platosa.

SRK is familiar with the Platosa property, having visited the site on two previous occasions in 2017. These site visits resulted in the preparation of two technical memorandums documenting the structural geology of the

Platosa mine (SRK July 2017a), and a training program on structural geology and alteration (SRK 2017b). A desktop 3D Leapfrog compilation of the lithology and mineralization was also previously completed (SRK 2016).

SRK also visited the site in January and March 2018 to support the preparation of an independent NI 43-101 technical report, which is disclosed herein.

## Geology and Mineralization

Platosa, a carbonate-replacement silver-lead-zinc mine, is located in the Oaxaquia terrane of Gondwanic affinity. Oaxaquia has a basement of Proterozoic gneiss which is unconformably overlain by Paleozoic terrestrial siliciclastic and metamorphosed submarine volcanic arc rocks, which are in turn overlain by Triassic siliciclastic rocks. The older sequences of Oaxaquia's Late Jurassic to Late Cretaceous supracrustal assemblage of carbonate and calcareous siliciclastic rocks are intruded by Late Jurassic rift-related rhyolite-andesitic continental magmatic rocks of the Nazas arc. The Nazas arc records opening of the Atlantic Ocean throughout Oaxaquia's north-south elongate axis (SRK 2017b).

*This section is reproduced and modified from Cox et al. (2015).*

The Platosa property lies in the Sierra Bermejillo, a northwest-trending anticline-syncline pair developed in Mesozoic sedimentary rocks. The Sierra Bermejillo Anticline is a relatively open fold that plunges to the southeast. The Saltillera Syncline is a doubly plunging structure located west of the anticline. The folded sequence is cut by a set of north- to northwest-striking, steeply dipping fractures and faults. Tertiary felsic to intermediate dykes and plutons intrude these structures in the western part of the Sierra Bermejillo.

The principal fault system in the property area is the Platosa Structural Zone (PSZ), a 250 to 1,500 metre-wide northwest-trending zone of fracturing and shearing that traverses the eastern margin of the Sierra Bermejillo. The PSZ includes a series of fault planes that strike north-northwesterly and dip steeply east and has been mapped along strike for five kilometres northwest and southeast of the Platosa mine (Megaw 2002). It is characterized by brecciated, crushed, and dolomitized limestone; slickenside fracture surfaces; iron and manganese oxides; travertine-filled breccias; and coarsely crystalline selenite veins, some up to five-metres thick. The faulted rocks weather recessively and form topographic depressions along the PSZ.

The principal mineral deposits in the Platosa area are high-temperature epigenetic silver-lead-zinc carbonate replacement deposits (CRD).

These deposits are hosted in carbonate rocks, distal to felsic intrusions that are interpreted to provide the hydrothermal source of mineralizing fluids. Deposits are characterized by irregularly shaped pods, lenses, and roughly tabular or tubular masses of massive sulphide mineralization. Discordant bodies (chimneys) and roughly concordant elongate masses (mantos) can extend for thousands of metres from the source of the mineralizing fluids and often follow complex disjointed paths through the host rocks.

The massive sulphide bodies commonly grade progressively into mineralized metasomatic skarn deposits proximal to the source intrusions. This proximal mineralization includes skarns developed along fractures, dykes and sill contacts, and as large irregular lenses at the contact with the intrusion. Locally, mineralized veins cut both the skarns and host intrusions. Contact metamorphic features (recrystallization to marble, development of hornfels and skarnoid) commonly occurs peripheral to the skarn zone.

All aspects of CRD and skarn mineralization are controlled by local and regional structures such as faults, fractures, contacts, fold axes, and collapse (paleokarst) zones. Secondary host rock permeability (such as fractures, breccias, solution cavities, dolomitization) can also be an important controlling factor for mineralization (Megaw et al. 1988).

The Mexican CRD belt hosts deposits in excess of 80 million tonnes. The Platosa property, with its combination of CRD and skarn mineralization, shares similarities with many of these systems and other North American manto/CRD systems and demonstrates potential for the discovery of additional mineralized zones.

## Exploration Status

Exploration work by Excellon on the Platosa property has included various campaigns of geological mapping, rock and soil geochemical sampling, biogeochemical sampling, soil gas mercury and hydrocarbon surveys, ground and airborne geophysical surveys, fluid inclusion and sulphur isotope studies, and diamond drilling documented by detailed core logging. Recently, Excellon has also conducted downhole acoustic and optical televiewer surveys on selected drillholes, as well as commenced a trial program with Corescan, a hyperspectral core imaging system, to improve characterization and mapping of the physical and chemical properties of host rocks.

Prior to 2012, work that included drilling, sampling, geophysics and geochemistry was concentrated on the main Platosa mine area and at these other prospects, also located on the property: Cañón Colorado, Saltillera, Socorro, Cerro Blanco, Zorra, Refugio, Dios da Bondad, and Rincon del Caido. Regional mapping and prospecting in 2016 and 2017 led to the definition of new targets. These include Jaboncillo, Saltillera South, Halcon, PDN, and San Gilberto. Historical data recorded on paper were digitized and incorporated into Excellon's GIS database. This includes historical surface mapping, sampling and interpretation as well as historical surface drilling.

Limited exploration was performed between 2014 and 2016. A thorough and comprehensive review of data and historical programs was performed in 2016 and into 2017. Excellon recommenced exploration work on the Platosa property in mid-2016; this included drilling, prospecting, sampling, and mapping. The surface drilling was suspended in 2017 pending financing and the completion of capital projects at the mine, but the other surface exploration work programs continued through this time as well as underground infill and definition drilling. At the end of 2017, Excellon recommenced surface drilling which continues in 2018.

## Development and Operations

Since the mine has been in production for several years, actual production data are used extensively to forecast mine plans and schedules. With the implementation of the first phase of the Mine Dewatering Project in June 2017, Platosa has been able to collect sufficient productivity data regarding mining in dry conditions to validate the schedule.

The mine plan has been completed in accordance with Platosa's mine planning standards by the mine planning department at Platosa with support from Deswik mining consultants. SRK has since reviewed the mine plan to confirm its preparation in accordance with NI 43-101 for the purposes of generating a mine plan for inclusion in a technical report.

Production from Platosa is scheduled at 300 tonnes per day from the remaining mantos. Historically, the chief constraint on production has been water ingress in the production areas causing delays and requiring the grouting of water-bearing structures and pumping of water. The Mine Dewatering Project dewatering project described in Section 16.7 has removed this bottleneck and the mine has been gradually ramping up production under dry conditions. Continued maintenance and periodic expansion of the Mine Dewatering Project will be required to achieve a drawdown rate of 4.0 metres per month, which is required to maintain a production rate of 300 tonnes per day. Waste development of 1,200 metres per year will also be required.

Access to the underground mine is by ramp through a portal collared near the administration building. Historically, most of the mining progressed using a modified room and pillar system, where the top of the manto was accessed first. Once pillars have been established, the area is benched down to a maximum height of 20 metres at which point a sill pillar is established. This process is repeated below the sill pillar until the bottom of the manto is reached. In the past, sill pillars were seldom necessary considering the flat-lying nature of the mantos, although these may become necessary in the future where the mineralized body dips more steeply. Engineering is underway to develop a system of sill mattes that may eliminate the need for sill pillars in the future, thereby improving recovery of mineralization. Where the bottom cut of a stope is located above the bottom of the manto, sill mattes will be constructed to eliminate the need for sill pillars. This "top-down" approach to mining the mantos was necessary due to water drawdown constraints. The mine is currently

transitioning to a cut and fill mining method. The cut and fill stopes will be backfilled with waste rock from development mining and extracted in a “bottom-up” sequence.

Another benefit of the Mine Dewatering Project has been that jumbos have been able to replace jacklegs in most production areas, improving safety and productivity. Bolters were purchased in 2018 to improve the safety and productivity of installing ground support.

The Platosa mineralized material is processed at the Miguel Auza processing facility 220 kilometres south of the mine. The infrastructure at the Platosa mine and the Miguel Auza site is described below.

The main infrastructure at the Platosa mine includes the following:

- Administration building: 3,000 m<sup>2</sup> two-story building that contains offices and warehouse
- Surface diesel shop: 500 m<sup>2</sup> covered area on a concrete pad
- Mine dry: 150 m<sup>2</sup> building with showers and changing area
- Shift change/training building: 100 m<sup>2</sup> building with the supervisor’s office and training room
- Kitchen: 45 m<sup>2</sup> building with kitchen and dining facilities
- Jaw crusher:
  - A 100 tonnes/hour surface crushing plant comprising:
    - A 3,000-tonne capacity concrete-lined storage stockpile area for coarse mineralized material
    - A 4 x 16-foot vibrating grizzly
    - A 40 x 26-inch Terex jaw crusher
    - An electromagnet
  - A Nordberg 5 x 14-foot vibrating horizontal screen
  - A 40 x 26-inch FIMSA secondary impact crusher
  - A truck loading system for fine mineralized material
  - A 3,000-tonne capacity concrete-lined storage stockpile area for fine mineralized material
- Compressor house: building that houses compressors
- Generator house: building that houses backup generators
- Surface transformers
- Settling ponds and surface discharge ditches
- Core facility: facility for prepping, logging, and storing diamond drill core
- Fuel farm: 2,000-litre storage tank and fuelling station.

Platosa is located near public infrastructure. Two electrical transmission lines from the national electrical grid (Comisión Federal de Electricidad (CFE)) supply electricity to the site. The site consumes 8 megawatts on average and has capacity for up to 14 megawatts. The CFE plans to commission a new transformer in Q2 2018 that will be dedicated to Platosa.

There is no infrastructure for water treatment at Platosa because the water is being pumped directly from the aquifer and does not come into contact with any sources of contamination before discharge. Samples are taken from specified sampling points at certain intervals to ensure water quality at the discharge.

## Mineral Resource Estimate

The mineral resource estimation work was completed by Mr. Sébastien Bernier, PGeo (APGO #1847) who is an appropriate independent Qualified Person as this term is defined in National Instrument 43-101. Since the 2015 technical report, Excellon completed a series of underground and surface drilling programs, totalling 171 holes for approximately 17,120 metres. The mineral resources reported herein, consider drilling information available to March 31, 2018 and were evaluated using a geostatistical block modelling approach constrained by polymetallic mineralization wireframes.

Polymetallic mineralization at the Platosa mine area represents part of a high-temperature epigenetic silver-lead-zinc carbonate replacement deposits (CRD) called mantos. The stratigraphy at the Platosa mine was modelled with Leapfrog Geo software utilizing stratigraphic sequence modelling. Stratigraphic contacts were

defined using lithology log data. The mantos fall largely within the heterolithic fragmental limestone unit (HEFL) unit and the mantos were modelled independently of this unit by creating wireframes interpolated from hanging wall and footwall contacts picked using both the lithology and mineralization logs. These contacts were used to create vein-like horizons and lenses that were subsequently limited in their lateral extent with clipping surfaces. These clipped horizons formed the wireframes that were used to define the mineralized wireframe volumes.

A modal composite length of 1.0 metre was applied to all mantos, honouring the geological / mineralization envelope boundaries. The impact of silver, lead and zinc outliers was examined on composite data using log probability plots and cumulative statistics for all mantos combined to determine appropriate capping grades. In collaboration with Excellon, SRK selected a block size of 5 by 5 by 2 metres for all mantos. Subcells, at 0.25 metre resolution, were used to honour the geometry of the modelled mantos. Subcells were assigned the same grade as the parent cell. The block model is not rotated.

All variogram analysis and modelling was performed using Datamine Studio RM and the Geostatistical Software Library (GSLib). The use of correlograms yielded reasonably clear continuity long range structures allowing fitting variogram models. The variogram model developed for silver was applied to lead and zinc. Grade estimation used an ordinary kriging estimation algorithm and three passes informed by capped composites. Validation checks confirm that the block estimates are a reasonable representation of the informing data considering the current level of geological and geostatistical understanding of the deposit.

SRK is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired by core drilling with pierce points between 15 and 50 metres apart, but generally at 25 metres. Accordingly, all block estimates within the mineralized mantos below the current mining front were classified as Indicated mineral resources. Potentially recoverable pillars in the upper portion of the mine have been classified as Inferred mineral resources in consideration of the engineering work required to confirm their potential extraction.

SRK considers that the polymetallic (silver, lead and zinc) mineralization of the mantos of the Platosa mine is amenable to underground extraction. In collaboration with Excellon, SRK considers that it is appropriate to report the Platosa mine mineral evaluation at a cut-off grade of 375 grams of silver per tonne (g/t silver) equivalent, using the following equation to estimate silver equivalency grades:

$$\text{AgEq} = (\text{Ag} + (\text{Pb} \times 40.38) + (\text{Zn} \times 47.72))$$

**Table i: Mineral Resource Statement\*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018**

| Category     | Quantity<br>Ktonnes | Grade           |             |             | Contained Metal    |                  |                  |
|--------------|---------------------|-----------------|-------------|-------------|--------------------|------------------|------------------|
|              |                     | Silver<br>(g/t) | Lead<br>(%) | Zinc<br>(%) | Silver<br>(000 oz) | Lead<br>(000 lb) | Zinc<br>(000 lb) |
| Measured     | -                   | -               | -           | -           | -                  | -                | -                |
| Indicated    | 485                 | 549             | 5.6         | 5.9         | 8,562              | 59,752           | 62,953           |
| <b>Total</b> | <b>485</b>          | <b>549</b>      | <b>5.6</b>  | <b>5.9</b>  | <b>8,562</b>       | <b>59,752</b>    | <b>62,953</b>    |
| Inferred     | 13                  | 516             | 4.7         | 6.5         | 216                | 1,344            | 1,859            |

\* Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Composites were capped where appropriate. Mineral resources are reported at a silver-equivalent cut-off value of 375 grams per tonne, considering metal prices of US\$17.00 per ounce of silver, US\$1.10 per pound of lead, US\$1.30 per pound of zinc, and assuming metal recovery of 89% for silver, 81% for lead and 81% for zinc.



The mineral resource model is relatively sensitive to the selection of the reporting silver equivalent cut-off grade. To illustrate this sensitivity, the quantities and grade estimates are presented in Table ii at various cut-off grades. The reader is cautioned that the figures presented in this table should not be misconstrued with a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates within the mineralized and unmined mantos to the selection of silver equivalent cut-off grade.

**Table ii: Global Block Model Quantities and Grade Estimates\* at Various Silver Equivalent Cut-Off Grades**

| Cut-Off<br>Grade | Indicated Blocks            |                     |             |           |           |               |
|------------------|-----------------------------|---------------------|-------------|-----------|-----------|---------------|
|                  | Volume / Quantity           |                     | Grade       |           |           |               |
| AgEq<br>(g/t)    | Volume<br>(m <sup>3</sup> ) | Tonnage<br>(tonnes) | Ag<br>(g/t) | Pb<br>(%) | Zn<br>(%) | AgEq<br>(g/t) |
| 50               | 193,799                     | 608,250             | 462         | 4.8       | 4.9       | 889           |
| 100              | 190,976                     | 599,628             | 469         | 4.8       | 5.0       | 900           |
| 150              | 185,893                     | 584,041             | 479         | 4.9       | 5.1       | 921           |
| 200              | 178,416                     | 560,958             | 495         | 5.1       | 5.3       | 952           |
| 250              | 171,625                     | 540,086             | 510         | 5.2       | 5.4       | 980           |
| 275              | 168,830                     | 531,450             | 516         | 5.3       | 5.5       | 991           |
| 300              | 165,256                     | 520,360             | 524         | 5.4       | 5.6       | 1,006         |
| 325              | 161,262                     | 508,030             | 533         | 5.4       | 5.7       | 1,023         |
| 350              | 157,886                     | 497,625             | 540         | 5.5       | 5.8       | 1,038         |
| 375              | 153,909                     | 485,254             | 549         | 5.6       | 5.9       | 1,055         |
| 400              | 150,509                     | 474,732             | 557         | 5.7       | 5.9       | 1,070         |
| 450              | 142,145                     | 448,918             | 576         | 5.9       | 6.2       | 1,107         |
| 500              | 134,415                     | 425,084             | 595         | 6.0       | 6.4       | 1,142         |

## Conclusion and Recommendations

In the opinion of Excellon and SRK, the Mineral Resource estimate and mine plan summarized herein have received appropriate geological and engineering consideration to be included in this technical report in compliance with NI 43-101 guidelines. A Mineral Resource has been reported and the mine plan based on this Mineral Resource can be used to guide mine production as the operation progresses with its major dewatering program and transitions from room and pillar to cut and fill mining methods.

SRK is not aware of any significant risks and uncertainties that could be expected to affect the reliability or confidence in the information discussed herein.

SRK recommends that the following work to be performed at the Platosa mine:

- Continue with the program of tightly spaced definition drilling within and around mantos ahead of production, with the aim to reduce the drill spacing ahead of mine workings to 10–15 metres.
- Continue to implement current QA/QC program as recommended by ASL, including routine umpire sampling of five percent of samples to be analyzed by an external laboratory.
- Continued regional exploration of the greater 21,000-hectare land package: with limited exploration done since 2014, multiple targets and areas at surface remain un-drilled, unmapped, and unsampled.
  - To support this regional exploration, SRK recommends continuing the practice of ranking and evaluating individual exploration targets based on merit of structure, geochemistry, stratigraphy, and geophysical response, where available.
- Developing a simple method of reconciling mineral resources to production by using stope shapes and face sampling data.
- Continue the dewatering ahead of production, allowing for the transition to pillarless and cut and fill mining which, in SRK's opinion, will be a much more efficient mining method.

- Continued investigation of geotechnical conditions of mineralized pillars to allow for safe extraction.

It is anticipated that most of the recommended work for Platosa will be covered by standard operational mine budgets. The cost of the 2018 to 2019 regional exploration program is however anticipated to cost \$8,575,000, inclusive of target generation, geophysics, consulting fees, land holding costs and drilling.

# Table of Contents

|  |            |
|--|------------|
| <b>IMPORTANT NOTICE.....</b>   | <b>ii</b>  |
| <b>1 Executive Summary .....</b>   | <b>iii</b> |
| Introduction .....   | iii        |
| Property Description and Ownership .....   | iii        |
| Geology and Mineralization .....   | iv         |
| Exploration Status.....  | v          |
| Development and Operations .....   | v          |
| Mineral Resource Estimate.....   | vi         |
| Conclusion and Recommendations .....   | viii       |
| <b>Table of Contents .....</b>   | <b>x</b>   |
| <b>List of Tables .....</b>  | <b>xiv</b> |
| <b>List of Figures.....</b>  | <b>xvi</b> |
| <b>2 Introduction and Terms of Reference .....</b>                                       | <b>1</b>   |
| 2.1 Terms of Reference .....   | 2          |
| 2.2 Scope of Work .....  | 2          |
| 2.3 Work Program .....   | 2          |
| 2.4 Basis of Technical Report.....   | 3          |
| 2.5 Qualifications of SRK and SRK Team .....   | 3          |
| 2.6 Site Visit.....  | 4          |
| 2.7 Acknowledgement .....  | 4          |
| 2.8 Terminology .....  | 5          |
| 2.9 Declaration .....  | 5          |
| <b>3 Reliance on Other Experts.....</b>  | <b>6</b>   |
| <b>4 Property Description and Location.....</b>  | <b>7</b>   |
| 4.1 Mineral Tenure .....   | 8          |
| 4.2 Underlying Agreements .....  | 10         |
| 4.3 Permits and Authorization .....  | 11         |
| 4.4 Environmental Considerations.....  | 11         |
| 4.5 Mining Rights in Mexico.....   | 12         |
| <b>5 Accessibility, Climate, Local Resources, Infrastructure, and Physiography .....</b> | <b>13</b>  |
| 5.1 Accessibility .....  | 13         |
| 5.2 Local Resources.....   | 13         |
| 5.3 Climate .....  | 13         |
| 5.4 Physiography .....   | 13         |
| 5.5 Infrastructure .....   | 15         |
| <b>6 History .....</b>   | <b>16</b>  |
| 6.1 Previous Mineral Resource Estimates.....   | 18         |
| <b>7 Geological Setting and Mineralization.....</b>                                      | <b>19</b>  |
| 7.1 Regional Geology .....   | 19         |
| 7.2 Property Geology.....  | 19         |
| 7.3 Structural Setting .....   | 22         |
| 7.4 Stratigraphic Sequence and Magmatic History .....                                    | 23         |

|           |  |           |
|-----------|--|-----------|
| 7.5       | Mineralization .....   | 25        |
| <b>8</b>  | <b>Deposit Types .....</b>   | <b>29</b> |
| <b>9</b>  | <b>Exploration .....</b>   | <b>30</b> |
| 9.1       | Geological Mapping .....   | 32        |
| 9.2       | Soil Geochemistry .....  | 34        |
| 9.3       | Geophysical Surveys .....  | 36        |
| 9.3.1     | 2-D Induced Polarization .....                                       | 37        |
| 9.3.2     | Natural and Controlled-Source Audio Magnetotellurics .....           | 38        |
| 9.3.3     | Mise-à-la-Masse Survey .....   | 38        |
| 9.3.4     | Magnetic Survey .....  | 39        |
| 9.3.5     | Gravity Survey .....   | 39        |
| 9.3.6     | Borehole Pulse Electromagnetic Survey .....                          | 40        |
| 9.3.7     | Aerquest Airborne Electromagnetic (AEM) Survey .....                 | 40        |
| 9.3.8     | Geotech ZTEM Airborne Electromagnetic Survey .....                   | 40        |
| 9.3.9     | 3-D Induced Polarization Survey .....                                | 41        |
| 9.3.10    | Seismic Survey .....   | 41        |
| 9.3.11    | Compilation and Reprocessing .....                                   | 41        |
| <b>10</b> | <b>Drilling .....</b>  | <b>42</b> |
| 10.1      | Drill Core Sampling Method and Approach (2008–2018) .....            | 46        |
| 10.2      | Drilling Pattern and Density .....                                   | 46        |
| 10.3      | SRK Comments .....   | 46        |
| <b>11</b> | <b>Sample Preparation, Analyses, and Security .....</b>              | <b>47</b> |
| 11.1      | Sample Preparation and Analysis (1997–2005, Apex and Excellon) ..... | 47        |
| 11.2      | Sample Preparation and Analysis (2005–2008, Excellon) .....          | 47        |
| 11.3      | Sample Preparation and Analysis (2008–2018, Excellon) .....          | 47        |
| 11.4      | Sample Security .....  | 48        |
| 11.5      | Specific Gravity Data .....  | 49        |
| 11.6      | Quality Assurance and Quality Control Programs (2005–2007) .....     | 49        |
| 11.7      | Quality Assurance and Quality Control Programs (2007–2013) .....     | 50        |
| 11.8      | Quality Assurance and Quality Control Programs (2014–2018) .....     | 50        |
| 11.8.1    | Blanks .....   | 51        |
| 11.8.2    | Reference Materials .....  | 51        |
| 11.8.3    | Reproducibility of Laboratory Preparation and Pulp Duplicates .....  | 56        |
| 11.8.4    | Field Duplicates .....   | 56        |
| 11.8.5    | Check Assays .....   | 57        |
| 11.9      | ASL Comments .....   | 58        |
| <b>12</b> | <b>Data Verification .....</b>                                       | <b>59</b> |
| 12.1      | Verification by Excellon .....                                       | 59        |
| 12.2      | Verification by SRK .....  | 59        |
| 12.2.1    | Site Visit .....   | 59        |
| 12.2.2    | Verification of Analytical Quality Control Data .....                | 60        |
| <b>13</b> | <b>Mineral Processing and Metallurgical Testing .....</b>            | <b>61</b> |
| 13.1      | Background .....   | 61        |
| 13.2      | Metallurgical Testing .....  | 61        |
| 13.3      | Mineralogy .....   | 64        |
| 13.4      | Recovery Estimates .....   | 64        |
| 13.5      | Grindability .....   | 64        |
| 13.6      | Forecasting Metallurgical Performance .....                          | 65        |
| 13.7      | Deleterious Elements .....   | 65        |
| 13.8      | Metallurgical Research .....   | 65        |

|   |            |
|---|------------|
| <b>14 Mineral Resource Estimates</b>  | <b>66</b>  |
| 14.1 Introduction   | 66         |
| 14.2 Mineral Resource Estimation Methodology                                | 66         |
| 14.2.1 Resource Database  | 67         |
| 14.2.2 Geological Modelling   | 67         |
| 14.2.3 Specific Gravity   | 68         |
| 14.2.4 Compositing and Capping  | 69         |
| 14.2.5 Block Model Definition   | 70         |
| 14.2.6 Variography and Search Ellipsoid                                     | 72         |
| 14.2.7 Estimation Strategy  | 72         |
| 14.2.8 Block Model Validation   | 73         |
| 14.3 Mineral Resource Classification  | 75         |
| 14.4 Preparation of Mineral Resource Statement                              | 75         |
| 14.5 Reconciliation to Previous Mineral Resource Statement                  | 77         |
| <b>15 Mineral Reserve Estimates</b>   | <b>78</b>  |
| <b>16 Mining Methods</b>  | <b>79</b>  |
| 16.1 Mining Methods   | 80         |
| 16.2 Primary Access   | 81         |
| 16.3 Level Design   | 81         |
| 16.4 Material Handling  | 81         |
| 16.5 Ventilation  | 81         |
| 16.6 Backfill   | 82         |
| 16.7 Dewatering and Hydrology   | 82         |
| 16.8 Geotechnical Considerations  | 86         |
| 16.8.1 Stress Regime and Likely Failure Modes                               | 87         |
| 16.8.2 Support System   | 88         |
| 16.9 Mine Production Plan   | 88         |
| 16.10 Mobile Equipment  | 89         |
| <b>17 Recovery Methods</b>  | <b>90</b>  |
| 17.1 Mineral Processing   | 90         |
| 17.2 Crushing and Grinding  | 91         |
| 17.3 Lead Flotation   | 92         |
| 17.4 Zinc Flotation   | 92         |
| 17.5 Filtration   | 92         |
| 17.6 Metallurgical Laboratory   | 93         |
| <b>18 Project Infrastructure</b>  | <b>94</b>  |
| 18.1 Platosa Site   | 94         |
| 18.1.1 Site Access Roads  | 96         |
| 18.1.2 Product Loadout  | 96         |
| 18.1.3 Utilities  | 96         |
| 18.2 Miguel Auza Site   | 96         |
| <b>19 Market Studies and Contracts</b>                                      | <b>98</b>  |
| <b>20 Environmental Studies, Permitting, and Social or Community Impact</b> | <b>99</b>  |
| 20.1 Environmental Monitoring at Platosa                                    | 101        |
| 20.2 Environmental Monitoring at Miguel Auza                                | 101        |
| 20.3 Social Context at Platosa and Miguel Auza                              | 101        |
| 20.4 Tailings Management  | 102        |
| 20.5 Closure  | 103        |
| <b>21 Capital and Operating Costs</b>                                       | <b>104</b> |

|   |            |
|---|------------|
| 21.1 Capital Costs .....                            | 104        |
| 21.2 Operating Costs.....                           | 105        |
| <b>22 Economic Analysis.....</b>                    | <b>106</b> |
| <b>23 Adjacent Properties.....</b>                  | <b>107</b> |
| <b>24 Other Relevant Data and Information .....</b> | <b>108</b> |
| <b>25 Interpretation and Conclusions.....</b>       | <b>109</b> |
| 25.1 Mineral Resources.....                         | 109        |
| 25.2 Metallurgy and Mineral Processing .....        | 109        |
| 25.3 Mine Plan.....                                 | 109        |
| 25.4 Recovery Methods.....                          | 110        |
| 25.5 Infrastructure .....                           | 110        |
| <b>26 Recommendations .....</b>                     | <b>111</b> |
| 26.1 Costs  | 111        |
| <b>27 References .....</b>                          | <b>112</b> |
| <b>APPENDIX A .....</b>                             | <b>115</b> |

## List of Tables

|   |      |
|---|------|
| Table i: Mineral Resource Statement*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018 .....  | vii  |
| Table ii: Global Block Model Quantities and Grade Estimates* at Various Silver Equivalent Cut-Off Grades .....  | viii |
| Table iii: Qualified Persons Accepting Professional Liability for this Technical Report.....                    | 3    |
| Table 1: Mineral Tenure Information .....   | 8    |
| Table 2: Historical Production from Platosa Mine .....  | 18   |
| Table 3: Previous Mineral Resource Estimates – Platosa Property .....   | 18   |
| Table 4: Rock Geochemistry Sampling at Platosa Property .....   | 32   |
| Table 5: Mapping at Platosa Property .....  | 32   |
| Table 6: Soil Geochemistry Collected on Platosa Concession .....  | 34   |
| Table 7: Geophysical Surveys Conducted on the Platosa Concession .....  | 36   |
| Table 8: Drilling Summary by Area and by Year .....   | 43   |
| Table 9: Summary of Preparation and Assay Methods 2008–2018.....  | 48   |
| Table 10: Upper and Lower Limits for Four-Acid ICP Method 2008–2018 .....                                       | 48   |
| Table 11: Calculated Specific Gravity Values for Mantos at Platosa .....  | 49   |
| Table 12: Excellon In-House Reference Materials .....   | 52   |
| Table 13: ORE Research and Exploration Certified Reference Materials .....                                      | 52   |
| Table 14: Performance for Silver in Certified Reference Materials .....   | 52   |
| Table 15: Performance for Lead in Certified Reference Materials .....   | 52   |
| Table 16: Performance for Zinc in Certified Reference Materials .....   | 53   |
| Table 17: Summary of Quarter-Core Duplicate Results.....  | 56   |
| Table 18: Summary of ALS Check Assay Results .....  | 58   |
| Table 19: Mineral Resource Statement*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018 ..... | 66   |
| Table 20: Basic Statistics for All Mantos at Platosa Mine .....   | 70   |
| Table 21: Platosa Mine Block Model Specifications .....   | 70   |
| Table 22: Silver Variogram Parameters for Platosa Mine .....  | 72   |
| Table 23: Summary of Estimation Search Parameters for All Metals .....  | 73   |
| Table 24: Volume Estimated per Pass .....   | 73   |
| Table 25: Assumptions Considered for Underground Extraction .....   | 76   |
| Table 26: Mineral Resource Statement*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018 ..... | 76   |
| Table 27: Global Block Model Quantities and Grade Estimates at Various Silver-Equivalent Cut-Off Grades .....   | 77   |
| Table 28: Reconciliation Between 2014 and 2018 Mineral Resource Statements .....                                | 77   |
| Table 29: Infrastructure and Equipment for the Dewatering System .....  | 86   |

|   |     |
|---|-----|
| Table 30: RMR Classifications for Representative Geotechnical Domains ..... | 86  |
| Table 31: Rockmass Quality for Representative Geotechnical Domains.....     | 87  |
| Table 32: List of Mobile Equipment .....                                    | 89  |
| Table 33: Production Rates, Grades, and Recoveries .....                    | 90  |
| Table 34: Permits at Platosa.....   | 100 |
| Table 35: Permits at Miguel Auza.....                                       | 100 |
| Table 36: Capital Cost Estimate - Platosa Property .....                    | 104 |
| Table 37: Dewatering Project Phase 2 - Platosa Property .....               | 104 |
| Table 38: Cash Operating Cost and Estimated Cost for Mine Plan .....        | 105 |
| Table 39: 2018 to 2019 Exploration Budget for Platosa.....                  | 111 |



## List of Figures

|  |    |
|--|----|
| Figure 1: Location Map .....   | 7  |
| Figure 2: Land Tenure Map .....  | 10 |
| Figure 3: Typical Landscape in the Project Area.....   | 14 |
| Figure 4: Platosa Regional Targets .....   | 17 |
| Figure 5: Regional Geology of Platosa.....   | 20 |
| Figure 6: Property-Scale Structural Geology .....  | 21 |
| Figure 7: Structural and Deformation History of the Platosa Area .....   | 22 |
| Figure 8: General Stratigraphic Cross-Section of the Platosa Mine Area .....   | 24 |
| Figure 9: Main Manto Bodies at Platosa.....  | 26 |
| Figure 10: Typical Mineralized Faces at Rodilla Manto, Platosa Mine.....   | 27 |
| Figure 11: Regional Image with Rock Chip Sample Locations .....  | 31 |
| Figure 12: Mapping Areas by Campaign .....   | 33 |
| Figure 13: Distribution of Geochemical Surveys .....   | 35 |
| Figure 14: Distribution of Geophysical Surveys.....  | 37 |
| Figure 15: Surface Drillhole Location Summary by Year .....  | 45 |
| Figure 16: Specific Gravity Data Template .....  | 49 |
| Figure 17: Z-Score Chart for Silver by ICP and Fire Assay with Gravimetric Finish .....  | 53 |
| Figure 18: Z-Score Chart for Lead by ICP40B, 90Q and Titration .....   | 55 |
| Figure 19: Z-Score Chart for Zinc by ICP40B, 90Q and Titration.....  | 55 |
| Figure 20: Miguel Auza Mineral Processing Facility.....  | 63 |
| Figure 21: Grinding Work Index January 2017–March 2018.....  | 64 |
| Figure 22: Modelled Mantos and Underground Infrastructure – Plan View .....  | 68 |
| Figure 23: Summary of the Specific Gravity Database .....  | 69 |
| Figure 24: Assay Length within the Mantos.....   | 69 |
| Figure 25: Basic Statistics for Silver Data in Mineralized Mantos .....  | 71 |
| Figure 26: Silver Correlogram for Platosa Mine .....   | 72 |
| Figure 27: Validation of the Silver Block Estimates for the Mineralized Mantos, Domain 200, Pierna .....                             | 74 |
| Figure 28: Platosa Mine Long Section, Looking East.....  | 80 |
| Figure 29: Summary of Historical Flow Rates at Platosa .....   | 83 |
| Figure 30: Average Pumped Flow Rates per Periods, Drawdown, and Elevation of the Water Table<br>from August 2016 to March 2018 ..... | 85 |
| Figure 31: Ground Conditions Encountered at Platosa.....   | 87 |
| Figure 32: Flowsheet for the Miguel Auza Concentrator .....  | 91 |
| Figure 33: Flowsheet for Reagents Additions.....   | 93 |
| Figure 34: Map of Platosa Surface Infrastructure.....  | 95 |

Figure 35: Plan of Miguel Auza Surface Infrastructure.....97

## 2 Introduction and Terms of Reference

The Platosa project is an operating underground polymetallic silver-lead-zinc mine located in northeastern Durango State, Mexico, located approximately 45 kilometres north of the city of Torreón. The deposit consists of a series of high-grade carbonate-replacement deposits (CRD) occurring as mantos. Four main zones are currently mined (Rodilla, Pierna, Guadalupe South, and 623 mantos) with another two that are included in the mine plan and open to expansion (NE-1 and NE-1 south mantos). The 674 manto was discovered in 2017 and accounts for a small portion of the 2018 production.

The Platosa mine is 100 percent-owned and operated by Minera Excellon de Mexico S.A. de C.V., a wholly owned subsidiary of Excellon Resources Inc. (Excellon), a Canadian company listed on the TSX (symbol EXN) with its corporate office in Toronto, Ontario. Excellon is focused on optimizing the Platosa mine and on exploring the Platosa property as well as other properties for additional high-grade silver and CRD mineralization, related skarn, and epithermal silver mineralization. Underground development and mining at Platosa are carried out by Excellon employees using company-owned equipment. Exploration work at Platosa is managed and carried out by Excellon personnel with consultants being hired on an as-needed basis.

Through the acquisition of Silver Eagle Mines Inc. (Silver Eagle) in 2009, Excellon acquired the Miguel Auza property, located 220 kilometres south of Platosa in Zacatecas State. This property includes the historical (now closed) underground mine, an operating flotation mill, and a tailings management facility (TMF). Platosa mineralization is crushed on site in a two-stage crushing plant and transported to the Miguel Auza mill where it is processed by Excellon's wholly owned subsidiary, San Pedro Resources (SPR).

Several independent National Instrument 43-101 (NI 43-101) technical reports were prepared in the past for Platosa by other firms. Previous resource estimates for the Platosa project were released in technical reports dated (effective date of Mineral Resource Statement in parentheses) 2002, 2007 (2006), 2008 (2008), 2010 (2009), 2011(2011), 2014 (2013), and the most recent version, 2015 (2014), also described the results of a preliminary economic assessment (PEA) related to the dewatering of Platosa.

SRK is familiar with the Platosa property, having visited the site on two previous occasions in 2017.

These site visits resulted in the preparation of two technical memorandums documenting the structural geology of the Platosa mine (SRK 2017a), and a training program on structural geology and alteration (SRK 2017b). A desktop 3D Leapfrog compilation of the lithology and mineralization was also previously completed (SRK 2016).

SRK also visited the site in January and March 2018 to support the preparation of an independent NI 43-101 technical report, which is disclosed herein.

This report provides a summary of the current Platosa project, including the current Mineral Resource estimate as of the effective date of this report, and an updated mine plan. It also provides an update on the dewatering program implemented at Platosa, which was the subject of the 2015 technical report and PEA (Cox et al. 2015). This 2018 technical report was prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101) and Form 43-101F1.

## 2.1 Terms of Reference

In February 2018, SRK was retained by Excellon to provide technical support and collaboration, leading to a revised mineral resource statement for the Platosa mine and to support the update of Excellon's technical disclosure. This report is in compliance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

## 2.2 Scope of Work

The scope of work, as defined in a letter of engagement executed on February 16, 2018, between Excellon Resources Inc. (Excellon) and SRK Consulting (Canada) Inc. (SRK) includes the construction of a mineral resource model for the CRD silver-lead-zinc mineralization delineated by drilling on the Platosa project and the preparation of an independent technical report in compliance with NI 43-101 and Form 43-101F1 guidelines.

This work typically involves the assessment of the following aspects of this project:

- Topography, landscape, access
- Regional and local geology
- Exploration history
- Audit of exploration work carried out on the project
- Geological modelling
- Mineral resource estimation and validation
- Review of mine plan and planning processes
- Permitting, environmental and social aspects
- Preparation of a Mineral Resource Statement
- Recommendations for additional work

## 2.3 Work Program

This technical report, which is a collaborative effort between Excellon and SRK, documents the following significant updates since the 2015 technical report (Cox et al. 2015):

- Update of mineral resource estimate for the Platosa mine (Reported in the Excellon press release dated July 26, 2018)
- Update on the dewatering program implemented at Platosa, which was the subject of the 2015 Technical Report and PEA (Cox et al. 2015), and was reported in Excellon press release dated June 2, 2015)

SRK's mandate was to update the technical report to reflect the status of the Platosa mine as of March 31, 2018. This included geological modelling, resource estimation, mine planning, metallurgical recoveries, and environmental and social assessment. The assembly of the technical report and the technical work supporting its content were primarily undertaken in SRK's Sudbury, Saskatoon, and Toronto offices during the period of November 2017 to May 2018 and were supported by site visits by SRK personnel in January and March of 2018.

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

## 2.4 Basis of Technical Report

This report is based on information collected by SRK during site visits performed between April 24, 2017, and March 23, 2018, and on additional information provided by Excellon throughout the course of SRK's analysis. SRK conducted verifications to ensure the reliability of data collected by Excellon and has no reason to doubt the reliability of the information provided. Other information was obtained from the public domain. This report is based on the following sources of information:

- Discussions with Excellon personnel
- Previous technical reports prepared by other consulting groups
- Technical memorandums prepared by SRK personnel between 2016 and 2017
- Review of exploration data collected by Excellon
- Review of actual operations data provided by Excellon
- Additional information from public domain sources.

The following metal prices were used in this report: US\$17.00 per ounce silver, US\$1.10 per pound lead, US\$1.30 per pound zinc.

## 2.5 Qualifications of SRK and SRK Team

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

The mineral resource evaluation work and the compilation of this technical report was completed by Mr. Sébastien Bernier, PGeo (APGO #1847), of SRK in collaboration with Mr. Ben Pullinger, PGeo (APGO #2420), Senior Vice President Geology of Excellon; Mr. Denis Flood, PEng (PEO#100082766), Vice President Technical Services of Excellon; Ms. Chantal Jolette, PGeo (APGO #1518), Senior Geologist at Analytical Solutions Ltd.(ASL); Mr. Blair Hrabi, PGeo (APGO #1723), of SRK; Mr. Michael Selby, PEng (PEO #100083134), of SRK; and Mr. Mark Liskowich, PGeo (APEGGS #10005), of SRK. All individuals mentioned above (other than Mr. Pullinger and Mr. Flood, who are officers of Excellon) are independent Qualified Persons, as the term is defined in NI 43-101. Table iii tabulates the Qualified Persons responsible for each section of the technical report.

**Table iii: Qualified Persons Accepting Professional Liability for this Technical Report**

| Author                                   | Company  | Report Section(s)  |
|--|----------|--|
| Mr. Sébastien Bernier, PGeo (APGO #1847) | SRK      | 1,2,3,12,14.1, 14.2, 14.3,14.4, 24, 25,26, 27              |
| Blair Hrabi, PGeo (APGO #1723)           | SRK      | 1,7, 14.2.2  |
| Michael Selby, PEng (PEO #100083134)     | SRK      | 15,16,18,19,21,22,25,26                                    |
| Mark Liskowich, PGeo (APEGGS #10005)     | SRK      | 4.4, 20  |
| Chantal Jolette, PGeo (APGO #1518)       | ASL      | 11.1, 11.2, 11.3,11.6,11.7,11.8, 11.9, 12.2.2              |
| Ben Pullinger, PGeo (APGO #2420),        | Excellon | 1,4.1, 4.2, 4.3, 4.5, 5,6,9,10,11.4,11.5,14.5, 23,25,26,27 |
| Denis Flood, PEng (PEO#100082766)        | Excellon | 1,13,17  |

Mr. Glen Cole, PGeo, and Mr. Gary Poxleitner, PEng, reviewed deliverables from this assignment prior to delivery to Excellon.

## 2.6 Site Visit

In accordance with NI 43-101 guidelines, several members of the SRK team visited the Platosa mine and Miguel Auza between April 2017 and March 2018 to inspect the property, conduct field investigations, and hold discussions with Excellon site personnel.

Blair Hrabí visited the site from April 24 to 28, 2017 and was accompanied by Ben Pullinger of Excellon. Sebastien Bernier visited the Platosa mine from January 30 to 31, 2018 and was accompanied by Ben Pullinger and Denis Flood of Excellon. Michael Selby visited the Platosa mine from March 22 to 23, 2018 and was accompanied by Denis Flood. Mark Liskowich visited the Platosa mine and the Miguel Auza mill from March 15 to 16, 2018, accompanied by Denis Flood.

The main purpose of Mr. Hrabí's visit was to support the 3-D fault modelling for the mine and also to investigate the geological and structural controls on the distribution of the gold mineralization in order to aid the construction of three-dimensional gold mineralization domains.

The purpose of Mr. Bernier's site visit was to review the digitization of the exploration database and validation procedures, review exploration procedures, define geological modelling procedures, examine drill core, interview project personnel, and collect all relevant information for the preparation of an updated mineral resource model and the compilation of a technical report. During the visit, a particular attention was given to the treatment and validation of historical drilling data.

The purpose of Mr. Selby's site visit was to examine the status of the surface infrastructure and underground mine and determine the practicality of the proposed mine plan included in this technical report. Meetings were conducted with site and corporate personnel to review the current mine planning practice.

The purpose of Mr. Liskowich's site visit was to review the environmental and social management of both the mine and mill, interview project personnel and collect all relevant information for the preparation of the finalization of Section 20 of this technical report.

SRK was given full access to relevant data and conducted interviews with Excellon personnel to obtain information on the past exploration work, to understand procedures used to collect, record, store and analyze historical and current exploration data.

## 2.7 Acknowledgement

Principals and associates of SRK visited the site through 2017 and 2018 for the purposes of collaborating and providing technical assistance in various fields including structural geology, geochemistry, regional exploration, and training of the local team. Mr. Blair Hrabí, Mr. Sébastien Bernier, and Ms. Anna Fonseca of SRK all visited the site. Mr. Jean-François Ravenelle completed support work in collaboration with Excellon without visiting the site.

SRK would like to acknowledge the support and collaboration provided by Excellon personnel for this assignment; particularly that of Ronald Marino, Vice-President Finance for Excellon; Ben Pullinger, Senior Vice-President Geology; Denis Flood, Vice-President Technical Services; Craig Ford, Vice-President Corporate Responsibility; Rob Maynard, Database Manager; and Madeline

Stafford-Coyte, Geology Intern. Their collaboration was greatly appreciated and instrumental to the success of this project.

## 2.8 Terminology

This report quotes metric units of measure and currency in US dollars unless otherwise stated. Referenced mine grid elevations are in metres above sea level. The terms levels and elevations are used interchangeably to describe underground mining levels.

## 2.9 Declaration

SRK's opinion contained herein and effective **March 31, 2018**, is based on information collected by SRK throughout the course of SRK's investigations. The information in turn reflects various technical and economic conditions at the time of writing this report. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

This report may include technical information that requires subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, SRK does not consider them to be material. SRK is not an insider, associate, or an affiliate of Excellon and neither SRK nor any affiliate has acted as advisor to Excellon, its subsidiaries or its affiliates in connection with this project. The results of the technical review by SRK are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

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

SRK has not performed an independent verification of the land title and tenure information as summarized in section 3 of this report. SRK did not verify the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties, but has relied on Jose Enrique Rodriguez del Bosque, Excellon's solicitor in Mexico City, for a title opinion provided to Excellon on November 9, 2017. The reliance on this opinion applies to the legal status of Excellon's properties in Mexico as disclosed in Sections 4.1 and 4.2.

SRK relied on the opinion of Rupy Dhadwar and Ronald Marino, Excellon's Chief Financial Officer and Vice-President Finance, respectively, regarding certain aspects of the taxation regime in Mexico as well as guidance on royalties, other levies, and interests in the properties. This reliance extends to information disclosed in section 21.

SRK has been informed by Excellon that there is no material litigation affecting the assets of the Company.



## 4 Property Description and Location

The Platosa property is located in the northeast portion of the State of Durango, north-central Mexico, approximately 45 kilometres north of the city of Torreón, and five kilometres north of the village of Bermejillo (Figure 1). The centre of the deposit is located at latitude 25.9 degrees north and longitude -103.66 west (WGS84). The property consists of 80 mining concessions covering a total area of 20,969 hectares (Table 1 and Figure 2). These concessions, including fractional concessions, are 100 percent-owned by Excellon’s Mexican subsidiary Minera Excellon de Mexico, S.A. de C.V. Excellon reports all applicable concession rental payments and work commitments are up to date.

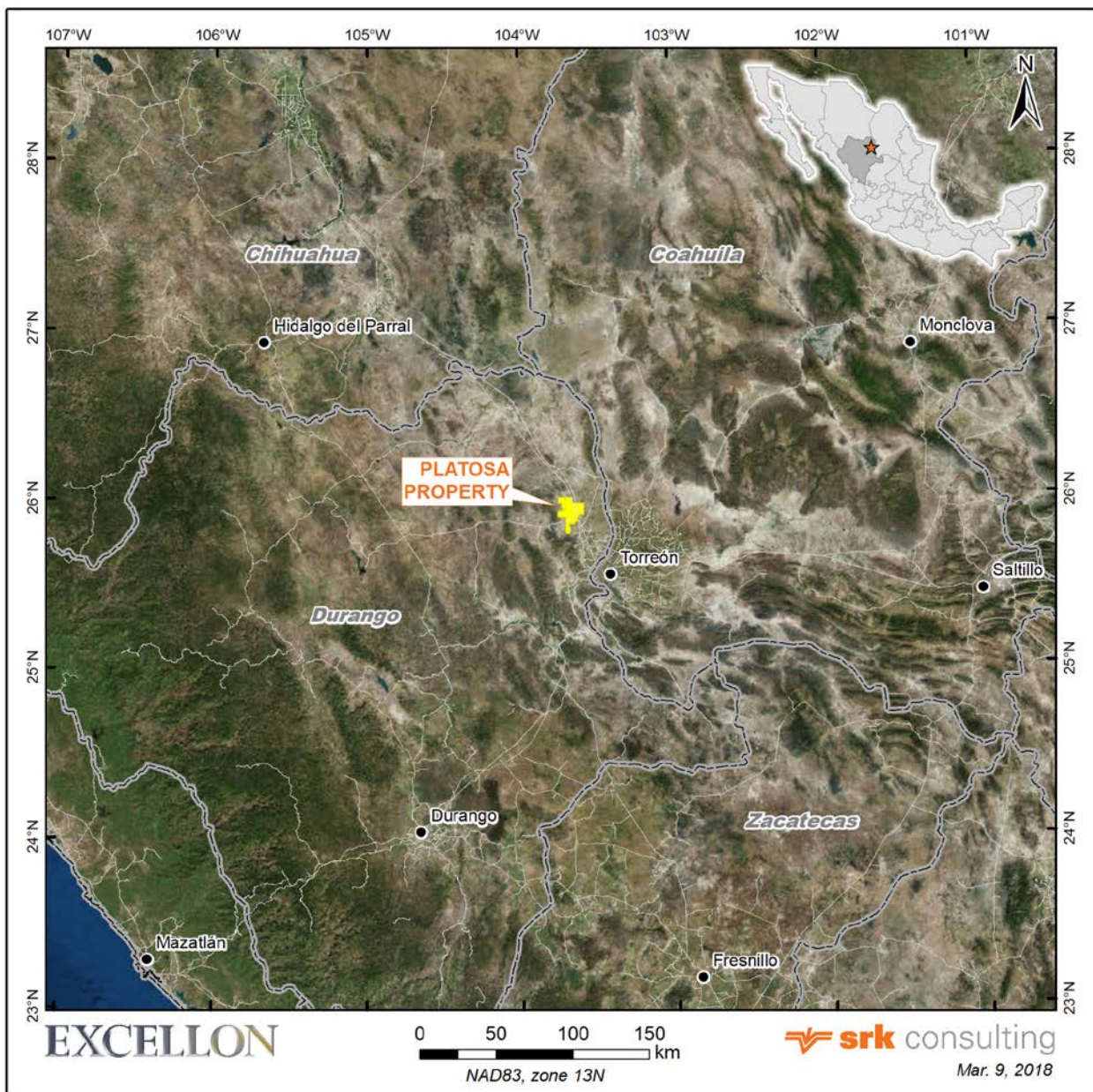


Figure 1: Location Map

## 4.1 Mineral Tenure

The Platosa property comprises 80 mining concessions totalling 20,969 hectares.

Mineral tenure details are listed in Table 1 and Figure 2.

**Table 1: Mineral Tenure Information**

|     | Title Name                   | Title Number | Title Valid |             | Area (ha) |
|-----|------------------------------|--------------|-------------|-------------|-----------|
|     |                              |              | From        | To          |           |
| 1   | La Platosa                   | 232467       | 15-Aug-2008 | 14-Aug-2058 | 19.8      |
| 2   | Ampliacion de La Platosa     | 232466       | 15-Aug-2008 | 14-Aug-2058 | 10.0      |
| 3   | 2a. Ampliacion de La Platosa | 232465       | 15-Aug-2008 | 14-Aug-2058 | 20.0      |
| 4   | 3a. Ampliacion de La Platosa | 232464       | 15-Aug-2008 | 14-Aug-2058 | 55.9      |
| 5   | 4a. Ampliacion de La Platosa | 144188       | 30-Sep-2015 | 29-Sep-2065 | 8.6       |
| 6   | 5a. Ampliacion de La Platosa | 143509       | 31-May-2015 | 30-May-2065 | 5.7       |
| 7   | 6a. Ampliacion de La Platosa | 146350       | 29-Sep-2016 | 28-Sep-2066 | 8.0       |
| 8*  | 7a. Ampliacion de La Platosa | 149264       | 16-Mar-1968 | 15-Mar-2018 | 10.0      |
| 9** | El Poeta                     | 207685       | 10-Jul-1998 | 9-Jul-2048  | 659.1     |
| 10  | El Poeta 1                   | 224509       | 17-May-2005 | 16-May-2055 | 63.2      |
| 11  | El Poeta 2                   | 209764       | 3-Aug-1999  | 2-Aug-2059  | 0.7       |
| 12  | El Poeta 3 Fraccion 1        | 211321       | 28-Apr-2000 | 27-Apr-2050 | 306.5     |
| 13  | El Poeta 3 Fraccion 2        | 211322       | 28-Apr-2000 | 27-Apr-2050 | 49.9      |
| 14  | El Poeta 3 Fraccion 3        | 211323       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 15  | El Poeta 3 Fraccion 4        | 211324       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 16  | El Poeta 3 Fraccion 5        | 211325       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 17  | El Poeta 3 Fraccion 6        | 211326       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 18  | El Poeta 3 Fraccion 7        | 211327       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 19  | El Poeta 3 Fraccion 8        | 211328       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 20  | El Poeta 3 Fraccion 9        | 211329       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 21  | El Poeta 3 Fraccion 10       | 211330       | 28-Apr-2000 | 27-Apr-2050 | 0.1       |
| 22  | El Poeta 3 Fraccion 11       | 211331       | 28-Apr-2000 | 27-Apr-2050 | 0.7       |
| 23  | El Poeta 3 Fraccion 12       | 211332       | 28-Apr-2000 | 27-Apr-2050 | 2.6       |
| 24  | El Poeta 3 Fraccion 13       | 211333       | 28-Apr-2000 | 27-Apr-2050 | 0.3       |
| 25  | El Poeta 3 Fraccion 14       | 211334       | 28-Apr-2000 | 27-Apr-2050 | 0.2       |
| 26  | El Poeta 4 Fraccion 1        | 210962       | 29-Feb-2000 | 28-Feb-2050 | 85.0      |
| 27  | El Poeta 4 Fraccion 2        | 210963       | 29-Feb-2000 | 28-Feb-2050 | 40.2      |
| 28  | El Poeta 4 Fraccion 3        | 210964       | 29-Feb-2000 | 28-Feb-2050 | 0.0       |
| 29  | El Poeta 4 Fraccion 4        | 210965       | 29-Feb-2000 | 28-Feb-2050 | 0.0       |
| 30  | El Poeta 4 Fraccion 5        | 210966       | 29-Feb-2000 | 28-Feb-2050 | 0.0       |
| 31  | El Poeta 5                   | 210989       | 29-Feb-2000 | 28-Feb-2050 | 298.6     |
| 32  | El Poeta 7 Fraccion 1        | 210876       | 28-Jan-2000 | 27-Jan-2050 | 4.3       |
| 33  | El Poeta 7 Fraccion 2        | 210877       | 28-Jan-2000 | 27-Jan-2050 | 22.8      |
| 34  | El Poeta 7 Fraccion 3        | 210878       | 28-Jan-2000 | 27-Jan-2050 | 0.3       |

\* Application for an extension was filed on October 27, 2017

\*\* This concession hosts the mineral resource

Table is continued on following page.

**Table 1: Mineral Tenure Information (Continued)**

|              | Title Name             | Title Number | Title Valid |             | Area (ha)     |
|--------------|------------------------|--------------|-------------|-------------|---------------|
|              |                        |              | From        | To          |               |
| 35           | El Poeta 10            | 213222       | 6-Apr-2001  | 5-Apr-2051  | 179.3         |
| 36           | El Poeta 11            | 213224       | 6-Apr-2001  | 5-Apr-2051  | 127.1         |
| 37           | El Poeta 12            | 213223       | 6-Apr-2001  | 5-Apr-2051  | 234.9         |
| 38           | Excelmex               | 208313       | 23-Sep-1998 | 22-Sep-2048 | 2713.1        |
| 39           | Fraccion Excelmex      | 210270       | 24-Sep-1999 | 23-Sep-2059 | 188.3         |
| 40           | Excelmex I             | 208692       | 11-Dec-1998 | 10-Dec-2048 | 58.4          |
| 41           | Excelmex II            | 208773       | 11-Dec-1998 | 10-Dec-2048 | 4219.0        |
| 42           | Bermejillo 1           | 224275       | 22-Apr-2005 | 21-Apr-2055 | 69.5          |
| 43           | Bermejillo 2           | 210967       | 29-Feb-2000 | 28-Feb-2050 | 60.0          |
| 44           | Leonel                 | 211024       | 22-Mar-2000 | 21-Mar-2050 | 7.4           |
| 45           | Leo                    | 211193       | 11-Apr-2000 | 10-Apr-2050 | 82.6          |
| 46           | Nick                   | 217248       | 2-Jul-2002  | 1-Jul-2052  | 505.5         |
| 47           | Excelmex III           | 227589       | 18-Jul-2006 | 17-Jul-2056 | 2531.9        |
| 48           | Excelmex IV Fraccion 1 | 227595       | 18-Jul-2006 | 17-Jul-2056 | 265.9         |
| 49           | Excelmex IV Fraccion 2 | 227596       | 18-Jul-2006 | 17-Jul-2056 | 46.6          |
| 50           | Excelmex V             | 229588       | 22-May-2007 | 21-May-2057 | 8.0           |
| 51           | Excelmex VI            | 232200       | 4-Jul-2008  | 3-Jul-2058  | 17.8          |
| 52           | Excelmex VII Fraccion  | 240346       | 23-May-2012 | 22-May-2062 | 73.5          |
| 53           | Excelmex VII           | 240345       | 22-May-2012 | 22-May-2062 | 1622.2        |
| 54           | Excelmex IX            | 241343       | 22-Nov-2013 | 21-Nov-2062 | 84.0          |
| 55           | Excelmex X             | 241579       | 30-Jan-2013 | 29-Jan-2063 | 1.3           |
| 56           | Venus Fraccion A       | 221452       | 13-Feb-2004 | 12-Feb-2054 | 240.8         |
| 57           | Venus 2                | 222506       | 20-Jul-2004 | 19-Jul-2054 | 1195.2        |
| 58           | Venus 3                | 223295       | 25-Nov-2004 | 24-Nov-2054 | 2308.0        |
| 59           | Venus 6                | 224274       | 22-Apr-2005 | 21-Apr-2055 | 25.0          |
| 60           | Cordero III            | 223855       | 25-Feb-2005 | 24-Feb-2055 | 188.6         |
| 61           | Galinga                | 223777       | 15-Feb-2005 | 14-Feb-2055 | 1.7           |
| 62           | Santa Julia            | 223781       | 15-Feb-2005 | 14-Feb-2055 | 31.9          |
| 63           | Venado III             | 226034       | 15-Nov-2005 | 14-Nov-2055 | 11.7          |
| 64           | Cordero III            | 211351       | 28-Apr-2000 | 27-Apr-2050 | 239.8         |
| 65           | Cordero III            | 211352       | 28-Apr-2000 | 27-Apr-2050 | 88.6          |
| 66           | Venado III             | 210900       | 27-Jan-2000 | 26-Jan-2050 | 49.4          |
| 67           | Casualidad             | 212312       | 29-Sep-2000 | 28-Sep-2050 | 14.8          |
| 68           | Venado III             | 212841       | 31-Jan-2001 | 30-Jan-2051 | 20.7          |
| 69           | La Navidad             | 204827       | 13-May-1997 | 12-May-2047 | 13.7          |
| 70           | Esperanza              | 214041       | 7-Aug-2001  | 6-Aug-2051  | 25.8          |
| 71           | Bonanza                | 214175       | 10-Aug-2001 | 9-Aug-2051  | 28.0          |
| 72           | Zorra                  | 226033       | 15-Nov-2005 | 14-Nov-2055 | 10.0          |
| 73           | La Sierrita            | 216552       | 17-May-2002 | 16-May-2052 | 60.0          |
| 74           | Reduccion Venux        | 245949       | 20-Dec-2017 | 3-Jul-2058  | 1615.7        |
| 75           | Venux Fraccion Uno     | 232187       | 4-Jul-2008  | 3-Jul-2058  | 8.6           |
| 76           | Excelmex XI            | 245205       | 8-Nov-2016  | 7-Nov-2066  | 13.2          |
| 77           | Excelmex XII           | 245206       | 8-Nov-2016  | 7-Nov-2066  | 0.8           |
| 78           | Excelmex XIII          | 245207       | 8-Nov-2016  | 7-Nov-2066  | 4.2           |
| 79           | Excelmex XIV           | 245208       | 8-Nov-2016  | 7-Nov-2066  | 0.1           |
| 80           | Excelmex XV            | 245209       | 8-Nov-2016  | 7-Nov-2066  | 3.0           |
| <b>Total</b> |                        |              |             |             | <b>20,969</b> |

\* Application for an extension was filed on October 27, 2017

\*\* This concession hosts the mineral resource



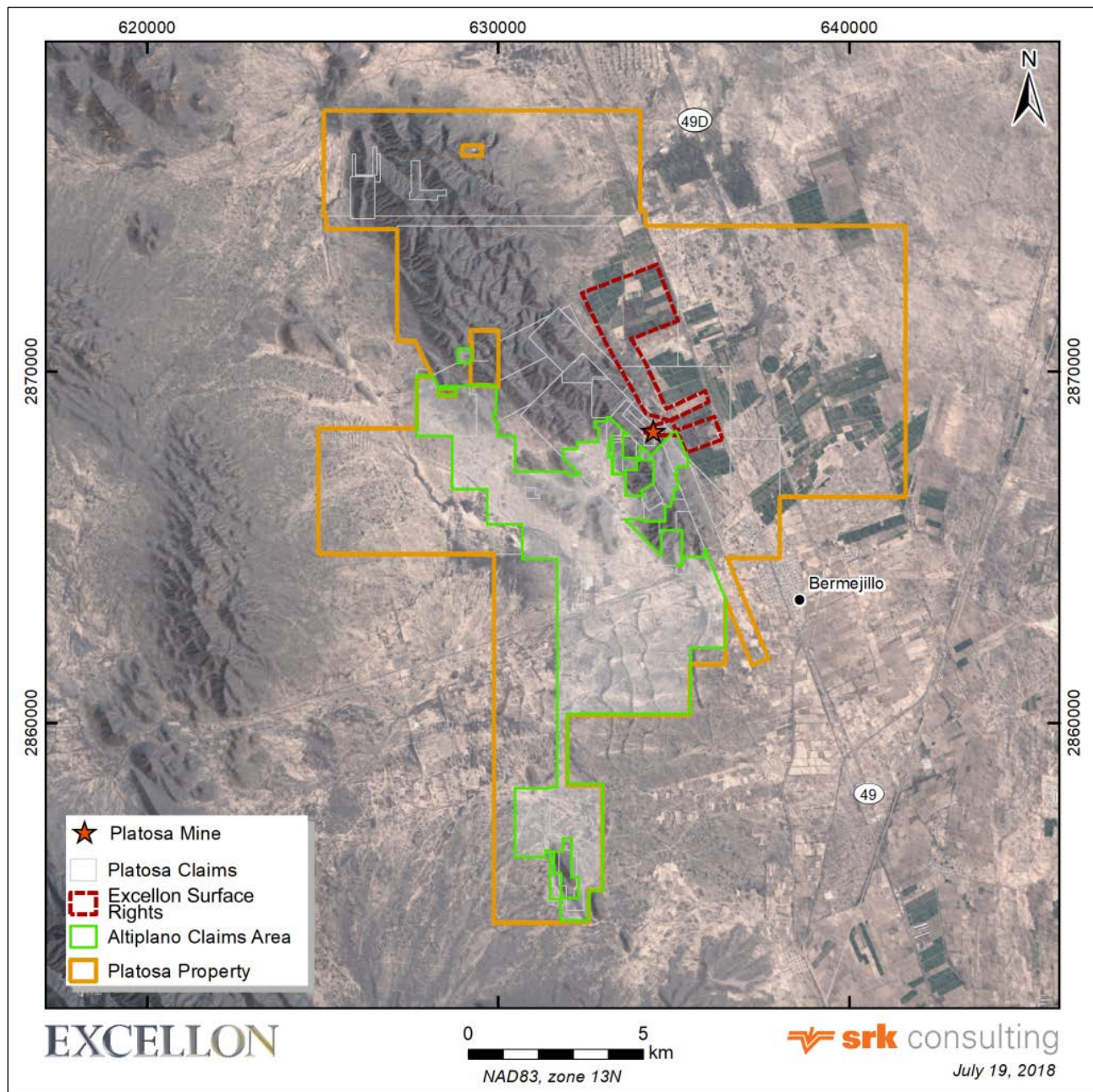


Figure 2: Land Tenure Map

## 4.2 Underlying Agreements

Excellon acquired the property hosting the historical Platosa mine from a local family in 1997. In 2000 Excellon acquired surface rights for ground around the mine totalling 240 hectares. Excellon staked the surrounding Excelmex and Poeta concessions in 2004. At approximately the same time, Apex Silver (Apex) staked the Saltillera property. In 1998 Apex optioned the Platosa property from Excellon. Excellon participated to some extent in the Apex exploration programs and reassumed control of the project in 2001 and has continued the exploration work as the sole operator since then.

All concessions are subject to an aggregate Net Smelter Return (NSR) payable to various holders in the amount of either i) 1.25 percent for manto massive sulphide mineralization or ii) 0.5 percent for skarn mineralization. In addition, the concessions comprising the Altiplano Area (19 concessions totalling 6,155 hectares, none of which currently contain mineral resources) are subject to a 3 percent NSR payable to Exploraciones de Altiplano, S.A. de C.V., a private Mexican company.

### **4.3 Permits and Authorization**

Platosa operates under permits issued by the Government of Mexico.

Surface rights in Mexico are commonly owned either by communal agricultural groups (ejidos) or by private owners. The surface rights underlying the Platosa mineral concessions are owned by a combination of private owners and ejidos. In both cases, the mining concessions include access easement rights, although in many cases it is necessary to negotiate access to the land with individual owners or communities. Federal or state laws allow permission to access federal or state lands without other requirements, as mining concessions in Mexico are federal grants. The Mexican mining law includes provisions to facilitate purchasing land required for mining activities, installations and development.

Excellon owns surface rights totalling 681.8 hectares, which include the area of the mine site and exploration areas south, east, and north of the Platosa Mine. These surface rights provide sufficient surface area for all anticipated surface infrastructure. No other formal agreements for surface rights are currently in place, but Excellon has informal arrangements with various local farmers, landowners, and ejidos to access their ground for exploration purposes. In due course, Excellon may formalize these arrangements for more advanced exploration purposes.

### **4.4 Environmental Considerations**

A more detailed discussion on the environmental and social aspects at Platosa and Miguel Auza can be found in Section 20 of this report. The small footprint of facilities at both Platosa and Miguel Auza means that environmental impacts are relatively few and of modest significance.

Platosa operates under permits issued by the Government of Mexico. The significant environmental aspects at Platosa are water management; handling, storage and disposal of solid and hazardous waste; and the storage and handling of petroleum and other chemicals. Water from the underground workings is pumped to surface, stored temporarily in surface water storage facilities and then distributed by pipeline and canals to third-party users who use the water to irrigate agricultural lands west of Platosa. Solid and hazardous waste generated on site is segregated, stored, and disposed of according to its characteristics, as prescribed by Mexican legal requirements. Petroleum and other chemicals used on site are stored in fit-for-purpose facilities before distribution to end-use locations.

The primary liabilities at Platosa relate to the presence of buildings and other facilities used to support mineral extraction from the underground mine.

The Miguel Auza concentrator and associated facilities are operated under permits issued by the Government of Mexico. The significant environmental aspects at Miguel Auza are mine waste and associated water management and discharge; emissions to air; the handling, storage and disposal of solid and hazardous waste; and storage and handling of chemicals. Tailings from the Miguel Auza concentrator are discharged by gravity pipeline to tailings management facility (TMF) #2, with water recycled back to the concentrator. Miguel Auza is in the process of developing a tailings

management system and an Operations, Maintenance, and Surveillance manual that meet the requirements of the Mining Association of Canada's guide pertaining to tailings management.

The primary liabilities at Miguel Auza relate to the presence of buildings and other facilities used to support metal concentrate production, the former Miguel Auza ramp and associated waste storage area, and TMF #1 and TMF #2. TMF #1 has been decommissioned and is in the preliminary stages of closure.

## 4.5 Mining Rights in Mexico

Mining and exploration rights in Mexico are controlled by the Federal Government. Prior to 2006, exploration and mining rights were assigned to private Mexican individuals and companies incorporated under Mexican laws, including those companies fully financed by foreign investment, by the granting of "exploration" and "exploitation" concessions, each with differing validity periods and tax and assessment obligations.

The mining law reform of December 2005 simplified the concession regime, and all new concessions are now "mining concessions", which are valid for a 50-year period and are renewable for an additional 50-year period. Upon enactment of the mining law reform, all previously issued "exploration" and "exploitation" concessions were automatically converted to "mining concessions" without changing the effective date of the title.

The mining concessions are administered by the Dirección General de Minas (DGM), a sub-secretariat of the Subsecretaría de Minería under the cabinet-level Secretaría de Economía. To maintain concessions in good legal standing, concession holders are obligated to pay semi-annual tax payments and to file annual documentation of exploration or development work (a minimum investment as provided in applicable Mexican mining legislation) on the concession. Concession holders are also obligated to file production reports for statistical purposes. Both the semi-annual tax and the minimum investment increase each year in accordance with rates published by the Mexican Government: the older the mining concession, the higher the tax payable and the amount to be invested. When the concessions are in their 7<sup>th</sup> year of issuance or greater, the amount to be invested reaches the maximum rate applicable; when the concessions are in their 11<sup>th</sup> year of issuance or greater, the amount of payable taxes reaches the maximum rate applicable.

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

### **5.1 Accessibility**

The Platosa property is located in northeastern Durango State, 45 kilometres north of the city of Torreón, an industrial centre of more than one million people when combined with the adjacent cities of Gomez Palacio and Lerdo. The Torreón International Airport is serviced by several daily non-stop flights to and from Mexico City and the United States. The property is approximately a one-hour drive from the airport via Mexico Highway 49, which is a major north-south trucking route through Mexico to the United States. Rail and power transmission lines run parallel to the highway, and the entire project area, located two kilometres from Highway 49, is easily accessible year-round.

### **5.2 Local Resources**

The town of Bermejillo (population 9,149 (2010)) is five kilometres south of the Platosa mine and serves as a source of basic services, supplies, and labour. Excellon maintains several residences and a kitchen in Bermejillo for the use of employees who live in distant centres. Torreón is the major supply centre in the region. Industrias Peñoles, the second-largest mining company in Mexico and the world's largest producer of refined silver, owns a lead smelter and zinc and silver refineries in Torreón.

### **5.3 Climate**

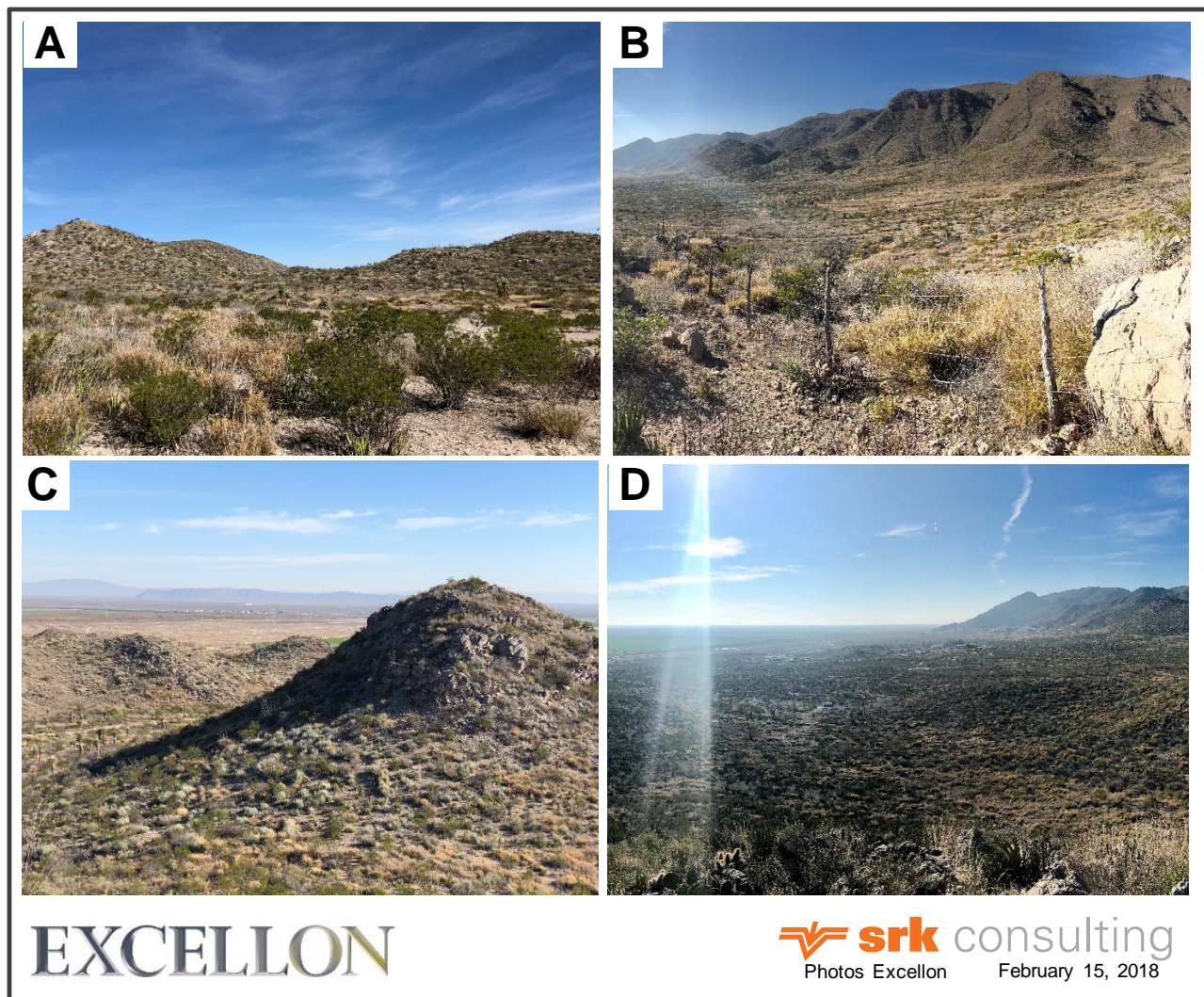
The climate of the region is warm and dry, and vegetation comprises mesquite trees, desert scrub, and cactus. The mean annual temperature in the area is 22.0 degrees Celsius, and the monthly means range from 14.4 degrees Celsius in January to 28.1 degrees Celsius in July. The average annual rainfall measured at Torreón is 265.9 millimetres. Mine production and mineral exploration, including drilling, can be carried out year-round.

### **5.4 Physiography**

The Platosa property is located at the southeastern edge of the Sierra Bermejillo, a mountain range extending to the northwest up to 14 kilometres from the mine area. The current resource, mine, and related facilities are located 200 metres east of the rugged Sierra Bermejillo, on flat and sloping terrain (Figure 3). Elevations on the plains are at 1,200 metres above sea level, increasing to 1,500 metres above sea level in the mountains for local vertical relief of approximately 300 metres.

Agriculture is the main industry in the immediate area of the mine, where farmers cultivate crops such as maize and alfalfa for consumption by the regional animal husbandry industry. Industrial-scale cattle and poultry operations are also present in the area. Large ranches and farms surround the mine on the east side of the Sierra Bermejillo where large expanses of arable ground are irrigated with mine-generated water. On the western side of the Sierra Bermejillo, the land is used for ranching and is mostly arid with no organized cultivation.





**Figure 3: Typical Landscape in the Project Area**

A: Typical scenery of Halcon area in Platosa Structural Zone, north of the Platosa Mine

B: Aguila area vegetation looking west

C: Altered hills above PDN target area

D: View looking south from PDN toward Platosa Mine



## 5.5 Infrastructure

The Platosa mine site and mine-related facilities include the following infrastructure:

- Surface facilities include offices, shops, compressors, fuel storage, electric substations, standby generators, crushing and stockpile facilities, portal, ventilation fans, run-of-mine (ROM) storage, underground and surface water settling ponds, diamond drill core logging and storage facilities, and dry facilities.
- Facilities providing basic infrastructure to the mine include well-maintained gravel roads that access the site as well as a network of roads that service the various ancillary facilities and electric power distribution.
- Underground infrastructure includes ramps, raises, ventilation/service raises, explosives magazines, dewatering pumps, and underground mobile equipment fleet.
- Access is provided by paved highway and gravel roads to the company-owned mill at Miguel Auza.
- Grid electric power supply to the site.

## 6 History

Limited and small-scale mining has been conducted in the area prior to the 1960s, although no records of the early history of prospecting and mining in the Platosa area are known to exist. Small-scale mining was carried out at Platosa sporadically from that period up to the 1970s by a local family. Production from Platosa prior to 1970 is estimated to be in the range of 25,000 to 50,000 tonnes even though production records are poor. Smelter sheets from the 1970s quote grades of 0.35 to 1.75 grams of gold per tonne (g/t gold), 3,000 to 3,750 g/t silver, 30 to 40 percent lead, and 2 to 12 percent zinc. Mining at the nearby Saltillera, Zorra, Socorro, and Refugio targets was reportedly carried out up to the 1960s, but no detailed records of this production are known to exist. Small-scale mining of celestite for strontium was also carried out in the area (Figure 4).

Excellon acquired the concession hosting the historical Platosa mine in 1997 and staked the surrounding Excelmex and Poeta concessions in 2004. At approximately the same time, Apex Silver (Apex) staked the adjacent Saltillera property. Both companies conducted reconnaissance mapping and sampling through 1997. In 1998, Apex optioned the Platosa property from Excellon.

Apex carried out mapping and geochemical sampling through 1998, and in 1999 embarked on diamond drilling programs at both Saltillera (total of 842 metres) and Platosa (total of 2,604 metres). The drilling at Platosa led to the discovery of a sulphide body to the east of the old mine workings. In 1999, Apex carried out a controlled source audio-frequency magnetotelluric (CSAMT) survey and an orientation soil gas mercury sampling program. In 2000, Apex drilled an additional 1,050 metres at Platosa and 188 metres at Saltillera.

Excellon participated to some extent in the Apex exploration programs and reassumed control of the project in 2001 and continued the exploration work. Additional exploration work conducted by Excellon is described in Section 9, Exploration.

Between the commencement of production in June 2005 and January 31, 2009, when a pre-existing sale and purchase contract expired, a total of 153,478 tonnes averaging 1,258 g/t silver, 10.22 percent lead, and 10.69 percent zinc were sold to Minera Maple S.A. de C.V., a subsidiary of Peñoles.

In March 2009, following the acquisition of Silver Eagle Mines, Excellon began processing the Platosa mineralization at the Miguel Auza mill. Between March 19, 2009, and December 31, 2014, a total of 364,036 tonnes grading 788 g/t silver, 6.66 percent lead, and 8.93 percent zinc were processed at the Miguel Auza mill. Total milled production from Platosa from start-up in June 2005 to December 31, 2014, was therefore 517,514 tonnes at an average grade of 928 g/t silver, 7.71 percent lead, and 9.45 percent zinc. A summary of historical milling production is presented in Table 2.

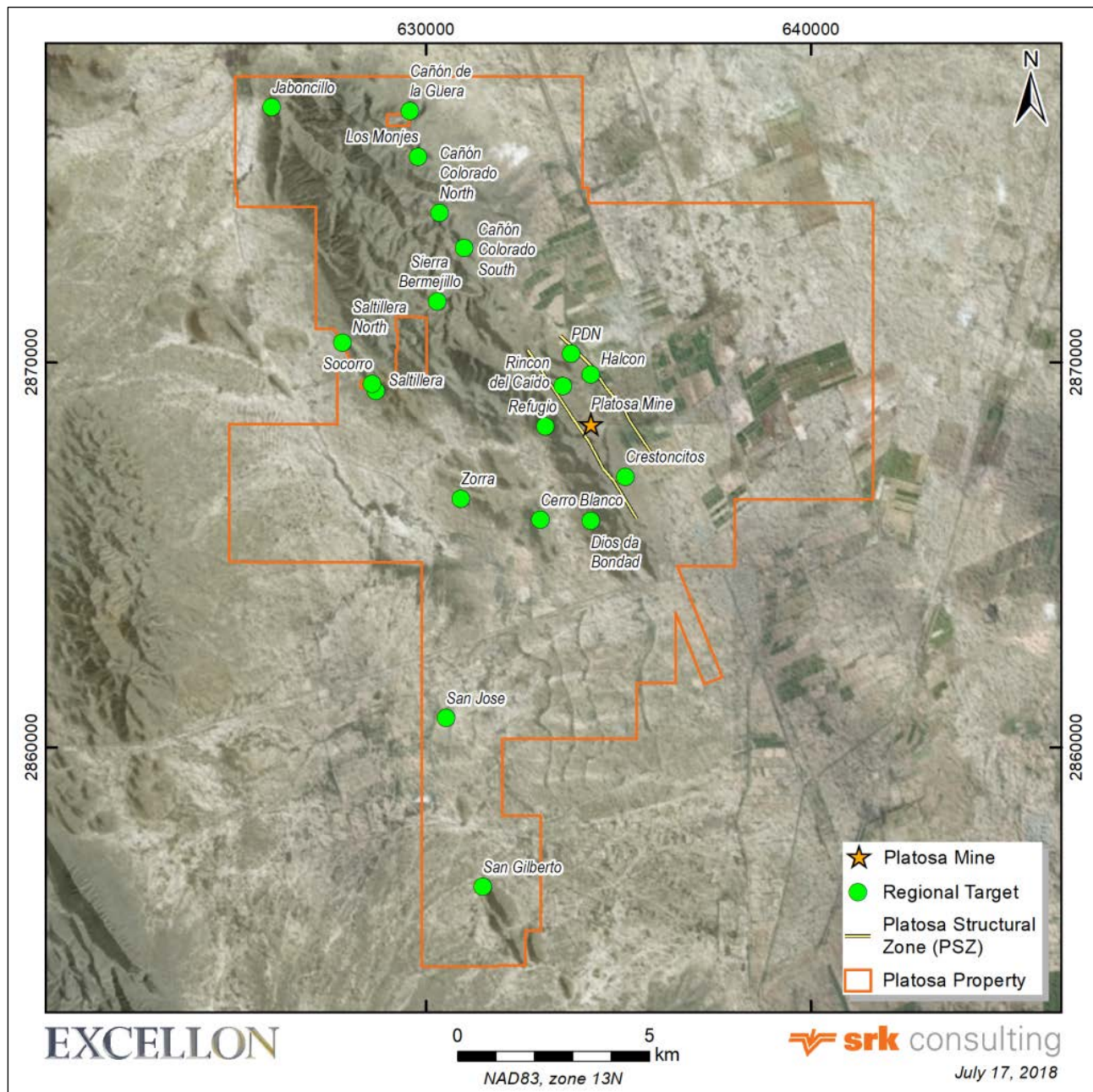


Figure 4: Platosa Regional Targets

**Table 2: Historical Production from Platosa Mine**

| Tonnes Shipped*   |        | Grade    |        |        |
|-------------------|--------|----------|--------|--------|
| Year              | Tonnes | Ag (g/t) | Pb (%) | Zn (%) |
| 2006              | 44,413 | 1,198    | 11.20  | 13.1   |
| 2007              | 45,691 | 1,593    | 10.20  | 8.9    |
| 2008              | 44,946 | 1,023    | 9.90   | 11.0   |
| Tonnes Processed+ |        | Grades   |        |        |
| Year              | Tonnes | Ag (g/t) | Pb (%) | Zn (%) |
| 2009              | 43,922 | 1,114    | 8.90   | 8.86   |
| 2010              | 64,462 | 814      | 6.37   | 7.68   |
| 2011              | 59,405 | 796      | 6.24   | 9.17   |
| 2012              | 48,199 | 846      | 6.75   | 11.81  |
| 2013              | 69,862 | 718      | 6.14   | 8.00   |
| 2014              | 64,206 | 603      | 6.57   | 8.90   |
| 2015              | 56,849 | 491      | 4.56   | 7.20   |
| 2016              | 55,593 | 456      | 4.40   | 5.70   |
| 2017              | 57,165 | 393      | 3.75   | 5.30   |

\* Mineralization processed by Maple, subsidiary of Peñoles

+ Mineralization processed at Miguel Auza

## 6.1 Previous Mineral Resource Estimates

Since production commenced in 2005, six resource estimates have been completed, with the latest in dated December 31, 2014, by Roscoe Postle Associates (RPA) Toronto (Cox et al. 2015). The details and results of these estimates are listed in Table 3.

**Table 3: Previous Mineral Resource Estimates – Platosa Property**

| Year of Effective Date | Category        | Tonnage | Ag (g/t) | Pb (%) | Zn (%) | AgEq (g/t) |
|------------------------|-----------------|---------|----------|--------|--------|------------|
| 2006                   | Total Measured  | 184,500 | 1,546    | 10.9   | 10.5   | NA         |
|                        | Total Inferred  | 8,200   | 777      | 5.5    | 11.3   | NA         |
| 2008                   | Total Indicated | 417,000 | 1,060    | 9.31   | 9.79   | NA         |
|                        | Total Inferred  | 72,900  | 758      | 9.19   | 9.69   | NA         |
| 2009                   | Total Indicated | 579,000 | 909      | 9.09   | 10.51  | NA         |
|                        | Total Inferred  | 160,000 | 731      | 7.44   | 7.57   | NA         |
| 2011                   | Total Measured  | 88,000  | 1,064    | 9.14   | 11.99  | 878.84     |
|                        | Total Indicated | 549,000 | 800      | 8.92   | 10.36  | 660.54     |
|                        | Total M+I       | 637,000 | 836      | 8.95   | 10.58  | 691.73     |
|                        | Total Inferred  | 69,000  | 1,011    | 11.35  | 11.34  | 836.31     |
| 2013                   | Total Measured  | 42,000  | 825      | 8.62   | 11.31  | 1,108.00   |
|                        | Total Indicated | 443,000 | 772      | 8.4    | 10.05  | 1,270.00   |
|                        | Total M+I       | 484,000 | 777      | 8.42   | 10.15  | 1,277.00   |
|                        | Total Inferred  | 3,000   | 2,324    | 16.93  | 1.74   | 2,922.00   |
| 2014                   | Total Measured  | 28,000  | 781      | 7.85   | 11.52  | 1,305.00   |
|                        | Total Indicated | 400,000 | 785      | 8.31   | 9.77   | 1,248.00   |
|                        | Total M+I       | 428,000 | 760      | 8.28   | 9.88   | 1,252.00   |
|                        | Total Inferred  | 4,000   | 2,027    | 14.65  | 2.2    | 2,492.00   |

## 7 Geological Setting and Mineralization

### 7.1 Regional Geology

Platosa is a carbonate-replacement silver-lead-zinc mine located in the Oaxaquia terrane of Gondwanic affinity (Figure 5). Oaxaquia has a basement of Proterozoic gneiss which is unconformably overlain by Paleozoic terrestrial siliciclastic and metamorphosed submarine volcanic arc rocks, which are in turn overlain by Triassic siliciclastic rocks.

The older sequences of Oaxaquia's Late Jurassic to Late Cretaceous supracrustal assemblage of carbonate and calcareous siliciclastic rocks are intruded by Late Jurassic rift-related rhyolite-andesitic continental magmatic rocks of the Nazas arc. The Nazas arc records opening of the Atlantic Ocean throughout Oaxaquia's north-south elongate axis (SRK 2017b).

### 7.2 Property Geology

*This section is modified from Cox et al. (2015).*

The Platosa property lies in the Sierra Bermejillo, a northwest-trending anticline-syncline pair developed in Mesozoic sedimentary rocks (Figure 6). The Sierra Bermejillo Anticline is a relatively open fold that plunges to the southeast. The Saltillera Syncline is a doubly plunging structure located west of the anticline. The folded sequence is cut by a set of north- to northwest-striking, steeply dipping fractures and faults. Tertiary felsic to intermediate dykes and plutons intrude these structures in the western part of the Sierra Bermejillo.

The principal fault system in the property area is the Platosa Structural Zone (PSZ), a 250 to 1,500-metre-wide northwest-trending zone of fracturing and shearing that traverses the eastern margin of the Sierra Bermejillo. The PSZ includes a series of fault planes that strike north-northwesterly and dip steeply east; it has been mapped along strike for five kilometres northwest and southeast of the Platosa mine (Megaw 2002). It is characterized by brecciated, crushed, and dolomitized limestone; slickenside fracture surfaces; iron and manganese oxides; travertine-filled breccias; and coarsely crystalline selenite veins, some up to five metres thick. The faulted rocks weather recessively and create a negative topographic expression of the PSZ.

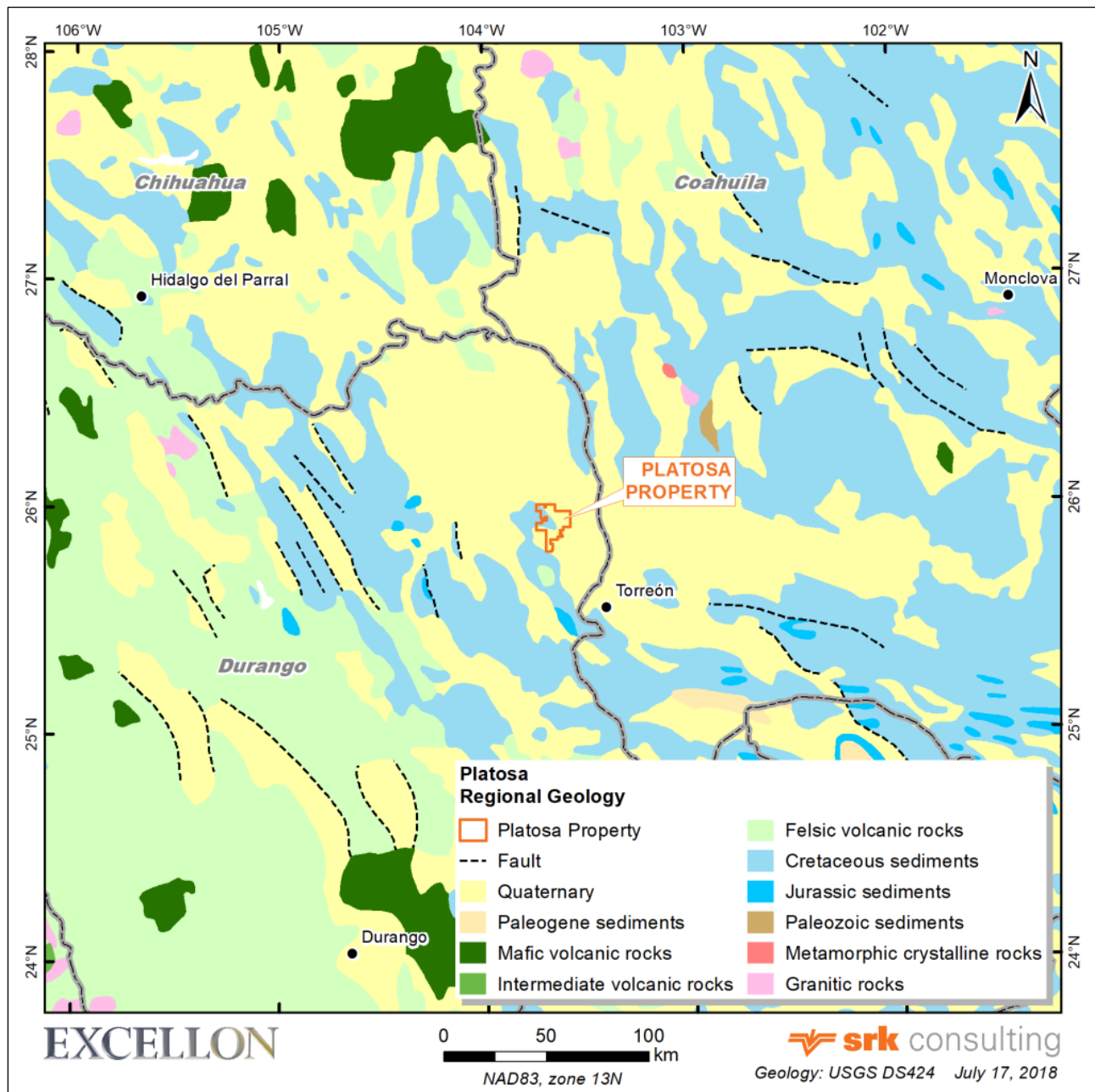


Figure 5: Regional Geology of Platosa



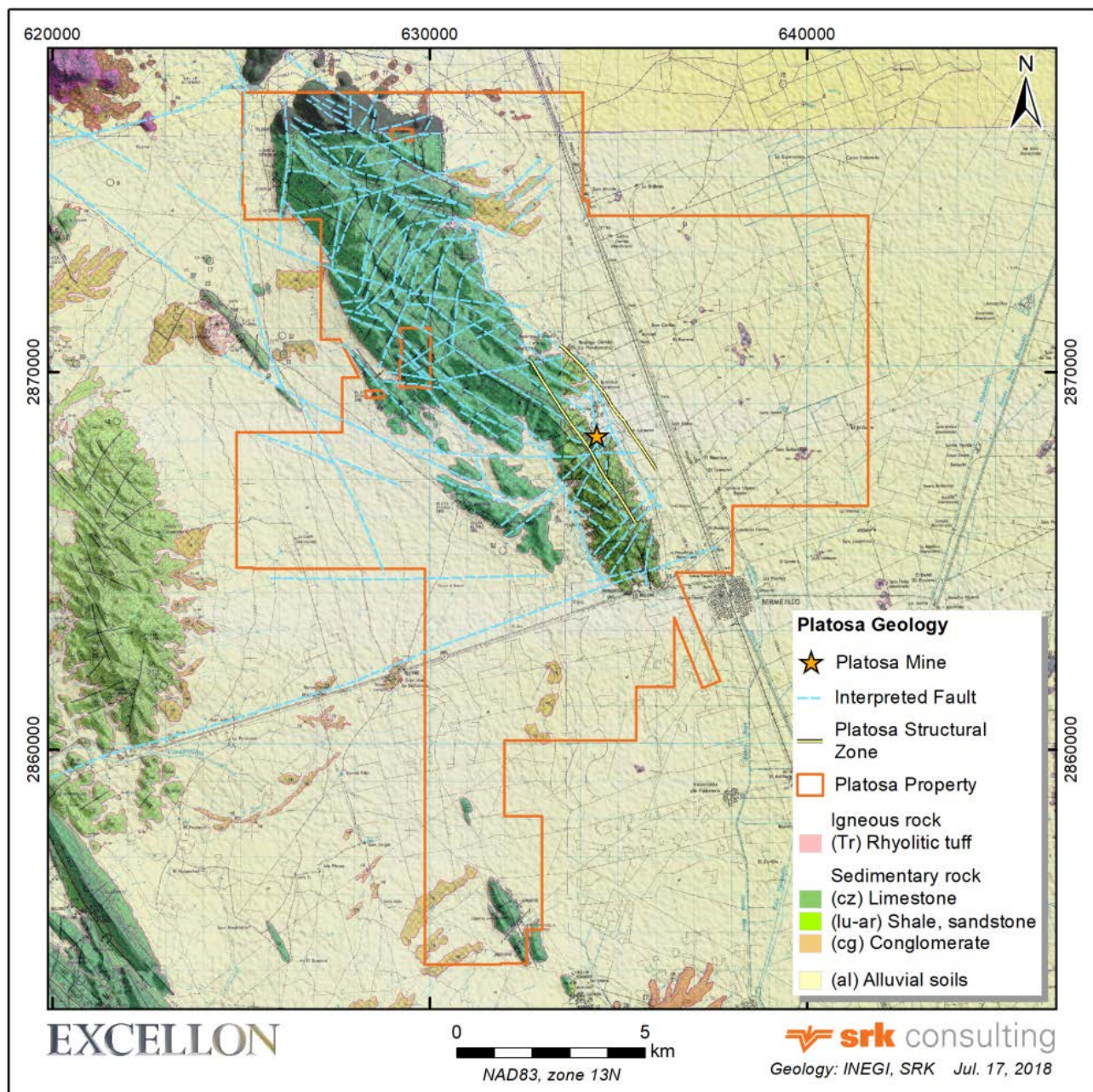
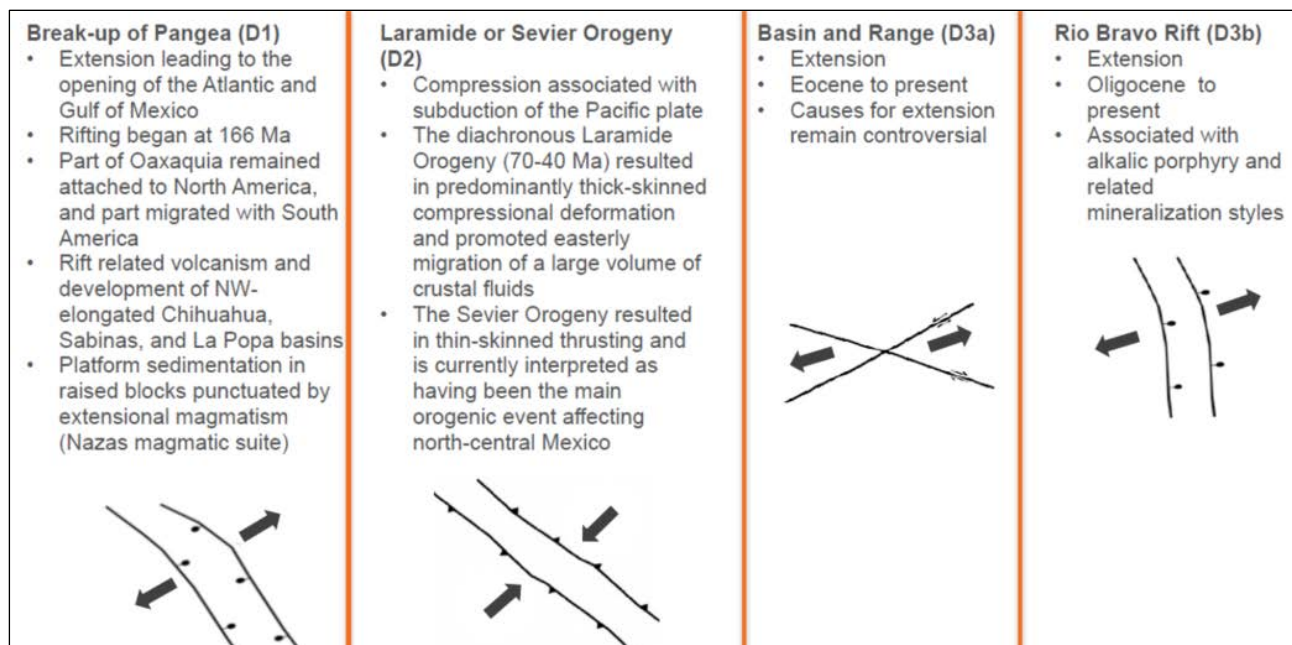


Figure 6: Property-Scale Structural Geology

## 7.3 Structural Setting

Three large-scale deformation events, shown schematically in Figure 7, and the onset of a Tertiary magmatic event created favourable ground preparation and a magmatic source for mineralizing fluids. These events are described in chronological order:

- An initial extensional system related to the breakup of Pangea (D1) at 166 Ma accounted for the formation of deep-seated north-south to north-northwest-trending structures. These structures allowed for activation of faults and the intrusion of deep-seated igneous suites into the basins, marking the end of the D1 period.
- Northeast-southwest-oriented compression then took place during the Cretaceous to early Tertiary Laramide Orogeny (D2), deforming the Mesozoic sedimentary rocks into a series of roughly parallel north-northwest trending folds and faults.
- Extension in the mid- to late-Tertiary reactivated and reopened these faults (D3a), including the structures bounding the Coahuila Platform, and developed further northwest-southeast oriented ground preparation.
- The mid-Tertiary extension event was accompanied by widespread magmatism, with the newly reopened faults acting as conduits; this allowed intrusion emplacement at shallow levels within the structurally prepared Mesozoic carbonate sequence (D3b). Most of the CRDs in Mexico were formed at this time, with the largest deposits forming over the deep-seated large-scale fault zones (Megaw et al. 1988, Megaw 2002). The Platosa mine is located near a major northwest fault structure on the western margin of the Coahuila Platform, along a northwest-trending line of major CRDs.



**Figure 7: Structural and Deformation History of the Platosa Area**

Source: SRK, 2017b



## 7.4 Stratigraphic Sequence and Magmatic History

*This section is quoted from Cox et al. (2015).*

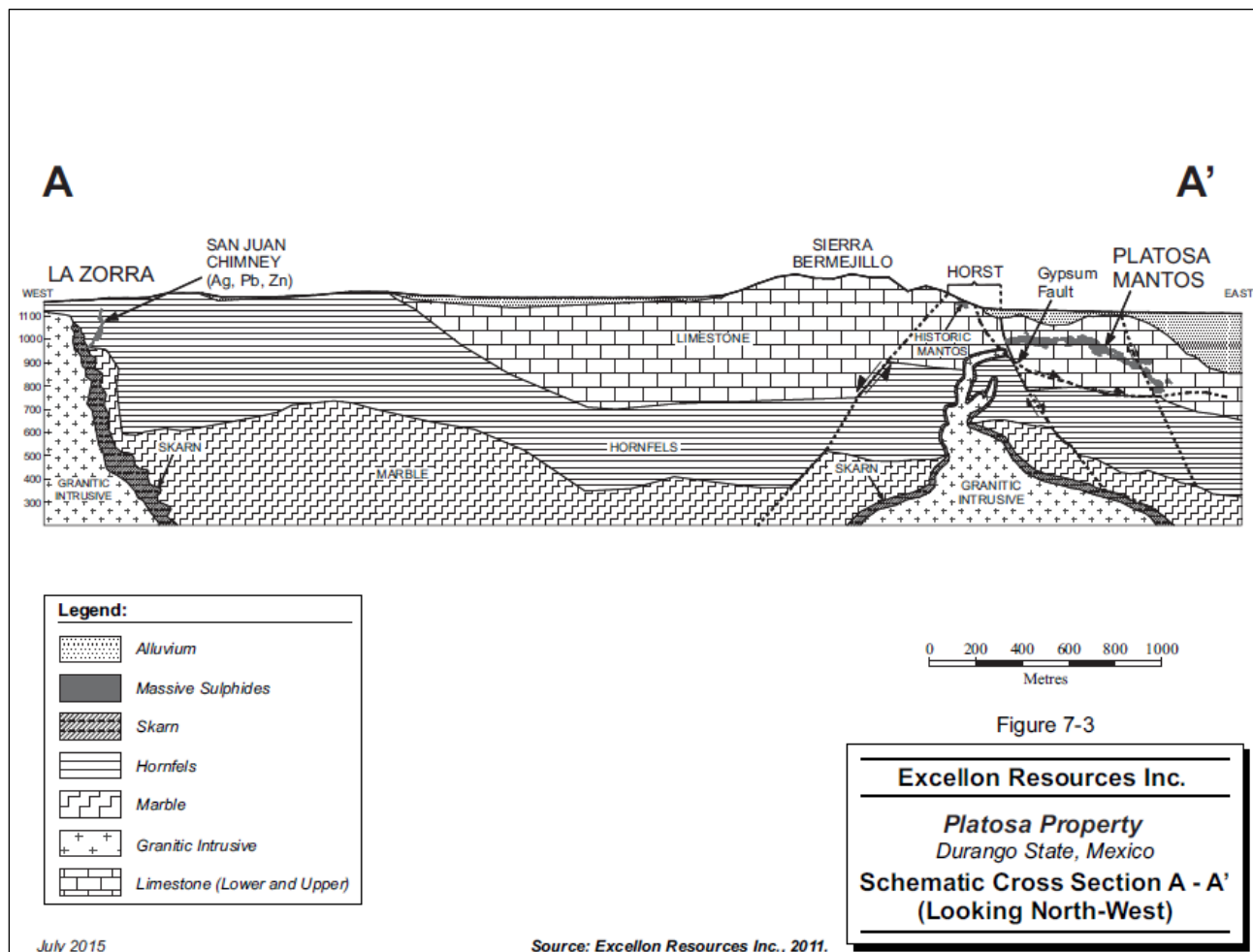
*Platosa is underlain by folded and faulted Mesozoic sedimentary rocks, locally intruded by dykes and sills of Laramide age (Figure 8). The general stratigraphic sequence on the Platosa Project is outlined as follows:*

- The lowermost unit in the stratigraphic sequence is the Lower Cretaceous Acatita Formation evaporite sequence. It is a gypsum-rich horizon that outcrops eight kilometres north of Platosa; it is thought to be the source for the abundant pore-filling gypsum observed throughout the property.*
- The Acatita Formation is overlain by the Treviño-Cuesta del Cura Formation, also Lower Cretaceous in age. This formation comprises a variety of platform and deeper marine-facies calcareous sedimentary rocks that have been variably hornfelsed, dolomitized, and mineralized.*
- The top of this sequence is the Lower Limestone, which is strongly metamorphosed to marble.*
- The Lower Limestone is overlain by the Lower Hornfels, an altered and hornfelsed shale-sandstone unit of unknown thickness. Drilling has intersected a number of endoskarned dykes within this unit that host lead-zinc-molybdenum-bearing veinlets.*
- Overlying the Lower Hornfels is a 50- to 80-metre-thick sequence of shallow marine, thinly bedded to laminated calcareous mudstone locally referred to as the Black Limestone. This is overlain by a thin, black, organic-rich, pyritic sandstone called the Black Sandstone.*
- Overlying the Black Sandstone is a unit approximately 30 m thick referred to as the Grey Limestone unit.*
- A unit referred to as the Fragmental Limestone (often also referred to as the Heterolithic Fragmental Limestone), overlies this grey Sandstone unit and is the principal host to mineralization at Platosa. The Fragmental Limestone is typically 50 to 120 metres-thick and consists of a variably dolomitized sedimentary breccia composed of angular limestone and dolomite fragments that range in size from less than one centimetre to more than 50 centimetres, and that are hosted in a sandy carbonate matrix. This unit is also known to contain fossiliferous horizons. Northwest of the mine area, the contact with the overlying Upper Limestone is observed to be gradational over a few metres. Fragmental Limestone has been mapped on surface throughout the PSZ. The Fragmental Limestone was widely affected by post-lithification dolomitization, thus creating a highly permeable rock susceptible to dissolution and mineralization.*
- The Fragmental Limestone is overlain by 200 metres of thick- to medium-bedded calcareous mudstones called the Upper Limestone. This unit has been locally dolomitized between Refugio and Platosa and recrystallized to marble between Refugio and la Zorra.*
- Upper Cretaceous shales, limey shales, and sandstones of the Indidura/Caracol Formation overlie the Upper Limestone. These rocks comprise basal shales, calcareous shales, calcarenites, and limestones, which grade upwards into siliceous shales, sandstones, and conglomerates.*

*Intrusive rocks are poorly exposed in the project area but have been intersected by drilling in several areas on both the west and east sides of the Sierra Bermejillo. A large magnetic anomaly, visible in both regional and Excellon airborne magnetic surveys, and widespread thermal metamorphism of the Mesozoic sedimentary rocks suggest that intrusive rocks are more widespread than currently observed. The largest exposure of intrusive rocks in the*

western area is the Tertiary Pozo Porphyry, which is seen in a water well located southwest of the property, along the Bermejillo-Mapimi highway. The Pozo Porphyry is a medium-grained feldspar porphyry thought to be a quartz monzonite (Megaw, 2002). One- to three-metre-thick felsic dykes occur in the La Zorra mine and a multi-phase granite porphyry has been intersected in drilling to the south.

At the Platosa mine, one- to ten-metre-wide altered and endoskarned felsic dykes with associated sulphide-bearing veinlets were intersected in deep drillholes into the Lower Hornfels. Six kilometres northwest of Platosa at Cañón Colorado, a fine-grained neck or flow dome of felsic unit is exposed. This sub-volcanic unit is accompanied by minor gossan and ferruginous jasperoid that contain anomalous concentrations of arsenic, zinc, silver, and lead.



**Figure 8: General Stratigraphic Cross-Section of the Platosa Mine Area**

Source: Excellon 2011

## 7.5 Mineralization

The bulk of mineralization currently defined on the Platosa project occurs as shallow to steeply dipping bodies of massive carbonate-replacement deposits (CRD). These bodies have been identified and categorized as discrete pods or mantos based on structural setting and concentration of sulphides. The main manto bodies currently defined at Platosa are outlined on Figure 9 and are listed below from west to east:

- Mantos 6A/6B
- Mantos 4A-C
- Manto 5
- Guadalupe
- Guadalupe South
- Pierna
- Rodilla
- Manto 623
- Manto 674
- NE-1
- NE-1 South

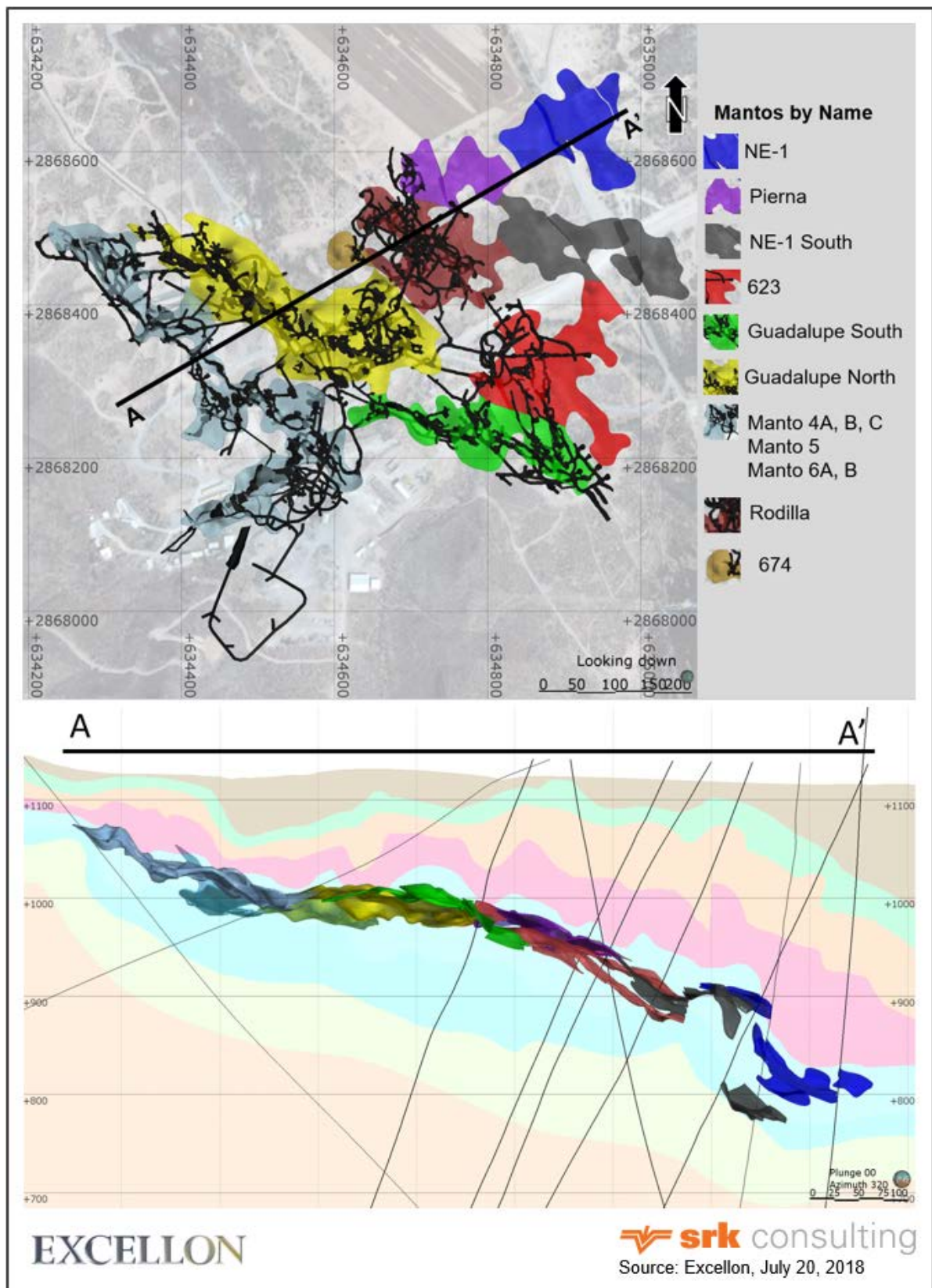
The footprint of the Platosa manto system currently measures approximately 400 by 700 metres. Mantos at Platosa dip in accordance with the stratigraphy towards the east where a series of late extensional features down-drop the mineralization so that its depth ranges from 60 metres below surface on the west side of the mine to approximately 320 metres below surface at the NE-1 manto, on the east side of the mine.

The main lead-, zinc-, and silver-bearing minerals are:

- Galena (main lead-bearing mineral)
- Sphalerite (main zinc-bearing mineral)
- Acanthite and lesser proustite (main silver-bearing minerals). Acanthite is predominant; proustite is visible where grades typically exceed the average grade of the mineralized body (Figure 10).

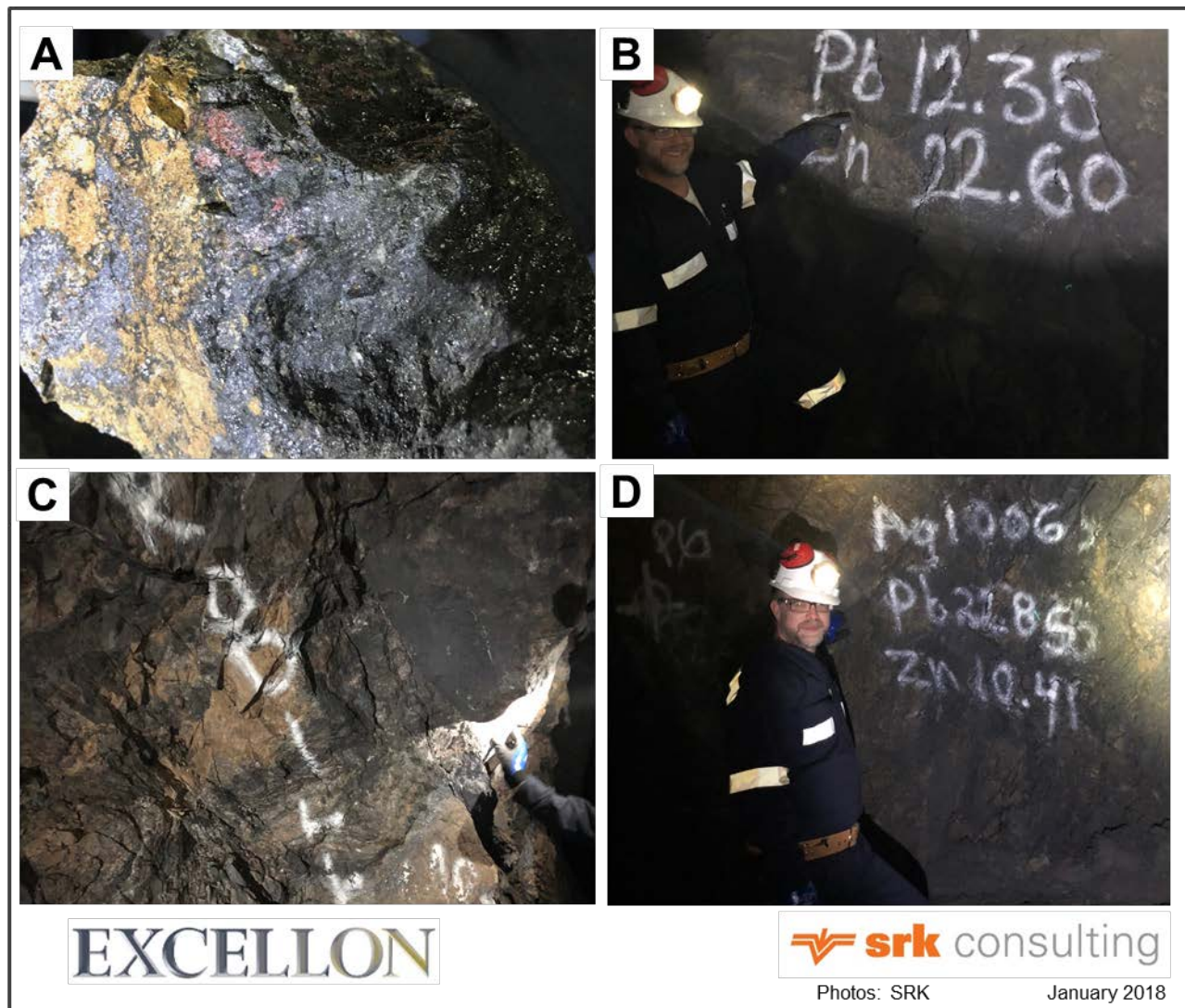
Drilling has also occasionally intersected anomalous gold and copper mineralization, which is believed to indicate a hotter source or hotter mineralizing fluid pathways within the system. These anomalous values are seldom of economic value to the project; however, they are important vectors for exploration.

The most significant mantos at Platosa are the Rodilla, Pierna, Guadalupe South, Manto 674, and 623 mantos, which are currently mined; and the NE-1 and NE-1 south mantos, which are included in the mine plan and that are open for expansion. These mantos have been defined in drilling from surface with an average drill spacing of 15 to 20 metres. In 2016, Excellon commenced a program of infill and expansion drilling ahead of production. This drilling was conducted on 10-metre-spacing in production areas and has been successful in discovering and defining additional mineralization near existing mine infrastructure, most notably in the 623 and Guadalupe South areas.



**Figure 9: Main Manto Bodies at Platosa.**  
 Plan View (top), Cross-section (bottom).





**Figure 10: Typical Mineralized Faces at Rodilla Manto, Platosa Mine**

- A: Hand sample from Rodilla. Specimen exhibits galena, sphalerite and proustite ( $\text{Ag}_3\text{AsS}_3$ )
- B: Mineralized face annotated with grades at Rodilla
- C: Connector zone between the Rodilla and Pierna Mantos
- D: Mineralized face annotated with grades at Pierna

Mineralization is also seen in the form of vein, breccia, and skarn systems in the following property-scale exploration prospects (refer to Figure 4):

- **San Gilberto.** Anomalous mineralization of 10 g/t silver has been intersected in drilling of north-south-oriented structures in 2006 (hole EX06STS01). Other structures, believed to be parallel to this one, have been exploited by small-scale miners at San Gilberto where the target appears to be a black siliceous vein. Prospecting results in this area by Excellon geologists have returned samples with elevated silver and base metal values.
- **Jaboncillo.** A trend of anomalous silver and base metal values measuring more than 1.0 kilometre was identified by company geologists in 2017. This trend is believed to indicate

the presence of hotter mineralized fluids venting off a sulphide bearing fluid system that could be analogous to the mineralization at Platosa.

- **Saltillera North and South.** Skarn mineralization including epidote, pyrite, and chalcopyrite as well as silver values in excess of 600 g/t have been intersected in a hornfelsed unit (EX08ST78). These targets are also the site of historical small-scale silver and base metal mining.
- **Halcon.** Multiple structural intersections have been mapped here which are believed to be related to the emplacement of deeper intrusions into this sequence. Surface samples were anomalous in silver, lead, zinc, and arsenic.
- **PDN.** This geophysical target is defined by a large gravity anomaly coincident with resistivity anomalies. Structures and veins (calcite veining, silica veining and jasperoids) have been mapped on surface. Grab and surface samples have returned anomalous silver, lead and zinc and elevated arsenic values.
- **Refugio.** Located 1.4 kilometres southwest of the Platosa mine on the western flank of the Sierra de Bermejillo where several small-scale historical mine workings are present; this prospect consists of outcrops of irregular silica breccias and jasperoid. The silica breccias cut beds of the Cuesta del Cura Formation and do not appear to be controlled by any obvious structure. Several historical samples of silica material returned gold values up to 7.79 g/t. Lead, zinc, and silver values have been reported in both the jasperoids and silica breccia boulders.
- **Rincon Del Caido.** Skarn mineralization was intersected in drilling at a depth of approximately 500 metres, most notably in diamond drillholes EX12LP1019, EX12LP1023A, EX12LP1024, EXLP1025 and EX12LP1030. The mineralized zone consists of green garnet with dispersed pyrite and subsidiary sphalerite and galena; it measures approximately 120 by 140 metres and extends down plunge for approximately 80 metres; it may indicate a larger skarn system in the area and the potential for additional mineralization at depth.
- **Zorra.** A set of old artisanal workings mined for silver, lead, and zinc.
- **Cañón Colorado.** Excellon drilled holes into what is believed to be a rhyolite tuff that was enriched in rare earth elements. This area, located at the intersection of two regional faults, is believed to have potential to be a high-level portion of a mineralizing system.
- **Cañón de la Güera.** Prospecting and mapping led to initial drilling in this area. No significant mineralization has yet been intersected, although it is located in a structurally complex part of the northern PSZ.

## 8 Deposit Types

This section is modified from Cox et al. (2015).

The principal mineral deposits in the Platosa area are high-temperature epigenetic silver-lead-zinc carbonate-replacement deposits (CRD).

These deposits are hosted in carbonate rocks, distal to felsic intrusions that are interpreted to provide the hydrothermal source of mineralizing fluids. Deposits are characterized by irregularly shaped pods, lenses, and roughly tabular or tubular masses of massive sulphide mineralization. Discordant bodies (chimneys) and roughly concordant elongate masses (mantos) can extend for thousands of metres from the source of the mineralizing fluids and often follow complex disjointed paths through the host rocks.

The massive sulphide bodies commonly grade progressively into mineralized metasomatic skarn deposits proximal to the source intrusions. This proximal mineralization includes skarns developed along fractures, dykes and sill contacts, and as large irregular lenses at the contact with the intrusion. Locally, mineralized veins cut both the skarns and host intrusions. Contact metamorphic features (recrystallization to marble, development of hornfels and skarnoid) commonly occurs peripheral to the skarn zone.

All aspects of CRD and skarn mineralization are controlled by local and regional structures such as faults, fractures, contacts, fold axes, and collapse (paleokarst) zones. Secondary host rock permeability (such as fractures, breccias, solution cavities, dolomitization) can also be an important controlling factor for mineralization (Megaw et al. 1988).

The Mexican CRD belt hosts deposits in excess of 80 million tonnes. The Platosa property, with its combination of CRD and skarn mineralization, shares similarities with many of these systems and other North American manto/CRD systems and demonstrates potential for the discovery of additional mineralized zones.

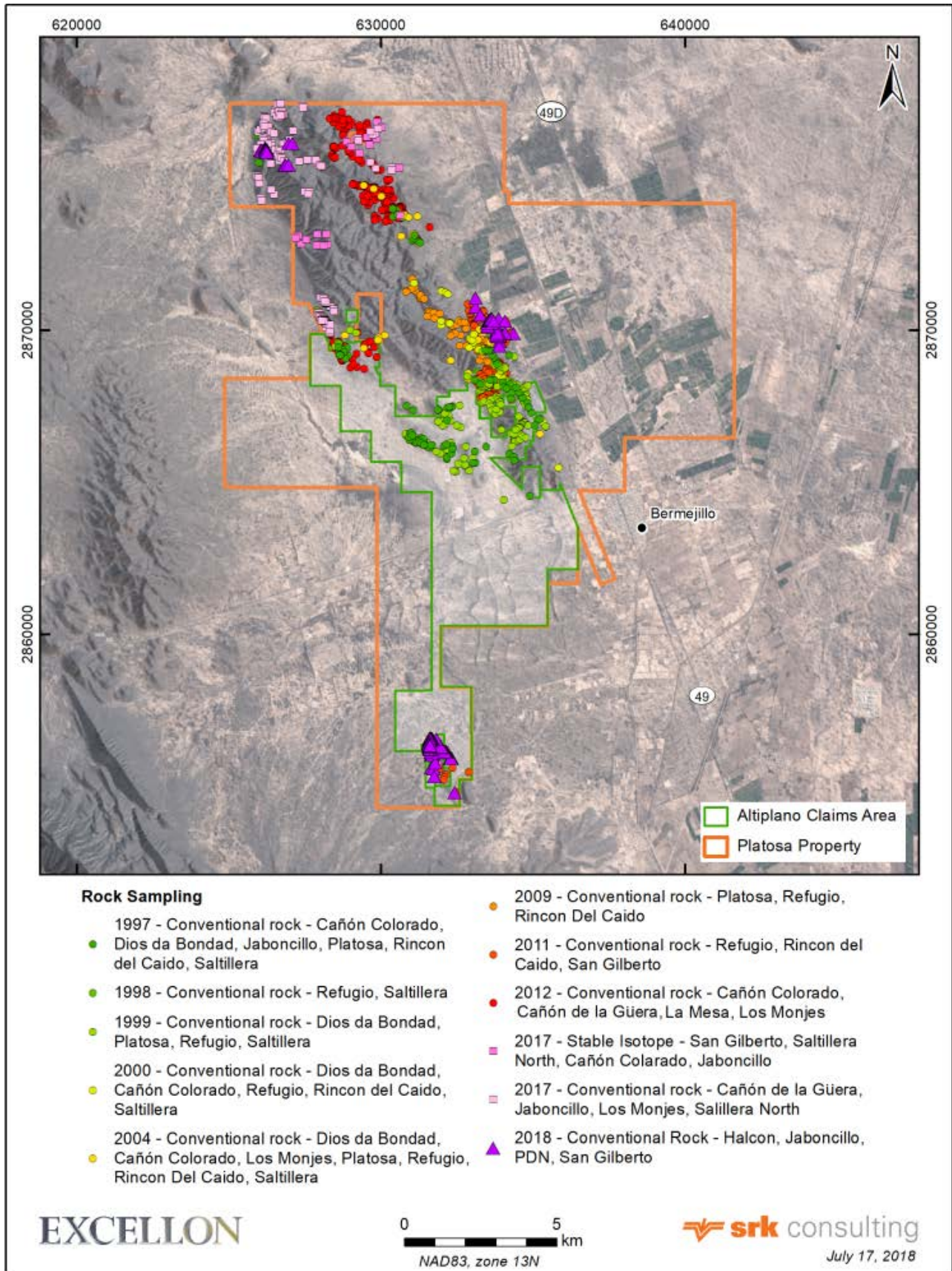
## 9 Exploration

Exploration work by Excellon on the Platosa property has included various campaigns of geological mapping, rock and soil geochemical sampling, biogeochemical sampling, soil gas mercury, hydrocarbon surveys, ground and airborne geophysical surveys, fluid inclusion and sulphur isotope studies, and diamond drilling documented by detailed core logging. Recently, Excellon has also conducted downhole acoustic and optical televiewer surveys on selected drillholes, as well as commenced a trial program with Corescan, a hyperspectral core imaging system, to improve characterization and mapping of the physical and chemical properties of host rocks.

Prior to 2012, exploration work such as drilling, sampling, geophysics and geochemistry was concentrated on the main Platosa mine area, but was also conducted at these other prospects located on the property: Cañón Colorado, Saltillera, Socorro, Cerro Blanco, Zorra, Refugio, Dios da Bondad, and Rincon del Caido (Figure 11). Regional mapping and prospecting in 2016 and 2017 led to the definition of new targets. These include Jaboncillo, Saltillera South, Halcon, PDN, and San Gilberto. Historical data recorded on paper were digitized and incorporated into Excellon's GIS database. This includes historical surface mapping, sampling, interpretation, as well as historical surface drilling.

Limited exploration was performed between 2014 and 2016. A thorough and comprehensive review of data and historical programs was performed in 2016 and into 2017. Excellon recommenced exploration work on the Platosa property in mid-2016; this included drilling, prospecting, sampling, and mapping. The surface drilling was suspended in 2017 pending financing and the completion of capital projects at the mine, but the other surface exploration work programs continued through this time as well as underground infill and definition drilling. At the end of 2017, Excellon recommenced surface drilling which continues into 2018.





**Figure 11: Regional Image with Rock Chip Sample Locations**

**Table 4: Rock Geochemistry Sampling at Platosa Property**

| Year  | Area   | Spacing | Samples | Type              | Company  | Comments              |
|-------|--|---------|---------|-------------------|----------|-----------------------|
| 1997  | Cañón Colorado, Dios da Bondad, Jaboncillo, Platosa, Rincon del Caido, Saltillera          | na      | 130     | Conventional rock | EXN/Apex |                       |
| 1998  | Refugio, Saltillera  | na      | 19      | Conventional rock | EXN      |                       |
| 1999  | Dios da Bondad, Platosa, Refugio, Saltillera   | na      | 230     | Conventional rock | EXN      |                       |
| 2000  | Dios da Bondad, Cañón Colorado, Refugio, Rincon del Caido, Saltillera                      | na      | 25      | Conventional rock | EXN      |                       |
| 2004  | Dios da Bondad, Cañón Colorado, Los Monjes, Platosa, Refugio, Rincon Del Caido, Saltillera | na      | 47      | Conventional rock | EXN      |                       |
| 2009  | Platosa, Refugio, Rincon Del Caido   | na      | 152     | Conventional rock | EXN      |                       |
| 2011  | Refugio, Rincon del Caido, San Gilberto  | na      | 379     | Conventional rock | EXN      |                       |
| 2012  | Jaboncillo, Saltillera   | na      | 100     | Conventional rock | EXN      |                       |
| 2012  | Cañón Colorado, Cañón de la Güera, La Mesa, Los Monjes                                     | na      | 289     | Conventional rock | EXN      | REE Suite of Elements |
| 2017  | San Gilberto, Saltillera North, Cañón Colorado, Jaboncillo                                 | na      | 27      | Stable isotope    | EXN      |                       |
| 2017  | Cañón de la Güera, Jaboncillo, Los Monjes, Saltillera North                                | na      | 264     | Conventional rock | EXN      |                       |
| 2018* | Halcon, Puerto de Jaboncillo, PDN, San Gilberto  | na      | 165     | Conventional rock | EXN      |                       |

\* Programs ongoing

## 9.1 Geological Mapping

Geological mapping at a variety of scales has been performed in several areas of the property and is summarized in Table 5. Additional detailed mapping campaigns continue to fill gaps in the mapping (Figure 12). In addition, reconnaissance mapping at 1:2,000 scale is being undertaken in areas of the project that have not been adequately mapped and sampled. These programs will continue through 2018 and into 2019.

**Table 5: Mapping at Platosa Property**

| Year | Area                       | Scale          | Purpose   |
|------|----------------------------|----------------|---|
| 1998 | Sierra Bermejillo          | 1:50,000       | Regional scale base mapping                         |
| 1998 | Zorra                      | 1:10,000       | Detailed mapping of prospective area                |
| 2000 | PSZ South                  | 1:10,000       | Stratigraphic and structural mapping around Platosa |
| 2006 | PSZ North                  | 1:10,000       | Mapping north of Platosa to Cañón Colorado          |
| 2006 | Sierra Bermejillo          | 1:50,000       | Follow-up on initial campaign                       |
| 2009 | Platosa, Saltillera, Zorra | 1:5,000        | Detailed mapping and prospecting                    |
| 2010 | Saltillera                 | 1:5,000        | Detailed mapping and prospecting                    |
| 2011 | Refugio, Rincon del Caido  | 1:5,000        | Detailed mapping and prospecting                    |
| 2012 | Cañón Colorado             | 1:5,000        | Detailed mapping and prospecting                    |
| 2015 | Dios da Bondad             | 1:5,000        | Detailed mapping and prospecting                    |
| 2017 | Jaboncillo                 | various scales | Detailed mapping and prospecting                    |
| 2017 | Saltillera North           | various scales | Detailed mapping and prospecting                    |
| 2017 | PDN                        | various scales | Detailed mapping and prospecting                    |
| 2018 | San Gilberto               | various scales | Detailed mapping and prospecting                    |



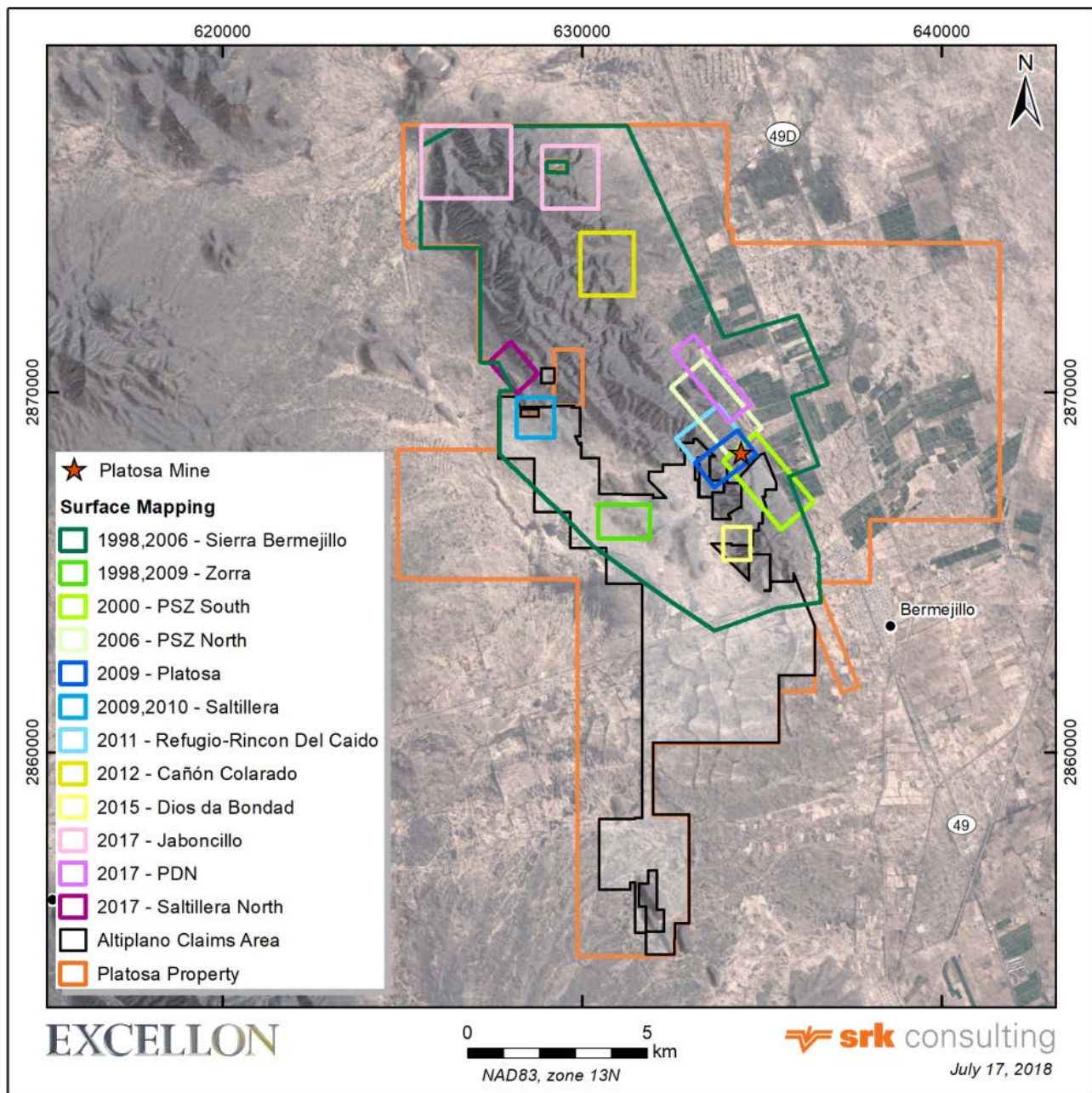


Figure 12: Mapping Areas by Campaign

## 9.2 Soil Geochemistry

Various techniques have been tested at Platosa (Table 6) to determine whether mineralization at the Platosa mine has a soil geochemical response. A plan showing the distribution of the geochemical surveys is shown in Figure 13. The surveys have been inconclusive to date, although discrete anomalies have been identified in specific surveys. Anomalies were identified in the 2000 and 2001 soil gas hydrocarbon survey, although these anomalies yielded few significant results when tested by diamond drilling.

A mobile metal ion (“MMI”) survey was conducted in 2006. This survey uses very low detection limits and is designed to detect anomalous metal values buried by cover and potentially by transported material. The survey conducted in 2006 identified significant lead and zinc anomalies, which were subsequently tested with drilling. These holes may not have been drilled deep enough to adequately test these anomalies.

In late 2017, Excellon commenced its first regional orientation soil sampling in an effort to test the basins flanking the Sierra Bermejillo for potential extensions of known structures and for anomalies under cover in the area. This program confirmed the presence of deep cover material in the basin that was therefore unsuitable for sampling. Additional work will be carried out in these areas to look below this cover using more penetrative methods.

**Table 6: Soil Geochemistry Collected on Platosa Concession**

| Year | Area   | Spacing   | Samples | Type                 | Company  | Comments                     |
|------|--|-----------|---------|----------------------|----------|------------------------------|
| 1999 | Platosa  | 10×10 m   | 100     | Soil Gas Hydrocarbon | APEX/EXN | Orientation Survey           |
| 2001 | Platosa  | 10×10 m   | 100     | Soil Gas Hydrocarbon | EXN      |                              |
| 2004 | Platosa  | na        | 43      | Mesquite             | EXN      | Orientation Survey           |
| 2004 | Platosa  | na        | 250     | Mesquite             | EXN      | Follow up Program            |
| 2006 | Platosa North                                  | 25×25 m   | 800     | MMI                  | EXN      | MMI Survey                   |
| 2017 | Jaboncillo, Saltillo, Bermejillo, San Gilberto | 100×100 m | 994     | Conventional Soils   | EXN      | Regional Orientation Surveys |

EXN = Excellon



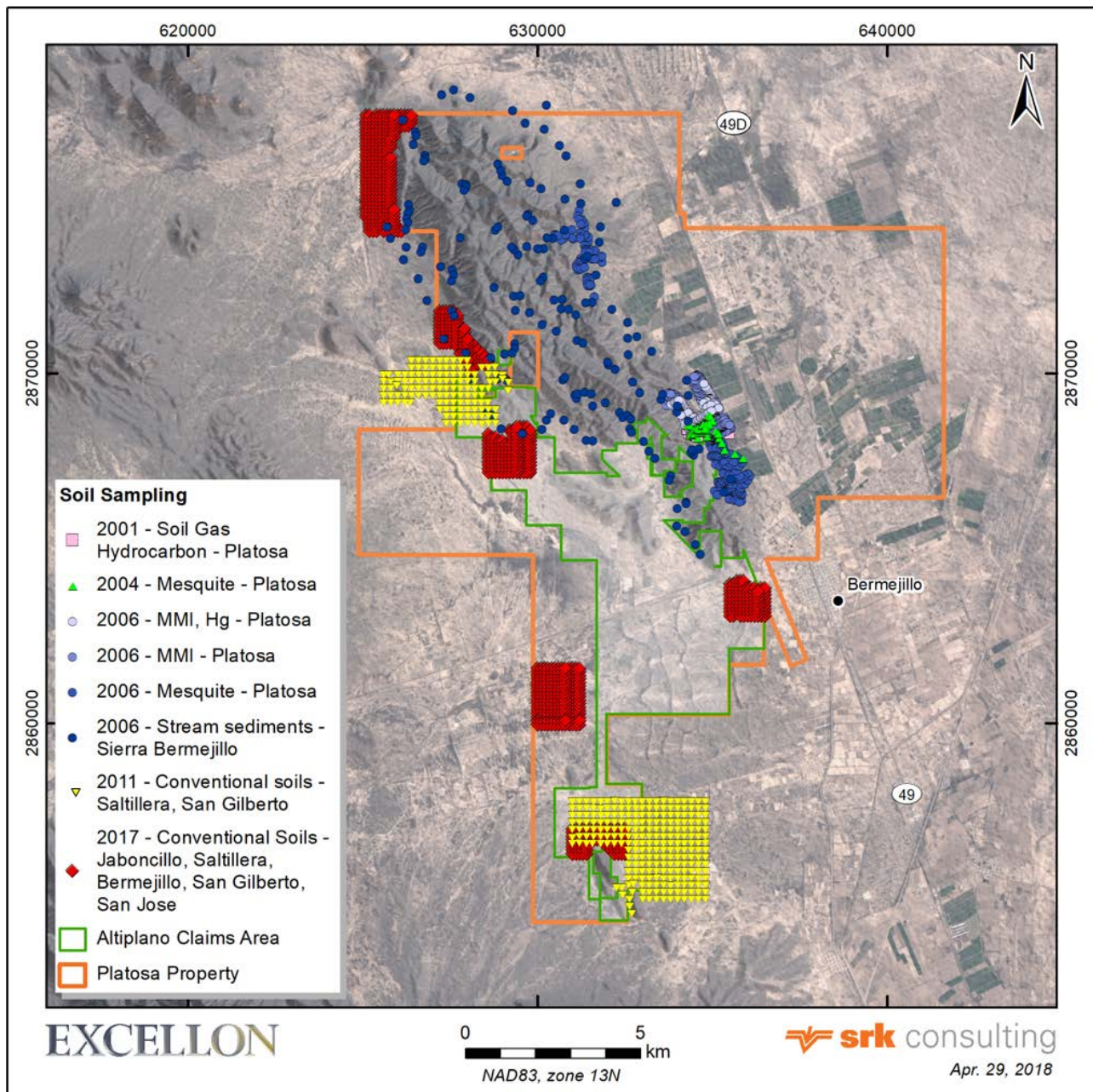


Figure 13: Distribution of Geochemical Surveys

## 9.3 Geophysical Surveys

A variety of geophysical approaches were tested over the years. These surveys used various techniques to detect sulphide bodies, geological contacts, structures, and intrusive bodies in the area. A plan showing the location of these geophysical surveys is shown in Figure 14. All surveys, with the exception of a borehole Pulse Electromagnetic Survey, yielded significant results that increased geological knowledge and assisted with targeting. The numerous geophysical surveys conducted on the property are summarized in Table 7. The 1999 surveys were contracted by Apex; the surveys conducted from 2001 to present were contracted by Excellon.

**Table 7: Geophysical Surveys Conducted on the Platosa Concession**

| Year | Scope    | Company | Contractor           | Survey Type  |
|------|----------|---------|----------------------|--|
| 1999 | ground   | APEX    | Zonge                | CSAMT  |
| 1999 | ground   | APEX    | Zonge                | IP - Apex, only some available                     |
| 2001 | ground   | EXN     | University of Sonora | MAG, Gravity, orientation survey                   |
| 2004 | ground   | EXN     | Zonge                | NSAMT  |
| 2005 | ground   | EXN     | Zonge                | NSAMT  |
| 2007 | airborne | EXN     | Aeroquest            | AeroTEM/MAG  |
| 2008 | ground   | EXN     | TMC                  | IP/RES - Pole Dipole IP                            |
| 2008 | ground   | EXN     | TMC                  | IP/RES - Gradient IP                               |
| 2008 | ground   | EXN     | TMC                  | Ground MAG   |
| 2008 | ground   | EXN     | TMC                  | IP/RES - Pole Dipole IP                            |
| 2008 | ground   | EXN     | TMC                  | IP/RES - Gradient IP                               |
| 2008 | ground   | EXN     | TMC                  | Ground MAG   |
| 2008 | ground   | EXN     | TMC                  | Borehole TEM                                       |
| 2008 | ground   | EXN     | MWH                  | Gravity  |
| 2009 | interp   | EXN     | PGW                  | PGW modelling work on gravity data                 |
| 2010 | interp   | EXN     | SJV                  | 3-D IP/RES   |
| 2010 | interp   | EXN     | SJV                  | Gravity inversion                                  |
| 2010 | ground   | EXN     | Magee                | Gravity  |
| 2010 | airborne | EXN     | Geotech              | ZTEM/MAG   |
| 2012 | ground   | EXN     | TMC                  | Mise-a-la-Masse                                    |
| 2012 | ground   | EXN     | Zonge                | CSAMT  |
| 2012 | ground   | EXN     | Zonge                | NSAMT  |
| 2012 | interp   | EXN     | PGW                  | interpretation by PGW                              |
| 2016 | airborne | EXN     | Geotech              | 3-D inversion of MAG, Gravity data                 |
| 2017 | interp   | EXN     | In3D geophysics      | 3-D gravity inversion via VOXI                     |
| 2017 | interp   | EXN     | In3D geophysics      | Compilation and interpretation of geophysical data |



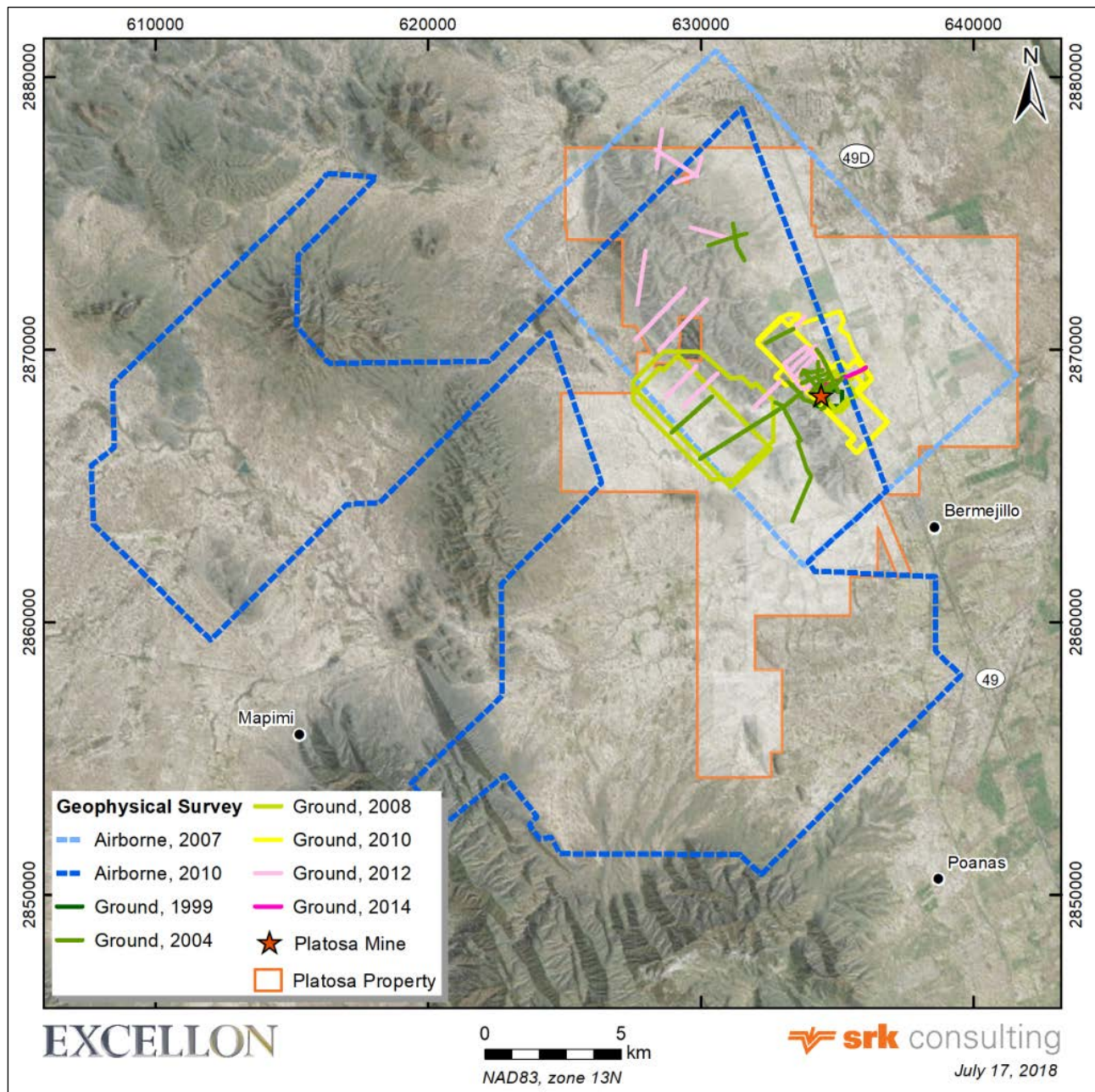


Figure 14: Distribution of Geophysical Surveys

### 9.3.1 2-D Induced Polarization

In 1999, Apex contracted Durango Geophysical Operations of Durango, Colorado, to perform an induced polarization (IP) survey, which comprised seven lines totalling 41 line-kilometres. The survey was centred on hole LP-05, with one east-west line and six cross-lines oriented north-south and spaced at 75 metres. The survey employed a 50-metre dipole-dipole array for the east-west line and a 75-metre dipole-dipole configuration for the cross-lines. Chargeability and resistivity anomalies were detected, but follow-up was not recommended, and Apex chose to discontinue the IP surveying.

Excellon reviewed the IP data in late 2007–early 2008 and concluded that the IP survey had been effective. In early March 2008, Excellon engaged Geofisica TMC S.A de C.V. (TMC), geophysical contractors based in Mazatlan, Mexico, to carry out a magnetometer and IP survey (n:1 to 8 gradient array with pole-dipole) over two grids to follow up on anomalous areas. One grid was centred on the mine area and the other covered a large portion of the corridor linking the Saltillera and Zorra areas on the western portion of the property. A total of 87.0 line-kilometres of gradient and 28.8 line-kilometres of pole-dipole surveying were completed. Several resistivity and chargeability anomalies were detected during the course of the survey. IP responses in the Saltillera-Zorra area were included in the targeting of four drillholes in 2008; disseminated pyrite was intersected, but no economic sulphides.

### 9.3.2 Natural and Controlled-Source Audio Magnetotellurics

Apex carried out small-scale induced polarization (IP) and controlled source audio-frequency magnetotelluric (CSAMT) surveys at Platosa in 1999. A natural-source audio frequency magnetotelluric (NSAMT) orientation survey was carried out in 2004 for Excellon by Zonge Engineering (Zonge) of Tucson, Arizona. The survey duplicated the previous 1999 CSAMT lines but was expanded to cover 40 line-kilometres in several areas within the Sierra Bermejillo-Platosa mine area (20 kilometres) including, Dios da Bondad-Refugio area (6 kilometres), Zorra (4 kilometres), and Cañón Colorado/Uramex Dome area (10 kilometres). Station spacing was 25 metres for the lines in the Platosa mine area and 50 metres for the remaining areas. The equipment used was a Zonge GDP-32 receiver and two Saarloos UO4 ferrite-core magnetic field antennas. The NSAMT was unsuccessful in detecting the known massive sulphide mineralization but did reveal a number of very high contrast, near-vertical anomalies, several of which correspond with known mineralization. These appear on repeated parallel lines in a northwest-southeast linear array. Several of these anomalies were also detected by the 1999 CSAMT survey but were detected at greater depth and resolution by the 2004 survey. These anomalies were interpreted as buried structures that acted as mineralizing fluid pathways (feeders). One of the strongest of the northwest-trending NSAMT anomalies was drilled in early 2005 (holes 114, 116, and 117); mineralization was intersected in all three holes.

Combining the NSAMT linear anomalies with parallel linear biogeochemical anomalies led to the interpretation that the biogeochemical anomalies reflect mineralization emplaced along the parallel structure. This exploration criterion led to the discovery of the Guadalupe Manto with hole EX05LP132, drilled in December 2005. Drilling along the southeastern extension of the combined anomaly trend led to the discovery of the Guadalupe South Manto in early 2006. The combined anomaly trend continues over 800 m farther to the north of the Guadalupe Manto.

In April and May 2012, Zonge was again engaged to carry out surveying at Platosa. CSAMT surveying was carried out on three lines totalling 3.4 kilometres on the east side of the Sierra Bermejillo. NSAMT surveying was carried out on 14 lines totalling 21.5 kilometres. Five lines were on the east side of the Sierra and nine on the west side. Station spacing was 25 metres for all lines. The equipment used was a Zonge GDP-32 receiver and two Saarloos UO4 ferrite-core magnetic field antennas. The surveying did not define any priority targets and no drilling has been carried out based on the survey results.

### 9.3.3 Mise-à-la-Masse Survey

In 2012, TMC was engaged to carry out borehole surveying of two Rincon del Caido drillholes, namely holes EXLP12-1019 and 1023A. A grid totalling 27 line-kilometres consisting of 25 northeast-southwest-oriented lines at 50-metre spacing was centred on the two boreholes.



A single second electrode was used for the surveys of both holes. For each measurement, the current was alternately injected in each borehole, thus increasing the survey production, by doing both boreholes during the same survey. The potential (Vp) was measured every 25 metres at surface along each of the 25 lines, by using an Iris Instruments Elrec Pro receiver. The current was injected by using a Walcer Geophysics Tx-9000 transmitter and a 9.0-kilowatt motor generator.

The mise-à-la-masse surveys carried out in the two holes indicated that zones of disseminated skarn sulphides are probably continuous between holes. The measured potential suggests a preferential northwest to north-northwest strike, and that the body is probably more continuous towards the east where a gentle dip is indicated. No drilling has been carried out to test the survey results.

### 9.3.4 Magnetic Survey

In 2001, Excellon contracted Cascabel, in collaboration with geophysicists of the University of Sonora in Hermosillo, Sonora, to carry out an orientation ground magnetometer and gravity survey over the Zorra and Platosa areas. The survey was performed using a Geometrics G816 proton precession magnetometer over 10 lines ranging in length from 600 to 7,000 metres, on a grid with 50-metre and 100-metre line spacing. The lines were broadly spaced and run over three geographically distinct target areas: the historical Zorra mine, the Platosa mine, and the area along the Bermejillo-Mapimi highway. The purpose of the survey was to confirm the presence of a magnetic anomaly discovered in a Mexican Government survey completed in 1997, and to determine if other structures in the Platosa area could be mapped with the magnetometer.

Three lines over the Zorra mine returned magnetic lows over the range-bounding fault and highs over the Upper Hornfels and the limestone-hornfels contact. Four lines at Platosa detected anomalies to the northwest of the Platosa mine. Drillhole EX01LP38 intersected numerous altered dykes in Lower Hornfels through this section, and Megaw (2002) suggested that these dykes could be the source of the anomalies.

Megaw (2002) also concluded that the magnetometer survey was successful in detecting intrusive bodies, faults, limestone-hornfels contacts, and other magnetic features, such as magnetite bodies. Additional magnetometer surveying was recommended and a heliborne electromagnetic survey was flown in February 2007.

An additional 93.5 kilometres of ground magnetic surveying was carried out during 2008 in conjunction with the IP surveying discussed above.

### 9.3.5 Gravity Survey

In 2001, Excellon contracted Cascabel, in collaboration with geophysicists of the University of Sonora, to carry out an orientation gravimeter survey over known mineralization at the Platosa mine. The survey was performed along two intersecting lines centred on drillhole LP-05. No significant anomalies were developed over the known massive sulphide mineralization and the exploration technique was temporarily abandoned.

During 2008, Excellon reviewed the 2001 gravity data and determined that additional work was merited. MWH GeoSurveys Inc. of Reno, Nevada, carried out 14 days of surveying (855 unique stations) using LaCoste-Romberg Model G gravimeter (with Aloid upgrade) and Magellan ProMark 500 GPS receivers for geodetic positioning (to  $\pm 2$  cm). The surveying broadly followed the grid lines established for the IP surveys in the mine (241 stations) and Saltillera-Zorra (614 stations) areas. In the vicinity of the mine area, grid readings were taken on several of the historical roads and

trails northwest of the grid in order to extend coverage. Inversions, using UBC software, were carried out by S.J.V. Consultants Ltd. of Delta, British Columbia, under the supervision of Ken Robertson. A second, more detailed interpretation was carried out in the spring of 2009 by Paterson, Grant & Watson Limited, a Toronto-based consulting group, also under the supervision of Mr. Robertson. Several anomalies were outlined in the mine area and one of these, located over the eastern portion of the mantos, was drilled by hole EX09LP623 in July 2009. This hole intersected 3.20 metres of massive sulphides grading 1,121 g/t silver, 9.83 percent lead, and 9.20 percent zinc. While it is not clear whether the sulphides were responsible or partially responsible for the anomaly, the results suggested that the additional gravity surveying was warranted.

In 2010, Excellon engaged Magee Geophysical Services LLC of Reno, Nevada, to carry out additional gravity surveying; part of this survey overlapped with the northwest-trending 3-D IP grid centred on the Platosa mine area, which measured 5.5 kilometres by 1.0 to 2.0 kilometres (discussed below).

### **9.3.6 Borehole Pulse Electromagnetic Survey**

In 2008, Excellon engaged TMC Geophysics to carry out downhole surveys in two holes within the immediate mine area. The surveys were executed with the Crone Geophysics Pulse-Electromagnetic (PEM) system using a 16.66 ms time-base, a 1,500  $\mu$ s ramp-time, and 20 sampling windows (channels). No definite response, which could indicate the presence of a large moderate to strong in-hole conductor or a conductor within a radius of 100 to 150 metres around the holes, was detected.

### **9.3.7 Aeroquest Airborne Electromagnetic (AEM) Survey**

In February 2007, Aeroquest International Limited of Milton, Ontario, carried out a 1,530 line-kilometre heliborne AeroTEM II survey over a large portion of the Platosa property. Flight lines were oriented approximately northeast-southwest. Flight-line spacing on the southern two-thirds of the 10 x 16-kilometre survey block was 100 metres and 200 metres for the northern third. Tie lines were flown every 1,000 metres perpendicular to the flight lines. The electromagnetic (EM) bird height was 50 metres.

Due to difficulties incurred during data processing, it was not possible to carry out significant interpretation until late 2007. However, a strong northwest-elongated magnetic high along the southwest flank of the Sierra Bermejillo was evident. The high lies beneath the Saltillera and Zorra areas (four to five kilometres west of the Platosa manto deposits) where widespread marble, hornfels, silicification, skarn, and local high-grade mineralization occur. Drilling in the Saltillera-Zorra area after mid-2007 was guided in part by the magnetic survey results.

Further interpretation of the magnetic and EM data was undertaken for Excellon by VOX Geoscience Ltd. and has highlighted important structures in the immediate mine area. The interpretation work also identified weak EM anomalies in several areas. Several holes were drilled in 2007 to test some of these targets located southeast of the mantos; however, no sulphide mineralization was intersected. Some of the anomalies could be explained by water-saturated alluvium and/or by sharp drop-offs in overburden thickness in the broad valleys both east and west of the Sierra Bermejillo.

### **9.3.8 Geotech ZTEM Airborne Electromagnetic Survey**

In October 2010, Excellon contracted Geotech Ltd. of Aurora, Ontario, to conduct a ZTEM and magnetic airborne geophysical surveying over 2,786 line-kilometres, covering a large portion of the Platosa property. This included nearly all of the 17,000 hectares of the Excelmex VII concession that

was acquired in April 2010 and that is located immediately south of the original Platosa concessions, as well as a portion of the Pluton Property, contiguous to—and to the west of—Excellon's Venux concession. The survey outlined several previously undetected and untested structural zones or systems of interest and various conductive and resistive features. Line spacing was 150 metres and line direction was approximately northeast-southwest. Six diamond drillholes tested ZTEM targets on various portions of the property between March and July 2011. No significant sulphides were encountered. Two other holes were abandoned for technical reasons.

### 9.3.9 3-D Induced Polarization Survey

In 2010, Excellon engaged SJ Geophysics Ltd. (formerly S.J.V. Consultants Ltd.) of Delta, British Columbia, Canada, to carry out a 3-D IP survey over a grid roughly centred on the Platosa mine that measured 5.5 kilometres by 1 to 2 kilometres. Survey lines were 100 metres apart, oriented approximately northeast-southwest, and ranged from one to two kilometres in length. The interpretation indicates correlation between a particular level of chargeability and portions of the known manto massive sulphides. A series of diamond drillholes tested several of the targets and determined that the chargeability was caused by pyritized hornfels and black limestone.

### 9.3.10 Seismic Survey

In the spring of 2014 Excellon engaged Olson Engineering, Inc. (Olson), of Wheat Ridge, Colorado to design and manage a test 2-D seismic reflection survey over a single line at Platosa. The 2.1-kilometre line was laid out to pass directly over the Pierna and NE-1 mantos, neither of which had been mined. The line, oriented approximately east-northeast to west-southwest, began 150 metres east of the intersection between the railroad tracks and Highway 49 and continued into the eastern foothills of the Sierra Bermejillo. The purpose of the survey was to determine if the unmined mantos could be detected using seismic techniques. The survey was carried out by Geo Estratos S.A. de C.V. of Tamaulipas, Mexico under the supervision of Olson using an IVI MiniVib 12,000-pound vibration source and INOVA Hawk wireless seismic system for data capture. Interpretation was aided by a sonic log of hole EXLP141088 (depth 1,197 metres) located approximately 700 metres from the east end of the line. The sonic survey was carried out in August 2014 by Southwest Exploration Services, LLC of Chandler, Arizona.

Several strong, sub-vertical structures were outlined on the seismic section, in addition to contacts between the various carbonate, hornfels, and marble units. These deep cross-cutting structures are important for the migration of fluids from the intrusive source(s) into the host rocks. Although the survey did not directly detect the known mantos, the ability to have more precise knowledge of the structural environment underlying the property will aid exploration considerably, given the important roles that structural elements have in the emplacement of both proximal and distal CRD mineralization.

### 9.3.11 Compilation and Reprocessing

In 2016 and 2017, Excellon undertook significant work to collate, reprocess, and better understand the effectiveness of the various historical surveys, with the aim of optimizing the use and interpretation of the underlying data and planning for future geophysical programs. In 2016, Geotech Ltd. was engaged to reprocess and complete 3-D inversions on the regional ZTEM survey conducted in 2010. Excellon also engaged In3D Geoscience Inc. of Vancouver, British Columbia, to assist in the ongoing interpretation and compilation of the historical data sets. Errors in location, data collection, and processing were corrected and the general effectiveness of each technique was assessed. This compilation was part of a larger review and compilation of all exploration data on the project, which now informs Excellon's planning of future programs.

## 10 Drilling

In 1999, Apex embarked on diamond drilling programs at both Saltillera (total of 1,007 metres) and Platosa (total of 2,612 metres). The drilling at Platosa led to the discovery of a sulphide body to the east of the old mine workings. In 2002, Apex drilled an additional 1,054 metres at Platosa and 188 metres at Saltillera. In total, Apex drilled 33 holes totalling 4,674 metres.

Excellon reassumed control of the project in 2001 and since then has drilled 353,396 metres in 1,497 drillholes. In total, a total of 358,070 metres in 1,530 exploration diamond drillholes have been completed at Platosa up to March 31, 2018. Holes completed within the Platosa mineral resource area by Apex are located in the mined-out portion of the mine.

The holes have all been collared with HQ tubing, which produces 63.5-millimetre diameter core. In cavities or bad ground, the core diameter is reduced to NQ, which produces 47.6-millimetre diameter core.

Table 8 provides the details of both Apex and Excellon drilling by year and by areas of the property. The collar positions of this drilling are also shown graphically on Figure 15.

The different phases of Excellon's drilling have been carried out by the following drilling contractors:

- 2001-2002: Britton Brothers Drilling S.A. de C.V. of Hermosillo, Sonora, Mexico
- 2002 to 2014: Major Drilling de Mexico, S.A. de C.V. of Hermosillo, Sonora, Mexico (a subsidiary of Major Drilling Group International Inc. of Moncton, New Brunswick)
- 2016 to present: VERSA Perforaciones S.A. de C.V. of Mazatlán, Mexico

When drilling is ongoing, it is carried out using a variety of surface and underground drills, 24 hours a day, six days per week. Surface and underground drills were operating during the SRK visit in January and March 2018.

SRK was able to observe the drilling in progress at the Platosa property in January 2018 and noted that the work was being carried out in a competent fashion, using modern equipment that appeared to be fit for duty and fit for purpose.

The downhole survey instruments varied with time as outlined below:

- Prior to 2004, downhole orientation surveys were conducted with a single shot Sperry Sun instrument.
- Between 2004 and early 2007, detailed downhole orientation survey data were collected by Cascabel personnel for most holes using an Icefield Tools Corporation MI3 survey instrument.
- This task was assumed by Excellon personnel in early 2007 and was carried out until 2016 using a company-owned Icefield MI5 instrument, keeping the MI3 serving as a spare.
- A Devico DeviShot survey instrument provided by the drilling contractor was used for all underground drillholes in 2016 and for some 2016 surface drillholes.
- The Devico DeviShot survey instrument was used exclusively for underground drilling in 2018.
- A Reflex EZ-Trac survey instrument was used exclusively for surface drilling in 2018.

**Table 8: Drilling Summary by Area and by Year**

| <b>Area</b>                                 | <b>Year</b> | <b>No. of Holes</b> | <b>Metres</b>             |
|---|-------------|---------------------|---------------------------|
| <b>Regional Exploration</b>                 |             |                     |                           |
| Cañón Colorado (CCO)                        | 2006        | 7                   | 2,269 <sup>1</sup>        |
| Crestoncitos                                | 2006        | 5                   | 3,086 <sup>1</sup>        |
| <b>Joint Venture Sub-total</b>              |             | <b>12</b>           | <b>5,356 <sup>1</sup></b> |
| Cerro Blanco (CB)                           | 2007        | 3                   | 1,763                     |
| <b>Zorra (LAZ)</b>                          | 2002        | 3                   | 458                       |
|   | 2006        | 13                  | 3,838                     |
|   | 2007        | 5                   | 2,025                     |
|   | 2009        | 5                   | 2,470                     |
|   | 2010        | 16                  | 5,668                     |
| <b>Zorra Sub-total</b>                      |             | <b>45</b>           | <b>16,222</b>             |
| REE Targets                                 | 2011        | 3                   | 1,457                     |
|   | 2012        | 2                   | 868                       |
| <b>REE Targets Sub-total</b>                |             | <b>5</b>            | <b>2,325</b>              |
| <b>Refugio (RFG)</b>                        | 2007        | 3                   | 1,956                     |
|   | 2008        | 4                   | 1,866                     |
| <b>Refugio Sub-total</b>                    |             | <b>7</b>            | <b>3,822</b>              |
| <b>Saltillera (SLT)</b>                     | 1999        | 6                   | 1,007 <sup>2</sup>        |
|   | 2002        | 1                   | 352                       |
|   | 2005        | 6                   | 2,422                     |
|   | 2007        | 30                  | 14,624                    |
|   | 2008        | 19                  | 9,103                     |
|   | 2010        | 4                   | 1,270                     |
| <b>Saltillera Sub-total</b>                 |             | <b>66</b>           | <b>28,778</b>             |
| San Gilberto (SGIL)                         | 2006        | 2                   | 605                       |
| <b>Geophysical or Geochemical Anomalies</b> | 2007        | 10                  | 2,572                     |
|   | 2008        | 3                   | 1,750                     |
|   | 2009        | 2                   | 1,123                     |
|   | 2010        | 3                   | 1,861                     |
|   | 2011        | 10                  | 6,475                     |
| <b>Anomalies Sub-total</b>                  |             | <b>28</b>           | <b>13,780</b>             |
| <b>Exploration/Operations</b>               |             |                     |                           |
| Mine dewatering                             | 2016        | 1                   | 152 <sup>3</sup>          |
| Pilot holes                                 | 2015        | 2                   | 178 <sup>3</sup>          |
|   | 2016        | 6                   | 669 <sup>3</sup>          |
|   | 2017        | 2                   | 300 <sup>3</sup>          |
| <b>Pilot Hole Sub-total</b>                 |             | <b>10</b>           | <b>1,147 <sup>3</sup></b> |
| Grouting                                    | 2010        | 3                   | 397                       |
|   | 2012        | 3                   | 449                       |
| <b>Grouting Sub-total</b>                   |             | <b>6</b>            | <b>846</b>                |
| Mine services                               | 2016        | 2                   | 257                       |
| Skarn                                       | 2010        | 4                   | 2,379                     |
|   | 2011        | 6                   | 3,979                     |
|   | 2012        | 27                  | 19,048                    |
|   | 2013        | 13                  | 9,442                     |
|   | 2018        | 6                   | 1,697                     |
| <b>Skarn Sub-total</b>                      |             | <b>56</b>           | <b>36,545</b>             |

1 Joint Venture

2 Pre-Excellon (Apex)

3 From Underground

Table is continued on next page.

**Table 8: Drilling Summary by Area and by Year (Continued)**

| <b>Area</b>                              | <b>Year</b> | <b>No. of Holes</b> | <b>Metres</b>      |
|--|-------------|---------------------|--------------------|
| <b>Platosa Mantos/Source</b>             | 1999        | 21                  | 2,612 <sup>2</sup> |
|  | 2000        | 6                   | 1,054 <sup>2</sup> |
|  | 2001        | 12                  | 2,501              |
|  | 2002        | 27                  | 3,905              |
|  | 2004        | 45                  | 6,497              |
|  | 2005        | 20                  | 3,350              |
|  | 2006        | 195                 | 33,807             |
|  | 2007        | 100                 | 21,182             |
|  | 2008        | 176                 | 39,474             |
|  | 2009        | 88                  | 22,185             |
|  | 2010        | 174                 | 43,026             |
|  | 2011        | 90                  | 20,028             |
|  | 2012        | 34                  | 9,602              |
|  | 2013        | 36                  | 10,581             |
|  | 2014        | 17                  | 6,698              |
|  | 2016        | 17                  | 3,492              |
|  | 2017        | 8                   | 2,556              |
|  | 2018        | 3                   | 650                |
| <b>Manto/Source Sub-total</b>            |             | <b>1,069</b>        | <b>233,201</b>     |
| <b>Underground Exploration</b>           | 2014        | 26                  | 1,170              |
|  | 2015        | 57                  | 3,204              |
|  | 2016        | 14                  | 1,076              |
|  | 2017        | 88                  | 6,732              |
|  | 2018        | 36                  | 2,856              |
| <b>Underground Exploration Sub-total</b> |             | <b>221</b>          | <b>15,036</b>      |
| <b>Totals</b>                            |             |                     |                    |
| Pre-Excellon Drilling (Apex)             |             | 33                  | 4,674 <sup>2</sup> |
| Excellon Exploration Drilling + JV       |             | 1,497               | 353,396            |
| <b>Grand Total, March 31, 2018</b>       |             | <b>1,530</b>        | <b>358,070</b>     |

1 Joint-Venture

2 Pre-Excellon (Apex)

3 From Underground

Prior to 2016, measurements were generally collected every six drill rods or 18 metres, and starting in 2016, measurements were taken every 15 metres. In 2017, Excellon resurveyed 18 drillholes with four surveys completed using the Excellon-owned Icefield MI5 and the remaining holes were surveyed with a Devico DeviShot. Drill collars are surveyed by an Excellon surveyor using a theodolite. Drillhole collars are sealed with a concrete marker upon completion and inscribed with the drillhole ID.

Core logging is done on laptop computers. Information captured includes: collar information, lithology, sampling intervals, specific gravity analyses, and geotechnical information including: recovery, RQD, basic rock strength assessment, and qualitative and quantitative information on jointing.

SRK notes that core recovery is variable, especially in the mineralized zones of historical holes, and that rock competency varies widely. Core recovery has improved substantially over the history of the project due to the site-specific experience gained by the operating personnel. In some of the earlier holes, recoveries varied from 100 percent to as low as 15 percent, but ranged between 50 and 100 percent in more recent drilling.

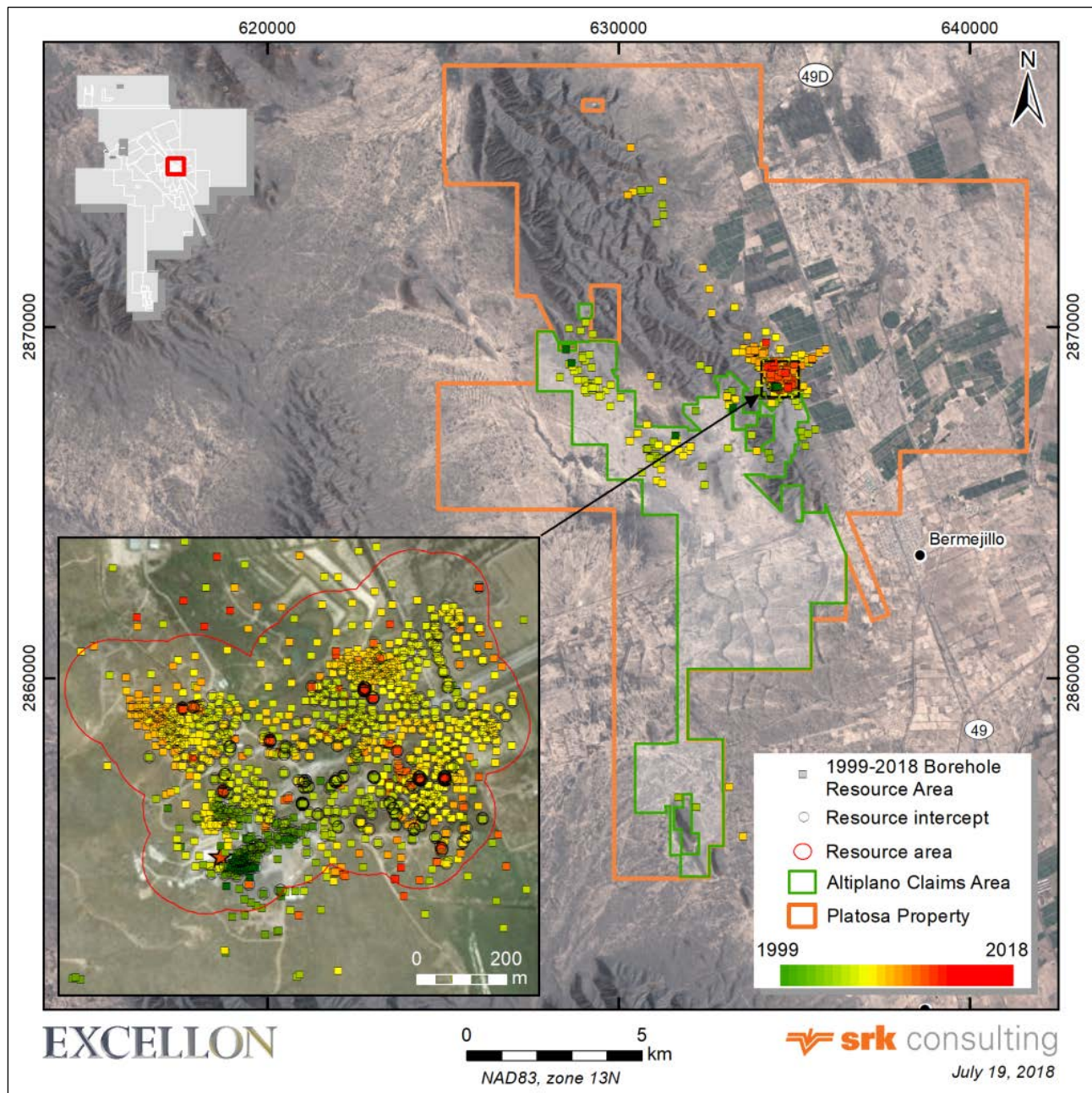


Figure 15: Surface Drillhole Location Summary by Year

## 10.1 Drill Core Sampling Method and Approach (2008–2018)

Excellon operates a core handling facility located 800 metres north of the mine portal. The drill core is moved from the drill site to the facility where an Excellon geologist logs the core and marks it for sample intervals. All drill core is then photographed.

Core logging is done on laptop computers. Information captured includes: collar information, lithology, sampling intervals, specific gravity analyses, and geotechnical information including: recovery, RQD, basic rock strength assessment, and qualitative and quantitative information for jointing.

The sample intervals are selected to honour lithological, structural, or mineralized boundaries. The sample intervals are marked directly on the core and on the core box. The maximum sample length within mineralized sections is 1.5 metres; shoulder samples can measure up to 3 metres.

Samples are obtained by cutting the drill core in half. This is done using a diamond saw, a standard blade-type core splitter, or a spatula depending on the competency of the core. After splitting, one half of the core remains in the core box for reference and long-term storage at the Platosa core storage warehouse (on site) and the other half is put in a plastic bag, with a numbered sample tag, for shipment to the laboratory.

One field duplicate sample per hole is collected for quality control purposes during the sampling procedure. The duplicate is created by cutting the primary half-core into two quarters; one quarter-core becomes the primary sample, the other quarter-core becomes the duplicate, and the remaining half-core remains in the box.

Groups of up to thirty to forty samples are placed in sealed bags for shipping. A list of the samples contained in each sealed bag is submitted to the laboratory. The samples are trucked to the SGS laboratory in Durango by Excellon personnel.

No other sample preparation is carried out by Excellon personnel. The sampling procedures meet standard industry best practice and are appropriate for the deposit type.

## 10.2 Drilling Pattern and Density

Drilling at Platosa varies from 10 to 50 metres within the Platosa resource area. In 2016 the company commenced drilling from underground to tighten the drill spacing ahead of mine workings to 10 metres as well as to better define mantos and structural controls within the deposit. This drilling continues from underground infrastructure. Outside of the Platosa resource area, drill spacing drops off significantly and is localized around regional exploration targets. In the Platosa resource area, SRK considers the drill pattern and spacing appropriate for resource estimation and categorization.

## 10.3 SRK Comments

SRK notes that the sulphide mineralization intersected to date has not been completely closed off by drilling.



## **11 Sample Preparation, Analyses, and Security**

### **11.1 Sample Preparation and Analysis (1997–2005, Apex and Excellon)**

All samples submitted prior to 2005 were shipped by bus to ALS Minerals in Chihuahua, Mexico. ALS Minerals is accredited ISO 17025 by the Standards Council of Canada for a number of specific test procedures, including the method used to assay samples for the Platosa project.

Drill core samples are prepared using the following protocol:

1. Air dry if possible; maximum 120 degrees Celsius if oven-drying is necessary
2. Crush entire sample to greater than 90 percent passing 2 millimetres
3. Riffle-split 250 grams
4. Pulverize 250 grams to greater than 90 percent passing 75 microns

The prepared pulp was sent to ALS Minerals in Vancouver, Canada, for analysis. The pulp was analyzed for 36 elements using a four-acid leach method followed by Inductively Coupled Plasma (ICP) determination. A four-acid leach with determination by Atomic Absorption (AA) is used for silver analysis and over-limit analyses of lead, zinc and copper.

A selection of pulps with high silver-lead-zinc values were sent to Acme Analytical Labs, Vancouver, Canada, for check assaying.

### **11.2 Sample Preparation and Analysis (2005–2008, Excellon)**

All samples submitted between April 2005 and June 2008 were prepared at SGS Minerals, Durango, Mexico, and analyzed for silver, gold, lead, zinc, and copper by four-acid leach with determination by AA. A portion of the prepared sample was sent to SGS Minerals, Don Mills, Canada for a multi-element package by four-acid leach ICP determination.

Drill core samples are prepared using the following protocol:

1. Air dry if possible; maximum 120 degrees Celsius if oven-drying is necessary.
2. Crush entire sample to greater than 90 percent passing 2 millimetres.
3. Riffle split 250 grams.
4. Pulverize 250 grams to greater than 90 percent passing 75 microns.

### **11.3 Sample Preparation and Analysis (2008–2018, Excellon)**

All samples submitted by Excellon from 2008 to March 31, 2018, were prepared and analyzed at SGS Minerals, Durango, Mexico. The Durango Laboratory is accredited ISO 17025 by the Standards Council of Canada for a number of specific test procedures, including the method used to assay samples submitted by Excellon. SGS Minerals laboratories also participate in a number of international proficiency tests, such as those managed by CANMET and Geostats.

Drill core samples are prepared using the following protocol:

5. Air dry if possible; maximum 120 degrees Celsius if oven-drying is necessary.
6. Crush entire sample to greater than 90 percent passing 2 millimetres.
7. Riffle split 250 grams.
8. Pulverize 250 grams to greater than 90 percent passing 75 microns.

Drill core samples used for mineral resource estimation have been analyzed for 33 elements including silver, lead, and zinc using a four-acid leach method followed by Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) determination (ICP40B).

High-grade samples, with silver greater than 100 g/t and lead and zinc greater than 1 percent, are analyzed a second time using a fire assay with gravimetric finish for silver and a sodium peroxide fusion with ICP-AES finish (ICP90Q) for lead and zinc. If necessary, lead and zinc may be measured using titration if the quantity exceeds the upper limit of 30 percent.

The analytical methods used from 2008 to 2018 are summarized in Table 9. The lower and upper limits for the four-acid digest method (ICP40B) are shown in Table 10.

**Table 9: Summary of Preparation and Assay Methods 2008–2018**

| Analyte     | Method Code   | Detection Limit     | Digest   | Instrumentation |
|-------------|---|---------------------|--|-----------------|
| 33 elements | ICP40B  | Variable; see below | four-acid: HNO <sub>3</sub> + HClO <sub>4</sub> + HF + HCl digest plus HCl leach | ICP-AES         |
| Over-limit  | (used when initial analysis shows analyte greater than upper limit specified in Table 10) |                     |  |                 |
| Ag          | FAG323  | 10–5000 ppm         | Fire assay   | Gravimetric     |
| Pb          | ICP90Q  | 0.01–30%            | Sodium Peroxide Fusion   | ICP-AES         |
| Zn          | ICP90Q  | 0.01–30%            | Sodium Peroxide Fusion   | ICP-AES         |

**Table 10: Upper and Lower Limits for Four-Acid ICP Method 2008–2018**

| Analyte  | Lower Limit | Upper Limit | Analyte  | Lower Limit | Upper Limit | Analyte  | Lower Limit | Upper Limit |
|----------|-------------|-------------|----------|-------------|-------------|----------|-------------|-------------|
| Ag (ppm) | 2           | 100         | Fe (%)   | 0.01        | 15          | S (%)    | 0.01        | 5           |
| Al (%)   | 0.01        | 15          | K (%)    | 0.01        | 15          | Sb (ppm) | 5           | 10,000      |
| As (ppm) | 3           | 10,000      | La (ppm) | 0.5         | 10,000      | Sc (ppm) | 0.5         | 10,000      |
| Ba (ppm) | 1           | 10,000      | Li (ppm) | 1           | 10,000      | Sn (ppm) | 10          | 10,000      |
| Be (ppm) | 0.5         | 2,500       | Mg (%)   | 0.01        | 15          | Sr (ppm) | 0.5         | 10,000      |
| Bi (ppm) | 5           | 10,000      | Mn (ppm) | 2           | 10,000      | Ti (%)   | 0.01        | 15          |
| Ca (%)   | 0.01        | 15          | Mo (ppm) | 1           | 10,000      | V (ppm)  | 2           | 10,000      |
| Cd (ppm) | 1           | 10,000      | Na (%)   | 0.01        | 15          | W (ppm)  | 10          | 10,000      |
| Co (ppm) | 1           | 10,000      | Ni (ppm) | 1           | 10,000      | Y (ppm)  | 0.5         | 10,000      |
| Cr (ppm) | 1           | 10,000      | P (%)    | 0.01        | 15          | Zn (ppm) | 1           | 10,000      |
| Cu (ppm) | 0.5         | 10,000      | Pb (ppm) | 2           | 10,000      | Zr (ppm) | 0.5         | 10,000      |

## 11.4 Sample Security

The drilling, sampling and logging are done under the supervision of experienced technical personnel. Logged and sampled drill core is stored in a fenced and access-controlled area of the Platosa mine site and in a locked warehouse in Bermejillo. The core boxes are labelled, and depth markers are inserted at appropriate intervals.

## 11.5 Specific Gravity Data

Methodology for measuring specific gravity was studied in late 2017 to create an optimized methodology that could account for the variations in specific gravity observed at Platosa. Specific gravity data were collected for the 2017 and 2018 drillholes and will continue for future drillholes, with data collection of dedicated specific gravity samples in the hanging wall, footwall, and within the mineralized intervals of drill core.

The samples for specific gravity are taken from cut core during the logging process. They are wrapped in Parafilm to eliminate the effect of buoyancy in plastic, as well as to seal the core off to adequately account for porosity and open spaces observed in core. The samples are then analyzed following the methodology laid out in the company's standard operating procedure for taking density measurements. The procedure consists of suspending the sample in water, correcting for temperature, and weighing it on a calibrated scale. Results are recorded in a dedicated spread sheet (illustrated in Figure 16) which is used to calculate the specific gravity for each sample. Excellon-generated data are used in conjunction with data collected for the 2014 Technical Report (RPA 2014) to document specific gravity values for the known extents of the Platosa mantos (Table 11).

|                         |                       |           |             |                       |                |   |                              |            |   |                                |                                      |                                      |    |
|-------------------------|-----------------------|-----------|-------------|-----------------------|----------------|---|------------------------------|------------|---|--------------------------------|--------------------------------------|--------------------------------------|----|
| Date                    |                       |           |             |                       |                |   |                              |            |   |                                |                                      |                                      |    |
| Logged by               | First Name, Last Name |           |             |                       |                |   |                              |            |   |                                |                                      |                                      |    |
| Wrap Density (Required) | 0.941                 |           |             |                       |                |   |                              |            |   |                                |                                      |                                      |    |
|                         |                       |           |             | Measurements          |                |   |                              | Calculated |   |                                |                                      |                                      |    |
| Hole ID                 | Depth (m)             | Sample ID | Length (cm) | Water (°C) (Required) | Dry Sample (g) | Sample/Wrap (g) (If Wrap is not used, re-enter dry weight here) | Sample/Plastic Suspended (g) | Wrap       | Sample + Wrap volume (cm <sup>3</sup> ) | Wrap Volume (cm <sup>3</sup> ) | Dry Sample Volume (cm <sup>3</sup> ) | Dw=Water density(g/cm <sup>3</sup> ) | SG |
|                         |                       |           |             |                       |                |   |                              |            |   |                                |                                      |                                      |    |

Figure 16: Specific Gravity Data Template

Table 11: Calculated Specific Gravity Values for Mantos at Platosa

| Manto                 | Number of Samples | Specific Gravity |
|-----------------------|-------------------|------------------|
| Manto_4,6A/B          | 90                | 3.26             |
| Manto_Guadalupe       | 145               | 3.26             |
| Manto_Guadalupe South | 79                | 3.31             |
| Manto_Rodilla         | 49                | 3.09             |
| Manto_623             | 94                | 3.31             |
| Manto_674             | 5                 | 2.88             |
| Manto_Pierna          | 42                | 3.41             |
| Manto_NE-1            | 43                | 3.09             |
| Manto_NE-1 South      | 56                | 2.97             |

## 11.6 Quality Assurance and Quality Control Programs (2005–2007)

Prior to 2007 no quality control samples were inserted into the sample stream by Excellon during diamond drilling.

## 11.7 Quality Assurance and Quality Control Programs (2007–2013)

In May 2007, after a review by an independent consultant, Excellon began submitting one certified reference material and one blank material with each batch of 30 to 40 samples. Excellon staff reviewed failures and action was taken when required. In 2014, Roscoe Postle Associates (RPA) reviewed the QA/QC results from past programs (Ross and Michaud 2014, Ross 2011, Ross 2010, and Ross and Rennie 2008) and found protocols and results to be adequate to support mineral resource estimation (Cox et al. 2015). RPA states:

*From June 2011 until June 2013, there were sufficient control samples inserted in each of the 75 batches submitted and pertinent to the resource estimation as of December 31, 2013. Thirty-five batches returned CRM values outside the expected range for either silver, lead or zinc. Among them twenty-six were not reanalyzed because they had insignificant mineralization. Nine of the 35 failed batches, or relevant portions of the batches, were resubmitted to SGS for reanalysis and the resource database was updated accordingly.*

*Results from the 2011, 2012, and 2013 drill programs are summarized in Table 11-1 and described in the following sections. Sample numbering mix-ups are thought to be minimal and are not included in the list of failures. In summary, the QAQC protocols and results are acceptable to support a Mineral Resource estimate at Platosa.*

| <i>Table 11-1 Summary of QAQC Results</i>         |              |             |              |
|---|--------------|-------------|--------------|
| <i>Excellon Resources Inc. – Platosa Property</i> |              |             |              |
|   | <i>2011</i>  | <i>2012</i> | <i>2013</i>  |
| <i>No. Holes</i>                                  | <i>43</i>    | <i>27</i>   | <i>32</i>    |
| <i>No. Samples</i>                                | <i>1,387</i> | <i>966</i>  | <i>2,373</i> |
| <i>No. Batches</i>                                | <i>28</i>    | <i>16</i>   | <i>31</i>    |
| <i>No. Batches with QAQC</i>                      | <i>28</i>    | <i>16</i>   | <i>31</i>    |
| <i>No. Failed Batches due to CRMs</i>             | <i>8</i>     | <i>12</i>   | <i>15</i>    |
| <i>No. Failed Batches due to Blanks</i>           | <i>4</i>     | <i>0</i>    | <i>2</i>     |
| <i>No. Batches Requiring Reanalysis</i>           | <i>4</i>     | <i>1</i>    | <i>4</i>     |

Quality control procedures and results are described in the previous technical report by RPA dated July 9, 2015 (Cox et al. 2015).

## 11.8 Quality Assurance and Quality Control Programs (2014–2018)

Excellon engaged Analytical Solutions Limited (ASL) in February 2018 to prepare an independent report related to the performance of Excellon’s 2014 to 2018 quality control program. The following information draws from this report and focuses on the quality control measures applied to core samples drilled by Excellon between January 2014 and March 2018.

A total of approximately 3,800 samples (including quality control samples) from the Platosa mine were collected and assayed between January 2014 and April 2018.

The 2014 to 2018 quality control program included the use of at least one reference material inserted immediately preceding a mineralized intersection, as well as a sample of blank material inserted immediately following that mineralized intersection. Depending on the length of the mineralized interval, additional reference and blank samples were inserted to obtain an overall insertion rate of at

least one in ten samples per drillhole being a reference material or blank material. One field duplicate per hole was sampled.

### 11.8.1 Blanks

Blank material was inserted in the sample stream to test for contamination in sample preparation during the analytical procedure (contaminated reagents or crucibles) or from sample solution carry-over during instrumental finish. Core intervals of micritic limestone were used as the blank material. This limestone may contain background levels of the elements that are being monitored and therefore may not be totally barren.

A total of 171 blanks were inserted in the sample stream. The blank materials were determined to have failed when silver was above 30 ppm, and lead and zinc were above 150 ppm.

Twenty-three percent of the blanks (39 samples) had levels of silver, lead, or zinc above the failure criteria cited in the previous paragraph. In five of those cases, the blank sample and samples before and after the blank sample were reanalyzed. The reanalysis confirmed that the original results were acceptable. In sixteen cases, no action was taken as the blank material was inserted immediately following mineralized intervals and the failure was assumed to be due to carry-over from the mineralized intercept. The highest reported values in the blank material were 1,712 ppm zinc in sample UG01074 and 838 ppm lead in sample UG01067; these values are well below the high grade obtained in mineralized intercepts.

The low rate of silver, lead, and zinc quality control failures for blanks indicates that sample cross-contamination in preparation and analysis is well controlled and not a risk for the project. The low levels of silver, lead, or zinc are assumed to be part of the background values of the limestone.

### 11.8.2 Reference Materials

The four reference materials inserted for the quality control program were in-house materials prepared from Platosa mineralization by CDN Resource Laboratories Ltd and certified by R/Exploration Inc. of Blainville, Quebec (Table 12).

In September 2017, due to poor performance of PLA-8, Excellon discontinued the use of the PLA in-house reference materials and purchased four different certified reference materials from a third-party supplier, ORE Research and Exploration (ORE). The ORE certified reference materials are matrix-matched, and the expected values are based on four-acid digest Inductively Coupled Plasma (ICP) analyses (Table 13).

A total of 227 reference samples were analyzed for silver, 162 for lead, and 162 for zinc. Quality control failures were identified for silver, lead and zinc; the failure criteria were set at cases where the results were outside three times the standard deviation or where consecutive reference materials assayed two times the standard deviation. Excellon staff identified quality control failures when results were received and requested repeat assays as required.

**Table 12: Excellon In-House Reference Materials**

| RM ID | Recommended Values $\pm$ One Standard Deviation (Interlaboratory) |                  |                  |
|-------|---|------------------|------------------|
|       | Ag (g/t) $\pm 1SD$  | Pb (%) $\pm 1SD$ | Zn (%) $\pm 1SD$ |
| PLA-8 | 40.58 $\pm$ 1.75 (AAS finish)                                     | 0.31 $\pm$ 0.003 | 0.37 $\pm$ 0.008 |
| PLA-7 | 1017.12 $\pm$ 8.58  | 9.61 $\pm$ 0.31  | 4.75 $\pm$ 0.14  |
| PLA-4 | 4599.44 $\pm$ 63.01   | 44.76 $\pm$ 1.16 | 16.16 $\pm$ 0.31 |
| PLA-3 | 2386.09 $\pm$ 121.36  | 20.38 $\pm$ 0.94 | 22.91 $\pm$ 0.88 |

**Table 13: ORE Research and Exploration Certified Reference Materials**

| RM ID      | Certified Value $\pm$ One Standard Deviation |                   |                   |
|------------|--|-------------------|-------------------|
|            | Ag (g/t)                                     | Pb (%)            | Zn (%)            |
| OREAS 133a | 99.9 $\pm$ 2.42                              | 4.90 $\pm$ 0.162  | 10.87 $\pm$ 0.354 |
| OREAS 134b | 209 $\pm$ 9                                  | 13.36 $\pm$ 0.743 | 18.03 $\pm$ 0.755 |
| OREAS 603  | 284 $\pm$ 15.9                               | 1908 $\pm$ 124.8  | 0.920 $\pm$ 0.031 |
| OREAS 605  | 965 $\pm$ 25.2                               | 1297 $\pm$ 136    | 0.216 $\pm$ 0.009 |

All reference material data were plotted on control charts and results are summarized in Table 14 to Table 16. In the summary statistics, N denotes accepted samples. Samples were labelled as outliers by having a Z-score greater than 5, and failures by having a Z-Score greater than 3, where  $Z\text{-score} = (\text{Measured} - \text{Expected}) / \text{Tolerance}$ .

**Table 14: Performance for Silver in Certified Reference Materials**

| RM (method)    | N          | Outliers excluded | Failures excluded | Ag g/t                  |           | Observed Ag g/t |           | Percent of Accepted (%) |
|----------------|------------|-------------------|-------------------|-------------------------|-----------|-----------------|-----------|-------------------------|
|                |            |                   |                   | Accepted                | Std. Dev. | Average         | Std. Dev. |                         |
| PLA-8 (40B)    | 48         | 5                 | 21                | 41                      | 2         | 40              | 2         | 97                      |
| PLA-8 (FA)     | 51         | 5                 | 18                | 39                      | 1         | 38              | 1         | 99                      |
| PLA-7 (FA)     | 24         | 1                 | 7                 | 1,017                   | 9         | 1,019           | 12        | 100                     |
| PLA-4 (FA)     | 2          | -                 | 1                 | 4,599                   | 63        | 4,606           | 8         | 100                     |
| PLA-3 (FA)     | 4          | -                 | -                 | 2,386                   | 121       | 2,459           | 10        | 103                     |
| OREAS 605 (FA) | 10         | -                 | -                 | 965                     | 25        | 997             | 31        | 103                     |
| OREAS 603 (FA) | 26         | -                 | -                 | 284                     | 16        | 302             | 11        | 107                     |
| OREAS 134b     | 1          | -                 | -                 | 209                     | 9         | 200             | -         | 96                      |
| OREAS 133a     | 3          | -                 | -                 | 100                     | 2         | 96              | 3         | 96                      |
| <b>Total</b>   | <b>121</b> | <b>11</b>         | <b>47</b>         | <b>Weighted Average</b> |           |                 |           | <b>100</b>              |

**Table 15: Performance for Lead in Certified Reference Materials**

| RM (method)      | N         | Outliers excluded | Failures excluded | Pb %                    |           | Observed Pb % |           | Percent of Accepted (%) |
|------------------|-----------|-------------------|-------------------|-------------------------|-----------|---------------|-----------|-------------------------|
|                  |           |                   |                   | Accepted                | Std. Dev. | Average       | Std. Dev. |                         |
| PLA-8 (40B)      | 19        | 40                | 15                | 0.305                   | 0.003     | 0.302         | 0.038     | 99                      |
| PLA-7 (90Q)      | 17        | 4                 | 10                | 9.605                   | 0.308     | 9.506         | 0.357     | 99                      |
| PLA-4 (CON12V)   | 3         | -                 | -                 | 44.760                  | 1.160     | 44.647        | 0.071     | 100                     |
| PLA-3 (90Q)      | 3         | -                 | 1                 | 20.380                  | 0.940     | 18.533        | 0.231     | 91                      |
| OREAS 605 (40B)  | 6         | -                 | 4                 | 0.130                   | 0.014     | 0.109         | 0.012     | 84                      |
| OREAS 603 (40B)  | 20        | -                 | 6                 | 0.191                   | 0.012     | 0.172         | 0.007     | 90                      |
| OREAS 134b (90Q) | 6         | -                 | -                 | 13.360                  | 0.743     | 12.667        | 0.153     | 95                      |
| OREAS 133a (90Q) | 8         | -                 | -                 | 4.900                   | 0.162     | 4.820         | -         | 98                      |
| <b>Total</b>     | <b>82</b> | <b>44</b>         | <b>36</b>         | <b>Weighted Average</b> |           |               |           | <b>95</b>               |

**Table 16: Performance for Zinc in Certified Reference Materials**

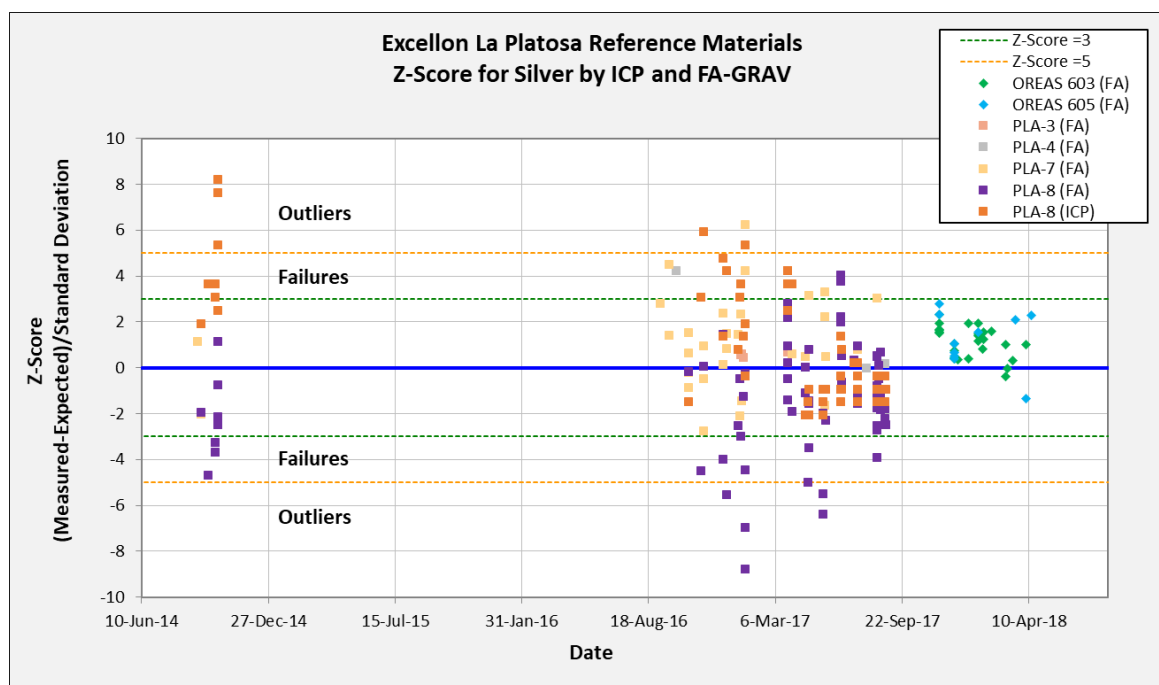
| RM (method)      | N         | Outliers excluded | Failures excluded | Zn %                    |           | Observed Zn % |           | Percent of Accepted (%) |
|------------------|-----------|-------------------|-------------------|-------------------------|-----------|---------------|-----------|-------------------------|
|                  |           |                   |                   | Accepted                | Std. Dev. | Average       | Std. Dev. |                         |
| PLA-8 (40B)      | 11        | 45                | 18                | 0.366                   | 0.008     | 0.369         | 0.082     | 101                     |
| PLA-7 (90Q)      | 21        | -                 | 10                | 4.749                   | 0.140     | 4.880         | 0.147     | 103                     |
| PLA-4 (90Q)      | 3         | -                 | -                 | 16.160                  | 0.310     | 16.033        | 0.058     | 99                      |
| PLA-3 (90Q)      | 3         | -                 | 1                 | 22.910                  | 0.880     | 24.267        | 0.577     | 106                     |
| OREAS 605 (40B)  | 6         | -                 | 4                 | 0.216                   | 0.009     | 0.211         | 0.006     | 98                      |
| OREAS 603 (40B)  | 17        | -                 | 9                 | 0.920                   | 0.031     | 0.913         | 0.025     | 99                      |
| OREAS 134b (90Q) | 6         | -                 | -                 | 18.030                  | 0.755     | 17.683        | 0.397     | 98                      |
| OREAS 133a (90Q) | 8         | -                 | -                 | 10.870                  | 0.354     | 10.835        | 0.384     | 100                     |
| <b>Total</b>     | <b>75</b> | <b>45</b>         | <b>42</b>         | <b>Weighted Average</b> |           |               |           | <b>101</b>              |

## Silver

The observed average values for silver in reference materials fall within -5 to + 7 percent of expected values. The lower-grade silver reference materials tend to report low whereas the higher-grade reference materials are reporting higher than the expected value.

PLA-8 was the most frequently used reference material. Due to its low silver grade, it is not a good representation of typical silver grades at the Platosa deposit nor is the fire assay with gravimetric finish method recommended to accurately measure silver at these low levels.

Figure 17 shows all the silver results for all the reference materials inserted by Excellon for the period plotted on a Z-score chart. In 2014, and from Aug 2016 to March 2017, PLA-8 by fire assay reported lower than the expected values (negative Z-score), and lower than PLA-8 ICP results. Performance improved after March 2017, when the difference between assays of PLA-8 by fire assay with gravimetric finish and those by ICP decreased.



**Figure 17: Z-Score Chart for Silver by ICP and Fire Assay with Gravimetric Finish**



The other three in-house reference materials had silver grades at or above 1000 g/t silver. The results were analyzed by fire assay with gravimetric finish. The results for these reference materials are acceptable. Control charts for all reference materials and elements of interest are included in Appendix A.

After September 2017, Excellon discontinued the use of the PLA in-house reference materials and purchased OREAS reference materials. The results from OREAS 603 and 605 reported no failures or outliers, but the results are biased slightly high, in the order of 5 percent. These reference materials are new to the project and do not represent a large number of data points.

A total of eleven outliers were identified for silver. No action was required because the reference materials were inserted in a series of samples without significant mineralization. The occasional result outside the allowed range is expected and does not always warrant follow up. Ten of the eleven outliers were samples of PLA-8.

A total of 47 failures were identified for silver. In 45 cases, Excellon staff noted that no action was deemed required. In two cases, the sample intervals bracketing the reference material were later sent for analysis at a secondary analytical facility. After the repeat assays, the original results were deemed acceptable and remained in the database. In 39 cases, the failures were of PLA-8; as discussed previously PLA-8 is now considered an unacceptable reference material.

## **Lead and Zinc**

The overall observed averages for the lead reference materials were within 84 to 100 percent of the accepted value of the reference materials; for zinc, between 98 and 106 percent. All of the reference material results for lead are biased low. Two of the reference materials results for zinc show a high bias.

In-house reference material PLA-8 again performed poorly with 74 percent of the cases for lead and 85 percent of the cases for zinc being failures or outliers. The material was most used between October 2016 and October 2017. The results remain consistent over that period.

Similarly, 50 percent of the results for PLA-7 were failures or outliers for both lead and zinc. The PLA materials may have oxidized or degraded over time causing the poor results and low bias. The new reference materials from ORE show fewer failures and no outliers but are still biased low for OREAS 603 and 605 (lead and zinc less than 1 percent). The higher grade OREAS 133a and 134b results show better results but have only been analyzed six to eight times to date.

Lead has been reporting low consistently since 2014 as seen on Figure 18. If all the results from PLA-8 were removed, the results for lead (Figure 18) and zinc (Figure 19) would be acceptable.

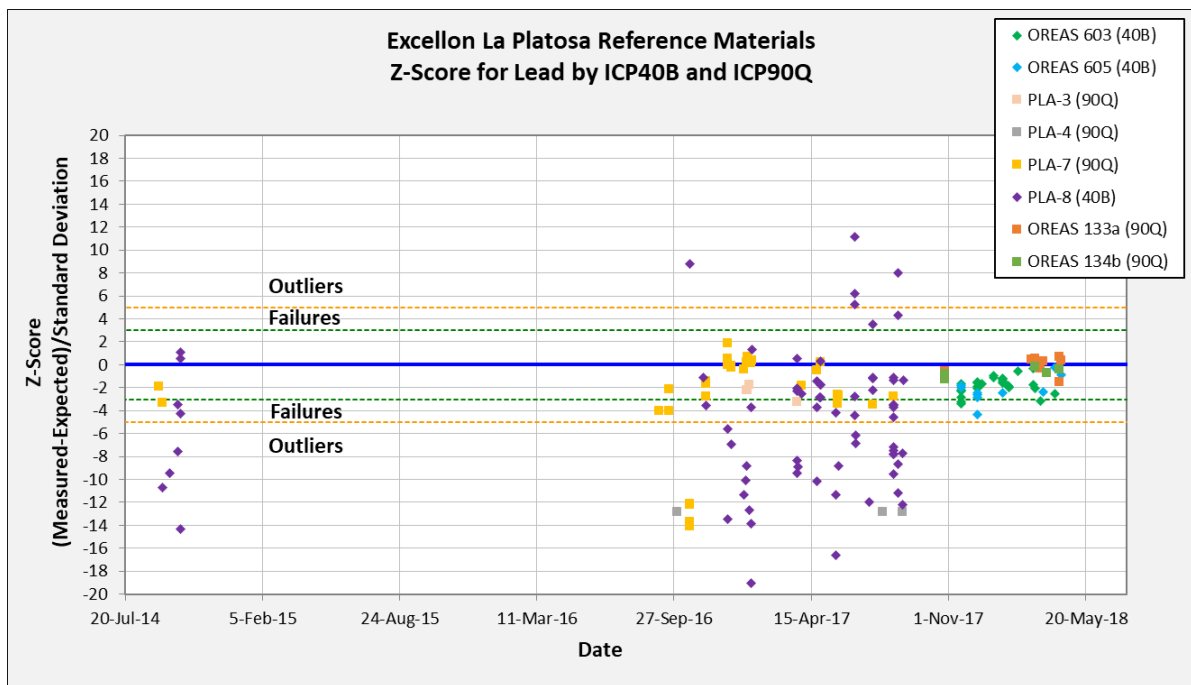


Figure 18: Z-Score Chart for Lead by ICP40B, 90Q and Titration

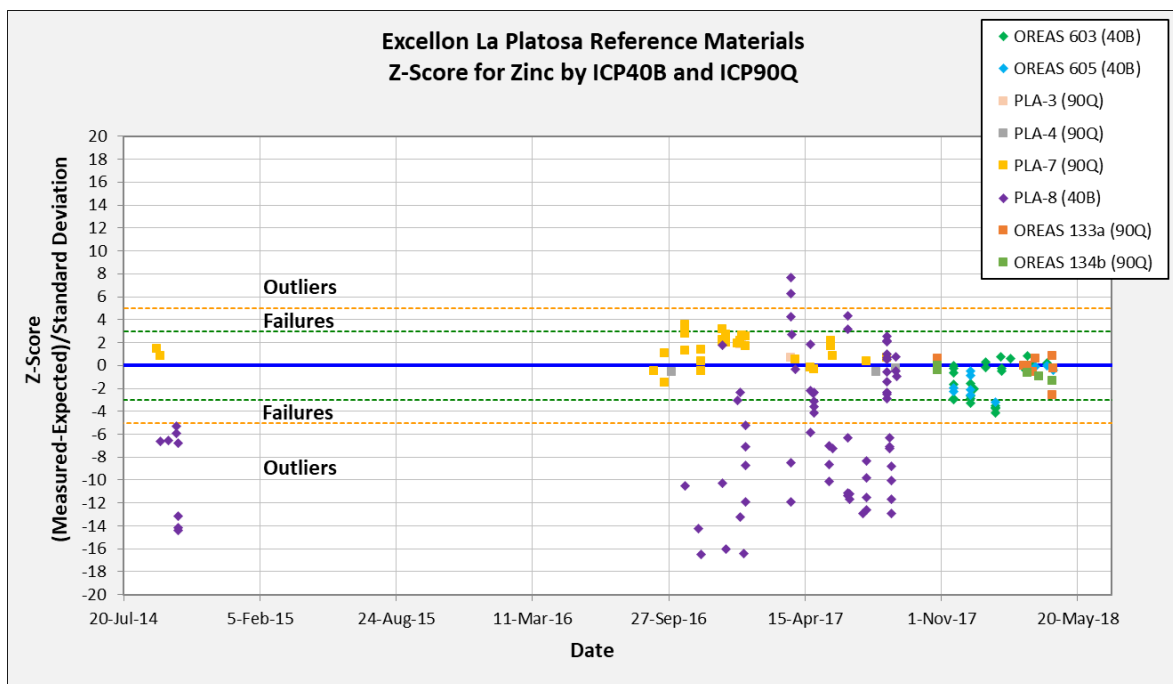


Figure 19: Z-Score Chart for Zinc by ICP40B, 90Q and Titration

### 11.8.3 Reproducibility of Laboratory Preparation and Pulp Duplicates

Commercial laboratories routinely assay a second aliquot of the sample pulp at a usual frequency of one in ten samples. The data are used by the laboratory for their internal quality-control monitoring. The data are provided at no additional cost to Excellon. Excellon provided the quality control data in Excel spreadsheets.

Results for pulp and preparation duplicates that were reviewed fall within an expected range for base metal assays. Only the duplicate pairs above 10 times the lower detection limit are considered significant and are included in calculations.

Lead and zinc pulp duplicate pairs for method ICP90Q as well as silver pulp duplicate pairs report within  $\pm 10$  percent for 100 percent of the pairs. The lead and zinc pulp duplicate pairs for ICP40B report within  $\pm 10$  percent for 77 and 68 percent of the pairs, respectively. Similarly, duplicate pairs for splits of the crushed material (i.e. preparation duplicates) report within  $\pm 10$  percent for 48 to 75 percent of duplicate pairs.

The results are consistent with expectations. The data are suitable for use in mineral resource estimation.

### 11.8.4 Field Duplicates

One field duplicate sample per hole is collected for quality control purposes during the sampling procedure.

The core sample is split in half to determine the following:

- The reproducibility of assays for different halves of the core
- If there is any sampling bias

To make field duplicate samples, the primary half-core sample is split into two quarter-core samples. One quarter core was submitted as the primary sample and the other quarter core was submitted as the duplicate. This is common industry practice but alters the sampling statistics.

Field duplicates were taken from 2006 to 2008 and were re-introduced in April of 2017. A total of 90 quarter-core duplicates were collected and submitted for analyses. The summary of the quarter core duplicates can be found in Table 17.

Between 40 to 80 percent of the quarter core duplicates agree within  $\pm 50$  percent for silver, lead, and zinc.

**Table 17: Summary of Quarter-Core Duplicate Results**

| Analyte | # of Pairs<br>above 10x d.l. | % of Sample Pairs<br>(10 x d.l.) Reporting within: |            |            |
|---------|------------------------------|--|------------|------------|
|         |                              | $\pm 10\%$   | $\pm 25\%$ | $\pm 50\%$ |
| Pb      | 80                           | 26%  | 55%        | 80%        |
| Zn      | 89                           | 25%  | 48%        | 78%        |
| Ag      | 5                            | 0%   | 40%        | 40%        |

The correspondence for duplicates improves for higher grade samples, likely because the core is more pervasively mineralized. Where the assay results of two quarter-core duplicate, or of two half-core duplicates, do not correspond well, it is likely because the core is a mixture of host rock and mineralization and, depending on the orientation, one sample may be more mineralized than the other. This discussion of variability of field duplicates is based on the comparison of two quarter-core duplicates; however, in general industry practice, half-core duplicate samples are typically used to support resource estimation. The variability of core duplicates, whether for half-core or quarter-core, is highly dependent on the distribution of the mineralization.

The results are impacted by the nature of the sampling and the style of mineralization. The variation for core duplicates is within the expected range for the deposit style.

There is no quality expectation for core duplicates and therefore the results are not actionable.

There is sufficient data for quarter-core duplicates; field duplicates do not need to be collected for the remainder of resource drilling unless new styles of mineralization are encountered.

### **11.8.5 Check Assays**

Check assays consist of submitting pulps that were assayed by one laboratory to a different laboratory and reanalyzing them by using the same analytical procedures. This is done primarily to improve the assessment of bias, based on the reference materials and in-house control samples submitted to the original laboratory. Reference materials are also inserted with samples submitted to the secondary laboratory to evaluate if the secondary laboratory is potentially biased.

Twenty-five check assays were completed by Excellon on samples analyzed in September and October 2016 and an additional fifty-four check assays were completed on samples analyzed in 2017 and the first quarter of 2018.

#### **2016**

Twenty-five pulps were sent to TSL Laboratories in Saskatoon, Saskatchewan. This represents approximately 4 percent of all the samples analyzed during 2016. Two reference materials were inserted in the check-assay batch. The focus of the check assays was on reproducing silver grades.

The pulps submitted for check assaying were analyzed for silver by fire assay with gravimetric finish and a four-acid multi-element package. All of the samples had lead and/or zinc greater than 1 percent and were not re-analyzed using a method with a higher detection limit.

All of the samples reported within  $\pm 10$  percent for silver by fire assay with gravimetric finish. Seventy-five percent of the sample results were higher at SGS than at TSL. The SGS results are on average 2 percent higher than the TSL results.

#### **2017-2018**

Fifty-four pulps were sent to ALS Minerals in Hermosillo, Sonora, Mexico. This represents approximately 3 percent of the samples analyzed during 2017 and the first quarter of 2018. One reference material and one blank material were inserted in the check assay batch. The results returned no failures in the reference materials inserted.

The samples submitted to ALS Minerals were analyzed for silver, lead and zinc using an aqua regia with ICP finish. For silver analyses above 1,500 g/t, a lead fire assay with gravimetric finish was used. In comparison to the digestions used at SGS of four-acid and sodium peroxide fusion.

Over 70 percent of the check assay results for lead, zinc, and silver are within  $\pm 10$  percent of the two sets of laboratory results.; this is considered acceptable. The average Relative Percent Difference (RPD), a rough estimate of bias, is tabulated for all elements in Table 18.

**Table 18: Summary of ALS Check Assay Results**

| Analyte | No. of Pairs above 10x d.l. | Percentage of Sample Pairs Reporting within: |            |            |            |
|---------|-----------------------------|--|------------|------------|------------|
|         |                             | Average RPD                                  | $\pm 10\%$ | $\pm 25\%$ | $\pm 50\%$ |
| Lead    | 40                          | -7.3%  | 73%        | 93%        | 100%       |
| Zinc    | 43                          | 1.4%   | 86%        | 100%       | 100%       |
| Silver  | 47                          | -0.5%  | 100%       | 100%       | 100%       |

## 11.9 ASL Comments

In the opinion of ASL, the sampling preparation, security and analytical procedures used by Excellon are consistent with generally accepted industry best practices and are, therefore, adequate.

## 12 Data Verification

### 12.1 Verification by Excellon

Core logging procedures include capturing drillhole data, lithology, geotechnical information, sampling intervals and specific gravity measurements using entry forms that enforce code integrity and identify any gaps or overlaps during data entry errors. The information is then housed in database format and is further checked for errors using queries.

Assay data were verified against original certificates. Assay results received from contract laboratories are merged with their unique sample number within the database to minimize the possibility of error.

All assay intervals within the mineralized wireframe were compared to original certificates; minimal errors were reported and corrected during the process.

### 12.2 Verification by SRK

#### 12.2.1 Site Visit

In accordance with NI 43-101 guidelines, several members of the SRK team visited the Platosa mine and Miguel Auza mill between April 2017 and March 2018 to inspect the property, conduct field investigations, and hold discussions with Excellon site personnel.

Mr. Blair Hrabí visited the site from April 24 to 28, 2017. The main purpose of this site visit was to assist with the 3-D fault modelling for the mine and also to investigate the geological and structural controls on the distribution of the gold mineralization in order to aid the construction of three-dimensional gold mineralization domains. While on site, Mr. Hrabí mapped underground in the Manto Rodillo, Manto 6A, and Guadalupe Sur areas; mapped surface exposures for one-half day; and examined representative drill core from 11 drillholes. Existing Excellon underground mapping of structural features and the distribution of the mineralized domains was generally accurate and representative. No verification of underground face or channel samples was made. The drillhole logs accurately reflect the geology observed in drill core in almost all cases. No verification of drillhole locations or survey accuracy was made by SRK during this site visit.

Mr. Sebastien Bernier visited the Platosa mine from January 30 to 31, 2018. The purpose of Mr. Bernier's site visit was to review the digitization of the exploration database and validation procedures, review exploration procedures, define geological modelling procedures, examine drill core, interview project personnel, and collect all relevant information for the preparation of an updated mineral resource model and the compilation of a technical report. During the visit, a particular attention was given to the treatment and validation of historical drilling data.

## 12.2.2 Verification of Analytical Quality Control Data

Chantal Jolette from ASL analyzed the analytical quality control data produced by the Excellon 2014 to 2018 drilling program.

Excellon provided the external analytical control data containing the assay results for the quality control samples for the Platosa mine. All data were provided in Microsoft Excel spreadsheets. Ms. Jolette aggregated the assay results of the external analytical control samples for further analysis.

Control samples were charted as follows to highlight their performance:

- Control charts for blank material
- Control charts for reference materials
- Scatter plot and Relative Percent Difference (RPD) chart for pulp duplicates
- Scatter plot and RPD chart for core duplicates
- Scatter plot and RPD chart for check assays

The charts that were plotted to assess the performance of the primary laboratory SGS are provided in Appendix A. The performance of the analytical control data is discussed in Section 11.8.

In the opinion of the Qualified Persons, the sample preparation, security, and analytical procedures for all assay data for 2014 to 2018 are adequate to support mineral resource estimation.



## 13 Mineral Processing and Metallurgical Testing

### 13.1 Background

The mineral processing facility at Miguel Auza processes the mineralized material from Platosa. Platosa is a carbonate replacement deposit (CRD) rich in silver, lead, and zinc; this style of mineralization is common in Mexico. Early in the mine life, processing was carried out at the Peñoles Naica Mill; it transitioned to the Miguel Auza processing facility on March 19, 2009, following Excellon's acquisition of Silver Eagle Mines.

The mineralized material is processed using a conventional grinding and sequential—lead-zinc flotation process where the lead and most of the silver report to the lead concentrate; the tails from the lead concentrate are then run through a secondary flotation circuit that recovers the zinc and remaining silver. The Miguel Auza processing facility has a grinding capacity of 650 tonnes per day but it generally operates at 350 tonnes per day to better align with the production rate at Platosa and reduce power consumption.

### 13.2 Metallurgical Testing

Limited metallurgical testwork was conducted throughout the history of the project. The most pertinent metallurgical information comes from plant-operating data collected since 2009.

In 2008, SGS Lakefield, under the direction of DRA Americas Inc., conducted metallurgical testwork on samples believed to represent the average grade of Platosa mineralization. Although this testwork program was quite extensive, as more than 50 batch rougher/cleaner flotation tests and 4 locked cycle tests were conducted, the majority of the work was conducted on a bulk flotation flowsheet which is unrepresentative of the mill's actual sequential flowsheet now in use. This testwork will therefore be described but the results are to be used with caution due to limitations of this approach. Instead, the actual production data from 2009 to 2018 is used to qualify the metallurgical performance of the Platosa mineralization.

The bulk flowsheet tested in 2008 included a primary grind to a P80 of approximately 75 µm, followed by bulk flotation of lead, zinc, and silver into a rougher concentrate. Regrinding of the rougher concentrate to a P80 of approximately 30 µm was followed by two stages of bulk concentrate cleaning prior to lead/zinc separation. Zinc was depressed from the bulk concentrate using a combination of sulphurous acid, dextrin, sulphuric acid, and high temperature. The best test produced a lead concentrate grading 41 percent lead at a lead recovery of 67 percent, and a zinc concentrate grading 59 percent zinc at a zinc recovery of 85 percent.

In the author's opinion, although this bulk flowsheet approach is workable in the lab, it is operationally complex, potentially OPEX-intensive (due to heating of the slurry to 95 degrees Celsius) and led to locked cycle tests that were metallurgically unstable—further highlighting the flaws of the bulk circuit approach. Therefore, these locked cycle test results should be used with caution. Alternative flowsheets, such as the sequential lead/zinc flotation scheme, are available and considered more effective.

A limited number of sequential lead-zinc flotation tests were conducted during the 2008 SGS testwork program. These tests were conducted at the end of the program, presumably once it was

concluded that the bulk flowsheet was not a viable option. Five batch-sequential flotation tests were conducted, followed by a single locked cycle test. The reagent scheme is considered conventional for this type of mineralized material: zinc sulphate and sodium cyanide were added to the primary grind (P80 of approximately 50-75  $\mu\text{m}$ ) as zinc depressants, followed by selective lead flotation at natural pH. Zinc was then floated at elevated pH (adjusted with lime), with copper sulphate and xanthate added as activator and collector respectively. Lead and zinc rougher concentrates were then reground and cleaned separately to produce clean lead and zinc concentrates. This flowsheet is similar to the actual flowsheet currently in place at Miguel Auza, although not identical, as the Miguel Auza mill does not have concentrate regrinding capability.

Test number SGS LCT-4 was conducted using the sequential flowsheet and produced a lead concentrate grading 55 percent lead at a 74 percent lead recovery, and a zinc concentrate grading 50 percent zinc at an 81 percent zinc recovery. Although far more stable than the bulk circuit locked cycle tests, this test still did not reach steady state and these results should be used with caution.

In summary, very limited metallurgical testwork has been conducted on the flowsheet that is currently in place at Miguel Auza, although historical mill performance data is robust and in line with the metallurgical testwork results that are currently available. There are differences between the SGS sequential flowsheet and the actual mill flowsheet, namely the absence of regrinds on the lead and zinc rougher concentrates; therefore, no true baseline of metallurgical performance of Platosa mineralization is available. Although the mill production data suggests that Platosa mineralization is relatively clean and easy to upgrade, this lack of a true testwork baseline does suggest potential for optimization of the current mill flowsheet and possible improvement in metallurgical performance.

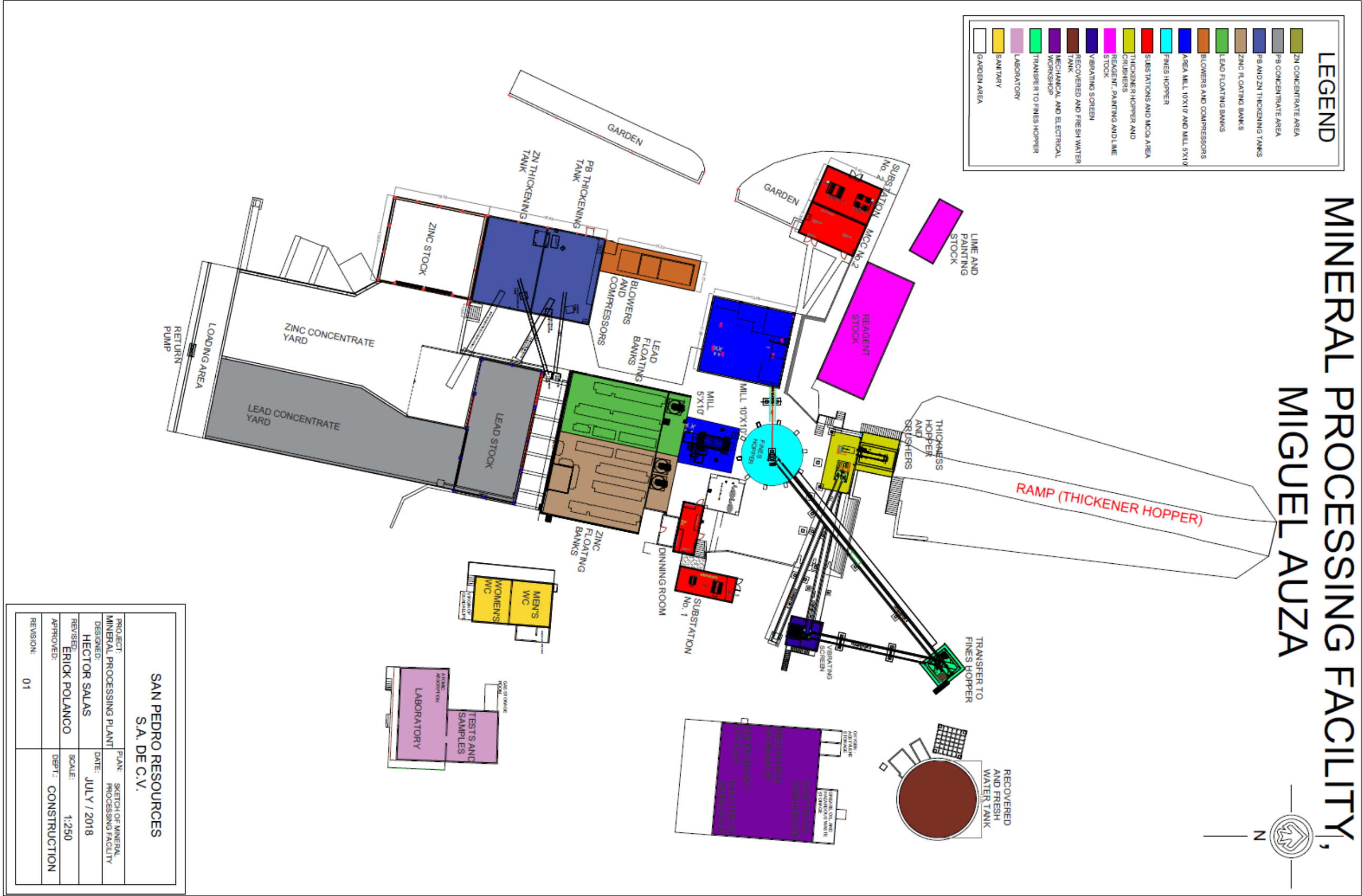


Figure 20: Miguel Auza Mineral Processing Facility

### 13.3 Mineralogy

Typical mineralization includes lead-bearing minerals such as galena and zinc-bearing minerals such as sphalerite. Acanthite and lesser proustite are the main silver-bearing minerals; acanthite is predominant; proustite is typically visible where silver grades exceed the average grade of the mineralized body.

### 13.4 Recovery Estimates

Between March 19, 2009—when Excellon began processing at Miguel Auza—and March 31, 2018, a total of 559,106 tonnes grading 670 g/t silver, 5.80 percent lead, and 7.87 percent zinc were processed. In 2017, recoveries for metals were 89 percent silver, 81 percent lead and 81 percent zinc.

### 13.5 Grindability

The grinding capacity of the ball mill is 650 tonnes per day. The ball mill is typically operated at a rate of 350 tonnes per day, in line with the supply of mineralized material from Platosa. The operating work index is calculated monthly from the kWh power consumption and actual tonnes milled, as shown in Figure 21. Actual Bond Ball Work Index (BWI) data are generated on a monthly basis and the average value between January 2017 and March 2018 was 10.6 kWh/tonne (approximately 2 kWh/tonne lower than the operating work index).

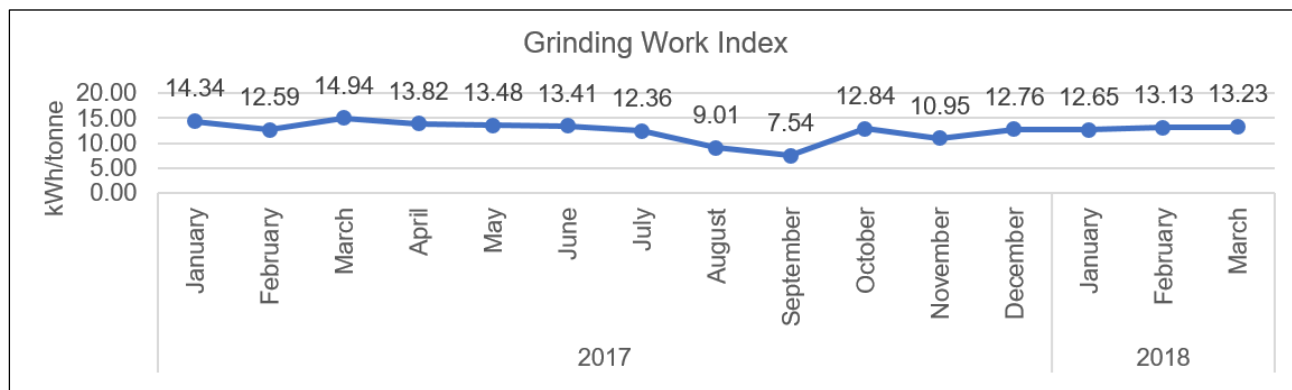


Figure 21: Grinding Work Index January 2017–March 2018

## 13.6 Forecasting Metallurgical Performance

The head grades are predicted using the block model in combination with the mine plan. Each truck is sampled as it leaves Platosa. As the grade varies with each manto, mineralized material is blended at Miguel Auza to provide a stable head grade.

## 13.7 Deleterious Elements

Sales of concentrate are based on offtake agreements with Trafigura Group Pte Ltd. and Ocean Partners USA Inc. Deleterious elements of concern are: antimony, arsenic, cadmium, silica and fluorine. Penalties are incurred when the concentration of antimony and arsenic in lead concentrates exceeds 1.0 and 0.5 percent, respectively, and when cadmium and silica in the zinc concentrates exceed 0.3 and 5.0 percent, respectively. Fluorine in both the zinc and lead concentrates is penalized when levels exceed 400 to 500 parts per million (ppm). Antimony, arsenic, and cadmium are assayed at the Miguel Auza laboratory and the concentrates are blended when necessary to keep these elements under the penalty limit; fluorine and silica are not assayed internally as the lab lacks the specialized equipment to test for these elements. The updated resource model factors in these deleterious elements so that areas of concern can be identified during the mine planning process and appropriate blending can be planned.

## 13.8 Metallurgical Research

Current metallurgical research is focused on:

- Addition of copper circuit for toll milling
- Automation of sampling
- Potential expansion of the processing facility to 800 tonnes per day
- Operations and flowsheet review by third party metallurgical consultant (Blue Coast Research)

## 14 Mineral Resource Estimates

### 14.1 Introduction

SRK was retained by Excellon to update the mineral resource estimate for the underground polymetallic (silver, lead, and zinc) Platosa mine, located near Torreón in central Mexico.

Since the publication of the previous technical report by RPA. in July 2015 (to support the Preliminary Economic Assessment of the Platosa mine), Excellon completed a series of underground and surface drilling programs, totalling 171 holes for approximately 17,120 metres. This additional infill and exploration drilling conducted on the deposit, combined with significant underground extraction, warrants the preparation of a new mineral resource evaluation for the deposit in support of ongoing mining activities at Platosa.

The mineral resources reported herein considers drilling information available to March 31, 2018 and were evaluated using a geostatistical block modelling approach constrained by polymetallic mineralization wireframes. The mineral resources were estimated in conformity with the CIM “Mineral Resource and Mineral Reserves Estimation Best Practices” guidelines and are classified according to the CIM *Definition Standards for Mineral Resources and Mineral Reserves* (May 2014). The Mineral Resource Statement is reported in accordance with Canadian Securities Administrators’ National Instrument 43-101. Mineral resources are not mineral reserves and have not demonstrated economic viability. There is no certainty that all or any part of the mineral resources will be converted into mineral reserves. SRK is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that may materially affect the mineral resources. The effective date of the Mineral Resource Statement is March 31, 2018 (Table 19).

**Table 19: Mineral Resource Statement\*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018**

| Category  | Quantity<br>Ktonnes | Grade           |             |             | Contained Metal    |                  |                  |
|-----------|---------------------|-----------------|-------------|-------------|--------------------|------------------|------------------|
|           |                     | Silver<br>(g/t) | Lead<br>(%) | Zinc<br>(%) | Silver<br>(000 oz) | Lead<br>(000 lb) | Zinc<br>(000 lb) |
| Measured  | -                   | -               | -           | -           | -                  | -                | -                |
| Indicated | 485                 | 549             | 5.6         | 5.9         | 8,562              | 59,752           | 62,953           |
| Total     | 485                 | 549             | 5.6         | 5.9         | 8,562              | 59,752           | 62,953           |
| Inferred  | 13                  | 516             | 4.7         | 6.5         | 216                | 1,344            | 1,859            |

\* Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Composites were capped where appropriate. Mineral resources are reported at a silver-equivalent cut-off value of 375 grams per tonne, considering metal prices of US\$17.00 per ounce of silver, US\$1.10 per pound of lead, US\$1.30 per pound of zinc, and assuming metal recovery of 89% for silver, 81% for lead and 81% for zinc.

### 14.2 Mineral Resource Estimation Methodology

The mineral resources reported herein were estimated using a geostatistical block modelling approach informed from core drillhole data constrained within polymetallic mineralization wireframes. The geological model of the polymetallic mineralization represents a series of distinct mineralized mantos, mappable from drillhole to drillhole but that are offset by late brittle faults. The

mantos were defined using a traditional wireframe interpretation constructed from explicit modelling and sectional interpretation of the drilling data.

The evaluation of the mineral resources involved the following procedures:

- Database compilation and verification
- Construction of three-dimensional wireframe models of the boundaries of the mineralization
- Definition of resource domains within the geological mantos models
- Data extraction and processing (compositing and capping), statistical analysis, and variography
- Selection of estimation strategy and estimation parameters
- Block modelling and grade estimation
- Validation, depletion, classification, and tabulation
- Assessment of “reasonable prospects for eventual economic extraction,” and selection of the reporting assumptions
- Preparation of the Mineral Resource Statement.

### 14.2.1 Resource Database

Exploration data available to evaluate the mineral resources for the Platosa mine include 1,098 surface core drillholes (207,392 metres) drilled by Excellon. Some underground service holes were excluded from the database due to their lack of sampling. Silver, lead, and zinc assay grades were considered for the geological modelling and the mineral resource estimation of the mantos. The collar position of each drillhole was assessed using a hand-held GPS unit for the surface drilling (with accuracies generally within a few metres) and underground survey points for the underground drilling.

SRK received the drillhole sampling data as CSV files which included mineralized intervals to be used for the geological estimation. The data was imported into Leapfrog Geo and Datamine Studio RM. SRK performed the following validation steps:

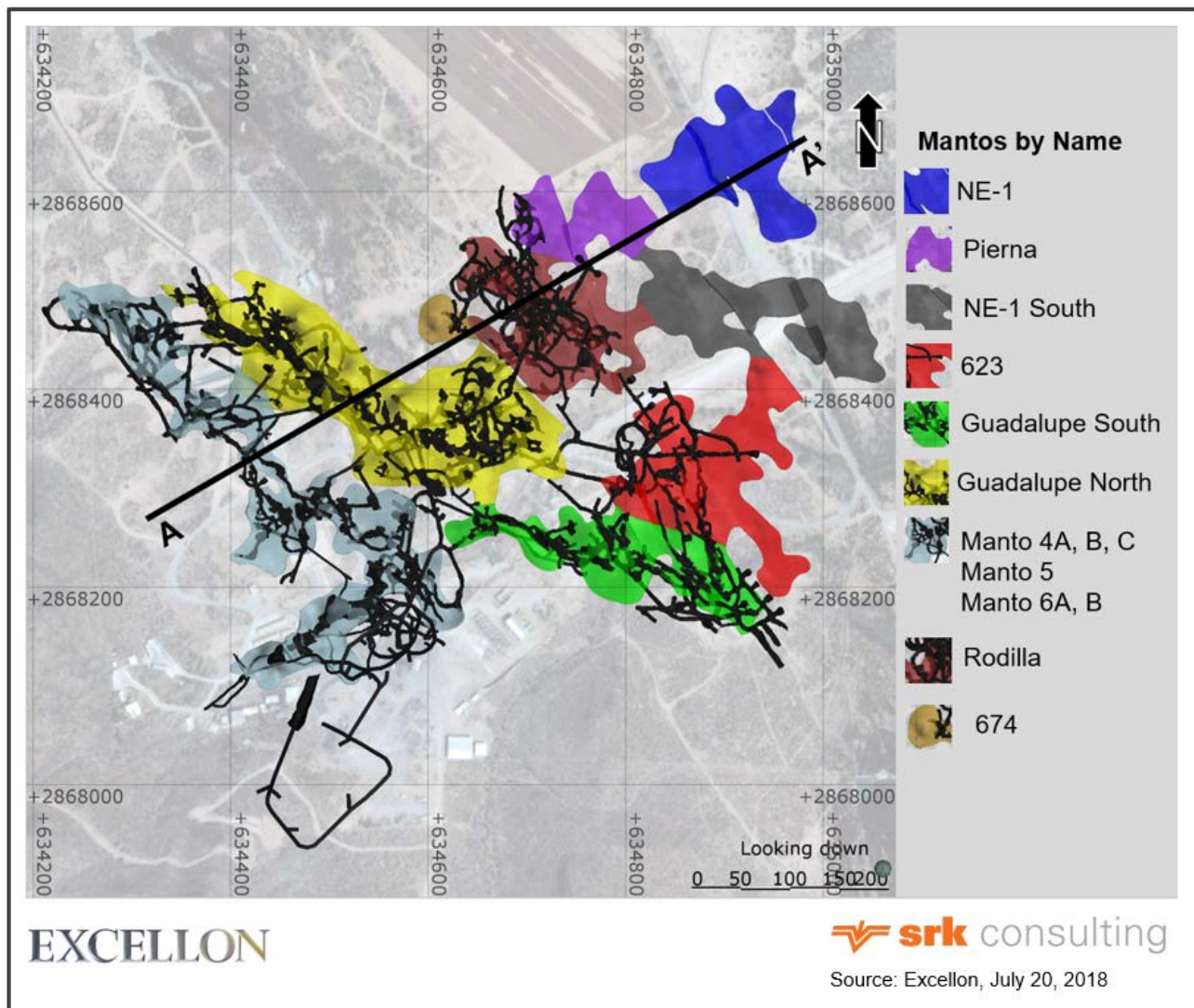
- Checked minimum and maximum values for each quality-value field and confirmed/edited those beyond expected ranges.
- Checked for gaps, overlaps, and out-of-sequence intervals in assays tables.

No errors were found and SRK is satisfied with the database received from Excellon.

### 14.2.2 Geological Modelling

Polymetallic mineralization at the Platosa mine area represents high-temperature epigenetic silver-lead-zinc carbonate replacement deposits (CRD) called mantos. The stratigraphy at Platosa mine was modelled with Leapfrog Geo software utilizing stratigraphic sequence modelling. Stratigraphic contacts were defined using lithology log data. The mantos fall largely within the heterolithic fragmental limestone unit (HEFL) unit and the mantos were modelled independently of this unit by creating wireframes interpolated from hanging wall and footwall contacts that were picked using both the lithology and mineralization logs. These contacts were used to create vein-like horizons and lenses that were subsequently limited in their lateral extent with clipping surfaces. These clipped horizons formed the wireframes that were used to define the mineralized wireframe volumes (Figure 22).





**Figure 22: Modelled Mantos and Underground Infrastructure – Plan View**

### 14.2.3 Specific Gravity

Specific gravity measurements were collected by a traditional water displacement methodology at the company's exploration facilities as part of the routine sampling protocol. A total of 603 specific gravity measurements were taken within the various mantos (Figure 23). Due to the spatial location of the specific gravity measurements and the lack of correlation between the measurements and the metal content, a uniform average specific gravity was applied to each mantos.

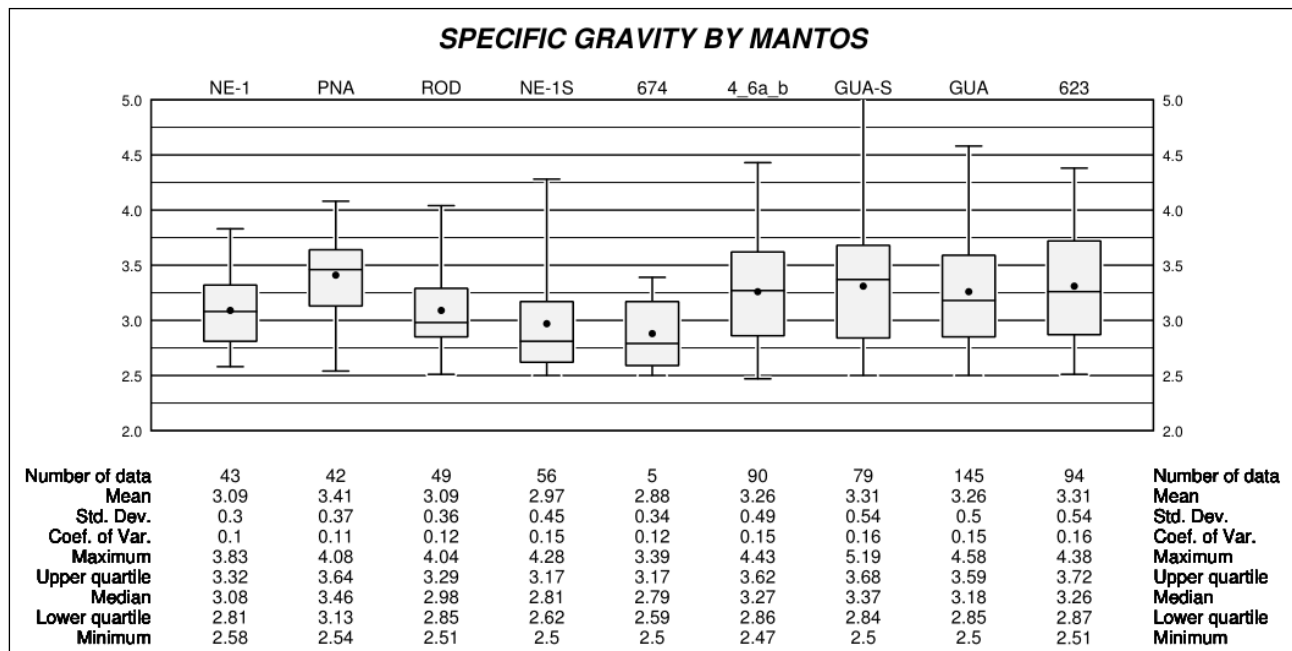


Figure 23: Summary of the Specific Gravity Database

## 14.2.4 Compositing and Capping

Drillhole assay data were extracted from all combined mantos (Figure 24) and examined for determining an appropriate composite length. Block model cell dimensions and current/future underground mining methods were also considered in the selection of the composite length. After evaluation, a modal composite length of 1.0 metre was applied to all mantos, honouring the geological/mineralization envelope boundaries. Most of the long intervals are associated with unsampled un-mineralized material within the mantos.

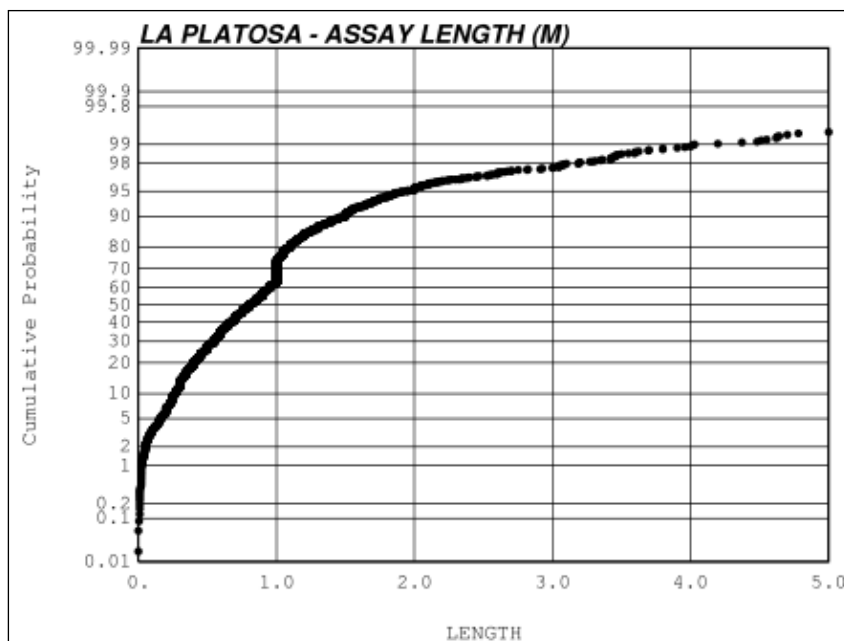


Figure 24: Assay Length within the Mantos

The impact of silver, lead, and zinc outliers was examined on composite data using log probability plots and cumulative statistics for all mantos combined. Basic statistics for assays, composites, and capped composites for each metal are summarized in Table 20. Basic statistics, histograms, and cumulative probability plots for each metal were applied to determine appropriate capping grades as seen in Table 20. These are illustrated in Figure 25 using silver as an example.

**Table 20: Basic Statistics for All Mantos at Platosa Mine**

| Element                  | Sample Count | Minimum | Maximum  | Mean   | Standard Deviation | Coefficient of Variation | Capped Count |
|--------------------------|--------------|---------|----------|--------|--------------------|--------------------------|--------------|
| <b>Assays</b>            |              |         |          |        |                    |                          |              |
| Silver (g/t)             | 2,836        | 0.00    | 9,369.00 | 461.40 | 905.63             | 1.96                     |              |
| Lead (%)                 | 2,836        | 0.00    | 64.65    | 4.51   | 7.76               | 1.72                     |              |
| Zinc (%)                 | 2,836        | 0.00    | 54.00    | 5.31   | 9.31               | 1.75                     |              |
| <b>Composites</b>        |              |         |          |        |                    |                          |              |
| Silver (g/t)             | 2,644        | 0.00    | 7,030.00 | 457.86 | 809.87             | 1.77                     |              |
| Lead (%)                 | 2,644        | 0.00    | 58.89    | 4.50   | 7.11               | 1.58                     |              |
| Zinc (%)                 | 2,644        | 0.00    | 50.99    | 5.28   | 8.78               | 1.66                     |              |
| <b>Capped Composites</b> |              |         |          |        |                    |                          |              |
| Silver (g/t)             | 2,644        | 0.00    | 4,860.00 | 453.62 | 783.11             | 1.73                     | 12           |
| Lead (%)                 | 2,644        | 0.00    | 44.00    | 4.49   | 7.06               | 1.57                     | 3            |
| Zinc (%)                 | 2,644        | 0.00    | 41.00    | 5.26   | 8.72               | 1.66                     | 7            |

## 14.2.5 Block Model Definition

Criteria used in the selection of block size included the drillhole spacing, composite assay length, the geometry of the modelled zones, and the current/future underground mining technique. In collaboration with Excellon, SRK chose a block size of 5 by 5 by 2 metres for all mantos. Subcells, at 0.25 metre resolution, were used to honour the geometry of the modelled mantos. Subcells were assigned the same grade as the parent cell. The block model is not rotated. The characteristics of the final block model are summarized in Table 21.

**Table 21: Platosa Mine Block Model Specifications**

| Mantos | Axis | Block Size (m) |         | Origin*   | Number of Cells | Rotation Angles | Rotation Priority |
|--------|------|----------------|---------|-----------|-----------------|-----------------|-------------------|
|        |      | Parent         | Subcell |           |                 |                 |                   |
| All    | X    | 5              | 0.25    | 634,200   | 180             | -               | -                 |
|        | Y    | 5              | 0.25    | 2,868,000 | 160             | -               | -                 |
|        | Z    | 2              | 0.25    | 700       | 200             | -               | -                 |

\* UTM grid (NAD 83 datum)

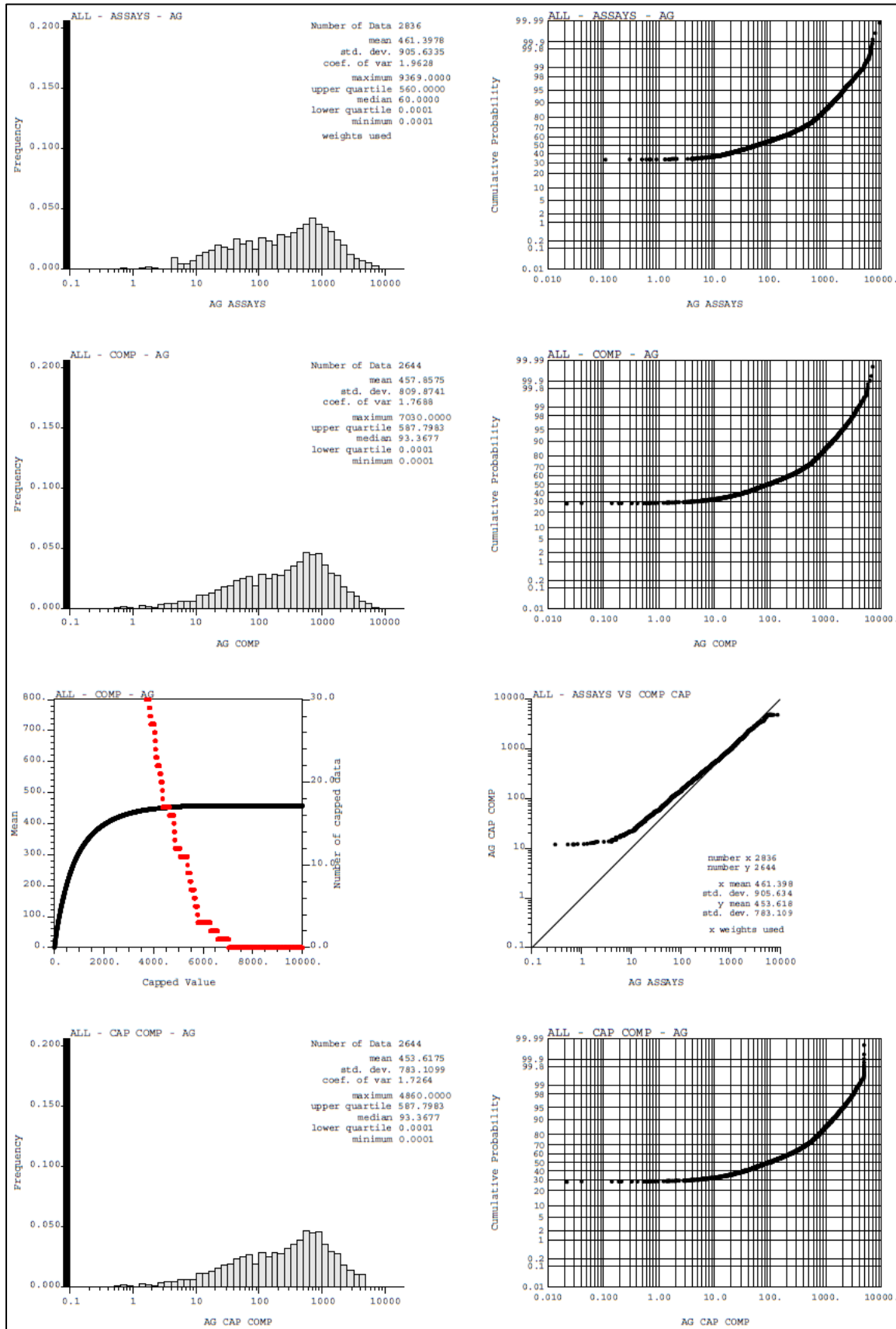
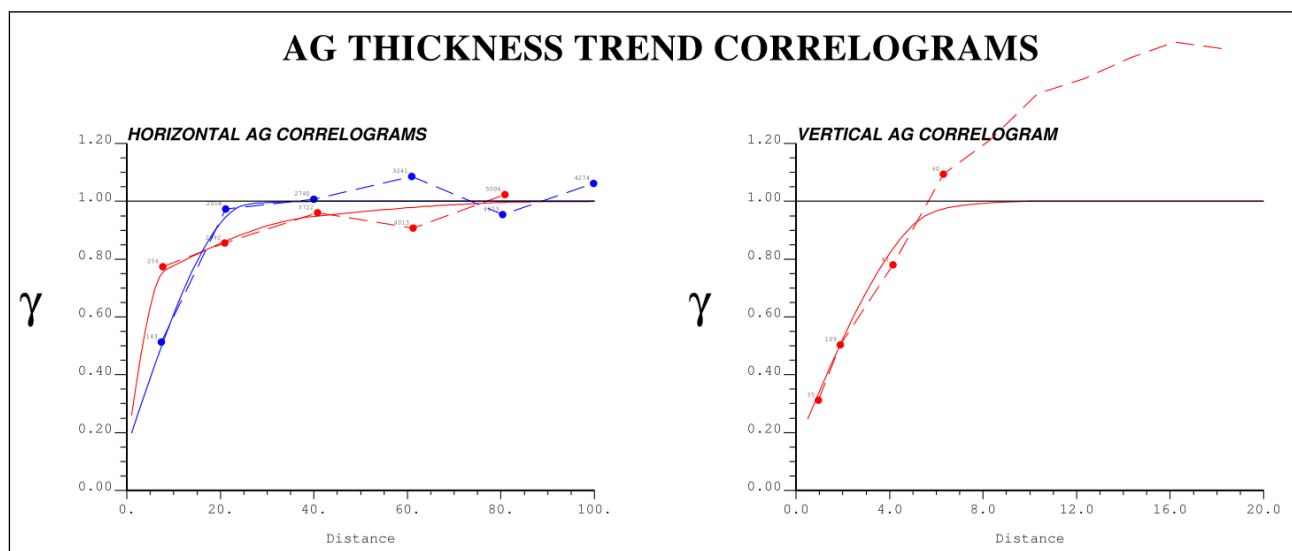


Figure 25: Basic Statistics for Silver Data in Mineralized Mantos

## 14.2.6 Variography and Search Ellipsoid

The assessment of continuity directions was based on underground mapping that suggests a strong correlation between syn-deformation structure and continuity direction of the mineralization. SRK evaluated the spatial distribution of the silver mineralization by using variogram and correlogram modelling of the original capped composite data within those mantos that contained sufficient information to develop reliable variogram models. Furthermore, variogram calculations considered sensitivities on orientation angles prior to finalizing the correlation orientation.

All variogram analysis and modelling was performed using Datamine RM and the Geostatistical Software Library. The use of correlograms yielded reasonably clear continuity long-range structures allowing fitting of variogram models (Figure 26 and Table 22). The variogram model developed for silver was applied to lead and zinc.



**Figure 26: Silver Correlogram for Platosa Mine**

Note: The correlogram is inverted for the purposes of variogram modelling. The solid lines correspond to the fitted model, while the dashed lines correspond to the experimental variogram in those same directions.

**Table 22: Silver Variogram Parameters for Platosa Mine**

| Mantos | Structure      | Contribution | Model  | R1x<br>(m) | R1y<br>(m) | R1z<br>(m) | Angle <sup>1</sup><br>1 | Angle <sup>1</sup><br>2 | Angle <sup>1</sup><br>3 | Axis<br>1 | Axis<br>2 | Axis<br>3 |
|--------|----------------|--------------|--------|------------|------------|------------|-------------------------|-------------------------|-------------------------|-----------|-----------|-----------|
| All    | C <sub>0</sub> | 0.15         | Nugget | -          | -          | -          | -35                     | -28                     | -2                      | 3         | 2         | 1         |
|        | C <sub>1</sub> | 0.54         | Sph    | 25         | 8          | 6          | -35                     | -28                     | -2                      | 3         | 2         | 1         |
|        | C <sub>2</sub> | 0.18         | Sph    | 28         | 40         | 7          | -35                     | -28                     | -2                      | 3         | 2         | 1         |
|        | C <sub>3</sub> | 0.08         | Sph    | 28         | 90         | 10         | -35                     | -28                     | -2                      | 3         | 2         | 1         |
|        | C <sub>4</sub> | 0.05         | Sph    | 40         | 100        | 10         | -35                     | -28                     | -2                      | 3         | 2         | 1         |

<sup>1</sup> The rotation angles are shown in Datamine RM convention.

## 14.2.7 Estimation Strategy

Table 23 summarizes the general estimation parameters used for the silver, lead, and zinc estimation. Each mantos was estimated individually. In all cases, grade estimation used an ordinary kriging

estimation algorithm and three passes informed by capped composites. The first pass was the most restrictive in terms of search radii and number of drillholes required. Successive passes usually populate areas with less dense drilling, using relaxed parameters and less data requirements (Table 24). SRK assessed the sensitivity of the silver block estimates to changes in minimum and maximum number of data, use of octant search, and the number of informing drillholes. Results from these studies show that, globally, the model is relatively insensitive to the selection of the estimation parameters and data restrictions, mainly due to the relatively small dataset available. For the first estimation pass, composites from at least three drillholes, informing at least seven of the search ellipsoid octants, were necessary to estimate a block.

To account for the highly variable geometry of the mantos, dynamic anisotropy angles were estimated by using the footwall and hanging wall wireframes of the mantos. These angles were used for the grade estimation by adjusting the search ellipse and variogram model dip and dip direction to coincide with the locally calculated dynamic anisotropy angles. Furthermore, the short axis of the ellipse was increased to ensure that a sufficient number of composites would be used for the estimation in consideration of the geometry of the mantos.

**Table 23: Summary of Estimation Search Parameters for All Metals**

| Parameter                                  | 1st Pass | 2nd Pass | 3rd Pass |
|--|----------|----------|----------|
| Interpolation method                       | OK       | OK       | OK       |
| Search range X (m)                         | 40       | 40       | 40       |
| Search range Y (m)                         | 100      | 100      | 100      |
| Search range Z (m)                         | 50       | 50       | 50       |
| Minimum number of composites               | 7        | 7        | 2        |
| Maximum number of composites               | 10       | 12       | 16       |
| Octant search                              | Yes      | Yes      | No       |
| Minimum number of octant                   | 7        | 5        | -        |
| Minimum number of composites per octant    | 1        | 1        | -        |
| Maximum number of composites per octant    | 12       | 12       | -        |
| Maximum number of composites per drillhole | 3        | 3        | -        |

**Table 24: Volume Estimated per Pass**

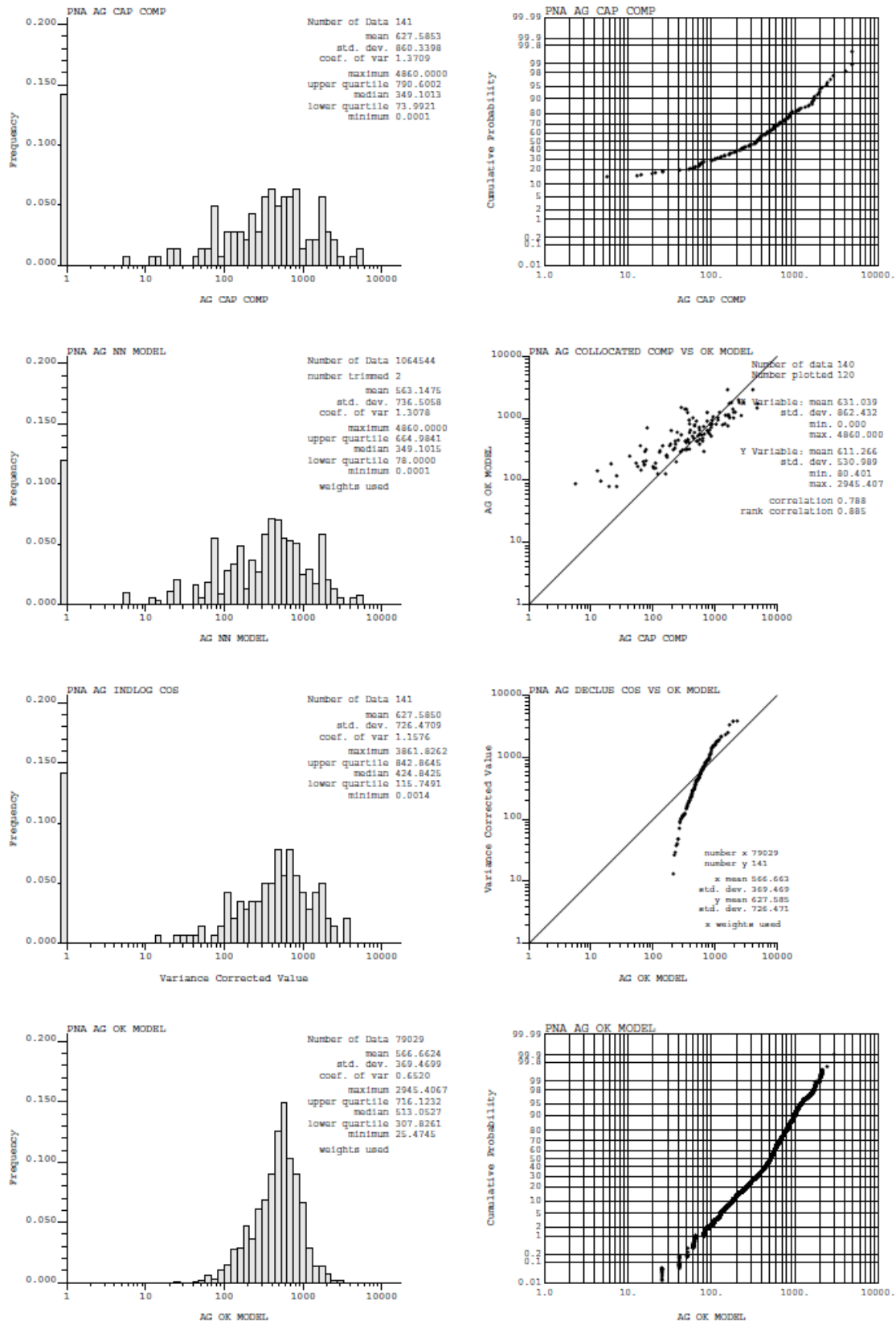
| Mantos | Estimation Pass | Volume Estimation (m <sup>3</sup> ) | Percent Estimated |
|--------|-----------------|-------------------------------------|-------------------|
| All    | 1               | 155,206                             | 26%               |
|        | 2               | 322,900                             | 54%               |
|        | 3               | 117,467                             | 20%               |

## 14.2.8 Block Model Validation

The block model estimates were validated through the following steps:

- Comparison of the basic statistics of inverse distance estimates with nearest neighbour estimates and with the original capped composite source data (Figure 27).
- Comparison of inverse distance estimates global average against nearest neighbour estimated.
- Visual comparison of block estimates to original drillhole data on plans and sections.
- Comparison with annual production records.

Validation checks confirm that the block estimates are a reasonable representation of the informing data considering the current level of geological and geostatistical understanding of the deposit.



**Figure 27: Validation of the Silver Block Estimates for the Mineralized Mantos, Domain 200, Pierna**



## 14.3 Mineral Resource Classification

Block model quantities and grade estimates were classified according to the *CIM Definition Standards for Mineral Resources and Mineral Reserves* (May 2014) by Mr. Sébastien Bernier, PGeo (APGO#1847, OGQ#1034).

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

SRK is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support mineral resource evaluation. The sampling information was acquired by core drilling with pierce points spaced between 10 and 50 metres apart, but generally at 25-metre intervals. Accordingly, all block estimates within the mineralized mantos below the current mining front were classified as Indicated mineral resources. Potentially recoverable pillars in the upper portion of the mine have been classified as Inferred mineral resources in consideration of the engineering work required to confirm their potential extraction.

## 14.4 Preparation of Mineral Resource Statement

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

*“[A] concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.”*

The requirements for “*reasonable prospects for economic extraction*” generally imply that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recoveries.

SRK considers that the polymetallic (silver, lead, and zinc) mineralization of the mantos of the Platosa mine is amenable to underground extraction. In collaboration with Excellon, SRK considered the assumptions listed in Table 25 to select appropriate reporting assumptions. Upon review, SRK considers that it is appropriate to report the Platosa mine mineral evaluation at a cut-off grade of 375 grams of silver equivalent per tonne (g/t silver equivalent or AgEq) using the following equation:

$$\text{AgEq} = (\text{Ag} + (\text{Pb} \times 40.38) + (\text{Zn} \times 47.72))$$

**Table 25: Assumptions Considered for Underground Extraction**

| Parameters                        | Value      | Unit                  |
|-----------------------------------|------------|-----------------------|
| Silver Price                      | 17.00      | US\$/oz               |
| Lead Price                        | 1.10       | US\$/Pound            |
| Zinc Price                        | 1.30       | US\$/Pound            |
| Silver Recovery                   | 89         | Percent               |
| Lead Recovery                     | 81         | Percent               |
| Zinc Recovery                     | 81         | Percent               |
| <br>Mining Costs                  | 133        | US\$/tonne mined      |
| Processing / Transportation Costs | 42         | US\$/tonne of feed    |
| General and Administrative        | 12         | US\$/tonne of feed    |
| <b>Total Cost</b>                 | <b>187</b> | <b>US\$/tonne</b>     |
| <br>Mining Dilution               | 15         | Percent               |
| Mining Loss                       | 5          | Percent               |
| <br>In-Situ Cut-Off Grade         | 375        | g/t silver equivalent |

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources will be converted into mineral reserves. SRK is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues that may materially affect the mineral resources.

The Mineral Resource Statement for the Platosa mine is presented in Table 26, depleted as of March 31, 2018.

**Table 26: Mineral Resource Statement\*, Platosa Mine, Mexico, SRK Consulting (Canada) Inc., March 31, 2018**

| Category     | Quantity<br>Ktonnes | Grade           |             |             | Contained Metal    |                  |                  |
|--------------|---------------------|-----------------|-------------|-------------|--------------------|------------------|------------------|
|              |                     | Silver<br>(g/t) | Lead<br>(%) | Zinc<br>(%) | Silver<br>(000 oz) | Lead<br>(000 lb) | Zinc<br>(000 lb) |
| Measured     | -                   | -               | -           | -           | -                  | -                | -                |
| Indicated    | 485                 | 549             | 5.6         | 5.9         | 8,562              | 59,752           | 62,953           |
| <b>Total</b> | <b>485</b>          | <b>549</b>      | <b>5.6</b>  | <b>5.9</b>  | <b>8,562</b>       | <b>59,752</b>    | <b>62,953</b>    |
| Inferred     | 13                  | 516             | 4.7         | 6.5         | 216                | 1,344            | 1,859            |

\* Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Composites were capped where appropriate. Mineral resources are reported at a silver-equivalent cut-off value of 375 grams per tonne, considering metal prices of US\$17.00 per ounce of silver, US\$1.10 per pound of lead, US\$1.30 per pound of zinc, and assuming metal recovery of 89% for silver, 81% for lead and 81% for zinc.

The mineral resource model is relatively sensitive to the selection of the reporting silver-equivalent cut-off grade. To illustrate this sensitivity, the quantities and grade estimates are presented in Table 27 at various cut-off grades. The reader is cautioned that the figures presented in this table should not be misconstrued with a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates within the mineralized and unmined mantos to the selection of silver-equivalent cut-off grade.

**Table 27: Global Block Model Quantities and Grade Estimates at Various Silver-Equivalent Cut-Off Grades**

| Cut-Off Grade | Indicated Blocks         |                  |          |        |        |            |
|---------------|--------------------------|------------------|----------|--------|--------|------------|
|               | Volume / Quantity        |                  | Grade    |        |        |            |
| AgEq (g/t)    | Volume (m <sup>3</sup> ) | Tonnage (tonnes) | Ag (g/t) | Pb (%) | Zn (%) | AgEq (g/t) |
| 50            | 193,799                  | 608,250          | 462      | 4.8    | 4.9    | 889        |
| 100           | 190,976                  | 599,628          | 469      | 4.8    | 5.0    | 900        |
| 150           | 185,893                  | 584,041          | 479      | 4.9    | 5.1    | 921        |
| 200           | 178,416                  | 560,958          | 495      | 5.1    | 5.3    | 952        |
| 250           | 171,625                  | 540,086          | 510      | 5.2    | 5.4    | 980        |
| 275           | 168,830                  | 531,450          | 516      | 5.3    | 5.5    | 991        |
| 300           | 165,256                  | 520,360          | 524      | 5.4    | 5.6    | 1,006      |
| 325           | 161,262                  | 508,030          | 533      | 5.4    | 5.7    | 1,023      |
| 350           | 157,886                  | 497,625          | 540      | 5.5    | 5.8    | 1,038      |
| 375           | 153,909                  | 485,254          | 549      | 5.6    | 5.9    | 1,055      |
| 400           | 150,509                  | 474,732          | 557      | 5.7    | 5.9    | 1,070      |
| 450           | 142,145                  | 448,918          | 576      | 5.9    | 6.2    | 1,107      |
| 500           | 134,415                  | 425,084          | 595      | 6.0    | 6.4    | 1,142      |

## 14.5 Reconciliation to Previous Mineral Resource Statement

A comparison between the 2014 RPA (Cox et al. 2015) and the 2018 SRK mineral resource statements is provided in Table 28. The majority of the difference between the two resource estimates relates to modelling approach and depletion since December 31, 2014. The modelling approach used by SRK includes strict modelling of geological features to the fullest extent without imposing limits on minimum width or a stringent cut-off. The geological wireframe constructed in the preparation of the 2018 mineral resource estimate (MRE) includes modelling of all massive to semi massive sulphide intersections within the plane of mineralization. In addition, the 2018 MRE includes structural mapping and modelling from underground, which limits the extent of mantos where they are offset along post- mineral structures. The net result of this approach is more tonnes and a lower grade of reported mineralization, with mining assumptions dictating the viability of extraction of each block. Previous estimates constrained higher grade portions of the mineralization, while failing to categorize the peripheral mineralization that has historically been extracted economically in the mining process. Since the 2014 mineral resource model, over 180,000 tonnes have been extracted from the mine which included peripheral mineralization not included in the previous model.

**Table 28: Reconciliation Between 2014 and 2018 Mineral Resource Statements**

| Year     | Resource Category | Quantity<br>Ktonnes<br>(000 t) | Grade           |             |             | Contained Metal    |                  |                  |
|----------|-------------------|--------------------------------|-----------------|-------------|-------------|--------------------|------------------|------------------|
|          |                   |                                | Silver<br>(g/t) | Lead<br>(%) | Zinc<br>(%) | Silver<br>(000 oz) | Lead<br>(000 lb) | Zinc<br>(000 lb) |
| 2014     | Measured          | 28                             | 781             | 7.85        | 11.52       | 711                | 4,896            | 7,188            |
| 2018     |                   | -                              | -               | -           | -           | -                  | -                | -                |
| Variance |                   | -28                            | -781            | -7.85       | -11.52      | -711               | -4,896           | -7,188           |
| 2014     | Indicated         | 400                            | 758             | 8.31        | 9.77        | 9,747              | 73,214           | 86,098           |
| 2018     |                   | 485                            | 549             | 5.60        | 5.90        | 8,562              | 59,752           | 62,953           |
| Variance |                   | 85                             | -209            | -2.71       | -3.87       | -1,185             | -13,462          | -23,145          |
| 2014     | Inferred          | 4                              | 2,027           | 14.65       | 2.20        | 260                | 1,288            | 193              |
| 2018     |                   | 13                             | 516             | 4.70        | 6.50        | 216                | 1,344            | 1,859            |
| Variance |                   | 9                              | -1,511          | -9.95       | 4.30        | -44                | 56               | 1,666            |

## 15 Mineral Reserve Estimates

There is currently no mineral reserve estimate to report at the Platosa mine. Excellon does not consider the release of mineral reserves to be appropriate at this time considering the ongoing mine dewatering programs and the definition and infill drilling of mineral resources to satisfactory definition, along with the ongoing transition from room and pillar to cut and fill mining methods.

## 16 Mining Methods

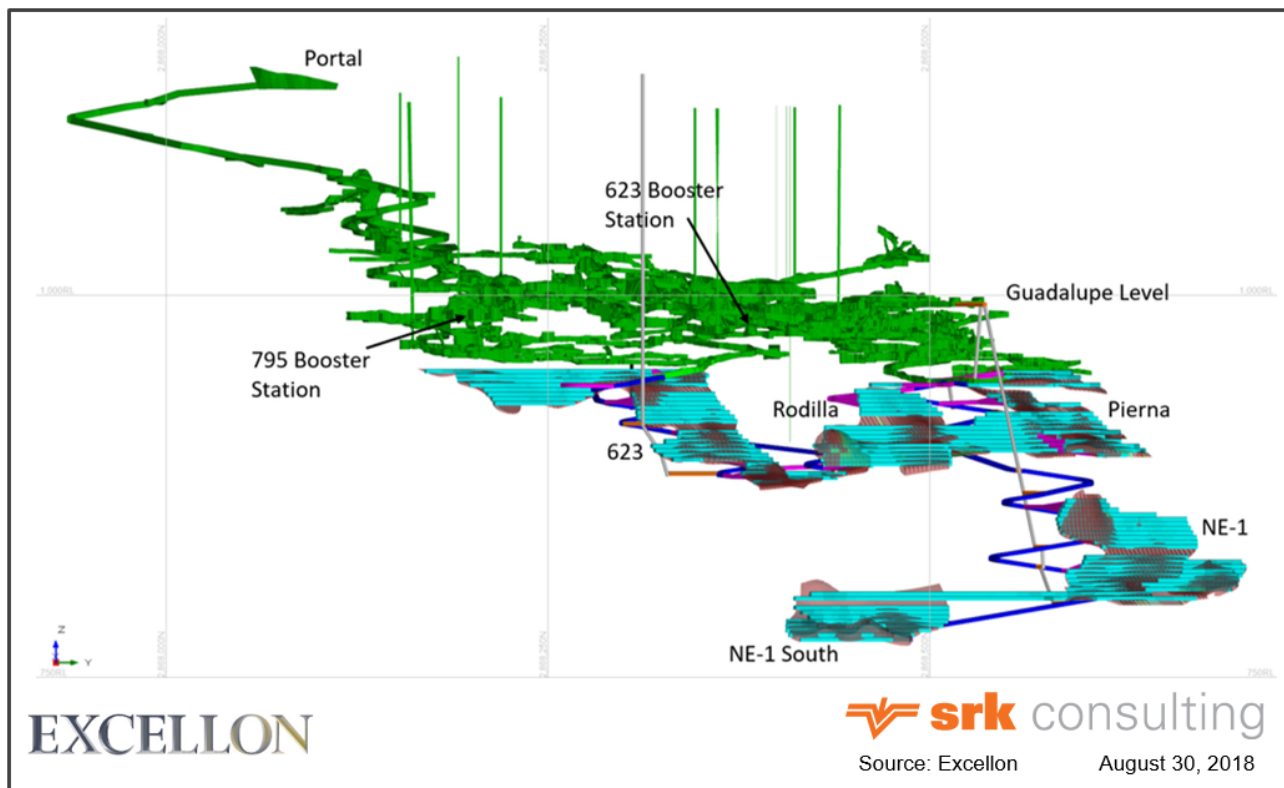
This section describes the procedures for mine planning and the mining methods used for extracting the mineral resources. Since the mine has been in production for several years, actual production data are used extensively to forecast mine performance. With the completion of the dewatering project in June 2017, Platosa has been able to collect sufficient productivity data regarding mining under dry conditions to validate the schedule.

The mine plan has been completed in accordance with Platosa's mine planning standards by the mine planning department at Platosa with support from Deswik mining consultants.

Production from the remaining Platosa mantos is scheduled at 300 tonnes per day. Historically, the chief constraint on production has been water ingress in the production areas, which caused delays and required the grouting of water-bearing structures and pumping of water. The dewatering project, described in Section 16.7, has reduced the impact of this bottleneck and the mine has been gradually ramping up production under dry conditions. A drawdown rate of 4 metres per month is required to maintain a production rate of 300 tonnes per day. Development of 1,200 metres per year will also be required.

Figure 28 shows a composite longitudinal section of the mine (existing excavations are green and future mining is multi-coloured). Access to the underground mine is by ramp through a portal collared near the administration building. The primary mining method has historically been a modified room and pillar, with the top of the manto being accessed first. For steeply dipping mantos, the area is benched down to a maximum height of 20 metres at which point a sill pillar is established. This process is repeated below the sill pillar until the bottom of the manto is reached. Historically, sill pillars were seldom necessary considering the flat-lying nature of the mantos, although these will become necessary where the mineralized body dips more steeply. Engineering is underway for the construction of sill matts that may eliminate the need for sill pillars in the future, thereby improving recovery of mineralization. Where the bottom cut of a stope is located above the bottom of the manto, sill matts will be constructed to eliminate the need for sill pillars. This "top-down" approach to mining the mantos was necessary previously due to water drawdown constraints. With the removal of these constraints, the mine is currently transitioning to a cut and fill mining method. The cut and fill stopes will be backfilled with waste rock from development and mined "bottom-up".

Another benefit of the dewatering project has been that jumbos have been able to replace jacklegs in most production areas, improving safety and productivity. Platform bolting drills have been purchased in 2018 to improve the safety and productivity of installing ground support compared to current methods using handheld drills.



**Figure 28: Platosa Mine Long Section, Looking East**

## 16.1 Mining Methods

Modified room and pillar mining is the primary mining method that is currently employed at Platosa. The pillars measure 4 x 4 metres with a maximum spacing of 8 metres. Various other mining methods have been considered for specific areas of the mine and are employed when deemed beneficial, including conventional raising and cut and fill. The current overall mine plan is based on transitioning to cut and fill, which is enabled by the increased drawdown of the localized groundwater cone of depression. Study work for pillarless mining has determined that the 4 x 4-metre pillars will no longer be required once the transition to cut and fill mining is completed. The mantos vary significantly in size and orientation so the mining shapes are adjusted accordingly.

Primary stope accesses for cut and fill will be driven into the deposit on a 15 percent decline. The bottom cut will be mined and the area will then be backfilled with waste rock to facilitate extraction of the next cut. This sequence is repeated up to five times until the stope access reaches an incline of 15 percent. Access to the next cut is then provided by a 15 percent decline driven from a higher elevation. The mine plan anticipates that the cut and fill stopes will be backfilled with unconsolidated development waste, except for where a sill matte will be required when mining will occur directly below. Development waste from active headings as well as waste that has been stockpiled underground will be used to backfill the cut and fill stopes.

Historical pillars will be evaluated for possible extraction where previously mined areas will be supported with cable bolts. Each area will be evaluated individually based on the rock quality and economic viability. Until then, these pillars have been included in the resource estimate as Inferred

resources. Similarly, mineralization that remains in horizontal sill pillars could potentially be extracted at the end of the mine life.

Three underground well stations, each equipped with two wells, will be added to support the mine plan. The pumps will be moved from existing wells as the drawdown of the water table (described in Section 16.7) eventually will cause the initial wells to lose flow.

## 16.2 Primary Access

Primary access is through a ramp that is collared near the administration building. The decline has an average gradient of 12 percent with a maximum gradient of 15 percent. The ramp spirals to the Guadalupe level where there is a diesel workshop. Two declines are collared from the Guadalupe level to access the mantos to the northeast. The ramp excavations measure 4.0 metres wide by 3.0 metres high.

## 16.3 Level Design

The elevation of the Guadalupe level is 996 metres above mean sea level (amsl). Below the Guadalupe level, where all future production will occur, minimal waste development is planned. Within the production areas, ancillary excavations will be developed for systems such as development sumps and electrical substations. The sill level spacing on the stopes is designed at 20 metres but will vary based on the geometry of the mineralized body and water drawdown.

## 16.4 Material Handling

Mineralized material is hauled to surface using three 16-tonne haul trucks that are supplemented by a 12-tonne haul truck. Additionally, the mine has a 40-tonne haul truck on contract that can be used if needed. Excellon purchased a 20-tonne haul truck in Q1 2018 that was delivered in Q2, allowing the mine to maintain production rates as the haulage distance increases.

The mineralized material is dumped at surface at either the low grade or high-grade stockpile. A wheel loader transfers the material from the stockpiles into the crusher; the material is then crushed to less than 25 millimetres. The crusher is equipped with a stacker conveyor that permits loading of the crushed material directly into haul trucks or can divert it on the ground if a truck is not available. The crushed material is hauled in 40-tonne covered trucks to the mineral processing facility located at Miguel Auza, 220 kilometres away.

Waste rock remains underground and is stockpiled in mined-out areas. This material is not required for geotechnical stability and is available to be used as backfill in the future.

## 16.5 Ventilation

The primary ventilation at Platosa is provided by a pull system. A 170 horsepower vertically mounted Zitron fan, located on a 2.4-metre diameter Robbins exhaust raise at the northeast end of the deposit, draws 74 m<sup>3</sup>/s of air down the portal. The air distribution is controlled by ventilation doors located throughout the mine that are kept closed. Recirculation through stopes is controlled by curtains fabricated from material salvaged from ventilation ducts. Short conventional raises are driven between sublevels where required to provide a ventilation pathway.



Most areas of the mine are provided with through-ventilation from the primary system. In areas where auxiliary ventilation is required, fans are installed and ventilation ducts supply air into the work areas.

As the mine deepens and accesses the NE-1 manto, a conventional raise will be offset from the bottom of the exhaust raise to extend the ventilation circuit.

## 16.6 Backfill

At the time of writing, backfill is only occasionally required to provide ground support and stopes are backfilled with waste, mainly to stockpile the material. The transition to cut and fill mining will require backfill as a working platform.

A sill mat is being designed as a trial and pre-mixed concrete will be poured through an existing diamond drillhole into the bucket of a scoop tram, then mixed with waste rock in a sump and placed into the mined-out stope. Upon the successful trial, a central slickline borehole can be drilled from surface (or a previously drilled hole can be used) to transfer concrete to underground for future sill mattes. Platosa has used similar boreholes for large concrete pours associated with the construction of the sump containment structures used in the dewatering project.

## 16.7 Dewatering and Hydrology

In the early mining phase, from 2005 to 2010, mine workings began to extend below the local water table and the Platosa mining operation experienced groundwater inflows that exceeded pumping capacity; these caused production disruptions. To mitigate these occurrences, Excellon undertook an intensive program of reactive grouting and pumping to control and prevent water inflows.

In October 2008, Excellon engaged Itasca Denver, Inc. (Itasca) of Lakewood, Colorado, to carry out a hydrology study of the Platosa mine area. Between late August and December 2009, six 5.5-inch (14 centimetre)-diameter vertical monitoring wells were drilled to depths varying from 104 to 244 metres and were equipped with piezometers designed to gather water level/pressure data on a continual basis. Excellon has continued to prepare monitoring wells as necessary to monitor water levels.

In early 2010, Excellon drilled a vertical test-dewatering-well (9.5-inch (24 centimetre)-diameter) to determine whether the water table could be lowered either locally and/or in the entire mine area. The test was not completed for a variety of technical reasons and Itasca's involvement with the hydrology program ended in the fall of 2010. Subsequently, company technicians monitored mine hydrology and water inflows, both underground and via the monitoring wells on surface.

In late 2009 to early 2010, at the request of CONAGUA (the Mexican national water regulator), Excellon employed Buro Hidrologico Consultoria of Mexico City to prepare a summary report on the impact of the Platosa mining activities on neighbouring water users.

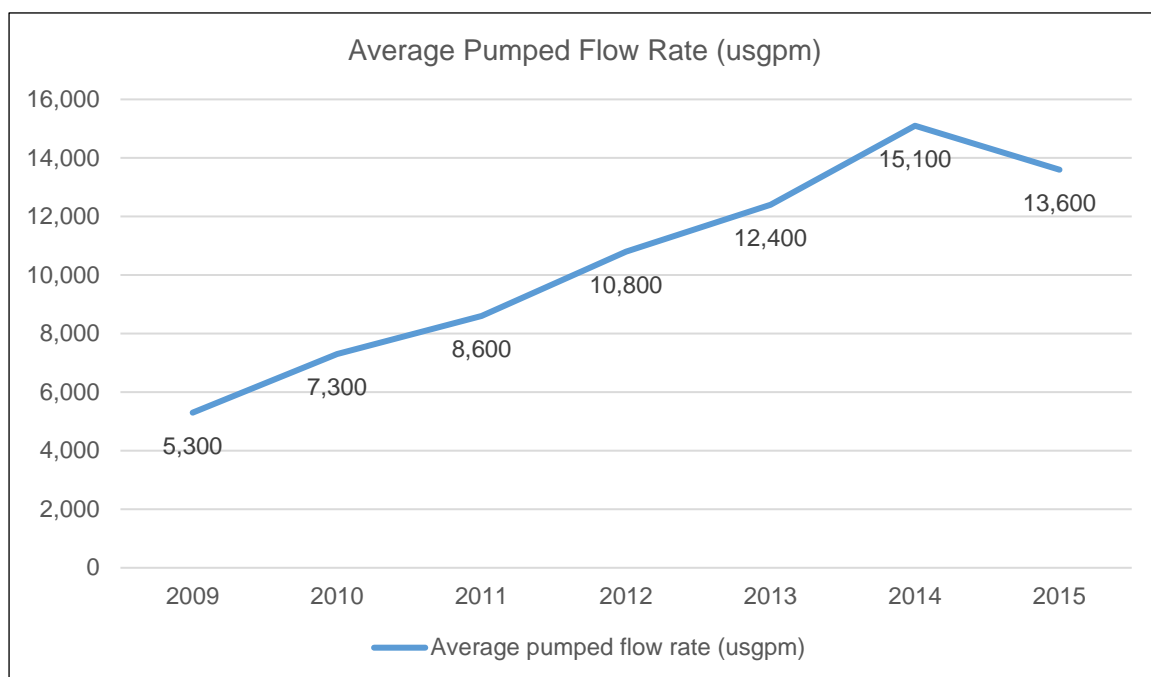
This consultant prepared a groundwater model to complete its mandate. The report concluded that Excellon's activities had no negative effects on the regional groundwater system.

From approximately 2009 until early 2017, Excellon implemented a program of underground test drilling of all new mine development headings and stope faces where the presence of excessive water ahead of the face was suspected. Dedicated crews carried out grouting where groundwater was encountered, with ongoing consultation with Multiurethanes Ltd., of Mississauga, Ontario. In

addition, Excellon constructed three hydrostatic bulkheads, which in the event of an inflow, could be used to isolate portions of the mine and allow operations to continue normally elsewhere (these doors were no longer required by late 2016 and were removed). Excellon also added pumping capacity, mostly via surface-mounted vertical submersible pumps. Mine pumping rates increased significantly from the 2009 to 2015, as shown in Figure 29.

However, as the mining operation continued to deepen, traditional grouting and pumping methods became less effective, more time consuming, and costlier to implement.

During the summer of 2014, while investigating higher-intensity grouting methods with Multiurethanes, Excellon reviewed historical data and field observations and identified that mine dewatering had created a localized cone of depression in the water table, with an increasing drawdown trend at higher pumping rates. Hydro-Ressources Inc. (HRI) of Lévis, Quebec, and Technosub Inc. of Rouyn-Noranda, Quebec, were subsequently engaged to assess and understand the groundwater flow in the Platosa mine area and prepare a dewatering strategy to keep the water table below the mining areas by deepening the already existing cone of depression.



**Figure 29: Summary of Historical Flow Rates at Platosa**

HRI noted the following observations in its report, dated April 2015 (HRI, 2015):

- The local water table began to lower as pumping flow rate exceeded 8,000 to 9,000 gallons per minute and the rate of lowering increased with faster pumping rates.
- The water table was between 130 to 140 metres below ground elevation (990 metres in elevation) in April 2015. Some mining areas were above this level, but most of the mine workings were several metres below the groundwater table, with Guadalupe South approximately 20 to 25 metres below the groundwater table (29 psi measured on site).

The main objective of this initial HRI study (HRI 2015) was to define the best way to dewater the mine in advance of the mine workings and to reduce the reliance on grouting, since this practice was affecting productivity and becoming prohibitively expensive. HRI concluded that it was possible to

dewater the mine aggressively over a relatively short period of time using a combination of surface water wells and enhanced underground drainage.

In preparation for this initial HRI study, several field investigations were conducted over a period of four months including injection tests, profile tracer test (PTT), Velocity Flow Profiles (VFP), and pump tests. Existing and historical data were also analyzed. Based on these studies and reviews, HRI estimated drawdown rates of approximately 0.35 metres per month at 9,000 gallons per minute, 0.75 metres per month at 10,000 gallons per minute, and 1.8 metres per month at 18,000 gallons per minute. HRI (2015) further described these results as follows:

- The drawdown trends increased significantly with flow rate, and an approximation of one metre/month can be assumed for each increase of 6,000 gallons per minute over a pumping rate of 9,000 gallons per minute.
- Three locations were selected for the drilling of large wells: 436, 555, and 1086 (numbers correspond to historical exploration holes used for flow testing).
- Underground drainage holes were identified as the key to maintaining a dry mine at low cost.
- Prior to any additional work, existing pumps should be optimized to ensure power availability, and the construction of wells should start as soon as possible. Once the dewatering project commenced, it was expected that the mine workings will be dry within six months.

To dewater workings and lower the water table ahead of development and mining, HRI proposed the following action plan and schedule:

- Increase underground pump efficiency to reduce power consumption.
- Commence pumping underground drain holes to increase pumping capacity and volumes.
- Start drilling large wells. In the meantime, enlarge existing drain holes and install pumps when holes become dry.
- Continue drilling drain holes as the mine goes deeper in order to maintain water outflow coming from underground.

The goal was to increase pumping rates to approximately 29,000 gallons per minute, allowing for deepening of the cone of depression by approximately 3.8 metres per month.

Due to challenging equity and commodity market conditions, Excellon was not capitalized to immediately implement the optimization plan described in this initial HRI study. In summer 2015, HRI and Technosub prepared a further optimization plan (informally named the final HRI plan) which replaced the proposed surface dewatering wells with a series of twelve 14-inch wells drilled from underground infrastructure, each equipped with 250 horsepower high-efficiency submersible pumps; these would transfer water to two underground booster stations (with 600–700 horsepower booster pumps pumping the water to surface via existing Robbins raises). This modified or final plan also aimed to increase the pumping rates to approximately 29,000 gallons per minute, allowing for deepening of the cone-of-depression by approximately 3.8 metres per month. Details of this second or final plan are found in the Cox et al. (2015) technical report.

Excellon commenced implementation of this final HRI plan in late 2015, with implementation ongoing through early 2017. Implementation overcame a number of unforeseen challenges:

- Additional time required to prepare underground infrastructure because of poor ground conditions
- Capability of initial drill contractors and challenges in drilling the 14” underground wells

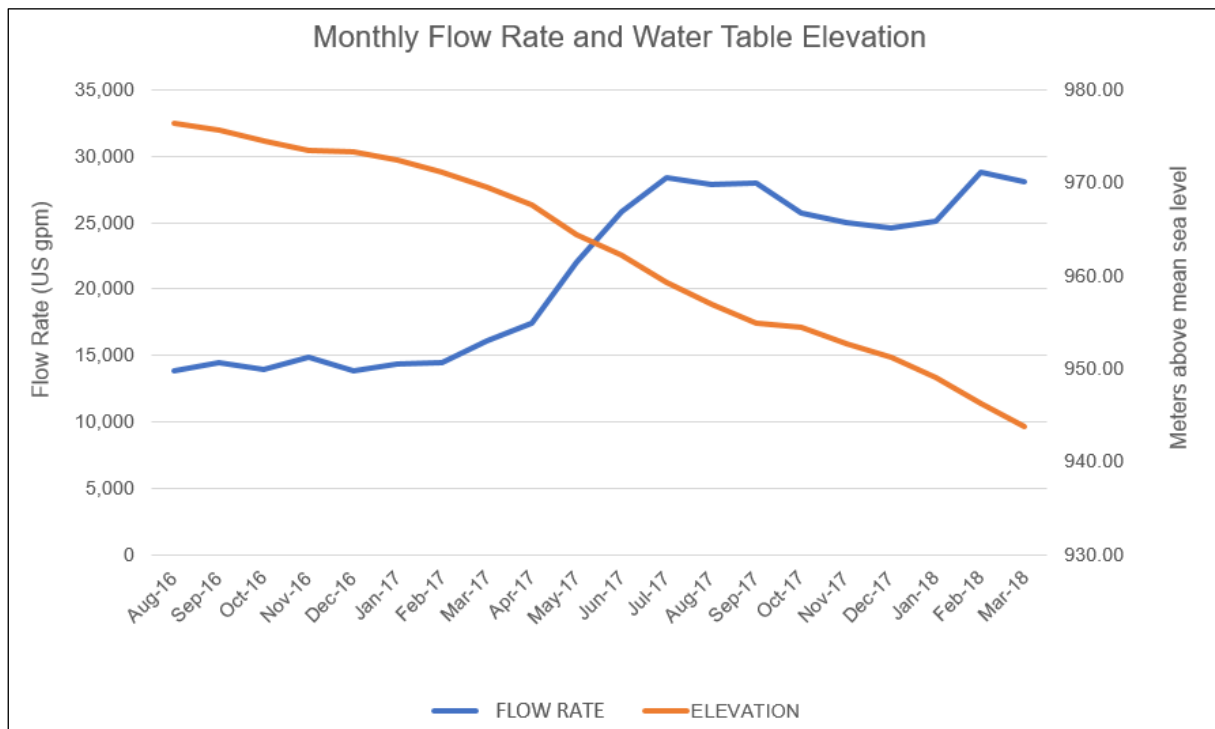
- Challenges in cleaning the 14” drain wells due to the drilling method and installing the 250 horsepower submersible pumps.

Preliminary pumping with the new dewatering system commenced in late summer 2016; increased pumping rates immediately increased the rate of deepening of the cone of depression (drawdown trend). Due to challenges in cleaning the underground wells, the system was not fully online until March/April 2017, at which time pumping rates and drawdown increased materially, resulting in dry mining conditions and elimination of the need for grouting procedures by June 2017. Figure 30 summarizes flow rates from mid-2016 to March 31, 2018.

HRI also reviewed expected drawdown rates at various pumping rates and estimated a non-linear relationship between pumping rates. Table 29 lists the elements of the dewatering system as of March 2018.

The dewatering system requires regular monitoring and periodic installation of new underground wells as mining operations deepen and as existing underground wells become less efficient (i.e., the water table deepens beyond a particular pump’s effective depth). Additionally, ongoing monitoring of dispersion of surface water storage and conveyance facilities is necessary to prevent either direct recharge into the aquifer formation or intensive seepage from local holding ponds, both of which were noted as negatively impacting drawdown rates in late 2017 (Figure 30).

The Platosa mine plan is predicated on deepening of the cone of depression 4.0 metres per month; optimal mining rates are associated with higher rates of drawdown. Ongoing action will be required to ensure such rates of drawdown and efficient mining practices. Current work is ongoing to maintain the flow rate at 30,000 gallons per minute or higher.



**Figure 30: Average Pumped Flow Rates per Periods, Drawdown, and Elevation of the Water Table from August 2016 to March 2018**

gpm=gallons per minute

**Table 29: Infrastructure and Equipment for the Dewatering System**

| <b>Equipment</b>      |   |
|-----------------------|---|
| 10                    | 250 hp National submersible pump (T10MC)                                    |
| 4                     | 250 hp Klassen vertical turbine pump (J14HO-3)                              |
| 4                     | 600 hp Technojet horizontal booster pumps (MH200-250/3)                     |
| 3                     | 700 hp Technojet horizontal booster pumps                                   |
| 4                     | 400 hp Nazas vertical turbine pumps   |
| 2                     | 1,000 hp Nazas vertical turbine pumps                                       |
| 4                     | 250 hp submersible pump motor (spares)                                      |
| 2                     | 250 hp submersible pump end (spares)  |
| 3                     | 250 hp Klassen vertical turbine pump (to be installed Q3 2018)              |
| 1                     | 5,000 kVA transformer (795 pump gallery and booster station)                |
| 1                     | 4,000 kVA transformer (623 pump gallery and booster station)                |
| <b>Infrastructure</b> |   |
| 12                    | 13 ¼" production wells  |
| 4                     | 16" production wells; these wells will replace the 13 ¼" over the mine plan |

## 16.8 Geotechnical Considerations

The Rock Mass Rating (RMR) classification values (Bieniawski 1976) vary among mantos at Platosa, ranging from good to fair as shown in Table 30. The lowest RMR classification value is in manto 623 which has a rating of 26, requiring significant ground support installation. The hanging wall rock is rated from good to fair, again with 623 being the worst area at RMR 47. The rockmass quality Q (Barton et al. 1974) has been estimated for the same mantos, as shown in Table 31.

**Table 30: RMR Classifications for Representative Geotechnical Domains**

| Manto           | Rodilla               | Manto 623 | Gde. Sur  | Rodilla          | Manto 623 |
|-----------------|-----------------------|-----------|-----------|------------------|-----------|
| Location        | Hanging wall (Caliza) |           |           | Mineralized zone |           |
|                 | 730L (typical)        | 795L      | 795L      | M3 pillar 730L   | 795L      |
| Parameter       |                       |           |           |                  |           |
| UCS             | 8                     | 7         | 8         | 6                | 4         |
| RQD (est)       | 15                    | 11        | 16        | 13               | 5         |
| Joint Spacing   | 10                    | 10        | 10        | 10               | 7         |
| Joint Condition | 18                    | 12        | 20        | 12               | 4         |
| Water           | 7                     | 7         | 7         | 7                | 6         |
| RMR =           | 58                    | 47        | 61        | 48               | 26        |
| Description:    | Fair to good rock     | Fair rock | Good rock | Fair rock        | Poor rock |

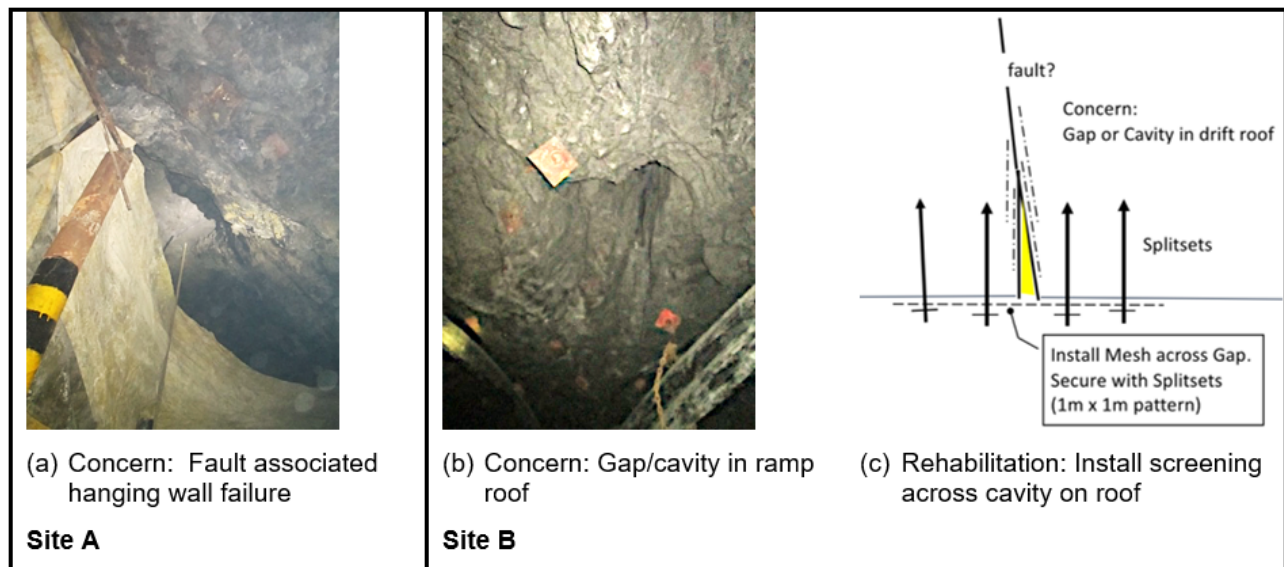
**Table 31: Rockmass Quality for Representative Geotechnical Domains**

| Parameter   | Rodilla               | Manto 623                | Gpe Sur                      | Rodilla          | Manto 623          |
|---|-----------------------|--------------------------|------------------------------|------------------|--------------------|
|   | Hanging wall (Caliza) |                          |                              | Mineralized zone |                    |
| Location  | 730L                  | 795L                     | 795L                         | 730L             | 795L               |
| RQD (estimated)   | 60                    | 60                       | 75                           | 50               | 25                 |
| Jn  | 12                    | 12 to 15                 | 12                           | 12               | 15                 |
| Jr  | 1                     | 1 to 1.5                 | 1.5                          | 1.5              | 1.5                |
| Ja  | 1                     | 1 to 2                   | 1 to 2                       | 2 to 4           | 4                  |
| Q' =  | 5                     | 2 to 7.5<br>(typical: 3) | 4.7 to 9.4<br>(typical: 9.4) | 3.1              | 0.6                |
| Jw (de-watered)   | 1 (dry)               | 0.8 (minor inflow)       | 1 (dry)                      | 1 (dry)          | 0.8 (minor inflow) |
| SRF (favourable stress condition),<br>SigC/Sig1 = 200 to 10 | 1                     | 1                        | 1                            | 1                | 1                  |
| Q =   | 5                     | 2.4                      | 9.4                          | 3.1              | 0.5                |
| Description:  | Fair rock             | Poor rock                | Fair to good rock            | Poor rock        | Very poor rock     |

### 16.8.1 Stress Regime and Likely Failure Modes

Stress monitoring and in situ stress measurements have not been conducted at Platosa but favourable stress conditions are presumed due to relatively high rock strength to principle stress ratio. A review of the rock conditions and support practices at Platosa was conducted by Henning Geotechnical Services Inc. in October 2017. The review concluded that the most likely failure mode is expected to be wedges, with gravity being the energy source of concern (refer to Figure 31) as the shallow depth of the mine does not warrant concern over seismicity and rock bursts.

The rock strength is estimated to range from 45 MPa to 60 MPa in the hanging wall and from 25 MPa to 35 MPa in the mineralization. As the mine deepens, there will be a need for confirmation of rock strength estimates via laboratory testing of representative core samples. As a starting point, five samples from the hanging wall of each of the mantos and five from each mineralized zone will be tested.



**Figure 31: Ground Conditions Encountered at Platosa**

## 16.8.2 Support System

The upper portion of the mine is generally unsupported due to the combination of favourable ground conditions and the significant amount of grout that was injected to control ingress of groundwater. The historical grouting campaigns had the added effect of sealing up any bad ground with cement before blasting occurred. With dry mining conditions, progressive ground support designs have been implemented as follows:

- All new excavations are supported with 1.8-metre split sets on a 1.2 x 1.2-metre pattern.
- Areas with local jointing are shotcreted or covered with mesh.
- Areas with faulting are supported with 2.4-metre rebar and mesh.
- Areas with significant faulting or spans larger than 8 metres are supported with 5-metre cable bolts.

## 16.9 Mine Production Plan

The production plan was completed by Excellon's technical department on site at Platosa mine and in the corporate office. SRK reviewed the assumptions, parameters, and methods used to prepare the production plan and is of the opinion that it is reasonable, achievable, and it follows adequate engineering practice for inclusion in this technical report. The current production plan contemplates mining 487,700 tonnes at 422 g/t silver, 4.6 percent lead and 4.7 percent zinc, with additional mine planning ongoing and underground drilling underway to upgrade existing resources and increase resource tonnage.

The mine design and schedule were completed using Deswik software. Practical mining shapes were generated to outline those resources above the cut-off grade. Mining shape, or stope, dimensions were designed based on geotechnical information. The development headings are driven at 3 x 4 metres, with stopes measuring up to 8 metres wide where the mineralization widens. Where pillars are required, they measure 4 x 4 metres; larger spans are supported by 5-metre-long cable bolts.

The waste development (ramps, cross-cuts, raises, etc.) required to access the stopes was generated and the overall mine design was linked in a logical mining sequence. The resulting schedule was evaluated against the block model such that uneconomic material could be excluded from the production plan.

As noted in Section 16.7, dewatering and hydrogeology are key constraints for the Platosa schedule; the on-site technical and operating team has built up an in-depth knowledge of the underground water-bearing structures. Well stations have been integrated into the mine plan accordingly.

An external dilution factor of 15 percent was applied to the mine design to account for overbreak, based on historical performance. Where the dilution is within the boundaries of the block model, the grade of this material is factored into the head grade.

A mining operational recovery of 95 percent was applied in accordance with best practice; however, historical performance has been higher because mineralization is often encountered outside of the block model.

Incremental material was included in the production plan where development through material grading below the cut-off grade (392 g/t silver equivalent) was necessary to reach mineralization above that cut-off. Such mineralization was considered economic to truck and mill following sunk development expenses.



At 300 tonnes per day, the production plan extends to late 2022. Key scheduling productivities used to generate the production plan are as follows:

- Waste development at 2.7 metres/day/crew for Jumbo development and 1.7 metres/day/crew for Jackleg development
- Mineralization development at 2.7 metres/day/crew for Jumbo development and 1.7 metres/day/crew for Jackleg development
- Longwall slashing at 300 tonnes/day
- Backfilling at 600 tonnes/day

These productivities are based on historical performances. The mining method is currently transitioning from room and pillar to cut and fill. Since the actual activities of both mining methods are similar, these projected rates, based on historical performance of room and pillar mining, are expected to also apply to cut and fill mining.

## 16.10 Mobile Equipment

The current fleet of mobile equipment is listed in Table 32. There are a large number of load-haul-dump machines (LHD) for the size of the mine because equipment availability was low due to maintenance issues when Platosa operated under wet conditions. Now that dry conditions have been achieved, the current fleet of LHD is adequate to produce at 300 tonnes per day, as per the mine plan. As the mine advances deeper, a 20-tonne haul truck will be added in the second half of 2018. Platosa has procured bolting units that will be delivered early in Q2 2018 to increase the safety and productivity of the installation of ground support elements. Historically, most of the drilling was accomplished through the use of jacklegs but Platosa has been transitioning to jumbo drilling since the completion of the dewatering project, this also improving safety and productivity.

**Table 32: List of Mobile Equipment**

| Equipment                   | Fleet Size |
|-----------------------------|------------|
| 1-cubic yard load haul dump | 1          |
| 2-cubic yard load haul dump | 1          |
| 3-cubic yard load haul dump | 1          |
| 4-cubic yard load haul dump | 3          |
| 5-cubic yard load haul dump | 1          |
| 1-Boom jumbo                | 2          |
| Scissor truck               | 1          |
| 12-tonne haul truck         | 1          |
| 16-tonne haul truck         | 3          |

## 17 Recovery Methods

Crushed mineralized material from Platosa is shipped to the Miguel Auza processing facility, located 220 kilometres south of the mine. The Miguel Auza mineral processing facility operates two circuits: one for lead-silver and one for zinc-silver.

### 17.1 Mineral Processing

The Miguel Auza processing facility has been treating silver-, lead-, and zinc-rich CRD Platosa mineralization since 2009. The facility was initially designed and constructed to process material from the lower-grade Miguel Auza mine at a rate of 650 tonnes per day. Modifications were made in 2009 to ensure that the facility would be able to process the higher-grade feed; the flotation cells have been operating at 325 to 350 tonnes per day since that time. The unused cells are still on site and can be put back into production if required. The flowsheet for the Miguel Auza concentrator is shown in Figure 32. The Miguel Auza processing facility currently produces two concentrates: a lead-silver and a zinc concentrate.

Table 33 shows the production rates, grades, and recoveries since 2010. With production ramping up in 2018, the facility will continue to operate at the same rate but will operate for more days per month.

**Table 33: Production Rates, Grades, and Recoveries**

|                        | Unit | 2010       | 2011      | 2012       | 2013       |           |
|------------------------|------|------------|-----------|------------|------------|-----------|
| Production             | tpd  | 64,462     | 59,405    | 48,199     | 69,862     |           |
| Daily Rate             | tpd  | 362        | 336       | 321        | 320        |           |
| Mill Head Grade Silver | g/t  | 803        | 796       | 847        | 718        |           |
| Mill Head Grade Lead   | %    | 5.50       | 6.24      | 6.75       | 6.14       |           |
| Mill Head Grade Zinc   | %    | 5.12       | 9.17      | 11.83      | 8.00       |           |
| Recovery Silver        | %    | 85         | 89        | 93         | 93         |           |
| Recovery Lead          | %    | 68         | 76        | 82         | 79         |           |
| Recovery Zinc          | %    | 75         | 78        | 85         | 80         |           |
| Silver produced        | oz   | 1,446,506  | 1,383,881 | 1,223,977  | 1,492,382  |           |
| Lead Produced          | lbs  | 1,286,203  | 6,337,117 | 5,883,918  | 7,559,042  |           |
| Zinc Produced          | lbs  | 1,691,261  | 9,501,055 | 10,702,521 | 10,037,673 |           |
|                        | Unit | 2014       | 2015      | 2016       | 2017       | 2018Q1    |
| Production             | tpd  | 64,206     | 56,849    | 55,593     | 63,742     | 18,885    |
| Daily Rate             | tpd  | 324        | 325       | 290        | 312        | 334       |
| Mill Head Grade Silver | g/t  | 603        | 491       | 456        | 393        | 359       |
| Mill Head Grade Lead   | %    | 6.57       | 4.56      | 4.40       | 3.75       | 3.79      |
| Mill Head Grade Zinc   | %    | 8.90       | 7.20      | 5.70       | 5.30       | 6.43      |
| Recovery Silver        | %    | 92         | 89        | 91         | 90         | 87        |
| Recovery Lead          | %    | 82         | 78        | 82         | 81         | 81        |
| Recovery Zinc          | %    | 82         | 82        | 80         | 81         | 84        |
| Silver produced        | oz   | 1,141,642  | 799,645   | 738,410    | 718,582    | 190,308   |
| Lead Produced          | lbs  | 7,632,017  | 4,443,383 | 4,435,951  | 4,261,256  | 1,282,625 |
| Zinc Produced          | lbs  | 10,323,606 | 7,397,257 | 5,582,614  | 6,065,246  | 2,243,117 |



The Platosa 2,000 tonne-per-day primary jaw crusher reduces the run-of-mine mineralized material to less than 9.5 millimetres. Once crushed, the material is shipped by truck to the Miguel Auza processing facility located 220 kilometres south of the mine. An additional 1,000 tonne-per-day jaw crusher is located at Miguel Auza and can be used if the Platosa crusher is unavailable. Material is screened at the conveyor that feeds the 600-tonne capacity fine material bin; the oversize fraction is processed in a secondary cone crusher.

From the 600-tonne bin, the crushed material is fed into a 650 tonne-per-day ball mill. The ball mill is 3.0 metres in diameter and 3.2 metres in length and reduces the material to 35  $\mu\text{m}$ . The ball mill operates in a closed circuit and uses cyclones to separate the fine particles and transfer them to the lead circuit.

## 17.3 Lead Flotation

Ball mill product enters a lead conditioning tank where reagents (collector and frother) are added ahead of lead flotation. The following reagents are added to the lead circuit:

- Aero 3407: a selective lead/silver collector.
- Methyl isobutyl carbonyl (MIBC) Aero F-70: the foaming agent that is responsible for generating the bubbles that allow for the formation of stable froths.
- P-82: a complex formed by zinc sulphate, sodium thiosulfate, sodium metabisulfite ( $\text{ZnSO}_4$ ,  $\text{Na}_2\text{S}_2\text{O}_3$ ,  $\text{Na}_2\text{S}_2\text{O}_5$ ) respectively. These reagents act as zinc depressants during lead flotation.
- Zinc sulphate ( $\text{ZnSO}_4$ ): used as a zinc suppressant in the # 2 lead scavenger bank

The concentrate from the lead rougher enters the two-stage lead cleaning circuit and the tails enters the lead scavenger, where the scavenger concentrate is pumped back to the ball mill and the tails enters the zinc flotation circuit. Concentrate from the second lead cleaner constitutes the final lead concentrate and is pumped into the lead thickener.

The lead concentrate contains 80 percent of the lead and 81 percent of the silver from the mill feed.

## 17.4 Zinc Flotation

Overflow from the lead scavenger cells enters the zinc conditioner tanks where the zinc conditioner is added. It then enters the two zinc rougher banks where the overflow is directed to the zinc scavenger and the underflow is directed to the two-stage zinc cleaner banks. From the second zinc cleaner, the underflow constitutes the final zinc concentrate and is pumped to the zinc thickener; the overflow from the cleaner enters a secondary scavenger where the underflow joins the final zinc concentrate and the overflow is directed back to the first zinc cleaner. In the zinc scavenger bank, the overflow is the final tailings and is directed to the tailings management facility and the underflow is directed back to the ball mill. The final zinc concentrate contains 80 percent of the zinc and 9 percent of the silver from the mill feed.

The following reagents are used in the zinc circuit:

- Calcium oxide or lime ( $\text{CaO}$ ): used to raise the pH in the zinc flotation necessary for the flotation of zinc, while also working as an iron suppressant in zinc
- Copper sulfate ( $\text{CuSO}_4$ ): a zinc activating reagent
- Sodium isopropyl xanthate (X-343): used as a zinc collector to help control recovery

## 17.5 Filtration

The processing facility has a filtration system, warehouse, and drying pad for each of the concentrates produced. The concentrate enters the 88 m<sup>3</sup> thickener tank where the concentrate settles to the bottom and the 30-percent-solid product is pumped to the 1.8 x 1.8 metre disk filter. Once filtered, the concentrate is transferred into a storage warehouse where a loader spreads it on a drying pad. From the drying pad, the concentrate is transferred into a storage warehouse until it is loaded onto trucks for transport to Manzanillo.

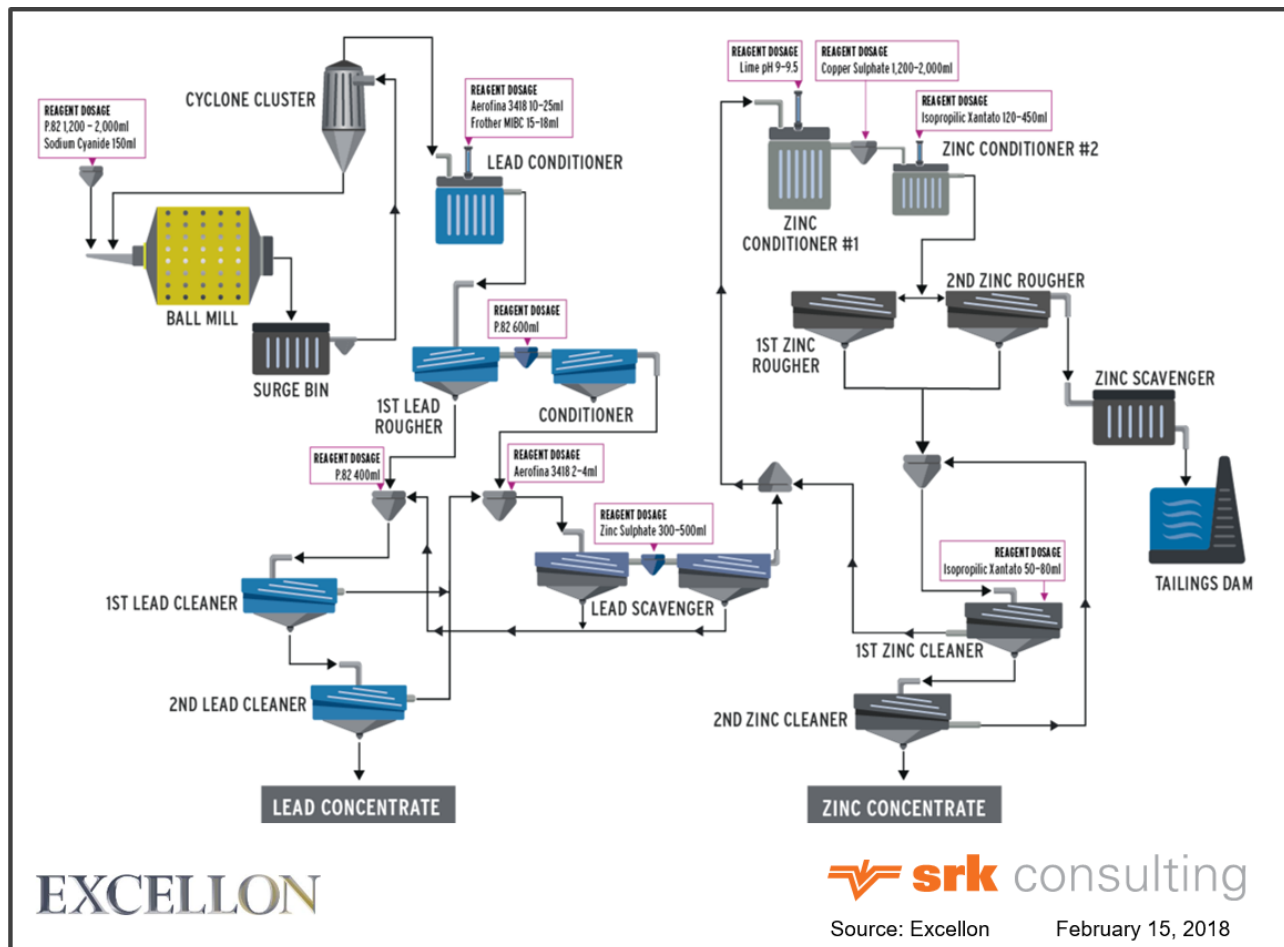


Figure 33: Flowsheet for Reagents Additions

## 17.6 Metallurgical Laboratory

The Miguel Auza mill has a chemical laboratory to conduct metallurgical testing of plant operation samples, mine samples, and mine truck samples. The laboratory has the capacity to test up to 75 samples per day and has the testing facilities for atomic absorption, granulometry, fire assays, and titration to test for gold, silver, lead, zinc, iron, copper, arsenic, antimony, cadmium, calcium, nickel, bismuth, lead oxide, and zinc oxide.

In addition to analyzing samples from the mineral processing facility, the laboratory also analyzes samples from the mine, including channel samples from the face, grab samples from muck piles, and composite samples from mine trucks that are taken both at Platosa and Miguel Auza.

## 18 Project Infrastructure

The Platosa mined material is processed at the Miguel Auza processing facility located 220 kilometres south of the mine. The infrastructure at the Platosa mine and at the Miguel Auza site are described below.

### 18.1 Platosa Site

The main infrastructure at the Platosa mine includes:

- Administration building: 3,000 m<sup>2</sup> two-story building that contains offices and warehouse
- Surface diesel shop: 500 m<sup>2</sup> covered area on a concrete pad
- Mine dry: 150 m<sup>2</sup> building with showers and changing area
- Shift change/training building: 100 m<sup>2</sup> building with supervisor's office and training room
- Kitchen: 45 m<sup>2</sup> building with kitchen and dining facilities
- Jaw crusher:
  - A 100 tonnes/hour surface crushing plant comprising:
    - A 3,000-tonne capacity concrete-lined storage stockpile area for coarse mineralized material
    - A 4 x 16-feet vibrating grizzly
    - A 40 x 26-inch Terex jaw crusher
    - An electromagnet
  - A Nordberg 5 x 14-feet vibrating horizontal screen
  - A 40 x 26-inch FIMSA secondary impact crusher
  - A truck loading system for fine mineralized material
  - A 3,000-tonne capacity concrete-lined storage stockpile area for fine mineralized material
- Compressor house: building that houses compressors
- Generator house: building that houses backup generators
- Surface transformers
- Settling ponds and surface discharge ditches
- Core facility: facility for prepping, logging, and storing diamond drill core
- Fuel farm: 2,000-litre storage tank and fuelling station.

There is no infrastructure for water treatment at Platosa because the water is being pumped directly from the aquifer and does not come into contact with any sources of contamination before discharge. Samples are taken from specified sampling points at certain intervals to ensure water quality at the discharge.

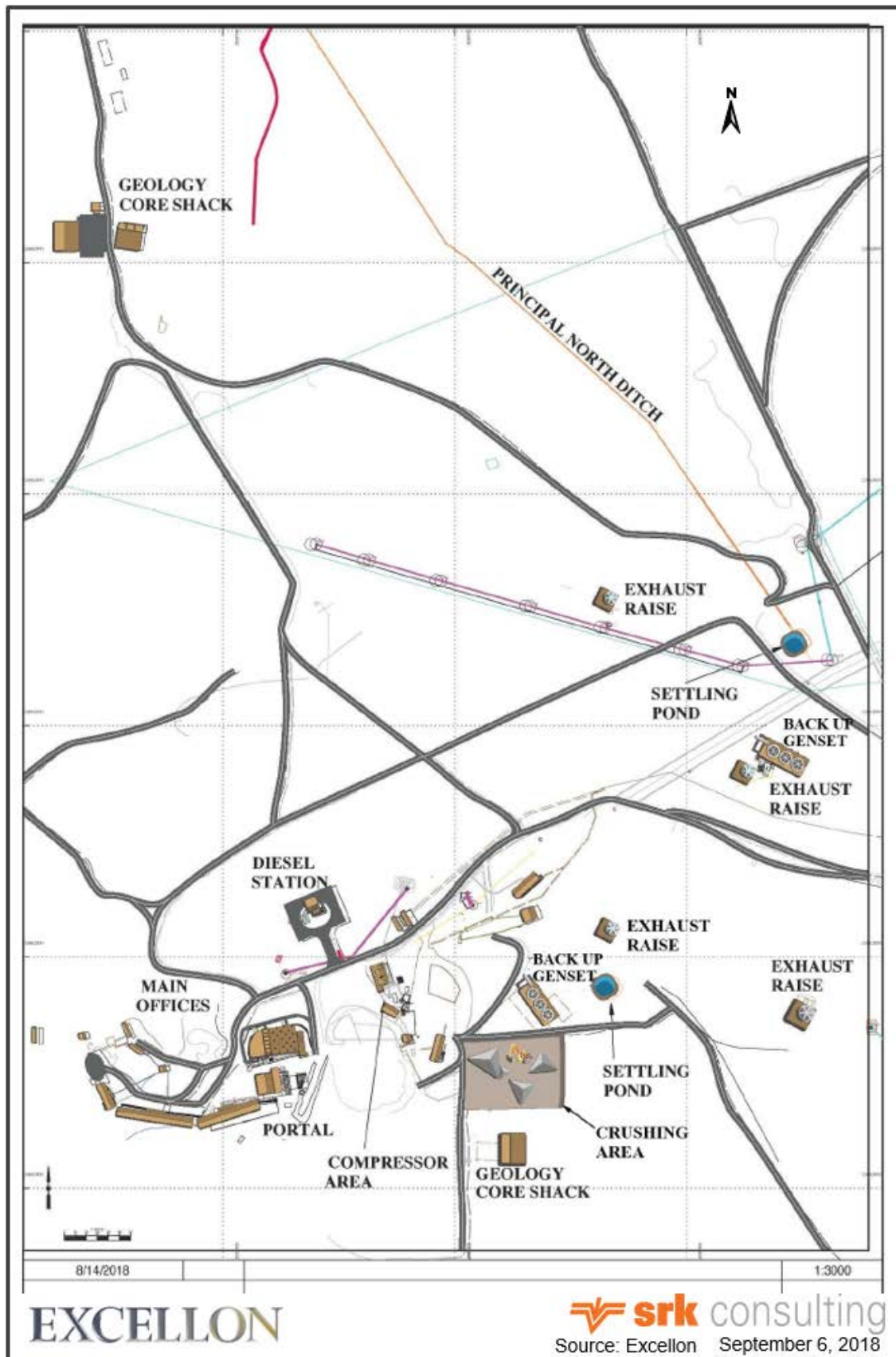


Figure 34: Map of Platosa Surface Infrastructure



### 18.1.1 Site Access Roads

The Platosa site is located less than two kilometres from highway 49 in Durango, Mexico. Access from the highway is by gravel road.

### 18.1.2 Product Loadout

The mineralized material is crushed in the primary crusher located at Platosa. It is loaded into contractor-operated 40-tonne haul trucks, either directly from the stacker or with a wheel loader, and is transported to Miguel Auza. If the crusher at Platosa is unavailable, the run-of-mine material is loaded directly into the haul trucks with the wheel loader and crushed at Miguel Auza. The trucks are weighed in Bermejillo, five kilometres from the mine.

### 18.1.3 Utilities

Platosa is located near public infrastructure. Two electrical transmission lines from the national electrical grid (Comisión Federal de Electricidad (CFE)) supply electricity to the site. The site consumes 8 megawatts on average and has capacity for up to 14 megawatts. The CFE plans to commission a new transformer in Q2 2018 that will be dedicated to Platosa.

Potable water is supplied by the local utility provider (CONAGUA). A septic system is in place that handles sewage. Organic and non-organic waste is transported by Excellon to the municipal landfill or to the recycling depot.

## 18.2 Miguel Auza Site

Infrastructure at the Miguel Auza site includes the following buildings and equipment:

- 800 tonnes-per-day concentrator consisting of equipment and installations for crushing, grinding, flotation, and filtration
- Assay laboratory with separate areas for sample preparation, drying, weighing, wet assaying, fire assaying, atomic absorption, and mill process testing
- Electrical-mechanical workshop
- Secured hazardous waste areas for the temporary storage of used oil, solids impregnated with petroleum products, batteries, empty cyanide containers, empty acid containers, and empty paint containers
- A 2,400-tonne capacity stockpiling area for coarse mineralized material
- A 300-tonne capacity lead concentrate storage area
- A 300-tonne capacity zinc concentrate storage area
- Process water supply pumping and storage system
- Surface facilities housing compressors and electrical substations
- Two tailings management facilities (one in operation, the other decommissioned and in the initial stages of closure; details are provided in Section 20.4)
- Two-story administration building
- Primary warehouse for the mill
- Core shed and
- Site security offices

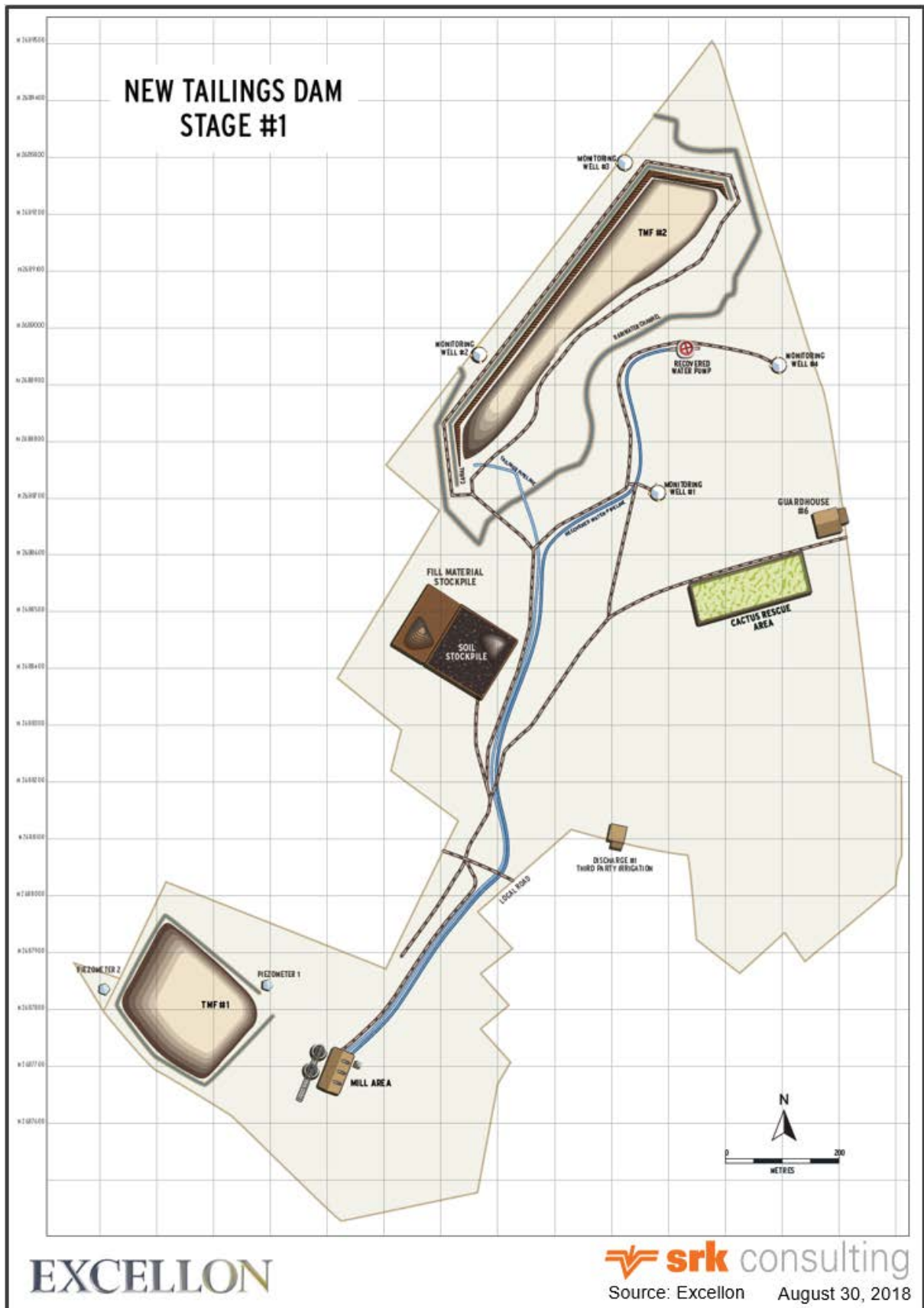


Figure 35: Plan of Miguel Auza Surface Infrastructure

## 19 Market Studies and Contracts

Excellon currently has sales contracts for concentrate in place with Trafigura Mexico, S.A. de C.V. (Trafigura), a subsidiary within the Trafigura group of companies, and MK Metal Trading Mexico (MK Metals), S.A. de C.V., a subsidiary within the Ocean Partners group of companies. SRK has considered the contract terms in its evaluation; however, the terms of the contracts are confidential and are not disclosed in this report. The Miguel Auza processing facility produces both lead and zinc concentrates; discrete and separate sales contracts describe the treatment terms applicable to each of these concentrates. The current contracts expire on December 31, 2018; treatment terms reflecting current prevailing market conditions have been incorporated into the NSR value calculation algorithm. Excellon reports that because of the availability of alternative processing and commercialization options for its concentrate, it would suffer no material adverse effect if it lost the services of Trafigura or MK Metals.

## 20 Environmental Studies, Permitting, and Social or Community Impact

Mining at Platosa is carried out under the permit *Planta de beneficio y presa de jales de la Unidad La Platosa* (Concentrator and tailings dam of the Platosa area), which was received in 2008. The permit allowed the construction and operation of both a concentrator and tailings management facility (TMF) at Platosa. The permit expires in 2023, can be renewed, and requires Excellon to prepare and submit an annual report describing the mining-related activities, including any increases in production.

The environmental approval for Platosa is the *Licencia Ambiental Unica* (Consolidated Environmental Licence), issued in 2013 by SEMARNAT (Secretaria de Medio Ambiente y Recursos Naturales (Mexico’s environment ministry)) to regulate emissions from the crushing plant and the storage and disposal of solid and hazardous waste. The permit has no expiration date and must be modified if there are significant changes to emissions or to the generation of hazardous waste. The Consolidated Environmental Licence requires the installation of dust collector (baghouse) facilities in the crushing area at Platosa. Resources to design and install these facilities are included in the 2018 budget.

The primary environmental aspect at Platosa is water discharge and management. Water from the underground workings is considered to be “mining water” under Mexican mining rules. Such discharge is regulated under general mining law and does not require a permit. The discharge water is pumped to a series of holding ponds before being routed by pipeline and open canals to neighbouring properties where it is dispersed via irrigation by third parties.

A small area of mine-related waste is located on surface adjacent to the mine portal; there are no acid drainage-related concerns with this material because of lack of rainfall and the buffering effect of carbonate host rocks.

Platosa holds additional operating permits that cover a range of matters and activities regulated under Mexican law; these are listed in Table 34.

Excellon conducts exploration drilling in the near-mine area to locate additional mineralization that could be exploited by the current Platosa workings. In addition, Excellon is conducting regional exploration in the Platosa area, outside of the current mine workings. Where it does not own the surface rights, Excellon has permission from surface rights holders to perform exploration activity. SEMARNAT regulates these activities and approves the location of drill sites. Excellon has performed investigations in areas where exploration activities are active to identify any potential environmental components that require special attention. Flora from drill pads are inventoried, harvested and replanted in other areas.

Mineral concentration related activities at Miguel Auza were approved in the 2005 *Approval of Environmental Impact Statement*. The approval references other required permits and obliges Excellon to comply with the conditions of all associated permits for it to remain in force. Miguel Auza holds a number of additional operating permits that cover a range of matters and activities regulated under Mexican law (Table 35).

Table 34: Permits at Platosa

| Permit Type   | Area Included   | Effective Date | Expiry Date | Comments  |
|---|---|----------------|-------------|---|
| Resolution of Environmental Impact for TMF and concentrator | Platosa   | 09/12/2008     | 09/12/2023  |   |
| Unified Environmental Licence                               | Land disturbance at Platosa                             | 2013           | N/A         | No expiration date; significant operational changes require modification        |
| Land use  | 2014 exploration project                                | 01/15/2015     | 01/12/2020  |   |
|   | 2017 exploration project                                | 11/27/2017     | 11/27/2021  |   |
| Solid and hazardous waste                                   | Solid waste deposition in Bermejillo municipal landfill | 07/18/2017     | 12/18/2017  | Renewal submitted 12/15/17; awaiting response                                   |
| Explosives  | Explosives magazine                                     | 01/01/2018     | 12/31/2018  | Permit renewed annually and permission to purchase explosives renewed quarterly |

Table 35: Permits at Miguel Auza

| Permit Type  | Area included  | Effective Date | Expiry Date                          | Comments   |
|--|--|----------------|--------------------------------------|--|
| Environmental Impact Statement/<br>Declaration of Environmental Impact | Concentrator, TMF #1, u/g ramp                       | 09/26/2005     | 09/01/2026                           | Renewal processed for an additional 10 years in 2016.  |
|  | Concentrator, TMF #1, u/g ramp                       | 09/01/2016     | 09/01/2026                           |  |
|  | TMF #2   | 01/30/2017     | 09/30/2047                           |  |
| Land use   | Concentrator, TMF #1, u/g ramp                       | 09/09/2005     | 09/09/2006                           | Permit issued for one year to approve impact to land. SEMARNAT was notified that impact had occurred. No renewal required. |
|  | TMF #2   | 02/14/2017     | 02/14/2018                           | Permit issued for one year to approve impact to land. SEMARNAT notified of vegetation removal. No renewal required.        |
| Water withdrawal/use   |  | 08/16/2098     | 08/16/2028                           |  |
| Water discharge  |  | 01/26/2008     | 01/26/2018                           | Renewal in process with CONAGUA.   |
| Air quality/emissions  | LAU (Processing and production)                      | 10/25/2013     | Indeterminate                        |  |
| Solid and hazardous waste  | Hazardous waste at all areas of the operation        | 09/22/2011     | No expiry                            |  |
|  | Solid waste at all areas of the operations           | 09/09/2017     | Every change in municipal government |  |
|  | Special waste at all areas of the operation          | 09/21/2016     | 09/21/2017                           | Renewal in process awaiting response.  |
| Mine waste   | Mine waste, u/g ramp, tailings                       | 05/06/2016     |                                      | Renewal in process awaiting response.  |
| Chemicals storage and use  | Laboratory, concentrator warehouse, office warehouse |                |                                      | General duty permit requiring compliance with SEMARNAT NOM 005.  |
| Explosives   | Explosives magazine                                  |                |                                      | No explosives on site. Annual permit was renewed in January 2018.  |
| Exploration  |  |                |                                      | Geological mapping activities only; permission required prior to drilling.   |
| Closure plan approval  | Concentrator, TMF #1, u/g ramp                       | 04/22/2016     | No requirement                       | Excellon update completed December 2017.   |
|  | TMF #2   | 01/29/2018     | No requirement                       | Closure plan and cost estimate for TMF #2 submitted to SEMARNAT 01/29/18.  |
| Financial assurance  | TMF #2   | 03/30/2017     | 03/29/2017                           |  |

Closure plans are in place for both the Platosa and Miguel Auza sites. Both plans meet the legal requirements imposed by Mexico and were reviewed and updated in December 2017. Financial assurance is not required to be posted for Platosa; Miguel Auza has posted a bond of MXP\$1,178,000 financial assurance for closure and demolition of the concentrator area, TMF #1, and TMF #2. Financial assurance is not required for the concentrator area, Miguel Auza ramp and TMF #1.

## 20.1 Environmental Monitoring at Platosa

Environmental aspects at Platosa are largely overseen by PROFEPA (SEMARNAT's technical and enforcement branch) and CONAGUA. Inspections by both agencies take place on a periodic basis: CONAGUA for water-related matters and PROFEPA for a wider range of environmental issues.

Environmental monitoring at Platosa consists of semi-monthly monitoring of water pumped from the underground workings. This monitoring is done by an independent third party at six monitoring locations:

- Two at surface pump stations
- One on surface at an Excellon-owned ranch
- Three at third-party-owned ranches located east (downgradient) of Platosa

Water quality samples are collected by third parties, are submitted to an independent and qualified third-party laboratory, and are analyzed for a series of elements as required by Mexican regulations. Analytical results for water pumped from the underground workings and from local ranches demonstrate that the water meets Mexican agricultural water quality guidelines.

Air quality monitoring is performed annually at four locations around the perimeter of the facilities at Platosa. Monitoring is performed by third-parties.

## 20.2 Environmental Monitoring at Miguel Auza

Some of the permits held by Miguel Auza have ongoing monitoring requirements, primarily those permits that address specific environmental media. The water-use permit requires that water be controlled and that reports be provided to the regulatory agency on a quarterly basis. The water discharge permit requires that discharge quantities be controlled and that discharge water quality be monitored quarterly. The operation certificate requires that Miguel Auza prepare and submit an annual report that inventories emissions to air and the quantities of hazardous waste that are generated.

Miguel Auza has made many process improvements over the past few years to reduce the exposure to workplace hazards and to reduce emissions to the environment; these include placing covers on all conveyors, storing concentrate on a concrete area, and improving housekeeping. These efforts resulted in Miguel Auza receiving the Certification of Clean Industry by the Procuraduría Federal de Protección al Ambiente ("PROFEPA") for achieving Environmental Performance Level 1 in July 2017.

## 20.3 Social Context at Platosa and Miguel Auza

Platosa is located approximately five kilometres north of the town of Bermejillo, on the slopes of the Sierra Bermejillo. The mine is bordered to the west by a rugged upland and to the east by private

agricultural lands. Bermejillo is the closest urban settlement and there are a number of families living on agricultural lands in the mine area. Excellon is an important contributor to the regional economy, providing a significant tax base and employment to many people who live in and around Bermejillo and in the Torreón area farther south. Platosa is also surrounded by lands whose surface rights are held by several ejidal groups. Excellon has approval of several ejidos to conduct early stage exploration on their lands.

In general, Excellon maintains respectful and productive two-way relationships with local ejidal groups and with residents and local groups in Bermejillo. Excellon has a significant presence in Bermejillo and contributes to regional community needs in the areas of health and education. Platosa has a full-time manager of community relations and development. Excellon reports that community-related grievances are rare given the relatively isolated nature and small footprint of the mine; a dedicated grievance mechanism is in the early stages of design and implementation.

The concentrator facilities at Miguel Auza are located on the western boundary of the town of Miguel Auza. TMF #1 is located west of the concentrator and TMF #2 is located an additional kilometre east, further from the town. Like at Platosa, Excellon has excellent relationships with the residents and town government and employs many residents. Excellon has not reported any community-related grievances and is in the process of implementing a dedicated grievance mechanism. Historically, Excellon has concentrated its philanthropic activities in and around Bermejillo, rather than at Miguel Auza, although more community-related activity is planned in and around Miguel Auza. To support these activities, a community relations coordinator, who will be based in Miguel Auza, was hired in March 2018.

## 20.4 Tailings Management

There are two tailings management facilities (TMFs) at Miguel Auza. TMF #1 is located immediately northwest of the concentrator and was decommissioned in October 2017 after having reached its final crest height of 6.52 metres and design capacity of approximately 313,000 cubic metres (~520,000 tonnes) of tailings. At present, TMF #1 is being dewatered in preparation for closure-related activities which will include regrading, revegetation with approved native species, and five years of monitoring to confirm that there will be no fugitive dust emissions, no impact to water quality, and to confirm the physical stability of the embankment. Stability evaluations will be performed annually. TMF #1 will not have any surface water discharge.

An Environmental Impact Assessment for the construction and operation of a second TMF (TMF #2), located on land owned by Excellon approximately 1 kilometre north of the Miguel Auza concentrator, was approved by SEMARNAT by authorization DFZ152-200/17/0149 on January 31, 2017. The authorization has a term of thirty years and eight months.

TMF #2 will be constructed in five stages, as capacity is required. The first stage is a 6-metre centreline embankment with a low-permeability core and a rock shell. The core was compacted to 90 percent-modified Proctor. Materials for the embankment were sourced from the footprint of the facility, which was excavated and compacted to provide a low-permeability foundation. Construction and quality assurance/quality control were provided by third-party contractors. Construction of the first stage of the facility was largely completed by the end of the third quarter of 2017 and the first tailings from the concentrator were routed to TMF #2 in the fourth quarter of 2017. The first stage of TMF #2 is designed to store approximately 207,000 tonnes of tailings.

Tailings are transported from the tailings thickener to TMF #2 via 6-inch HDPE pipe contained in an excavated channel. At TMF #2, tailings are discharged through spigots distributed every 36 metres along the embankment to build the beach. Water from TMF #2 is recycled using two barge-mounted



pumps which route water to one of two storage tanks adjacent to the TMF, and from there to a storage tank at the concentrator. Stability of the embankment is monitored with a series of piezometers and monitoring wells.

Stages 2 and 3 of TMF #2 are downstream raises; stages 4 and 5 are upstream raises. The final approved design capacity of TMF #2, once all five stages are constructed, is anticipated to be approximately 1.66 million tonnes, representing 19 years of production at an average rate of 300 tonnes per day. The final design crest height of the embankment will be 16 metres. A closure plan and cost estimate for TMF #2 were submitted to SEMARNAT for review and approval on January 29, 2018.

As part of the approval for TMF #2, SEMARNAT established requirements for the provision for financial assurance (FA). Following an initial FA amount of approximately C\$80,000, annual FA payments escalate from approximately C\$17,000 in Year 2 to C\$246,000 in Year 30. The total FA required over the thirty-year term of the permit is C\$2.62M to provide a guarantee against the operating and closure requirements of TMF #2. A bond for MXP\$1,178,000 for financial assurance has been posted with regulators. Miguel Auza is in compliance with its FA requirements.

## 20.5 Closure

Closure plans are in place for both the Platosa and Miguel Auza sites; both plans meet the legal requirements imposed by Mexico and were reviewed and updated in December 2017 by third-party consultants with local experience in mine closure.

Closure at both sites will meet all applicable Mexican legal requirements and the requirements of Excellon's closure standard, which contains requirements that exceed local legal requirements. The primary activities will consist of the following steps:

- Demolition of facilities
- Disposal of solid and hazardous wastes according to legal requirements
- Regrading and stabilization of land
- Proper closure of all portals, ventilation raises
- Re-vegetation
- Monitoring of water and air quality and the stability of tailings management facilities for five years post-closure

Locally derived soils will be used to cover both TMF #1 and TMF #2 to prevent the generation of fugitive dust and to promote sustainable revegetation.

No posting of financial assurance is required for Platosa. Miguel Auza has posted a bond of MXP\$1,178,000 financial assurance for the closure of TMF #2. The financial assurance amount is based on data submitted by Excellon; it reflects local costs to close such facilities. Financial assurance is not required for the concentrator area, Miguel Auza ramp, and TMF#1.

## 21 Capital and Operating Costs

### 21.1 Capital Costs

Excellon has estimated the capital expenditures required to extract the estimated recoverable portion of the mineral resources. These future capital costs are based on estimating the costs of both identified and expected equipment and infrastructure replacements and include the cost of the next phase of the Mine Dewatering Project needed to continue the water-management program. SRK has reviewed the capital cost estimate and considers it to be reasonable for the infrastructure and equipment required to implement the mine plan.

The cost estimates of the main capital components are based mainly on actual costs incurred in the normal course of the operations; similar and/or equal type of services and procurement of equipment and materials are considered within the capital programme. The ongoing sustaining capital costs are estimated at a total US\$7.4 million which include the following items:

- Phase 2 of the Mine Dewatering Project
- Mine equipment and infrastructure
- Mill equipment and infrastructure

**Table 36: Capital Cost Estimate - Platosa Property**

| (In US\$M)                      | 2018       | 2019       | 2020       | 2021       | 2022       | Total      |
|---------------------------------|------------|------------|------------|------------|------------|------------|
| Mine Dewatering Project Phase 2 | 2.2        | 0.5        | -          | -          | -          | 2.7        |
| Mine Equipment & Infrastructure | 1.0        | 1.1        | 1.1        | 0.4        | 0.2        | 3.7        |
| Mill Equipment & Infrastructure | 0.3        | 0.3        | 0.2        | 0.1        | 0.1        | 1.1        |
| <b>Total<sup>1</sup></b>        | <b>3.5</b> | <b>1.9</b> | <b>1.1</b> | <b>0.6</b> | <b>0.3</b> | <b>7.4</b> |

<sup>1</sup> Totals may not add up due to decimal rounding.

To continue lowering the water table, additional capex will be deployed to excavate well stations, drill deeper wells, and move pumps from higher elevations to lower elevations. In 2018, an additional five wells will be required and existing pumps will be moved. Two additional booster pumps have already been purchased and will be installed in a new station to be excavated in Rodilla.

The primary components of Phase 2 of the Mine Dewatering Project are listed in Table 37.

**Table 37: Dewatering Project Phase 2 - Platosa Property**

| Description   | Cost<br>(US\$M) |
|---|-----------------|
| Testing and drilling pilot holes and production wells | 1.2             |
| Engineering and design                                | 0.4             |
| Pumps, boosters and other equipment                   | 1.0             |
| <b>Total<sup>1</sup></b>                              | <b>2.7</b>      |

<sup>1</sup> Totals may not add up due to decimal rounding.

## 21.2 Operating Costs

The operating costs were estimated by processes/activities that have both fixed (approximately 60 percent) and variable (40 percent) components. The main fixed cost components considered are labour, electricity (at the mine site only: energy supply to the dewatering system), and site general and administrative expenses.

Variable components are affected by drivers such as production tonnage, development advance, drawdown rate of water table, electricity usage (at the mill site), and fuel consumption of mobile equipment based on forecasted equipment hours. Overall average annual operating costs are projected at US\$179/tonne assuming a ramp-up in production rates to 300 tonnes per day.

The mining cost includes all labour, operating consumables and supplies, equipment maintenance, fuel, electricity, transportation and administrative expenses related to complete mining-related processes/activities, mining tax and royalties less exploration diamond drilling and capital excavations and construction.

The milling cost includes all labour, operating consumables and supplies equipment maintenance, fuel, electricity, transportation and administrative fees related to complete milling-related processes/activities, mining tax and royalties.

Historical and projected operating cash cost per tonne are shown in Table 38. Projected cash operating unit costs were prepared in detail using the same procedures and methodology utilized to prepare the Excellon annual operating budget. Projected cost is based on recent actual results and reflect the projected annual primary and secondary development and stope mining quantities included in the mine plan.

SRK has reviewed the operating cost estimates in the mine plan and considers them to be reasonable and achievable.

**Table 38: Cash Operating Cost and Estimated Cost for Mine Plan**

|  | 2015       | 2016       | 2017       | 9-mos<br>ending<br>03/31/18 <sup>3</sup> | Projected <sup>4</sup> |
|--|------------|------------|------------|--|------------------------|
| <b>Mining Cash Cost (US\$/tonne)<sup>1</sup></b>           | <b>219</b> | <b>213</b> | <b>206</b> | <b>180</b>                               | <b>138</b>             |
| Personnel  | 60         | 52         | 46         | 40                                       | 34                     |
| Electricity  | 48         | 40         | 68         | 59                                       | 35                     |
| Consumables  | 52         | 56         | 32         | 25                                       | 23                     |
| Other (incl. hauling costs & royalties) <sup>2</sup>       | 38         | 44         | 40         | 37                                       | 36                     |
| Administrative   | 22         | 20         | 19         | 18                                       | 9                      |
| <b>Milling Cash Cost (US\$/tonne)<sup>1</sup></b>          | <b>61</b>  | <b>42</b>  | <b>56</b>  | <b>42</b>                                | <b>42</b>              |
| Personnel  | 20         | 18         | 16         | 14                                       | 9                      |
| Electricity  | 7          | 5          | 7          | 6  | 4                      |
| Consumables  | 12         | 12         | 11         | 12                                       | 9                      |
| Other (incl. hauling costs & royalties) <sup>2</sup>       | 14         | 1          | 16         | 4  | 17                     |
| Administrative   | 8          | 5          | 6          | 5  | 3                      |
| <b>Total Operating Cash Cost (US\$/tonne) <sup>1</sup></b> | <b>281</b> | <b>254</b> | <b>262</b> | <b>222</b>                               | <b>179</b>             |

1 Totals may not add up due to decimal rounding.

2 Includes inventory adjustments that fluctuate period to period.

3 Period from July 2017 when the Mine Dewatering Project was complete and dry mining conditions were achieved.

4 Assumes targeted production rate of 300 tonnes-per-day.

## 22 Economic Analysis

Excellon is a producing issuer and Platosa is currently in production. All financial data are publicly disclosed and are available on the company's website or through SEDAR.

SRK, through reviewing the mining plan and operating and capital cost estimation, confirms that the mine plan described herein provides a positive cash flow given the technical and economic conditions at the time of writing this technical report. This report is preliminary in nature and includes technical and economic assumptions that are considered too speculative to have economic considerations applied to them for the mineral resources to be categorized as Mineral Reserves, and there is no certainty that the mine plan will be realized. Due to the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

## **23 Adjacent Properties**

There are no adjacent properties that are considered relevant to this technical report.

## **24 Other Relevant Data and Information**

There is no other relevant data available relevant to the Platosa mine.

## 25 Interpretation and Conclusions

In the opinion of Excellon and SRK, the mineral resource estimate and mine plan summarized herein have received appropriate geological and engineering consideration to be included in this report in accordance with NI 43-101. Thus, a mineral resource can be declared and the mine plan can be used to guide production while the operation progresses with its major dewatering program and transitions from room and pillar to cut and fill mining method.

SRK is not aware of any significant risks and uncertainties that could be expected to affect the reliability or confidence in the information discussed herein.

### 25.1 Mineral Resources

The geologic model was constructed as a collaboration between SRK and Excellon geological staff. This model included structural data modelled in three dimensions (3-D) from underground mapping and from results of hydrogeological work. Drilling data was analyzed and verified in 3-D to ensure the quality of the construction of this model. A block model was then built for this model and grade and density were interpolated into this model. Grade capping data and compositing were derived from the underlying data sets provided by Excellon and current to March 31, 2018.

SRK is of the opinion that the mineral resource estimate has been conducted in a matter consistent with industry best practices and that the data and information supporting the stated mineral resources is sufficient for the reporting of Indicated and Inferred classifications of mineral resources.

### 25.2 Metallurgy and Mineral Processing

The Miguel Auza Mineral Processing Facility is located approximately 220 kilometres from Platosa. The metallurgical balance is based on actual data from ongoing operations. Miguel Auza is a conventional ball mill and flotation plant that produces lead-silver and zinc-silver concentrates. The plant has excess capacity and does not need to be run continuously; this provides sufficient time for maintenance.

### 25.3 Mine Plan

Platosa is transitioning its mining method from a modified room and pillar to cut and fill. Platosa does not have a publicly disclosed mineral reserve; however, it has been producing mineralized material for several years. The mine plan includes 487,700 tonnes, assuming no replacement of resources. Production rate from the remaining Platosa mantos is expected to achieve 300 tonnes per day, based on a dewatering drawdown of 4.0 metres per month. Flexibility can be achieved by reducing the sublevel interval spacing at the cost of additional sill mattes.

There is a high degree of confidence in the cost and productivity estimates as the plan was developed using actual data from dry mining conditions.

Based on actual cost data, the operating costs to achieve the mine plan are anticipated to be an average of US\$179/tonne and require a sustaining capital investment of US\$7.4 million.



## **25.4 Recovery Methods**

The Miguel Auza Mineral Processing Facility processes mineralized material that is trucked 220 kilometres from Platosa in 40-tonne trucks. Miguel Auza employs a conventional ball mill and flotation circuit with thickeners and filters for the concentrates produced.

## **25.5 Infrastructure**

There are two sites discussed in this report: Platosa, where the mine is located, and Miguel Auza, where the mineral processing facility is located. Each site has established infrastructure including roads, offices, warehouses, electrical transformers, and diesel farms. Both sites are connected to the local power grid. All the required infrastructure is in place and sufficiently sized to support production.

## 26 Recommendations

SRK recommends that the following technical work and exploration drilling to be performed at the Platosa mine:

- Continue with the program of tightly spaced definition drilling within and around mantos ahead of production, with the aim to reduce the drill spacing ahead of mine workings to 10–15 metres.
- Continue to implement current QA/QC program as recommended by ASL, including routine umpire sampling of five percent of samples to be analyzed by an external laboratory.
- Continued regional exploration of the greater 21,000-hectare land package: with limited exploration done since 2014, multiple targets and areas at surface remain un-drilled, unmapped, and unsampled.
  - To support this regional exploration, SRK recommends continuing the practice of ranking and evaluating individual exploration targets based on merit of structure, geochemistry, stratigraphy, and geophysical response, where available.
- Developing a simple method of reconciling mineral resources, planned dilution and operation recovery to actual production by using stope shapes and face sampling data.
- Continue the dewatering ahead of production, allowing for the transition to pillarless and cut and fill mining which, in SRK’s opinion, will be a much more efficient mining method.
- Continued investigation of sill pillar extraction via sill matte design and geotechnical conditions of historical mineralized pillars to allow for safe extraction.

### 26.1 Costs

SRK notes that most of the costs for the recommended work are likely to be part of normal operating budgets at the mine. In line with expectations from SRK, Excellon continues to operate a regional exploration program that will continue through to mid-2019. This program includes continued target generation and systematic assessment using field and geophysical techniques followed by drilling. SRK considers the proposed budget in Table 39 to be reasonable and recommends that Excellon continues with the proposed exploration.

**Table 39: 2018 to 2019 Exploration Budget for Platosa**

| Item               | Description   | Total (\$US)       |
|--------------------|---|--------------------|
| Drilling           | 30-40,000 metres of drilling at targets such as PDN, Jaboncillo, San Gilberto, Saltillera, Aguila PSZ – All-in costs including assay, personnel, and operating costs. | \$6,425,000        |
| Target generation  | Includes prospecting, sampling, assay and personnel costs   | \$400,000          |
| Geophysics         | Ground geophysics on target areas   | \$650,000          |
| Consulting fees    |   | \$100,000          |
| Land Holding costs |   | \$1,000,000        |
| <b>Total</b>       |   | <b>\$8,575,000</b> |

## 27 References

- Apex Silver Mines Limited. Company website: <http://www.apexsilver.com>, accessed in 2002.
- Barton, MD, Staude J-MG, Zürcher L, and Megaw PKM. 1995. Porphyry Copper and Other Intrusion-Related Mineralization in Mexico. *In* Porphyry Copper Deposits of the American Cordillera, Pierce FW and Bolm JG, Editors; Ariz. Geol. Soc. Digest 20. pp. 487-524.
- Bloom L and Jolette C. 2018. Summary Report: Excellon Resources Review of Assay Quality Control Program La Platosa Mine, Analytical Solutions Ltd.
- Buró Hidrológico Consultoria. Informe de Avance del Modelo de Simulación del Acuífero en la Mina La Platosa, Dgo. January 8, 2010.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM). 2005. CIM Definition Standards for Mineral Resources and Mineral Reserves, Prepared by CIM Standing Committee on Reserve Definitions, Adopted by CIM Council. December 11, 2005.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM). 2014. CIM Definition Standards for Mineral Resources and Mineral Reserves, Prepared by CIM Standing Committee on Reserve Definitions, Adopted by CIM Council. May 10, 2014.
- Clow G, Pearson J, Rennie D, MacFarlane G, and Megaw P. 2003. Underground Exploration and Mining at the Platosa Project, Mexico. Roscoe Postle Associates Inc. Technical Report Prepared for Excellon Resources Inc. December 10, 2003.
- Clow G, Pearson J, Rennie D, and Ross D. 2006. Technical Report on the Platosa Property Resource Estimate, Durango State, Mexico. Scott Wilson Roscoe Postle Associates Inc. Prepared for Excellon Resources Inc. September 29, 2006.
- Cox JJ, Ross D, Michaud RL. 2015. Technical Report on the Preliminary Economic Assessment of the Platosa Mine, Durango State, Mexico. Roscoe Postle Associates. Prepared for Excellon Resources, July 2015.
- Eastoe, C.J. 1997. Interpretation of Sulfur Isotope Data from Platosa Mine, Durango, Mexico. Private report to Excellon. August 26, 1997. 4 pp.
- Excellon Resources Inc. 2004. Annual Information Circular. January 2004.
- Excellon Resources Inc. 2009. Company website: <http://www.excellonresources.com>, accessed in 2009.
- Hewitt WP. 1968. Geology and Mineralization of the Main Mineral Zone of the Santa Eulalia District, Chihuahua, Mexico. Am. Inst. of Mining Eng. Trans. 240. pp. 229-260.
- Hydro-Ressources Inc. 2015. Hydrogeological Study, La Platosa. April 2015.

- Megaw PKM. 1998. Carbonate-Hosted Pb-Zn-Ag-Cu-Au Replacement Deposits: An Exploration Perspective. *In* Mineralized Intrusion-Related Skarn Systems, Lentz DR, Editor. pp. 337-358.
- Megaw PKM. 1999. The High-Temperature Carbonate-Hosted Pb-Zn-Ag Massive Sulphide Deposits of Central Mexico. *In* VMS and Carbonate-Hosted Polymetallic Deposits of Central Mexico, Jambor JJ, Editor; British Columbia and Yukon Chamber of Mines, Cordilleran Roundup 1999. pp. 25-44.
- Megaw PKM. 2002. Technical Report on the Platosa-Saltillera Silver-Lead-Zinc (Copper-Gold) Project, Mapimi Municipality, Durango State, Northern Mexico. March 24, 2002. 81 pp.
- Megaw PKM, Ruiz J, and Titley SR. 1988. High-Temperature, Carbonate-Hosted Pb-Zn-Ag Massive Sulphide Deposits of Mexico: An Overview. *Econ. Geol.* 83. pp. 1856-1885.
- Rennie D. 2002. Report on the Resource Estimate for the Platosa Property. Roscoe Postle Associates Inc. Technical Report Prepared for Excellon Resources Inc. September 26, 2002.
- Ross DA. 2010. Technical Report on the Platosa Property, Bermejillo, Durango State, North Central Mexico. Scott Wilson Roscoe Postle Associates Inc. Prepared for Excellon Resources Inc. January 15, 2010.
- Ross DA. 2011. Technical Report on the Platosa Property, Bermejillo, Durango State, North Central Mexico. Roscoe Postle Associates Inc. Prepared For Excellon Resources Inc. November 26, 2011.
- Ross DA, Michaud R. 2014. Technical Report on the Platosa Property, Bermejillo, Durango State, North Central Mexico. Roscoe Postle Associates Inc. Prepared For Excellon Resources Inc. March 25, 2014.
- Ross DA and Rennie DW. 2008. Technical Report on the Platosa Property, Bermejillo, Durango State, North Central Mexico. Scott Wilson Roscoe Postle Associates Inc. Prepared for Excellon Resources Inc. April 14, 2008.
- Ross DA, Sullivan JR, Rennie DW, Pearson JL, and Megaw PKM. 2007. Technical Report on the Platosa Property, Bermejillo, Durango State, Mexico. Scott Wilson Roscoe Postle Associates Inc. Prepared for Excellon Resources Inc. June 1, 2007.
- SGS. 2008. An Investigation into the Development of a Flowsheet for the Platosa Composite. SGS Lakefield Research Limited. Prepared for Excellon Resources Inc. October 22, 2008.
- Smith DM Jr. 1996. Sedimentary Basins and the Origin of Intrusion-Related Carbonate-Hosted Zn-Pb-Ag Deposits. *In* Carbonate-Hosted Lead-Zinc Deposits, Sangster DR, Editor; Soc. of Econ. Geol., Special Publication 4, 1996. pp. 255-263.
- Smith DM Jr and Soto-Moran M. 1999. Summary of geologic data for the Platosa-Saltierra Area, report on the Platosa-Saltierra Project, Durango, Mexico. Private report to Apex Silver, June 23, 1999. 5 pp.
- SRK. 2016. Platosa project 3D Leapfrog compilation. Internal memo prepared for Excellon Resources Inc. by Hrabí B. October 21, 2016.

SRK. 2017a. Structural Geology of La Platosa Mine Ag-Zn-Pb Carbonate Replacement Deposit, by Ravenelle JF. July 2017.

SRK. 2017b. La Platosa Property Structural-Alteration Geology Training and Study, by Fonseca A. December 2017.

Titley SR. 1993. Characteristics of High Temperature Carbonate-Hosted Massive Sulphide Ores in the United States, Mexico, and Peru. *In* Mineral Deposit Modelling, Kirkham RV, Sinclair WD, Thorpe RI and Duke JM, Editors; Geol. Assoc. of Canada Special Paper 40, pp. 585-614.

Titley SR and Megaw PKM. 1985, Carbonate-Hosted Ores of the Western Cordillera; an Overview. Soc. of Mining Eng. of AIME. Preprint 85-115. 17 pp.

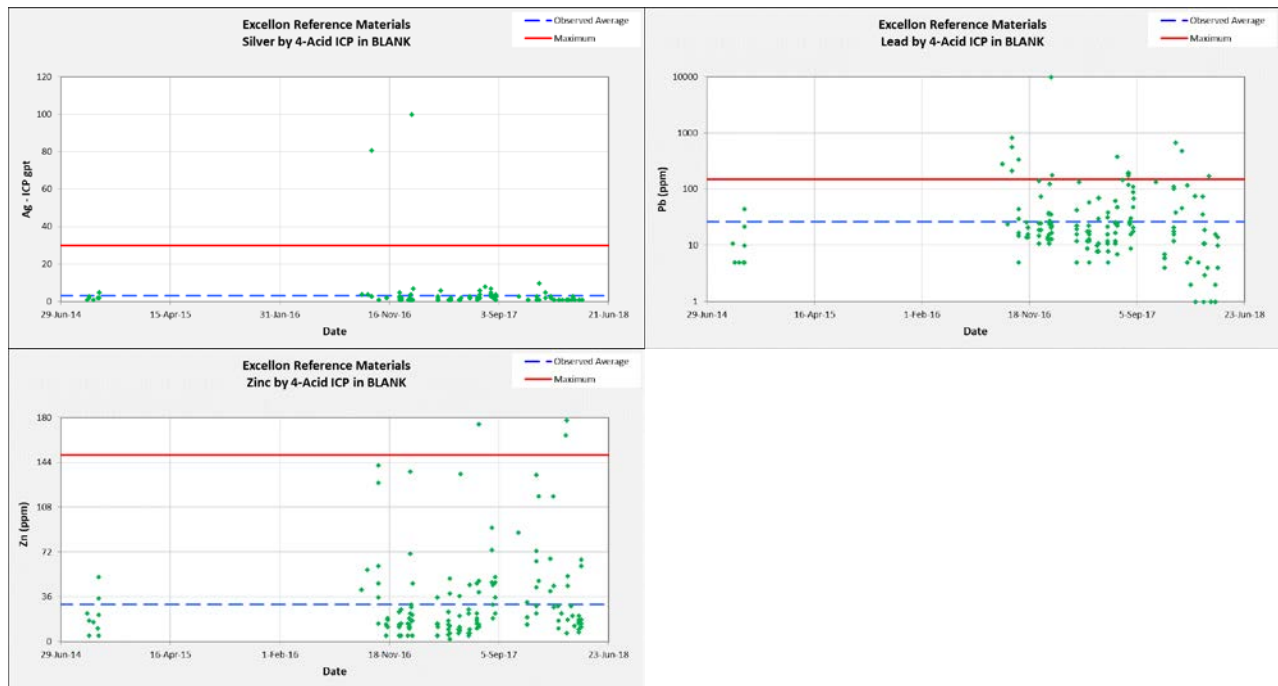
WorldClimate Website. <http://www.worldclimate.com>, accessed in 2002.

Other internal reports, portions of internal reports and press releases, both as hard copies and in digital format; all supplied by Excellon Resources Inc. and/or Minera Cascabel.

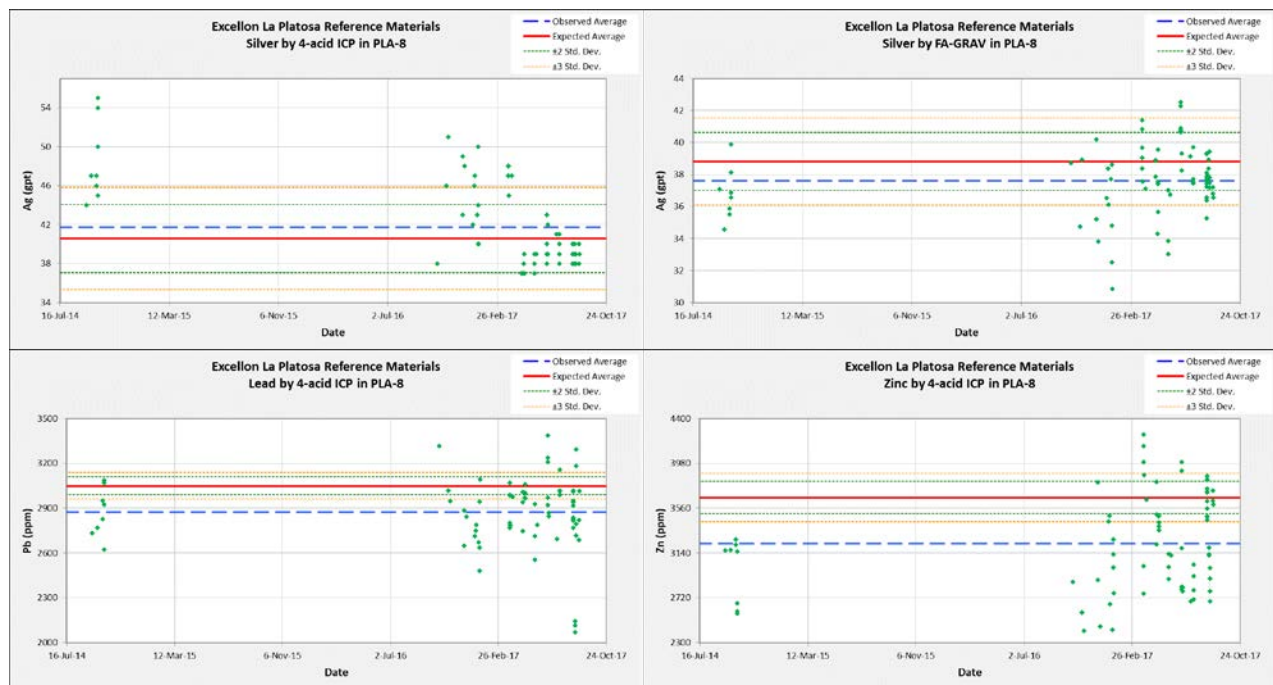
## **APPENDIX A**

**Control Charts for Blank Materials**  
**Control Charts for Reference Materials**  
**XY Chart and RPD Chart for Pulp Duplicates**  
**XY Chart and RPD Chart Preparation Duplicates**  
**XY Chart and RPD Chart Core Duplicates**  
**XY Chart and RPD Chart and Check Assays**

Control charts for **blank** materials analyzed for silver, lead, and zinc by method ICP40B at SGS Minerals, Durango.

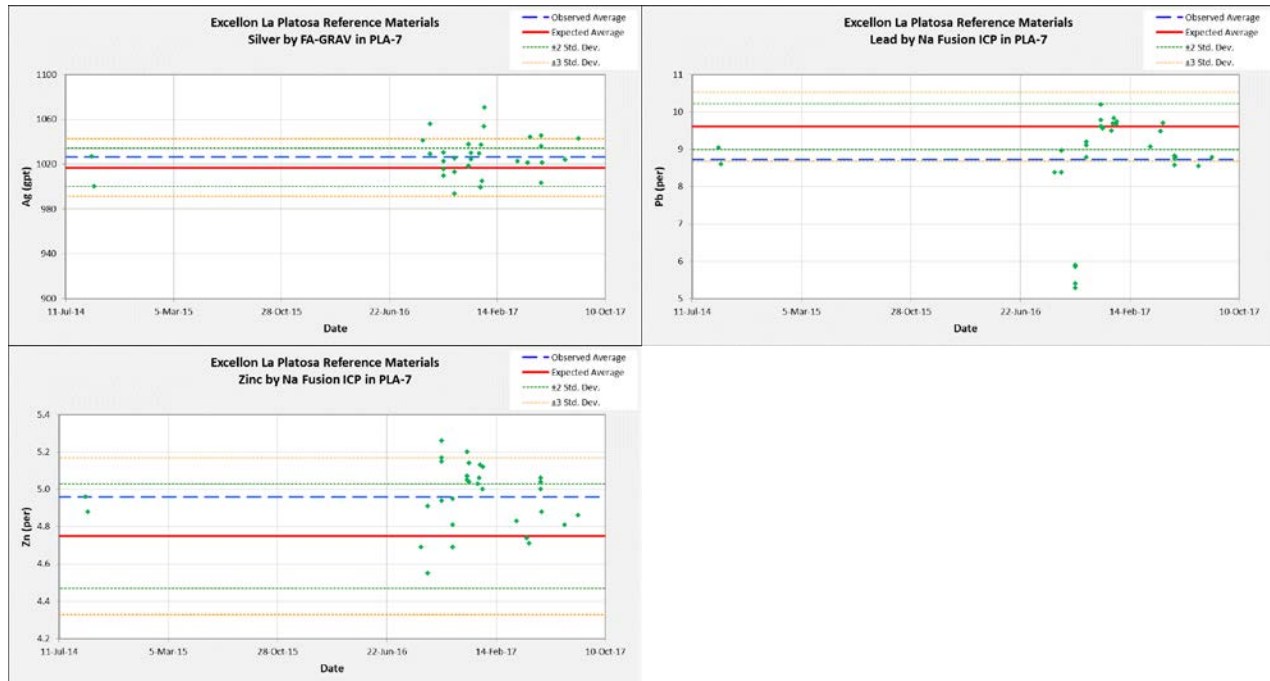


Control Charts for reference material **PLA-8** analyzed for silver, lead, and zinc at SGS Minerals, Durango.

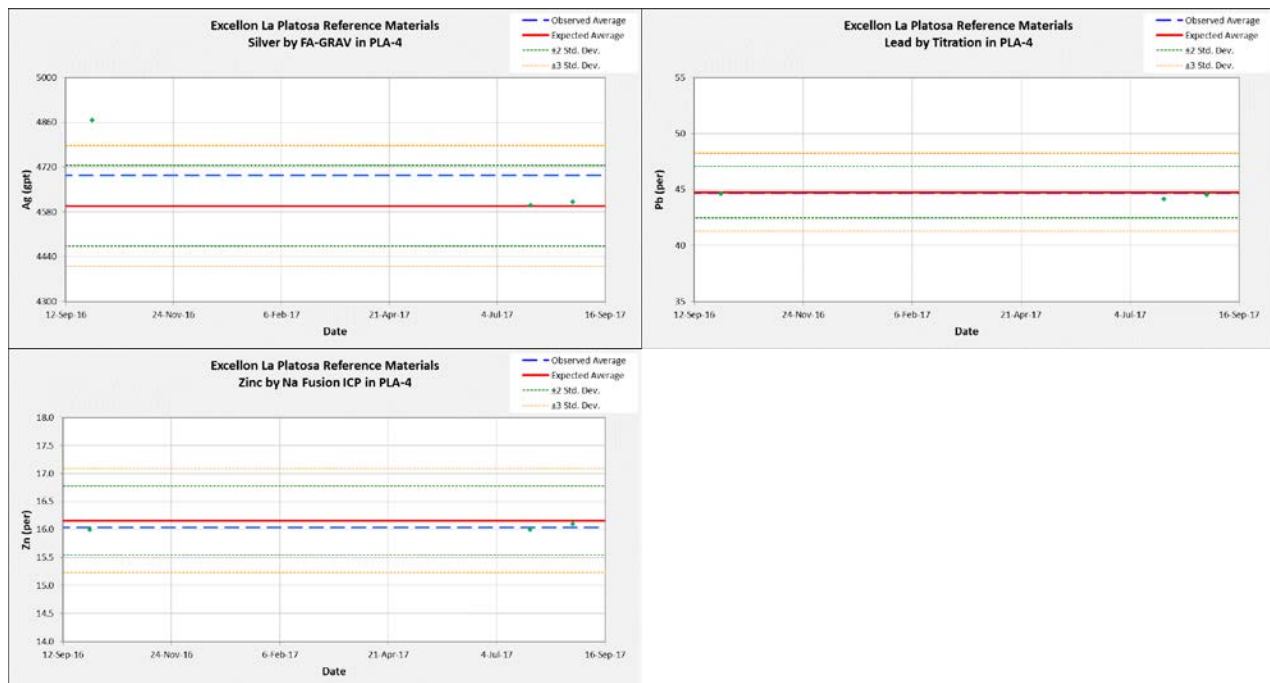




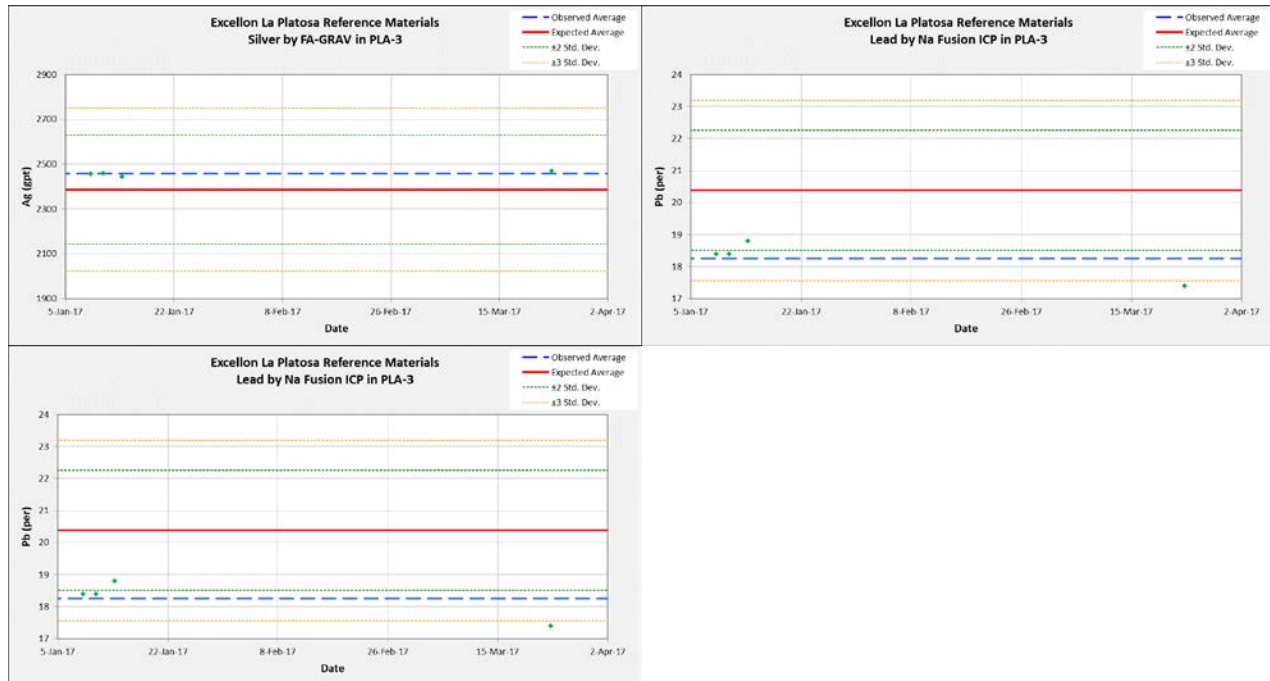
Control Charts for reference material **PLA-7** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



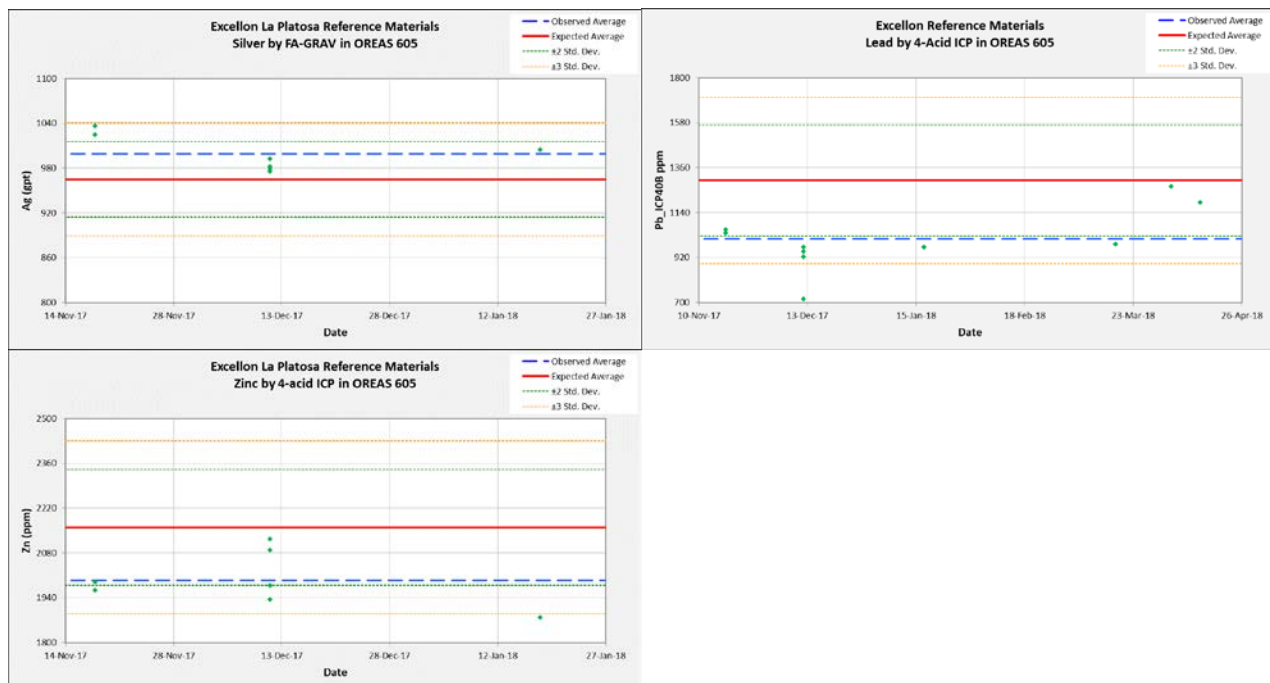
Control Charts for reference material **PLA-4** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



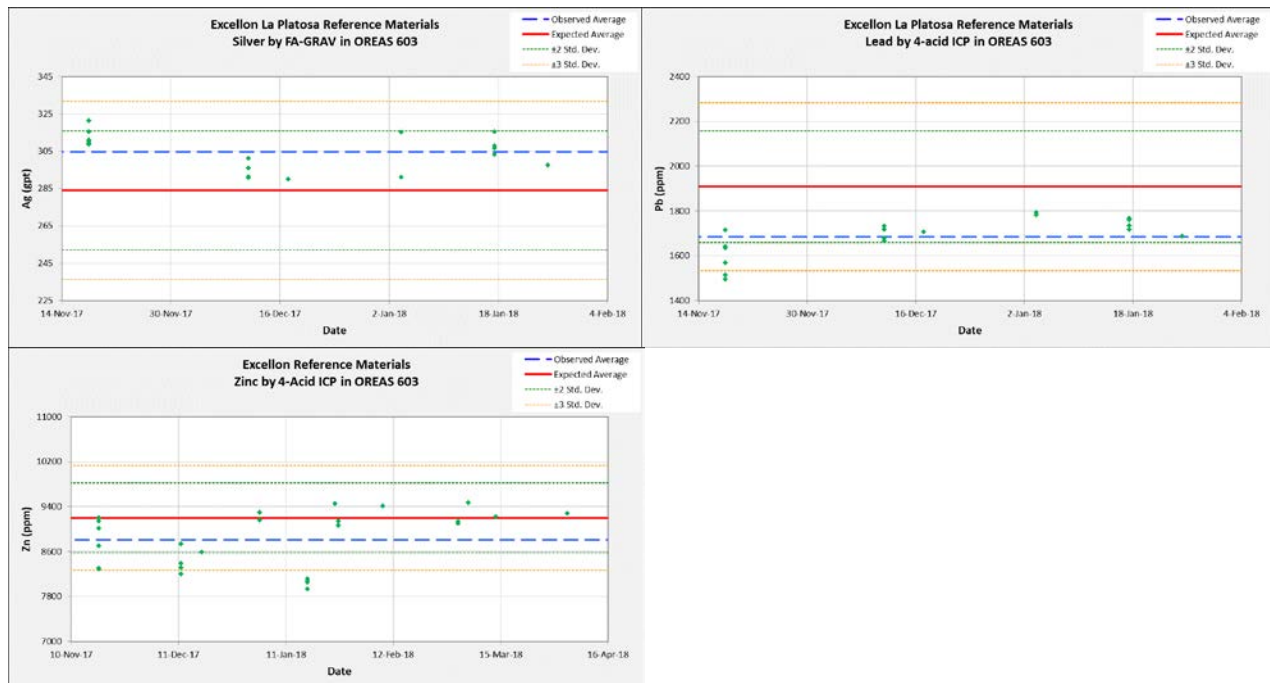
Control Charts for reference material **PLA-3** analyzed for silver, lead and zinc at SGS Minerals, Durango.



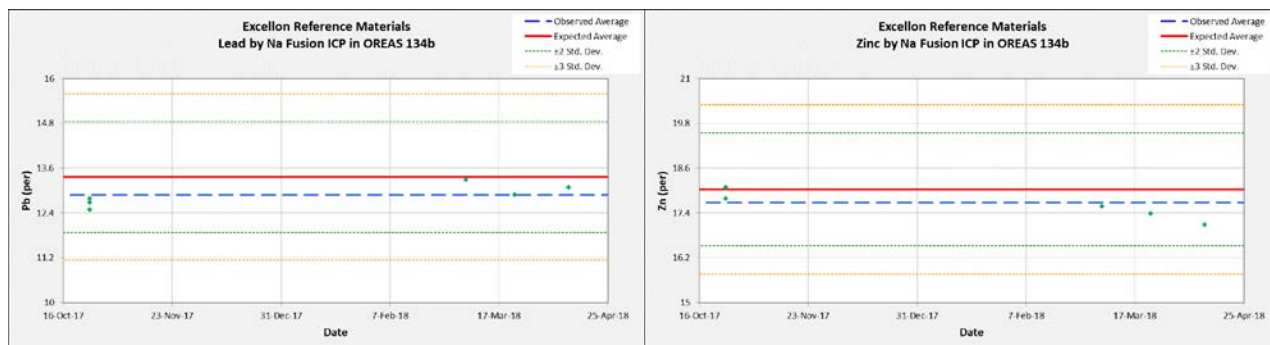
Control Charts for reference material **OREAS 605** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



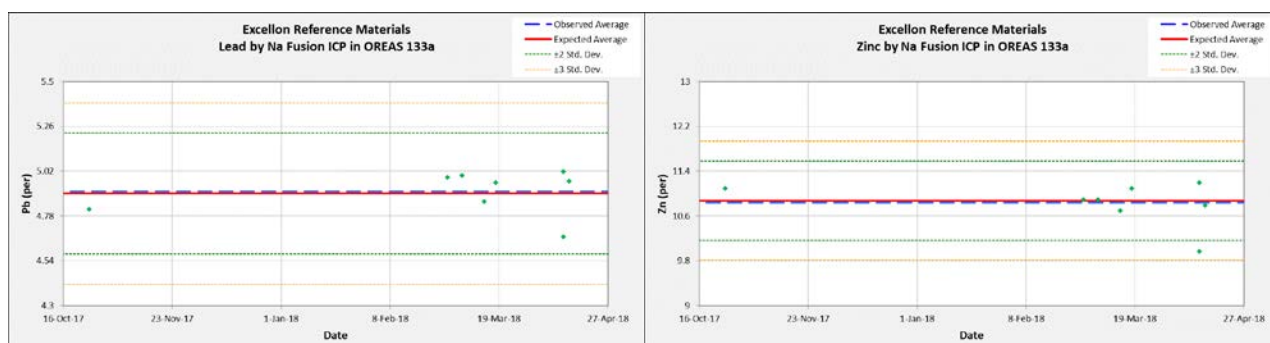
## Control Charts for reference material **OREAS 603** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



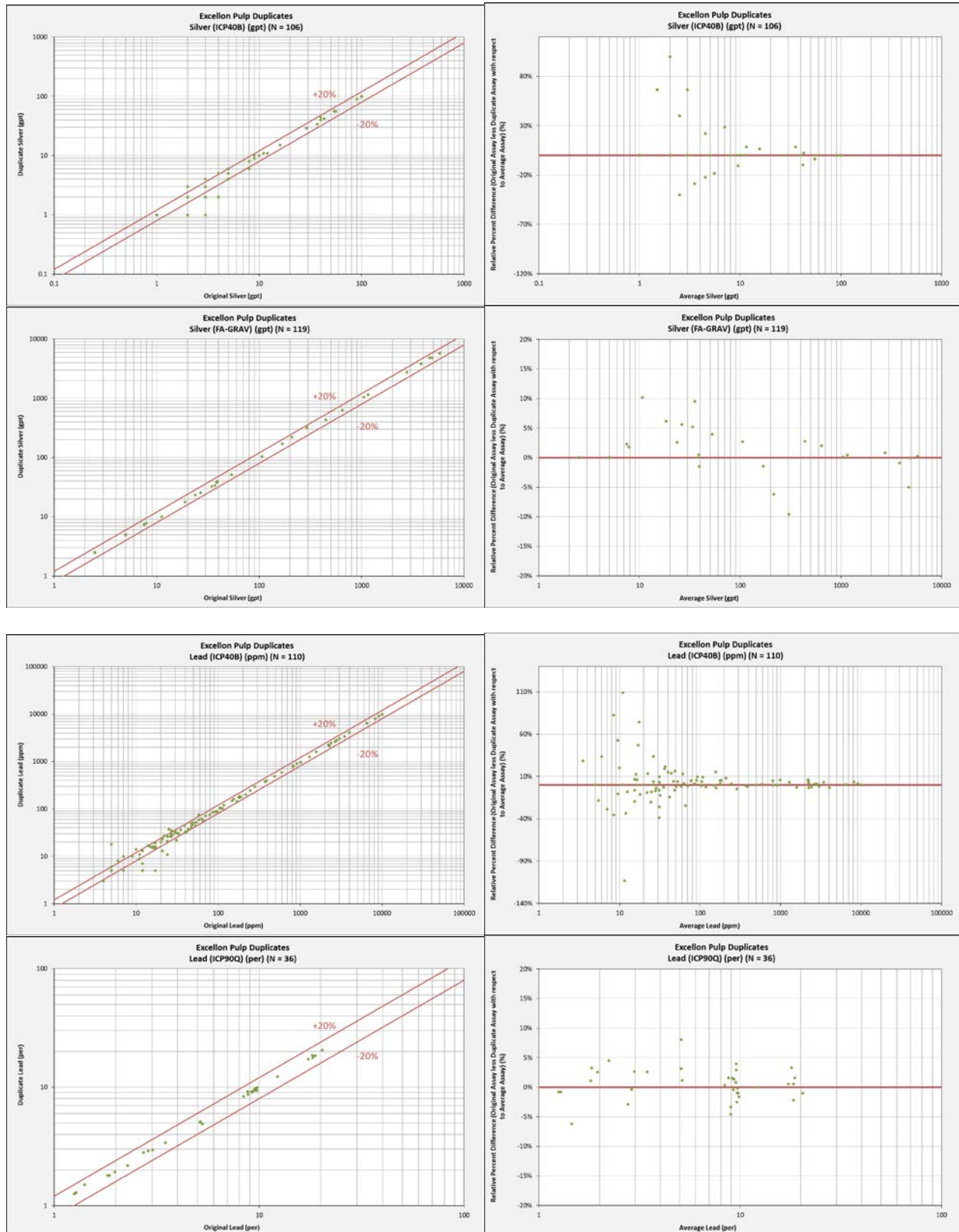
## Control Charts for reference material **OREAS 134b** analyzed for silver, lead, and zinc at SGS Minerals, Durango.

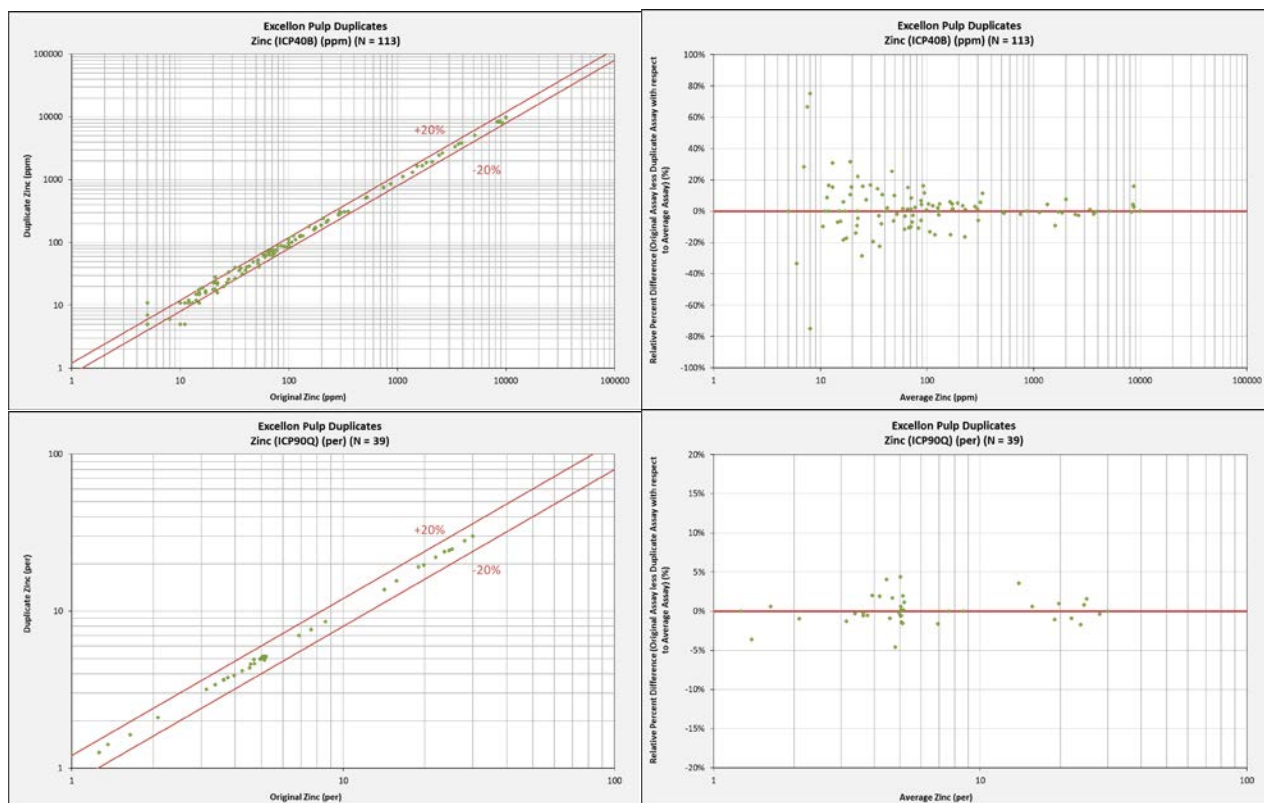


## Control Charts for reference material **OREAS 133a** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



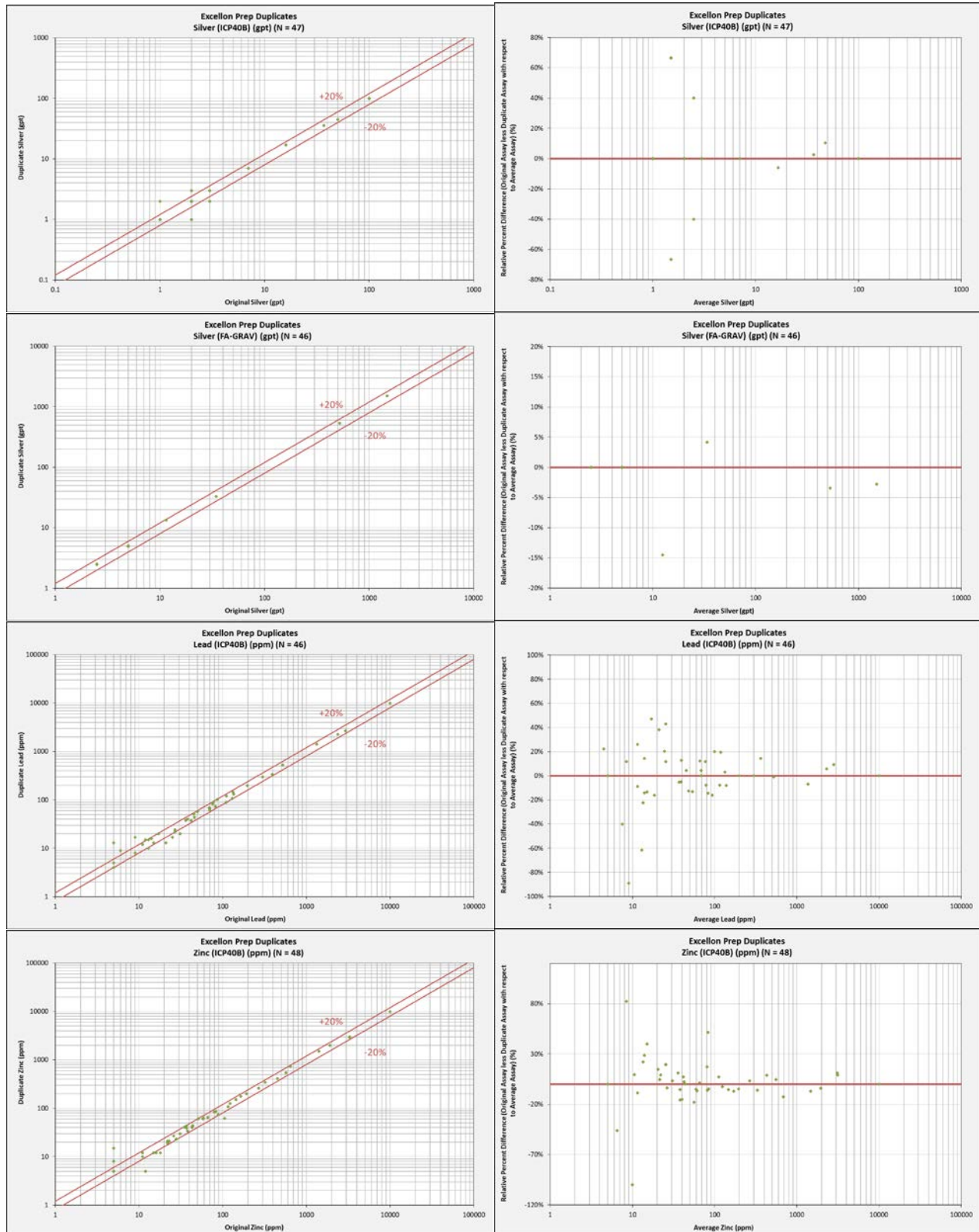
XY Chart and RPD Chart for **pulp duplicates** analyzed for silver, lead, and zinc at SGS Minerals, Durango.



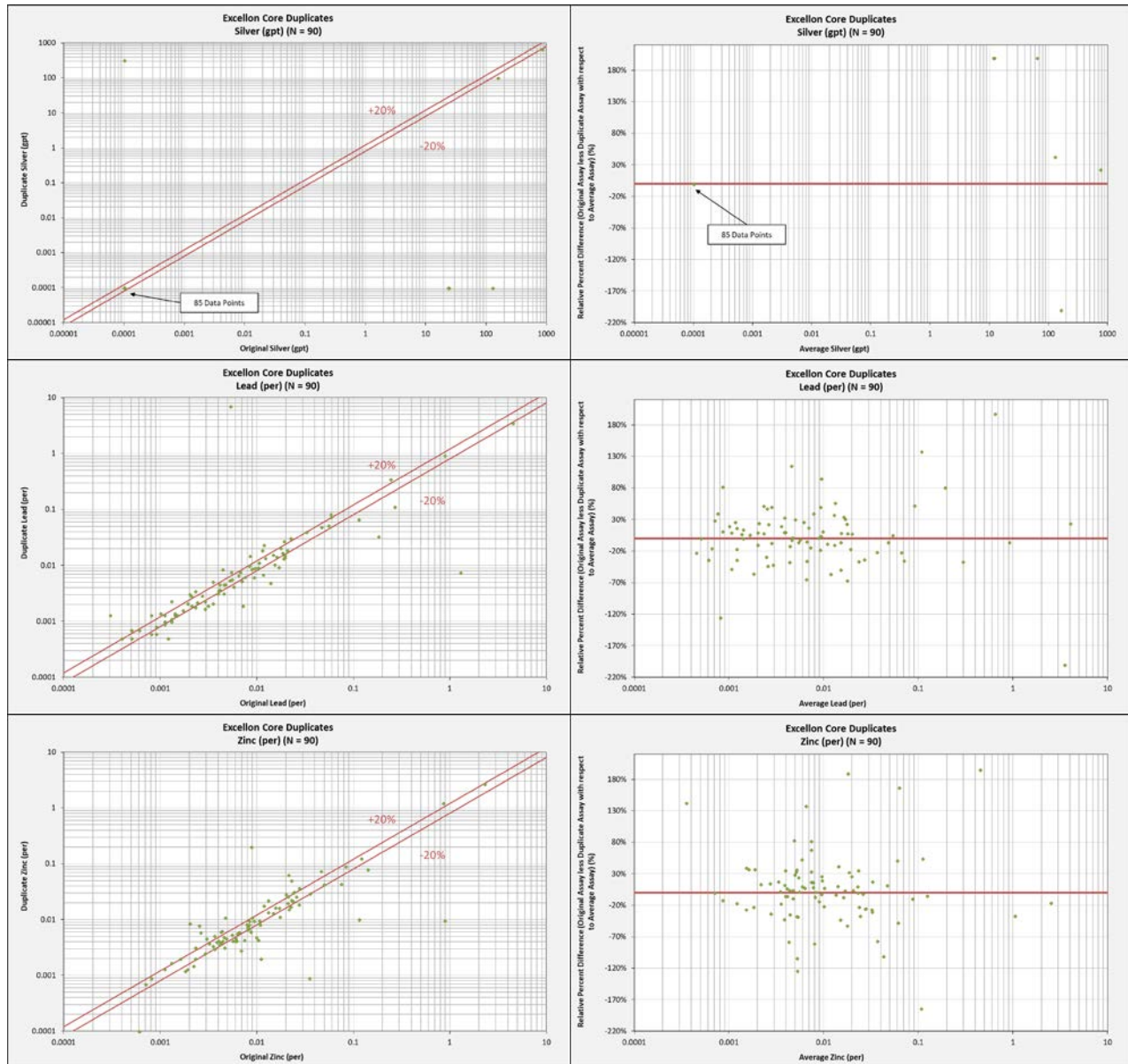




# XY Chart and RPD Chart for **preparation duplicates** analyzed for silver, lead, and zinc at SGS Minerals, Durango.

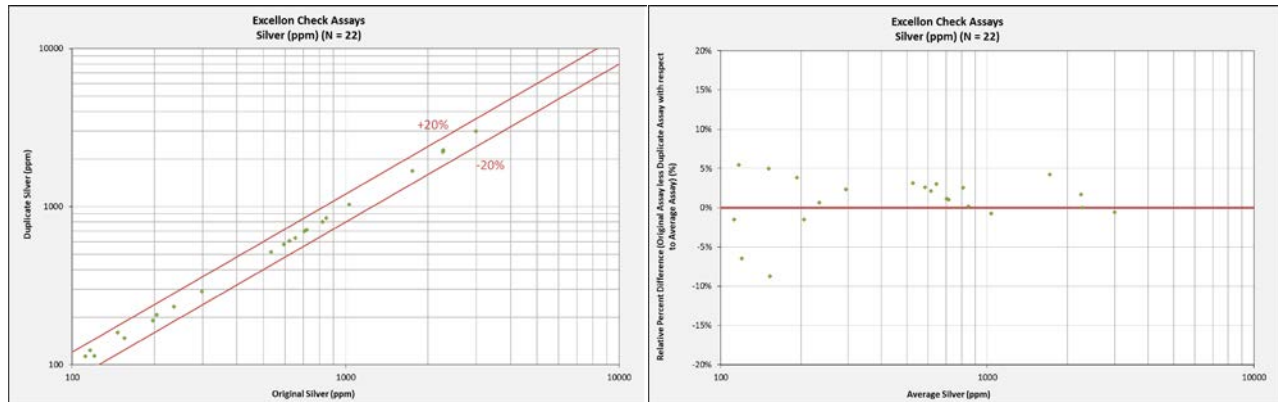


XY Chart and RPD Chart for **core duplicates** analyzed for silver, lead, and zinc at SGS Minerals, Durango.

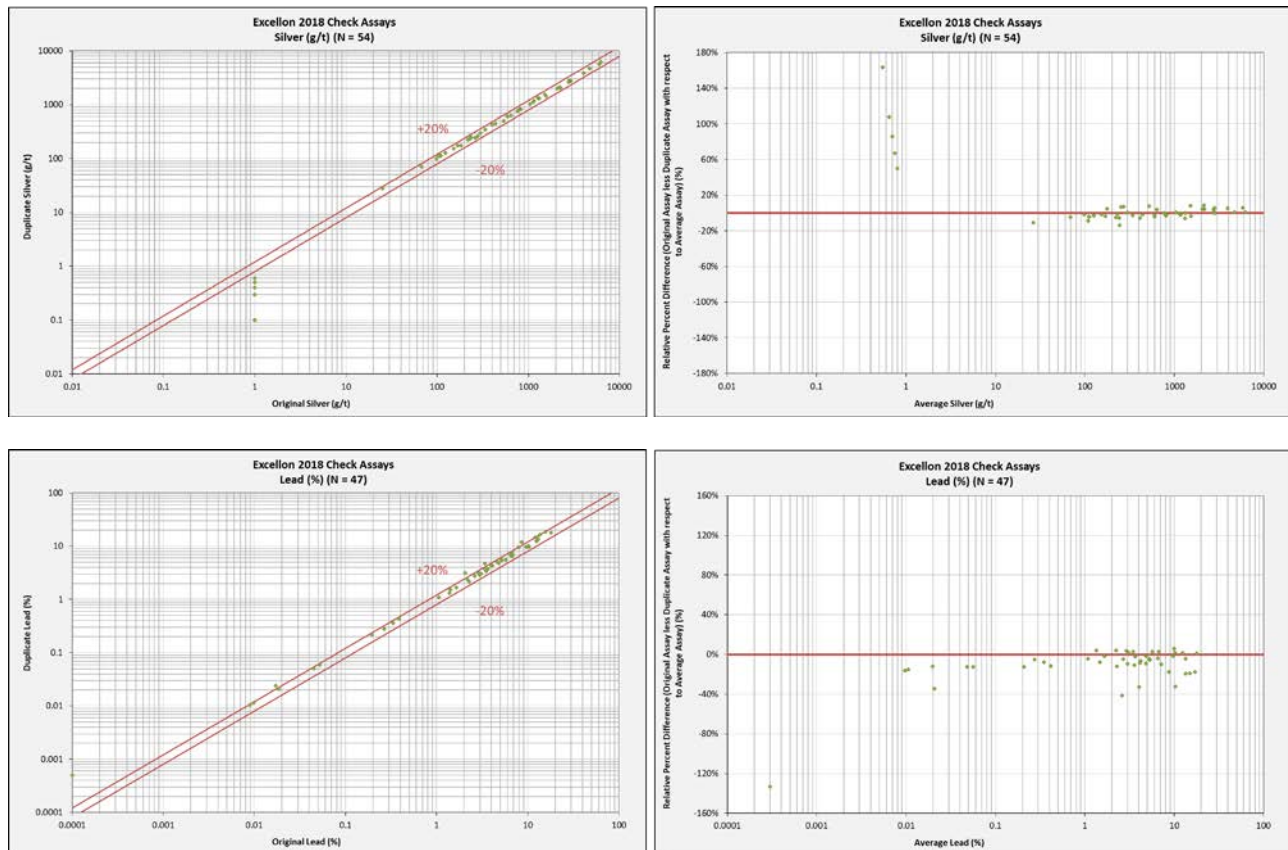


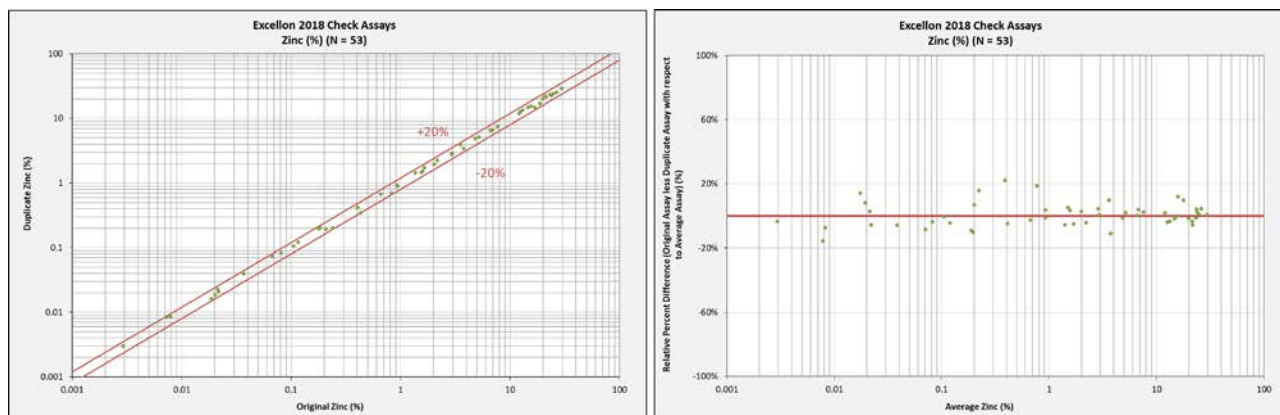


XY Chart and RPD Chart for **check assays** analyzed for silver at TSL Laboratories in Saskatoon, Saskatchewan.



XY Chart and RPD Chart for **check assays** analyzed for silver, lead and zinc at ALS Laboratories in Hermosillo, Sonora, Mexico.





## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Sebastien Bernier do hereby certify that:

- 1) I am a Principal Consultant (Resource Geology) with the firm of SRK Consulting (Canada) Inc. (SRK) with an office at Suite 101, 1984 Regent Street, Sudbury, Ontario, Canada;
- 2) I am a graduate of the University of Ottawa in 2001, I obtained a BSc (Honours) Geology and I obtained a MSc degree in Geology from Laurentian University in 2003. I have practiced my profession continuously since 2002. I worked in exploration and commercial production of base and precious metals mainly in Canada. I have been focusing my career on geostatistical studies, geological modelling and resource modelling of base and precious metals since 2004.
- 3) I am a professional geoscientist registered with the Association of Professional Geoscientists of Ontario (APGO# 1847);
- 4) I have personally inspected the subject project on January 30 to 31, 2018;
- 5) I have read the definition of Qualified Person set out in National Instrument 43–101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43–101 and this technical report has been prepared in compliance with National Instrument 43–101 and Form 43-101F1;
- 6) I, as a Qualified Person, I am independent of the issuer as defined in Section 1.5 of National Instrument 43–101;
- 7) I am the co-author of this report and responsible for sections 2, 3, 12, 14.1, 14.2, 14.3, 14.4, 24, and contributed to sections 1, 25, 26 and 27 and accept professional responsibility for those sections of this technical report;
- 8) I have had no prior involvement with the subject property;
- 9) I have read National Instrument 43–101 and confirm that this technical report has been prepared in compliance therewith;
- 10) SRK Consulting (Canada) Inc. was retained by Excellon Resources Inc. to prepare a technical audit of the Platosa Silver-Lead-Zinc Mine. In conducting our audit, a gap analysis of project technical data was completed using CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* and Canadian Securities Administrators National Instrument 43–101 guidelines. The preceding report is based on a site visit, a review of project files and discussions with Excellon Resources Inc. personnel;
- 11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Platosa Silver-Lead-Zinc Mine or securities of Excellon Resources Inc.; and
- 12) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Sudbury, Ontario, Canada  
September 7, 2018

["Original signed and sealed"]  
Sebastien Bernier, PGeo (APGO#1847)  
Principal Consultant (Resource Geology)  
SRK Consulting (Canada) Inc.

## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Robert Blair Hrabí do hereby certify that:

- 1) I am a Principal Consulting Geologist with the firm of SRK Consulting (Canada) Inc. with an office at Suite 1500, 155 University Avenue Toronto, Ontario, Canada;
- 2) I am a graduate of the McMaster University, Hamilton, Ontario in Geology in 1987. I obtained a B.Sc. (Hons.) degree. I obtained an M.Sc. in Geology from Queen's University, Kingston, Ontario in 1993. I have practiced my profession continuously since 1993. From 1993 to 2003, I conducted regional mapping programs in the Precambrian Shield of Canada. From 2004 to 2008, I was a senior exploration geologist conducting regional exploration programs for orogenic lode gold deposits in Precambrian terranes. Since 2008, I have been a consulting geologist specializing in the structural control of orogenic gold, epithermal precious metals, carbonate replacement deposits (CRD), volcanic massive sulphide (VMS), and magmatic nickel deposits in North and South America, and West Africa. I have contributed to several independent technical reports on precious metal exploration projects in North and South America, and West Africa;
- 3) I am a Professional Geoscientist registered with the Association of Professional Geoscientists of the province of Ontario (APGO #1723);
- 4) I have personally inspected the subject project from April 24 to 28, 2017;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I, as a Qualified Person, I am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 7, 8 and 14.2.2 and contributed to section 1 and accept professional responsibility for those sections of this technical report;
- 8) I have had no prior involvement with the subject property;
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) SRK Consulting (Canada) Inc. was retained by Excellon Resources Inc. to prepare a technical audit of the Platosa Silver-Lead-Zinc Mine. In conducting our audit, a gap analysis of project technical data was completed using CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* and Canadian Securities Administrators National Instrument 43-101 guidelines. The preceding report is based on a site visit, a review of project files and discussions with Excellon Resources Inc. personnel;
- 11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Platosa Silver-Lead-Zinc Mine or securities of Excellon Resources Inc.; and
- 12) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Toronto, Ontario, Canada  
September 7, 2018

["Original signed and sealed"]  
Robert Blair Hrabí, PGeo (APGO#1723)  
Principal Consultant (Structural Geology)  
SRK Consulting (Canada) Inc.

## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Michael Selby, do hereby certify that:

- 1) I am a Principal Consultant (Mining) with the firm of SRK Consulting (Canada) Inc. (SRK) with an office at Suite 101, 1984 Regent Street South, Sudbury, Ontario, Canada;
- 2) I am a graduate of Queen's University in 2001, I obtained a Bachelor of Science in Mining Engineering. I have practiced my profession continuously since 2001 in operating, engineering, and consultancy roles. I have extensive experience in conducting mining technical studies, including: trade-off studies on cut-off value, mining method, primary access, ore and waste handling. My experience also includes the design and execution of mining stopes, lateral and vertical development, underground infrastructure and construction. I have worked extensively with developing production schedules, labour and mobile equipment profiles, capital, sustaining and operating cost estimates, and narrow vein long-hole mining methods;
- 3) I am a Professional Engineer registered with the Association of Professional Engineers of Ontario (PEO#100083134);
- 4) I have personally inspected the subject project from March 22 to 23, 2018;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I, as a Qualified Person, I am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 15, 16, 18, 19, 21 and 22, and contributed to sections 25 and 26 and accept professional responsibility for those sections of this technical report;
- 8) I have had no prior involvement with the subject property;
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) SRK Consulting (Canada) Inc. was retained by Excellon Resources Inc. to prepare a technical audit of the Platosa Silver-Lead-Zinc Mine. In conducting our audit, a gap analysis of project technical data was completed using CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* and Canadian Securities Administrators National Instrument 43-101 guidelines. The preceding report is based on a site visit, a review of project files and discussions with Excellon Resources Inc. personnel;
- 11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Platosa Silver-Lead-Zinc Mine or securities of Excellon Resources Inc.; and
- 12) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Sudbury, Ontario, Canada  
September 7, 2018

["Original signed and sealed"]  
Michael Selby, PEng (PEO#100083134)  
Principal Consultant (Mining)  
SRK Consulting (Canada) Inc.

## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Mark Liskowich, do hereby certify that:

- 1) I am a Principal Consultant (Environmental Management) with the firm of SRK Consulting (Canada) Inc. (SRK) with an office at Suite 205, 2100 Airport Drive, Saskatoon, Saskatchewan, Canada;
- 2) I am a graduate of the University of Regina, in 1989, I obtained a Bachelor of Science. I have practiced my profession continuously since 1989. My expertise is in the environmental, permitting, and social management of mineral exploration and mining projects;
- 3) I am a Professional Geologist, registered with the Association of Professional Engineers & Geoscientists of Saskatchewan (APEGSS#10005) and the Professional Engineers and Geoscientists Newfoundland and Labrador (PEGNL#09424);
- 4) I have personally inspected the subject project from March 15 to 16, 2018;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I, as a Qualified Person, I am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 4.4 and 20, and accept professional responsibility for those sections of this technical report;
- 8) I have had no prior involvement with the subject property;
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) SRK Consulting (Canada) Inc. was retained by Excellon Resources Inc. to prepare a technical audit of the Platosa Silver-Lead-Zinc Mine. In conducting our audit, a gap analysis of project technical data was completed using CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* and Canadian Securities Administrators National Instrument 43-101 guidelines. The preceding report is based on a site visit, a review of project files and discussions with Excellon Resources Inc. personnel;
- 11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Platosa Silver-Lead-Zinc Mine or securities of Excellon Resources Inc.; and
- 12) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

|  |   |
|--|---|
| Saskatoon, Saskatchewan, Canada<br>September 7, 2018 | <u>["Original signed and sealed"]</u><br>Mark Liskowich, PGeo (APEGSS#10005, PEGNL#09424)<br>Principal Consultant (Environment)<br>SRK Consulting (Canada) Inc. |
|--|---|

## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Chantal Jolette do hereby certify that:

- 1) I am a senior geologist with the firm of Analytical Solutions Ltd. (ASL) with an office at 54 Bayside Crescent, Sudbury, Ontario, Canada;
- 2) I graduated from the University of Ottawa in 2001 with a BSc (Honours) in Geology. I have practised my profession continuously since May 2001. I worked in exploration, technical services, and commercial production of base and precious metals, mainly in Canada. I have been focusing my career on geological database management, geological modelling and analytical quality control since 2003;
- 3) I am a professional geoscientist registered with the Association of Professional Geoscientists of Ontario (APGO# 1518);
- 4) I have not personally visited the project area;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I, as a Qualified Person, am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 11.1, 11.2, 11.3, 11.6, 11.7, 11.8, 11.9 and 12.1 and accept professional responsibility for those sections of this technical report;
- 8) I have had no prior involvement with the subject property;
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) Analytical Solutions Ltd. was retained by Excellon Resources Inc. to review and report on the Assay Quality Control Data of the Platosa Mine. The contents of Section 11 and 12 in the preceding report is based on a review of project files and discussions with Excellon Resources Inc. personnel;
- 11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Platosa Silver-Lead-Zinc Mine or securities of Excellon Resources Inc.; and
- 12) As of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Sudbury, Ontario, Canada  
September 7, 2018

["Original signed and sealed"]  
Chantal Jolette, PGeo (APGO# 1518)  
Senior Geologist  
Analytical Solutions Ltd.

## CERTIFICATE OF QUALIFIED PERSON

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Ben Pullinger, hereby certify that:

- 1) I am a Senior Vice President Geology with the firm of Excellon Resources Inc. with an office at Suite 900, 20 Victoria Street, Toronto, Ontario, Canada;
- 2) I am a graduate of the University of Johannesburg in 2004, I obtained undergraduate and honours degrees in Geology. I have practiced my profession continuously since 2004 in exploration, production and the evaluation of precious and base metal deposits;
- 3) I am a Professional Geologist registered with the Association of Professional Geoscientists of Ontario (APGO #2420);
- 4) I have been employed at Excellon Resources Inc. since September 2016 and have personally inspected the subject property on numerous occasions as part of my ongoing role as Senior Vice President, Geology with Excellon;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I am employed by the issuer, Excellon Resources Inc., and therefore am not independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 4, 5, 6, 9, 10, 11.4, 11.5, 14.5, 23 and contributed to sections 1, 25, 26 and 27 and accept professional responsibility for those sections of this technical report;
- 8) Prior to being employed at Excellon Resources Inc., I had no involvement with the subject property.
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Toronto, Ontario, Canada  
September 7, 2018

/“Original signed and sealed”/  
Ben Pullinger, PGeo (APGO#2420)  
Senior Vice President, Geology  
Excellon Resources Inc.



## **CERTIFICATE OF QUALIFIED PERSON**

To Accompany the report entitled: **Technical Report for the Platosa Silver-Lead-Zinc Mine, Mexico, September 7, 2018 (effective date: March 31, 2018).**

I, Denis Flood, do hereby certify that:

- 1) I am a Vice President Technical Services with the firm of Excellon Resources Inc. with an office at Suite 900, 20 Victoria Street, Toronto, Ontario, Canada;
- 2) I am a graduate of Dalhousie University in 2004, I obtained a B. Eng. I have practiced my profession continuously in underground mines and projects in both base metals and precious metals since May 31, 2004;
- 3) I am a Professional Engineer registered with the Association of Professional Engineers of Ontario (PEO#100082766);
- 4) I have been employed at Excellon Resources Inc. since July 2016 and have personally inspected the subject property 20 times;
- 5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
- 6) I am employed by the issuer, Excellon Resources Inc., and therefore am not independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
- 7) I am the co-author of this report and responsible for sections 13 and 17 and contributed to section 1 and accept professional responsibility for those sections of this technical report;
- 8) Prior to being employed at Excellon Resources Inc., I had no involvement with the subject property
- 9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
- 10) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Toronto, Ontario, Canada  
September 7, 2018

["Original signed and sealed"]  
Denis Flood, PEng (PEO#100082766)  
Vice President Technical Services  
Excellon Resources Inc.