

**TECHNICAL REPORT**  
**ON THE**  
**SANTUARIO PROJECT**  
**CARDONAL MUNICIPALITY**  
**HIDALGO, MEXICO**

**for**  
**PALAMINA CORP.**

**Report No. 980**

A.C.A. Howe International Limited  
Toronto, Ontario, Canada

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Effective Date: June 12, 2015  
Report Date: September 1, 2015



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## 1 EXECUTIVE SUMMARY

At the request of Mr. Andrew Thomson, President of Palamina Corp. (“Palamina” or “the Company” or “the Issuer”), A.C.A. Howe International Ltd. (“Howe”) has been retained to provide a technical report (“Report”) on the Santuario Project (the “Project” or “Property”), located in Hidalgo State, Mexico. The Project is at an early stage of exploration with historic production of gold from a number of small-scale underground mines. The purpose of the Report is to review and present the technical merits of the Property and propose an exploration program to further evaluate the Property. This Report has been prepared in support of attaining a public listing and future financings.

This report is prepared in accordance with Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101), Companion Policy NI 43-101CP, and Form 43-101F1 (Technical Report) as brought into effect by the Canadian Securities Administrators on June 30, 2011.

Palamina holds a 100% interest in the mineral titles for the Project which comprises two concessions (El Santuario and SANT) covering approximately 3,200 ha in the municipality of Cardonal, Hidalgo State in central Mexico. The Project is located approximately 75 km northwest of Pachuca de Soto (Pachuca), the capital city of Hidalgo, and approximately 130 km north of Mexico City, the nation’s capital.

Elevations on the Property range from 2,050 masl along the southern boundary of the Property to 2,890 masl on the high peaks in the center of the Property. Elevation of the San Clemente gold target is between 2,350 to 2,600 masl. Exploration can be conducted throughout the year.

As of the effective date of this Report, the Company does not hold an environmental permit allowing exploration. An application will be submitted for a permit to explore a specific area when an exploration target has been identified. The anticipated time frame for the receipt of permits is dependent on the type of permit required and can range from three weeks to six months from the date the application is submitted to the appropriate government authorities.

The Property may be of sufficient area for the establishment of potential mine infrastructure such as tailings and waste storage areas, heap leach pads and processing plant site. The Company does not currently hold any surface rights in the project area. While mining concessions grant to their holders the right to carry out exploration or exploitation of those minerals and substances subject to the Mining Law of Mexico within the relevant mining lots and dispose of the mineral products obtained from such mining lots, the right to enter or use the surface land is subject to the consent of the owner of the land. Palamina maintains good relations with local communities and does not anticipate difficulties securing agreements to work in the area.



The nearest town to the Property with services is Ixmiquilpan, located approximately 30 minutes from the Property. Pachuca, the capital of the state of Hidalgo and historically the leading producer of both silver and gold in Mexico is located some 1.5 hours away over good paved roads. Unskilled labour and basic supplies can be obtained locally and in Ixmiquilpan while a skilled labour force and much of the equipment related to mining can be obtained from Pachuca or Mexico City to the south.

Little is known of the history of mineral exploration and exploitation at the Santuario Property. Most of the small-scale workings that exploited gold-bearing structures on the Property are thought to predate the Mexican Revolution but the San Severiano and El Gringo small-scale mines reportedly operated intermittently until 1975. Acid-grade fluorite was mined from the Mina El Fluor, which was operated by Fluoruros de Hidalgo over period of 15 years (production dates unknown) and processed at a flotation plant reported to have had a capacity of 25,000 tons per year. There are no records of production from any of the mines on the Property.

Beginning in 1979, the Consejo de Recursos Minerales (CRM) began a series of investigations in the San Clemente area of the Property. During this time, historic small mine workings were mapped and sampled, an induced polarization geophysical survey was conducted in the area of the known mines and four drill holes were completed. Only partial results from the drilling are available.

Most of the work focused on sampling abandoned small mine workings in order to evaluate the potential for the existence of a disseminated gold deposit. Some anomalous results were obtained but results were inconsistent and often conflicted. As a result, CRM investigators generally concluded that there was little or no potential for economic disseminated gold mineralization.

During the 1981 CRM sampling program, 128 samples were collected and submitted for analysis but only 30 samples reported detectable gold values ranging from 30 to 2,610 ppb; the remainder were below the detection limit. However, when the samples were collected they were also panned and 106 of the total 128 samples yielded gold grains or a gold tail. These results suggest that there may have been an issue with sample preparation procedures, possibly caused by coarse-grained gold. This may explain the conflicting results obtained by the CRM and result in the possible underestimation of gold content. Numerous taunas, small, primitive devices for crushing gold-bearing ore are present on the Property and local residents also report that native gold was panned by the CRM in two areas collecting stream sediment samples further suggesting the presence of coarse-grained gold.

Soltoro Ltd. staked the El Santuario concession in 2006 and the SANT concession in 2009. During this time period, Soltoro personnel and contractors performed cursory visits to the Property. Between 2006 and 2009, 95 rock samples were collected from outcrops, historic mine working and dumps. Rock sampling in the San Clemente area focused on mineralized structures within an area measuring approximately 500 m by 750 m.



Of the 95 samples collected between 2006 and 2009, 57 were collected by Soltoro and 38 were collected by unrelated third-party Solitario Resources Corporation as part of a property evaluation in 2009 for a potential option agreement which was not pursued. Of the total, 10 samples (11%) returned Au results below detection levels (<0.01g/t); 26 samples (27%) returned Au values between 0.01 and 0.1 g/t; 30 samples (32%) returned Au values between 0.1 and 0.5 g/t; 9 samples (9%) returned Au values between 0.5 and 1.0 g/t; 18 samples (19%) returned Au values between 1.0 and 5.0 g/t; and 2 chip samples (2%) returned greater than 5.0 g/t Au (7.83 g/t Au from the San Joaquin workings and 10.26 g/t Au from the Santa Cruz workings).

In 2009, Soltoro collected 27 stream sediment samples while completing a first-pass geologic map. Five of the stream sediment samples yielded values in excess of 50 ppb gold but those samples were collected from drainages containing the most important historic mines. Samples containing anomalous copper, barium and manganese were more widespread but the largest concentrations generally coincide with samples anomalous in gold.

In 2012, Soltoro conducted a reconnaissance geologic program over the Property in order to develop basic geologic and mineralization models. A geologic map of the Property was assembled, 438 rock samples were collected and a ground magnetometer survey was completed over prospective parts of the Property.

Geologic mapping identified three exploration target areas. In order of importance they are (1) fracture-controlled gold mineralization hosted by rhyolite porphyry in the San Clemente area, (2) polymetallic replacement lead-zinc-silver mineralization in Cretaceous carbonates around Mina El Fluor, and; (3) gold mineralization hosted by rhyolite porphyry and Jurassic metasedimentary rocks in the El Boxo area.

Soltoro identified the following types of exploration targets on the basis of the ground magnetic survey and geologic characteristics of the known mineralized areas:

- Au targets: three target areas were selected, including the San Clemente area. The key geophysical feature for target selection is the presence of trends of high frequency anomalies overprinting regions of magnetic signal characteristic of acid volcanic or intrusive rocks.
- Polymetallic replacement targets: seven target areas were selected, including the Mina El Fluor area. The main geophysical/geological characteristics for target selection is the presence of major faults that separate magnetic domains where one of the domains is formed by sedimentary sequences and the other is either an intrusive rock type or is interpreted to contain intrusive lithologies.

The Property is located at the southern end of the Sierra Madre Oriental geologic province, which is characterized by a series of long, generally northwest-southeast-tending mountain ranges that resulted from deformation of Mesozoic sedimentary rocks and their underlying Proterozoic basement during the Laramide Orogeny. The sedimentary sequence consists primarily of





Cretaceous marine carbonates with lesser sandstone and siltstone of Jurassic and Cretaceous age. The entire section was uplifted, shortened and transported northeastward forming a fold and thrust belt that extends for hundreds of kilometres to the northwest.

This deformed sedimentary sequence was intruded by a series of intermediate plutons in the Eocene. Many of the mineralized camps in the Sierra Madre Oriental are related to this intrusive event. Eruption of felsic volcanic rocks, with the emplacement of associated intrusives, followed in the Oligocene and Miocene.

Geologic units exposed on the Property are composed of four distinct groups: Upper Jurassic through Upper Cretaceous sedimentary rocks, granodioritic and dioritic intrusive rocks of Eocene age, two porphyritic rhyolite intrusive and/or dome complexes of Oligocene age, and felsic volcanics of probable Miocene age. Minor Quaternary sedimentary deposits are present in the southern portion of the Property.

The most significant gold occurrence on the Property is hosted by one of the rhyolite porphyry and dome complexes (TRDa) near San Clemente. The rhyolite porphyry contains phenocrysts of quartz (quartz eyes) and commonly exhibits flow banding. In many locations the flow banding exhibits vertical cross-cutting relationships with the diorite and even within the rhyolite porphyry itself suggesting that the intrusion history of rhyolite porphyry is prolonged and complex. The TRDa has been dated at  $26.5 \pm 1.3$  Ma, or Late Oligocene.

Mineralization on the Santuario Property consists of two distinct styles:

- epithermal gold mineralization in quartz and/or iron oxide veinlets hosted by a rhyolite porphyry and flow dome complex rocks (TRDa) and adjacent sedimentary rocks, and
- lead-zinc-silver replacement mineralization hosted by Cretaceous carbonate rocks near the contact with rhyolite porphyry.

The principal exploration target on the Property is epithermal gold mineralization in the San Clemente area, which occurs over an area measuring approximately 500 m by 750 m. In the San Clemente area, gold mineralization is hosted by a poorly to moderately developed stockwork of millimeter-scale quartz and/or iron oxide veining/fracture-filling in rhyolite porphyry (TRDa) within the northeast-trending Defay fault system but there is a strong preferred northwest or east-west orientation to the mineralized fractures.

Gold assay values in the San Clemente area range from below detection limit up to 10.3 g/t gold based on Soltoro's work and 22.7 g/t gold from the CRM work. Higher gold values are concentrated in larger fractures, such as those exploited at historic mines, with lower grade values (0.1 g/t gold to 0.9 g/t gold) disseminated in the rhyolite.

Mineralization consists primarily of native gold and electrum with trace amounts of galena and chalcopyrite. Gangue minerals consist of quartz, limonite and clay with minor pyrite and



magnetite. The primary type of hydrothermal alteration associated with the San Clemente target is argillic alteration in the rhyolite porphyry. Silicification is not common but is present locally.

A secondary, less well-defined, exploration target occurs in Cretaceous sedimentary rocks adjacent to the contacts between a possible buried dioritic intrusive or the rhyolite porphyry. Rocks in these areas exhibit incipient marbilization, metasomatic minerals including actinolite, tremolite and chlorite, oxidized remnants of magnetite and pyrite as well as siderite, calcite and possible scorodite, an oxidation product of arsenic-bearing minerals. This style of alteration occurs intermittently over an area measuring more than two kilometres in a northwest-southeast direction and ranging in width from approximately 500 m to over 1,000 m. The historic Mina El Fluor fluorite mine is located within this broad area of alteration.

Soltoro obtained weak, but anomalous, values of silver, lead, zinc and manganese with localized copper values from altered sediments in this area. Values range from below the detection limit to maximums of 18.8 ppm for silver, 463 ppm for lead, 1,570 ppm for zinc, 18,100 ppm for manganese and 4,360 ppm for copper. This suite of elements, in conjunction with the alteration effects mentioned in the preceding paragraph, is also suggestive of polymetallic replacement deposits associated with intermediate intrusives on the Property.

A poorly defined area of anomalous gold values is located west of the village of El Boxo on the eastern side of the Property. Soltoro obtained anomalous gold values ranging from below the detection limit to a maximum of 2.44 g/t gold that appear to be related to a northeast-trending zone El Defay fault system and a northwest-trending zone of fracturing near the contact between the rhyolite porphyry (TRDa) and the adjacent Jurassic sedimentary rocks. Stream sediment sampling in drainages along the western margin of the target area yielded gold values from 0.01 ppm gold to 0.05 ppm gold and visible gold has been reported from panning during sampling conducted by the CRM in this area. Based on the preliminary field work of CRM and Soltoro, the broadly-defined anomaly is more than three kilometres in length and up to one kilometre in width.

Little is known of the sample collection and analytical methodologies of the CRM. Sample security, sample collection, preparation and analytical procedures undertaken on the Property by Soltoro during the 2006, 2009 and 2012 programs are appropriate for the sample media and mineralization type and conform to industry standards.

Palamina has conducted no ground exploration on the property.

Confirmation of the existence of reported historic adits, work sites and mineralized areas was conducted by Howe's representative and author Mr. Ian Trinder as part of Howe's due diligence in the preparation of this technical report on the Property. Soltoro's previous, and Palamina's intended, exploration activities, methodologies, quality assurance and quality control procedures, security, findings and interpretations were discussed. The Property and technical observations were generally as reported by Palamina and Soltoro. Several verification samples were collected.



Howe conducted limited verification sampling of several previously sampled rock outcrops, trenches and adits during its 2015 site visit. Howe's verification samples are too few to permit a statistical comparison with the historic samples however they do provide an independent confirmation of the presence of gold mineralization at the Santuario Property. Several of Howe's samples are not ideal duplicates of previous chip samples due to the uncertainty of the exact location of many of the historical samples. In addition, Howe's samples comprised continuous chip samples; the historic samples may have comprised channel, continuous chip or chip samples. It is the opinion of Howe that the historical sample preparation and analytical procedures implemented by Soltoro have been adequate for the exploration conducted to date.

Howe has reviewed the historic and current Santuario Property data provided by Palamina; has visited the site; and has reviewed historic and proposed sampling procedures and security. Howe believes that the data presented by the Company are generally an accurate and reasonable representation of the Santuario Property mineralization styles. Howe concludes that the database for the Property is of sufficient quality to provide the basis for the interpretations, conclusions and recommendations reached in this Report.

Based on the review of data and reports from past exploration:

- The Santuario Project is at an early stage of exploration;
- Ground magnetics, geologic mapping and rock sampling have identified potential structural and lithologic controls on mineralization and ground magnetics has identified several exploration targets for both gold and lead-zinc-silver replacement mineralization;
- Three early stage exploration targets have been identified on the Property with the San Clemente epithermal gold target being the primary, and most advanced, target. The Mina El Fluor lead-zinc-silver target and the El Boxo gold target are secondary exploration targets;
- Rock sampling at the San Clemente target has yielded low- to moderate-gold grades from structures hosted by a rhyolite porphyry of Oligocene age;
- Based on limited third party work to date, gold mineralization is hosted by quartz and/or iron oxide veinlets and appears to be relatively coarse-grained requiring metallic screen fire assay to obtain meaningful analytical results;
- The methodology of Soltoro's historic sample preparation and assaying of rock and stream samples is appropriate as per industry standards for early stage exploration projects;
- Recent exploration by Soltoro has confirmed the presence of anomalous concentrations of gold at the San Clemente target sufficient to warrant further exploration to determine whether drilling is warranted. The Mina El Fluor lead-zinc-silver target and the El Boxo gold target require additional mapping and sampling.

Based on historic exploration work, particularly the recent work by Soltoro, Howe concludes that the Santuario Property warrants additional exploration expenditures.



Howe and the author recommend that Palamina continue to advance the Santuario Project and consider the following recommendations for future exploration:

- Initiate detailed mapping and sampling in the San Clemente area with a view toward locating specific drill targets;
  - The detailed sampling should include studies to confirm controls on gold distribution; eg. selective sampling of the fine, friable, Fe-oxide and clay-rich fraction and the coarser, competent fraction within mineralized structures.
  - Sampling should include both structures and intervening rocks between structures.
  - Individual sample documentation should include associated structural orientations and mineralogy.
  - Alteration mapping may be aided by use of a portable infrared spectrometer.
- Obtain geologic reports prepared by the Metal Mining Agency of Japan on the Property in order to obtain and evaluate results of earlier drilling conducted by the CRM in the San Clemente area;
- Follow-up exploration targets identified through the ground magnetic surveys;
- Establish Quality Assurance/Quality Control (QA/QC) programs for both field sampling and drilling. Programs should include relevant data collection, sample collection and sample security protocols as well as the regular insertion of certified reference material samples (standards), pulp and coarse reject duplicate samples, field and core duplicate samples and coarse blank samples into the sample preparation and analytical stream;
- Evaluate the San Clemente gold target with four diamond drillholes totaling 500 m for the first phase of exploration drilling on the Property. Two holes are located in the Mina San Severiano area and two are located in the Mina San Joaquin area. All four holes are collared along a line trending 290°. Details for the proposed holes are presented in Table 1-1.
  - The proposed drilling program will employ a man-portable diamond drill rig to minimize environmental disturbance and facilitate environmental permitting. Portable rigs usually imply a smaller core size however, given the strong fracturing of the bedrock, core diameter should be maximised and consideration given to the use of a triple tube core barrel to maintain good core recovery. Man-portable rigs are capable of achieving depths of 400 m to 550 m with NTW core (diameter of 65.1 mm or 2.205 inches) and 600 m to 800 m with BTW core (diameter of 41.7 mm or 1.645 inches) depending on the rig used. All holes will be started with NTW core with the option of reducing the core size to BTW if drilling conditions warrant a reduction in core size.
  - Final collar locations will be dependant on factors including local topography and slope stability.



- Begin semi-detailed to detailed mapping and sampling programs in the areas of the Mina El Fluor lead-zinc-silver replacement target and the El Boxo gold target to determine if drill targets are present.

Table 1-1: Collar details for proposed diamond drillholes, San Clemente area, Santuario Project.

Hole	Easting*	Northing*	Azimuth (degrees)	Inclination (degrees)	Proposed Depth (m)
A	482,980	2,284,660	200	-50	125
B	482,910	2,284,690	200	-50	125
C	482,785	2,284,735	200	-50	125
D	482,690	2,284,770	200	-50	125

\*(UTM NAD27-Mexico)

In line with Howe's recommendations, Palamina has proposed a budget totaling C\$279,000 for exploration work in 2015. The proposed program and budget as shown in Table 1-2 is to be completed as a single phase. The program will permit Palamina to complete an initial 500 m of drilling to evaluate the San Clemente gold exploration target.

Howe considers Palamina's proposed budget reasonable and recommends that the Company proceed with the proposed work program.

Table 1-2: Palamina's Santuario Property Proposed 2015 Exploration Program and Budget

Task	Itemized Cost (C\$)	Total* (C\$)
Community Relations & Landowner Agreements		\$ 20,000
Permitting		\$ 20,000
Personnel (supervision, local labor)		\$ 35,000
Travel and Related		\$ 29,000
Field Surface Sample Analyses	200 @ \$90/sample	\$ 18,000
Geologic Mapping		\$ 13,000
Diamond Drilling – Mob/demob		\$ 20,000
Diamond Drilling - Man-portable rig	500 m @ \$146/m	\$ 73,000
Core Analyses – Au screen metallic assays	355 @ \$90/sample	\$ 32,000
QA/QC Program		\$ 13,000
Reclamation		\$ 6,000
	<b>Total</b>	<b>\$279,000</b>

\* Rounded to nearest \$000



## 2 INTRODUCTION AND TERMS OF REFERENCE

### 2.1 GENERAL

At the request of Mr. Andrew Thomson, President of Palamina Corp. (“Palamina” or “the Company” or “the Issuer”), A.C.A. Howe International Ltd. (“Howe”) has been retained to provide a technical report (“Report”) on the Santuario Project (the “Project” or “Property”), located in Hidalgo State, Mexico. The Project is at an early stage of exploration with historic production of gold from a number of small-scale underground mines.

This report is prepared in accordance with Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101), Companion Policy NI 43-101CP, and Form 43-101F1 (Technical Report) as brought into effect by the Canadian Securities Administrators on June 30, 2011.

Palamina is a reporting, public Canadian-based mineral exploration company seeking a listing on the TSX Venture Exchange. The Company is focused on acquisition and development of Mexican gold and silver assets. The corporate head office is located at 357 Bay Street, Suite 800, Toronto, ON, Canada, M5H 2T7.

Howe is an international geological and mining consulting firm that was incorporated in the province of Ontario in 1966 and has continuously operated under a “Certificate of Authorization” to practice as Professional Engineers (Ontario) since 1970 and Professional Geoscientists (Ontario) since 2006. Howe provides a wide range of geological and mining consulting services to the international mining industry, including geological evaluation and valuation reports on mineral properties. The firm’s services are provided through offices in Toronto and Halifax, Canada and London, U.K.

Neither Howe nor the author of this Report (nor family members or associates) have a business relationship with Palamina or any associated company, nor with any company mentioned in this Report that is likely to materially influence the impartiality or create a perception that the credibility of this Report could be compromised or biased in any way. The views expressed herein are genuinely held and deemed independent of Palamina.

Moreover, neither Howe nor the author of this Report (nor family members or associates) have any financial interest in the outcome of any transaction involving the property considered in this Report other than the payment of normal professional fees for the work undertaken in the preparation of this Report (which is based upon hourly charge-out rates and reimbursement of expenses). The payment of such fees is not dependent upon the content or conclusions of either this Report or consequences of any proposed transaction.



## 2.2 SCOPE AND CONDUCT

Palamina retained Howe on May 6<sup>th</sup>, 2015 to prepare this Report. The purpose of the Report is to review and present the technical merits of the Property and propose an exploration program to further evaluate the Property. This Report has been prepared in support of attaining a public listing and future financings.

This Report documents both historic exploration of previous operators within the Property area including Soltoro S.A. de C.V. (Soltoro) and limited detailed ground magnetics completed by Soltoro and being analyzed by Palamina.

The effective date of this report is June 12<sup>th</sup>, 2015 and is based on data known to Howe at that date. Howe reserves the right, but will not be obligated to revise this Report and conclusions if additional information becomes known to Howe subsequent to the date of this Report.

Palamina reviewed draft copies of this Report for factual errors. Any changes made as a result of these reviews did not include alterations to the conclusions made. Therefore the statement and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

Palamina has accepted that the qualifications, expertise, experience, competence and professional reputation of Howe's Principals and Associate Geologists and Engineers are appropriate and relevant for the preparation of this Report. Palamina has also accepted that Howe's Principals and Associates are members of professional bodies that are appropriate and relevant for the preparation of this Report.

Palamina has warranted that full disclosure of all material information in its possession or control at the time of writing has been made to Howe, and that it is complete, accurate, true and not misleading. Palamina has also provided Howe with an indemnity in relation to the information provided by it. Palamina has agreed that neither it nor its associates or affiliates will make any claim against Howe to recover any loss or damage suffered as a result of Howe's use of that information in the preparation of this Report. Palamina has also indemnified Howe against any claim arising out of the assignment to prepare this Report, except where the claim arises out of any proven wilful misconduct or negligence on the part of Howe. This indemnity is also applied to any consequential extension of work through queries, questions, public hearings or additional work required arising out of the engagement.

### 2.2.1 Author and Site Visit

The Report has been prepared by Mr. Ian Trinder, M.Sc., P.Geo., Senior Geologist and Qualified Person (QP) for A.C.A. Howe International Ltd. Mr. Trinder has a Master of Science degree in geology and is a registered Professional Geoscientist (P.Geo.) in good standing registered in the Provinces of Ontario and Manitoba (APGO no. 0452, APEGM no. 22924). He has over 25 years' experience in the mining industry with a background in international precious and base



metals mineral exploration including project evaluation and management. Howe's representative and author Mr. Trinder visited the Property area on May 24 and 25, 2015 as part of Howe's due diligence in the preparation of this technical report.

Mr. Trinder met with and was accompanied in the field by Mr. Steven T. Priesmeyer, Palamina's Vice President of Exploration and Ing. Manuel Aragón Arreola, Soltoro's Exploration Manager. Mr. Trinder completed an inspection of selected historic small mine adits and surrounding altered and mineralized rocks in the San Clemente exploration target area on May 24<sup>th</sup>, 2015. The Mina El Fluor area was inspected and a vehicular tour of the El Boxo area was completed on May 25<sup>th</sup>, 2015. Soltoro's previous, and Palamina intended exploration activities, methodologies, quality assurance and quality control procedures, security, findings and interpretations were discussed. The Property and technical observations were generally as reported by Palamina and Soltoro. Several verification samples were collected.

### **2.3 SOURCE OF INFORMATION**

In preparing this report, Howe reviewed geological reports, maps and miscellaneous technical papers as made available by Palamina, and other public and private information as listed in Section 19 of this Report, "References". The Palamina information includes exploration data, geological interpretation, assays from original assay records and reports, digital data and miscellaneous information relating to the Project.

While all of the information and technical documents reviewed are assumed accurate and complete in all material aspects, Howe has carefully reviewed the information including a spot check comparison of approximately 10% of Palamina's assay data against digital scans/PDF files of laboratory certificates to verify accuracy and completeness.

Howe has not independently conducted any legal title or other searches, but has relied upon title opinions prepared by Avalos y Abogados, S.C. on February 24<sup>th</sup>, 2015 on behalf of Soltoro Ltd. (Soltoro) for its 2015 annual audit.

In addition, Howe carried out discussions with the management, consultants and technical personnel of Palamina, in particular, Mr. Steven T. Priesmeyer, Palamina's Vice President Exploration and Ing. Manuel Aragón Arreola, Exploration Manager for Soltoro.

The author believes that the information and data presented to Howe by Palamina are a reasonable and accurate representation of the Santuario Property and are of sufficient quality to provide the basis for the conclusions and recommendations reached in this report.





## 2.4 LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the SI (metric) system. All currency in this report is in Canadian dollars (C\$) unless otherwise noted. The list of abbreviations used in this report is shown in Table 2-1.

Table 2-1 Abbreviations used in this report.

°F	degree Fahrenheit	km <sup>2</sup>	square kilometre
°C	degree Celsius	m <sup>2</sup>	square metre
kg	kilogram	t	metric tonne
g	gram	g/t	gram per metric tonne
km	kilometre	ppb	part per billion
m	metre	ppm	part per million
cm	centimetre	masl	metres above sea level
mm	millimetre	line-km	line-kilometre
μ	micron	Ma	million year
ha	hectare	MX\$	Mexican peso

Unless otherwise noted, Universal Transverse Mercator (“UTM”) coordinates are provided in the datum of NAD27 Mexico, UTM Zone 14Q.



### 3 RELIANCE ON OTHER EXPERTS

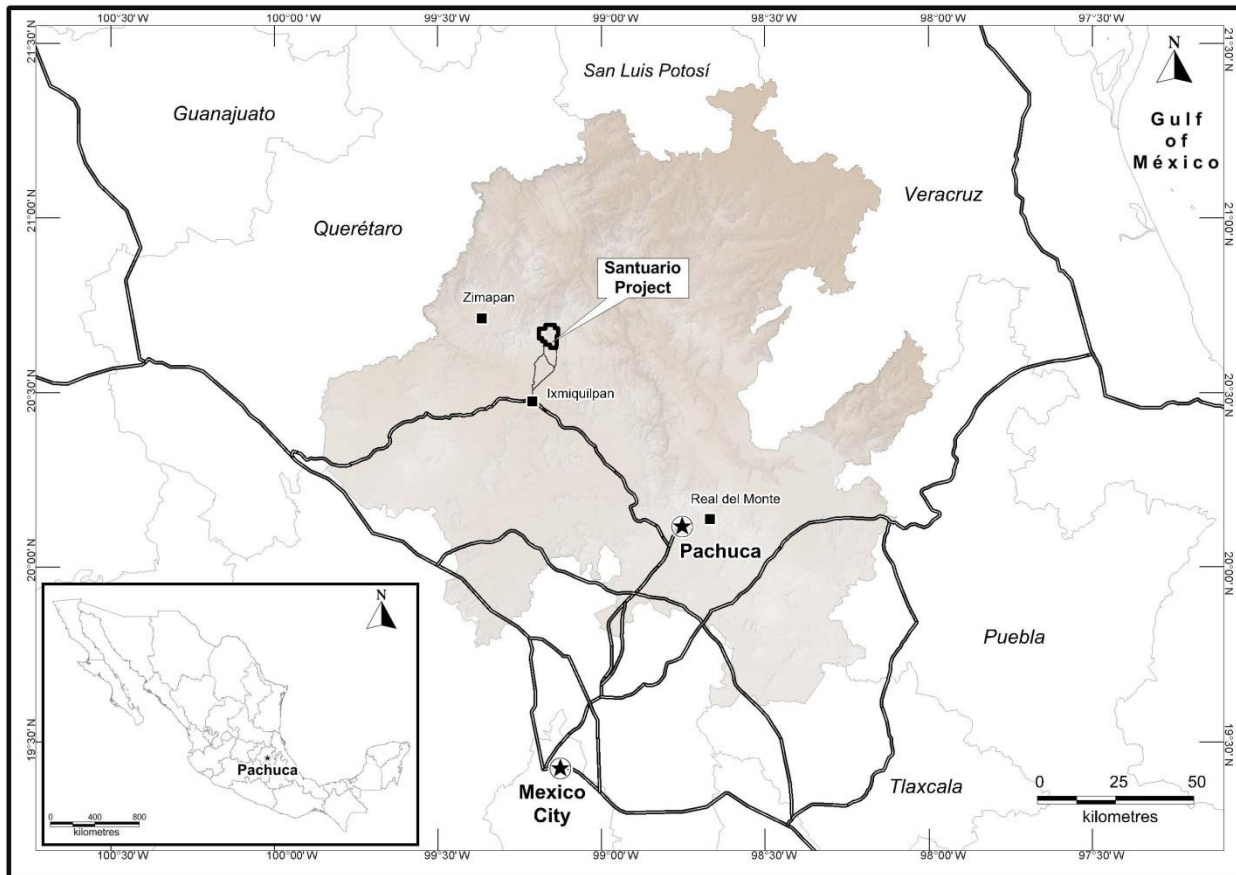
Howe has not independently conducted any legal title or other searches, but has relied upon title opinions, prepared by Avalos y Abogados, S.C. on February 24<sup>th</sup>, 2015 on behalf of Soltoro Ltd. (Soltoro), for information concerning Project mining concessions including their validity, expiration dates and taxes paid as presented in Section 4 of this Report (Avalos y Abogados, S.C., 2015).

Howe has relied entirely upon Palamina, its management and legal counsel for information related to documentation pertaining to the ownership transfer of the El Santuario and SANT mineral concessions from Soltoro to Palamina on June 9<sup>th</sup>, 2015 as presented in Section 4 of this Report (Palamina, 2015).

## 4 PROPERTY DESCRIPTION AND LOCATION

### 4.1 LOCATION

The Santuario Project is located in the municipality of Cardonal in the state of Hidalgo in central Mexico. The Project is located approximately 75 km northwest of Pachuca de Soto (Pachuca), the capital city of Hidalgo, and approximately 130 km north of Mexico City, the nation's capital. Approximate geographic coordinates for the center of the Property are 20°05'30"N and 104°37'30"W (Figure 4-1).



Source: Palamina, 2015

Figure 4-1 Location of the Santuario Project, Hidalgo State, Mexico.

### 4.2 DESCRIPTION AND OWNERSHIP

Palamina acquired a 100% interest in the Property mining concession titles from the registered owner (Soltoro S.A. de C.V.) by transfer of the two concessions, “El Santuario” and “SANT” (Figure 4-2 and Table 4-1), as part of the June 9<sup>th</sup> 2015 acquisition of Soltoro by Agnico Eagle Mines Limited (Agnico Eagle Mines, 2015). In order for the transfer of the above named



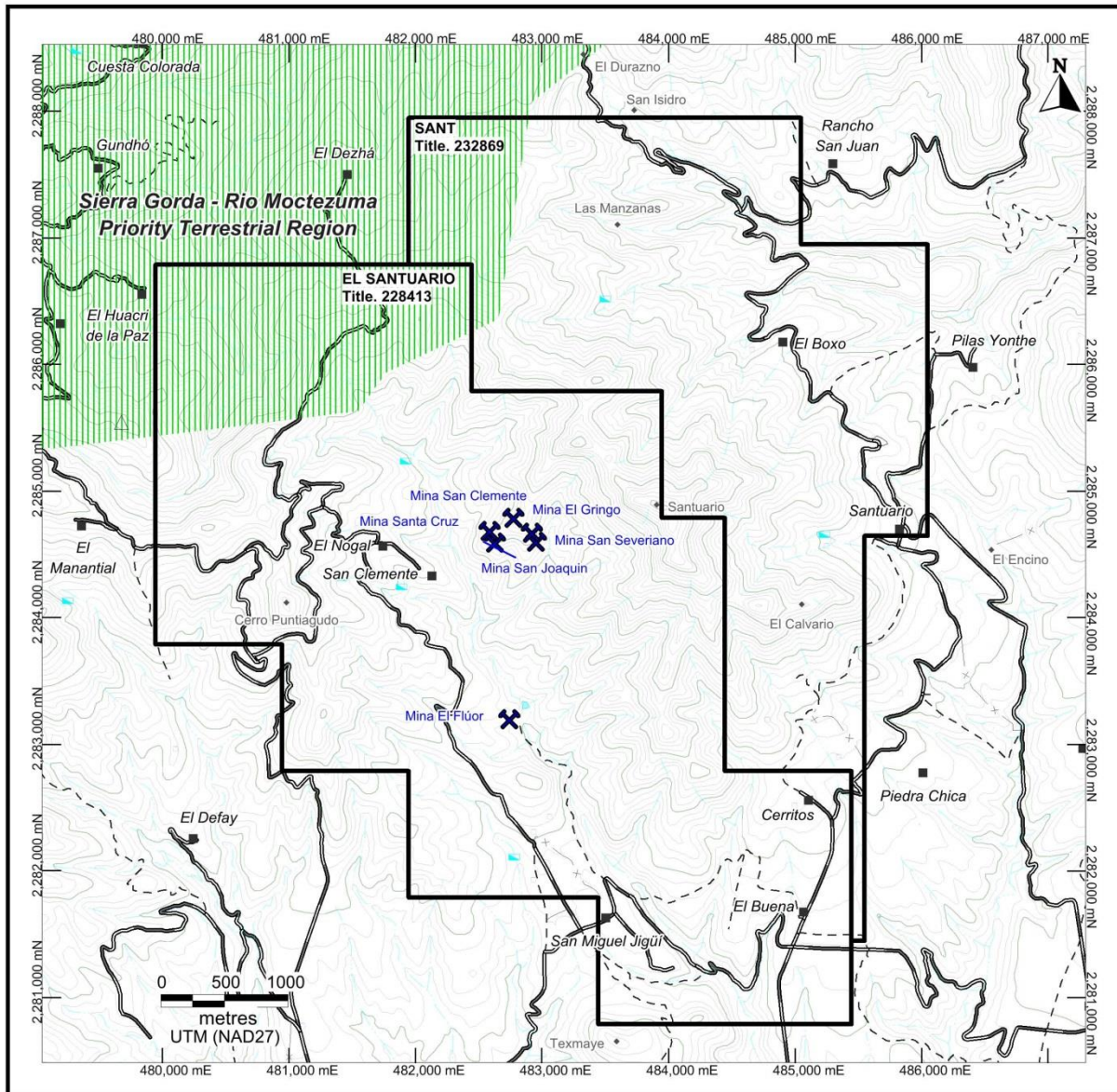
concessions to be effective before third parties, the Assignment Agreement between Soltoro and the Company with respect to those concessions should be registered at the Public Registry of Mining. The application to register the Assignment Agreement was submitted at the General Bureau of Mining Regulations on June 18<sup>th</sup>, 2015 under folio 181/24751 and will take several months to be registered.

Original titles of the “El Santuario” and “SANT” concessions were awarded to Soltoro in 2006 and 2008, respectively. The information presented in Table 4-1 was taken directly from the mining concession titles. The Property covers an area of approximately 3,200 has.

When the “El Santuario” and “SANT” titles were issued, their locations were referenced to the Universal Transverse Mercator (UTM) coordinate system using the NAD27 (Mexico) datum. In 2014, the Mexican government changed to the International Terrestrial Reference Frame 2008 datum (ITRF08), which is now used for the location of mining concessions and government-issued maps. For the purposes of this report, all UTM coordinates are based on the NAD27 (Mexico) datum.

Table 4-1 Santuario Property mineral tenure.

	<b>El Santuario Concession</b>	<b>SANT Concession</b>
Title Holder (registration of Assignment Agreement in progress)	Palamina S.A. de C.V.	Palamina S.A. de C.V.
Title Number	228413	232869
Area (ha)	2,000.000	1,200.000
Location Monument Coordinates (UTM NAD27-Mexico)	2,280,287.016 mN 487,942.968 mE	2,280,287.016 mN 487,942.968 mE
Title Date	November 10, 2006	October 30, 2008
Expiration Date	November 9, 2056	October 29, 2058



Source: Palamina, 2015

Figure 4-2 Property map for the Santuario Project showing important historic mines, exploration target areas and road access.

#### 4.2.1 Mexican Mining Law

Mineral exploration and mining in Mexico are regulated by the Mining Law of June 26, 1992, which established that all minerals found in Mexican territory are owned by the nation. The right to explore for or exploit minerals is granted to private parties, through mining concessions issued by the Federal executive branch (Secretaría de Economía). Amendments to the Mining Law in April 2005, and put into effect in January 2006, provide for all mining concessions to be valid for a period of 50 years. A concession may be extended for an additional 50-year period



provided that the application is made within the five-year period prior to the expiration of the original concession and if no other cause for cancellation of the concession is evident.

The most recent amendments to the Mining Law were approved by the Mexican Senate in October 2013. These reforms include a 0.5% tax on gross revenues of gold, silver, and platinum mines and a 7.5% tax on mining sales, minus certain deductions. These mining tax reforms received final approval by President Peña Nieto in December 2013 and went into effect on January 1, 2014.

#### **4.2.2 Property Boundaries**

Concession, or mining lot, boundaries in Mexico are not surveyed in the conventional sense of the term. All new concessions must have their boundaries oriented north-south and east-west and the lengths of the sides must be one hundred metres or multiples thereof, except where these conditions cannot be satisfied because they border pre-existing mineral concessions. The locations of the concessions are determined on the basis of a fixed point on the land, called the starting point or punto de partido, which is linked to the perimeter of the concession. Prior to being granted a concession, the company must present a cadastral survey of the punto de partido monument to the Dirección General de Minas (DGM) within 60 days of staking. This is normally completed by a registered mineral surveyor.

#### **4.2.3 Obligations to Maintain the Property**

The primary obligations to maintain concessions in good standing are the semi-annual payment of mining duties and the performance of an annual minimum prescribed amount of exploration or mining work.

The mining duties required to maintain a mining concession are based on the surface area and age of the concession. Although mining duty rates are subject to annual change, the amounts indicated in Table 4-2, which are estimated for 2015, are a reasonable indication of the future semi-annual obligations that must be met to maintain the Project in good standing.

The minimum work commitment required to maintain a mining concession is also based on the surface area and age of the concession. However, in the case of the minimum work commitment, expenditures in excess of the required minimum may be carried forward and applied against required expenditures in future years. Although required minimum work commitments are subject to annual change, the amounts indicated in Table 4-2, which are calculated for 2015, are a reasonable indication of the future obligations that must be met to maintain the Project in good standing. The estimated work commitment for 2015 taking into account the excess expenditures from previous years is also shown in Table 4-2.



Table 4-2 Estimated financial commitment for 2015-2016 (Mexican Pesos - MX\$).

	<b>El Santuario</b>	<b>SANT</b>	<b>TOTAL</b>
Area (ha)	2,000.000	1,200.000	3,200.000
Annual Mining Duty for 2015	318,720	95,650	414,370
Minimum Work Commitment for 2015	2,278,120	1,369,710	3,647,830
Estimated Work Commitment for 2015 based on excess expenditures from previous years	1,684,570	724,280	2,408,850
Estimated Annual Mining Duty for 2016 (based on 2015 rates)	588,970	200,800	789,770
Estimated Minimum Work Commitment for 2016 (based on 2015 rates)	2,392,030	1,438,200	3,830,230

(exchange rate: C\$1=MX\$ 12.51 – June 12, 2015)

With exception to annual mining duties and minimum work commitments, Howe is unaware of any other obligations, underlying agreements, royalties or encumbrances on the Property.

### 4.3 SURFACE RIGHTS

While mining concessions grant to their holders the right to carry out exploration or exploitation of those minerals and substances subject to the Mining Law of Mexico within the relevant mining lots and dispose of the mineral products obtained from such mining lots, the right to enter or use the surface land is subject to the consent of the owner of the land.

Soltoro previously conducted fieldwork on the Property between 2008 and 2012 including geologic mapping, rock and stream sediment sampling and a ground magnetics geophysical survey in the area of the San Clemente and Mina El Fluor targets. In order to conduct this work, Soltoro obtained permission to conduct the work from the relevant communities. Palamina maintains good relations with local communities and Palamina does not anticipate difficulties securing agreements to work in the area.

If an agreement cannot be reached with the owners of the surface lands, concession holders are entitled to obtain the expropriation or temporary occupation of the land, as well as easements or rights of way that are necessary to perform the mining activities.

### 4.4 ENVIRONMENTAL LIABILITIES AND PERMITS

Howe is unaware of any historic or current environmental liabilities to which the Property is subject.



Small-scale mine workings and waste rock dumps are present within the project area. However, the author has been informed by the Company that due to the historical nature of the workings and small size of the dumps, they are not considered an environmental liability.

In the late 1990's, the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO), in conjunction with several international conservation groups, identified 151 priority terrestrial regions in Mexico. The Sierra Gorda-Río Moctezuma priority terrestrial region covers 8,660 km<sup>2</sup> and extends into the northwestern corner of the Property and is shown in green in Figure 2. The areas were selected on the basis of biological diversity and opportunities for conservation. This is effectively a watch-list only, as the priority terrestrial regions have no restrictions or regulations governing mineral exploration and development (<http://www.conabio.gob.mx/conocimiento/regionalizacion/doctos/Tacerca.html>).

Exploration activities fall under the jurisdiction of the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT). Exploration activities are permitted under the Aviso de Inicio de Actividades de Proyectos de Exploración Minera Directa (NOM-120-ECOL-1997). An application is submitted for a permit to explore a specific area when an exploration target has been identified. The anticipated time frame for the receipt of permits is dependent on the type of permit required and can range from three weeks to six months from the date the application is submitted to the appropriate government authorities. As of the effective date of this Report, the Company does not hold any exploration permits. All necessary permits will be acquired prior to conducting the recommended exploration activities outlined in Section 18 of this Report.

Water for past drilling by the Consejo de Recursos Minerales (CRM) within the Santuario concession area was obtained from local sources on the Property and it is presumed that the same sources remain available. A permit is not required to acquire water for drilling.

#### **4.5 RISKS**

Environmental, permitting, legal, taxation, socio-economic, marketing, and political or other relevant issues could potentially materially affect access, or the right or ability to perform the work recommended in this Report on the Property. However at the time of this report, Howe is unaware of any such potential issues affecting the Property pending the Company's submission and acquisition of any and all required permits in accordance with any prescribed requirements, including negotiations with surface rights holders prior to any future recommended or planned exploration activities. Howe has not independently conducted any legal title or other searches, but based on the opinions of Avalos y Abogados, S.C. (2015) and documentation provided by Palamina, its management and legal counsel pertaining to the ownership transfer of the El Santuario and SANT mineral concessions from Soltoro to Palamina there are no current issues with respect to concession title, subject to formal registration of the Assignment Agreement between Soltoro and the Company submitted to the Public Registry of Mining.





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

### **5.1 ACCESSIBILITY**

The Project is located approximately 75 km northwest of Pachuca, the capital city of Hidalgo, and approximately 130 km north of Mexico City, the nation's capital (Figure 4-1). Mexico City's international airport, which receives flights from throughout North America and the world, is located approximately 1.5 hours south of Pachuca.

Access from Pachuca is via Highway 85 approximately 75 km northwest to Ixmiquilpan, then 13 km northeast from Ixmiquilpan to the village of Cardonal. Local access from Cardonal, is north on paved roads to El Buena, San Miguel Jigüí and San Clemente, a distance of some 8 km. Driving time from Pachuca is approximately 1.5 hours and from Ixmiquilpan, approximately 30 minutes.

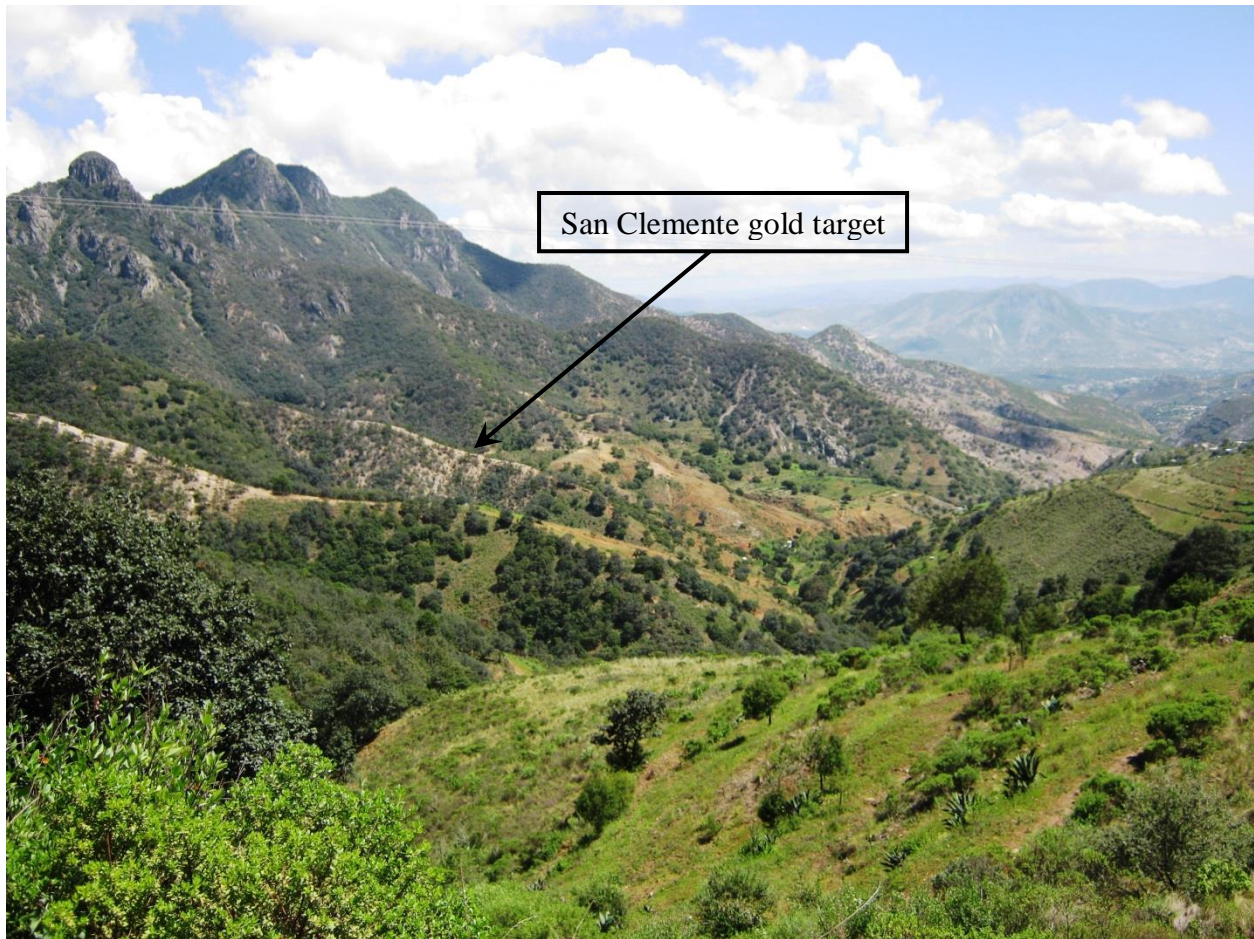
### **5.2 PHYSIOGRAPHY**

The Property lies in the Carso Husteco subprovince of the Sierra Madre Oriental physiographic province near the transition to the Trans-Mexican Volcanic physiographic province. The Sierra Madre Oriental is characterized by northwest-southeast trending mountain ranges consisting of Paleozoic and Mesozoic rocks intruded by Tertiary granodioritic rocks. The Trans-Mexican Volcanic province consists of an east-west-trending belt of volcanic rocks which crosses the entire country.

The Property is characterized by gently rolling hills along the southwestern, northeastern and southern margins and steep, mountainous, rugged terrain in the central portion (Figure 5-1). Elevations range from 2,050 masl to the southwest of El Buena along the southern boundary of the Property to 2,890 masl on the high peaks in the center of the Property.

The lower elevations, primarily surrounding the populated areas, are dominated by agriculture with juniper, mesquite, huizache, maguey, yucca and various cacti such as the nopal and pitaya in uncultivated areas. At higher elevations, vegetation is dominated by pine and oak forest.

There are few large animals in the region. Wildlife consists primarily of small mammals, rodents, reptiles and birds of prey.



Source: Palamina, 2015

Figure 5-1 Photograph showing the topography and vegetation on the Property viewed to the east-southeast from approximately 1.5 km northwest of the village of San Clemente. The San Clemente gold exploration target area is located in the center of the photograph.

### 5.3 CLIMATE

The climate of the municipality of Cardonal is classified as temperate sub-humid with rains occurring primarily in the summer and early autumn (<http://www3.inegi.org.mx/sistemas/mexicocifras/datos-geograficos/13/13015.pdf>). Based on statistics available from the Comisión Nacional del Agua Servicio Meteorológico Nacional (CONAGUA), the average annual temperature for Cardonal, the nearest weather station for which data are easily accessible, is 17.4 °C with an average minimum of 9 °C to an average maximum of 25.8 °C. The maximum average monthly temperature occurs in April with 29.5 °C and the minimum average temperature occurs in January with 5.1 °C ([http://smn.cna.gob.mx/index.php?option=com\\_content&view=article&id=185&tmpl=component](http://smn.cna.gob.mx/index.php?option=com_content&view=article&id=185&tmpl=component)).



The average annual precipitation is 388.2 mm with an average monthly maximum of 231.5 mm in July and an average monthly minimum of 21.5 mm in December. Based on statistics available from CONAGUA (see reference above) for the period 1951 through 2010, the period of maximum rainfall occurs from May and through October.

Exploration in the area can be conducted year-round.

#### **5.4 LOCAL RESOURCES AND INFRASTRUCTURE**

The nearest town to the Property with services is Ixmiquilpan with a 2010 population of 34,814. Pachuca, the capital of the state of Hidalgo and historically the leading producer of both silver and gold in Mexico, located some 1.5 hours away over good paved roads had a 2010 population of 256,584. Unskilled labour and basic supplies can be obtained locally and in Ixmiquilpan while a skilled labour force and much of the equipment related to mining can be obtained from Pachuca or Mexico City, with a 2010 population of 8,851,080 (<http://cuentame.inegi.org.mx/monografias/informacion/hgo/poblacion/>).

Power supply to the Property is provided by the national grid, which is maintained by the Comisión Federal de Electricidad (CFE). The capacity of the power lines on the Property is not known, but it is unlikely to be adequate for mining purposes.

Paved roads access both the southwestern and northeastern portions of the Property, while the central, mountainous section of the Property is accessible only on foot.

Cellular phone service is available on much of the Property and internet service is available in the towns and villages.

Water for past drilling by the CRM within the Santuario concession area was obtained from local sources on the Property and it is presumed that the same sources remain available.

The Property may be of sufficient area for the establishment of potential mine infrastructure such as tailings and waste storage areas, heap leach pads and processing plant site. More detailed site engineering is required to confirm the suitability and sufficiency of the current property area for mine and processing facilities should they be constructed. The Company does not currently hold any surface rights in the project area. Surface rights must be secured through land lease or purchase agreement with the owner.



## 6 PROPERTY HISTORY

The reader is cautioned that the information presented within this section with respect to regional mineral deposits and mineralization outside of the Property boundaries is not necessarily indicative of the mineralization on the Santuario Property, the subject of this Report.

### 6.1 OWNERSHIP

The current title holder is Palamina S.A. de C.V., a wholly-owned Mexican subsidiary of Palamina. Palamina acquired a 100% interest in the mineral rights for the Property from registered owners (Soltoro) by transfer of the two concessions as part of the acquisition of Soltoro by Agnico Eagle Mines Limited on June 9<sup>th</sup> 2015 (Agnico Eagle, 2015). Titles were awarded to Soltoro in 2006 and 2008. Historic title ownership in the Property area prior to that of Soltoro is unknown.

### 6.2 REGIONAL HISTORY

The region has a long and rich mining history. The world-class epithermal silver-gold-lead-zinc deposits of the Pachuca-Real del Monte district, approximately 80 km southeast of the Property, were discovered in 1552 (CRM, 1992) and have been operated continuously to the present. Production to 2005 is estimated at 1.3 billion ounces of silver, 6 million ounces of gold and a combined 1 million tonnes of zinc, lead and copper (Dreier, 2005). The lead-zinc-silver skarn deposits of the Zimapán district, approximately 30 km west-northwest of the Property, were discovered in 1632 and worked more or less continuously until the present, with interruptions cause by the Mexican war of independence from 1810 to 1870 and the Mexican Revolution from 1910 to 1920 (CRM, 1992). Total production is unknown.

### 6.3 PROPERTY HISTORY

Little is known of the history of mineral exploration and exploitation at the Santuario Property. Most of the small-scale workings present on the Property are thought to predate the Mexican Revolution but the San Severiano and El Gringo small-scale mines are known to have operated intermittently until 1975 (Sánchez et al, 1982). There are no records of production.

In the south-central portion of the Property, an abandoned mine known as the Mina El Fluor was historically operated by Fluoruros de Hidalgo over period of 15 years (production dates unknown; Castillo, 2012). There are no publically available detailed records of this mine. The mine reportedly extracted and produced acid grade fluorite from several small lenticular bodies (CRM, 2001). The flotation plant is reported to have had a capacity of 25,000 tons per annum (United States Geological Survey, 2015). The author observed several excavations as well as the remnants of numerous mine buildings at the site (Figure 6-1) suggesting that the area once

supported a substantial operation. The author also observed evidence of fluorite veinlets within the eastern wall rock of the pit pictured in Figure 6-1.



Source: Trinder, 2015

Figure 6-1 View to south of historic Mina El Fluor showing the extent of remaining surface installations and foundations.

A water-filled historic open-pit is in the left of the photograph.

### 6.3.1 Consejo de Recursos Minerales (CRM)

Beginning in 1979, the Consejo de Recursos Minerales (CRM) began a series of investigations in the San Clemente area of the Property. During this time, historic small mine workings were mapped and sampled, an induced polarization geophysical survey was conducted in the area of the known mines and four drill holes were completed (Aguilar Garcia, 1981; Sánchez et al, 1981; Gonzalez Villalvaso and Hernandez Pérez, 1982; Sánchez Alvarado et al, 1984; Valverde Ramirez et al, 1984; Andrade, 1993). Early stages of this work were done in conjunction with the Metal Mining Agency of Japan (MMAJ), who issued three reports between 1980 and 1983. The MMAJ reports are not available to the public but are on file with the Servicio Geológico Mexicano (SGM). Palamina has requested copies from the SGM but, as of the effective date of the Report, has not received a reply.

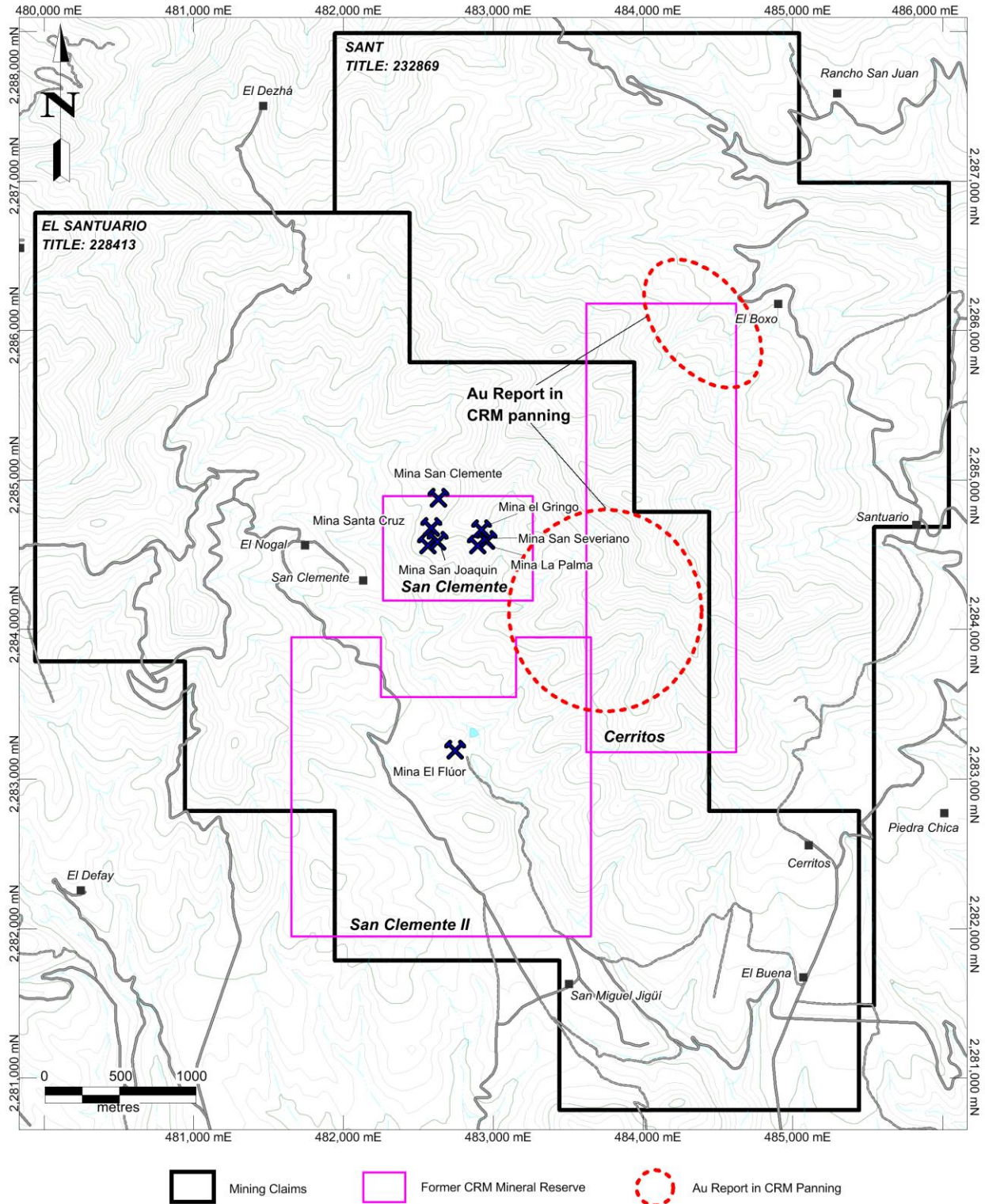


Nothing is known of the sampling procedures employed by the CRM for drill core, rock or stream sediment sampling. Results are reported here for historical reference only and should not be relied upon.

Most of the work focused on sampling abandoned small mine workings in order to evaluate the potential for the existence of a disseminated gold deposit. Some anomalous results were obtained but results were inconsistent and often conflicted. As a result, CRM investigators generally concluded that there was little or no potential for economic disseminated gold mineralization.

The inconsistent and conflicting gold assay results obtained by the CRM in 1981 (Sánchez et al, 1981) are intriguing. During this sampling program, 128 samples were collected and submitted for analysis but only 30 samples reported detectable gold values ranging from 30 to 2,610 ppb; the remainder reported 0 ppb gold. However, when the samples were collected they were also panned and 106 of the total 128 samples yielded gold grains or a gold tail. These results suggest that there may have been an issue with sample preparation procedures, possibly caused by coarse-grained gold not readily passing through the standard 75 $\mu$  laboratory sieve and, therefore, not being included in the final pulp to be analyzed. This could explain the conflicting results and result in the possible underestimation of gold.

Local residents also report that native gold was panned by the CRM in two areas, shown in Figure 6-2, while collecting stream sediment samples. It should be noted that there is no mention of this in any of the CRM reports and the reports of native gold in panned samples are anecdotal. The reader is cautioned that the Author has not verified this information and it should not be relied upon; it is presented for historical informational purposes only.



Source: Palamina, 2015

Figure 6-2 Map showing historic National Mining Reserves established by the CRM in the 1980's and anecdotally reported areas of gold in CRM stream sediments.



In 1983 and 1984, the CRM reportedly completed four diamond drill holes (López, 2012) but documentation and partial assay results are available for only one hole, SC-4a. This hole was drilled in the vicinity of the San Severiano pit and totalled 212.45 m (Sánchez Alvarado et al, 1984). The collar details for the hole are shown in Table 6-1. A log presented by Sanchez Alvarado et al (1984) shows composite intervals for hole SC-4a indicating that only trace levels of gold and silver were encountered.

Table 6-1 Collar details for CRM core hole SC-4a.

Hole Number	UTM Easting <sup>1</sup>	UTM Northing <sup>1</sup>	Elevation (m)	Total Depth (m)	Azimuth	Inclination
SC-4a	482,950	2,284,597	2,460	212.45	285°	-60°

<sup>1</sup>Datum unknown.

One notable feature of this hole is an overall poor recovery of approximately 67% with relatively long intervals of recoveries between 0% and 50% (Sánchez Alvarado et al, 1984). The small core diameter (BQ - 36.5 mm) may have, at least in part, led to poor recovery in zones of strongly altered or broken rock. Palamina suggests that the poor core recovery together with possible sample preparation issues related to coarse-grained (nuggety) gold may have resulted in an underestimation of gold content in the drill core. The author concurs with this possibility.

Valverde Ramirez et al. (1984) located the collar positions of the first three CRM diamond drill holes on a plan map of the San Clemente area but no coordinates are given. The author has scaled the coordinates from the plan map as presented in Table 6-2.

Table 6-2 Approximate Collar locations for CRM core holes BNO 1 to 3 (SC-1 to 3).

Drill Hole Number	UTM Easting <sup>1,2</sup>	UTM Northing <sup>1,2</sup>	Elevation (m)	Total Depth (m)	Azimuth	Inclination
BNO No.1	482,376	2,284,388	No record	No record	No record	No record
BNO No.2	482,380	2,284,385	No record	No record	No record	No record
BNO No.3	482,656	2,284,829	No record	No record	No record	No record

<sup>1</sup>Datum unknown.

<sup>2</sup>Scaled from Plan #1 - San Clemente Surface Area Plan (Valverde Ramirez et al., 1984)

López (2012) located four drill pads in the field but there are no markings on the pads to indicate the hole number. Using the UTM coordinates reported by López (2012) and the drill hole locations scaled from the plan map of Valverde Ramirez et al. (1984) the author suggests the probable CRM hole name for each López (2012) pad in Table 6-3 below. Note that pads CRM 1 and CRM 2 may correlate to drill hole SC-4a and possibly a failed start (SC-4) since the letter “a” in SC-4a implies more than one hole was drilled at that site; although no documentation is available to confirm this possibility. It is important to note that the author’s assignment of hole numbers to the drill pads located by López (2012) is speculative and has not been confirmed.





Table 6-3 López (2012) located historic drill pads correlated to CRM core holes 1 to 4.

López (2012) Pad Number	UTM Easting <sup>1</sup>	UTM Northing <sup>1</sup>	CRM Hole Number	UTM Easting <sup>2,3</sup>	UTM Northing <sup>2,3</sup>
CRM1	482,966	2,284,613	SC-4a	482,950	2,284,597
CRM2	482,963	2,284,608			
CRM3 - CRM4	482,396	2,284,423	BNO No.1	482,376	2,284,388
			BNO No.2	482,380	2,284,385
Not Located			BNO No.3	482,656	2,284,829

<sup>1</sup>NAD 27 Mexico Datum

<sup>2</sup>Datum unknown.

<sup>3</sup>Scaled from Plan #1 - San Clemente Surface Area Plan (Valverde Ramirez et al., 1984). SC-4a from drill log.

In 1988, three small national mining reserves were established by the CRM in the San Clemente area (CRM, 1992). The San Clemente reserve (Figure 6-2) included most of the important small historic gold mines while the San Clemente II reserve included the abandoned Mina El Fluor and several other small workings. There are no known workings in the Cerritos reserve. There are few reports from the time period and little is known about the reserves. The Cerritos reserve was cancelled in 1990 and the San Clemente and San Clemente II reserves were cancelled in 1992.

### 6.3.2 Solitario Resources Corporation

In 2009 Solitario Resources Corporation (“Solitario”) evaluated the Property as a potential candidate for an option of the Property from Soltoro. Solitario and Soltoro were unrelated companies. As part of Solitario’s property evaluation, 38 rock chips samples were collected and submitted for gold and multi-element analysis. Solitario elected not to pursue an option on the Property and provided Soltoro with the results of its sampling program which are discussed together with Soltoro’s exploration results in Section 6.3.3.1 below.

### 6.3.3 Soltoro Ltd.

In 2006 and 2008 Soltoro was awarded the concessions that comprise the current Property.

#### 6.3.3.1 2006-2009 Exploration

Soltoro personnel and contractors performed cursory visits to the Property from 2006 through 2009. Between 2006 and 2009, 95 rock samples were collected from outcrops, historic mine working and dumps (Table 6-4). Rock sampling in the San Clemente area focused on mineralized structures within an area measuring approximately 500 m by 750 m.



Table 6-4 Number of samples collected by year from 2006 to 2012.

Year	Number of Rock Samples	Number of Stream Sediment Samples
2006	9	0
2008	28	0
2009	58 (includes 38 samples collected by Solitario Res.)	27
2012	438	0
<b>TOTAL</b>	<b>533</b>	<b>27</b>

Of the 95 rock samples collected between 2006 and 2009, 57 were collected by Soltoro and 38 were collected by Solitario Resources Corporation as part of a property evaluation in 2009. Of the total, 10 samples (11%) returned Au results below detection levels (<0.01g/t); 26 samples (27%) returned Au values between 0.01 and 0.1 g/t; 30 samples (32%) returned Au values between 0.1 and 0.5 g/t; 9 samples (9%) returned Au values between 0.5 and 1.0 g/t; 18 samples (19%) returned Au values between 1.0 and 5.0 g/t; and 2 chip samples (2%) returned greater than 5.0 g/t Au (7.83 g/t Au from the San Joaquin workings and 10.26 g/t Au from the Santa Cruz workings).

It is not known what sampling methods were employed, where the samples were analyzed or what methods of sample preparation and analysis were used on the 38 samples collected by Solitario as part of its 2009 property evaluation. Selected results from all 2006 through 2012 sampling programs are presented in Table 6-5.

Rock sampling procedures employed by Soltoro are standard for early-stage exploration and consist primarily of chip samples with limited grab sampling of dumps and floats sampling. These samples are intended to identify prospective areas for further work, either by the presence of the metals of interest or trace elements, and are not intended for resource estimation.



Table 6-5 Selected sample results from the Santuario Property.

Sample Number	Year Collected	Collected By	Sampled Width (m)	Gold (g/t)
371708	2008	Soltoro	NA	1.63
371709	2008	Soltoro	NA	7.83
371715	2008	Soltoro	NA	10.26
371717	2008	Soltoro	NA	3.51
371718	2008	Soltoro	NA	2.03
371721	2008	Soltoro	NA	1.02
371725	2008	Soltoro	NA	1.76
493103	2009	Soltoro	NA	1.57
493107	2009	Soltoro	NA	2.65
493119	2009	Soltoro	NA	2.44
96682	2009	Solitario	2.00	0.88
96669	2009	Solitario	3.20	0.63
96695	2009	Solitario	2.00	0.64
96805	2009	Solitario	2.00	3.42
96803	2009	Solitario	1.65	1.23
60296	2012	Soltoro	NA	1.39
60386	2012	Soltoro	NA	1.01
60297	2012	Soltoro	NA	0.81

Samples widths were chosen on the basis of perceived structural controls on mineralization with narrow, mineralized structures being sampled separately from altered wallrock or adjacent stockwork mineralization. Sample numbers were marked with spray paint that in some cases were still visible during the authors site visit in May of 2015. Sample width was not recorded for all samples but widths ranged from 0.30 m to 3.60 m for those samples where width was recorded. Due to the preliminary nature of sampling completed to date, true widths, are not known.

All samples collected by Soltoro from 2006 through 2009 were analyzed using the “metallic screen fire assay” method for gold. This method is often employed when the presence of coarse-grained gold is known or suspected and is discussed in more detail in Section 11.2.2.1 of this Report. The results of this work indicate that gold is concentrated in the coarse, or +100  $\mu$ , fraction, which may explain the inconsistent results obtained by the CRM. Selected results are presented in Table 6-6 to illustrate this point. Future gold assays should employ this method of analysis for gold, at least in the San Clemente area, until the gold distribution is better understood.



Table 6-6 Selected assay results for gold from metallic screen fire assay.

Sample Number	Gold Total (ppm)	Gold (+ Fraction) (ppm)	Gold (- Fraction) (ppm)	Weight (+ Fraction) (g)	Weight (- Fraction) (g)
751709 <sup>1</sup>	0.78	16.65	0.47	19.81	988.60
493107 <sup>1</sup>	2.65	6.44	2.61	11.49	1,122.59
493119 <sup>1</sup>	2.44	44.8	1.08	32.43	1,009.50
371710 <sup>2</sup>	1.05	106.93	0.23	0.58	74.72
371715 <sup>2</sup>	10.26	15.98	9.95	3.62	68.05
371716 <sup>2</sup>	0.74	12.41	0.40	2.18	74.75
371727 <sup>2</sup>	1.27	28.96	0.66	1.69	76.72

<sup>1</sup> ALS-Chemex

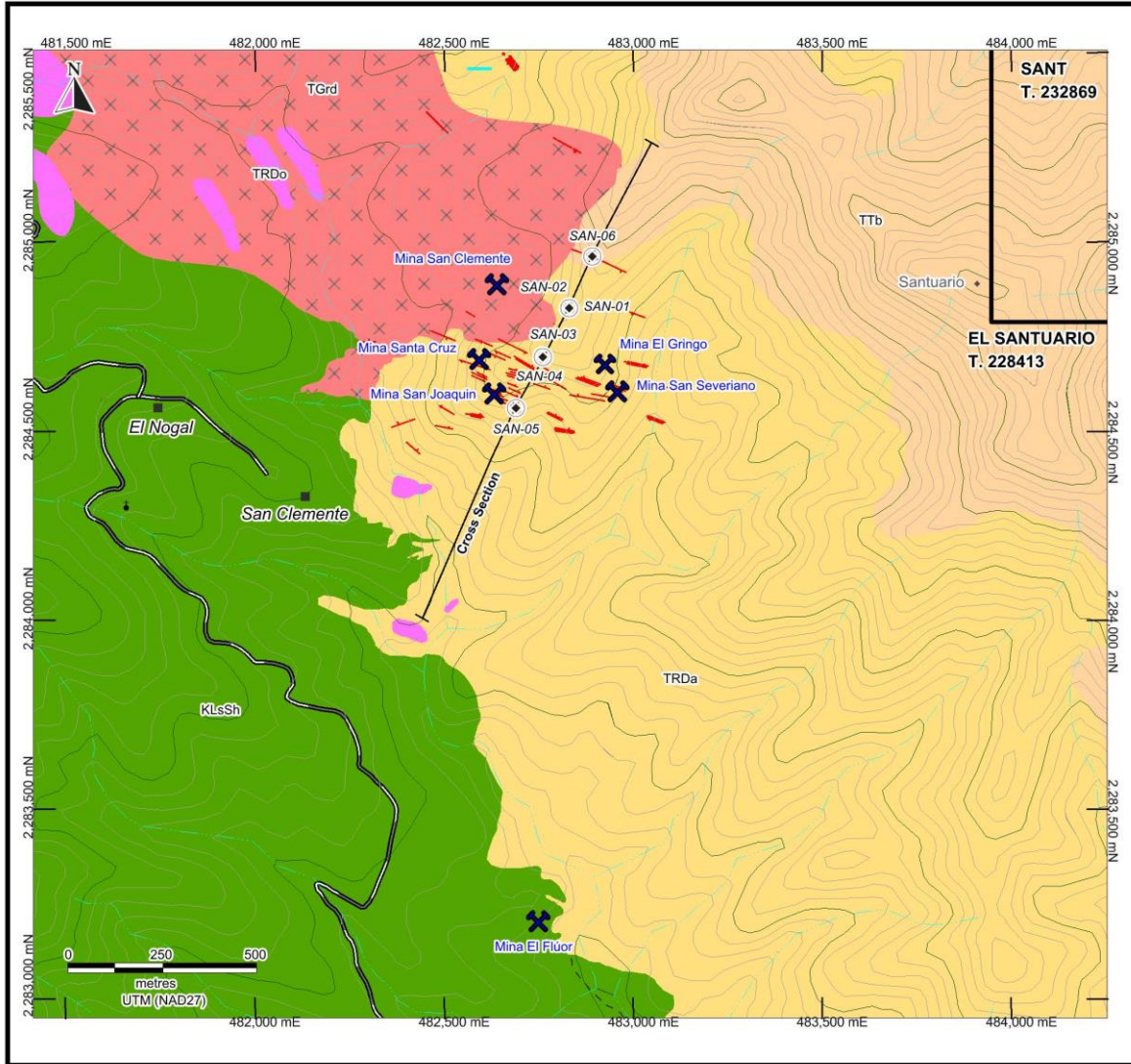
<sup>2</sup> TeckCominco

In 2009, Soltoro also collected 27 stream sediment samples while completing a first-pass geologic map. Five of the stream sediment samples yielded values in excess of 50 ppb gold but those samples were collected from drainages containing the most important historic mines. Samples containing anomalous copper, barium and manganese were more widespread but the largest concentrations generally coincide with samples anomalous in gold.

Also in 2009, Soltoro contracted consulting geologist Mark Pryor to provide an opinion as to the potential of the Property. Pryor (2009) concluded that gold mineralization is present over a broad area, measuring 750 m in an east-west direction, and within this area, free gold is associated with iron oxides in fractures. He concluded that given the oxidized nature of mineralization, supergene enrichment is a possibility, which could limit depth potential. He also noted that little quartz is present along fractures hosting gold mineralization and that quartz micro-veinlets are present locally in the rhyolite but do not form an intense stockwork.

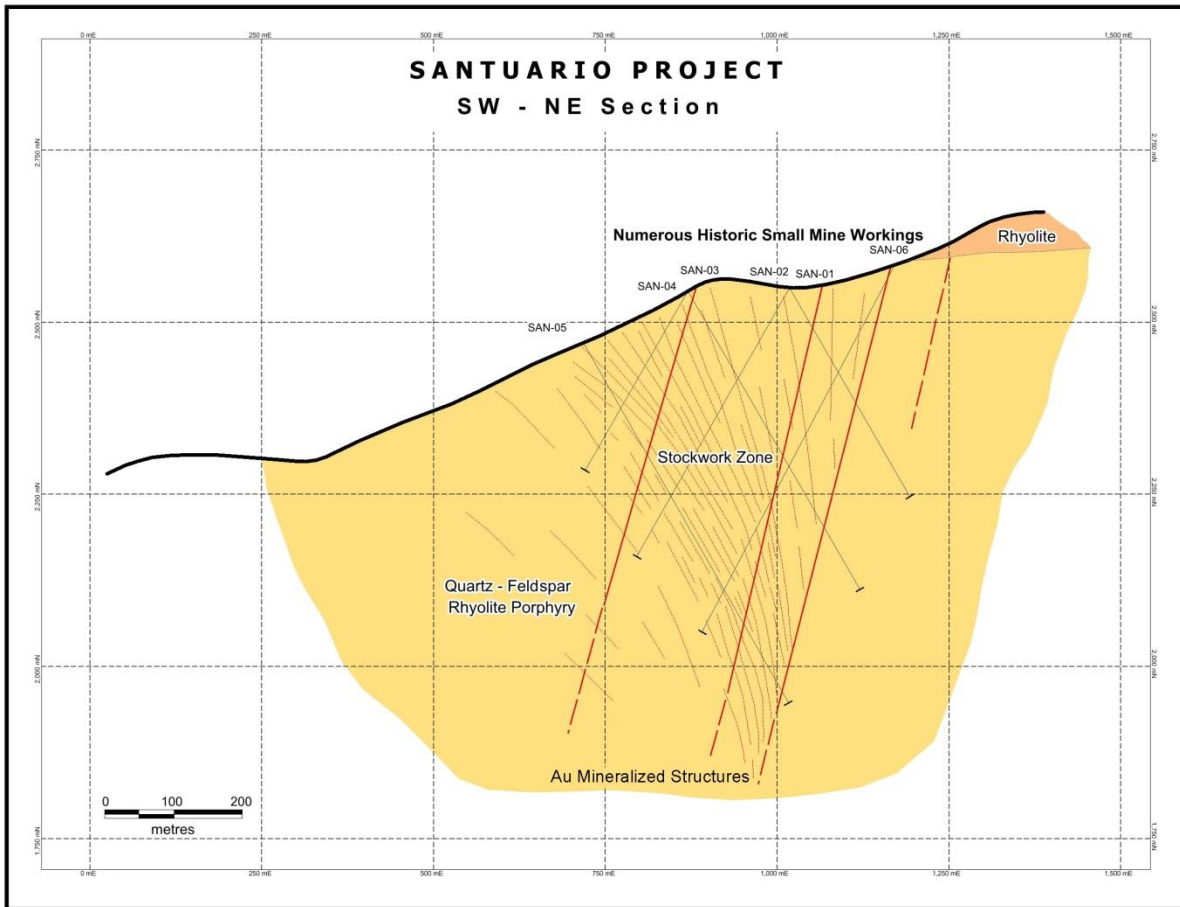
Pryor recommended detailed mapping and sampling in order to understand controls on mineralization and to develop a mineralization model that could be used to direct future exploration.

Soltoro planned six diamond drill core holes in the area of the San Clemente and San Joaquin mines (SAN-01 through SAN-06 on Figure 6-3 and Figure 6-4) to test the area of fracture-hosted gold mineralization controlled by structures which were interpreted to trend to the northwest. The holes were not drilled due to Soltoro's primary focus being on other projects.



Source: Palamina, 2015

Figure 6-3 Map of the San Clemente area showing drill holes proposed by Soltoro in 2009.



Source: Palamina, 2015

Figure 6-4 Soltoro’s 2009 conceptual cross-section looking northwest through the San Clemente area showing proposed drill holes (local horizontal grid coordinates, section line shown on Figure 6-3).

### 6.3.3.2 2012 Exploration

In 2012, Soltoro contracted consulting geologist Filiberto López Navarro to conduct a reconnaissance geologic program over the Property in order to develop basic geologic and mineralization models. A geologic map of the Property was assembled, 438 rock samples were collected and a ground magnetometer survey was completed over prospective parts of the Property.

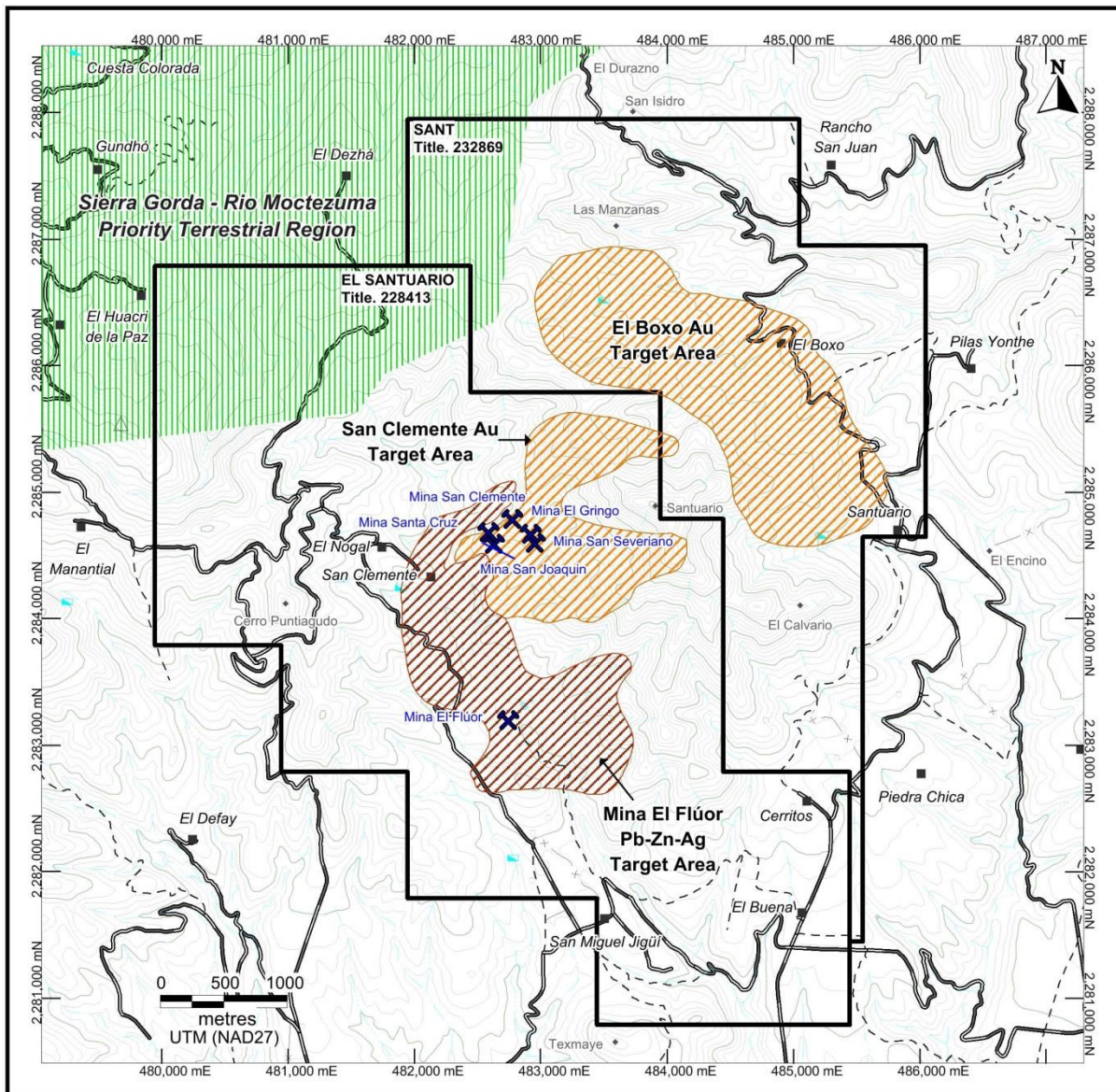
#### 6.3.3.2.1 Geologic Mapping and Sampling

The Property was mapped in various degrees of detail, determined by the amount of time available and the level of interest in the particular area. As a result, more time was spent in the San Clemente, Mina El Fluor and in El Boxo areas, rather than at the high elevations of the Santuario ridge, which makes up much of the central portion of the land package. The geology of the area is discussed in detail in Section 7.3 (Property Geology) of the Report and the geology map is presented in Figure 7-2.



Rock sampling procedures were similar to those employed by Soltoro during its 2006-2009 exploration programs (see Section 6.3.2.1). Samples were collected from outcrops, dumps and float across the Property but samples were not assayed for gold using the metallic screen method.

The geologic mapping identified three exploration target areas (Figure 6-5). In order of importance they are (1) fracture-controlled gold mineralization hosted by rhyolite porphyry in the San Clemente area, (2) polymetallic replacement lead-zinc-silver mineralization in Cretaceous carbonates around Mina El Fluor, and; (3) gold mineralization hosted by rhyolite porphyry and Jurassic metasedimentary rocks in the El Boxo area. These targets areas and related mineralization are discussed in Section 11 (Mineralization) of the Report.



Source: Palamina, 2015

Figure 6-5 Exploration target areas identified on basis of Soltoro geological mapping and sampling programs



### 6.3.3.2.2 Ground Magnetic Survey

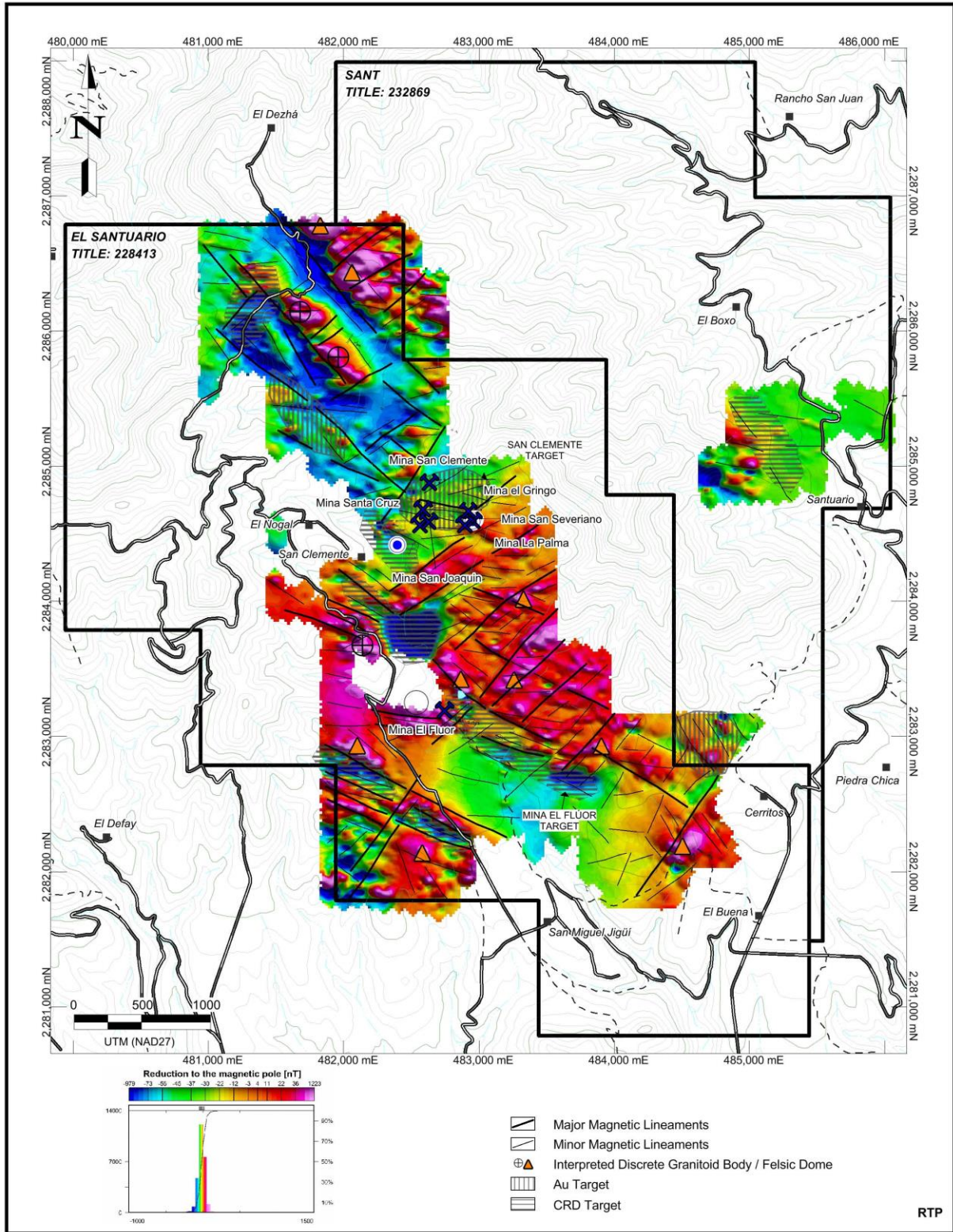
Between August and September of 2012, a total of 98.42 line-km of ground magnetic data were collected by Soltoro personnel using GEM-19WM magnetometers. This survey covered approximately 1,215 ha, primarily with north-south oriented lines spaced 100 m apart. East-west oriented lines were run in some areas where the orientation of the geologic fabric dictated a change in line orientation. These lines were also spaced 100 m apart. Soltoro's interpretation of the magnetic survey follows:

The ground magnetic survey reveals a "blocked" magnetic structure characterized by two sets of nearly-orthogonal major structures striking to the northwest and northeast. These structures are interpreted as important faults, which is supported by geologic mapping (López, 2012). At least two sets of minor oblique structures are present between the main faults. The Santuario ground magnetic survey results are presented as reduction to the magnetic pole in Figure 6-6.

Major magnetic lineaments interpreted as faults form the main boundaries of at least five magnetic domains (Figure 6-7) whose key features and geologic interpretation include:

- Domain A: Moderate amplitude and strong magnetic relief characterized by a corrugated appearance due to a conspicuous high-frequency component. This domain is interpreted to represent a faulted succession of acid volcanic rocks, where low, medium and high magnetic susceptibility rock packages may be inter-layered. This is a common feature in successions formed by tuffs, rhyolitic flows, acid volcanic breccias, etc. The processed data also suggest the presence of small-size rhyolitic domes and dikes.
- Domain B: High amplitude with strong magnetic relief characterized by conspicuous wide, elongate northwest striking magnetic highs. This domain consists of fault-bounded and faulted discrete intrusions of granodioritic to dioritic composition. The core of these bodies is likely formed by high-susceptibility rocks, such as diorites.
- Domain C: High amplitude with strong magnetic relief characterized by conspicuous narrow and elongate northwest striking highs. This domain is a sedimentary sequence of calcareous and argillaceous rocks cut by dikes of acid composition. Some thin packages of rhyolite are also present and account for the highly magnetic signal.
- Domain D: Moderate-to-low amplitude with weak magnetic relief characterized by corrugated appearance due to a high-frequency component. The domain is a faulted succession of acid volcanic rocks comprising the contact area of rhyolite with granodioritic intrusions. The rhyolite may be intruded by small apophyses related to the adjacent granitoid rocks.
- Domain E: Low amplitude with weak magnetic relief characterized by a smooth appearance. This domain consists of a sequence of calcareous and siliciclastic sediments, which are locally intruded by felsic dikes.





Source: Palamina, 2015

Figure 6-6 2012 Soltoro ground magnetic survey interpretation shown on reduction to the magnetic pole color contoured magnetics map.

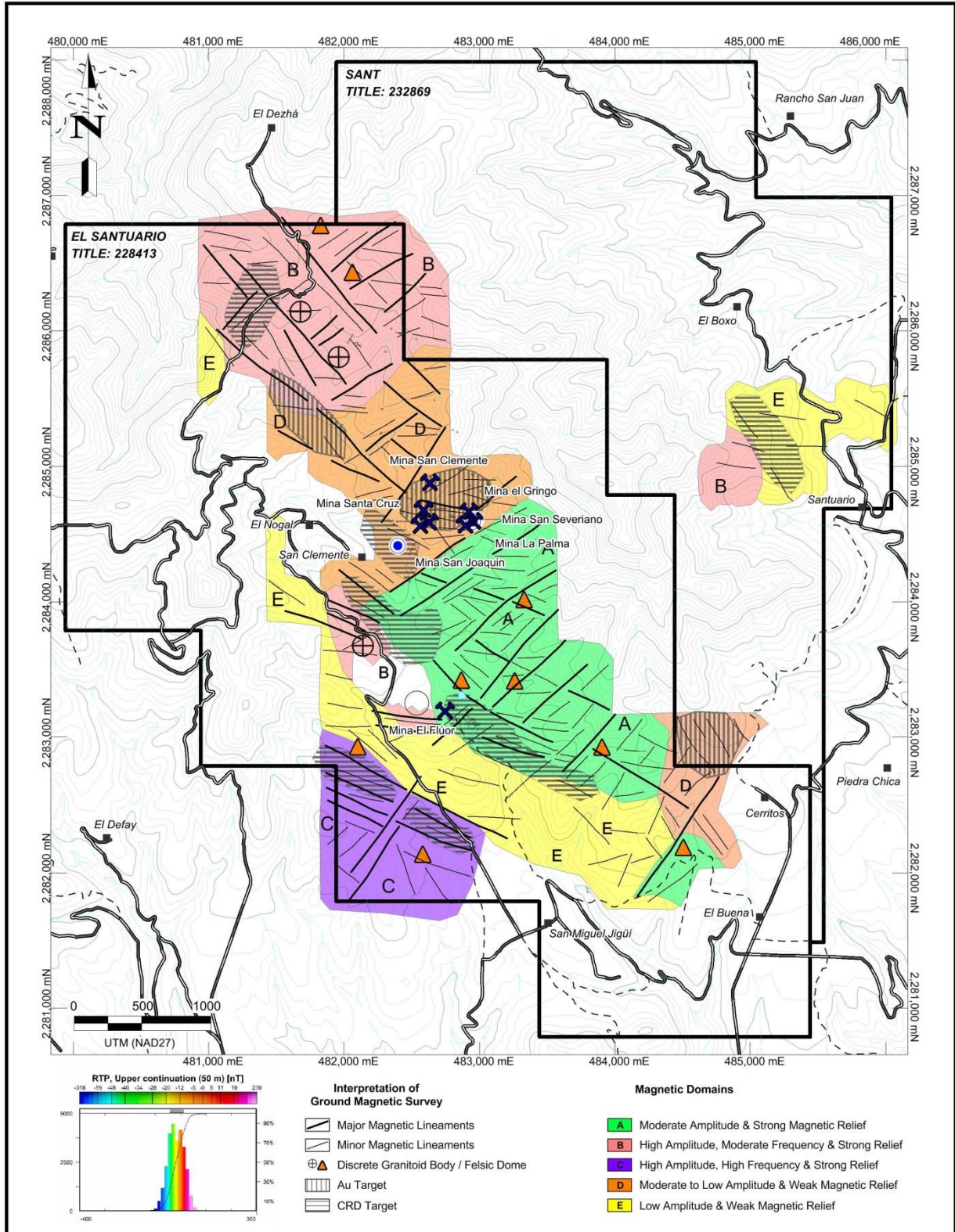


Figure 6-7 2012 Soltoro structural interpretation, magnetic domains and exploration targets based on ground magnetics.



In the San Clemente area, gold mineralization is associated with narrow quartz veins and veinlets and fractures in structures mainly oriented northeast and west-northwest and hosted by rhyolites. This area occurs in the domain of moderate-to-low amplitude and weak magnetic relief (Domain D; Figure 6-7) where the mineralized structures coincide with one of the minor oblique magnetic structural trends, which bound small, low-amplitude magnetic anomalies interpreted as small dome-like bodies or granitoid apophyses. The mineralization may be associated with the flanks of these small bodies.

The Mina El Fluor area southeast of the village of Palacios is located along the contact between the moderate amplitude and strong magnetic relief domain (Domain A; Figure 6-7) and the low amplitude and weak magnetic relief domain (Domain E; Figure 6-7). Within this magnetic domain, base metals, silver and lesser gold mineralization is associated with wider structures with pockets of iron oxides that follow northwest-trending anastomosing faults. The mineralized structures coincide with minor magnetic lineaments parallel to the major magnetic lineaments interpreted as domain-bounding faults. The Mina El Fluor mine is located adjacent to an incompletely surveyed magnetic high possibly related to a granitoid intrusion that lies beneath the village of Palacios (the area of the village was not surveyed due to cultural interference). This interpretation implies that mineralization may be of polymetallic replacement type where the source of heat and hydrothermal fluids could be from an interpreted intrusive beneath the village of Palacios or the small rhyolitic domes and dikes (interpreted from the ground magnetics) in the adjacent moderate amplitude and strong magnetic relief domain.

The 100 m line spacing is not close enough to achieve a detailed interpretation of the structure, Palamina suggests that a detailed ground magnetic survey with 25 m line spacing could yield a better understanding and eventually yield drill targets.

Soltoro identified the following exploration targets on the basis of the ground magnetic survey and geologic characteristics of the known mineralized areas:

- Au targets: three target areas were selected, including the San Clemente area (Figure 6-5 and Figure 6-7). The key geophysical feature for target selection is the presence of trends of high frequency anomalies overprinting regions of magnetic signal characteristic of acid volcanic or intrusive rocks.
- Polymetallic replacement targets: seven target areas were selected, including the Mina El Fluor area (Figure 6-5 and Figure 6-7). The main geophysical/geological characteristics for target selection is the presence of major faults that separate magnetic domains where one edge of the domains is formed by sedimentary sequences and the other is either an intrusive rock type or is interpreted to contain intrusive lithologies.



It is Howe's opinion that the exploration programs and sample collection undertaken by Soltoro on the Santuario Property during the 2006, 2008, 2009 and 2012 programs are appropriate for stage of exploration, the sample media and mineralization type and conform to industry standards.



## 7 GEOLOGICAL SETTING AND MINERALIZATION

The reader is cautioned that the information presented within this section with respect to regional and district mineral deposits and mineralization outside of the Property boundaries is not necessarily indicative of the mineralization on the Santuario Property, the subject of this Report.

### 7.1 REGIONAL GEOLOGY

The Property is located in the Sierra Madre Oriental, which is characterized by a series of long, generally northwest-southeast-tending mountain ranges that resulted from deformation of Mesozoic sedimentary rocks and their underlying Proterozoic basement during the Laramide Orogeny. The sedimentary sequence consists primarily of Cretaceous marine carbonates with lesser sandstone and siltstone of Jurassic and Cretaceous age. The entire section was uplifted, shortened and transported northeastward forming a fold and thrust belt that extends for hundreds of kilometres to the northwest (Eguiluz de Antuñano et al., 2000).

This deformed sedimentary sequence was intruded by a series of intermediate plutons in the Eocene. Many of the mineralized camps in the Sierra Madre Oriental are related to this intrusive event. Eruption of felsic volcanic rocks, with the emplacement of associated intrusives, followed in the Oligocene and Miocene.

### 7.2 DISTRICT GEOLOGY

The Santuario Property lies in the Zimapán Basin at the southern end of the Sierra Madre Oriental Laramide fold and thrust belt near the northern limit of the Trans-Mexican Volcanic Belt. The area to the north and east of the Property is dominated by folded and thrustured Cenozoic sedimentary rocks with isolated granodioritic intrusives and occasional outliers of Tertiary volcanic rock. The dominant structural trend for both folds and thrust faults is to the northwest (Figure 7-1).

To the west and south of the Property, the geology is dominated by conglomerate-filled Quaternary-age basins with hills and ranges of Tertiary felsic to intermediate volcanic rock and isolated windows of Cretaceous calcareous sedimentary rock exposed through the thin volcanic cover (Figure 7-1).

Important mineralized camps in the region are at Zimapán and La Negra where silver, lead, zinc and copper are currently being mined from skarn deposits, approximately 30 and 45 km to the northwest of the Property respectively. In both areas, skarns formed in the Lower Cretaceous El Doctor Formation where it is intruded by Eocene-age quartz-monzonite and diorite (Vassallo et al, 2008). The world-class epithermal silver-gold-lead-zinc-copper deposits of the Pachuca-Real del Monte district are located some 80 km to the southeast of the Property where both mineralization and igneous activity are Early Miocene in age (Dreier, 2005).

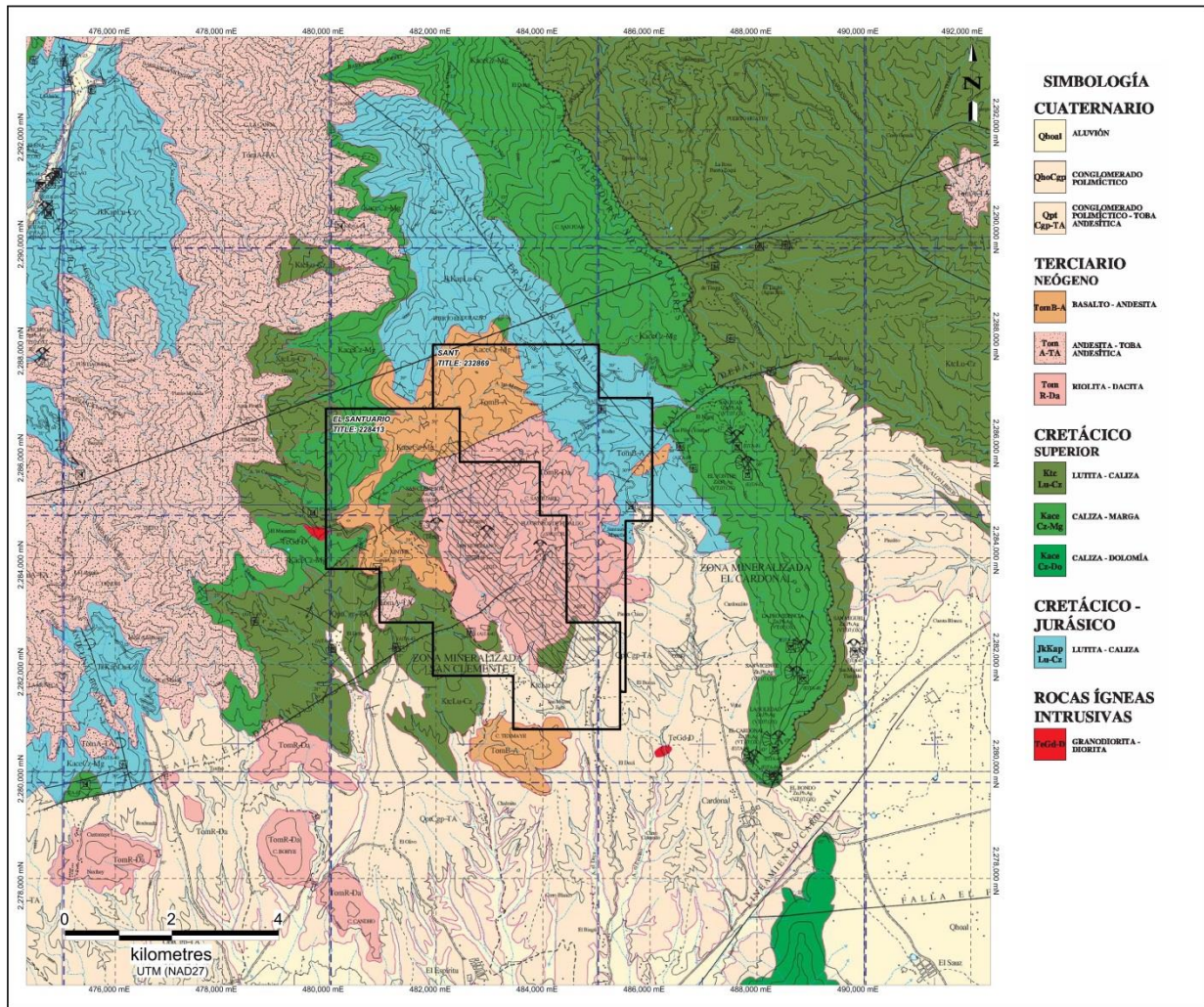


Figure 7-1 District geology map of the Santuario Property area

### 7.3 PROPERTY GEOLOGY

Geologic units exposed on the Property are composed of four distinct groups: Upper Jurassic through Upper Cretaceous sedimentary rocks, granodioritic and dioritic intrusive rocks of Eocene age, two porphyritic rhyolite intrusive and/or dome complexes of Oligocene age, and felsic volcanics of probable Miocene age. Minor Quaternary sedimentary deposits are present in the southern portion of the Property. Lithologic units on the Property are presented in Table 7-1



Table 7-1 Lithologic Units mapped on the Santuario Property.

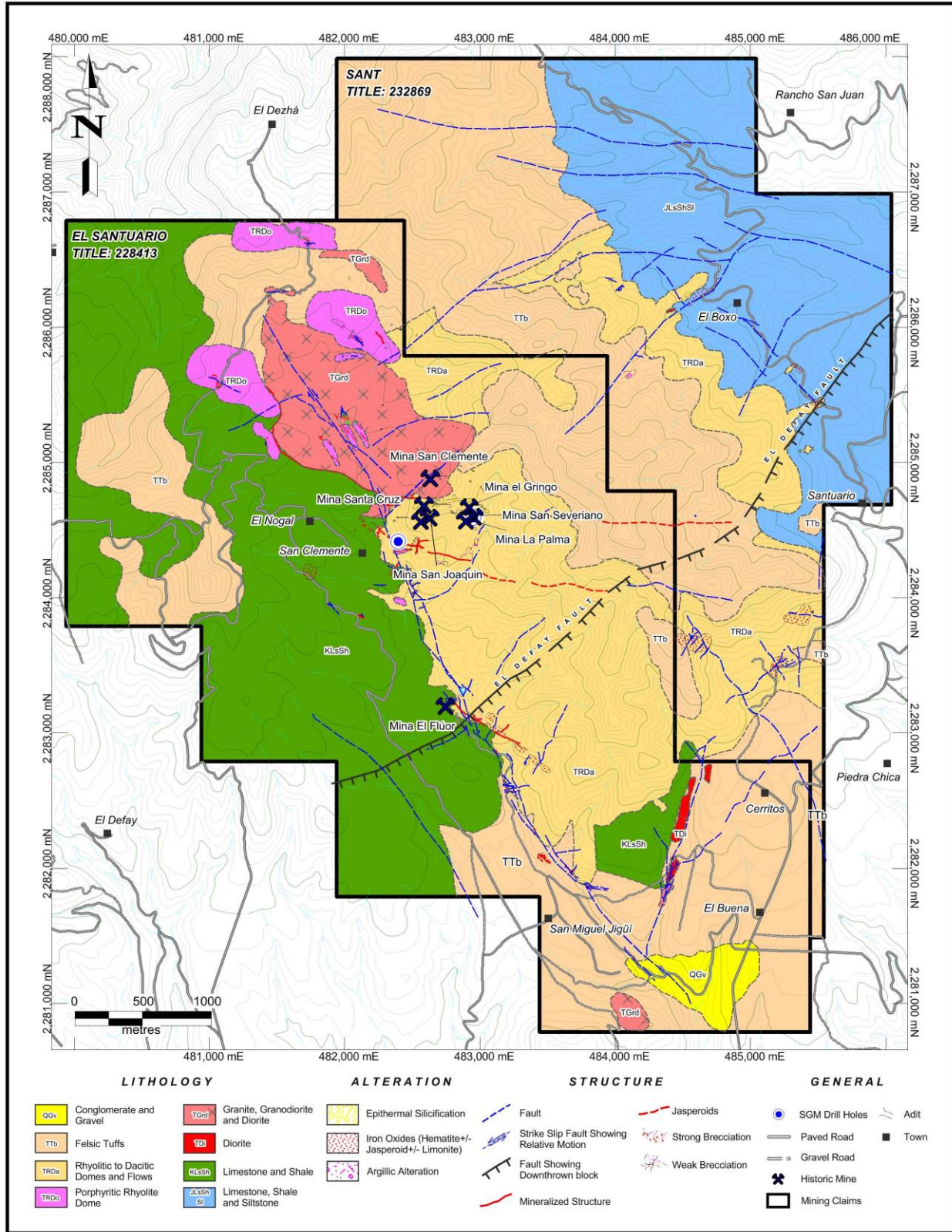
AGE	FORMATION	LITHOLOGY
Quaternary		conglomerate
Tertiary - Miocene	Volcanic	felsic tuffs, lithic tuffs and volcanic breccias
Tertiary - Oligocene	Intrusive	rhyolite porphyry and dome complex
Tertiary - Eocene	Intrusive	granodiorite to diorite
Upper Cretaceous	Soyatal	medium- to thin-bedded dark gray impure limestone with interbedded shale and no chert
Middle Cretaceous	Tamabra	thin-bedded, black to gray limestone with bands of black chert and irregularly distributed limestone breccia beds
Lower Cretaceous	Santuario	dark gray limestone, calcarenite, phyllitic shale and greywacke
Upper Jurassic	Las Trancas	thin to medium bedded, dark gray to black limestone and shale

### 7.3.1 Upper Jurassic Las Trancas Formation

Upper Jurassic sedimentary rocks in the area of El Boxo are considered to be part of the Las Trancas Formation by Segerstrom (1962). However, for mapping purposes, more recent workers (Servicio Geológico Mexicano, 2001 and Molina Pérez, 2014) have combined this unit with the Lower Cretaceous Santuario Formation. The Las Trancas Formation is exposed in the core of the northwest-trending Trancas-Santuario Anticline in the northeastern portion of the Property (Molina Pérez, 2014) in the vicinity of El Boxo (JLsShSl, Figure 7-2).

Regionally, the Las Trancas Formation is informally divided into a lower member consisting of calcareous and carbonaceous shales, dark gray impure limestones, tuffaceous and calcareous sandstones, greywacke and minor tuffs, and an upper member consisting of thin to medium bedded, dark gray to black limestone and shale. Only the upper member of the Las Trancas Formation is exposed on the Property.

Regionally, the Las Trancas Formation is known to host zinc-lead-silver replacement and skarn mineralization, particularly where intruded by Eocene granodioritic intrusives such as the northern portion of the Zimapán district and in the Bonanza area approximately 10 km northwest of the Property.



Source: Palamina, 2015

Figure 7-2 Geologic Map of the Santuario Property.





### **7.3.2 Lower Cretaceous Santuario Formation**

The Las Trancas Formation is overlain conformably by the Lower Cretaceous Santuario Formation (Segerstrom, 1962 and Molina Pérez, 2014) but for purposes of mapping, the two formations are combined (JLsShSl) and are shown in blue in Figure 7-2. The Santuario Formation consists of dark gray limestone, calcarenite, phyllitic shale and greywacke. It is distinguished from the underlying Las Trancas Formation by the presence of thick-bedded calcarenite, large limestone concretions and an absence of chert (Segerstrom, 1962). The Santuario Formation occurs in the extreme eastern portion of the Property near the village of Las Pilas (Yonthe). It is not known to host mineralization.

### **7.3.3 Middle Cretaceous Tamabra Formation**

The rock assemblage conformably overlying the Santuario Formation has been identified as the Tamabra Formation by Molina Pérez (2014), López (2012) and the Servicio Geológico Mexicano (2001) or the El Doctor Formation by Segerstrom (1962) and the Servicio Geológico Mexicano (2007). Within the Property this unit occurs along the western side of the Property extending from the villages of El Nogal and San Clemente south toward the village of San Miguel Jigüí and is shown in green (KLsSh) in Figure 7-2. The thickness is estimated to be between 150-250 m.

Regardless of the formation name, these rocks are Lower to Upper Cretaceous in age (Servicio Geológico Mexicano, 2001 & 2007) and consist of thin-bedded, black to gray limestone (López, 2012) with bands of black chert (Molina Pérez, 2014) and irregularly distributed limestone breccia beds (Segerstrom, 1962). Near the contacts with the granodiorite and rhyolite porphyry, the limestones may be white, reddish or yellow when recrystallized or hydrothermally altered. According to López (2012) this unit has the potential to host lead-zinc-silver replacement mineralization near contacts with granodiorite and porphyritic rhyolite intrusives. The El Doctor Formation is one of the principal ore hosts in the Zimapán district 30 km to the northwest of the Property.

### **7.3.4 Upper Cretaceous Soyatal Formation**

The Upper Cretaceous Soyatal Formation conformably overlies the middle Cretaceous rocks and occurs on the western side of the Property extending from the villages of El Nogal and San Clemente south toward the village of San Miguel Jigüí. It consists of medium- to thin-bedded dark gray impure limestone with interbedded shale and no chert. The Soyatal Formation has been grouped with the Tamabra Formation in Figure 7-2 (KLsSh) and is shown in green.

According to López (2012), the Soyatal Formation may also be reddish-brown or white where it is affected by contact metamorphism. The reddish-brown color is caused by the oxidation of disseminated pyrite and magnetite. López (2012) also noted the presence of irregularly distributed jasperoid along the contact with the diorite with localized occurrences of actinolite and/or tremolite. This formation represents a prospective host for contact-related replacement mineralization related to the diorite or rhyolite porphyry.



### **7.3.5 Mid-Tertiary Volcanic Rocks**

A package of rhyolitic to dacitic volcanic rocks of probable Late Oligocene to Early Miocene age (Vassallo et al, 2008; Azpeitia Caballero, 2007) unconformably overlies the previously described Cretaceous sedimentary sequence and the intrusive rocks described below. This package consists of primarily fragmental volcanics such as tuffs, lithic tuffs and volcanic breccias. The mid-Tertiary volcanic rocks (TTb) comprise the central portion of the Property and form the high peaks east of the village of San Clemente such as Cerro Santuario. To date, no alteration or mineralization has been identified in these rocks.

### **7.3.6 Tertiary Intrusive Rocks**

#### **7.3.6.1 Eocene Granodiorite & Diorite**

Intrusive rocks ranging in composition from granodiorite to diorite (TGrd) are present in the valley of San Clemente creek north of the village of San Clemente. These rocks are similar to other intermediate intrusions in the region, many of which are related to lead-zinc-silver deposits in the Zimapán, Actopan, Jacala and La Pechuga districts (López, 2012). The diorite on the Santuario Property yielded a potassium-argon (K-Ar) date of  $47.8 \pm 1.3$  Ma (Metal Mining Agency of Japan, reported in Sánchez Alvarado et al, 1984). This is slightly older than, but still consistent with, K-Ar dates from similar rocks in the Zimapán district ( $40.8 \pm 1.0$  Ma and  $43.6 \pm 1.2$  Ma) and the La Negra district ( $38.7 \pm 1.3$  Ma and  $39.2 \pm 1.3$  Ma) as reported by Vassallo et al (2008).

The diorite ranges in color from reddish to yellowish or occasionally beige or greenish. The rock is typically fine- to medium-grained and equigranular, with local porphyritic texture, consisting primarily of plagioclase and hornblende with variable amounts of quartz and biotite depending on overall composition.

Propylitic alteration is widespread with silicification occurring in proximity to zones of structural weakness and the contact with Cretaceous sedimentary rocks. On the surface, argillic alteration and oxidation are also widespread but this may be a product of weathering rather than hydrothermal activity. Millimeter-scale quartz-hematite veinlets are also widespread and hydrothermal breccia has been mapped along the contact with the rhyolite porphyry.

López (2012) suggests that this unit is directly related to alteration and anomalous base metal values in the adjacent Cretaceous sedimentary rocks as is common in this part of Mexico.

#### **7.3.6.2 Mafic Dikes**

Localized dikes of dioritic composition are present on the Property (TDi). The dikes are up to seven metres in width and range in color from dark green to brown, often with a slight red coloration caused by oxidation. Texture ranges from very fine-grained (andesite) to fine-grained (diorite). The groundmass is comprised of hornblende, biotite and plagioclase with minor pyroxene (Molina Pérez, 2014). These dikes primarily occur in northwest- and northeast-trending zones of weakness that are associated with the main fault system hosting the rhyolite porphyry/dome complex.



### 7.3.6.3 Oligocene Rhyolite Porphyries

There are three occurrences of hypabyssal rhyolite porphyry on the Property (Figure 7-2):

- rhyolite porphyry occurs northeast of the village of San Clemente as domes and sills (TRDo) intruding the Cretaceous carbonates (KLsSh), Tertiary felsic volcanics (TTb) and Eocene granodiorite-diorite (TGrd),
- an elongate, northwest-trending rhyolite porphyry and dome complex (TRDa) east and southeast of the village of San Clemente,
- dikes and small stocks (also TRDa) intruding the Jurassic sedimentary sequence in the El Boxo area.

The most significant gold occurrence on the Property is hosted by the rhyolite porphyry and dome complex (TRDa) near San Clemente. All of the hypabyssal rhyolite porphyries are unconformably overlain by the Miocene felsic volcanic sequence that comprises the high peaks in the center of the Property.

The rhyolite porphyry (TRDa) is compact, generally buff, pinkish-white or pale brown and consists of phenocrysts of quartz (quartz eyes) and orthoclase with lesser biotite in an aphanitic groundmass of similar composition. According to Andrade (1993) whole rock analysis yields a K<sub>2</sub>O content of 9.06%, which is more than twice the normal potassium content for rocks of similar composition suggesting that some form of potassium metasomatism has taken place.

The rhyolite porphyry (TRDa) exhibits flow banding in many locations and the flow banding exhibits vertical cross-cutting relationships with the diorite and even within the rhyolite porphyry itself suggesting that the intrusion history of rhyolite porphyry is prolonged and complex. It is possible that the two main hypabyssal rhyolite units (TRDa and TRDo) represent two distinct phases of the same intrusive event, one being pre-mineral (TRDa) and the other post-mineral (TRDo). The “compact rhyolite porphyry” of the CRM, or TRDa using Soltoro’s nomenclature, has been dated at  $26.5 \pm 1.3$  Ma by the Metal Mining Agency of Japan (as reported in Sanchez Alvarado et al, 1984) making this unit Late Oligocene in age.

Sanchez Alvarado et al (1984) and López (2012) report an intrusion breccia along the contact with the diorite. The breccia is cemented by hydrothermal quartz and locally contains disseminated pyrite, magnetite and sporadic galena and sphalerite (Sanchez et al, 1981). López (2012) also reported geochemically anomalous values of gold, lead, zinc, antimony, arsenic and locally copper from the breccia. Mineralization and alteration in the rhyolite porphyry are discussed in Section 7.3.8.1 of the Report.

### 7.3.7 Structure

The Property lies at the southeastern end of a northwest-trending belt of skarn deposits that include the Zimapán, La Negra, San Rafael, Maravillas and Rio Blanco deposits. In each of these cases, the mineral deposits follow a predominant northwest-southeast trend along faults or zones of weakness (Vassallo et al, 2008). This northwest trend is also important on the Property as it,



in conjunction with the northeast-trending Defay fault system, controls the emplacement of the granodiorite and rhyolite porphyries as well as much of the alteration and mineralization on the Property.

#### **7.3.7.1 Northwest-Trending Faults**

A northwest-trending fault is exposed along the San Clemente Creek (herein called the San Clemente fault) and forms the contact between the Upper Cretaceous sedimentary package and the Oligocene rhyolite porphyry (Figure 7-2). The San Clemente fault strikes 285° to 300° and can be traced for more than five kilometres from north of the villages of San Clemente and El Nogal to San Miguel Jigüí in the south. The San Clemente fault appears to be a normal fault with some left-lateral oblique-slip movement. This fault system offsets both the northeast- and east-west-trending fault systems.

Although gold mineralization in the San Clemente area occurs primarily within the northeast-trending Defay fault system, mineralized structures trend northwest and east-west suggesting that the San Clemente fault plays an important role in the localization of gold mineralization. This fault system (and contact) also controls broad areas of alteration in Upper Cretaceous carbonate rocks and the adjacent rhyolite porphyry that López (2012) considered to be related to potential carbonate-hosted replacement-style mineralization.

#### **7.3.7.2 Northeast-Trending Faults**

There is a broad northeast-trending system of faulting approximately two kilometres in width that is bounded on the south by the Defay fault. This broad system of faulting is herein named the Defay fault system. The Defay fault system strikes 065° to 075° and can be traced across the entire Property with a total known strike length of approximately 15 km. The intersection of the northwest- (San Clemente fault) and northeast-trending fault (Defay fault system) systems appears to have controlled the emplacement of the diorite intrusive and some of the rhyolite domes, as well as much of the alteration and mineralization on the Property. This includes gold targets in the San Clemente and El Boxo areas (including all known historic mines in the San Clemente area) and the polymetallic replacement target between the village of San Clemente and the Mina El Flour (Figure 7-2).

#### **7.3.7.3 North-South-Trending Fault**

North-south-trending faults occur primarily in the southern portion of the Property near San Miguel Jigüí and El Buena, and appear to be the youngest faults on the property. This faulting offsets the San Clemente fault, in San Miguel Jigüí area of the Property, where the northwest fracturing turns direct to the south.

#### **7.3.7.4 East-West-Trending Faults**

An east-west-trending fault system is most prominent along the northern boundary of the Property where El Nogal creek appears to follow an east-west fault. The east-west-trending structures appear to be the oldest, most segmented faults on the Property and may be part of the same structural set as the northeast-trending fault system.



### 7.3.8 Mineralization

Mineralization on the Santuario Property consists of two distinct styles:

- epithermal gold mineralization in quartz and iron oxide veinlets hosted by a rhyolite porphyry and flow dome complex rocks (TRDa) and adjacent sedimentary rocks, and
- lead-zinc-silver replacement mineralization hosted by Cretaceous carbonate rocks near the contact with rhyolite porphyry.

Based on similar regional mineralized occurrences, all exploration targets on the Property are expected to be large-tonnage and low-grade.

The principal exploration target on the Property is epithermal gold mineralization in the San Clemente area.

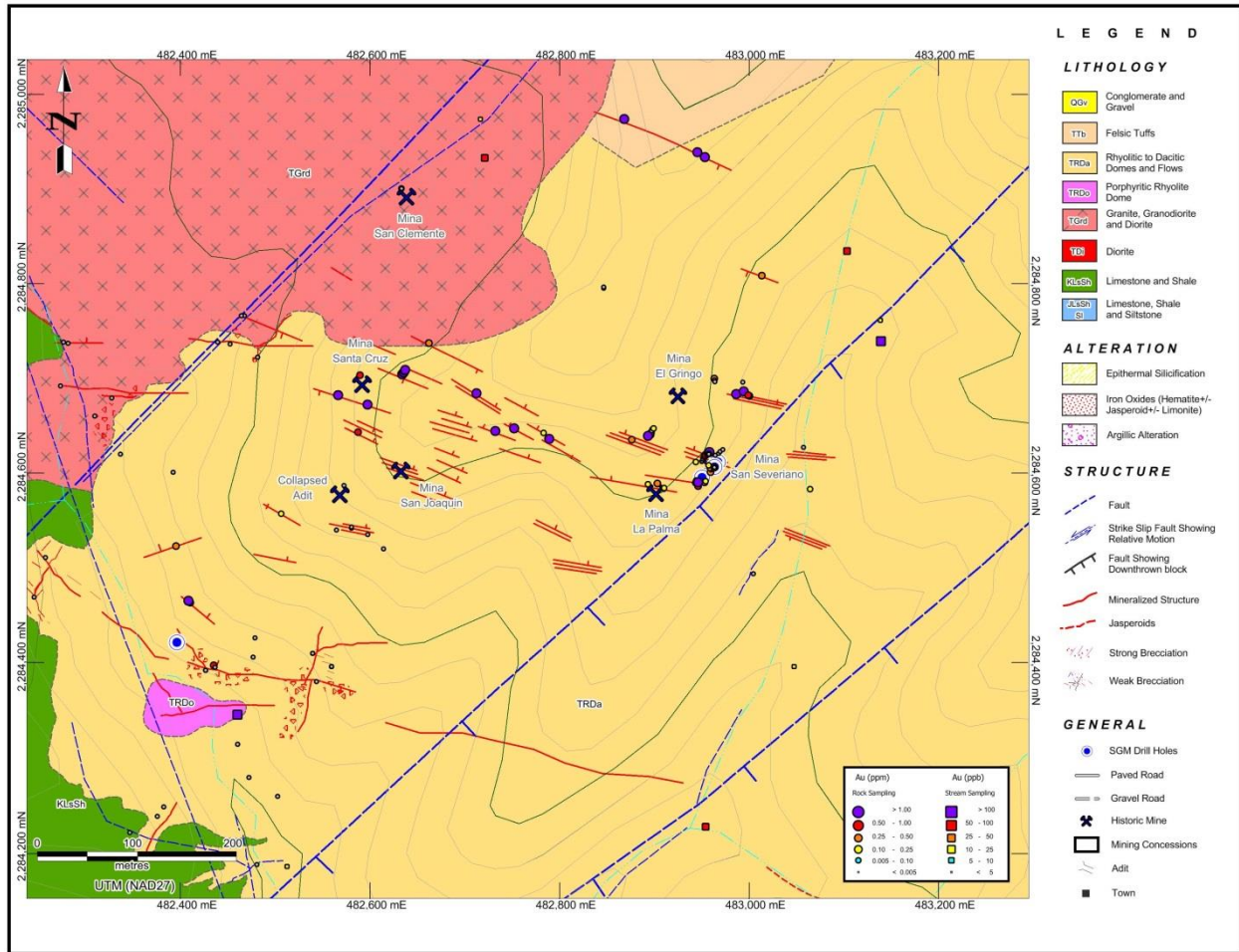
#### 7.3.8.1 San Clemente Gold Target Mineralization

The best known and thoroughly examined exploration target on the Property is the San Clemente gold target; an area mineralization that measures approximately 500m by 750m and is roughly centered on the historic mine workings east of the village of San Clemente (Figure 7-3). In the San Clemente area, gold mineralization is hosted by a poorly to moderately developed stockwork of millimeter-scale quartz and/or iron oxide veining/fracture-filling in rhyolite porphyry (TRDa) (Figure 7-4) within the northeast-trending Defay fault system but there is a strong preferred northwest or east-west orientation to the mineralized fractures. This suggests that the intersection of the northeast-trending Defay fault system with the northwest-trending San Clemente fault zone is an important control on mineralization.

Gold assay values in the San Clemente area range from below detection limit up to 10.3 g/t gold based on Soltoro's work and 22.7 g/t gold from the CRM work as reported by Andrade (1993). Higher gold values are concentrated in larger fractures, such as those exploited at historic mines, with lower grade values (0.1 g/t gold to 0.9 g/t gold) disseminated in the rhyolite (Andrade, 1993).

Mineralization consists primarily of native gold and electrum with trace amounts of galena and chalcopyrite. Andrade (1993) indicated that gold grains are less than 0.1 mm in diameter and have an average silver content of approximately 25%. Gangue minerals consist of quartz, limonite and clay with minor pyrite and magnetite.

The primary type of hydrothermal alteration associated with the San Clemente target is argillic alteration in the rhyolite porphyry (Andrade, 1993; López, 2012). Andrade (1993) reported alunite alteration in the rhyolite porphyry but the presence of this type of alteration was not confirmed by López (2012). Silicification is not common but is present locally.



Source: Palamina, 2015

Figure 7-3 Map showing Soltoro 2006-2012 rock and stream sediment sampling Au results in the San Clemente area of the Santuario Property.



Source: Trinder, 2015

Figure 7-4 Poorly to moderately developed stockwork of millimeter-scale quartz and iron oxide veining/fracture-filling in rhyolite quartz-eye porphyry (UTM 482717E, 2284684N). Soltoro grab sample 371717 returned 3.511 g/t Au. Howe verification sample N935869 returned 1.84 g/t Au over 1 metre.

### 7.3.8.2 Mina El Fluor Polymetallic Replacement Target Mineralization

A secondary, less well-defined, exploration target occurs in Cretaceous sedimentary rocks adjacent to the contacts between a possible buried dioritic intrusive or the rhyolite porphyry. Rocks in these areas exhibit alteration including incipient marbilization, metasomatic minerals including actinolite, tremolite and chlorite, oxidized remnants of magnetite and pyrite as well as siderite, calcite and possible scorodite, an oxidation product of arsenic-bearing minerals (López, 2012). This style of alteration occurs intermittently over an area measuring more than two kilometres in a northwest-southeast direction and ranging in width from approximately 500 m to over 1,000 m (Figure 7-5).

The historic Mina El Fluor fluorite mine is located within this broad area of alteration and is adjacent to an incompletely surveyed magnetic high that may reflect a granitoid intrusion that lies beneath the village (the survey could not be completed in this area due to magnetic interference from the village of Palacios). The interpretation of a buried granitoid intrusion further supports the concept that mineralization may be of polymetallic replacement type where the interpreted



intrusive provides the source of heat and mineralizing hydrothermal fluids. Heat and hydrothermal fluids could also have been provided by sills or dikes related to intermediate intrusives mapped elsewhere on the Property.

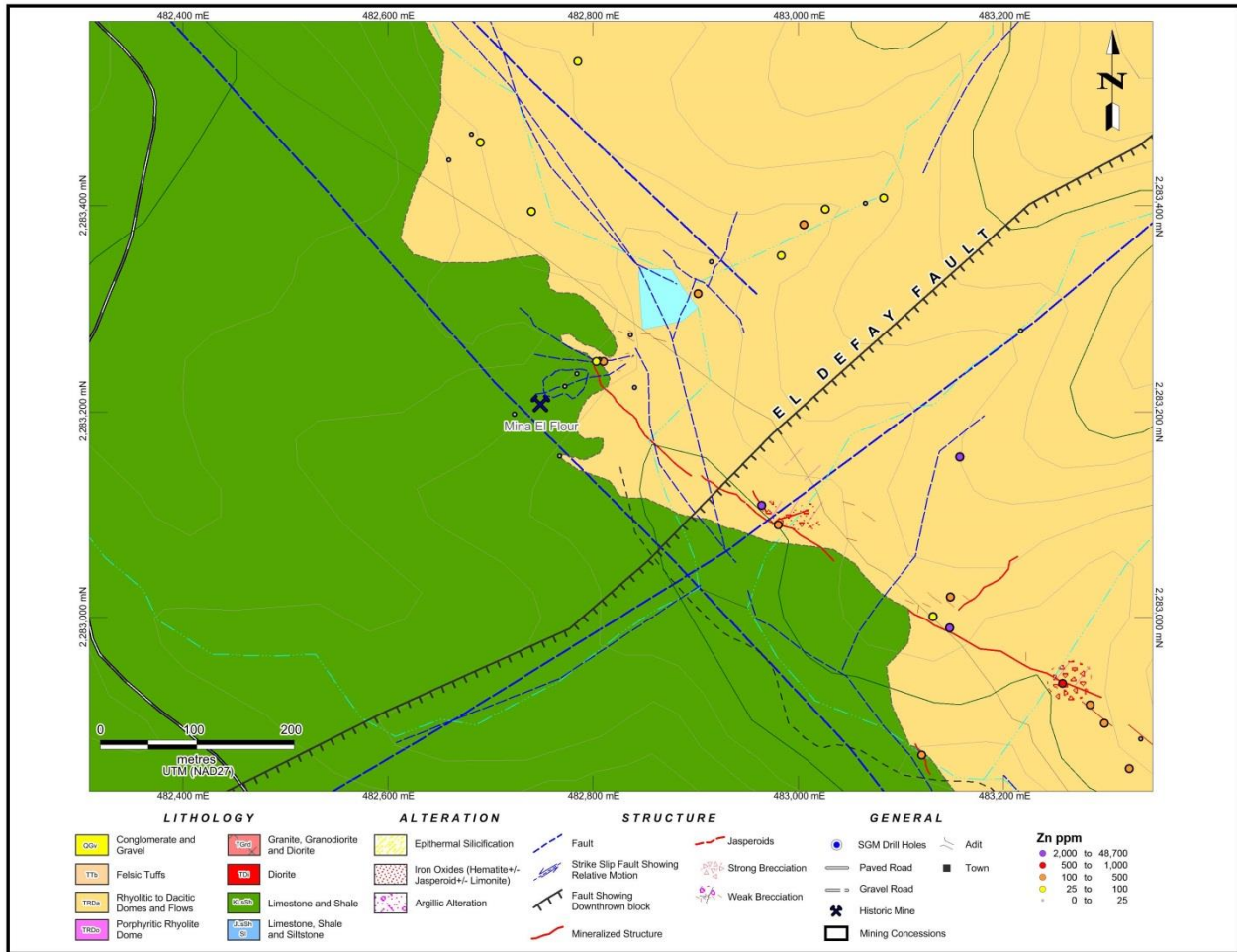
López (2012) obtained weak, but anomalous values of silver, lead, zinc and manganese with localized copper values from these altered sediments. Values range from below the detection limit to maximums of 18.8 ppm for silver, 463 ppm for lead, 1,570 ppm for zinc, 18,100 ppm for manganese and 4,360 ppm for copper. This suite of elements, in conjunction with the alteration effects mentioned in the preceding paragraph, is also suggestive of polymetallic replacement deposits associated with intermediate intrusives on the Property. There are numerous examples of this style of mineralization in this part of Mexico such as that at Zimapán, La Negra, Jacala, San Nicolas or the mineralized area immediately east of the Property in the Cardonal area.

The relationship between fluorite occurring at the historic Mina El Fluor mine and the targeted polymetallic replacement type mineralization is unclear. Fluorite is a common gangue mineral in carbonate-hosted replacement deposits (Megaw and others, 1988) but fluorite-dominant carbonate replacement deposits also occur in central Mexico approximately 175 to 250 km northwest of the property (Vasallo et al, 2008). The fluorite-dominant deposits are lower temperature than carbonate-hosted replacement silver-lead-zinc deposits and they are slightly older than similar dated intrusions on the Santuario Property ( $29.2 \pm 2.0$  Ma for rhyolite magmatic breccias at Las Cuevas (Vassalo et al, 2008) compared to  $26.5 \pm 1.3$  Ma for the rhyolite porphyry (TRDa) at Santuario).

#### **7.3.8.1 El Boxo Gold Target Mineralization**

A poorly defined area of anomalous gold values is located west of the village of El Boxo on the eastern side of the Property. Anomalous samples appear to be related to a northeast-trending zone of weakness related to the El Delfay fault system and a northwest-trending zone of fracturing near the contact between the rhyolite porphyry (TRDa) and the adjacent Jurassic sedimentary rocks (López, 2012). Gold values range from below detection limit to up to 2.44 g/t gold. Stream sediment sampling in drainages along the western margin of the target area yielded gold values from 0.01 ppm gold to 0.05 ppm gold and visible gold has been reported from panning during sampling conducted by the CRM in this area. Based on preliminary field work, the broadly-defined anomaly is more than three kilometres in length and up to one kilometre in width (Figure 6-5).





Source: Palamina, 2015

Figure 7-5 Map showing Soltoro rock sampling Zn results in the Mina El Fluor area of the Santuario Property.



## 8 DEPOSIT TYPES

The primary mineral deposit model applicable to the Property area is the large-tonnage and low-grade epithermal gold deposit model. A secondary exploration target is the large-tonnage and low-grade polymetallic replacement deposit model.

### 8.1 EPITHERMAL GOLD DEPOSITS

Epithermal deposits form at low temperatures in the shallow parts of magma-related hydrothermal systems and are generally associated with volcanism and related intrusions. Mineralization is introduced along faults and fractures, although disseminated or replacement-style mineralization may occur when hydrothermal fluids are introduced into permeable, or reactive, rock types. Alteration typically associated with epithermal deposits consist of propylitic, sericitic, argillic and silicic alteration. Deposits of this type range from high-grade veins mineable using underground methods to large-tonnage, low-grade deposits mineable using open pit techniques. As currently understood, the San Clemente target area falls into the latter category as discussed below.

#### 8.1.1 San Clemente Gold Target

The principal exploration target on the Property is the San Clemente gold target where epithermal gold mineralization occurs as native gold and electrum in quartz and iron oxide veinlets hosted by rhyolite porphyry (TRDa). Argillic alteration is the principal alteration type with lesser silicification.

#### 8.1.2 El Boxo Gold Target

The El Boxo gold target is similar to the San Clemente gold target in that it is epithermal in nature; however in this case, gold mineralization is hosted by the rhyolite porphyry (TRDa) and adjacent Jurassic sedimentary rocks (JLsShSl). It is expected to be large-tonnage and low-grade target.

### 8.2 POLYMETALLIC REPLACEMENT DEPOSITS

Polymetallic replacement deposits may be of two types: skarn and carbonate-hosted replacement deposits. Skarn deposits typically form proximal to source intrusions whereas polymetallic carbonate-hosted replacement deposits tend to be more distal. Skarns consist primarily of base- and precious-metal minerals in calc-silicate rocks that may represent contact metasomatism by nearby granitoid intrusions or they may form hundreds of meters from intrusions inferred to be sources of metasomatizing fluids.

Some carbonate-hosted replacement deposits are associated with skarn deposits but many are not. They consist of irregular lenses and pipes that are hosted by and replace limestone, dolomite, or other sedimentary rocks. Sediment-hosted ore commonly is intimately associated with igneous intrusions in the sedimentary rocks (Plumlee et al, 1986). Carbonate-hosted replacement and/or



skarn deposits are generally of sufficiently high grade to be mined underground although lower grade examples are known.

### **8.2.1 Mina El Fluor Lead-Zinc-Silver Target**

The Mina El Fluor target is a lead-zinc-silver polymetallic replacement target hosted by carbonate rocks adjacent to the contacts between a possible buried dioritic intrusive or the rhyolite porphyry. Rocks in these areas exhibit alteration which occurs intermittently over an area measuring more than two kilometres in a northwest-southeast direction and ranging in width from approximately 500 m to over 1,000 m.

The relationship between fluorite occurring at the historic Mina El Fluor mine and the targeted polymetallic replacement type mineralization is unclear. Fluorite is a common gangue mineral in carbonate-hosted replacement deposits (Megaw and others, 1988) but fluorite-dominant carbonate replacement deposits also occur in central Mexico approximately 175 to 250 kms northwest of the property (Vasallo et al, 2008). The fluorite-dominant deposits are lower temperature than carbonate-hosted replacement silver-lead-zinc deposits and they are slightly older than dated intrusions on the Santuario Property ( $29.2 \pm 2.0$  Ma for rhyolite magmatic breccias at Las Cuevas (Vassalo et al, 2008) compared to  $26.5 \pm 1.3$  Ma for the rhyolite porphyry (TRDa) at Santuario).



## **9 EXPLORATION**

Palamina has conducted no ground exploration on the property.

Limited historical surface exploration was conducted on the Property by the CRM, Soltario and Soltoro as reported in Section 6 of this Report.



## **10 DRILLING**

Palamina has conducted no drilling on the Property.

Limited historical diamond drilling was conducted on the Property by the CRM as reported in Section 6.3.1 of this Report. Partial results are available for only one hole and nothing is known of the drilling methods and procedures utilized.



## **11 SAMPLE PREPARATION, ANALYSES AND SECURITY**

As of the effective date of the Report, Palamina has conducted no rock, soil or stream sediment sampling and analytical work on the Property. The following is a description of known historical sample preparation, analyses and security protocols and procedures utilized during previous sampling programs on the Property (Section 6.3), in particular the 2006-2009 and 2012 Soltoro programs.

### **11.1 CRM (1979-1992)**

Sample preparation and analytical techniques employed by the CRM are unknown.

Howe is therefore unable to determine whether the sample preparation and analytical techniques employed by the CRM were appropriate for the sample media and mineralization type and conform to current industry standards. For this reason and the discrepancies in analytical results noted in Section 6.3.1, it is Howe's opinion that CRM's analytical results should be viewed for historical reference only and should not be relied upon.

### **11.2 SOLTORO (2006-2009, 2012)**

#### **11.2.1 Sample Security**

Samples were collected and placed in to plastic bags and sealed in the field. Security of samples prior to dispatch to the analytical laboratory was maintained by limiting access of un-authorized persons. Samples were transported from the field at the end of each field day and were in the possession of Soltoro employees until they were delivered to the ALS-Chemex sample preparation facility in Guadalajara. The labelled sample bags were packed in polypropylene rice bags and sealed. The assay preparation laboratory completed sample preparation operations and employed bar coding and scanning technologies that provide complete chain of custody records for every sample.

No sample preparation was conducted by any employee, officer, director or associate of the Soltoro.

Following analysis, the laboratory pulps and rejects from the 2012 program were returned to and stored at the Soltoro core shack in Guachinango, Jalisco. Pulps and rejects from earlier programs were not retained.

Howe is of the opinion that the security and integrity of the samples submitted for analyses is uncompromised, given the adequate record keeping, storage locations, sample transport methods, and the analytical laboratories' chain of custody procedures.



### 11.2.2 Sample Preparation and Analysis

Samples collected by Soltoro in 2006, 2009 and 2012 were submitted to the ALS-Chemex sample preparation facility in Guadalajara, Jalisco, Mexico and pulps were shipped by ALS-Chemex to their laboratory in North Vancouver, BC for analysis. The Guadalajara laboratory is individually certified to standards within ISO 9001:2008. The North Vancouver analytical facility is individually certified to standards within ISO 9001:2008 and has accreditation to ISO/IEC 17025:2005 from the Standards Council of Canada (No. 579) conforming to requirements of CAN-P-1579 (Mineral Analysis) and CAN-P-4E for methods including: Fire Assay Au, and Aqua Regia and Four Acid Multi-element by ICP and MS. Sample preparations follow industry best practices and procedures. The analytical methods used are routine.

Samples collected by Soltoro in 2008 were submitted to the Teck-Cominco Global Discover Lab, which was acquired by Acme Analytical Laboratories Inc. in 2009. The accreditation status of this laboratory at that time is not known.

ALS and Teck-Cominco Global Discover Lab and their employees are independent from Soltoro. Soltoro personnel and consultants and contractors were not involved in sample preparation and analysis.

It is Howe's opinion that security, sample collection, preparation and analytical procedures undertaken on the Santuario Property during the 2006, 2009 and 2012 programs are appropriate for the sample media and mineralization type and conform to industry standards.

#### 11.2.2.1 Rock Samples

At the ALS Guadalajara facility, the sample was logged in the tracking system (LOG-22), weighed (WEI-21), and finely crushed to better than 70 % passing a 2 mm (Tyler 9 mesh) screen (CRU-31). A split of up to 1000 g was taken using a riffle splitter (SPL-21) and pulverized in a grinding mill with a low-chrome steel bowl to better than 85 % passing a 75 micron (Tyler 200 mesh) screen (PUL-32). Compressed air was used to clean the equipment between samples. Barren material was crushed between sample batches. ALS Guadalajara then forwarded a sample pulp to the North Vancouver ALS Mineral Laboratory for analysis.

All samples collected by Soltoro from 2006 through 2009 were submitted to ALS-Chemex and analyzed using the "metallic screen fire assay" method (Au-SCR21) for gold. This method is often employed when the presence of coarse-grained gold is known or suspected.

The metallic screen method passes 1,000 g of the final prepared pulp over a 100 micron ( $\mu$ ) (Tyler 150 mesh) dry screen (SCR21) to separate the oversize fractions. Coarse (+100  $\mu$ ) and fine (-100  $\mu$ ) fractions are then separately analyzed using standard Fire Assay - Atomic Absorption Spectroscopy (FA-AA) procedures using the complete coarse fraction and two 30 g charges of the fine fraction (Au-AA25). Gold content (ppm) and weight (g) for each fraction are reported along with total gold content for the sample.



In 2009, rock samples were also analyzed by Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) with an aqua regia digestion (ME-ICP41) for 35 elements. In 2012, sampling was reconnaissance in nature and not strictly focused on the gold potential of the Property. For that reason, gold metallic screen fire assay was not employed and Rock samples were analyzed by FA-AA for gold using a 30g charge (Au-AA23) and ICP - AES using a four acid digestion (ME-ICP61) for 33 elements.

No detailed description of sample preparation or Metallic Assay analytical method exists for the samples submitted to the Teck-Cominco Global Discover Lab lab in 2008. Results from the Global Discover Lab indicate that it used the same sieve size as that at ALS-Chemex but evidently the sample size was smaller (between 70 g and 80 g for Global Discover as opposed to 1,000 g used by ALS-Chemex). The analytical code provided on Teck-Cominco Global Discover Lab assay report is Au(8) Metallic Assay.

#### **11.2.2.2 Stream Sediment Samples**

Stream sediment samples were sieved to -80-mesh in the field and the -80-mesh fraction was submitted to the ALS-Chemex sample preparation facility in Guadalajara. At the Guadalajara facility, the sample was logged in the tracking system (LOG-22), weighed (WEI-21), screened to -100 to -106  $\mu$ . A split of up to 1000 g was taken using a riffle splitter (SPL-21) and pulverized in a grinding mill with a low-chrome steel bowl to better than 85% passing a 75  $\mu$  (Tyler 200 mesh) screen (PUL-32). Compressed air is used to clean the equipment between samples. Barren material is crushed between sample batches. ALS Guadalajara then forwarded the sample pulp to the North Vancouver ALS Mineral Laboratory for analysis.

Pulps analysed at the ALS-North Vancouver laboratory using the similar methods employed for rock samples including gold metallic screen fire assay (Au-SCR21) and ICP - AES using an aqua regia digestion (ME-ICP41) for trace elements.

#### **11.2.3 Quality Assurance and Quality Control**

Given the reconnaissance to early stage nature of its exploration work, Soltoro elected to not implement an independent Quality Assurance and Quality Control (QA/QC) program but instead utilize ALS Minerals' internal laboratory QA/QC protocols.

In addition to routine screen tests, sample preparation quality is monitored internally at ALS Minerals through the insertion of sample preparation duplicates. For every 50 samples prepared, an additional split is taken from the coarse crushed material to create a pulverizing duplicate. The additional split is processed and analyzed in a similar manner to the other samples in the submission.

Internal quality control samples including certified reference materials, blanks, and duplicates are inserted within each analytical run. The blank is inserted at the beginning, standards are inserted at random intervals, and duplicates are analyzed at the end of the batch. The minimum number of quality control samples required to be inserted are based on the rack size specific to the method.





All ALS Minerals analytical facilities in North America participate in round robin & external proficiency tests for the analytical procedures routinely done at each laboratory. The laboratories also routinely participate in proficiency tests organized by the Canadian Certified Reference Materials Projects, Geostats and a number of independent studies organized by consultants for specific clients.

Howe recommends that during any future systematic surface sampling or drill program, a robust QA/QC program should be implemented which would include the insertion of certified reference materials and coarse blanks to independently check the laboratory for potential systematic errors, contamination and instrument drift over time. Duplicates, preparation duplicates and pulp check duplicates should also be inserted to confirm the reproducibility of results and suitability of the sampling methodology.

### **11.3 SOLITARIO RESOURCES CORP.**

In 2009, Solitario Resources Corporation collected 38 samples as part of a property evaluation. The samples were analyzed for gold and multi-elements. It is not known where the samples were analyzed or what methods of sample preparation and analysis were used.

Howe is therefore unable to determine the laboratory utilized, nor confirm whether the sample preparation and analytical techniques employed by Solitario were appropriate for the sample media and mineralization type and conform to current industry standards. For this reason, it is Howe's opinion that Solitario's analytical results should be viewed for historical reference only and should not be relied upon.



## 12 DATA VERIFICATION

Palamina has conducted no field exploration work on the Property.

### 12.1 ACA HOWE 2015 SITE VISIT

Confirmation of the existence of reported historic adits, work sites and mineralized areas was conducted by Howe's representative and author Mr. Ian Trinder as part of Howe's due diligence in the preparation of this technical report on the Property.

Mr. Trinder met with and was accompanied in the field by Mr. Steven T. Priesmeyer, Palamina's Vice President of Exploration and Ing. Manuel Aragón Arreola, Soltoro's Exploration Manager. Mr. Trinder completed an inspection of selected historic small mine adits and surrounding altered and mineralized rocks in the San Clemente exploration target area on May 24<sup>th</sup>, 2015. The Mina El Fluor area was inspected and a vehicular tour of the El Boxo area was completed on May 25<sup>th</sup>. Soltoro's previous, and Palamina intended, exploration activities, methodologies, quality assurance and quality control procedures, security, findings and interpretations were discussed. The Property and technical observations were generally as reported by Palamina and Soltoro. Several verification samples were collected.

### 12.2 ACA HOWE 2015 VERIFICATION SAMPLING

Howe conducted limited verification sampling of several previously sampled rock outcrops, trenches and adits during its 2015 site visit. Mr. Trinder personally collected the samples and sealed the sample bags with ladder lock ties. Mr. Trinder maintained possession of the bagged samples and personally delivered the samples to the OVNIBUS station in Actopan for delivery to the ALS-Chemex preparation laboratory in at FCO. Silva Romero (Antes Jazmin) # 1140, Sector Reforma, Col. San Carlos, Guadalajara, Jalisco 44460. Following preparation the samples were forwarded to ALS analytical Laboratory at 2103 Dollarton Hwy, North Vancouver, British Columbia V7H 0A7.

The Guadalajara laboratory is individually certified to standards within ISO 9001:2008. The North Vancouver analytical facility is individually certified to standards within ISO 9001:2008 and has accreditation to ISO/IEC 17025:2005 from the Standards Council of Canada (No. 579) conforming to requirements of CAN-P-1579 (Mineral Analysis) and CAN-P-4E for methods including: Fire Assay Au, and Aqua Regia and Four Acid Multi-element by ICP and MS. Sample preparations follow industry best practices and procedures. The analytical methods used are routine.

All Howe verification samples submitted to ALS-Chemex were prepared and analyzed using the "metallic screen fire assay" method (Au-SCR21) for gold as described in Section 11.2.2.1.



Howe's verification samples are too few to permit a statistical comparison with the historic samples however they do provide an independent confirmation of the presence of gold mineralization at the Santuario Property (Table 12-1). Several of Howe's samples are not ideal duplicates of previous chip samples due to the uncertainty of the exact location of many of the historical samples. In addition, Howe's samples comprised continuous chip samples; the historic samples may have comprised channel, continuous chip or chip samples.

It is the opinion of A.C.A. Howe that the historical sample preparation and analytical procedures implemented by Soltoro have been adequate for the exploration conducted to date.

Table 12-1: ACA Howe Verification Sample Results and comparison to Historic CRM and Soltoro Results

ACA Howe Sample #	Sample Width (m)	Gold (g/t)	CRM Sample #	Sample Width (m)	Gold (g/t)	Soltoro Sample #	Sample Width (m)	Gold (g/t)
N935862	1.0	0.11	VO74	1.0	0.00	751707	1.8	0.13
N935863	1.0	0.14				751705	1.5	0.09
N935864	1.0	0.25	--	--	--	--	--	--
N935865	1.0	0.09	VO44	1.0	0.00			
N935866	0.3	0.07				371724	?	0.102
N935867	0.75	0.56				371724	?	0.102
N935868	1.0	0.85				371717	?	3.511
N935869	1.0	1.84				371717	?	3.511
N935870	1.0	1.40	Certified Reference Material CDN-ME-16 - 1.48 g/t +/- 0.14 g/t (two standard deviations)			--	--	--



ACA Howe Sample #	Occurrence	UTM E	UTM N	Sample Description
N935862	La Palma	482923	2284581	End of La Palma adit approximately 20 m from entrance (UTM coordinates). Adit trends approx 255. Clay altered rhyolite with limonite/jarosite. Intersection of strong structure 250/subvertical and fracture set 040/40. Continuous chip along edge historic channel/chip sample CRM - V074/Soltoro - 751707
N935863	San Severanio	482954	2284616	Continuous chip along historic Soltoro sample 751705 above collapsed adit entrance. Strongly fractured (255/70) altered rhyolite with limonite/jarosite staining.
N935864	San Severanio	482954	2284616	Continuous chip taken to east of N935863 (right side of collapsed adit entrance). Strongly fractured (255/70) altered rhyolite with limonite/jarosite staining.
N935865	El Gringo	482991	2284689	End of El Gringo adit approximately 15 m from entrance (UTM coordinates). Adit trends approx. 245. Silicified? quartz-feldspar porphyritic rhyolite. Continuous chip along edge of 1 m historic CRM channel sample V044
N935866	Un-named adit/decline	482790	228465	Approximately 10m inside an un-named adit/decline entrance (UTM coordinates). 30 cm continuous chip sample on a 30cm wide fault structure trending 308/70 in moderately clay altered Fe-stained quartz-eye rhyolite. Taken in area of Soltoro chip sample 371724, unable to duplicate exact location.
N935867	Un-named adit/decline	482790	2284685	Approximately 10m inside an un-named adit/decline entrance (UTM coordinates). 75 cm continuous chip sample taken in the footwall of the 30 cm fault structure trending 308/70 in moderately clay altered Fe-stained quartz-eye rhyolite (Sample N935866). Taken in area of Soltoro chip sample 371724, unable to duplicate exact location.
N935868	Sidecut	482717	2284684	Surface trench/sidecut. 1 m continuous chip sample in weak-moderately clay altered Fe-stained quartz-eye rhyolite with Fe-oxide in fractures. Contains a “stockwork” of narrow quartz veinlets. 1 to 2% very fine disseminated pyrite and Fe-ox pseudomorphs after pyrite. Primary structural trend 300/70. Taken in area of Soltoro chip sample 371717, unable to duplicate exact location.
N935869	Sidecut	482717	2284684	Surface trench/sidecut. 1 m continuous chip sample in weak-moderately clay altered Fe-stained quartz-eye rhyolite with Fe-oxide in fractures. Contains a “stockwork” of narrow (<0.5 to 1 mm) quartz veinlets. 1 to 2% very fine disseminated pyrite and Fe-ox pseudomorphs after pyrite. Primary structural trend 300/70. Continuous with N935868 to the southwest. Taken in area of Soltoro chip sample 371717, unable to duplicate exact location.
N935870	CDN-ME-16			Certified Reference Material CDN-ME-16 - 1.48 g/t +/- 0.14 g/t (two standard deviations)



### 12.3 GENERAL

Palamina provided Howe with historic third party exploration and assay data in digital format. Howe completed a spot check comparison of approximately 10% of historic assay data against available digital scans/PDF files of laboratory certificates to verify accuracy and completeness. No errors were detected.

Howe has not independently conducted any title or other searches, but has relied upon Palamina and its lawyers for information on the status of the claims, property title, agreements, and other pertinent permitting and environmental conditions (see Section 4).

Howe is of the opinion that the exploration and assay database for the Property is of sufficient quality to provide the basis for the conclusions and recommendations reached in this Report.

Howe recommends that during any future systematic surface sampling or drill program, a robust QA/QC program should be implemented which would include the insertion of certified reference materials and coarse blanks to independently check the laboratory for potential systematic errors, contamination and instrument drift over time. Duplicates, preparation duplicates and pulp check duplicates should also be inserted to confirm the reproducibility of results and suitability of the sampling methodology.



### **13 MINERAL PROCESSING AND METALLURGICAL TESTING**

This section is not relevant to the Santuario Property. As of the date of this report, no mineral processing or metallurgical test work have been completed for the Property.



## **14 MINERAL RESOURCE ESTIMATES**

This section is not relevant to the Santuario Property. As of the date of this report, no mineral resources have been estimated for the Property.



## **15 ADJACENT PROPERTIES**

Neither Howe nor the Author is aware of any adjacent properties of interest or significance.





## **16 OTHER RELEVANT DATA AND INFORMATION**

There is no other relevant information known to Howe or the Author that would make this Report more understandable or if undisclosed would make this Report misleading.



## 17 INTERPRETATION AND CONCLUSIONS

Howe has reviewed the historic and current Santuario Property data provided by Palamina; has visited the site; and has reviewed historic and proposed sampling procedures and security. Howe believes that the data presented by the Company are generally an accurate and reasonable representation of the Santuario Property mineralization styles. Howe concludes that the database for the Property is of sufficient quality to provide the basis for the interpretations, conclusions and recommendations reached in this Report.

Based on the review of data and reports from past exploration:

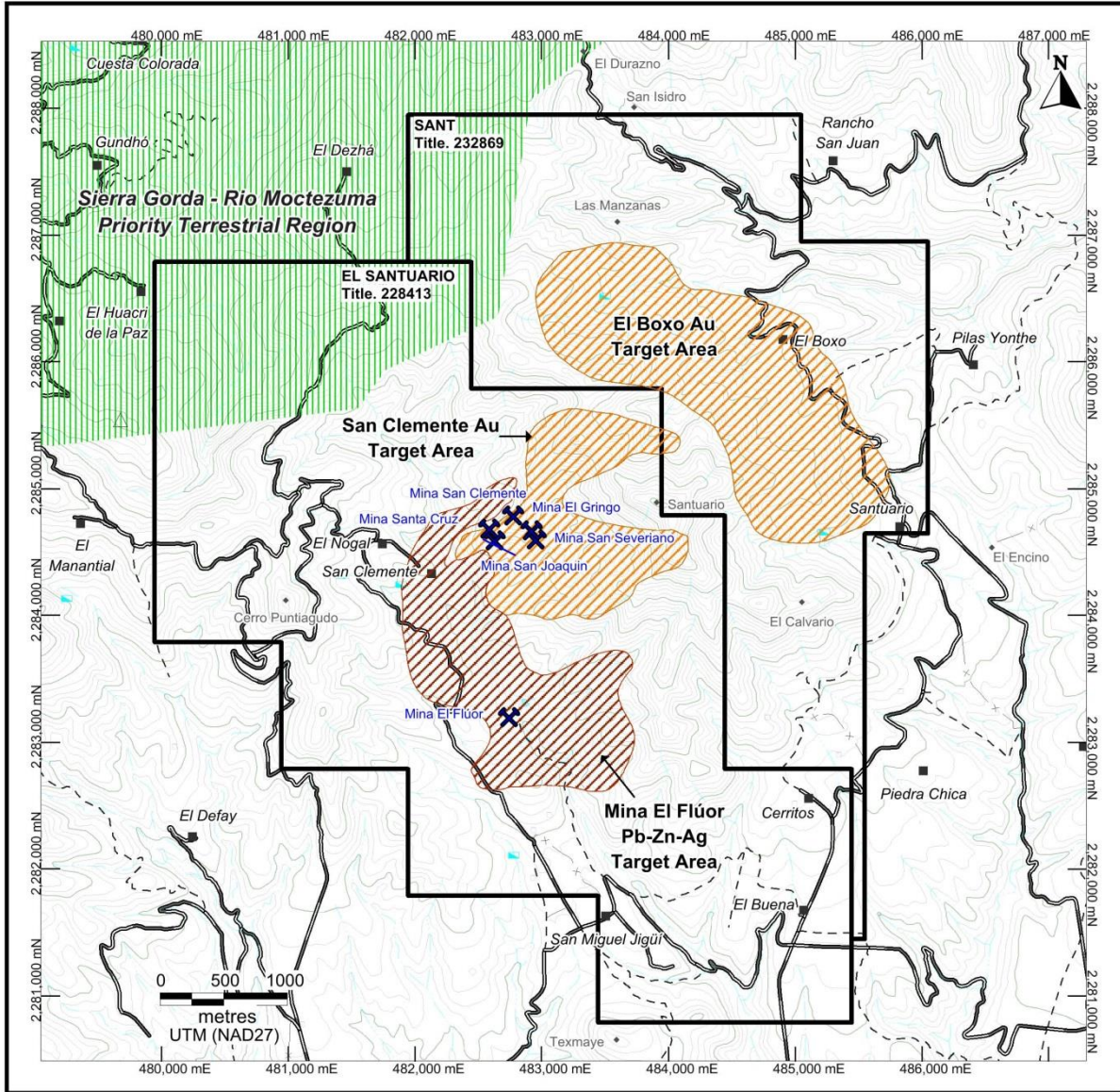
- The Santuario Project is at an early stage of exploration;
- Ground magnetics, geologic mapping and rock sampling have identified potential structural and lithologic controls on mineralization and ground magnetics has identified several exploration targets for both gold and lead-zinc-silver replacement mineralization;
- Three early stage exploration targets have been identified on the Property with the San Clemente epithermal gold target being the primary, and most advanced, target (Figure 17-1). The Mina El Fluor lead-zinc-silver target and the El Boxo gold target are secondary exploration targets;
- Rock sampling at the San Clemente target has yielded low- to moderate-gold grades from structures hosted by a rhyolite porphyry of Oligocene age;
- Based on limited third party work to date, gold mineralization is hosted by quartz and/or iron oxide veinlets and appears to be relatively coarse-grained requiring metallic screen fire assay to obtain meaningful analytical results;
- The methodology of Soltoro's historic sample preparation and assaying of rock and stream samples is appropriate as per industry standards for early stage exploration projects;
- Recent exploration by Soltoro has confirmed the presence of anomalous concentrations of gold at the San Clemente target sufficient to warrant further exploration to determine whether drilling is warranted. The Mina El Fluor lead-zinc-silver target and the El Boxo gold target require additional mapping and sampling.

Environmental, permitting, legal, taxation, socio-economic, marketing, and political or other relevant issues could potentially materially affect access, or the right or ability to perform the work recommended in this Report on the Property. However at the time of this report, Howe is unaware of any such potential issues affecting the Property pending the Company's submission and acquisition of any and all required permits in accordance with any prescribed requirements, including negotiations with surface rights holders prior to any future recommended or planned exploration activities. Howe has not independently conducted any legal title or other searches, but based on the opinions of Avalos y Abogados, S.C. (2015) and documentation provided by



Palamina, its management and legal counsel pertaining to the ownership transfer of the El Santuario and SANT mineral concessions from Soltoro to Palamina there are no current issues with respect to concession title, subject to formal registration of the Assignment Agreement between Soltoro and the Company submitted to the Public Registry of Mining.

Based on historic exploration work particularly the recent work by Soltoro, Howe concludes that the Santuario Property warrants additional exploration expenditures.



Source: Palamina, 2015

Figure 17-1 Exploration target areas identified on basis of Soltoro geological mapping and sampling programs



## 18 RECOMMENDATIONS

Howe and the author recommend that Palamina continue to advance the Santuario Project and consider the following recommendations for future exploration:

- Initiate detailed mapping and sampling in the San Clemente area with a view toward locating specific drill targets;
  - The detailed sampling should include studies to confirm controls on gold distribution; eg. selective sampling of the fine, friable, Fe-oxide and clay-rich fraction and the coarser, competent fraction within mineralized structures.
  - Sampling should include both structures and intervening rocks between structures.
  - Individual sample documentation should include associated structural orientations and mineralogy.
  - Alteration mapping may be aided by use of a portable infrared spectrometer.
- Obtain geologic reports prepared by the Metal Mining Agency of Japan on the Property in order to obtain and evaluate results of earlier drilling conducted by the CRM in the San Clemente area;
- Follow-up exploration targets identified through the ground magnetic surveys;
- Establish Quality Assurance/Quality Control (QA/QC) programs for both field sampling and drilling. Programs should include relevant data collection, sample collection and sample security protocols as well as the regular insertion of certified reference material samples (standards), pulp and coarse reject duplicate samples, field and core duplicate samples and coarse blank samples into the sample preparation and analytical stream;
- Evaluate the San Clemente gold target with four diamond drillholes totaling 500 m for the first phase of exploration drilling on the Property. Two holes are located in the Mina San Severiano area and two are located in the Mina San Joaquin area. All four holes are collared along a line trending 290° (Figure 18-1). Details for the proposed holes are presented in Table 18-1.
  - The proposed drilling program will employ a man-portable diamond drill rig to minimize environmental disturbance and facilitate environmental permitting. Portable rigs usually imply a smaller core size however, given the strong fracturing of the bedrock, core diameter should be maximised and consideration given to the use of a triple tube core barrel to maintain good core recovery. Man-portable rigs are capable of achieving depths of 400 m to 550 m with NTW core (diameter of 65.1 mm or 2.205 inches) and 600 m to 800 m with BTW core (diameter of 41.7 mm or 1.645 inches) depending on the rig used. All holes will be started with NTW core with the option of reducing the core size to BTW if drilling conditions warrant a reduction in core size.
  - Final collar locations will be dependant on factors including local topography and slope stability.



- Begin semi-detailed to detailed mapping and sampling programs in the areas of the Mina El Fluor lead-zinc-silver replacement target and the El Boxo gold target to determine if drill targets are present.

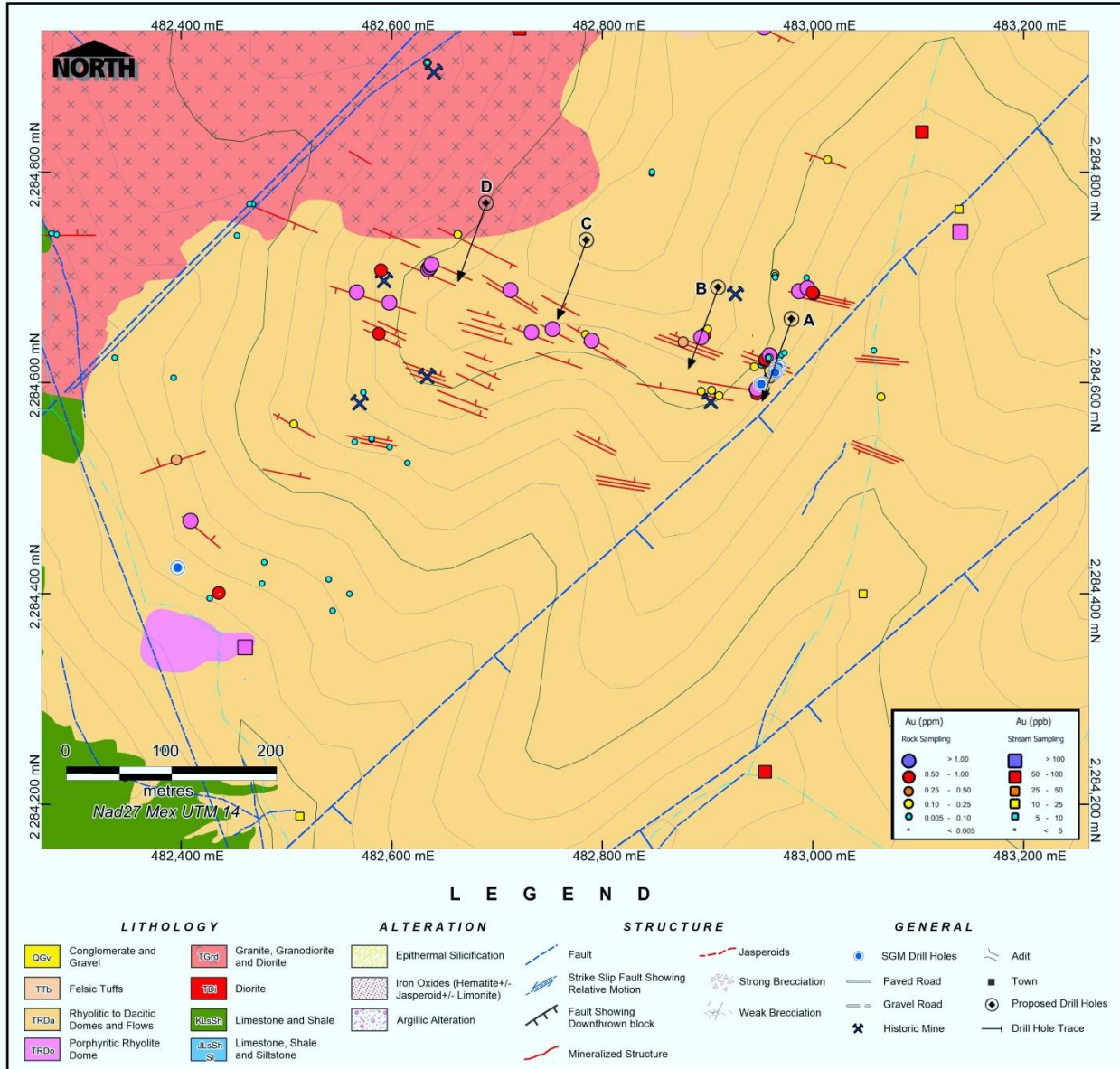


Figure 18-1: Location of Proposed Palamina Drill Holes



Table 18-1: Collar details for proposed diamond drillholes, San Clemente area, Santuario Project.

Hole	Easting	Northing	Azimuth (degrees)	Inclination (degrees)	Proposed Depth (m)
A	482,980	2,284,660	200	-50	125
B	482,910	2,284,690	200	-50	125
C	482,785	2,284,735	200	-50	125
D	482,690	2,284,770	200	-50	125

\*(UTM NAD27-Mexico)

### 18.1 BUDGET

In line with Howe's recommendations, Palamina has proposed a budget totaling C\$279,000 for exploration work in 2015. The proposed program and budget as shown in Table 18-2 is to be completed as a single phase. The program will permit Palamina to complete an initial 500 m of drilling to evaluate the San Clemente gold exploration target.

Howe considers Palamina's proposed budget reasonable and recommends that the Company proceed with the proposed work program.

Table 18-2: Palamina's Santuario Property Proposed 2015 Exploration Program and Budget

Task	Itemized Cost (C\$)	Total* (C\$)
Community Relations & Landowner Agreements		\$ 20,000
Permitting		\$ 20,000
Personnel (supervision, local labor)		\$ 35,000
Travel and Related		\$ 29,000
Field Surface Sample Analyses	200 @ \$90/sample	\$ 18,000
Geologic Mapping		\$ 13,000
Diamond Drilling – Mob/demob		\$ 20,000
Diamond Drilling - Man-portable rig	500 m @ \$146/m	\$ 73,000
Core Analyses – Au screen metallic assays	355 @ \$90/sample	\$ 32,000
QA/QC Program		\$ 13,000
Reclamation		\$ 6,000
	<b>Total</b>	<b>\$279,000</b>

\* Rounded to nearest \$000



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## 20 DATE AND SIGNATURE PAGE

This report titled “Technical Report on the Santuario Project, Cardonal Municipality, Hidalgo, Mexico” for Palamina Corp. dated September 1, 2015 was prepared and signed by the following author:



Dated at Toronto, Ontario  
September 1, 2015

  
Ian D. Trinder, M.Sc., P.Geol.  
Senior Geologist  
A.C.A. Howe International Limited



## 21 CERTIFICATE OF QUALIFICATION OF AUTHOR

I, Ian D. Trinder, M.Sc., P.Geo. (ON, MAN), do hereby certify that:

1. I reside at 4185 Taffey Crescent, Mississauga, Ontario, L5L 2A6.
2. I am employed as a senior geologist with the firm of A.C.A. Howe International Limited, Mining and Geological Consultants located at 365 Bay St., Suite 501, Toronto, Ontario, Canada. M5H 2V1.
3. I graduated with a degree in Bachelor of Science Honours, Geology, from the University of Manitoba in 1983 and a Master of Science, Geology, from the University of Western Ontario in 1989.
4. I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Engineers and Geoscientists of Manitoba (APEGM, No. 22924) and with the Association of Professional Geoscientists of Ontario (APGO, No. 452). I am a member of the Society of Economic Geologists and of the Prospectors and Developers Association of Canada.
5. I have over 25 years of direct experience with precious and base metals mineral exploration in Canada, USA and the Philippines including project evaluation and management. Additional experience includes the completion of various National Policy 2A and NI 43-101 technical reports for gold and base metal projects.
6. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
7. I am author of the technical report titled: “Technical Report on the Santuario Project, Cardonal Municipality, Hidalgo, Mexico (the “Technical Report”) dated September 1, 2015. I am responsible for all sections of Report. I visited the Santuario Property from May 24<sup>th</sup> to 25<sup>th</sup> 2015.
8. I have no prior involvement with the issuer (Palamina Corp.) and the property that is the subject of the Technical Report.
9. As of the effective date of the technical report, to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10. I am independent of the issuer (Palamina Corp.) and the property that is the subject of the Technical Report applying all of the tests in Section 1.5 of National Instrument 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 1<sup>st</sup> Day of September 2015

  
Ian D. Trinder, M.Sc., P. Geo.

