NI 43-101 Updated Technical Report Guadalupe de los Reyes Gold/Silver Project Sinaloa, México

Prepared for:

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Tetra Tech Project No. 114-311220 | 200-203962-18001

Effective Date: February 8, 2013
Issue Date: March 4, 2013
Amended and Reissued: April 16, 2018

Qualified Persons:

Rex Clair Bryan, Registered Member, SME – Sections: 1-12, 14 and 23-25, 26.1, 26.3, 26.4 and 27
Vicki Scharnhorst, P.E., LEED AP – Sections: 20, 26.5 and 26.6
Erik Spiller, QP, MMSA – Sections: 13, 17 and 26.2

CERTIFICATE OF QUALIFIED PERSON

I, Rex C. Bryan, Ph.D., of Golden, Colorado, do hereby certify:

- I am a Senior Geostatistician with Tetra Tech, Inc. with a business address at 350 Indiana Street, Suite 500, Golden, Colorado 80401, USA.
- This certificate applies to the technical report entitled "NI 43-101 Technical Report – Preliminary Economic Assessment of Guadalupe de los Reyes Gold Silver Project" issued March 4, 2013, amended and restated on July 3, 2014 (the "Technical Report").
- I graduated with a Ph.D. degree in 1980 from the Colorado School of Mines, Golden Colorado, USA. In addition, I graduated with a degree MSc. In Geology in 1976 from the Brown University, Providence, Rhode Island, USA. I have worked as a Geostatistician for a total of 38 years since my graduation. My relevant experience is in the areas of resources and reserve reporting. I am a Competent/Qualified Person (QP), with the Society of Mining Engineers in Colorado, USA (SME Registered Member #411340).
- I have read the definition of "qualified person" set out in National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("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" within the meaning of NI 43-101.
- I have personally visited and inspected the property which is the subject of the Technical Report on March 20nd and 21st, 2012.
- I am responsible for Sections 1-12, 14, 23-25, 26.1, 26.3, 26.4 and 27 of the Technical Report.
- I am independent of Minera Alamos Inc. as defined by Section 1.5 of the Instrument.
- I have had prior involvement with the property that is the subject of the Technical Report. My involvement has consisted of acting as an expert who was relied upon for the NI 43-101 Technical Report – Guadalupe de los Reyes Gold Silver Project, Sinaloa, Mexico, Effective Date February 8, 2013; Issue Date: March 4, 2013.
- I have read NI 43-101, Form 43-101F1 – Technical Report, 43-101CP - Standards of Disclosure for Mineral Projects, and the Technical Report and the Technical Report has been prepared in compliance with such instrument, form, and companion policy.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publications by them, including electronic publication in the public company files on their websites accessible by the public.

Signed and dated April 16, 2018 at Golden, Colorado.

"Original document dated, signed and sealed by Rex Clair Bryan, Ph.D."

Rex C. Bryan, Ph.D.
Senior Geostatistician
Tetra Tech, Inc.

CERTIFICATE OF QUALIFIED PERSON

I, Vicki J. Scharnhorst, P.E., LEED AP of Golden, Colorado, do hereby certify:

- I am a Principal Engineer with Tetra Tech, Inc. with a business address at 350 Indiana Street, Suite 500, Golden, Colorado 80401, USA.
- This certificate applies to the technical report entitled "NI 43-101 Technical Report – Preliminary Economic Assessment of Guadalupe de los Reyes Gold Silver Project" issued March 4, 2013, amended and restated on July 3, 2014 (the "Technical Report").
- I am a graduate of Kansas State University with a Bachelor of Science degree in Civil Engineering (1978). My relevant experience includes 30 years of regulatory and permitting experience on projects inclusive of water quality programs, environmental impact studies, and federal, state and local permits. I am a licensed engineer in the states of Nevada, Michigan, Missouri and Colorado; a water right surveyor in the state of Nevada; a LEED Accredited Professional with the U.S. Green Building Council; and have served on the Nevada State Board of Professional Engineers and Land Surveyors. I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have not personally visited the Guadalupe de Los Reyes Gold Silver Project site.
- I am responsible for Sections 20, 26.5 and 26.6 of the Technical Report.
- I am independent of Vista Gold Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of the Technical Report.
- I have read the Instrument and the parts of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Signed and dated April 16, 2018 at Golden, Colorado.

"Original document dated, signed and sealed by Vicki J. Scharnhorst, P.E., LEED AP"

Vicki J. Scharnhorst, P.E., LEED AP
Principal Engineer
Tetra Tech, Inc.

CERTIFICATE OF QUALIFIED PERSON

I, D. Erik Spiller of Golden, Colorado, do hereby certify:

- I am a Principal Metallurgist with Tetra Tech, Inc. with a business address at 350 Indiana Street, Suite 500, Golden, Colorado 80401, USA.
- This certificate applies to the technical report entitled "NI 43-101 Technical Report – Preliminary Economic Assessment of Guadalupe de los Reyes Gold Silver Project" issued March 4, 2013, amended and restated on July 3, 2014 (the "Technical Report").
- I am a graduate of the Colorado School of Mines, (Bachelor of Science degree in Metallurgical Engineering, 1978). I am a Qualified Professional (QP) member of the Mining and Metallurgical Society of America (MMSA #01021QP). In addition, I am a Registered (QP) member of Society for Mining, Metallurgy, and Exploration, Inc. (SME #3051820RM). My relevant experience is that I have worked as a metallurgical engineer in the mineral resource industry for more than 40 years. During this career, I held responsible positions in process research, process development, engineering, and senior management. In addition, I have served as an Adjunct instructor (20 years) and as an appointed Research Professor (4 years) in the Metallurgical and Materials Engineering Department at the Colorado School of Mines, where I lecture in mineral beneficiation and direct graduate students conducting metallurgical research in my area of expertise.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have not personally visited the Guadalupe de Los Reyes Gold Silver Project site.
- I am responsible for Sections 13, 17 and 26.2 of the Technical Report.
- I am independent of Vista Gold Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of the Technical Report.
- I have read the Instrument and the parts of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Signed and dated April 16, 2018 at Golden, Colorado.

"Original document dated, signed and sealed by D. Erik Spiller QP, MMSA"

D. Erik Spiller QP, MMSA
Principal Metallurgist
Tetra Tech, Inc.

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ACRONYMS AND ABBREVIATIONS

3D	Three dimensional
Ag	silver
Au	gold
CIL	Carbon-In-Leach
CONAGUA	Comisión de Agua (National Water Commission)
EPCM	Engineering Procurement and Construction Management
ER	Estudio de Riesgo (Risk Study)
ETJ	Estudio Tecnico Justificativo (Technical Justification Study);
g/cm^3	grams per cubic centimeter
g/t	grams per tonne
GPS	Global Positioning System
hr	hour
IBT	Increasing Block Tariff
INEGI	Instituto Nacional de Estadística y Geografía
IP	Informe Preventivo (Preventative Notice)
km	kilometers
koz	Thousand ounces
ktpy	thousand tonnes per year
kWh/t	kilowatt hour per tonne
L/min	Liters per minute
LAU	Licencia Ambiental Única (Comprehensive Environmental License)
LGEEPA	Ley General del Equilibrio Ecológico y la Protección al Ambiente
LoM	Life-of-Mine
m	meters
m^3	cubic meters
MIA	Manifestación de Impacto Ambiental (Environmental Impact Statement)
mm	millimeter
NCM	Northern Crown Mining
NOMs	Normal Oficial Mexicana (Official Mexican Norms)
oz	ounce
PAG PAG/ML	Potentially acid-generating Potentially acid-generating/metal-leaching
PAH	Pincock Allen Holt
PGM	Plant growth medium
PEA	Preliminary Economic Assessment
PPA	Programa de Prevención de Accidentes (Accident Prevention Program)

PROFEPA	Procuraduría Federal de Protección al Ambiente
QA/QC	Quality Assurance/Quality Control
RC	Reverse Circulation
RDi	Resource Development Inc.
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales
SL	solid-liquid
SRK	SRK Consulting
tpd	tonnes per day
TSF	Tailings Storage Facility
US	United States
USD	US Dollars

1.0 SUMMARY

Tetra Tech has been retained by Minera Alamos Inc. to re-issue an independent Technical Report for the Guadalupe de los Reyes gold/silver project in Sinaloa, Mexico. The project has recently (October 2017) been optioned from Vista Gold Corp. (Vista) by Minera Alamos Inc. (Minera Alamos). Minera Alamos intends to review alternate development opportunities for the project other than those outlined in the previous report ("NI 43-101 Technical Report – Preliminary Economic Assessment of Guadalupe de los Reyes Gold Silver Project"). These include a potential heap leach gold/silver operation. The re-issued report takes this into consideration. No additional data or information has been generated since the issue of the original report.

1.1 Location and Access

The Guadalupe de los Reyes Gold and Silver Project (Project) is located in and around the Guadalupe de los Reyes Mining District in the western foothills of the Sierra Madre Occidental mountain range, approximately 110 kilometers (km) by air (200 km by road) north of the coastal city of Mazatlán. The Project is comprised of multiple deposits: El Zapote, Guadalupe, Noche Buena, and San Miguel. The El Zapote and other deposits occur in the south-central part of the district, approximately 20 km by air (30 km by road) southeast of the town of Cosalá (17,269 inhabitants, Instituto Nacional de Estadística y Geografía [INEGI] 2000), in Sinaloa State. General geographic coordinates for the Guadalupe de los Reyes mining district are approximately: N-24º 16´ 42" and W-106º 30´ 15" (13R 0347019-E, 2685586-N, 711 meters at the village of Guadalupe de los Reyes). **Figure 1-1** shows a general location map of the project (Pincock, Allen & Holt [PAH] 2005).

1.2 Ownership

On August 1, 2003, Vista Gold Corp. (Vista) acquired a 100 percent interest in portions of the Guadalupe de los Reyes gold project owned by Sr. Enrique Gaitán Maumejean along with a data package associated with the project. The final payment completing the purchase option was made in 2009.

By agreement dated January 24, 2008, with Grandcru Resources, and simultaneously with Goldcorp Inc. and the San Miguel Group, previous owners of mineral rights included in the mining claims list, Vista acquired the mineral rights that cover the Guadalupe mining district, except for two small claims located within the area. This agreement consolidates Vista's ownership of the mineral rights within the Guadalupe district, including 37 contiguous concessions with a total coverage of about 6,302.09 hectares (15,572.78 acres).

On October 23, 2017, Vista entered an option agreement for Minera Alamos to acquire all the issued shares of Vista's subsidiary Minera Gold Stake S.A. de C.V. which owns the Guadalupe de los Reyes project. Pursuant to the terms of the agreement, the Company will earn 100% of the shares by paying Vista a total of US$ 6 million in staged payments as follows: US$ 1.5 million on closing (paid October 2017), US$ 1.5 million on each of the 12- and 24-month anniversary dates in order to maintain the option and a final purchase price of US$ 1.5 million to acquire the shares on or before (i) an announcement of a construction decision, or (ii) the 48 month anniversary of the agreement. Production from any open pit (heap leach) mining operations at the project will be subject to a 1-2% royalty (based on gold prices) capped at a maximum cumulative amount of US$ 2 million. Vista also retains the right to acquire a 49% non-carried interest in the development of underground gold resources should the acquirer decide in the future to pursue potential zones of deep mineralization.

1.3 Environmental and Permitting

There do not appear to be any potential "fatal flaws" regarding existing on-site environmental liability or the ability to gain the necessary permit approvals for mining and processing activities. To expedite permitting and minimize unanticipated permitting issues, Minera Alamos should establish mutually beneficial relationships with federal and local governmental authorities and local businesses and communities that are founded on compliance with applicable environmental laws and regulations. In addition, Cosalá appears to be generally a pro-mining municipality with a long history of mining. Based on the establishment of these beneficial relationships and the history of mining in the area, the permitting of a new mine in the Cosalá area should be feasible, especially given the increase in high-paying mining jobs and the demand for community services.

1.4 Geology

The Project is located in the western side of the Sierra Madre Occidental Province, a late Cretaceous to Tertiary age volcanic sequence that extends for hundreds of kilometers from the Neo-Volcanic Belt in Central México to the Basin and Range Province in the north part of the country. This geologic province encloses a great number of major gold (Au) and silver (Ag) deposits of historic production within Mining Districts of world importance, such as Hostotipaquillo, Bolaños, Guanajuato, La Ciénega, Tayoltita, Guadalupe de los Reyes, Topia, Batopilas, Dolores, etc. Mineralization in the Project area has been found along a series of northwesterly trending structural zones in andesites of Tertiary age of the Lower Volcanic Sequence.

In the Guadalupe de los Reyes deposits, mineralization typical of low sulfidation epithermal systems occurs in westward dipping structural zones that range from a few meters to several tens of meters in thickness. The gold occurs as microscopic-sized, free to quartz-encapsulated particles associated with silver. Pyrite content within the deposit is generally less than 1.0 percent and only occasionally up to 3.0 percent in individual samples. Since the gold does not occur in pyrite, oxidation of the pyrite does not appear to be a major factor in metallurgical gold liberation and recovery. The silver to gold ratio varies between the deposits but averages approximately 15:1, based on total silver to total gold (fire assay).

The Project includes nine target areas that have been identified along nine structural vein zones. Some of these targets have bulk tonnage potential, which may be amenable to open pit mining, such as El Zapote, San Miguel, Guadalupe Mine (Laija and West), Tahonitas, Noche Buena, and El Orito zones. The El Zapote zone has received the most extensive exploration to date.

Grandcru-optioned concessions included mineral rights along parts of the El Zapote, Tahonitas, San Miguel-La Chiripa, and Guadalupe West, and all known extensions of the mineralized structures at El Orito, El Mirador-Las Casitas, La Palmita and El Apomal. (Northern Crown Mining [NCM])

1.5 Exploration, Drilling and Sampling

Exploration of the Project by NCM, Meridian, Luismin and other operators has included reverse circulation (RC) drilling of 375 holes, for a total of 36,106 meters. The Guadalupe area (Laija and West) included 78 drill holes with a total of 10,547 meters; the San Miguel deposit was drilled with 33 holes (3,674 meters); the Noche Buena deposit was explored with 25 drill holes (2,593 meters); the Tahonitas deposit included 33 holes with a total of 2,258 meters drilled. Meridian drilled 23 RC holes with a total of 2,732 meters in the main project area.

During 2011 and 2012, Vista drilled 48 core holes throughout the project area, for a total of 7,220 meters. This includes 15 holes in the El Zapote area, 4 holes in the Noche Buena area, 18 holes in the Guadalupe areas, and 11 holes in the San Miguel area.

During 2015, Great Panther Silver Limited (Great Panther) drilled 41 confirmatory core holes with which SRK Consulting (SRK) added to the existing drill hole database and produced an unpublished resource estimate for Guadalupe de los Reyes. Tetra Tech recommends that these confirmatory core holes are incorporated into a future resource estimate.

Drill hole locations at El Zapote were drilled on section lines spaced approximately 25 meters apart, with hole spacing along the lines averaging approximately 30 meters. Drilling of other deposits within the project was developed on section lines spaced between 50 to 100 meters apart, depending on area.

NCM's RC hole sampling program consisted of collecting samples at 1.52-meter intervals (5 feet) from 133-millimeter ([mm], 5.25-inch) diameter holes. Bondar-Clegg Laboratories in Vancouver, British Columbia, Canada analyzed most of the project drill hole samples. NCM had approximately 10 percent of the sample intervals in the mineralized zone sent for duplicate analysis by Min-En Laboratories to evaluate the quality of the sample analysis. Overall, these samples' results were found to be within standard industry practice.

Vista drilling was sampled on approximate 1-meter intervals. Assay analysis was done by ALS Chemex. Duplicate samples were analyzed, as well as blanks and standards for quality assurance.

The analytical results from early drilling were compiled by NCM in a digital format database. After data verification of the historic data against physical logs, the recent Vista drilling was added to this database. Mineralized and geological cross sections were also created by NCM staff. These sections were used as a guideline to refine the mineralized zone based on new drilling, geologic knowledge of the area, and a gold cutoff of 0.2 g Au/t. Through the use of these revised sections, extruded wireframes were created and used to create and flag a block model. The block model is composed of 5x5x5-meter blocks and was created for all material areas. Gold and silver values were estimated into the model using kriging, based on capped composite values. A percentage was assigned to each block as the amount of the block that falls inside the mineralized zone. This was taken into account in the resource calculation. Historical underground workings were also taken into account. Workings were flagged into the block model as a percent then subtracted from the resource material.

1.6 Mineral Processing and Metallurgical Testing

The Guadalupe de los Reyes mineralized material has undergone multiple regimens of metallurgical testing. Early testwork performed by McClelland Laboratorios de México was focused, albeit not exclusively, on establishing parameters relating to heap leach methods, and yielded gold recoveries on the order of 60 percent. One conclusion contained in this testwork alluded to the possibility of improved gold recovery at finer grind sizes and milling applications than those obtained for heap leach applications. Recent testwork performed by Resource Development Inc. (RDi) of Lakewood, Colorado was focused on gold extraction under a conventional mill circuit. The conclusions made in previous testwork regarding recovery as a function of grind size proved accurate. This testwork yielded design recoveries of 93 percent gold and 83 percent silver.

1.7 Resource Estimates

Tetra Tech, Inc. (Tetra Tech) produced an updated resource model for the Project. The model was created for the delineated mineralized zone without regard for minability. The resource numbers were calculated based on a 0.5 g Au/t cutoff. At the 0.5 g Au/t cutoff, the indicated resource is approximately 6.8 million tonnes with an average grade of 1.73 g Au/t and the inferred resource is approximately 3.2 million tonnes with an average grade of 1.49 g Au/t. Density data was populated into the block model using kriging methods. A default SG value of 2.6 g/cm^3 was used where a value was not assigned through kriging.

1.8 Recovery Methods

Recovery methods for the project are currently being re-evaluated.

1.9 Mineral Reserves

This section is for advanced stage properties only and does not apply.

1.10 Mining Methods

Mining methods have yet to be confirmed for the project.

1.11 Rock Mechanics

No rock mechanic work has been conducted for the Project.

1.12 Project Infrastructure

Infrastructure improvements to the Project site include access road upgrades, onsite power generation, water/sewer, buildings, and site preparation work.

1.13 Hydrology and Hydrogeology

Water consumption requirements for the project have not yet been confirmed. Surface water is currently the recommended source for process water. Three potential river/stream extraction points currently have been identified, located at a distance from the site of 1.7 km, 4.1 km, and 6.8 km respectively, with the furthest distance the most reliable source during the dry season. A water retention structure or the development of groundwater resources are the possible alternatives. Due to the lack of hydrogeological information, an exploration plan targeting local fracture zones would be necessary to identify possible water-bearing units. No permits are required to drill wells for the extraction of water. Water rights are controlled by the Comisión Nacional Del Agua (CONAGUA), and all water requirements and sources should be approved by CONAGUA. Water tariffs in México are generally based on increasing block tariffs. The rate charged increases with the amount of water used, and is set locally by each municipality.

1.14 Capital and Operating Costs

Capital and operating costs for the project have not been determined.

1.15 Economic Analysis

No economic analysis has been conducted.

1.16 Tailings Management

No tailings management requirements have been confirmed

1.17 Conclusion and Interpretations

Tetra Tech's review of provided data and site visits have shown exploration activities at the Project meet standard practices and contribute to the reliability of resource estimation.

The results of this Technical Report indicate the Project contains several kilometers of near-surface mineralization, host to indicated and inferred Au and Ag mineral resources, which warrant the further consideration of potential development opportunities.

The author is not aware of any significant risks or uncertainties that reasonable could be expected to affect the reliability or confidence in the exploration information or mineral resource estimates.

Figure 1-1: General Location Map of the Guadalupe de los Reyes Project

2.0 INTRODUCTION

2.1 Terms of Reference

This report was prepared for Minera Alamos, Inc. by Tetra Tech in accordance with the Canadian National Instrument (NI) 43-101 for the Guadalupe de los Reyes Gold and Silver Project. This technical report was written to evaluate the economic potential of the identified deposit through consideration of costs regarding accessibility, exploration, mineral processing, mining, and infrastructure.

2.2 Sources of Information

Tetra Tech has received information from Minera Alamos (current project owner). The historic information in the drilling database was compiled and maintained by NCM. Additional historic drilling from Meridian, as well as recent drilling performed by Vista was incorporated into the drilling database. Forty-one twin drillholes by Great Panther in 2015 has been used as confirmation of the accuracy of the location and grades of Tetra Tech's 2012 resource model. An unpublished 2015 resource model created by the mining consulting firm SRK Consulting (SRK) on behalf of Great Panther has been used as confirmation of the 2012 model prepare by Tetra Tech. Additional insight and explanation of the Project area was provided by Vista staff, as well as in previous work done by NCM and in reports done by Runge Pincock Minarco.

2.3 Personal Inspections

Tetra Tech personnel Rex Bryan, Geoff Elson, Luis Quirindongo, and Christopher Schauffele visited the project site on March 20th and 21st, 2012. During their visit, the team observed core logging and storage facilities, ongoing exploration drilling, and previously mined areas.

Neither Tetra Tech nor any of its employees and associates employed in the preparation of this report has any beneficial interest in Minera Alamos or in the assets of Minera Alamos. Tetra Tech will be paid a fee for this work in accordance with normal professional consulting practice.

The individuals who have provided input to this technical report have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

2.4 Effective Date

The report is effective as of February 8, 2013 and has been amended and reissued as of April 16, 2018.

3.0 RELIANCE ON OTHER EXPERTS

This report relies on information provided by Minera Alamos regarding legal matters for royalty information. The author was provided with a title opinion by the law firm Pizarro-Suarez & Rodriguez Matus that related to titles documentation, tax payments, and assessment works, presented March 6, 2018 to Minera Gold Stake S.A. de C.V. The opinion stated that all claims are in force and free of any liens and encumbrances. Tetra Tech relied on the title opinion to limit estimation of resources in Section 14.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Guadalupe de los Reyes Gold and Silver Project includes 13 identified main exploration target areas within the mining district. These target areas occur along four major structural zones and in other structural zones within a total area of about 6,000 hectares (14,830 acres). Several of these targets have bulk tonnage potential which may be amenable to open pit mining, including El Zapote, San Miguel, La Chiripa, Guadalupe Mine (Laija and West), Tahonitas, and Noche Buena. The El Zapote zone has received the most extensive modern exploration to date. The Guadalupe Mine, El Zapote, San Miguel, and Mariposa deposits have been previously partially mined by underground methods.

4.1 Location

The Project is located within the Guadalupe de los Reyes Mining District in the western foothills of the Sierra Madre Occidental mountain range, approximately 110 km by air (200 km by road) north of the coastal city of Mazatlán. The El Zapote and other deposits occur in the south-central part of the district, approximately 20 km by air (30 km by road) southeast of the town of Cosalá (16,292 inhabitants, INEGI 2015), in Sinaloa State. General geographic coordinates for the Guadalupe de los Reyes mining district are approximately: N-24° 16´ 42" and W-106° 30´ 15" (13R 0347019-E, 2685586-N) Elevation at the village of Guadalupe de los Reyes is 711 meters above sea level (PAH, 2005).

4.2 Concession Title

On August 1, 2003, Vista acquired a 100 percent interest in portions of the Guadalupe de los Reyes gold project owned by Sr. Enrique Gaitán Maumejean, along with a data package associated with the project. The final payment completing the purchase option was made in 2009.

By agreement dated January 24, 2008, with Grandcru Resources, and simultaneously with Goldcorp Inc. and the San Miguel Group, previous owners of mineral rights included in the mining claims list, Vista acquired the remaining mineral rights that cover the Guadalupe de los Reyes mining district, except for two small claims located within the area. This agreement consolidates Vista's ownership of the mineral rights within the Guadalupe district, including 37 contiguous concessions with a total coverage of about 6,302.09 hectares (15,572.78 acres).

Minera Gold Stake, S.A. de C.V is a wholly owned subsidiary of Vista Gold Corp. Most of the surface rights to the Project are held by Ejido Tasajera ("Ejido"). In November 2011, Vista concluded a two-year agreement for use of the surface with Ejido. A few individuals hold other surface rights. Vista has a good working relationship with people of Ejido, because many of the inhabitants are necessarily contracted when work is carried out during the exploration drilling. **Table 4-1** shows Vista's concessions.

Table 4-1: List of Mining Concessions Pertaining to the Guadalupe de los Reyes Project

	Lot	Title	Titleholder 1	Surface (Hectares)	Expiration Date	Location
1	Los Reyes Dos	214131	Minera Gold Stake, S.A. de C.V.	17.3662 Has.	August 9, 2051	Cosalá, Sinaloa
2	Los Reyes Tres	214302	Minera Gold Stake, S.A. de C.V.	197.0000 Has.	September 5, 2051	Tamazula, Durango
3	Los Reyes Cuatro	217757	Minera Gold Stake, S.A. de C.V.	11.1640 Has.	August 12, 2052	Cosalá, Sinaloa
4	Los Reyes Cinco	216632	Minera Gold Stake, S.A. de C.V.	319.9852 Has.	May 16, 2052	Cosalá, Sinaloa
5	Los Reyes Seis	225122	Minera Gold Stake, S.A. de C.V.	427.6609 Has.	July 21, 2055	Cosalá, Sinaloa
6	Los Reyes Siete	225123	Minera Gold Stake, S.A. de C.V.	4.8206 Has.	July 21, 2055	Cosalá, Sinaloa
7	Los Reyes 8	226037	Minera Gold Stake, S.A. de C.V.	9.0000 Has.	November 14, 2055	Cosalá, Sinaloa
8	Los Reyes Fracc. Oeste	210703	Minera Gold Stake, S.A. de C.V.	476.9373 Has.	November 17, 2049	Cosalá, Sinaloa
9	Los Reyes Fracc. Sur	212758	Minera Gold Stake, S.A. de C.V.	589.0985 Has.	October 7, 2049	Cosalá, Sinaloa
10	Los Reyes Fracc. Norte	212757	Minera Gold Stake, S.A. de C.V.	1,334.4710 Has.	October 7, 2049	Cosalá, Sinaloa
11	Norma	177858	Minera Gold Stake, S.A. de C.V.	150.0000 Has.	April 28, 2036	Cosalá, Sinaloa
12	Nueva Esperanza	184912	Minera Gold Stake, S.A. de C.V.	33.0000 Has.	December 5, 2039	Cosalá, Sinaloa
13	San Miguel	185761	Minera Gold Stake, S.A. de C.V.	11.7455 Has.	December 13, 2039	Cosalá, Sinaloa
14	San Manuel	188187	Minera Gold Stake, S.A. de C.V.	55.7681 Has.	November 21, 2040	Cosalá, Sinaloa
15	El Padre Santo	196148	Minera Gold Stake, S.A. de C.V.	50.0000 Has.	July 15, 2043	Cosalá, Sinaloa
16	El Faisán	211471	Minera Gold Stake, S.A. de C.V.	2.6113 Has.	May 30, 2050	Cosalá, Sinaloa
17	Santo Niño	211513	Minera Gold Stake, S.A. de C.V.	44.0549 Has.	May 30, 2050	Cosalá, Sinaloa
18	San Pablo	212752	Minera Gold Stake, S.A. de C.V.	11.1980 Has.	November 21, 2050	Cosalá, Sinaloa
19	San Pedro	212753	Minera Gold Stake, S.A. de C.V.	9.0000 Has.	November 21, 2050	Cosalá, Sinaloa
20	Patricia	212775	Minera Gold Stake, S.A. de C.V.	26.2182 Has.	January 30, 2051	Cosalá, Sinaloa
21	Martha I	213234	Minera Gold Stake, S.A. de C.V.	46.6801 Has.	April 9, 2051	Cosalá, Sinaloa
22	Elota	237661	Minera Gold Stake, S.A. de C.V.	947.6449 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
23	Elota Fracción 1	237662	Minera Gold Stake, S.A. de C.V.	905.5592 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango

	Lot	Title	Titleholder 1	Surface (Hectares)	Expiration Date	Location
24	Elota Fracción 2	237663	Minera Gold Stake, S.A. de C.V.	3.2803 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
25	Elota Fracción 3	237664	Minera Gold Stake, S.A. de C.V.	2.7052 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
26	Elota Fracción 4	237665	Minera Gold Stake, S.A. de C.V.	8.1142 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
27	Elota Fracción 5	237666	Minera Gold Stake, S.A. de C.V.	4.1698 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
28	Elota Fracción 6	237667	Minera Gold Stake, S.A. de C.V.	0.4779 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
29	Elota Fracción 7	237668	Minera Gold Stake, S.A. de C.V.	0.1535 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
30	Elota Fracción 8	237669	Minera Gold Stake, S.A. de C.V.	0.6546 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
31	Elota Fracción 9	237670	Minera Gold Stake, S.A. de C.V.	0.9503 Has.	April 19, 2061	Cosalá, Sinaloa Tamazula, Durango
32	Diez De Mayo	223401	Minera Gold Stake, S.A. de C.V.	0.1842 Has.	December 10, 2054	Cosalá, Sinaloa
33	Prolongacion Del Recuerdo	210497	Minera Gold Stake, S.A. de C.V.	91.4591	October 7, 2049	Cosalá, Sinaloa
34	P Prolongacion Del Recuerdo Dos	209397	Minera Gold Stake, S.A. de C.V.	26.6798	April 8, 2049	Cosalá, Sinaloa
35	Arcelia Isabel	193499	Minera Gold Stake, S.A. de C.V.	60.3723	December 18, 2041	Cosalá, Sinaloa
36	Dolores	180909	Minera Gold Stake, S.A. de C.V.	222.0385	August 5, 2037	Cosalá, Sinaloa
37	La Victoria	210803	Minera Gold Stake, S.A. de C.V.	199.8708	November 29,2049	Cosalá, Sinaloa

4.3 Environmental Liabilities

According to previous technical reports (PAH, 2009 2003 &1998), existing environmental liabilities are limited and include mine adits, roads and small waste rock piles, and one cyanidation vat near the town of Capule that was operated until the 1950s. Reportedly, no acid mine drainage from the existing adits and underground mine has been detected.

4.4 Permitting

Three major areas of environmental permitting will likely apply to the Project. These include permitting related to an environmental impact assessment, obtaining permission to utilize natural resources, and changing land use. Approval of these permits is pre-requisite for obtaining a construction permit which is the final permit that must be approved prior to commencement of mining activities.

The primary law legislating environmental protection in México is the Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA). This environmental law is administered by the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), which is a branch of the federal government. SEMARNAT is also responsible for issuing land-use change permits for projects such as Guadalupe de los Reyes that involve alteration of forested areas. SEMARNAT representatives in each state administer and address environmental impact issues since they are familiar with local issues and concerns.

The Procuraduría Federal de Protección al Ambiente (PROFEPA) is the agency responsible for enforcing SEMARNAT regulations. PROFEPA's main activities are to deal with complaints, conduct inspections, and in general verify compliance with all federal environmental laws and regulations. It imposes penalties for violations of environmental laws and regulations and monitors compliance with any preventive and mitigating measures issued by it. PROFEPA also conducts environmental audits.

Water use and infrastructure, water quality, and the right to discharge process water (collectively referred to as water rights) related to the Project would be handled by CONAGUA. Land use permits are handled by local agencies in charge of the zoning and registration of land ownership (PAH, 2009).

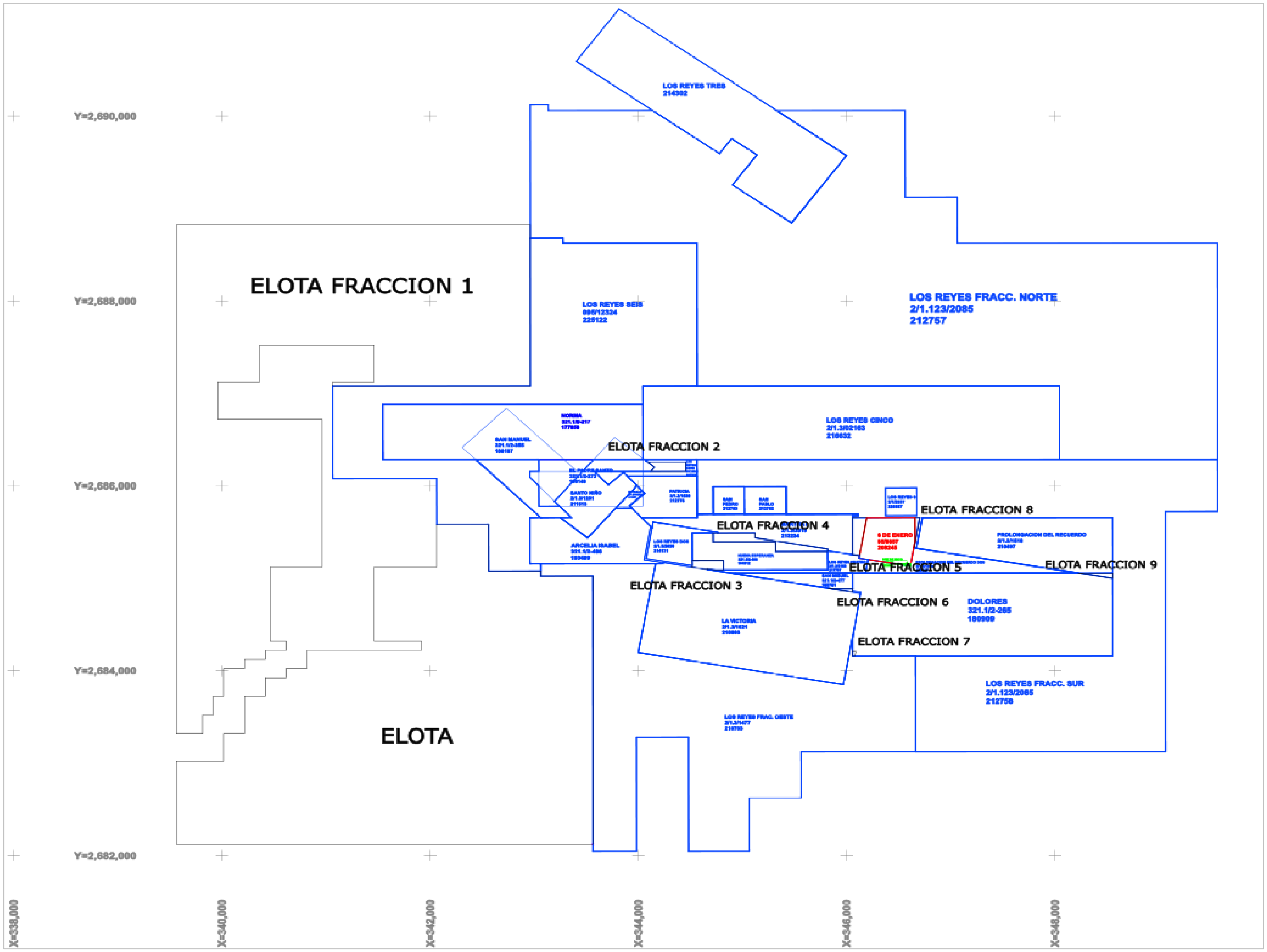

Figure 4-1: Guadalupe de los Reyes Land Status Map, 2012

5.0 ACCESSIBILITY, CLIMATE, ETC.

5.1 Access

Access to the Project area is by a dirt/gravel road from the town of Cosalá to Capule. The road is approximately 25 km long, has two concrete stream crossings, and passes several small villages before reaching the Project area. The access road will require upgrading which will include widening and surface maintenance. Dust suppression may be required during periods of heavy traffic.

From Capule, the road forks and heads northeast towards the village of Guadalupe de los Reyes and the Guadalupe deposits. The southeast fork is towards the El Zapote deposit and the process facility. Once production shifts from El Zapote to other deposits in the region, improvements to the road from Capule to Guadalupe de los Reyes would be required (PAH, 2005).

5.2 Climate and Length of Operating Season

The Project is situated in the western foothills of the Sierra Madre Occidental, a large mountain range that extends from the border of Arizona to the Sierra Madre del Sur. Topography in this region is steep with elevations ranging from 600 meters to 1,100 meters.

Summer temperatures in this region are mild, fluctuating between 15°C to 25°C, with little seasonal variation in temperature. Annual average rainfall can exceed 1,000 mm, most of which falls during the summer monsoon season. Large storm events during this season cause flooding along the river channels, which frequently inhibits road access to and from Cosalá (PAH, 2009).

5.3 Vegetation

Moderate to dense vegetation of bushes and shrubs covers the hill slopes within the Project area. Vegetation changes from tropical vegetation towards the lower elevations to that of evergreens and other types of trees at higher topography. Most of the people living in the villages of the area depend on small scale farming, raising livestock, and growing fruit (PAH, 2005).

5.4 Local Resources and Infrastructure

The city of Cosalá constitutes the commercial center for the population living in small villages and scattered settlements located on “ejidos” (land communities) around the Guadalupe de los Reyes mining district. Labor is available from these surrounding villages to Guadalupe de los Reyes, including Tasajera, El Saucito and Cosalá. Specialized labor would have to be brought into the Project’s area from the cities of Culiacán, Mazatlán, Durango, and other parts of the country.

The road from Cosalá through Guadalupe de los Reyes is the only regional access to the mountains to the southeast in this part of the country. Cosalá offers retail, banking, medical aide, education, hospitals, and communications to the rest of the country; however, the major facilities are located in the cities of Mazatlán, Culiacán, and Durango, including daily international flights (PAH 2005).

5.5 Physiography

The project is situated in the western foothills of the Sierra Madre Occidental, a large mountain range in the area. The Project area displays steep, rugged terrain, varying from 600 meters to 1,100 meters above sea level.

6.0 HISTORY

Vista's Guadalupe de los Reyes Gold and Silver Project is enclosed in and around the Guadalupe de los Reyes mining district, which was discovered, according to local history, on December 12, 1772, (virgin of Guadalupe's day), and claimed on January 6, 1773, (Wise men's day, "día de los Reyes Magos"); hence the current name of Guadalupe de los Reyes. Several areas were developed within the district throughout its production history, mainly the Guadalupe mine, El Zapote, San Miguel, Mariposa, La Chiripa, Tahonitas, Noche Buena, Candelaria, Tatemas, Las Primas, and Fresnillo, along three principal vein systems. These veins include the 2.5-km long East-West system of the Guadalupe mine, 4.0-km long NW-trending systems of San Miguel-Chiripa-Noche Buena, and Mariposa-Zapote-Tahonitas, and other secondary systems. Most recently, Luismin has investigated and identified other mineralized structures in the mountainous part of the district that include the El Orito, La Palmita, El Mirador, Las Casitas and El Apomal. Intermittent production of gold/silver ores from the different mines within the district was reported until the 1950s. Access to the district was on horseback until the early 1960s when the dirt road access from Cosalá was finally built.

Historical production for the Guadalupe de los Reyes district was estimated in February 1936 by Mr. C.W. Vaupell at approximately 600,000 ounces of gold and over 40 million ounces of silver (1.5 million tonnes of ore averaging 12 g Au/t and 900 g Ag/t). A more comprehensive report, based on National Registry records, by Minas de San Luis, S.A. de C.V. summarized the production.

Other areas within the district have produced additional amounts of precious metals in lower scale. Total reported production and grades for the district result in a more conservative amount of approximately 319,000 ounces of gold and 15.00 million ounces of silver, in addition to previous unknown production for the period from 1772 to 1871.

From the middle of the 1950s to the 1980s there was limited activity within the Guadalupe de los Reyes district that included exploration reconnaissance studies and mining promotions. In the mid-1980s, private investors initiated exploration activities with mapping, sampling, and underground development in the Mariposa mine. Approximately 1,000 tonnes of ore were extracted and shipped to the La Minita mill located by the highway to the city of Mazatlán, for flotation processing. Later, NCM took important steps to test the geologic potential with drilling and considerable investments in the early 1990s (PAH, 2005).

6.1 Ownership

The mineral concessions owned by Vista include 37 contiguous mining concessions, covering a total surface of approximately 6,302.09 hectares (15,572.78 acres) that are all located in the Municipality of Cosalá, within the State of Sinaloa, México.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

Section 7.0 has been brought forward by the technical reports titled Technical Report for the Guadalupe de los Reyes Gold and Silver Project, Sinaloa, México by PAH from August 12, 2009, and Technical Report Los Reyes, Gold and Silver Project, State of Sinaloa, Western México by PAH from April 11, 2005.

7.1 Geological Setting

The Project occurs in the Sierra Madre Occidental Province, a late Cretaceous to Tertiary age volcanic sequence that extends for hundreds of kilometers from the Neo-Volcanic Belt in central México to the Basin and Range Province in the northern part of the country. In the Project area, the volcanics rest unconformably or in fault contact with a basement of late Cretaceous age quartz monzonite intrusive (Batholith of the Coast) that intrudes older platformal sediments. The overlying volcanic sequence has been divided into two groups, the late Cretaceous to early Tertiary age Lower Sequence and the middle Tertiary (Oligocene-Miocene) age Upper Volcanic Sequence. The Lower Volcanic Sequence is up to 1,000 meters thick and consists of tuffs, flows, and volcanic breccias of andesitic to dacitic composition. Thick beds of sandstone and volcanic conglomerate occur intercalated in the sequence. The Upper Volcanic Sequence rests unconformably upon the lower sequence. The Upper Volcanic Sequence consists of gently dipping, ash-flow and ash-fall tuffs of rhyolitic to dacitic composition. The unit is more than 1,000 meters thick in higher elevations, but it has been largely removed by extensive erosion in lower areas towards the foothills, from the village of Guadalupe to the south.

Figure 7-1 shows the Los Reyes geologic setting and identified mineral deposits.

A period of tectonism, intrusion, and mineralization occurred between the deposition of the early Tertiary Upper Volcanic Sequence and middle Tertiary Lower Volcanic Sequence, as evidenced by the variable angular unconformity between the two units. Uplift and faulting of the region was accompanied by the intrusion of felsic to mafic composition dikes, along with the local emplacement of intrusive stocks. Structural zones formed from faulting of the Lower Volcanic Sequence were locally mineralized with quartz veins containing gold and silver. Some mineralization was emplaced at the geologic contact between the Batholith of the Coast and overlying volcanics.

In the Project area, gold and silver mineralization has been found along a series of northwesterly and west-northwesterly structural zones. Mineralization in these zones is typical of low sulfidation epithermal systems. The main target areas that have been identified by Luismin, NCM, and other explorers, and from old mining workings along the major structural zones within the Guadalupe mining district, are the following: El Zapote, Tahonitas, Noche Buena, San Miguel, La Chiripa, Mariposa, Las Primas, Guadalupe Laija, Guadalupe West, El Orito, El Mirador/Las Casitas, La Palmita, and El Apomal.

Several of these targets have bulk tonnage potential which may be amenable to open pit mining, including the El Zapote, San Miguel, Guadalupe Mine, Tahonitas, Noche Buena, and El Orito zones.

The concessions include deposits at the El Zapote, Tahonitas, San Miguel/La Chiripa, Guadalupe West, and El Orito zones, and the outcropping mineralized structures at El Mirador/Las Casitas, La Palmita, and El Apomal.

The El Zapote zone occurs in the Mariposa-El Zapote-Tahonitas structural zone on the western side of the project area and has been mapped for a distance of 3 km. The El Zapote deposit is one of three deposits found along this structural zone, with the inactive underground Mariposa Mine 1 kilometer to the northwest and the Tahonitas prospect 0.5 km to the southeast. The Guadalupe zone occurs as the northwest extension of the mineralized structures that were developed by underground mining along approximately 1,000 meters of the veins and to 400 meters depth. The Guadalupe zone is found in the northeast portion of the area and has produced the majority of precious metals within the district. The San Miguel and Noche Buena zones are enclosed by the same northwestern trending structure in between the El Zapote-Mariposa and the Guadalupe structures.

7.2 Project Geology

The Guadalupe area is enclosed by an east-southeast trending mineralized structure that extends over 2.5 km and is up to 100 meters in width. It is composed of two main veins, Guadalupe and San Manuel, with stockwork and numerous quartz veinlets in between. The Guadalupe Mine zone presents a southwest steep dip and was developed by underground methods to a depth of about 400 meters (10-13 production levels) and along a strike length of approximately 1000 meters. Historic recorded production for the mine was estimated at 875,000 tonnes, comprising over 70 percent of the district's recorded gold production, in addition to some unrecorded earlier production.

The Guadalupe mineralized structure is enclosed by volcanic rocks of the Lower Volcanic Sequence, which dip gently eastward and consist of andesitic flows and tuffs. This area was divided into three sections for exploration purposes, Guadalupe West, Laija and East. It was drilled with 78 RC holes totaling 10,547 meters.

Vista's concessions cover the western extension, approximately 250 meters, of the Guadalupe West portion of the Guadalupe vein.

7.3 El Zapote Deposit Geology

The El Zapote deposit occurs along a regional structural zone that dips approximately 50º to the southwest and offsets eastward-dipping rocks of the Lower Volcanic Sequence. The structural zone consists of sheared and brecciated volcanic rocks that have been intruded by felsic dikes and then mineralized by hydrothermal solutions. The deposit mineralization extends for approximately 1 km in a northwest-southeast direction along the structure.

The El Zapote deposit has been intercepted by drilling to approximately 200 meters down dip. Drilling has found that the deposit thickness ranges from a few meters to several tens of meters. The deposit occurs in two zones, the North (northwest) zone and the South (southeast) zone, separated by an area of limited mineralization.

The more intensely mineralized part of the El Zapote structural zone typically occurs towards the base of the zone and consists of several meters of quartz veining along with intensely silicified breccia. Alteration and mineralization into the footwall volcanics of the structural zone is limited to a few meters at most and typically consists of weak silicification and/or propylitic alteration. Alteration and mineralization into the hanging wall volcanics extends over many meters to tens of meters and is gradational vertically into the unaltered host volcanic sequence. The hanging wall zone consists of variable quartz veining, silicification and brecciation, along with moderate argillization.

El Zapote deposit gold and silver mineralization is associated with strong silicification. Silicified zones consist of quartz (+ calcite, adularia) veins and veinlets, along with tectonic breccia unfilled by chalcedonic silica. Gold and silver are typically present as microscopic (tens of microns) sized particles of native gold, electrum, and minor argentite. Locally, higher-grade fire assays with erratic results suggest the minor presence of coarser gold, causing a larger nugget effect (e.g., ZA-068 at 47.24 meters, ZA-069 also at 47.24 meters, and ZA-102 at 35.05 meters). Minor pyrite is rare, originally averaging less than 0.5 percent of the vein volume. Surface oxidation has variably transformed the original pyrite into iron oxides to depths of tens of meters below the surface. As the gold largely occurs as microscopic-sized, free to quartz-encapsulated particles, the oxidation of the pyrite does not appear to be a major factor in metallurgical gold liberation and recovery, although some downward decrease in recovery was observed in bottle roll tests and should be further investigated. The silver to gold ratio in the deposit is approximately 15:1, based on total silver to total gold (fire assay). This zone was explored with 197 reverse circulation holes (15,728 meters). **Figure 7-2** shows typical cross-section of the El Zapote North deposit, looking northwest, **Figure 7-3** shows a typical cross-section or the El Zapote South section.

7.4 Guadalupe (including Laija and West Areas) Deposit

The Guadalupe area is enclosed by an east-southeast trending mineralized structure that extends over 2.5 km by up to 100 meters in width. It is composed of two main veins, Guadalupe and San Manuel, with stockwork and numerous quartz veinlets in between. The Guadalupe Mine zone presents a southwest steep dip and was developed by underground methods to a depth of some 400 meters, 10-13 production levels, along a strike length of approximately 1,000 meters. Historic recorded production for the mine was estimated at 874,658 tonnes, comprising over 70 percent of the district's recorded gold production, in addition to some unrecorded earlier production.

The Guadalupe mineralized structure is enclosed by volcanic rocks of the Lower Volcanic Sequence, which dip gently eastward and consists of andesitic flows and tuffs. This area was divided into three sections for exploration purposes, Guadalupe West, Laija and East. It was drilled with 78 RC holes totaling 10,547 meters. **Figure 7-4** shows a cross-section of the Guadalupe zone looking northwest.

7.5 Chiripa – San Miguel – Noche Buena Deposits

The San Miguel deposit is enclosed by the Chiripa-San Miguel-Noche Buena mineralized structure. It consists of a northwest trending fault system dipping 50-60º to the southwest. It has been traced for a distance of 1.4 km and tested with some stopes, trenches and adits. NCM carried out an RC drilling program that included 33 holes and a total of 3,674.35 meters in the San Miguel-Chiripa zone, in addition to the 37 holes with 4,070.81 meters drilled in the Noche Buena zone. **Figure 7-5** shows a typical cross-section of the Noche Buena deposit looking northwest.

The Chiripa-San Miguel structure is enclosed by andesitic rocks of the Lower Volcanic Sequence, which appear to be intruded by an argillic altered, feldspar-horblende-biotite porphyry dike. Mineralization is associated with the brecciated zones along the structure and in proximity to the dike, with apparent concentration at the footwall. **Figure 7-6** shows a typical cross-section of the San Miguel deposit.

The Noche Buena deposit constitutes the southern extension of the San Miguel zone, and is part of the same mineralized structure.

7.6 El Orito Zone

This is located about 4 km to the north of the Guadalupe mine. It consists of an extended, moderate to strong, argillic alteration zone. It has been explored by surface workings along an apparent structure that shows strong oxidation, quartz veining, and kaolinization. The geologic structure crops out within volcanic rocks of the Upper Series, with orientation to the NW 40-45º SE. The alteration appears to indicate a structure with a length of about 3,000 meters.

NCM developed a drilling program with either RC drill holes to test the geologic extensions of the El Orito structure to a depth of approximately 200 meters. It shows interceptions with low grade values of gold and silver, with an occasional significant assay of up to three g Au/t.

7.7 Mineralization

In the Project area, gold and silver mineralization have been found along a series of northwesterly and west-northwesterly structural zones. Mineralization in this area is typical of low sulfidation epithermal systems consisting of quartz-adularia veins and stockwork zones. The gold and silver minerals are associated with the quartz. It appears that two stages of silicification occur within the area; the first stage brought commonly banded quartz, typically of a pale yellow-green color, while the second consisted of white crystalline quartz. It appears that the gold and silver minerals are most commonly associated with the first stage yellow-green chalcedonic quartz. Mineralization in the Project occurs in an area that covers approximately 5.0 by 2.0 km (1,000 hectares); however, the mineralized structures and anomalies have been extended by geologic interpretations to an area of over 7,467 hectares (18,450 acres).

In thin section studies of the host rocks, andesite to felsite are variably altered showing plagioclase converted to potassic feldspar. In many instances the host rock is completely replaced by fine-grained quartz or sericite with relatively abundant adularia. Gold occurs as grains that generally range from 5 to 30 microns, but have been occasionally observed up to 230 microns (0.23 mm) in diameter. Free gold and silver minerals are observed associated with quartz veins and in patches of sericite. Fine grains of pyrite occur typically oxidized to limonite or hematite, which in volume are estimated at less than 0.5 percent.

Alteration consists predominantly of silicification and sericitization. Silicified volcanic rocks typically show partial to complete replacement of the original components by fine-grained quartz. Typical silicification of the enclosing rocks grades from complete replacement by quartz to partial silicification. From the footwall of the structures towards the hanging wall the silicification grades into stockworks. Incipient propylitic alteration appears associated to areas of less dense quartz veining with presence of chlorite and pyrite.

Weathering and oxidation of the low volume of sulphide minerals within the deposits have caused no known problems of contamination in runoff waters from the mining zones.

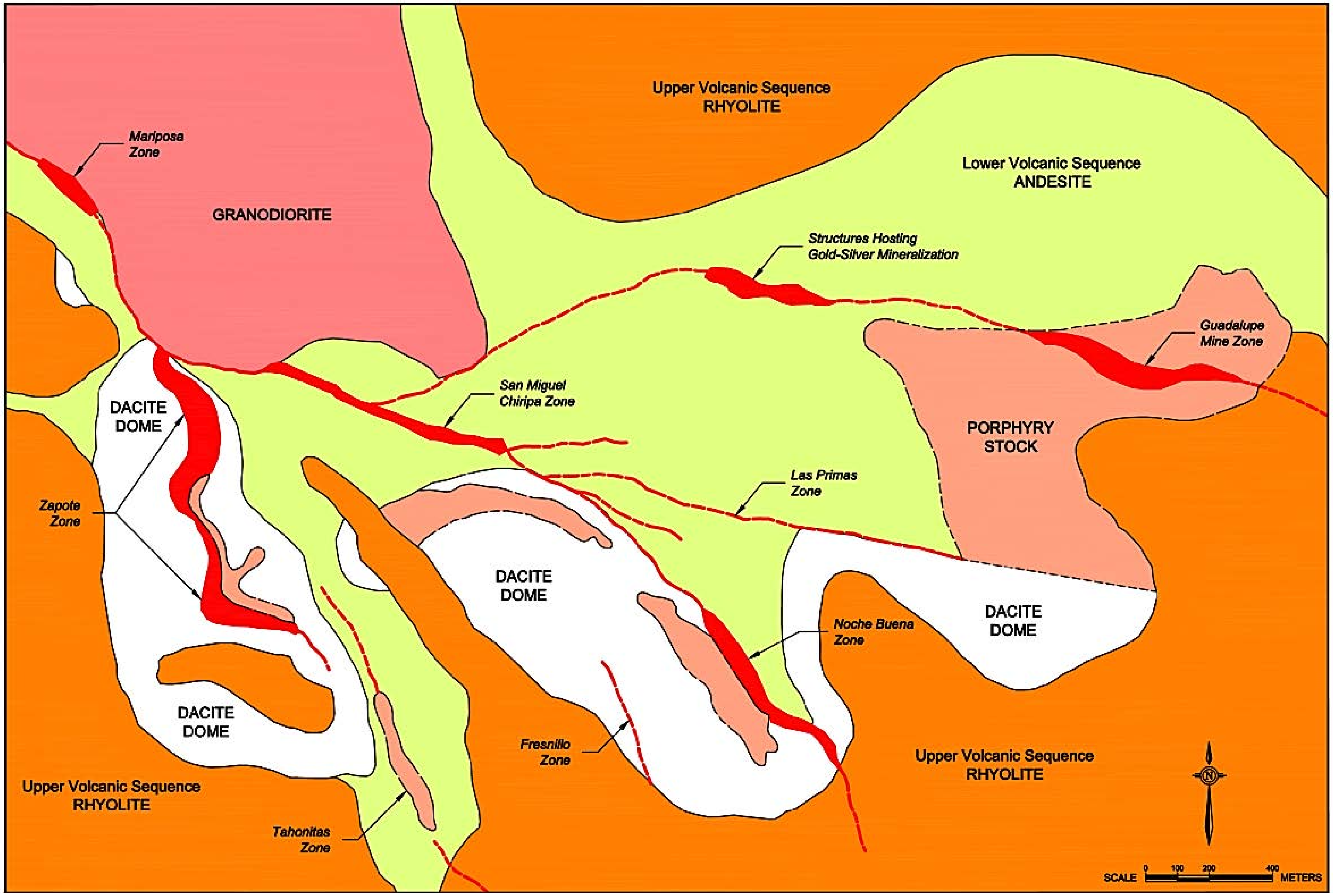

Figure 7-1: Guadalupe de los Reyes Geologic Setting (PAH, 2009)

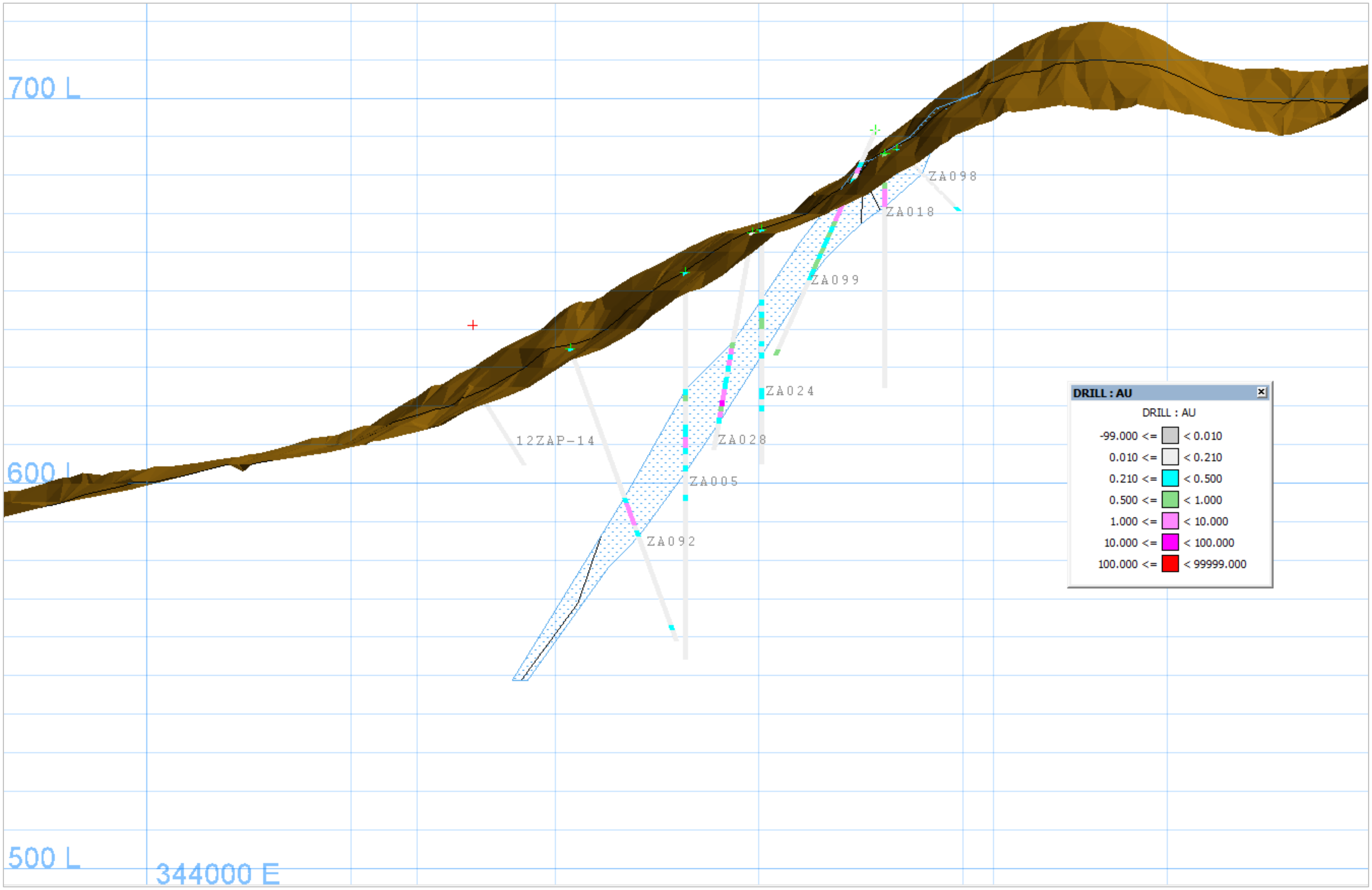

Figure 7-2: El Zapote North Cross-Section Looking Northwest

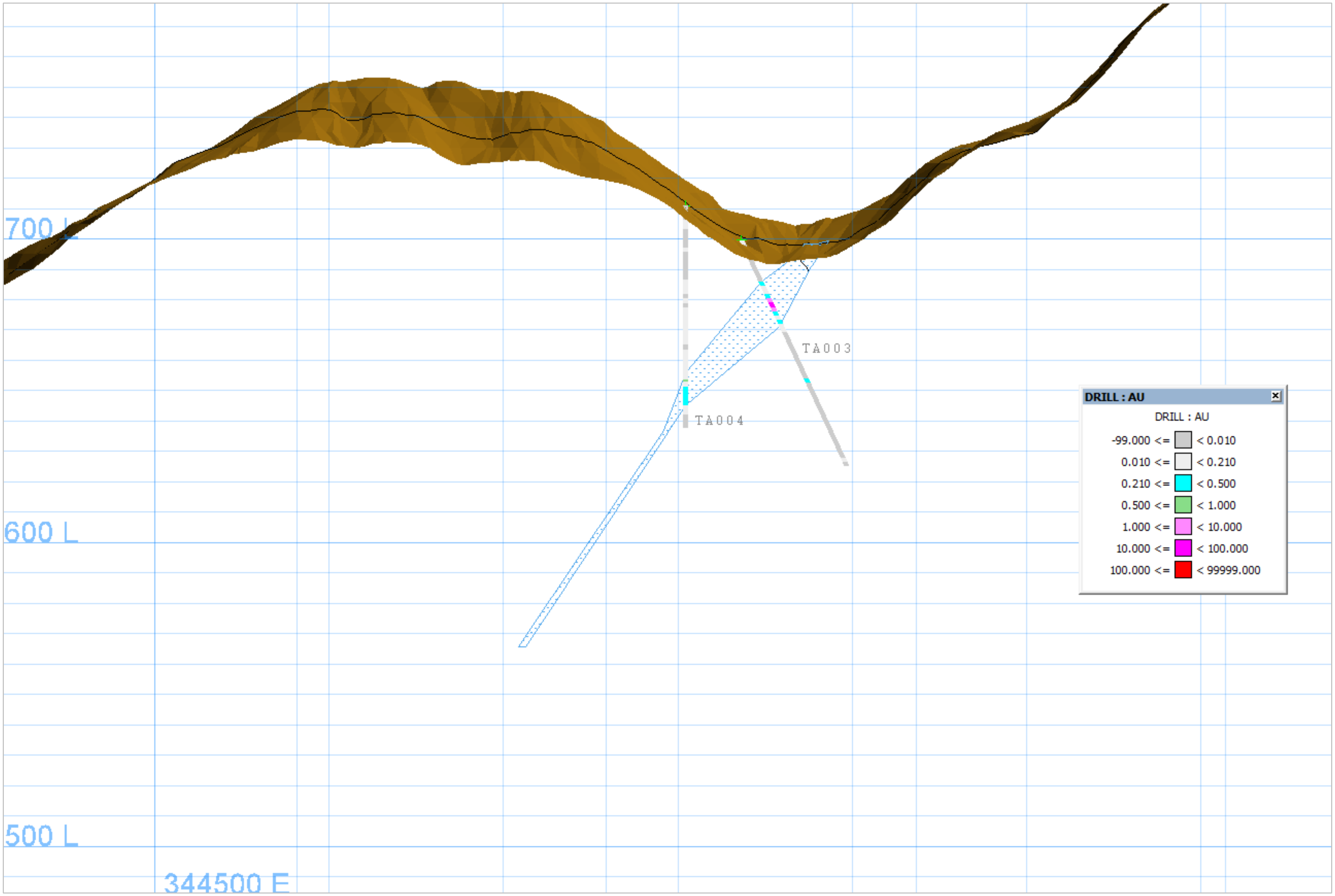

Figure 7-3: El Zapote South Cross-Section Looking Northwest

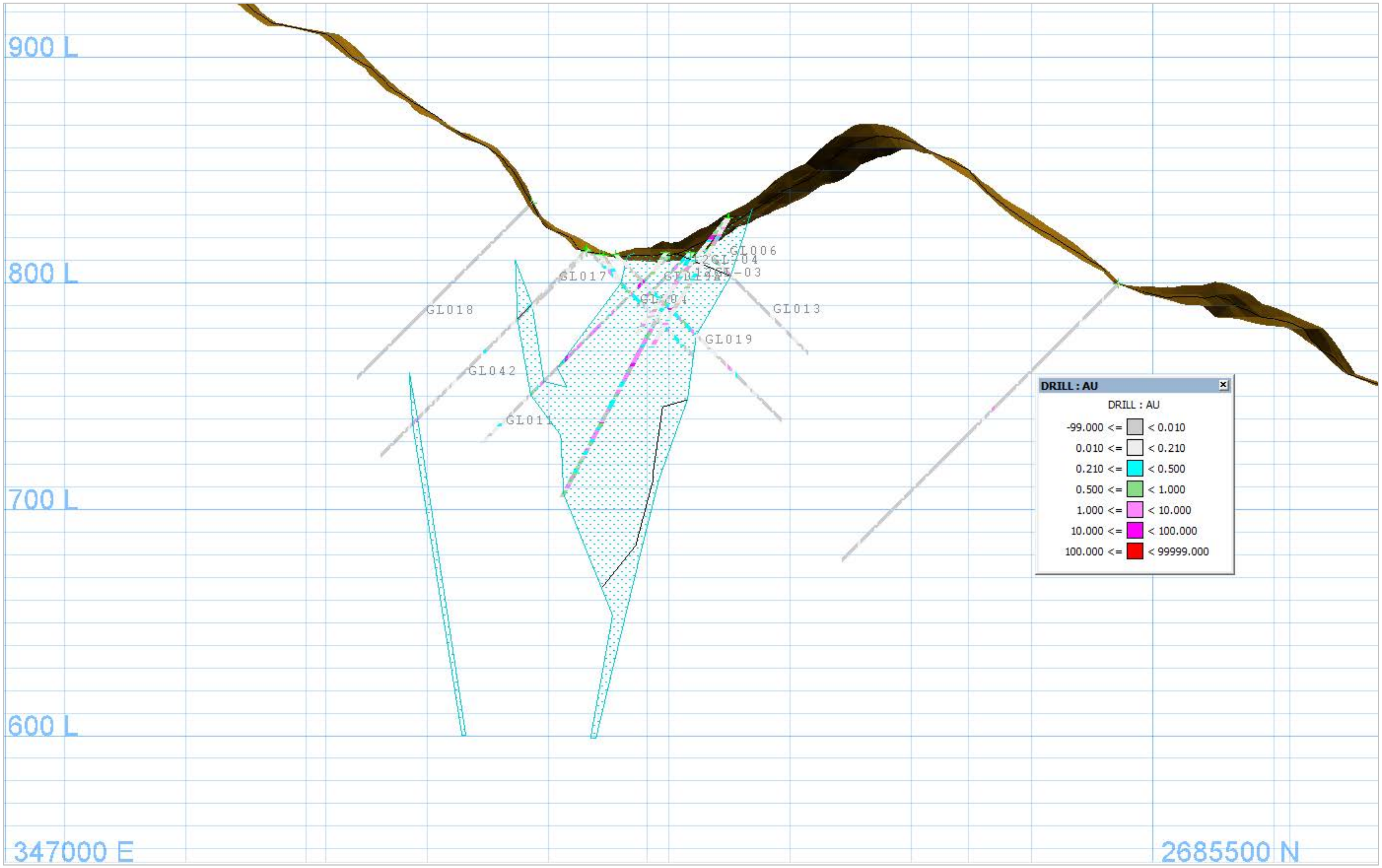

Figure 7-4: Guadalupe Cross-Section Looking Northwest

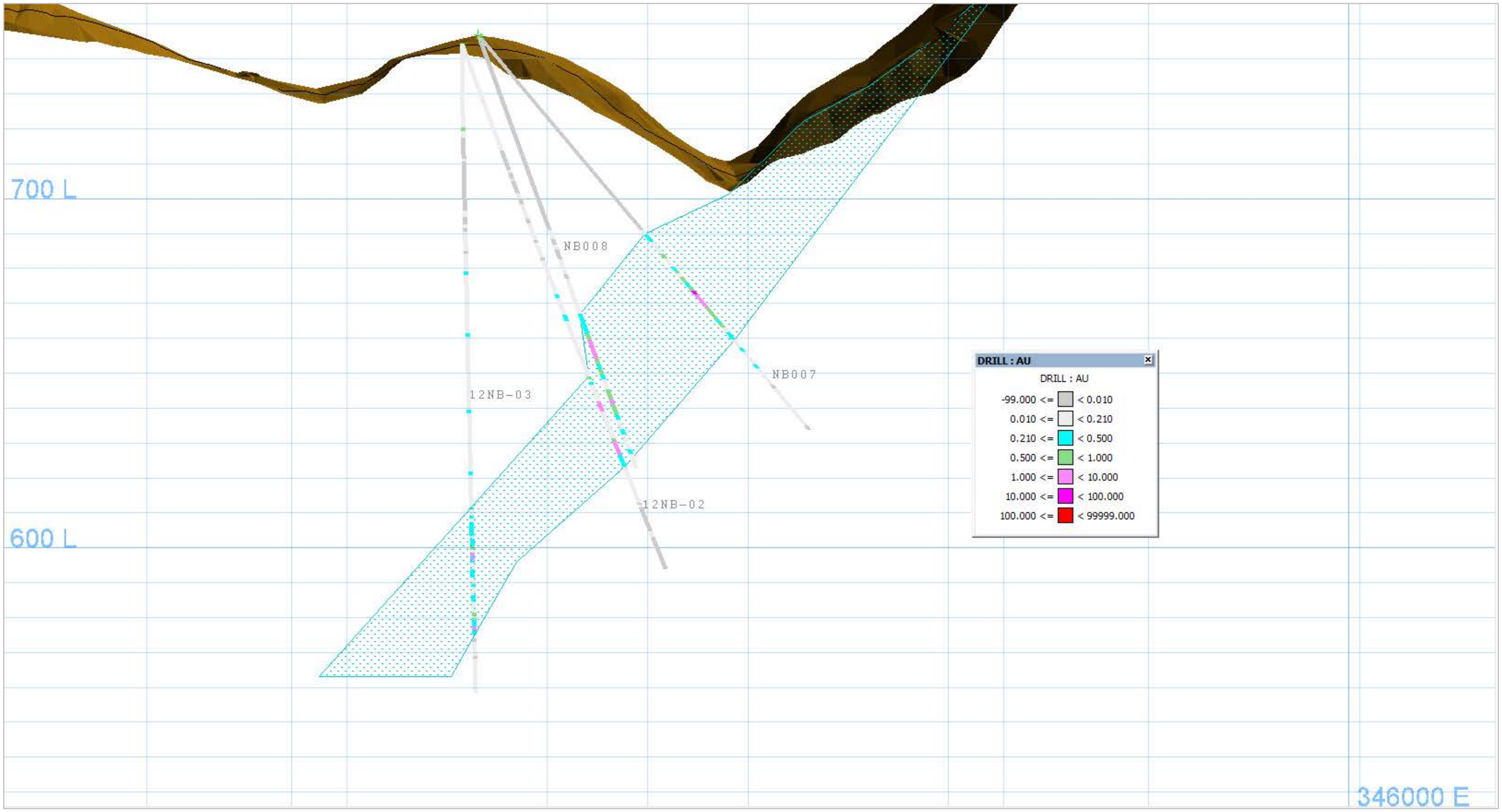

Figure 7-5: Noche Buena Cross-Section Looking Northwest

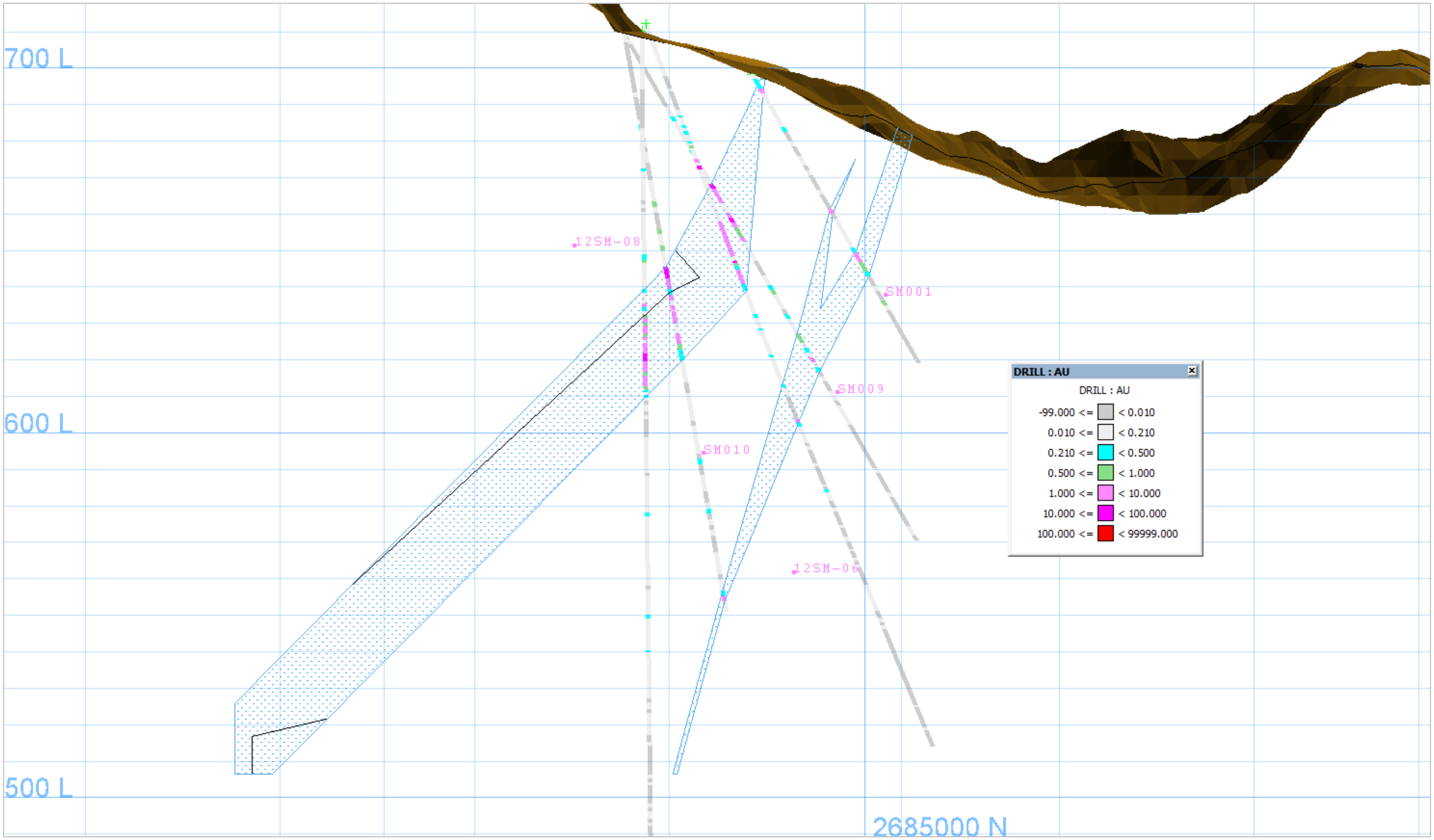

Figure 7-6: San Miguel Cross-Section Looking Northwest

8.0 DEPOSIT TYPES

Mineralization in the Project area is typical of low sulfidation epithermal gold/silver systems. Thirteen main mineralized zones have been identified by Luismin, NCM, Vista, Meridian and other operators along seven major structural zones. Several of these deposits have bulk tonnage potential which may be amenable to open pit mining, including the El Zapote, San Miguel, Guadalupe Mine, Tahonitas, Noche Buena, and El Orito zones. Luismin has identified other exploration target areas in the concession's coverage nearby the El Orito zone, such as El Mirador-Las Casitas, La Palmita and El Apomal within unexplored terrain.

Epithermal deposits of low sulfidation type such as those found in the Guadalupe de los Reyes district area generally formed within predominately felsic subaerial volcanic complexes in extensional and strike-slip structural regimes. Near-surface hydrothermal systems including surface hot springs and deeper hydrothermal fluid-flow zones are the sites of mineralization. Mineral deposition takes place as the fluids undergo cooling by fluid mixing, boiling and decompression (PAH, 2005).

An illustration of a typical epithermal system is shown in **Figure 8-1**.

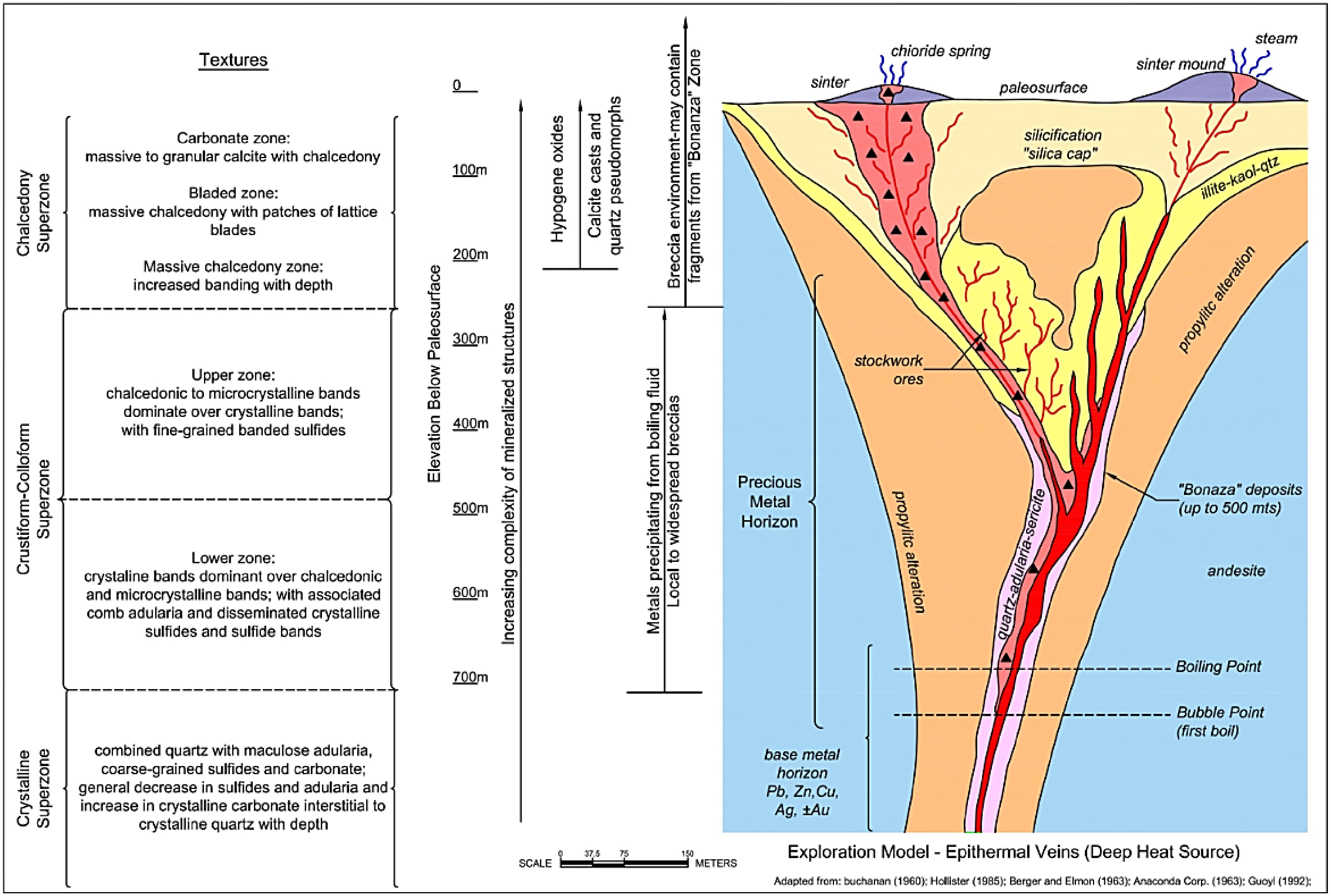

Figure 8-1: Epithermal Model Mineral Deposits (Guoyl, 1992)

9.0 EXPLORATION

9.1 Historic Exploration

Gold and silver production in Guadalupe de los Reyes began in 1772, when the Guadalupe vein was discovered. Intermittent production for a period of 150 years, to the 1950s, has resulted in a reported accumulated extraction of approximately 1.1 million tonnes with an average grade of 9.20 g Au/t and 430 g Ag/t from the various deposits located within the mining district. Most of this production was exported to Germany as doré bars.

Private investors leased some of the concessions from a group of claimholders from the city of Culiacán and carried out exploration and development operations in the Mariposa mine, resulting in extraction of approximately 1,000 tonnes of gold ore with an average grade of 5.2 g Au\t. Between October 1988, and February 1989, Enrique Gaitán and Associates mined 31.5 thousand tonnes with a reported grade of 5.8 g Au/t from an open cut in the El Zapote South area and recovered, according to Mr. Gaitán, approximately 93 kilograms of gold from a small cyanide vat leach facility. Minera Sierra Pacífico, a wholly-owned subsidiary of NCM, began conducting exploration activities in the El Zapote area in 1992, when modern methods of exploration were first applied in the Project with a program that included geochemical soil and rock chip sampling, geophysical studies including very low frequency electromagnetic and magnetic surveys, drilling, sample and assay checks, partial underground development, and computer modeling to estimate mineral resources. Preliminary metallurgical testwork was carried out on bulk samples and drill chips from the El Zapote deposit. Environmental permits for exploration were obtained by NCM and Meridian.

NCM, under an option to purchase the mining claims that covered the entire Guadalupe de los Reyes District, developed a full program of exploration, part of which was reported in a Prefeasibility Report prepared by the consulting firm of PAH. The exploration program included drilling five zones within the Guadalupe district.

In December 2001, Meridian optioned the project from NCM and carried out a Due Diligence investigation including sample checks and drilling of 23 additional confirmatory holes in four areas.

Historic holes total 372, including 201 In El Zapote, 33 in Tahonitas, 25 in Noche Buena, 79 in the Guadalupe areas combined, and 34 in the San Miguel area. These holes total 34,861 meters in drilling length.

Meridian subsequently dropped the option with NCM in 2002. In December 2002, NCM returned all mineral rights for the Project to the original concessionaires, including Mr. Enrique Gaitán, Minas de San Luis, Minera Mariposa, and a group of concessionaires from the city of Culiacán.

Luismin has carried out prospecting studies within the concessions that cover the northern portion of the district, including the El Orito zone, including surface and geochemical sampling along known mineralized structures. These mineralized zones have been discovered by prospectors developing small pits and surface workings along fault and altered zones.

In January 2003, Vista entered an agreement to acquire 100 percent of the mineral rights held by Mr. Gaitán, which covered a total of 596.9780 hectares (1,475.1326 acres) within the Guadalupe de los Reyes mining district area. These concessions enclose most of the main identified exploration targets within the Guadalupe de los Reyes district area, including portions of the El Zapote deposit gold resources, all of the

Guadalupe-Laija deposit, portions of the Guadalupe-West deposit, portions of the Chiripa-San Miguel deposits, all of the Noche Buena deposit, and 99 percent of the Tahonitas deposit.

In 2004, Grandcru entered into agreements with Luismin and Grupo San Miguel to acquire concessions that cover approximately 62 percent of the Guadalupe mining district. The two agreements include 20 concessions with an aggregated surface of 4,598 hectares (11,363 acres) in part of the main mining district and surrounding area.

By agreement dated January 24, 2008 with Grandcru Resources, and simultaneously with Goldcorp Inc. and the San Miguel Group, previous owners of mineral rights included in the mining claims list, Vista acquired the mineral rights that cover the Guadalupe mining district, except for two small claims located within the area. This agreement consolidated Vista's ownership of the mineral rights within the Guadalupe district to include 37 contiguous concessions with a total coverage of about 6,302.09 hectares (15,572.78 acres).

9.2 Recent Exploration

During 2011 and 2012, Vista has continued drilling in the project area. This includes 48 core holes spread throughout the exploration area including:

- El Zapote deposit, 15 holes, 1,685 meters
- Guadalupe deposit, 18 holes, 2,952 meters
- San Miguel deposit, 11 holes, 1,854 meters
- Noche Buena deposit, 4 holes, 729 meters

During 2015, Great Panther Silver drilled 41 confirmatory holes throughout the area. These drillholes have not been used to update Tetra Tech's resource model. The confirmatory drillhole counts are:

- El Zapote deposit, 11 holes, 1,157 meters
- Guadalupe deposit, 9 holes, 1,493 meters
- San Miguel deposit, 17 holes, 2,313 meters
- Noche Buena deposit, 4 holes, 54 meters

10.0 DRILLING

As of 2015, 466 drill holes have been drilled in the El Zapote, Tahonitas, Noche Buena, Guadalupe, and San Miguel deposits.

Exploration of the Project by NCM, Meridian, Luismin, and other operators has included RC drilling of 372 holes, for a total of 34,861 meters. A summary of historic and Vista's drilling is displayed in **Table 10-1**.The Guadalupe mine (Laija and West) included 79 drill holes with a total of 10,548 meters; the San Miguel deposit was drilled with 34 holes (3,674 meters); the Noche Buena deposit was explored with 25 drill holes (2,592 meters); the Tahonitas deposit included 33 holes with a total of 2,258 meters drilled. Meridian drilled 23 RC holes with a total of 2,732 meters in several of the deposits.

During 2011 and 2012, Vista drilled 53 core holes throughout the Project area, for a total of 8,261 meters. This includes 20 holes in the El Zapote area, 4 holes in the Noche Buena area, 18 holes in the Guadalupe areas, and 11 holes in the San Miguel area. The core holes are generally drilled at an HQ size. Drillhole locations at El Zapote are placed on section lines spaced approximately 25 meters apart, with hole spacing along the lines averaging approximately 30 meters. Drilling of other deposits within the project was developed on section lines spaced between 50 to 100 meters apart, depending on area. Drilling along section lines can be a challenge due to the steep topography in the area.

In 2015, Great Panther drilled 41 confirmatory holes for a total of 5,505 meters. This includes 11 holes in the El Zapote area, four holes in the Noche Buena area, 9 holes in the Guadalupe areas, and 17 holes in the San Miguel area.

Table 10-1: Summary of Historic and Vista Drilling

Area	Number of holes (Historic)	Meters (Historic)	Number of holes (Vista)	Meters (Vista)	Number of holes (Great Panther)	Meters (Great Panther)
Zapote (Z)	201	15,789	20	2,726	11	1,157
Tahonitas	33	2,258				
Noche Buena NB)	25	2,592	4	729	4	542
Guadalupe (GC, GW, GFW)	79	10,548	18	2,952	9	1,493
San Miguel (SM, SMN)	34	3,674	11	1,854	17	2,313
Total	**372**	**34,861**	**53**	**8,261**	**41**	**5,505**

10.1 2015 Great Panther Drilling used as Confirmatory Holes

Infill drilling conducted by Great Panther in 2015 was used by Tetra Tech to verify the existing drillhole database through 2012. **Figure 10-1** to **Figure 10-7** illustrate the method of confirming the 2012 resource model.

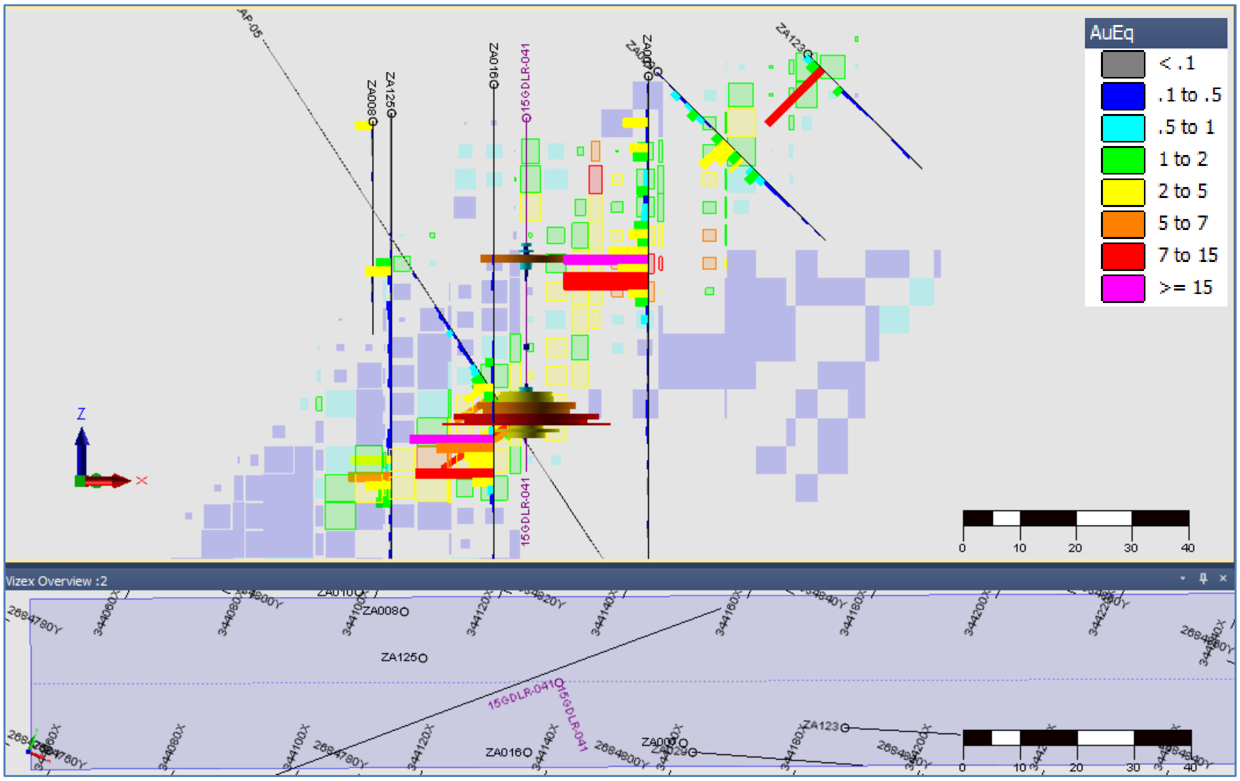

Figure 10-1: Great Panther Drill Hole 15GDLR-041 El Zapote

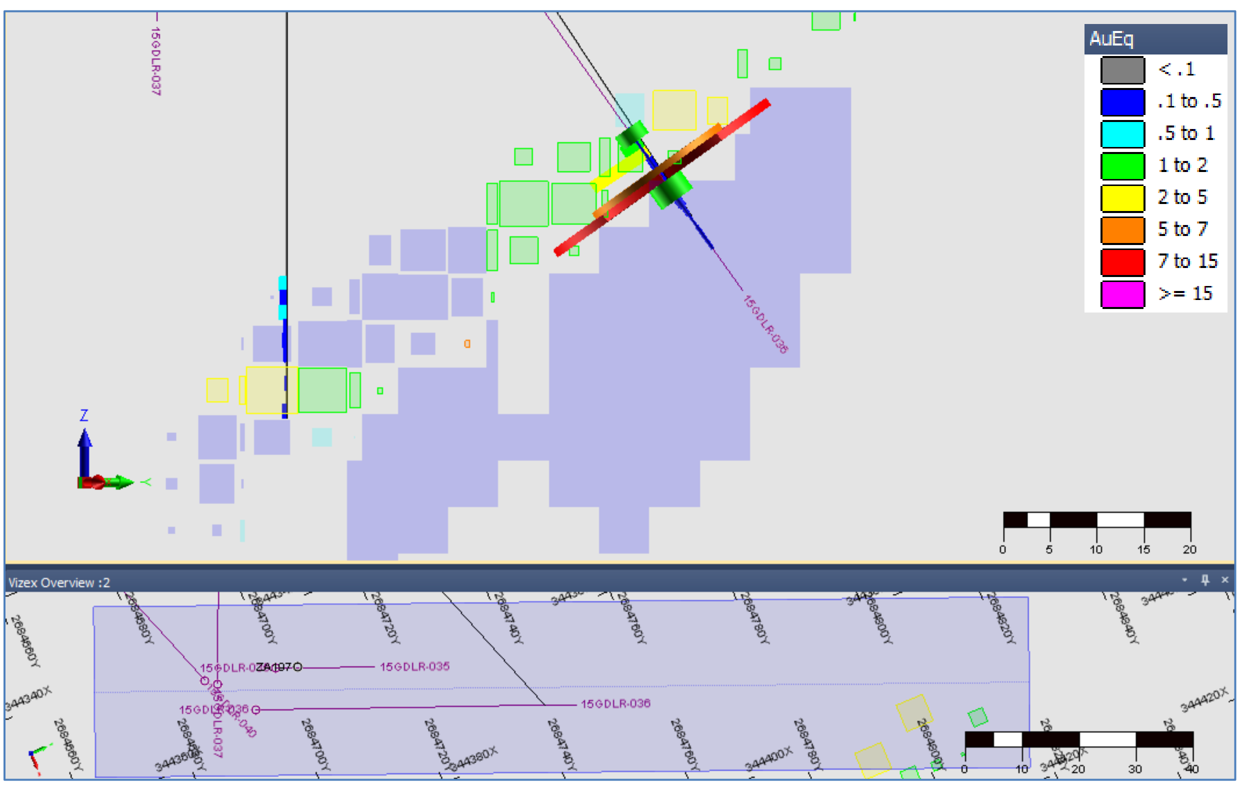

Figure 10-2: Great Panther Drill Hole 15GDLR-036 El Zapote

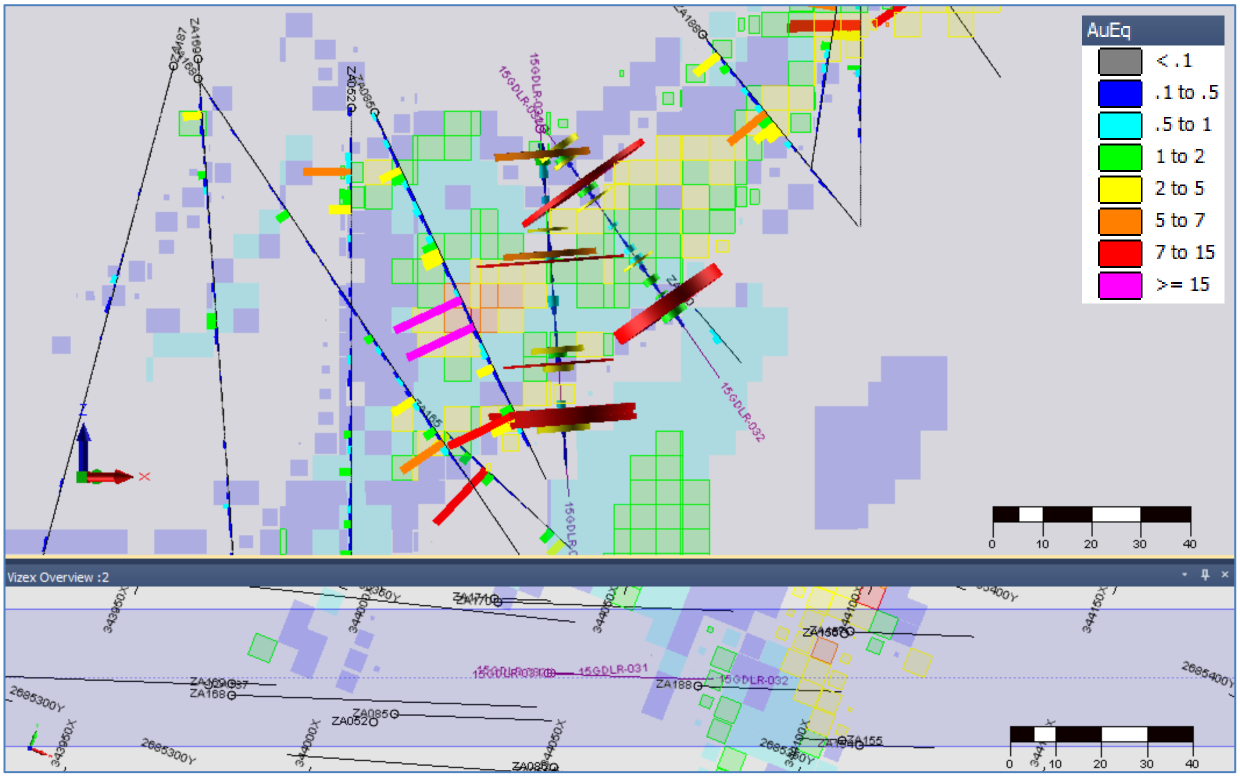

Figure 10-3: Great Panther Drill Hole 15GDLR-032 and 15GDLR-031 El Zapote

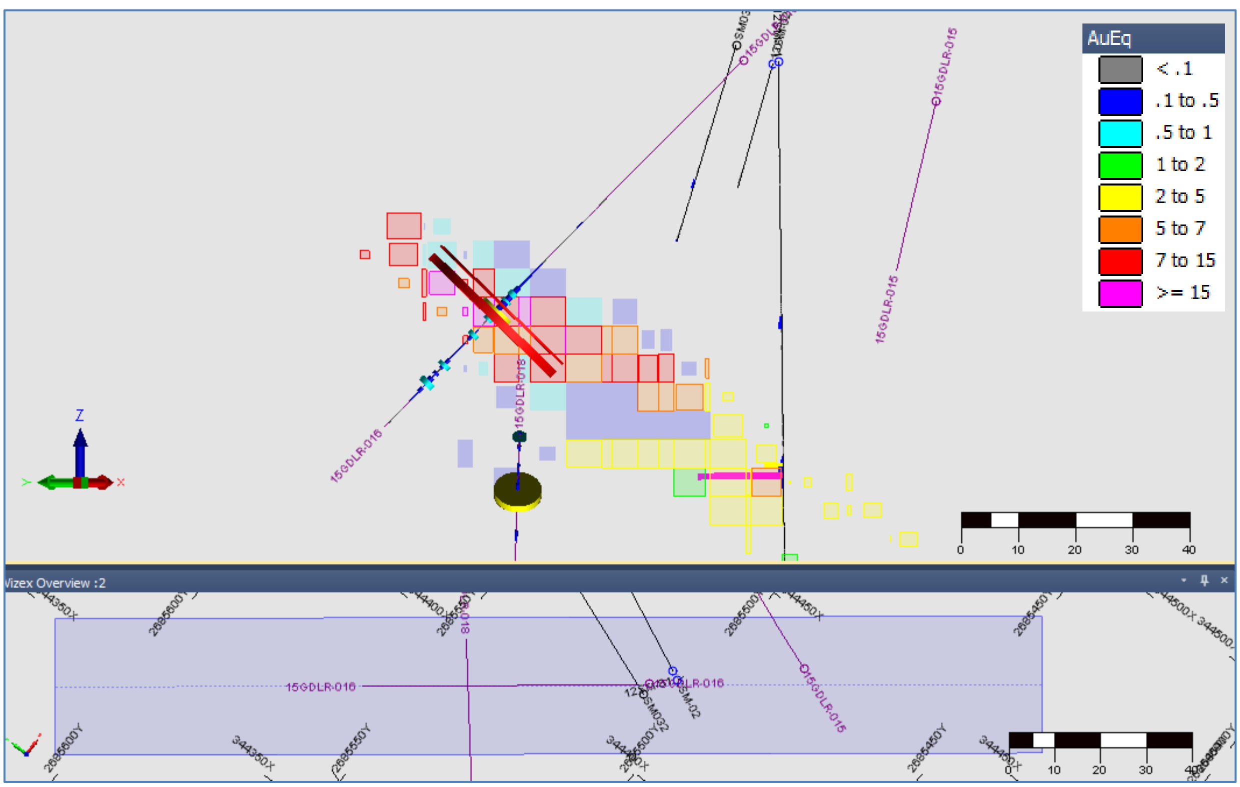

Figure 10-4: Great Panther Drill Hole 15GDLR-032 and 15GDLR-031 San Miguel

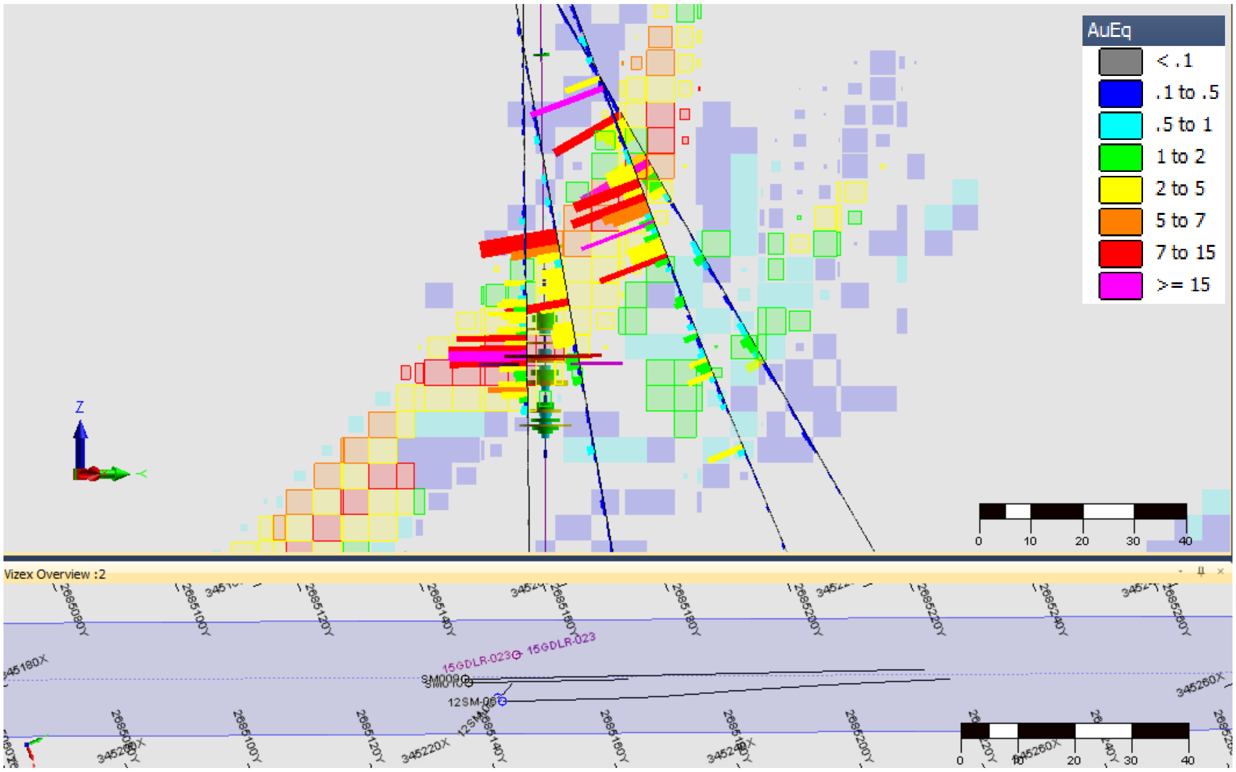

Figure 10-5: Great Panther Drill Hole 15GDLR-023 San Miguel

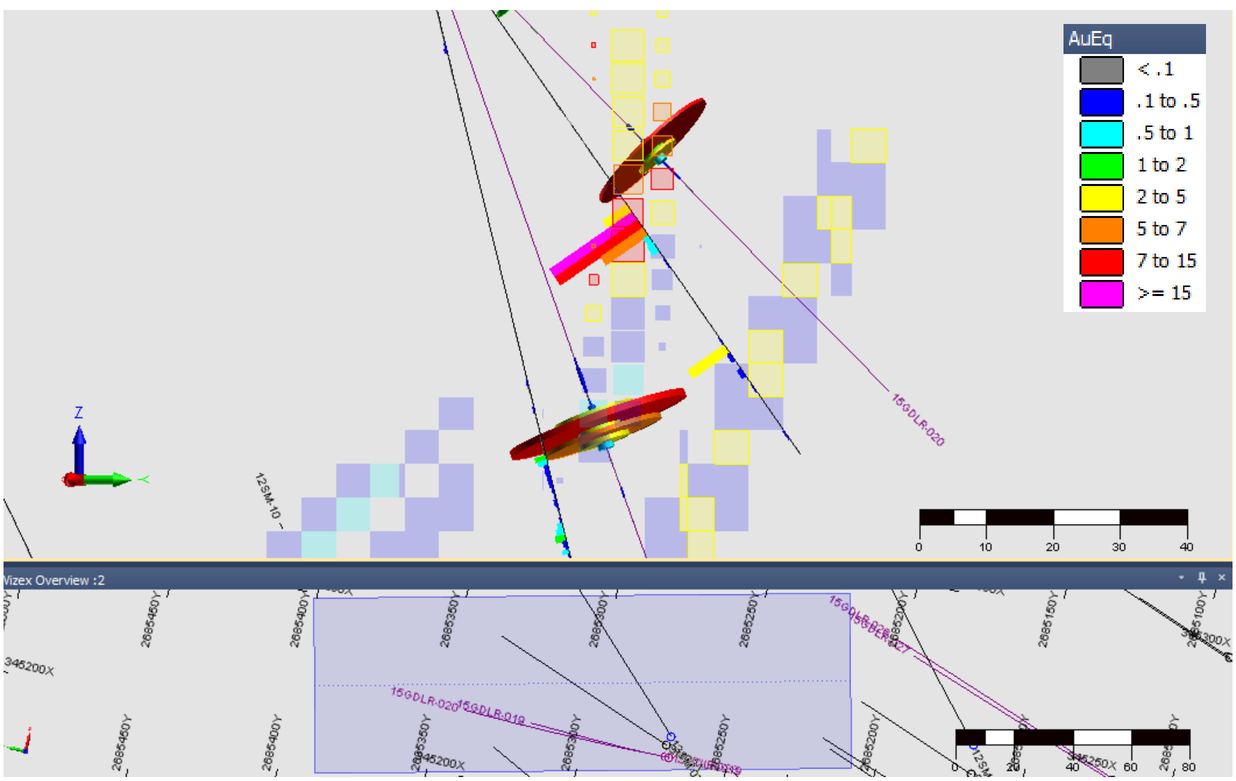

Figure 10-6: Great Panther Drill Hole 15GDLR-019 15GDLR-020 San Miguel

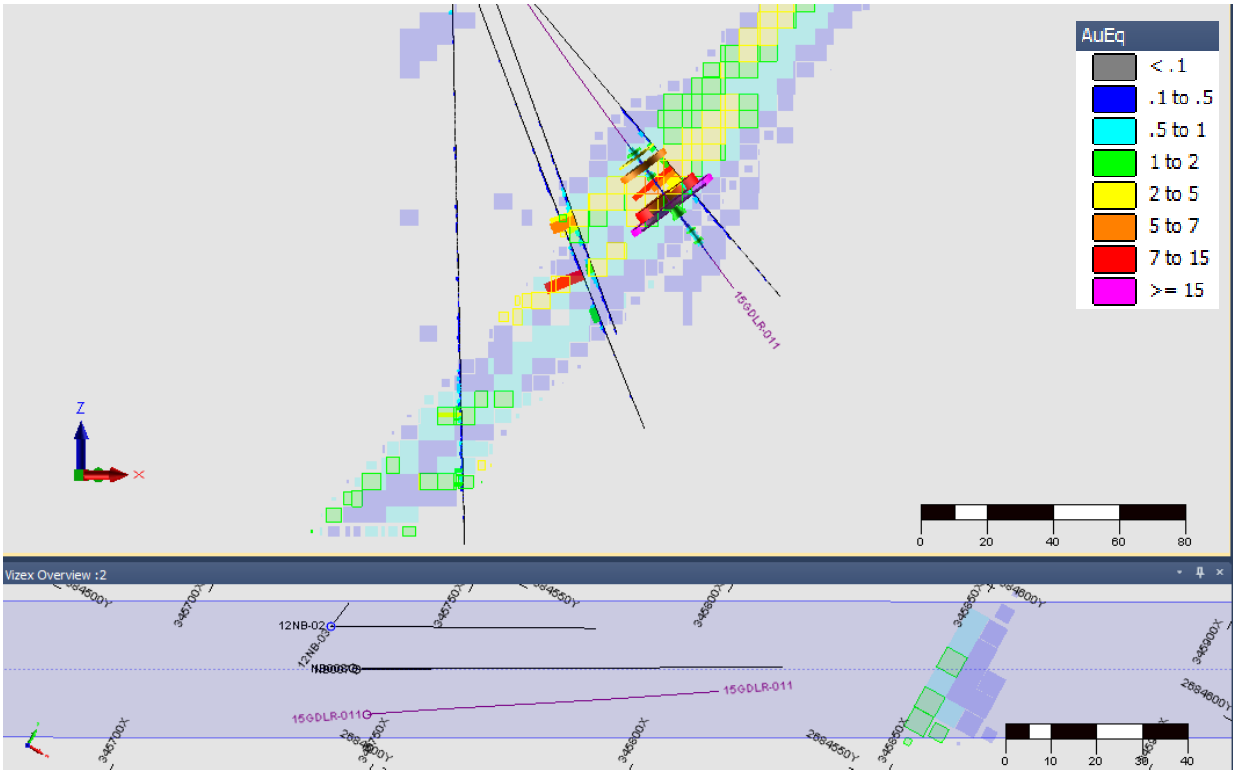

Figure 10-7: Great Panther Drill Hole 15GDLR-019 15GDLR-020 Nocha Buena

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

The Guadalupe de los Reyes Gold and Silver Project consists of a complex system of low sulfidation epithermal veins with an aggregate strike length of 13.7 km. Silver-gold mineralization was deposited over at least a 400-meter vertical range that today is preserved between 450 and 850 meters in elevation. Gold occurs as discrete grains of native gold and electrum while silver occurs primarily as acanthite.

Modern exploration conducted between 1995 and 2000 tested approximately 6.5 km of the vein structure and focused on the shallow, brecciated and stockwork portions of the veins that were attractive bulk tonnage targets that could support open pit mining and heap leach operation. The drilling conducted during this period was by RC methods with no confirmation with core drilling.

11.1 Sample Preparation and Analysis

During the course of the drill program, samples were sent to two assay laboratories:

- Primary Laboratory: ALS Chemex (Chemex). Sample preparation at Hermosillo, Sonora, México. Assaying in Vancouver, B.C.
- Check laboratory: Acme Analytical Laboratory (Acme). Sample preparation and assaying in Vancouver, B.C.

The two commercial laboratories are ISO-9001:2000-certified. A summary of sample preparation procedures is presented in **Table 11-1**.

11.2 Quality Control Samples

Control samples were included in each batch of samples submitted to Chemex at a rate of 1 in 20 samples. Control samples will consist of the following:

- Coarse blanks: washed construction gravel obtained locally
- Standards: certified standards, submitted as pulps
- Replicate assays of a second pulp from coarse rejects by same lab
- Assays of duplicate pulps from the same sample by the second lab

The quality control program made use of commercial reference material (standards) purchased for the program.

Standards and blanks are generally inserted every 20th sample. However, the geologist logging the hole had the flexibility to insure that control samples are inserted within or after suspected high grade intervals. Additional blanks were inserted within or following these intervals to check for contamination during preparation.

Chemex was instructed to prepare a second pulp from every 20th sample and ship the samples every two weeks to Acme for the second lab check. Chemex was instructed to include a standard provided by Vista with every shipment at a minimum rate of 1 per 20 samples.

Chemex was instructed to retain the sample rejects for 90 days after which all pulps and rejects were returned to Vista for long term storage. All core, pulps, and rejects are currently stored in a warehouse in Hermosillo, Sonora, México.

11.2.1 Drilling

The diamond drilling program was conducted under the supervision of Ing. Rafael Gallardo, a principal with Minera Cascabel. Minera Cascabel is contracted to Vista to provide geologic services on the Project and provided qualified geologists, field technicians and a core handling/cutting crew.

The diamond drill core is boxed and stacked at the rig by the drill crews. Core is then picked up daily by the staff geologist or his designate and transported directly to Guadalupe de los Reyes for processing and sampling. The facilities consist of secured storage and core cutting area located in the village of Guadalupe de los Reyes.

Processing of the core includes digital photographing, geotechnical and geologic logging, and marking the core for sampling. Zones of strong alteration, quartz veining and quartz vein stockworks were sampled for assay. A minimum of eight to ten meters of unmineralized core were sampled in the hanging wall and foot wall to ensure that the mineralized zones are bounded for modeling. The geologists logging the core are encouraged to “over sample” when in doubt.

Intact, competent core was cut using a diamond saw. Broken zones with samples too small for the saw were broken with a mechanical splitter, as needed. Each sampled interval was placed in marked plastic bags. Each sample contained a sample tag with a unique sample number. Samples were collected based on geologic breaks but no sample interval in mineralized zones was greater than 1.0 meter. The minimum core length was 0.4 meters. Half of the core is used for assay testing while the remaining half is conserved for future reference and metallurgical test work. Standards and blanks were placed in plastic bags for inclusion in the shipment at appropriate intervals. When a sequence of five samples is completed, they are placed in plastic or “rice” bags and secured with industrial tape. All of the samples are kept in the secure area until shipped for assay. Only complete holes are shipped.

A transmittal letter listing the shipment contents is included with each shipment with a copy scanned and emailed to the laboratory separately.

Table 11-1: Summary of Sample Preparation Procedures by Laboratory

ALS Chemex	Acme
Preparation in Hermosillo, Son. – Analysis in Vancouver, B.C.	Analysis in Vancouver B.C.
Drying – <60°C if required	Drying – N/A
Crushing – Crush to 70% - 10 mesh	Crushing – N/A
Pulverizing – Split and pulverize 250 g: 85%-200 mesh	Pulverizing – N/A
Gold – 30 g charges – ICP-AES finish for all samples – Gravimetric finish for all samples > 10 g/t Silver – 4 acid digestion ICP-AES – Fire assay gravimetric finish for all samples >10 g/t – 41 element trace geochemistry – 4 acid digestion ICP-AES	Gold – 30 g charges – AA finish for all samples – Gravimetric finish for all samples > 10 g/t Silver – 4 acid digestion ICP-AES
Internal QA/QC – 0.005 g/t detection limit – 88 charges per tray – 8 standards, replicates, and blanks randomly inserted	Internal QA/QC – 0.005 g/t detection limit – 40 charges per tray – 4 to 6 standards, replicates, and blanks randomly inserted
External QA/QC – One control (standard or blank) per 20 samples – One assay per 20 samples from new pulp from coarse reject – One second lab check of duplicate pulp (1 per 20 samples)	External QA/AC – One control (standard) per 20 pulps

12.0 DATA VERIFICATION

12.1 Sample Verification

Tetra Tech completed verification of the Project drilling performed by Vista. Drill hole assays were verified by the independent collection of 31 core samples and tested for comparison against original assay values (**Table 12-1**).

Table 12-1: Guadalupe de los Reyes Sample Verification

Hole-ID	Sample	From	To	Wide (mts)
11GV-01	156245T	56.00	57.00	1.00
11GW-03	155800T	85.60	86.60	1.00
11GW-03	155818T	101.05	102.05	1.00
11GW-06	156023T	67.10	68.10	1.00
11GW-06	156042T	83.25	84.25	1.00
11GW-06	156050T	91.25	92.25	1.00
12GL-01	157045T	36.60	37.60	1.00
12GL-01	157051T	42.70	43.70	1.00
12GL-01	157061T	49.80	50.60	0.80
12GL-01	157102T	86.90	89.70	2.80
12GV-02	156616T	239.90	241.90	2.00
12GV-02	156619T	241.90	245.15	3.25
12GV-03	156811T	130.42	130.90	0.48
12GV-03	156814T	132.85	133.40	0.55
12GV-03	156817T	135.10	136.05	0.95
12GV-03	156818T	136.05	136.65	0.60
12ZAP-01	159045T	37.60	38.15	0.55
12ZAP-01	159055T	45.95	46.95	1.00
12ZAP-01	159055T	49.95	50.65	0.70
12ZAP-02	159055T	48.60	49.25	0.65
12ZAP-02	159055T	69.45	70.35	0.90
12ZAP-04	159055T	133.55	134.80	1.25
12ZAP-04	159055T	139.00	140.05	1.05
12ZAP-05	159055T	88.05	89.10	1.05
12ZAP-05	159055T	90.20	91.30	1.10
12ZAP-05	159055T	96.05	97.00	0.95
12ZAP-05	159055T	97.00	97.90	0.90
12ZAP-06	159055T	7.00	8.05	1.05
12ZAP-06	159055T	19.50	20.50	1.00

Hole-ID	Sample	From	To	Wide (mts)
12ZAP-06	159055T	22.60	24.80	2.20
12ZAP-06	159055T	24.80	26.15	1.35

Duplicate samples selected for retesting by Tetra Tech were analyzed by Chemex Labs Limited. High grade gold samples were re-assayed by a method similar to that routinely used by Vista.

Log-log comparison of the Vista assay results vs. Tetra Tech verification results show generally good correlation for gold and silver, with a $\log_{10}$ correlation coefficient of .89 for silver and .88 for gold. This correlation is shown below in **Figure 12-1**.

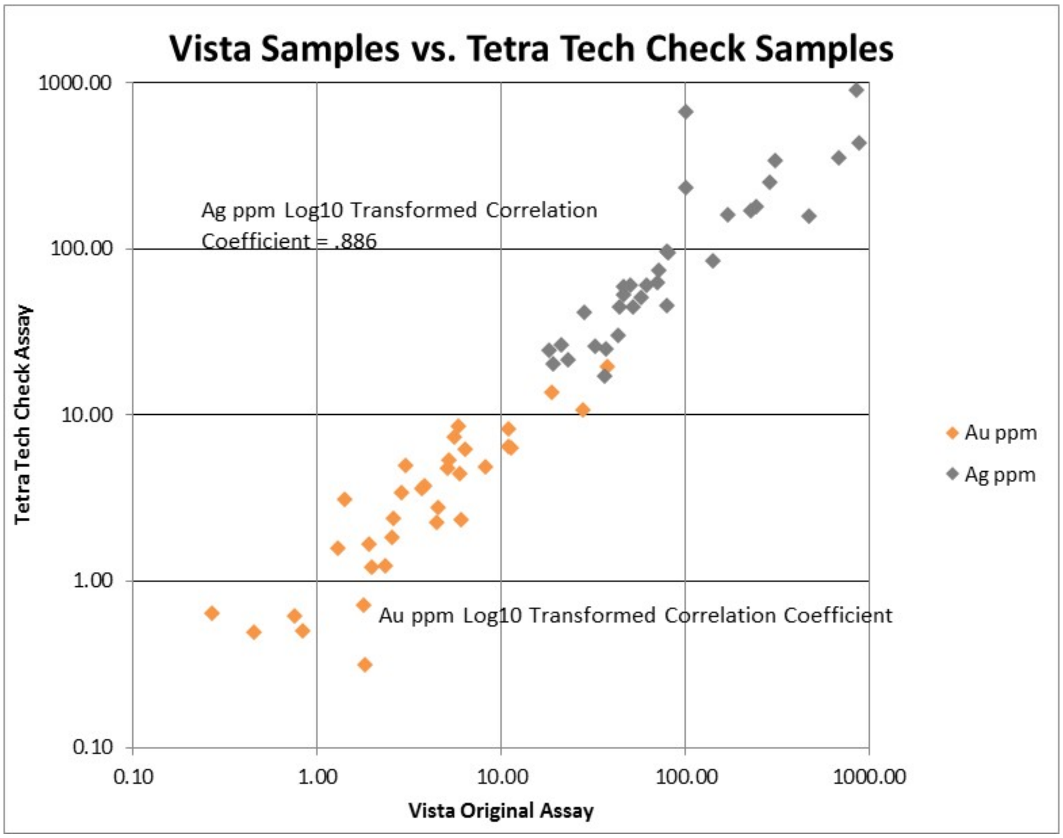

Figure 12-1: Guadalupe de los Reyes Sample Verification

Overall, comparison of Vista's Quality Assurance/Quality Control (QA/QC) duplicate sampling and Tetra Tech's sample verification showed similar results (**Figure 12-2** and **Figure 12-3**). Correlations track well for the lower grades. Higher grades show less of a correlation, likely due to the nugget effect.

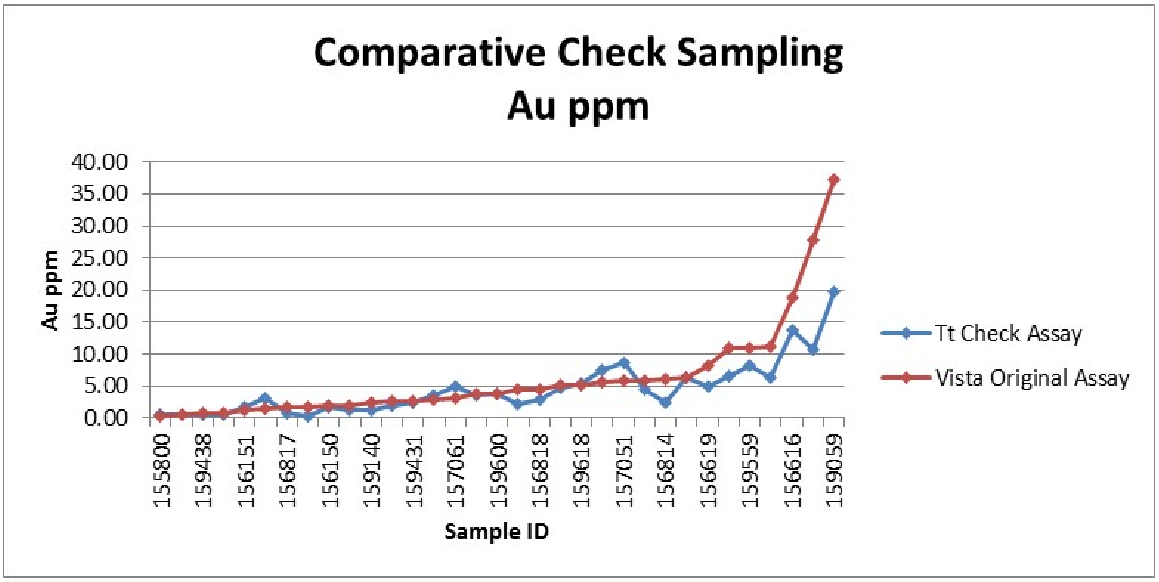

Figure 12-2: Guadalupe de los Reyes Au Check Samples

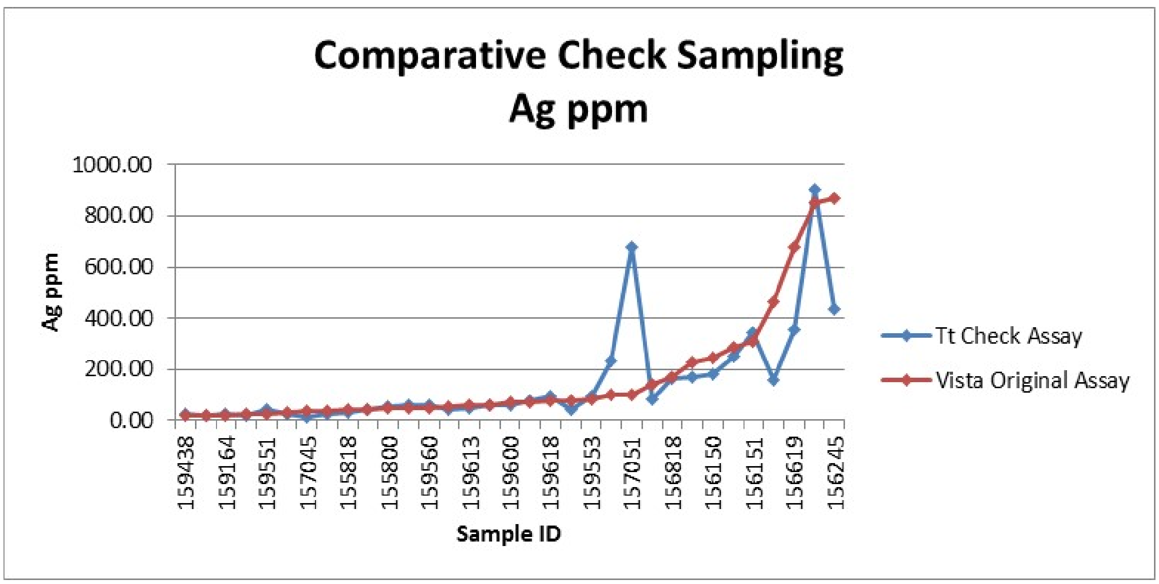

Figure 12-3: Guadalupe de los Reyes Ag Check Samples

Limitations of the sample verification conducted by Tetra Tech included a small sample size and the potential influence of the nugget effect.

Based on independent sample verification of the Guadalupe de los Reyes project area, Tetra Tech concluded that the data collected by Vista to be adequate for the purposes used in this technical report.

12.2 Historic Database Verification

A data check was also performed on the digital assay information that was provided. NCM maintained a digital database of information. A blind entry of assay values from NCM's physical data was performed and checked against the digital database. For values that were found to be different, a second blind entry was performed. Over 1,100 entries were entered. Of these values, only three gold grades were determined to be incorrect and were changed to reflect the physical logs. Some silver values in the El Zapote area were known to have differences because of a change in the lab's testing methods. The lab ran the original assays using an aqua regia digestion followed by atomic absorption analysis, but retested the samples using fire assay methods. The silver grades from the aqua regia tests were consistently lower than the fire assay values due to a less complete extraction. Tetra Tech used the fire assay values for the geologic estimation, as they were considered the most accurate.

Previously, PAH conducted a review of the NCM sampling procedures and lab processing for the Prefeasibility Study of January 1998. NCM had approximately 10 percent of the sample intervals in the mineralized zone sent for duplicate analysis by a second laboratory to evaluate the quality of the sample analyses.

Check analyses samples were tested for the 1997 drilling program (ZA-088 to ZA-197) and for the 1996 drilling program (ZA-066 to ZA-087). For this work, Bondar-Clegg supplied the sample pulps to Min-En Laboratories (Min-En) in Vancouver, B.C. Min-En reportedly analyzed the sample pulp material utilizing similar methodology as described by Bondar-Clegg.

Statistical evaluation by PAH of the 1997 drilling program, found an acceptable correlation between the data pairs, with a lognormal correlation coefficient of .98 (out of 1.00). Overall, the variance between most sample-duplicate pairs was + 30 percent and is typical of structural zone gold deposits. There was, however, a tendency on the part of several samples for the Bondar-Clegg analysis to be significantly higher than that from Min-En and this should be investigated further. However, a comparison of the average grades found that the Bondar-Clegg originals were about five percent lower than the Min-En duplicates, a difference that is acceptable by normal engineering practice.

PAH found that for the 1996 drilling program, the data pairs showed less correlation, with a lognormal correlation coefficient of .94 (out of 1.00). Overall, the variance between most sample-duplicate pairs was + 20 percent.

Check analyses were also conducted on material from earlier drilling programs between 1992 and 1995 (ZA-016 to ZA-065), with original analysis largely by SGS-XRAL laboratory for drill holes ZA-016 to ZA-053 and to a lesser extent by Bondar-Clegg for drill holes ZA-054 to ZA-065, with the duplicate checks conducted by Bondar-Clegg. PAH's evaluation found a lognormal correlation coefficient of .93 (out of 1.00). These data showed more variance than that of the 1996 and 1997 drilling, with the variance between most sample-duplicate pairs being + 45 percent, indicating less analytical precision than in the later sample analyses. Comparison of the average grades found that the original analyses were three percent higher than the duplicates, a difference acceptable by normal engineering practice.

After reviewing available data, Tetra Tech found the results from the check assaying to be reasonable and done in accordance with accepted industry standard and practice.

12.3 Drill Hole Location Verification

During the site visit by Tetra Tech, several GPS coordinates were taken to verify locations of drill collars. Coordinates were taken in the NAD 27 México datum, and indicated historic locations of collars were not accurately represented in the NAD 27 México datum. Each area was off by a different amount, ruling out a global shift. To remedy this, Vista has resurveyed 40 drill holes, selecting several from each area, as shown in **Table 12-2**.

The resurveyed collars were used to create a transformation matrix for each area. The matrix, or transformation, was applied to the historic drill hole collars. The results of the transformation were then compared against the resurveyed holes and found to be within a reasonable distance of the surveyed collar locations, generally within a meter.

After ensuring the translation matrix was valid, it was also applied to the cross sections created by NCM for geology and mineralization.

12.4 Historic Drill Hole Correlation

Drilling and sampling has occurred over several years by several different companies at the Guadalupe de los Reyes project. The historical drilling was done by RC drilling methods. To assess the usability of the historical assay data, a study of the relationship between the historical data and the recent Vista drilling was performed. Many of the holes drilled by Vista have intervals that intersect mineralization relatively close to the historical drilling and these holes were used to do a visual correlation study. The location of the holes in the project area is shown in **Figure 12-4** below.

Vista drilled 48 new core holes during 2011 and 2012 throughout the main five mineralized zones in the Project area. Sampling of the core holes was done on one meter intervals. A visual comparison by section of gold grade was conducted for the holes based on section lines. A comparison for each area is shown in **Figure 12-5**, **Figure 12-6**, **Figure 12-7**, and **Figure 12-8**.

Overall, the correlation of grades appears to be reasonable along the mineralized trend and Tetra Tech feels that the correlation is within an acceptable range to use the historical data for geologic modeling and grade estimation.

Table 12-2: Guadalupe de los Reyes Survey Verification 2012

HoleID	Easting (meters)	Northing (meters)	Elevation (meters)	Area
SM 004	345488.525	2684961.238	741.552	San Miguel
SM 007	345350.690	2684891.326	743.880	San Miguel
SM 011	345153.615	2685075.578	679.940	San Miguel
SM 014	345144.403	2685060.699	687.918	San Miguel
SM 015	345186.473	2684997.863	709.079	San Miguel
SM 017	345122.855	2685034.362	702.945	San Miguel
SM 018	345211.464	2684992.488	711.650	San Miguel
SM 020	345061.710	2685088.948	678.242	San Miguel
SM 024	344672.611	2685201.944	715.994	San Miguel

HoleID	Easting (meters)	Northing (meters)	Elevation (meters)	Area
SM 025	344708.627	2685176.186	709.047	San Miguel
SM 027	344580.763	2685290.210	704.391	San Miguel
SM 029	344500.050	2685307.273	714.447	San Miguel
GL 044	347003.947	2685347.659	821.558	Guadalupe
GL 045	346871.507	2685389.740	839.388	Guadalupe
GL 046	346870.139	2685386.198	839.276	Guadalupe
GL 047	346948.482	2685348.701	853.620	Guadalupe
GL 048	347022.903	2685331.058	819.522	Guadalupe
GE 028	347554.188	2685052.033	1061.498	Guadalupe
GE 030	347671.784	2685083.560	998.469	Guadalupe
GL 063	347166.074	2685314.255	870.563	Guadalupe
GL 065	347161.278	2685197.494	873.762	Guadalupe
GL 067	347224.324	2685312.415	901.388	Guadalupe
ZAP 021	344116.627	2684818.508	699.585	Zapote
ZAP 076	343946.913	2685325.882	735.682	Zapote
ZAP 095	344129.837	2684632.757	635.391	Zapote
ZAP 099	344178.968	2684738.640	691.663	Zapote
ZAP 102	344142.407	2684809.445	701.521	Zapote
ZAP 109	344124.574	2684770.702	674.769	Zapote
ZAP 155	344158.442	2685160.622	789.845	Zapote
ZAP 158	344133.309	2685202.824	785.955	Zapote
ZAP 167	343970.262	2685149.416	755.517	Zapote
ZAP 189	343988.828	2685133.366	757.377	Zapote
ZAP 191	343985.854	2685175.970	758.341	Zapote
ZAP 197	344403.262	2684505.489	752.425	Zapote
NB 008	345787.840	2684317.071	747.001	Noche Buena
NB 011	345866.735	2684252.530	768.585	Noche Buena
NB 016	345935.335	2684234.929	776.431	Noche Buena
NB 017	346030.358	2684230.776	807.444	Noche Buena
NB 018	345984.582	2684203.058	817.461	Noche Buena
NB 019	345692.242	2684562.032	776.613	Noche Buena

Table 12-3: Difference between 2012 Survey and Translated Coordinates

Hole ID	Easting Difference (meters)	Northing Difference (meters)
GE 028	0.01	0.003
GE 030	0.907	0.418
GL 044	-0.405	-0.183
GL 045	-1.037	-1.073
GL 046	-0.742	0.065
GL 047	0.095	0.027
GL 048	-0.77	-0.493
GL 063	-0.395	-0.111
GL 065	-0.949	-1.079
GL 067	0.29	0.081
NB 008	0.165	0.003
NB 011	-0.259	-0.005
NB 016	0.121	0.002
NB 017	-1.886	-0.699
NB 018	-1.144	-0.02
NB 019	-0.027	-0.001
SM 004	0.32	0.218
SM 007	1.147	3.525
SM 011	0.879	-0.143
SM 014	0.909	0.483
SM 015	1.003	1.813
SM 017	0.721	1.474
SM 018	0.185	1.89
SM 020	-1.053	-0.56
SM 024	0.046	0.024
SM 025	-4.188	3.469
SM 027	-1.333	-1.721
SM 029	0.099	0.052
ZAP 021	0.236	-0.078
ZAP 076	0.041	-0.002
ZAP 095	0.324	-0.058
ZAP 099	-0.171	0.061
ZAP 102	-0.357	-0.188
ZAP 109	0.182	0.218
ZAP 155	0.065	0.029
ZAP 158	0.013	-0.008

Hole ID	Easting Difference (meters)	Northing Difference (meters)
ZAP 167	-0.12	0.027
ZAP 189	-1.236	-0.686
ZAP 191	-0.605	-0.077
ZAP 197	0.118	-0.094

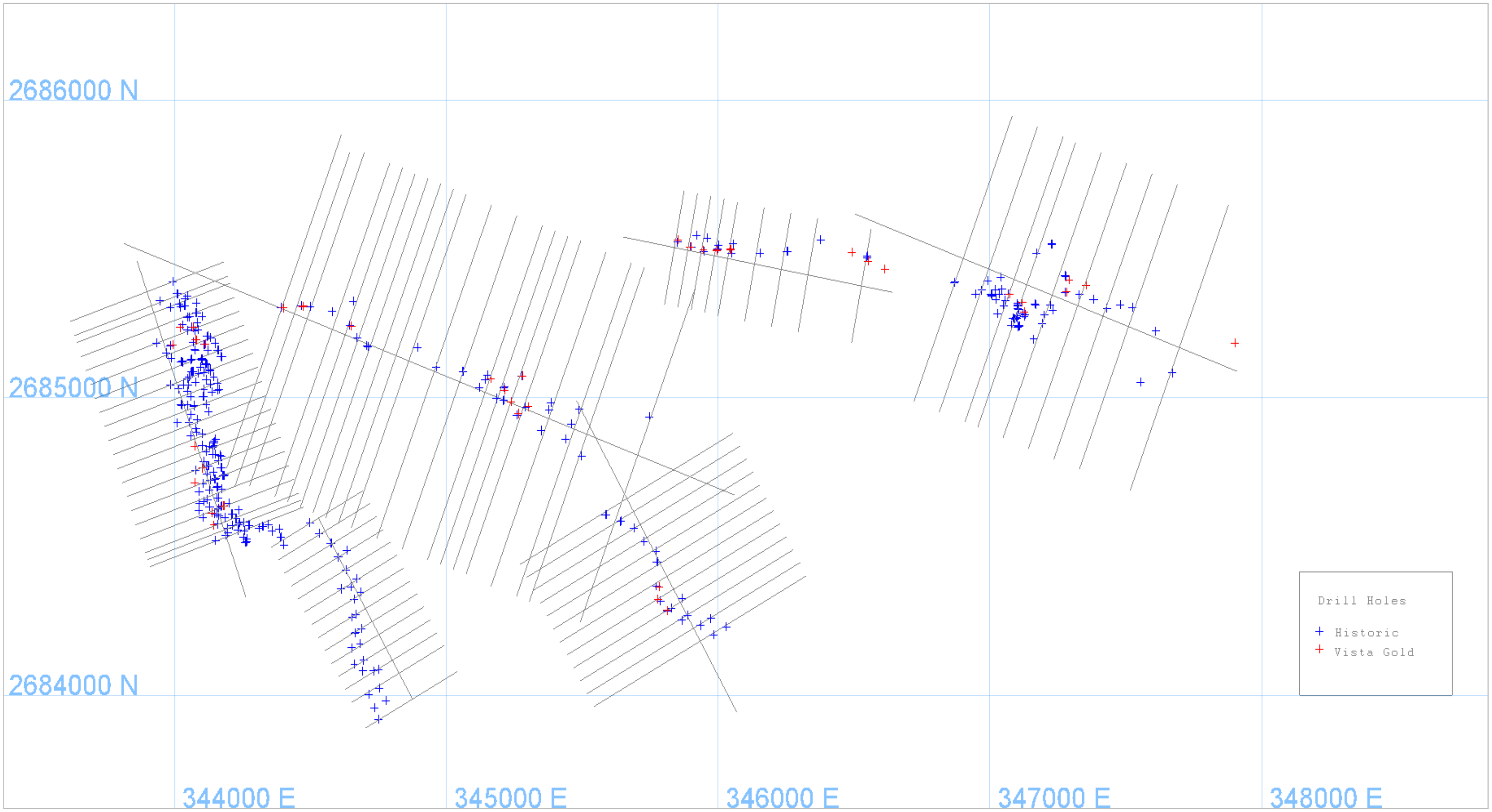

Figure 12-4: Location of Drill Holes in the Project Area

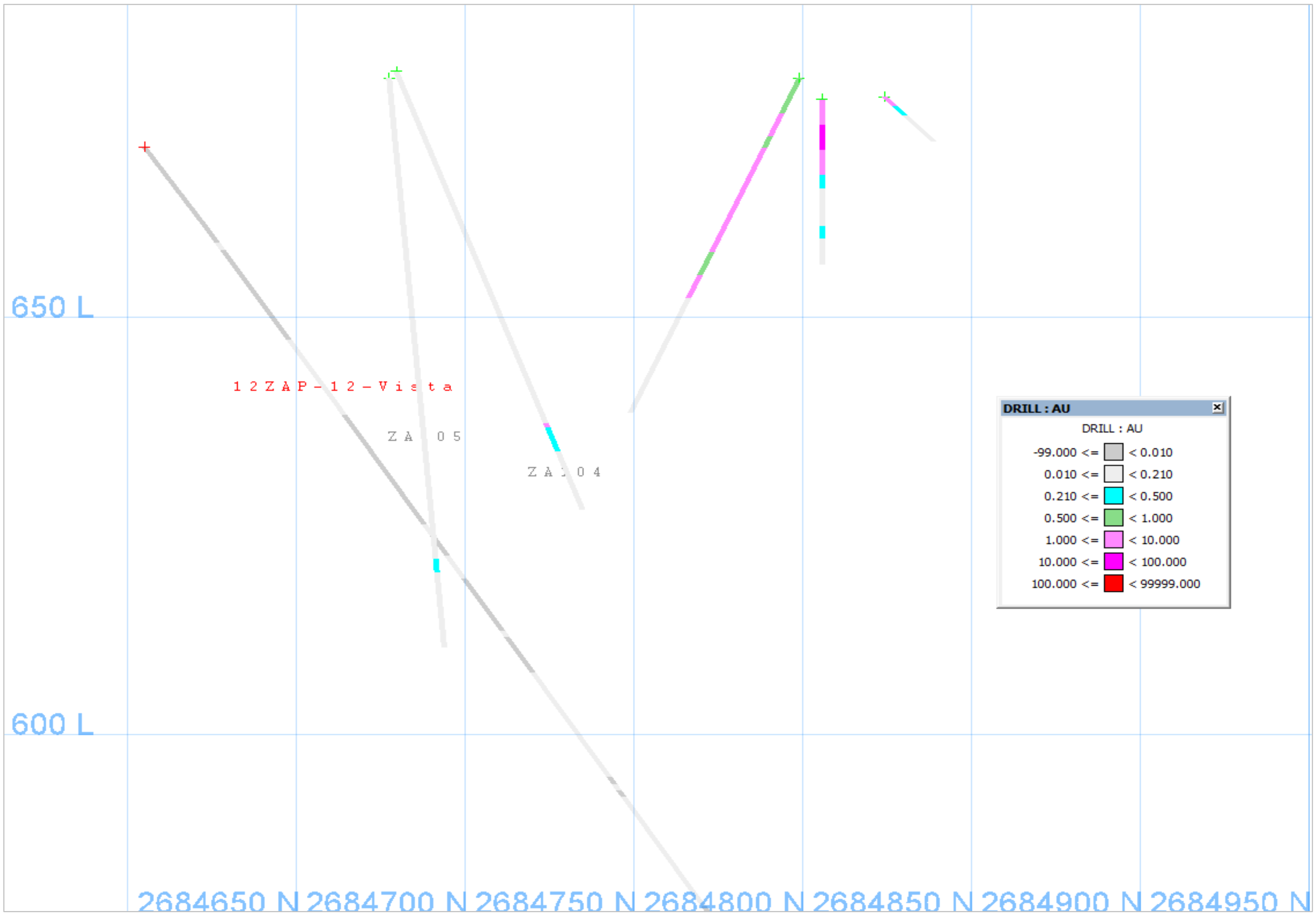

Figure 12-5: El Zapote Drilling Correlations

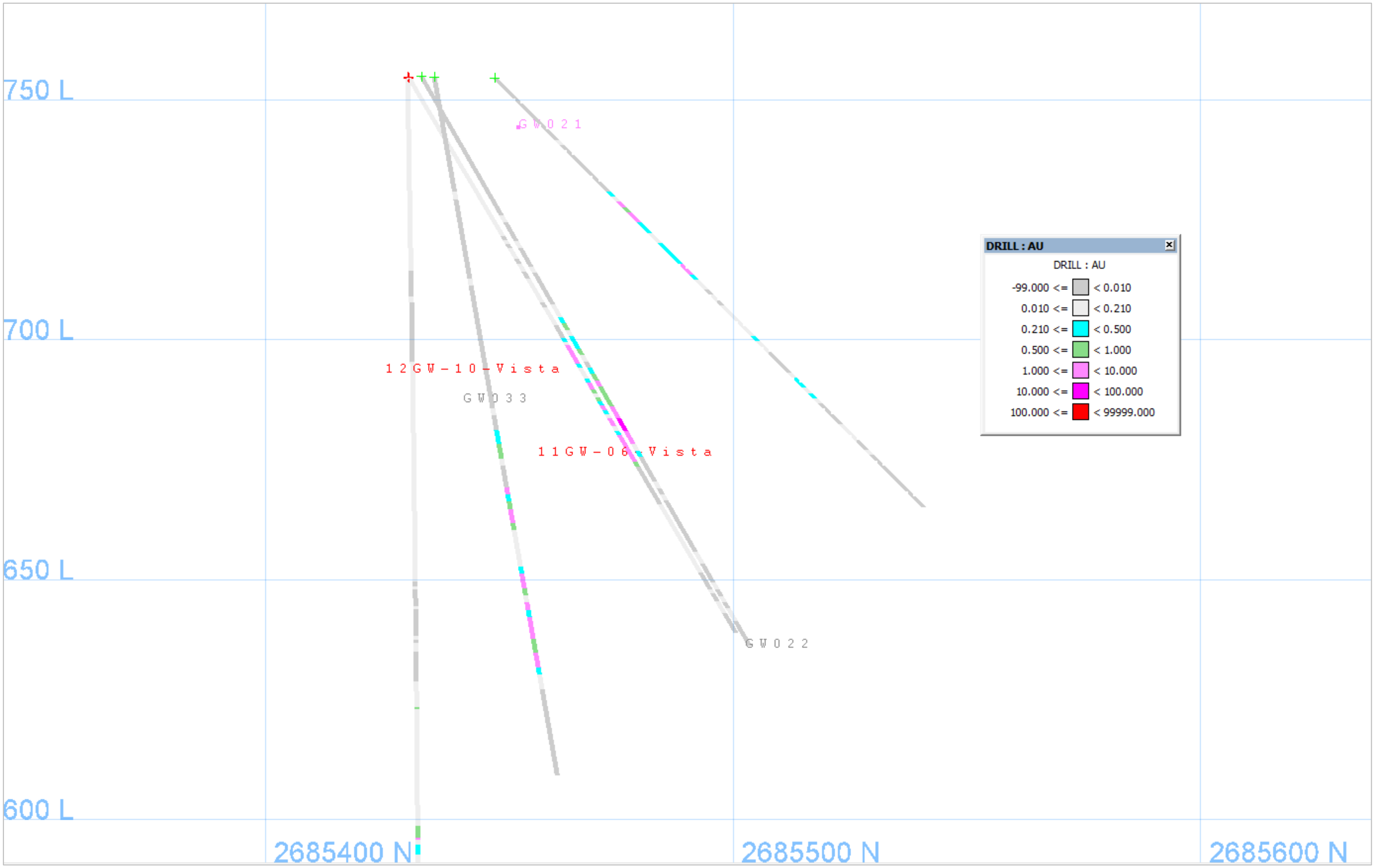

Figure 12-6: Guadalupe Drilling Correlations

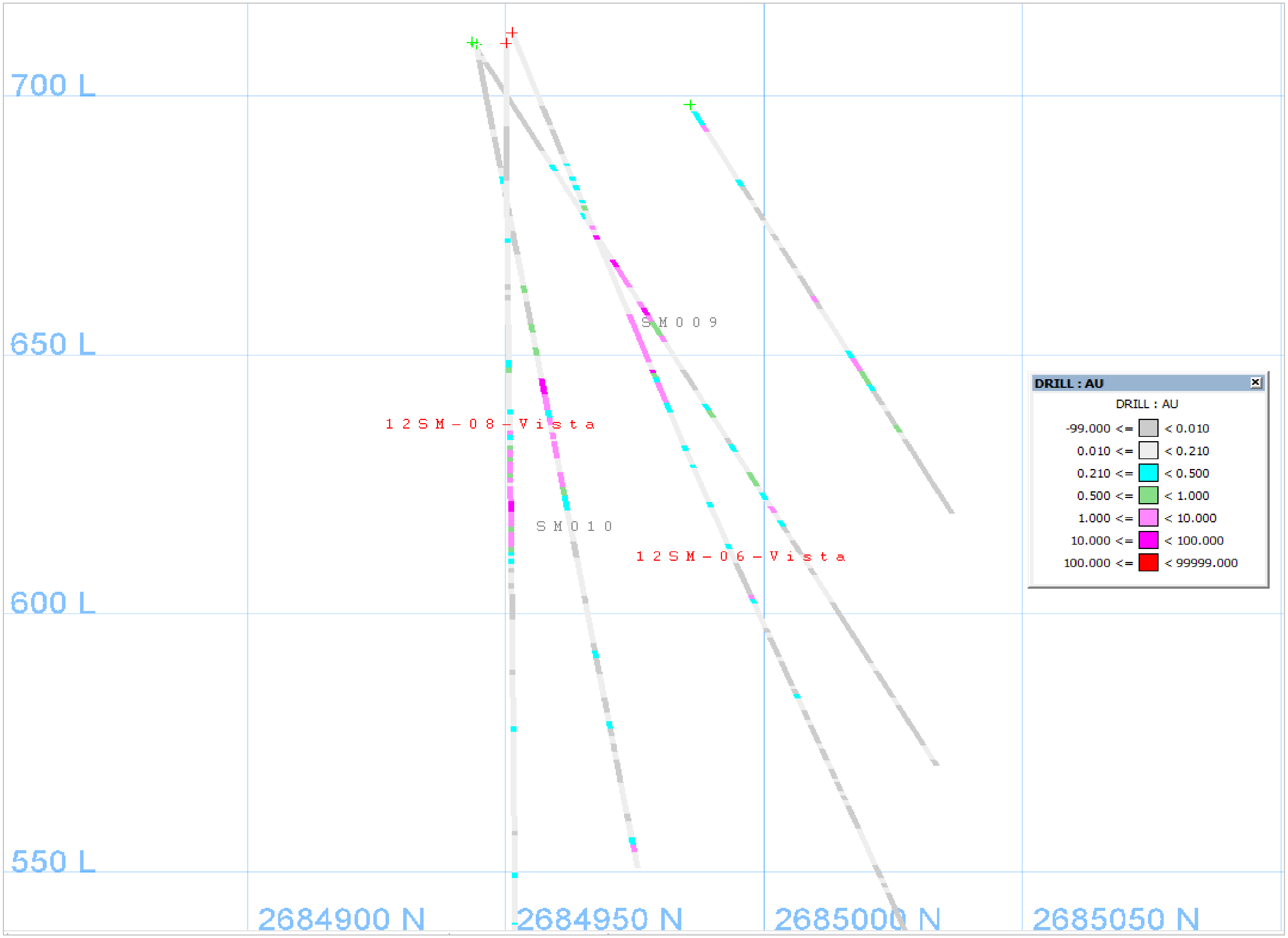

Figure 12-7: San Miguel Drilling Correlations

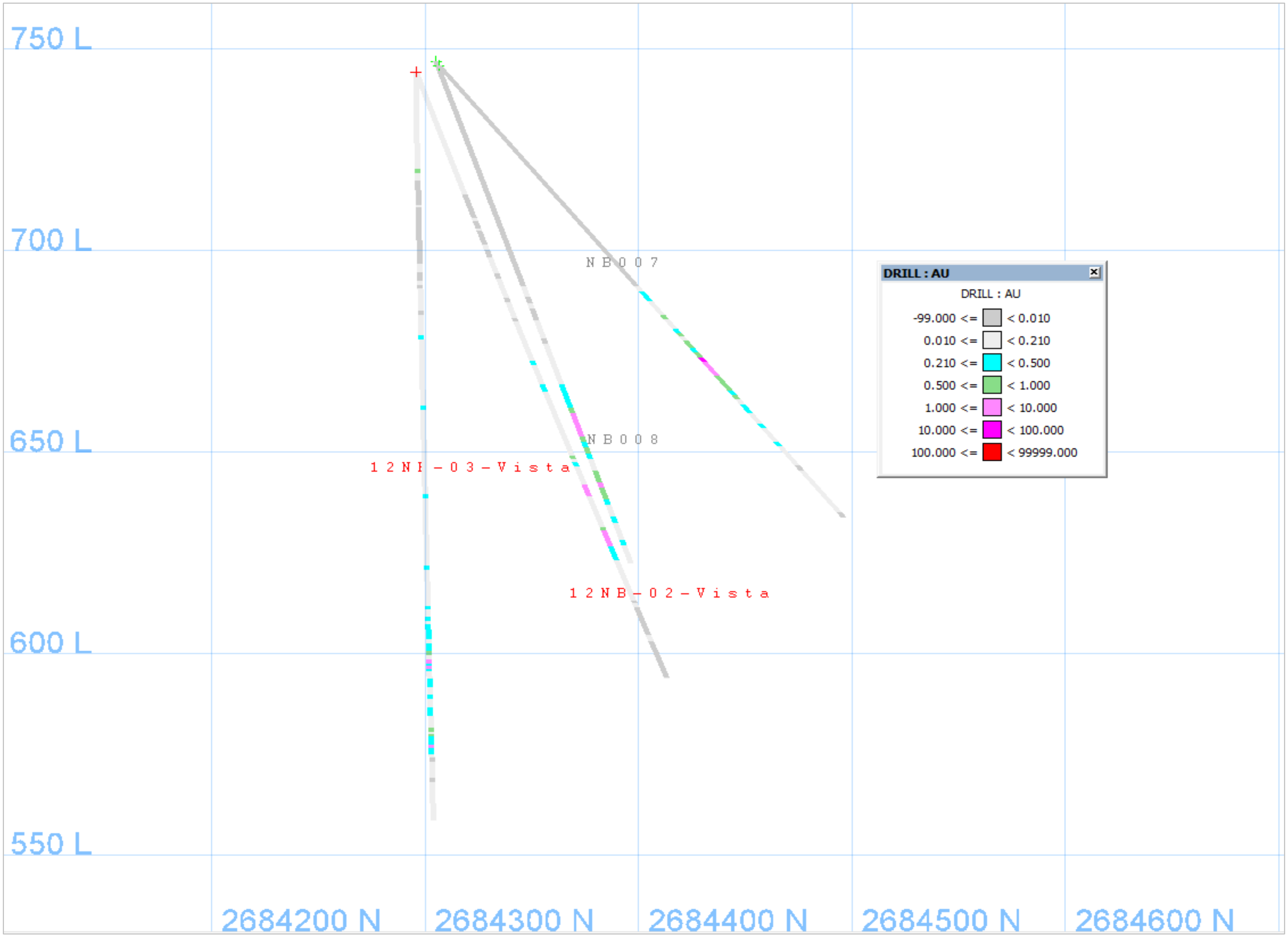

Figure 12-8: Noche Buena Drilling Correlations

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction and Historical Metallurgical Development

Since 1998, multiple testwork regimens were performed on a range of mineral samples. Initial testwork performed by McClelland Laboratorios de México in 1998 explored the amenability of the samples to heap leaching processes. Under a heap leach process, gold and silver recoveries were estimated at 76 percent and 24 percent respectively. This testwork also showed that gold recoveries could be improved by grinding and leaching the material in a conventional cyanidation process.

In 2012, tests were performed by RDi to examine alternatives to heap leaching. These tests yielded design recoveries of 93 percent for gold and 83 percent for silver.

13.1.1 Comminution

Testwork performed by McClelland Laboratorios de México in 1998 yielded a crushing work index of ~5 kWh/t. No additional comminution tests were performed at that time due to the emphasis on heap leaching.

The Bond ball mill work index testwork performed at RDi in 2012 yielded values ranging from 16.85 kWh/t to 17.44 kWh/t, with abrasion index values ranging from 0.2613 to 0.4619.

13.1.2 Gravity Concentration

Testwork performed by RDi in September 2012, indicated a direct smelter product can be produced via gravity concentration, requiring no additional on-site processing of the gravity concentrate. The addition of a gravity circuit also would allow for the recovery of gold that may not be recoverable through cyanidation. Testwork indicated that a gravity concentrate would not produce high enough recoveries to alleviate the need for a leaching process.

Due to the high variability of the results, it is difficult to attribute a gravity recovery given the range of grind sizes and composites tested; however higher recoveries of gold were obtained at finer grind sizes.

Gravity gold recoveries obtained in the testwork were varied, ranging from 11.8 percent to 32.8 percent, with most results ranging in the mid-teens. Concentrate grades varied, ranging from as low as 97.1 g Au/t to as high as 5698.7 g Au/t.

Silver recoveries also varied from a low of 1.7 percent to a high of 24.3 percent. These results appear to be due to the specific mineralogy of the composites tested rather than head grades. Concentrate grades were also variable ranging from 586.7 g Ag/t to 16,544.9 g Ag/t.

Due to the high grades of gravity concentrates, this likely removes the need for an intensive cyanide leaching process. This also has the potential to lower cyanide consumptions in downstream leach operations, as less gold and silver will be present; however, such an effect cannot be quantified at this time.

13.1.3 Flotation

Flotation testwork was performed on multiple composites by RDi Consulting Ltd, with the results reported in the September 2012 test report. These trials indicated uniform gold and silver recoveries of 90 percent or greater, except for composite 3 in which the silver recovery was low, on the order of 20 percent. It is worth noting that composite 3, with the poorest flotation response, also exhibited poor silver extractions in leach testing and gravity testing. This indicates the poor silver recoveries are likely due to an inherently refractory mineralogy in the composite rather than the selected recovery process to which it is subjected. Flotation was ultimately removed from consideration for the proposed process due to more optimal recoveries exhibited in leach testing.

13.1.4 Leaching

The September test report included a variety of leach tests, from which preliminary operating parameters can be derived, as seen in **Table 13-1**.

Table 13-1: Anticipated leach recoveries and parameters

Grind Size	mesh	150
Retention time	hours	48
Pulp Density	% Solids	40
Au recovery	%	93
Ag recovery	%	83

The leach testing was performed on multiple composites, evaluating parameters such as cyanide concentration, pulp density, grind size, and leach method. The latter consisted of comparing whole ore agitated leaching, CIL, as well as CIL with the addition of lead nitrate. Leach results ranged from 57.7 percent to 98.9 percent for gold recovery, with the majority of tests yielding recoveries ranging from 86 percent to 94 percent. Silver recoveries were variable with composite, a trend also exhibited in gravity as well as flotation testing. The composites that proved to have refractory silver obtained recoveries ranging from 28.5 percent to 47.2 percent, with the bulk of the recoveries occurring in 37 percent to 42 percent range. The composites where silver proved amenable to leaching exhibited recoveries ranging from 16.8 percent to 90.4 percent. With the addition of lead nitrate and more selective conditions, silver recoveries for these composites consistently achieved greater than 80 percent. The specific reason for the distinct difference in silver extractions between composites has not been determined at this time.

CIL with lead nitrate was found to perform significantly better than direct cyanide leaching. It was also determined that the addition of lead nitride significantly reduced cyanide consumption compared to tests without the lead nitride addition. Recoveries were also improved via the addition of lead nitrate, with improvements on the order of +/- 1 percent to gold recovery and significant improvements on the order of +/- 10 percent to silver recovery in the cases of composites that appear amenable to silver recovery. This yielded design values of 93 percent and 83 percent for gold and silver, respectively, which were used for purposes of this PEA.

14.0 RESOURCE ESTIMATE

The mineral resource was historically calculated for six areas, but was combined into four areas for this report. The areas estimated are the El Zapote area (combined historic El Zapote and Tahonitas areas), San Miguel, Noche Buena, and Guadalupe (previously Guadalupe West and Laija). Historical data was compiled from previous companies and used in this mineral resource estimate. This chapter describes the resource estimate by Tetra Tech using drill data through 2012. New drillhole data from a drilling program in 2015 by Great Panther has been used to confirm the resource findings from 2012 and verify the drill hole data used to support the estimate.

The Canadian Institute of Mining, Metallurgy and Petroleum (CIM May 10, 2014) defines mineral resources as:

- **Mineral Resource**
  - Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource. Please note the Cautionary statements regarding inferred mineral resource estimates.
- **Inferred Mineral Resource**
  - An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

    Cautionary statements regarding inferred mineral resource estimates:

    Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources will be converted into Mineral Reserves. Inferred resources are that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
- **Indicated Mineral Resource**
  - An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower

level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

- **Measured Mineral Resource**
  - A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.
- **Modifying Factors**
  - Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

It is Tetra Tech's opinion that the reported mineral resource classifications comply with current CIM definitions for each mineral class.

Geostatistics resource estimation and 3-D visualization was done with various mining software. The primary software used were MicroModel®, MicroMine®, Vulcan®, GemCom® and Whittle®. Additional statistical analysis was done with Statistica® and Excel®.

14.1 Drill Hole Database

A drill hole database was created and maintained by NCM. Tetra Tech created a new master database by using the verified historic drilling data from NCM, Meridian, and Vista's drilling through 2012. Recent drilling by Great Panther is not included in the current drill hole database.

At the time of this report there were 425 drill holes, all of which contain assay data.

The assay database contains sampling with intervals ranging from 1 to 1.52 meters. All samples have been assayed by multi-element as described in Section 11.0. Sample intervals include data for geology, gold, silver, and density. Tetra Tech has conducted verification tests on the database, including blind data entries from the physical historical logs, and found only three discrepancies, which were updated in the working database.

Historic assaying by Bondar Clegg of Ag in the El Zapote area by aqua regia was found to be consistently lower than assaying performed by fire assays. Authors of previous mineral resource estimates have applied a reduction factor to the fire assays to better equate to the aqua regia results. Tetra Tech concludes there is no benefit in reducing fire assay Ag values and has abandoned the use of a reduction factor for this mineral resource estimate. Tetra Tech has used assays for both aqua regia and fire assay as received.

Tetra Tech concludes that the database is reasonably free of recognized errors and can be used for resource estimation.

A single block model was used to estimate the mineral resource for the Guadalupe del los Reyes. **Figure 14-1** shows the locations of the individual deposits. Resource estimation was completed within all the mineralized zones with block model geometry and extents as presented in **Table 14-1**

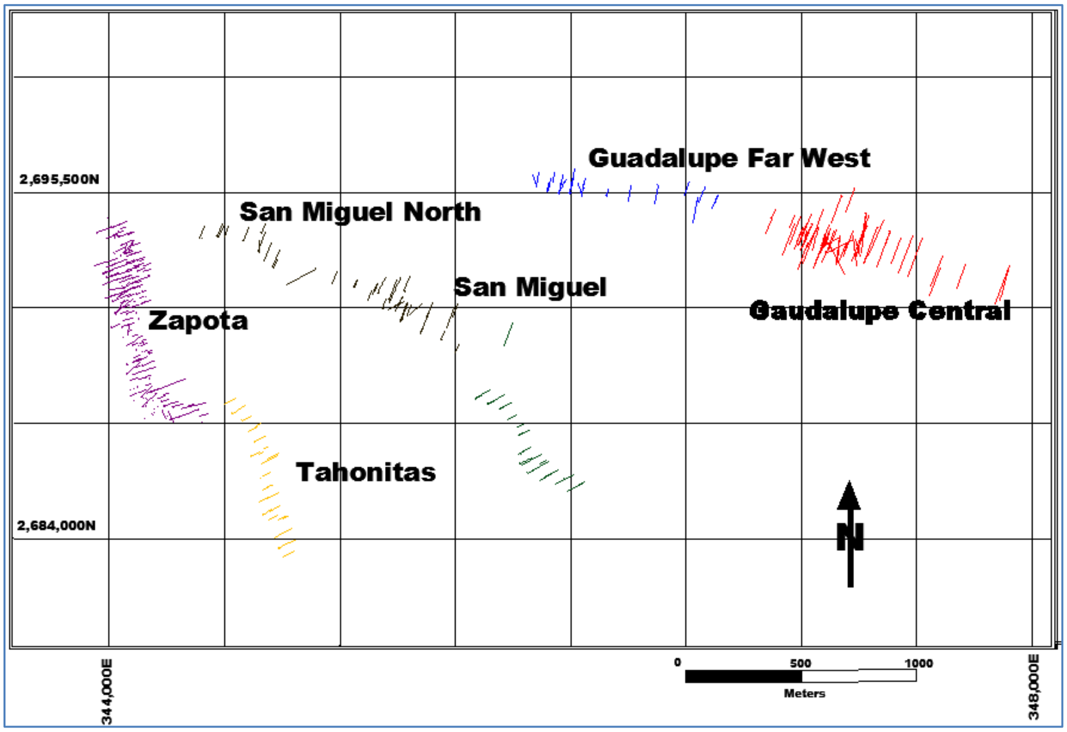

Figure 14-1: Tetra Tech Model Limits

14.2 Geologic Modeling

NCM personnel previously interpreted the geology of the deposit on cross sections. Sections were generally created on a 50-meter spacing (some smaller) oriented perpendicular to the strike of the deposit. On these sections, the boundaries of the mineralized zone or mineral envelope were delineated. Tetra Tech used these sections as a baseline for the mineralized zones. In many cases the old mineralization sections were generalized. For this model, the mineralized envelope was refined from previously generated sections. Geologic modeling was based on a cutoff of 0.2 g Au/t and used as the basis for defining mineralization. A 40 percent quartz value was also taken into account to delineate the mineralized zone in conjunction with the gold cutoff.

The sectional interpretations were then extruded to create 3D sectional wireframes. Four wireframe vein models were created. El Zapote and Tahonitas were combined into the El Zapote zone. San Miguel and Noche Buena were modeled as individual vein systems. Guadalupe Laija and Guadalupe West were combined into one single Guadalupe vein.

Table 14-1: Tetra Tech Model Limits

Model	Coordinate	Minimum	Maximum	Block Size (m)	No. of Blocks
Tt Model	Easting	343580	348080	5	900
	Northing	2683530	2686280	5	550
	Elevation	440	1070	5	126

14.3 Composting and Assay Statistics

Raw data intervals vary, but ranged mostly in the one to three-meter distance. The drill hole database was composited on three meter intervals to normalize the varying sample intervals. The composites were flagged within the wireframe. The average composite length is 2.95 meters. A list of the average composite statistics is shown below in **Table 14-2**:

Table 14-2: Composite Statistics

Average Values of Selected Data						
Label	Number	Average	Standard Deviation	Min. Value	Max. Value	# Miss
From – To	13419	2.95320	0.30163	0.01000	3.00001	0
Au	12365	0.30953	1.14515	0.00000	34.85775	1054
Ag	8572	9.87158	28.66988	0.00625	693.03326	4847

14.4 Variography

Variography was run on the data over the project area. **Figure 14-2** below shows the results of the pairwise relative variography. The search ellipse parameters were determined from this variogram. For Indicated Resources, the search ellipse used is 40 meters, while 120 meters was applied to estimating inferred Resources.

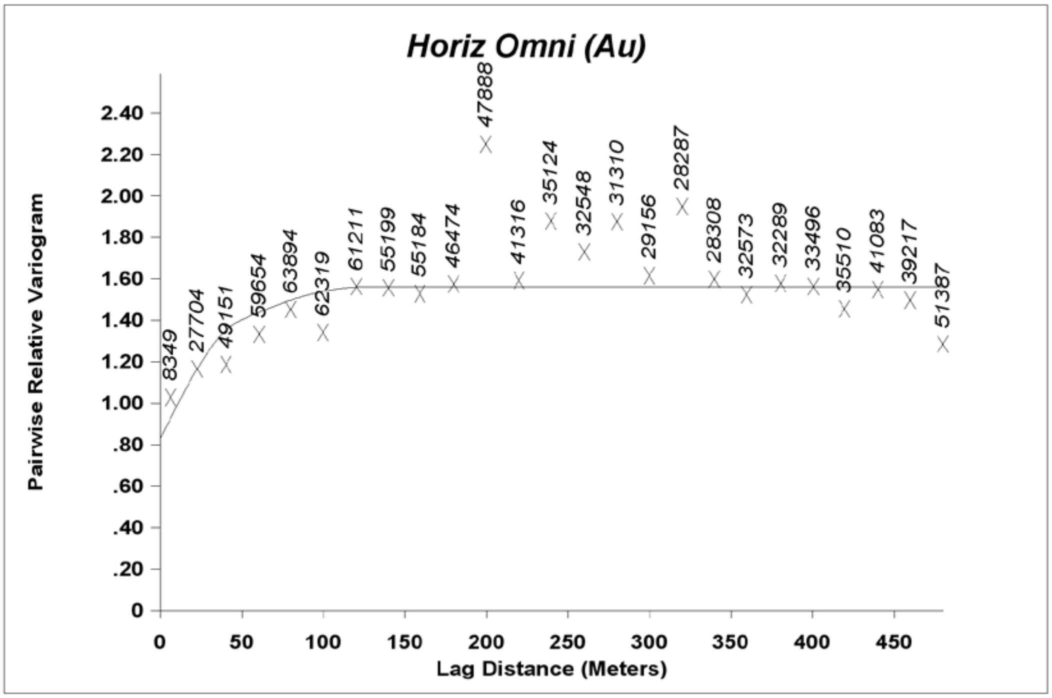

Figure 14-2: Pairwise Relative Variogram

14.5 Grade Estimation and Classification

A 5x5x5-meter block size block model was constructed to encompass the area for the resource areas. Cross sections of the block models for the El Zapote (North and South), Guadalupe, San Miguel, and Noche Buena deposits are shown below in **Figure 14-3**, **Figure 14-4**, **Figure 14-5**, **Figure 14-6**, and **Figure 14-7**, respectively.

In some areas, the vein width is smaller than the five-meter block size. To ensure more accurate accounting of the mineralized zone, the mineralized wireframes were used to create a percent block model, flagging the percentage of the block which falls inside the mineralized zone.

Historical workings are present in the El Zapote and the Guadalupe areas. Information was provided by Vista on these workings, which were digitized from historic plan maps. Information was also found on the historical workings in the previously constructed SRK Consulting Inc. block models and this information was transferred to the new model. By using this information, 3D wireframes were created to define the material that has been removed. Known drill hole intercepts of void space were compared to this information to verify the location of the historical workings information. The wireframes were used to flag the blocks in the block model by percentage. These percentages were then used to exclude the previously removed material from the resource model.

After compositing to 3-meter intervals, the blocks were populated with an Au and Ag grade. This was done using the ordinary kriging method of estimation. **Table 14-3** below shows the correlation of the raw gold assays, the composite gold assays and the estimated block values of the gold grade. Gold composites were capped at a value of 50 g Au/t, while silver composite values were capped 700 g Ag/t.

The strike and dip of each zone was taken into account when assigning a search ellipsoid to the block model. Each vein area was assigned a unique code and estimated based on its own set of parameters. The search ellipsoid used in each zone was 40 meters for an indicated resource and 120 meters for the inferred resource. To be classified as indicated, a minimum of three samples was required from at least two drill holes. For the inferred classification, a minimum of two samples was required. The table below shows the search ellipse parameters.

Table 14-3: Estimation Parameters

Zone	Azimuth	Dip	Anisotropy
El Zapote	240	53	30:40:25
San Miguel	201.5	60	30:40:25
Noche Buena	240.7	25	30:40:25
Guadalupe	200	75	30:40:25

Composites that were above cutoff, but outside of the digitized mineralized zone, were estimated using the same search parameters as their vein area, but the search parameters were reduced to a maximum of 60 meters, and required a minimum of two samples to estimate the blocks. The anisotropy of the inferred category was 40:40:25. These blocks were classified as inferred.

Table 14-4 shows the parameters and methods for the estimation procedure used.

Table 14-4: Parameter and Method

Parameter or Method	Method
Mineral Zone Model	Sectional
Composite Length	3-meter
Capping Au	Single cut 50 g/t
Capping Ag	Single cut 700 g/t
Capping Style	Simple top cut
Rotation	MicroModel: Azimuth-Dip-Tilt
Variography Style	Pairwise Relative Spherical
Modeling sill, nugget, ranges	Manual
Search/Variogram Anisotropy	4 Separate Zones (ratio same or zones 30:40:25)
Pass 1 (Indicated)	40m longest range; min 3, max 2/hole
Pass 2 (Inferred)	120m longest range; min 3, max 2/hole
Cutoff Grade	0.5 g/t Au

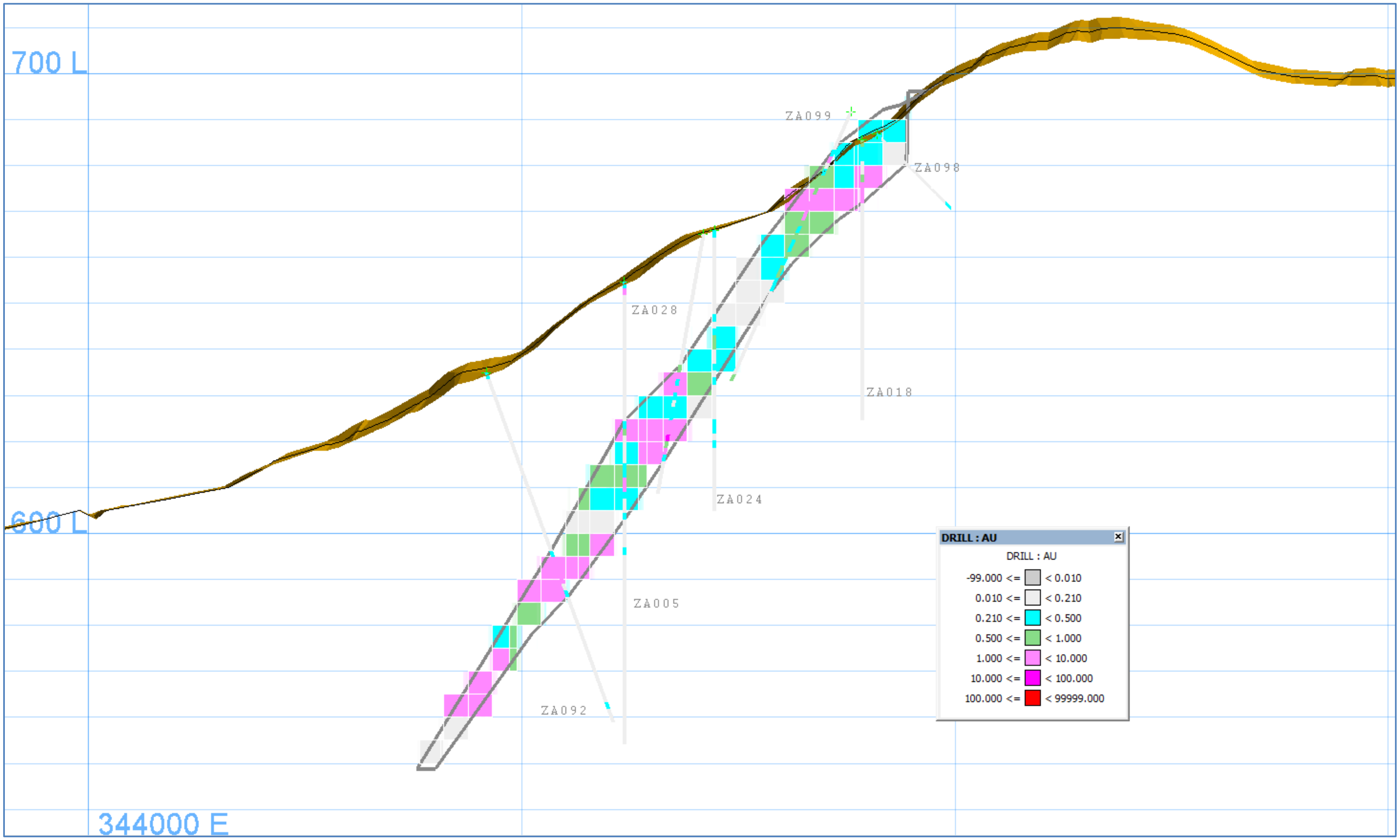

Figure 14-3: El Zapote (North) Block Section Looking Northwest

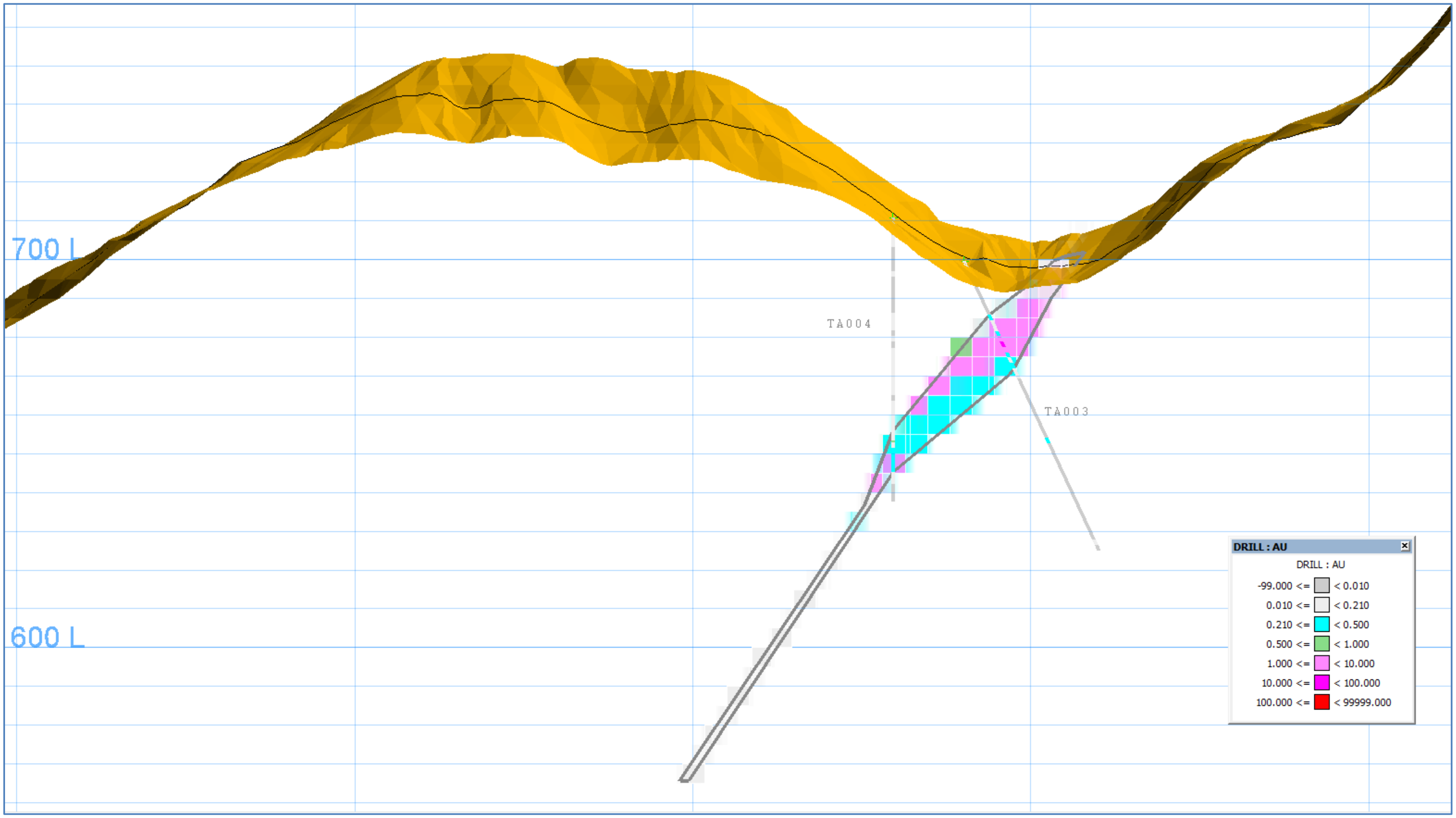

Figure 14-4: El Zapote (South) Block Section Looking Northwest

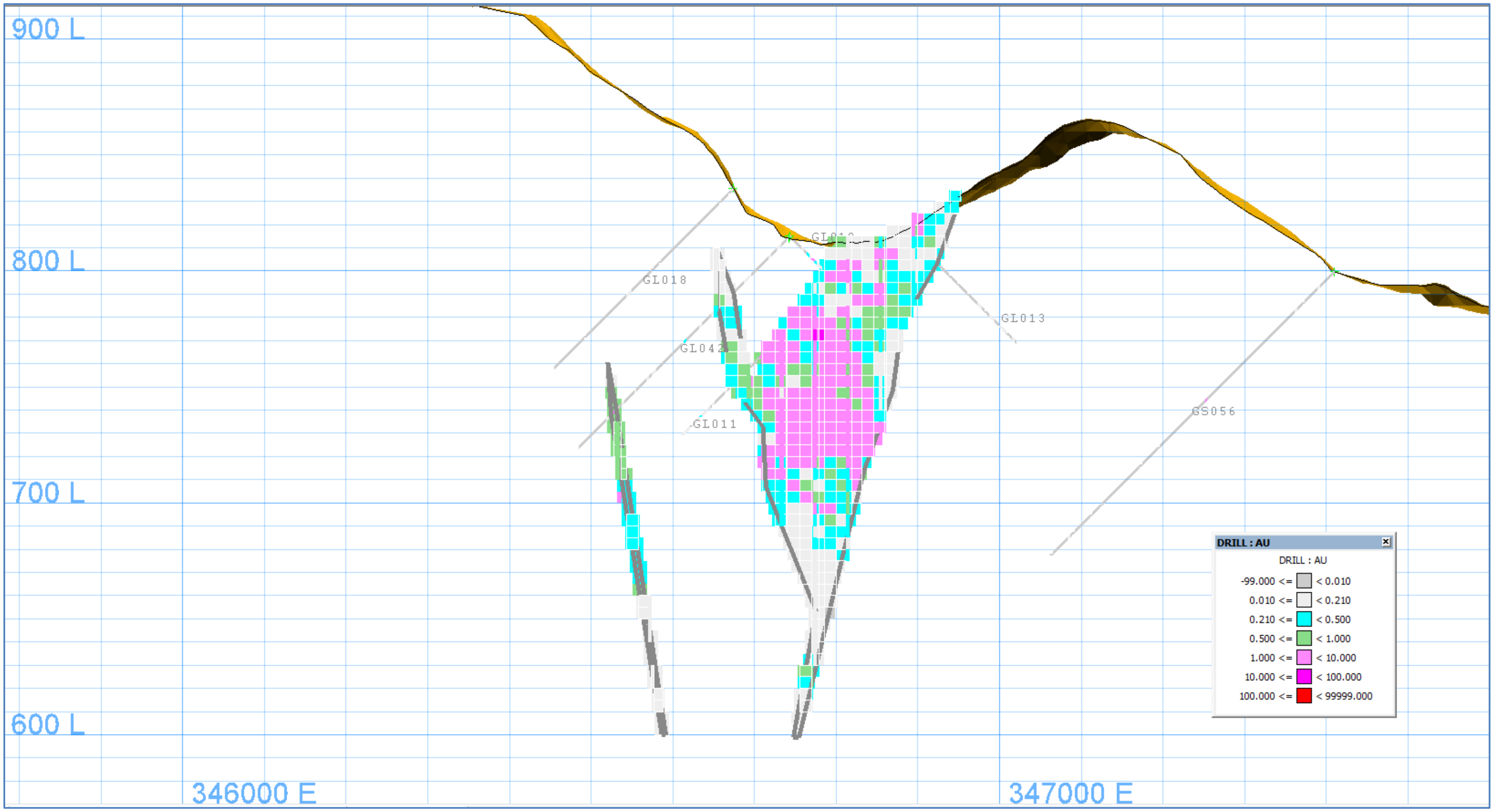

Figure 14-5: Guadalupe Block Section Looking Northwest

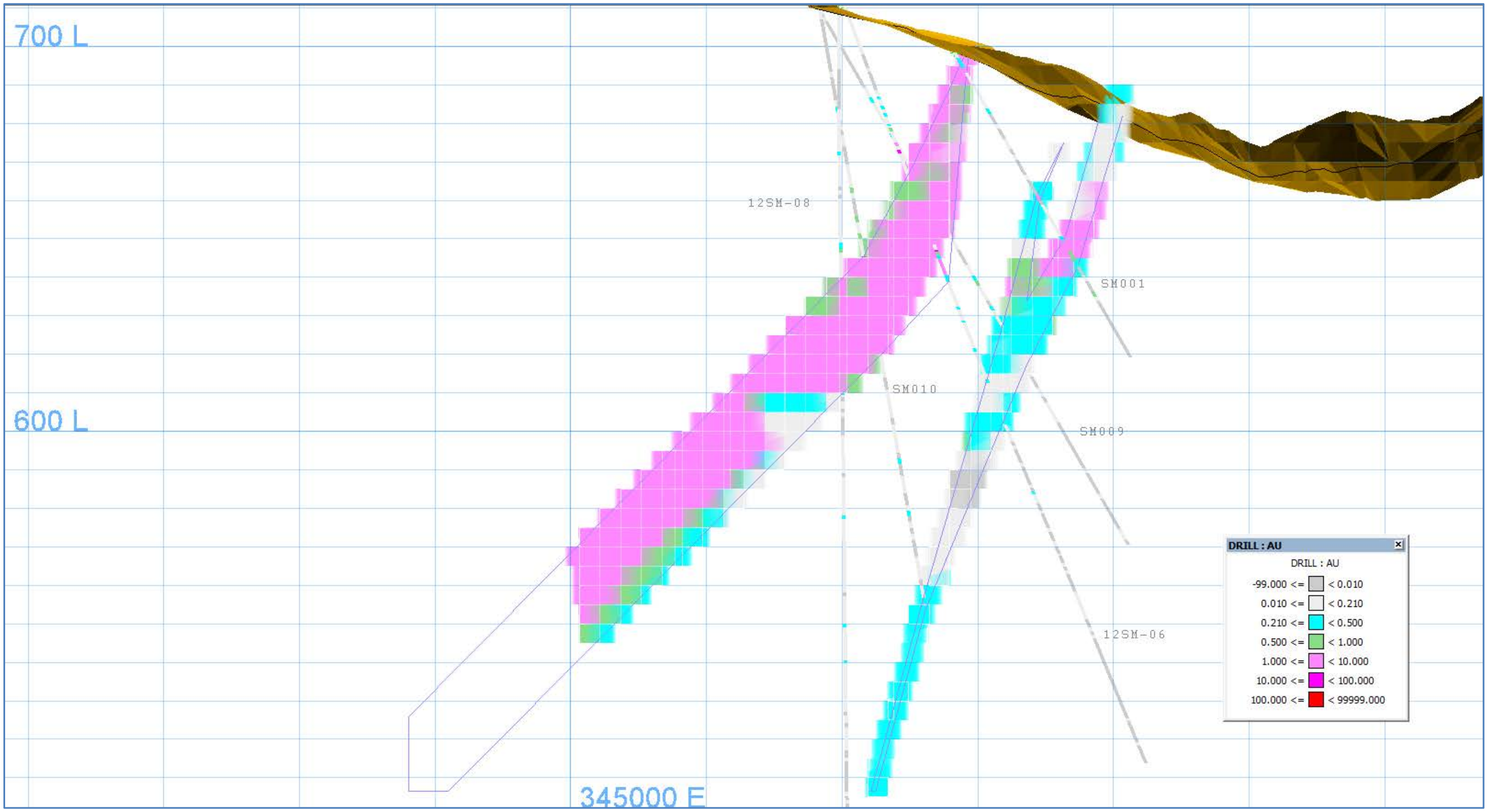

Figure 14-6: San Miguel Block Section Looking Northwest

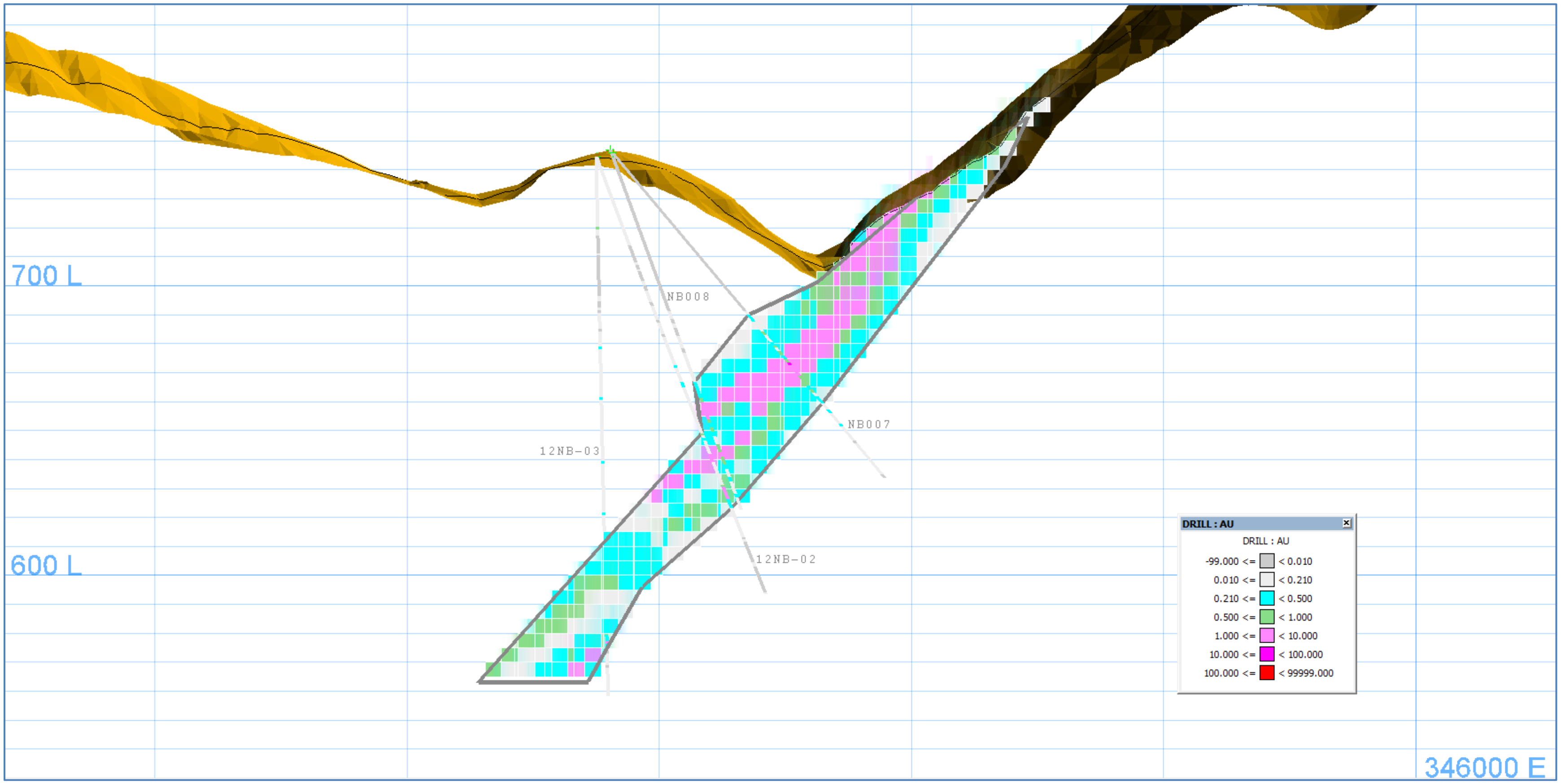

Figure 14-7: Noche Buena Block Section Looking Northwest

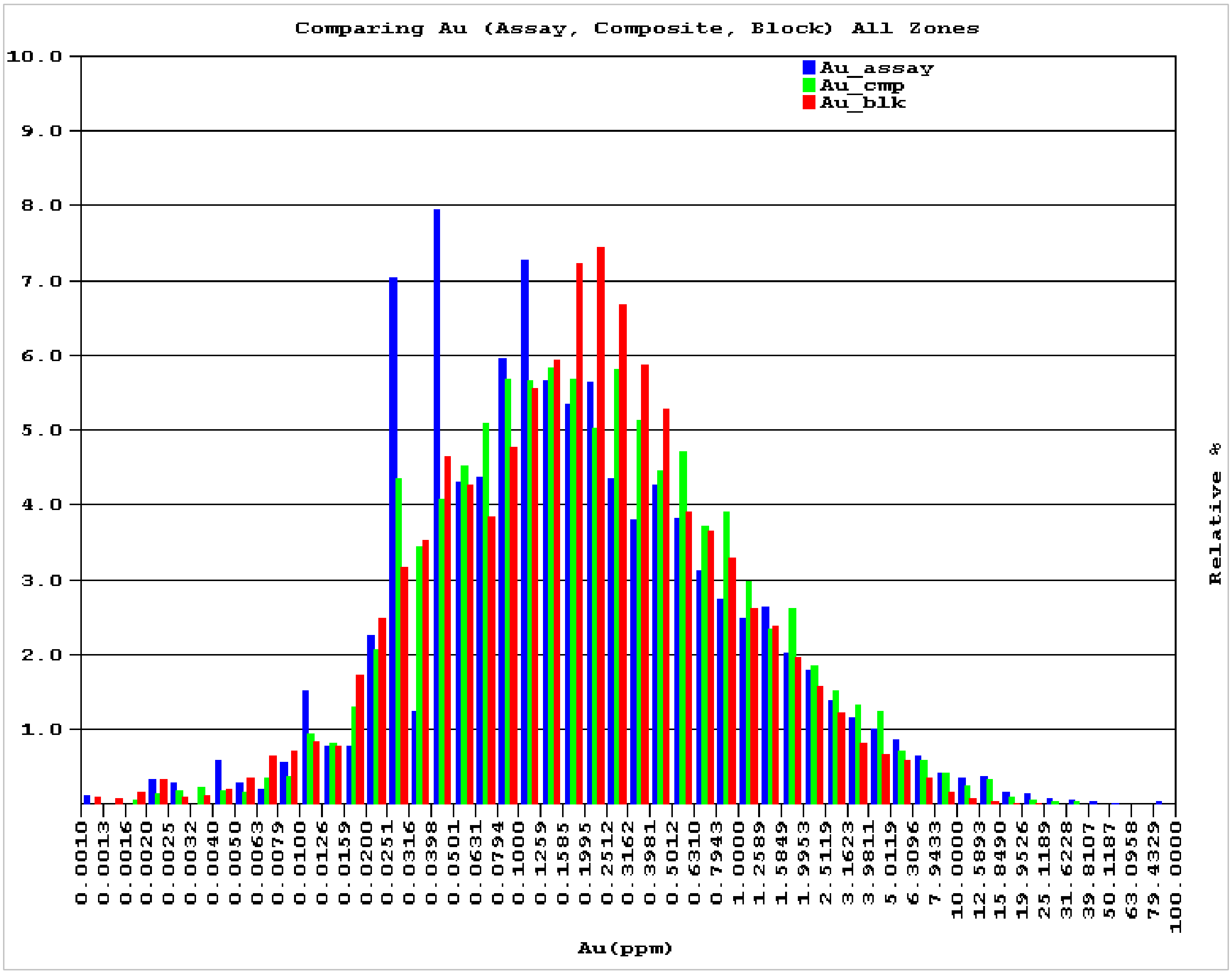

Figure 14-8: Gold Grade Comparison

14.6 Density

Where measured densities were present, kriging was used to estimate block density. Where data was unavailable, a default value of 2.6 g/cm^3 was assigned.

14.7 Classification of Resource Blocks

An indicated mineral resource has been estimated for each of the four veins (**Table 14-5**).

Table 14-5: Indicated Resources at a Cutoff Grade of 0.50 g Au/t

Deposit	Indicated				
	Tonnes (x1000)	Au oz	Gold g/t	Ag oz	Silver g/t
El Zapote	3,980	206,000	1.61	34,600	16.52
Noche Buena	937	39,700	1.32	497,400	16.52
San Miguel – Chiripa	459	47,100	3.19	1,141,800	77.37
Guadalupe	1,520	86,300	1.76	2,601,800	52.51
TOTAL	**6,843**	**380,100**	**1.73**	**6,315,300**	**28.71**

Note1: Figures may not total due to rounding of significant figures.
Note2: Indicated resources are equivalent to US Security Exchange Commission Industry Guide 7 "Mineralized Material"
Note3: Not constrained within an ultimate pit at 0.5 AuEq g/t cutoff.

An inferred mineral resource was also estimated for each vein (**Table 14-6**).

Table 14-6: Inferred Resources at a Cutoff Grade of 0.50 g Au/t

Deposit	Inferred				
	Tonnes (x1000)	Au oz	Gold g/t	Ag oz	Silver g/t
El Zapote	1127	44,800	1.25	428,600	11.82
Noche Buena	480	17,400	1.13	275,000	17.80
San Miguel – Chiripa	583	41,500	2.21	1,215,000	64.75
Guadalupe	1,054	51,600	1.52	1,720,500	50.75
TOTAL	**3,200**	**155,200**	**1.49**	**3,639,000**	**34.87**

Note1: Figures may not total due to rounding of significant figures.
Note2: Inferred resources are not defined or recognized by US Security Exchange Commission Industry Guide 7.

The indicated resource is classified on a search ellipsoid of 40 meters. The inferred resource classification is based on the search ellipse distance of 120 meters. A second pass inferred class was calculated for assay values that are above cutoff, but are not within a mineralized wireframe, these samples were calculated at a search ellipsoid of 60 meters.

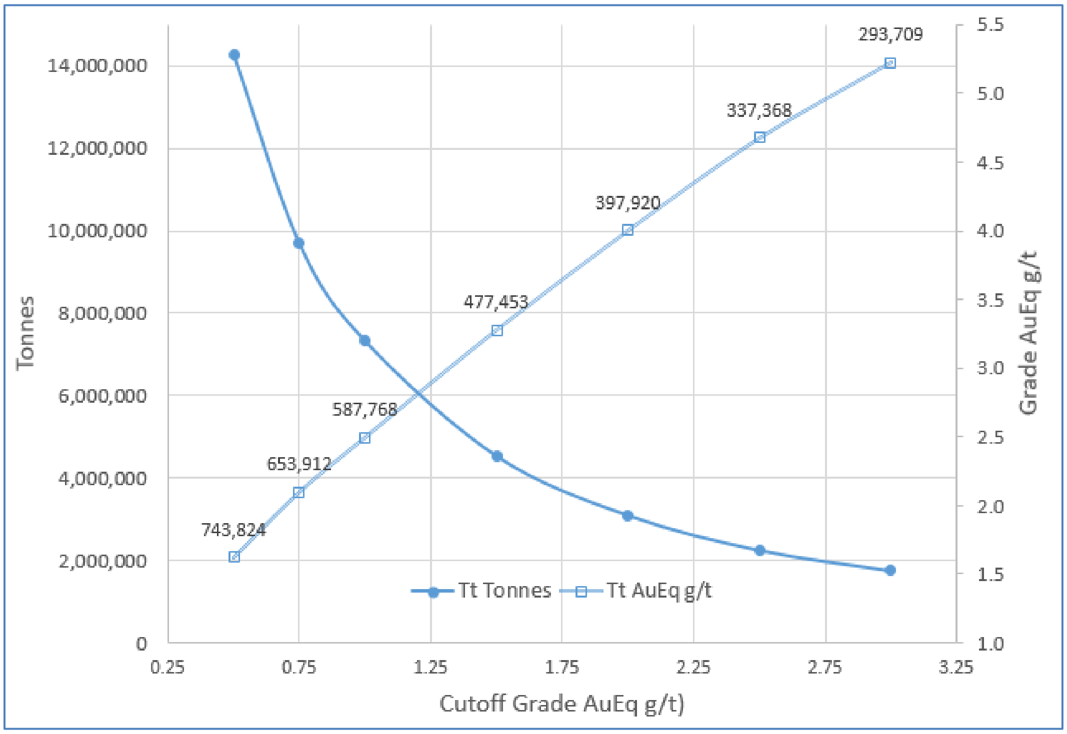

Figure 14-9: Gold Grade Comparison

To compare the models locally, swaths plots along strike and along elevation were used. The swath plots compare the El Zapote and Guadalupe trends only, the San Miguel-Nocha Buena trend was not compared. Tonnes, grade and contained AuEq were calculated at a 0.5 AuEq g/t cutoff. Similar to the global resource tabulation, the swath plots demonstrate the models are reasonably similar when compared section to section.

14.8 Pit Optimization with Current Pricing

A pit optimization was run using $1,200/oz Au and $15/oz Ag. The results are shown in **Table 14-7**.

Table 14-7: Indicated Resources within Optimization Shells Using Current Pricing

Model	Cutoff AuEq (1200:15)	Class	Tonnes M	Au g/T	Ag g/T	AuEq g/t	Au oz	Ag oz	AuEq Oz	Waste Tonnes M	W:O
LG Pit	0.5	All	4.6	1.7	28	2.1	255,786	4,208,672	308,394	38.0	8.2

Note1: Lerchs-Grossman optimized pit is a mathematical algorithm that determines the largest pit with a non-negative net profit.
Note2: Results shown use a AuEq grade and ounces that have been calculated using a mining/milling cost of $4/t, pit slope of 45%, $1,200/oz Au and $15/oz silver with no mining or metallurgical recovery adjustments.
Note3: Inferred resources not tabulated

Figure 14-10 shows the location of the Lerchs-Grossman pits along with block grades.

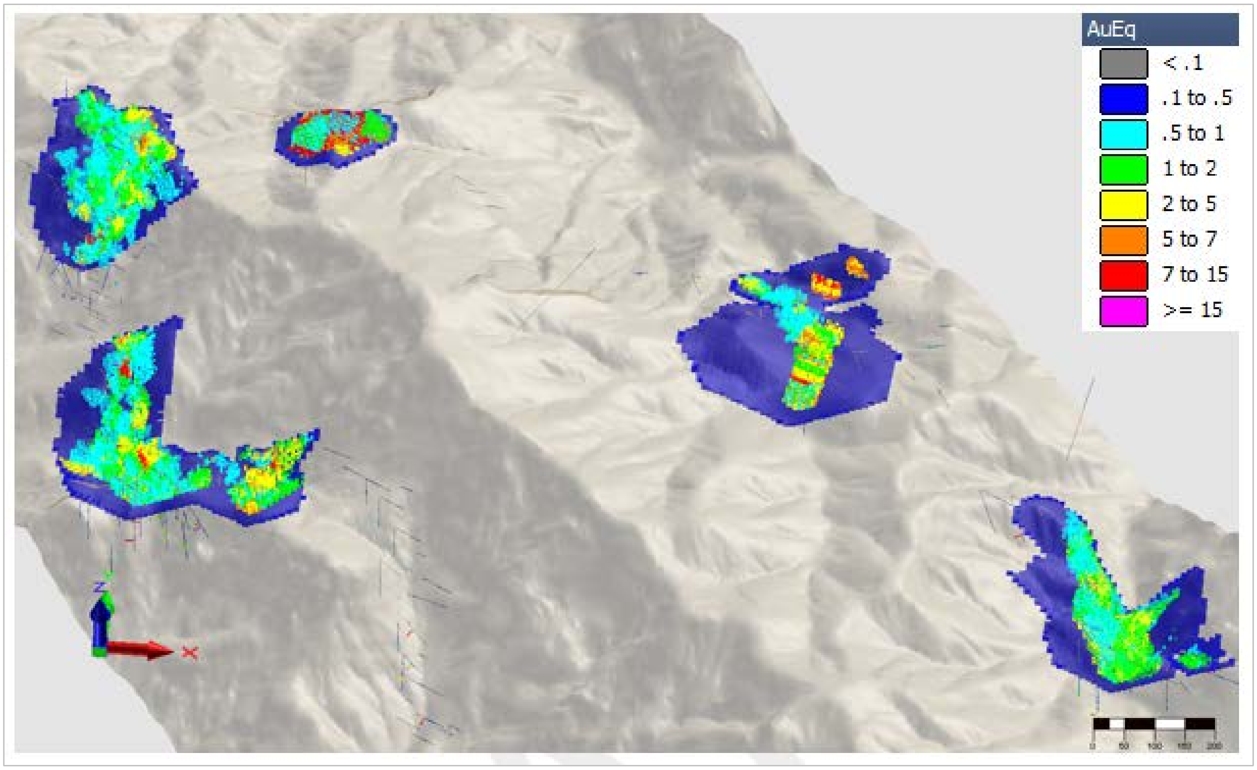

Figure 14-10: Gold Grade Comparison

14.9 Quality of Resource Estimation

Several methods were used to validate the block model to determine the adequacy of the resource estimations. Confirmatory drilling in 2015 was used to ascertain the general good quality of the model. In addition, overlaid cumulative frequency plots of blocks, composites, and assays were used. The three overlaid plots showed the expected decrease in the variability of the gold distributions going from assays to assay composites and then to kriged blocks. In addition:

- Jackknife studies were employed to determine the optimum kriging search parameters and the overall quality of the estimation as required by classification.
- Numerous swath plots were analyzed in the direction of rows and columns were used to verify that composite and block gold grades are spatially in sync. Additional swath plots were used to compare Tetra Tech's 2012 model with and unpublished model 2015 prepared by SRK for Great Panther. Several examples of these swath plots are shown in below.
- The use of visual inspection of the kriged blocks models in section and plan and the inspection of gold histograms of assays, composites and blocks.

14.9.1 El Zapote Trend Swaths

Figure 14-12 shows the comparison of Tetra Tech and SRK model tonnage and AuEq grade along strike, northing, for the El Zapote trend, **Figure 14-13** shows contained AuEq ounces for the same swaths. **Figure 14-11** shows the location and orientation of the swaths.

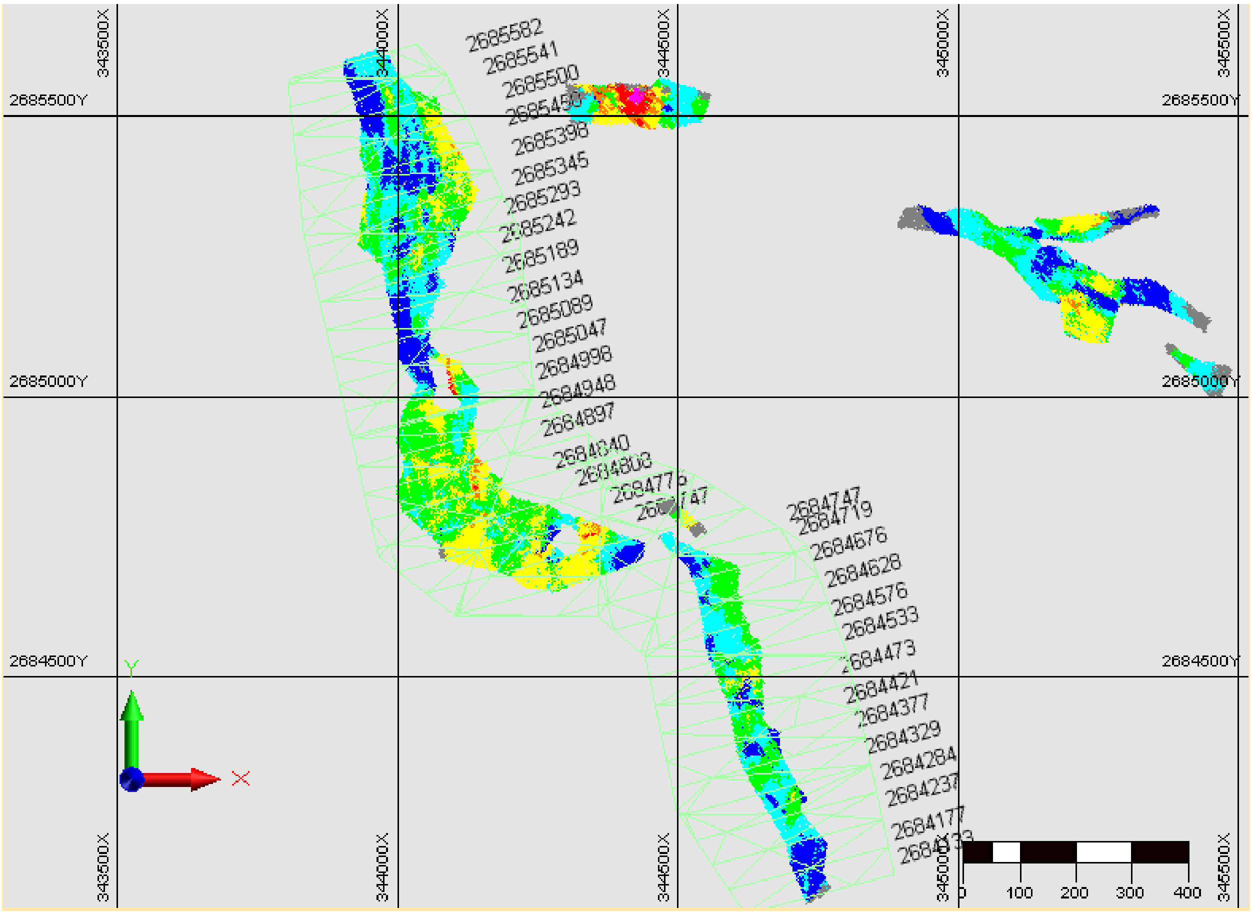

Figure 14-11: Swath Plot Locations El Zapote Northing

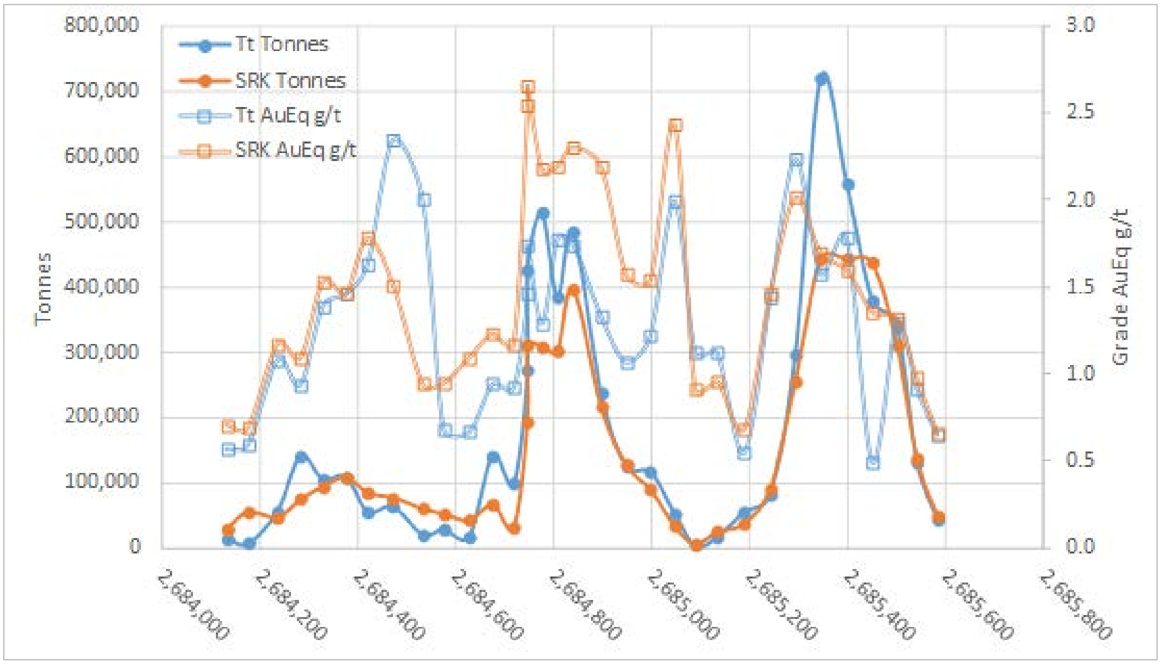

Figure 14-12: Swath Plot El Zapote Northing Tonnes and Grade

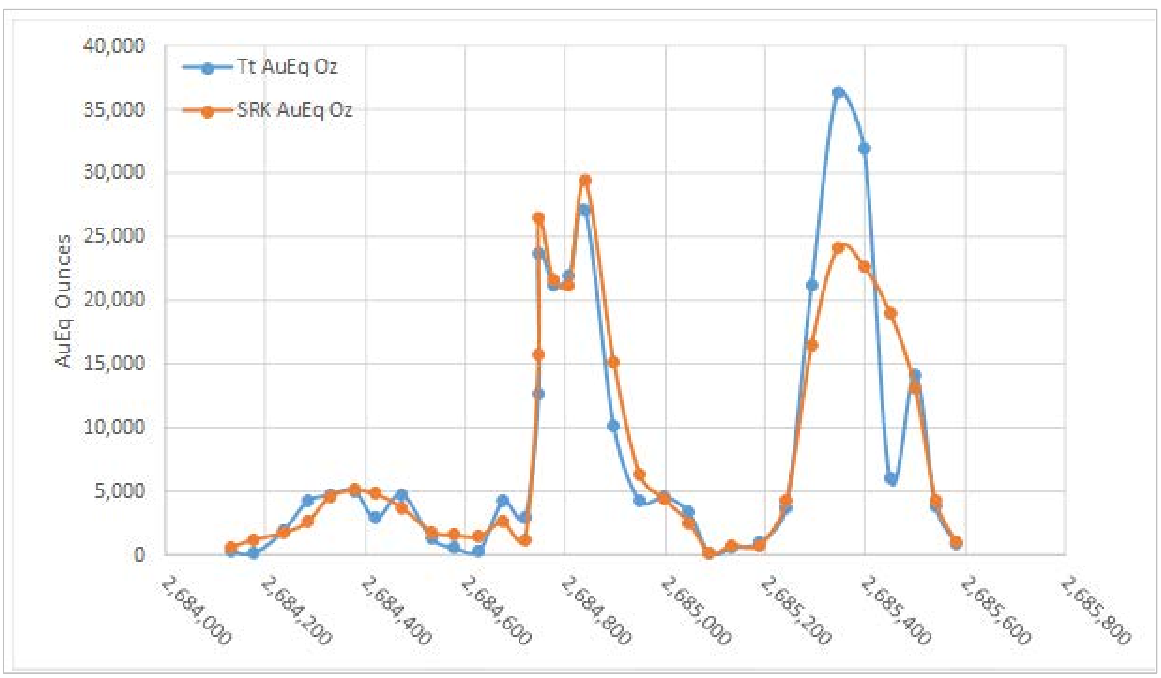

Figure 14-13: Swath Plot El Zapote Northing Contained Metal

14.9.2 Guadalupe Trend Swaths

Figure 14-15 shows tonnage and AuEq grade along strike, northing, for the Guadalupe trend, **Figure 14-1** shows contained AuEq ounces for the same swaths. **Figure 14-14** shows the location and orientation of the swaths.

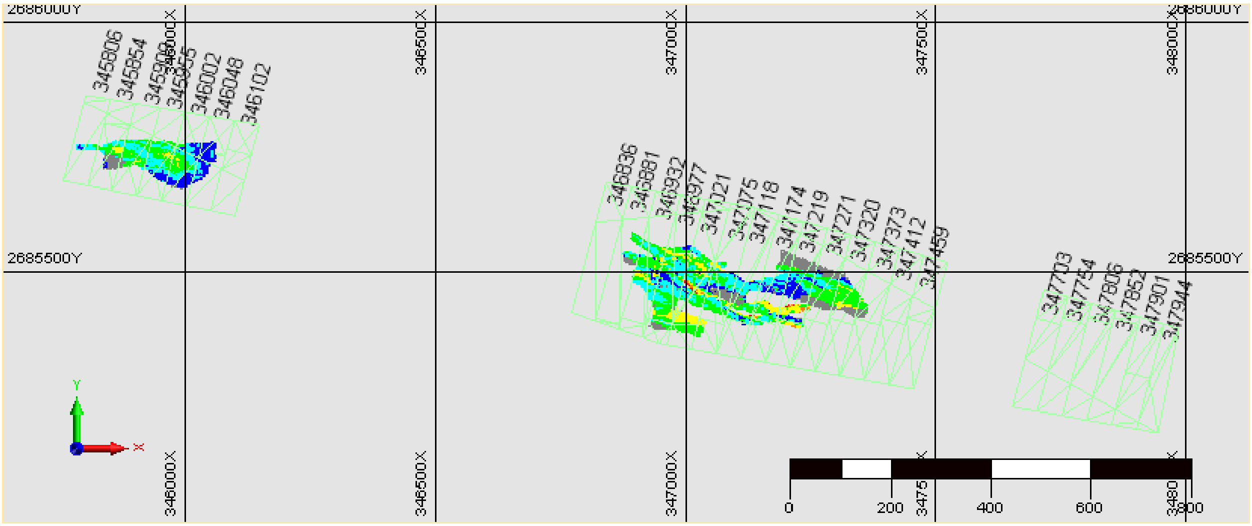

Figure 14-14: Swath Plot Locations Guadalupe Easting

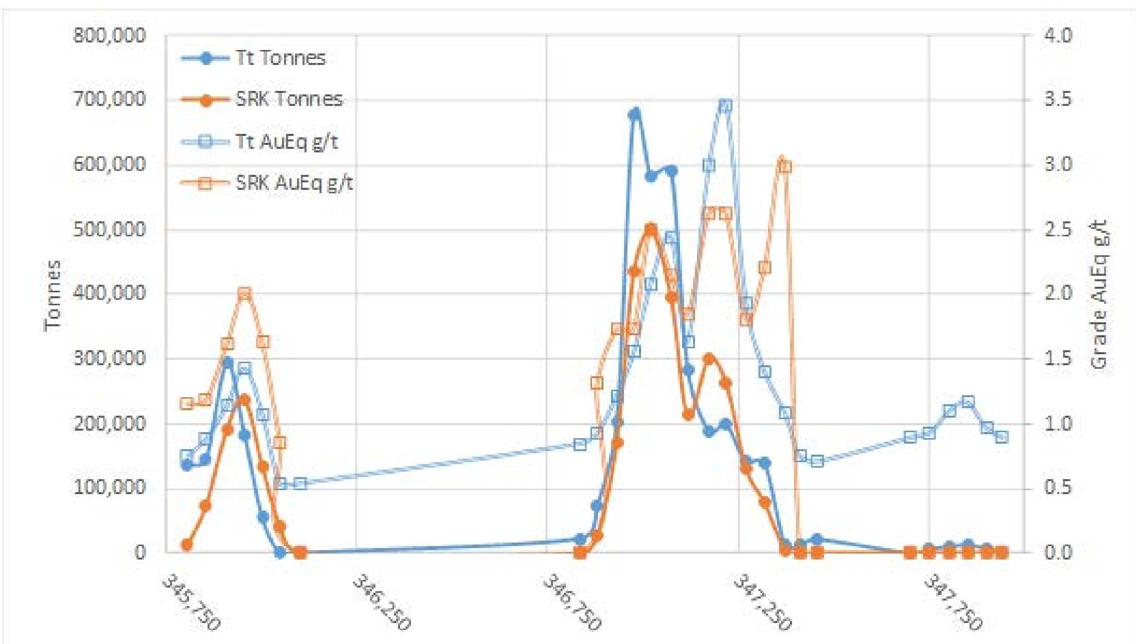

Figure 14-15: Swath Plot Guadalupe Easting Tonnes and Grade

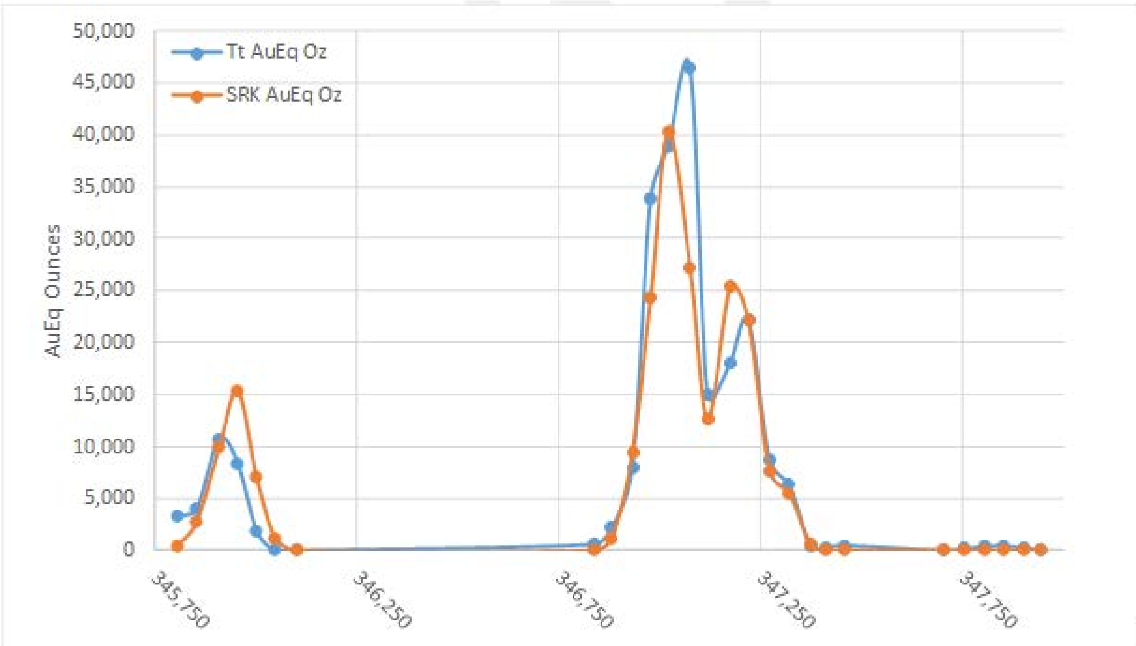

Figure 14-16: Swath Plot Guadalupe Easting Contained Metal

14.10 Relevant Factors Affecting Resource Estimates

There are currently no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors which could affect the mineral resource estimate.

15.0 RESERVE ESTIMATE

This section is for advanced stage properties only and does not apply.

16.0 MINING METHODS

Mining methods have yet to be determined at this time.

17.0 RECOVERY METHODS

Recovery methods for the project are currently being evaluated.

18.0 PROJECT INFRASTRUCTURE

The Guadalupe de los Reyes Project area is a greenfield site. As such, the infrastructure improvements required to support an operation at the project will need to be evaluated once recovery/mining methods have been selected.

19.0 MARKET STUDIES AND CONTRACTS

No market studies have been conducted and there are currently no contracts in place.

20.0 ENVIRONMENTAL

No existing on-site environmental liabilities were encountered, and no impediments were identified regarding the ability to obtain the necessary permits for mining and processing activities. Mine permitting in México, however, is wrought with uncertainty. To expedite permitting and minimize unanticipated permitting issues, Minera Alamos should establish mutually beneficial relationships with federal and local governmental authorities, local businesses, and communities that are founded on compliance with applicable environmental laws and regulations. No existing physical environmental liabilities were identified during the review of available records, with the exception of a few adits, mining roads, small waste rock piles, as well as open drill holes and minor amounts of disturbances from previous and current exploration.

During Tetra Tech's review of available records, specific data and information were not found regarding the ground and surface water regime and the significance of the biological resources in and adjacent to the property. Investigations should therefore be conducted to evaluate the potential impacts of mining activities on biological resources, local land uses; and ground and surface water allocation and beneficiation in and adjacent to the property. In addition, the geochemical and physical properties and management of waste rock and tailings, and their impacts on ground and surface water, air quality and site reclamation, require further investigation. Other issues that may require special permitting consideration include:

- Geotechnical stability of tailings and waste rock disposal facilities
- Control of stormwater during the rainy season
- Air pollutant emissions from mining and processing facilities
- Dust emission from tailings, roads, and other facilities
- Demographic, socioeconomic, and land use changes
- Transportation of equipment, supplies, and services

With adequate site investigation and planning, these issues can be evaluated and addressed.

Based on available records, Cosalá is a generally pro-mining municipality with a history of mining. In addition, the Nuestro Senora Mining Project, located west of municipality of Cosalá, obtained approval to mine and process ore. As such, the permitting of a new mine in the Cosalá area should be feasible, especially given the increase in high-paying mining jobs and the demand for community services. Permitting a new mine will require strategic planning and skillful execution to address issues related to:

- Modifications in local economies and traditional land uses
- Changing social, cultural, and political demographics of the population
- Environmental impacts
- Public focus and the focus of non-governmental organizations on the intrinsic value of natural resources and amenities afforded by the Sierra Madre Occidental

20.1 Permitting

México's mine permitting process is shown on **Figure 20-1**. According to Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA), an Environmental Impact Assessment involves the following documents:

- IP - Informe Preventivo (Preventative Notice)
- ER - Estudio de Riesgo (Risk Study) and PPA - Programa de Prevención de Accidentes (Accident Prevention Program)
- MIA - Manifestación de Impacto Ambiental (Environmental Impact Statement)
- ETJ - Estudio Tecnico Justificativo (Technical Justification Study)
- LAU - Licencia Ambiental Única (Comprehensive Environmental License)
- Other registrations and permits
- Local permits

At the beginning of the permitting process, the proponent requests Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) to visit the site to recommend whether an IP only, or an IP and MIA will be needed. An IP and MIA will likely be needed for the Project. A PPA might also be required, depending on the results of the ER. Water right permits through the Comisión de Agua (National Water Commission or CONAGUA) likely will be required also for the Project.

Once all the submitted permit documents are reviewed and approved by SEMARNAT and local authorities, an Autorización de Impacto Ambiental (Environmental Impact Authorization) is issued and Vista may prepare and submit a Construction Permit application to the Municipality of Cosalá for approval. Construction of mine facilities and the initiation of mining activities may begin upon issuance of the construction permit.

Descriptions of the major permitting requirements and documents that likely will apply to the Project are provided below.

20.1.1 IP – Informe Preventivo (Preventative Notice)

This report is intended to provide general information about the project and determine whether or not an MIA will be required, and on what basis (regional or specific). According to LGEEPA, activities that are exempt from preparing an MIA and require only the IP are as follows:

- When there are established NOMs—Normal Oficial Mexicana (Official Mexican Norms)—or other regulations that control the emissions, discharges, or use of natural resources, or other environmental impacts that could be the result of project activities
- Work or activities that previously have been addressed in a partial urban development plan or ecologic ordinance previously evaluated by SEMARNAT
- Facilities located in authorized industrial parks

These categorical exemptions, however, do not apply to the Project since Article 28 of the LGEEPA specifically lists exploration and exploitation of minerals as activities requiring an MIA.

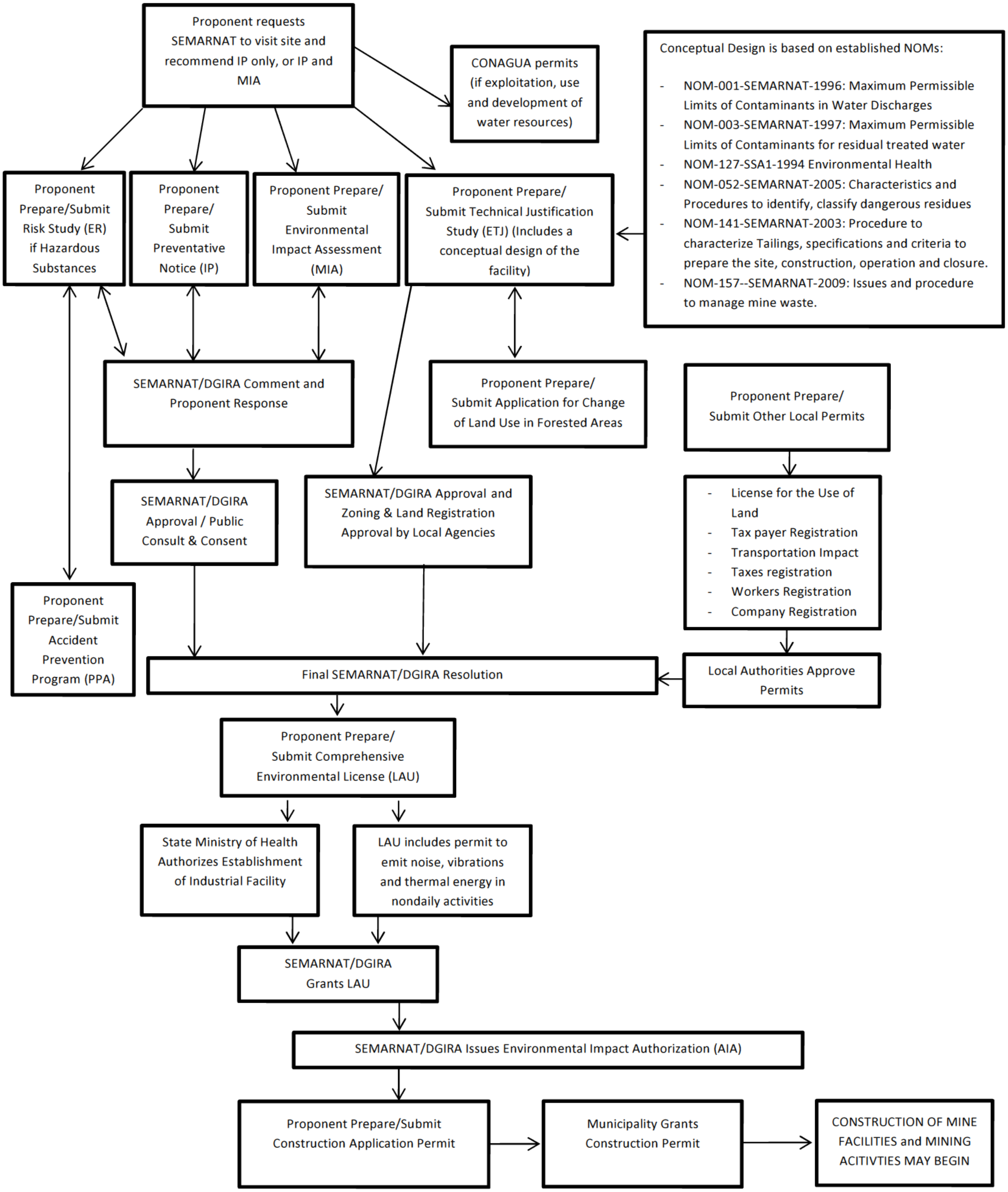

Figure 20-1: Mine Permitting Process in México

20.1.2 ER – Estudio de Riesgo (Risk Study)

This report addresses the potential risks posed by the construction of the project. It is required for all projects involving activities or substances that are designated as hazardous (corrosive, reactive, explosive, toxic, inflammable or having biological infectious properties) by LGEEPA in Article 30, and that exceed the specified amounts. Given the current mineral processing plans, an ER will be required for the Project. The ER for the Project should include the following information:

- Descriptions of potential risks associated with the project
- Hazardous substance release scenarios, and mitigation and containment measures
- Signs describing safety measures and information
- Probability of accidents or spills involving hazardous substances and pollutants
- Potential accident impact area outside the project area
- Accident impact severity outside the project area
- Accident prevention measures
- Plan de Atencion a Contingencias (Emergency Response Plan) to be implemented in the event of such an accident

The level of detail contained in the ER depends on the anticipated type and use of hazardous substances for the project. SEMARNAT has established four levels of detail for ERs are as follows:

- Level 0 (Ground pipelines)
- Level 1 (Preliminary Risk Report)
- Level 2 (Risk Study)
- Level 3 (Detailed Risk Study)

Tetra Tech anticipates that Level 2 or 3 will apply to the Project.

20.1.3 PPA – Programa de Prevención de Accidentes (Accident Prevention Program)

The PPA is based on the results of the ER and includes preventative pollution measures and the emergency response procedures designed to protect workers, surrounding populations, the environment and natural resources in case of an unanticipated release or the threat of a release of pollutants. The plan must be approved by SEMARNAT, the Secretariat of Economy, and the Secretariat of the Interior.

20.1.4 MIA – Manifestación de Impacto Ambiental (Environmental Impact Statement)

The objective of this document is to evaluate, mitigate, and communicate the potential environment effects related to the Project. The MIA should include

- General project information
- Mine construction and operation plans
- Description of the physical, natural, and social environment where the project will be developed
- Description of the measures and designs that will be implemented to comply with the environmental norms

- Identification and evaluation of potential impacts
- Description of the proposed mitigation measures for the identified impacts

MIAs include detailed analyses of the following areas: soil, water, vegetation, wildlife, cultural resources, and socio-economic impact. Waste water discharges into national bodies of water, and waste water infiltration into soil where groundwater may be affected are under federal jurisdiction.

Public consultation is solicited by promulgating a summary of the MIA to the general public through newspapers or any electronic media. The entire MIA is evaluated by the environmental authorities (federal, state, and municipal), which includes consideration of public comments and opinions regarding the project. The MIA either may be rejected if it does not meet minimum requirements, or federal, state and municipal authorities may require the proponent to make corrections to the MIA. Proof of local community support for a project is required to get a final MIA approved.

SEMARNAT or the project proponent may arrange public meetings. Any person can request a public meeting within 10 days of the publication of the MIA summary. Once SEMARNAT receives the request, it has 5 days to respond. The project proponent has another 5 days to publish a response to public concern. After that, the general public has 10 days to file a request for a copy of the entire MIA from SEMARNAT. Once the entire MIA is available to the public, anyone can propose, in writing, changes to the MIA, including changes to designs and mitigations. Public consultation may prove more successful if Vista obtains adequate legal and public relations support from Mexican organizations.

SEMARNAT then prepares a resolution indicating if the project is environmentally viable. The final resolution must be published and include public consultations, proposed alternatives, agency and public comments, and proponent responses.

20.1.5 ETJ – Estudio Técnico Justificativo (Technical Justification Study)

The ETJ is the technical document that includes the designs, actions, procedures, and monitoring for the protection, conservation, and restoration of forest ecosystems. The ETJ should include the conceptual description of the mine plan of operations. The ETJ must demonstrate compliance with the provisions of LGEEPA as follows:

- The project will not compromise biodiversity
- The project will not cause soil erosion
- The project will prevent deterioration of the water quality
- The project will limit water use
- The proposed change in land use will be more productive long-term than the existing land use

20.1.5.1 Change of Land Use in Forested Areas

Since a portion of the Project area is forested, Vista will be required to submit to SEMARNAT, under the ETJ, an application for change in land use for forested areas disturbed by mining activities. Changes in the forest land use may only be granted when the provisions of LGEEPA listed above are satisfied. Activities within previously burned areas will not be permitted if they are anticipated to occur within 20 years of the fire occurrence. SEMARNAT will review the ETJ in consideration of all applicable NOMs and the economic benefit resulting from the proposed land use changes.

20.1.6 LAU – Licencia Ambiental Única (Comprehensive Environmental License)

The LAU combines the evaluation, approval, and monitoring of environmental obligations under federal jurisdiction (covering procedures for impact and risk, emissions to the atmosphere, water rights, the generation and handling of hazardous waste, etc.) for SEMARNAT, and in particular for CONAGUA. The LAU is administered by the Dirección General de Manejo Integral de Contaminantes (General Office of Integrated Pollutant Management). The LAU is issued once, but must be updated to reflect changes in production, capacity, processes, expansion of facilities, business name, and ownership. Periodic review and follow-up to the LAU are performed through the Cédula de Operación Annual (Annual Operations Certificate).

20.1.7 Other Registrations and Permits

20.1.7.1 Hazardous Waste

Since Minera Alamos' activities would involve hazardous waste (as defined in LGEEPA, article 7) operations involving collection, shipping, and/or storage services as well as reuse, recycling, treatment, incineration, and/or final disposal systems for hazardous waste, Minera Alamo must register as a hazardous waste generator with SEMARNAT, with a copy sent to Procuraduría Federal de Protección al Ambiente (PROFEPA). Once the company is registered with PROFEPA as a hazardous waste generator, SEMARNAT assigns the company an environmental registry number that must appear on all reports that Vista files with the authority.

20.1.7.2 Water Right Permits

The use of the nation's water or the right to discharge wastewater is carried out by concession from the Federal Executive Branch, through CONAGUA; therefore additional permits might be required. Among the possible required permits are:

- Permit to discharge residual water
- Certification of water quality
- Permit to assign or modify surface or ground water use
- Permit for material extraction
- Permit to occupy federal lands;
- Certification of compliance with surface and ground water standards
- Certification for use of brackish water
- Authorization for the transfer of legal water rights title and registration
- Permit to suspend wastewater treatment operations
- Permit to modify the hydrologic cycle
- Permit to construct, use, and maintain hydraulic infrastructure
- Permit for the operation, conservation, and management of the irrigation system and associated infrastructure

20.1.7.3 Local Permits

In addition to the permits and documents mentioned above, the following local permits are required in the State of Sinaloa, Municipality of Cosalá for mining and related activities:

- Taxpayer's federal registration
- Land use permit
- Ruling on road impact
- Record payroll taxes;
- Employer notice of registration and/or notice of registration of workers
- Business registration with the Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Institute of National Housing Fund for Workers)

20.1.7.4 Permitting Schedule

Permitting times can vary depending on the nature and complexity of the project. **Table 20-1** includes an estimate of the average time for governmental agencies to process permits once they are submitted by the project proponent.

Table 20-1: Estimated Permit Processing Times

Permit Application	Average Time Required for Processing
ER (Risk Study)	30 business days
IP (Preventative Notice)	20 business days
Public Comments on IP (if required)	65 business days
MIA (Environmental Impact Manifesto)	60 business days
Public Comments on MIA (if required)	65 business days
ETJ (Technical Justification Study)	50 business days
Land Use Permitting Process	5 business days
LAU (Comprehensive Environmental License)	70 business days, with extension of additional 60 days, if needed
Average Total Permitting Time	365 business days

20.2 Environmental Liabilities

According to previous technical reports (PAH, 2009 & 1998), existing environmental liabilities are limited and include mine adits, roads, small waste rock piles, and one cyanidation vat near the town of Capule that was operated until the 1950s. Reportedly, no acid mine drainage from the existing adits and underground mine have been detected.

Due to recent and previous exploration activities, open drill holes and minor amounts of surface disturbances exist. Reportedly, Meteoric Water Mobility Procedure (MWMP), Acid Base Accounting, (ABA) and Corrosive, Reactive, Explosive, Toxic, Inflammable and Biological Infectious (CRETIB) test results from mineralized or waste rock samples collected during exploration do not indicate the presence of potentially acid-generating/metal-leaching material (PAG/ML) or hazardous waste (according to Mexican regulations) in the proposed mining zone; however the MWMP, ABA and CRETIB data were not available or reviewed.

The quantity and quality of mine waste encountered during mining should be investigated further to determine if PAG/ML and hazardous waste will be exposed on-site. This information, along with mine planning and design, should be used to devise measures to prevent or reduce the production of acidic/metal-laden mine drainage that might exceed applicable water quality standards.

20.3 Baseline Studies

This section includes a brief summary of environmental site conditions. These brief descriptions are provided of the Project hydrology, geochemistry, climate, existing water treatment, ecology, climate, soils and radiological monitoring.

20.3.1 Water Resources

Water resources in the vicinity of the project are briefly discussed in Sections 1.13 and 24.1 of this report.

20.3.2 Geochemical Characterization

According to previous technical reports (PAH, 2009 & 1998), due to recent and previous exploration activities, open-drill holes and minor amounts of surface disturbances exist. Reportedly, MWMP, ABA and CRETIB test results from mineralized or waste rock samples collected during exploration do not indicate the presence of PAG/ML or hazardous waste in the proposed mining zone. These MWMP, ABA and CRETIB data, however, were not available or reviewed.

20.3.3 Meteorology, Climatology, and Air Quality

The climate in the vicinity of the Project is briefly discussed in Section 5.2 of this report. To Tetra Tech's knowledge, air quality monitoring data collected from the vicinity of the Project does not exist.

20.3.4 Water Treatment

To Tetra Tech's knowledge, there are no active or passive water treatment systems currently in operation near the Project. Small water treatment systems may be used by the residents of Capule and Guadalupe de los Reyes to treat water for drinking.

20.3.5 Ecology

According to previous technical reports (PAH 1998), vegetation and wildlife in the Project area have been impacted by agricultural (farming and grazing) practices. These areas are relatively flat and at the lower elevations. The mining area has been impacted by modern day mining and exploration activities. There are isolated areas of vegetation that have not been directly impacted/disturbed; however, these areas are still subject to grazing by cattle. Preliminary reports reveal considerable diversity of species.

The nearest protected natural area is Sierra De Alamos-Rio Cuchujaqui, which is approximately 17 miles northeast of the town of Tasajera, México. The vegetation community types most common in the vicinity of the Project are lower deciduous jungle, agriculture/secondary lower deciduous jungle, Encino forest, Pine-Encino forest, and pasture.

20.3.6 Soils

According to previous technical reports (PAH 1998), soils of the project area are relatively thin in the mining areas and tend to get deeper at lower elevations. Therefore, the primary factors limiting salvage of PGM in the disturbed area for reclamation are likely shallow soils, high rock fragments, rock outcrops, and steep slopes. Soils in drainages that formed in alluvium and soil on concave slope may be deeper and contain larger volumes of suitable PGM than ridges and convex slopes.

20.3.7 Additional Radiological Monitoring

To Tetra Tech's knowledge, no radiological monitoring data collected from the vicinity of the Project exists.

20.4 Reclamation and Closure

Detailed reclamation and closure plans are appropriate for advanced stage properties only; therefore, they have not been developed for this report. However, a brief outline of the components of most reclamation and closure plans includes the following:

- Analysis and engineering of closure design and costs
- Demolition and disposal of surface facilities
- Sealing of adits, shafts and other mine openings
- Complete or partial backfilling of pits
- Geotechnical stabilization of mine waste
- Dewatering and consolidation of tailings and other saturated/near saturate mine waste
- Management and treatment of draindown solutions and seepage
- Well abandonment
- Site grading
- Hauling, dumping and spreading plant growth medium
- Installation, monitoring, and maintenance of stormwater/flood conveyance systems
- Revegetation
- Installation, monitoring, and maintenance of erosion, sediment, and dust control best management practices
- Erection of access barriers along the perimeters of the pits, tailings, or other mine facilities to preclude public access
- Post-closure site monitoring and maintenance
- Demonstration of bond release

Environmental site development activities that facilitate reclamation and closure are also necessary and include, for example, salvage and storage of plant growth medium (PGM) for reclamation of the mine-related disturbance and selective handling and management of PAG/ML mine waste.

21.0 CAPITAL AND OPERATING COST ESTIMATES

No capital or operating costs have been determined at this time.

22.0 ECONOMIC ANALYSIS

No economic analysis has been completed for the project.

23.0 ADJACENT PROPERTIES

The Project is located in an isolated area within the northwest-trending Sierra Madre Occidental. As shown in **Figure 4-1**, the “6 De Enero” claim is privately held and completely surrounded by Vista’s claims. No modern exploration work has been conducted on the “6 De Enero” claim, but historic workings of the Guadalupe mine exist on the claim.

The nearest operating mines to this district are those within the Cosalá Mining District, such as La Reyna and La Estrella (Scorpio Mining Corporation), approximately 30 km to the northwest. Similar epithermal-type gold-silver deposits of the San Dimas and Tayoltita Mining District operated by Primero Mining Corp. can be seen about 60 km to the east of the Guadalupe de los Reyes Mining District.

Tetra Tech has been unable to verify information relating to adjacent and nearby projects and the information provided is not necessarily indicative of the mineralization on the property that is the subject of this technical report.

24.0 OTHER RELEVANT DATA

24.1 Hydrological Studies

24.1.1 Introduction

Water consumption for the project has not yet been determined. The water supply for the process plant potentially can be obtained from three sources, including groundwater wells, river water, or a collection/retention structure. Due to a lack of hydrogeological data, groundwater availability is uncertain. Previous mining operations in the region have utilized river water for similar volumetric requirements.

24.1.2 Climate

The climate of the region is arid to semi-arid with an average annual precipitation of 1,000 mm, most of which occurs from July to September, often in strong storm events making rivers and drainages susceptible to flash flooding. No significant rainfall occurs during the dry season of December to June. Average evaporation rates range from approximately 80 mm in December to 250 mm in May, with a total annual average of approximately 1,800 mm. Due to the large precipitation events, a runoff diversion around mine workings will be necessary.

24.1.3 Surface Water

México's river catchments are organized into 37 hydrological regions, which are in turn grouped into the 13 Hydrological-Administrative Regions. The site is located in the Hydrological-Administrative Region 3, Northern Pacific, and within the River Elota sub-Basin. The main channel of the River Elota runs year round and is located approximately 2 km west of the proposed process plant. A road connects the proposed process plant location and main river channel. The route has an upward gradient which will require pumping (~150 meter elevation). Tributary streams, which are closer to the site, have flows highly dependent on seasonal precipitation and are denoted as intermittent by INEGI. These streams may not be a reliable source of water during the dry season.

Three potential river/stream extraction points designated A, B, and C, currently have been identified, as shown in **Figure 24-1**:

- Extraction point A is located in the closest proximity to the process facility (1.7 km), draining an area of 21 km^2.
- Extraction point B is located 4.1 km from the site and drains an area of 205 km^2 .
- Extraction point C is just below the confluence of the Habitas and Elota Rivers, located 6.8 km from the site and draining an area of 1140 km^2.

The Scorpio mine, a similar operation in the area, (approximately 20 km northwest) located west of the town of Cosalá, utilized surface water from the Habitas River, which drains approximately 835 km^2. Water consumption at the Scorpio facility was estimated at 138m^3/ hr for 1,500 metric tonnes milled per day, and estimated to recirculate 50-60 percent of the process water.

A prefeasibility water balance model (PAH, 1998) calculated an average year peak excess water volume of 7,638 m^3, and with extreme wet season conditions of 70,533 m^3, draining from a total catchment area of 117,807 m^2.

Surface water in the area is used by small local communities, using a hose directly from the stream. A previous drilling operation utilizing surface water was halted following disruption of this water source. The Guadalupe de los Reyes Project is down drainage from those known communities and is not considered likely to impact their surface water usage.

24.1.4 Groundwater

The project is located on the Rio Elota Aquifer (aquifer reference number 2506). According to data published in the Diario Oficial de la Federacion from August, 2009, the available volume of water to the Rio Elota Aquifer is approximately 33.55 million cubic meters per year, available from the alluvial portion of the aquifer. The Guadalupe de los Reyes Project is located on fractured bedrock in the high area of the aquifer where recharge occurs.

Assessment of groundwater potential within the fractured bedrock has not been undertaken. Exploratory drilling and well installation, followed by appropriate aquifer testing, is required to identify potential production zones and to assess supply opportunities for the Project. No permits are required to drill wells for the extraction of water.

Water rights and approvals are controlled by CONAGUA. Water tariffs in México are generally based on increasing block tariffs. The rate charged increases with the amount of water used, and is set locally by each municipality. The site is within the municipality of Cosalá. According to the current legislation, individuals or companies must pay for the use of the national waters regardless of how the rights were obtained. These rates are determined by its availability and the method of extraction.

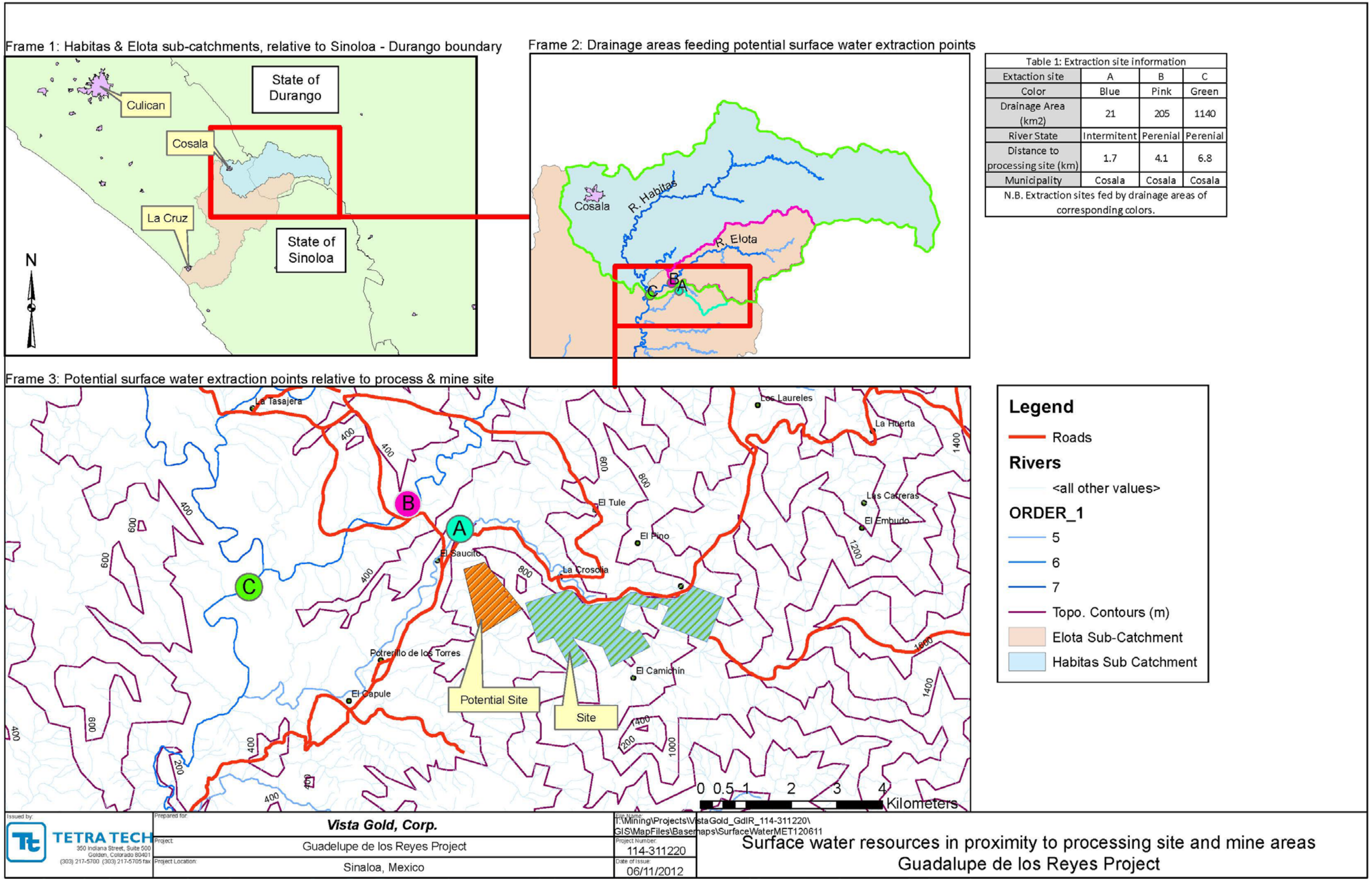

Figure 24-1: Surface Water Resources

25.0 INTERPRETATIONS AND CONCLUSIONS

Tetra Tech's review of provided data and site visits have shown exploration activities at the Guadalupe de los Reyes Gold and Silver Project meet standard practices and contribute to the reliability of resource estimation.

The results of this mineral resource indicate the Project contains several km of near-surface quartz veining host to indicated and inferred Au and Ag mineral resources which warrant the further consideration of potential development opportunities.

Tetra Tech is not aware of any significant risks or uncertainties that reasonably could be expected to affect the reliability or confidence in the exploration information or mineral resource estimates.

26.0 RECOMMENDATIONS

26.1 Resource Drilling

Tetra Tech recommends further new drilling at the Guadalupe de los Reyes Project. Tetra Tech recommends that the confirmatory drilling done by Great Panther Silver Limited be included in the resource database. Tetra Tech also recommends that Minera Alamos place additional drill holes using Tetra Tech's resource models to target areas of high grade inferred mineralization, and attempt to further increase indicated resources. In addition, Tetra Tech would recommend similar techniques are used to attempt to convert indicated resources to measured resources. Tetra Tech cannot guarantee additional drilling will convert current resources to a higher classification. Tetra Tech also recommends that Minera Alamos continue to explore prospect areas that have shown indications of mineralization in drill core with limited drilling, and also drill in areas identified by surface mapping that are currently untested. Drilling should be conducted in two phases. Each phase should include drill holes that define resource and drill holes exclusively for exploration. If results from Phase 1 are satisfactory, Phase 2 should commence.

Tetra Tech recommends that Minera Alamos commence a technical evaluation to review processing and development alternatives for the Project.

26.2 Metallurgical Testing

Metallurgical testwork currently completed is sufficient to support a PEA-level study for a grinding and leaching process; however, the next phase of testwork should be focused on additional data required for the evaluation of other processing alternatives, including heap leaching.

Along with metallurgical testwork, Tetra Tech recommends further measurements of density are taken, including characterization of waste rock density.

A tabulation of the above described activities is included in **Table 26-1.**

Table 26-1: Future Work Recommendations

Activity	Comment	Cost (USD)
Phase 1 Drilling	Resource and exploration 2,500 m	625,000
Phase 2 Drilling	Resource and exploration 2,500 m	625,000
Drilling Subtotal	Phase 1 and Phase 2 5,000 m	1,250,000
Technical Report Updates	Cost to complete, less mineral resource report	500,000
Metallurgical Testwork		30,000
Density Testing		5,000
Total		**1,785,000**

26.3 Mine Planning

Development of an updated mine plan based on current pricing and updated cost. This work would include:

- Refinement of cutoff grade
- Refined pit designs
- End of year plans for LOM
- Refined waste rock storage facilities for LOM
- Mine equipment requirements
- Manpower requirements
- Capex and Opex
- Development of geotechnical parameters for pit slopes by a geotechnical drilling program

High strip-ratio pits towards the end of the current Project schedule should be examined for the potential of underground development.

26.4 Infrastructure

Investigations should be completed to assess major infrastructure requirements including:

- Power supply for the site
- Water supply for the site
- Sanitary waste disposal facilities
- Site preparation
- Access to site

26.5 Environmental Permitting Recommendations

Tetra Tech recommends the collection, assembly, and analysis of environmental, societal, and land use baseline data listed below for the purpose of obtaining the requisite permits to mine. The recommended baseline studies listed below assumes that SEMARNAT will require an MIA (Environmental Impact Statement) and an ER (Risk Study). Tetra Tech further recommends that Minera Alamos integrate the findings and conclusions of these studies into the mine and closure designs and plans, as well as compliance systems, procedures and management plans.

- Collect, assemble, and analyze multimedia data to address established NOMs regarding water discharges and treatment limits (NOM -001 & -003), environmental health (NOM-127), hazardous substances (NOM-052), tailings (NOM-141), and other mine waste (NOM-157). Integrate the findings and conclusions of these studies into the mine and closure designs and plans, compliance systems procedures, and management plans.
- Collect, assemble, and analyze multimedia data that describes the physical, natural (including biodiversity and water resources), and social environments in the vicinity of the Project to allow the identification of potential Project-related impacts to the natural and human environment (including forest ecosystems).
- Collect, assemble and analyze:
  - Air emissions from Project-related facilities and equipment
  - Water rights and water use data relevant to Project-related water use and discharges

  - Urban development plan or ecologic ordinance areas previously evaluated by SEMARNAT (if any)
- Plan and design measures to:
  - Protect and conserve forest ecosystems if present within the planned area of mine-related disturbance
  - Restore (or compensate for) disturbance of forest ecosystems by Project-related activities
  - Not compromise the biodiversity
  - Prevent soil erosion
  - Prevent deterioration of the water quality or water quantity
  - Establish land uses post-mining that are more productive than the current land uses
- Plan and design accident prevention measures, environmental protection facilities, and emergency responses pertaining to accidental fire, explosions, or release of hazardous substances (as define in LGEEPA - Article 30) planned to be used for the Project. Collect, assemble, and analyze multimedia data to evaluate the extent and magnitude of impacts related to these potential upset events.

26.6 Hydrology

It is recommended that stream gaging be conducted to better quantify the available surface water volume, to evaluate any potential impacts of water withdrawal to the local communities and environment, and to determine if there is a need for a water retention structure. Baseline water quality testing of surface and/or groundwater should be conducted. Groundwater investigations are recommended if surface water is deemed insufficient to meet demand. Local hydrological administration will need to be consulted to determine required approvals and fees.

27.0 REFERENCES

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