Technical Report And Resource Estimate

on the

Santa Gertrudis Gold Project,

Sonora, Mexico

Prepared for

Animas Resources Ltd.

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1.0 SUMMARY

1.1 Introduction and Property Location

This Technical Report, which includes additional first-time NI 43-101-compliant resource estimates for the Santa Gertrudis project area, was prepared by Ore Reserves Engineering ("ORE"), Roger C. Steininger, John R. Wilson and Gregory E. McKelvey at the request of Animas Resources Ltd ("Animas"), formerly Deal Capital Ltd., a publicly traded Canadian corporation listed on the TSX Venture Exchange. The purpose of this report is to provide a technical summary of the Santa Gertrudis project in Sonora State, Mexico. The scope of this work and study included 1) a review and reporting of pertinent technical reports and historic data provided to ORE by Animas, 2) the reconstruction of the drill-hole database, 3) the estimation of a new resources for the Trinidad, Dora, Escondida, La Glora, Mirador, Tigre, Greta, and Tracy, and 4) one site visit by ORE.

The Santa Gertrudis project is situated in the Santa Teresa mining district, Cucurpe, Imuris, and Magdalena Municipalities, in northeastern Sonora State, Mexico. It is located 170km south of Tucson, Arizona, 180km north of Hermosillo, Mexico and 40km east of the town of Magdalena de Kino. As of May 1, 2009, the Santa Gertrudis property consisted of 53 concessions that cover a total of 56,153 hectares. The approximate co-ordinates of the center of the property are UTM system 543800m East and 3388300m North (Zone 12, NAD 27). The latitude is 30^{o} 35' N and the longitude is 110^{o} 32' W. The Santa Gertrudis property consists of claims that cover the area previously held by Sonora Copper LLC (1,420 hectares) and Sonora Gold Corporation (16,547 hectares), plus 17 concessions (1,714 hectares) optioned by Animas that are contiguous with, or internal to, the original Santa Gertrudis claims. An additional 36,472 hectares of concessions were staked by Animas on the northwest, west and southwest boundaries of the original claim block.

1.2 Geology and Mineralization

The Santa Teresa mining district contains approximately thirty gold deposits that are hosted in rocks correlative with the Upper Jurassic-Lower Cretaceous Bisbee Group clastic and carbonate units of southeastern Arizona. These gold deposits occur in a northwest-trending belt that is approximately 20km long and up to 8km wide. Although the entire Cretaceous sedimentary section is not exposed within the district, it is believed that the sedimentary package has a minimum thickness of 1,300m. The lowest unit of the Bisbee Group is the Glance Conglomerate which is overlain sequentially by the Morita Formation (sandstone-limestone-siltstone), the Mural Formation (limestone-calcareous siltstone-carbonaceous shale) and the Cintura Formation (sandstone-limestone-siltstone). In general, these units are exposed in a northwest-trending belt that is covered to the northeast by Tertiary volcanic rocks and to the southwest by recent gravels. Andesite, diorite, and rhyolite dikes and sills are common throughout the district and most appear to pre-date gold mineralization. While there is some outcrop in the center of the district, much of the district is covered by a thin veneer of alluvium and colluvium.

The district is structurally complex and locally the rocks are strongly folded and faulted. During the Laramide Orogeny, the area was subjected to northeast-directed compression and the Bisbee Group rocks were folded and thrust faulted along a northwest-trending structural axis. Thrust faulting occurred mainly along bedding planes and locally the units were overturned to the southwest. Extensional, low-angle normal faulting occurred during the Miocene and this resulted in the formation of several southwest-dipping allochthonous plates. This faulting is believed to be at least locally post-mineralization in age, and it appears to displace gold mineralization. Following the low-angle faulting event, north-, northeast-, and east-trending Tertiary normal faulting occurred and subsequently, these faults were cut by Basin and Range-style north-northwest-trending normal faults.

The majority of the gold mineralization in the Santa Teresa mining district, and specifically the higher-grade gold (>3.0g Au/t), occurs within silicified fault and shear zones associated with the pre-mineralization faulting. Silicification generally occurs as quartz veins and fracture-controlled stockwork rather than pervasive jasperoidal replacement of the rocks. The style of sedimentary-rock-hosted gold mineralization observed in the Santa Teresa mining district is generally referred to as "Carlin-like" and is similar to deposits classified as distal-disseminated gold deposits.

The Cristina gold deposit, however, is a unique deposit type in the Santa Teresa mining district. Though hosted within the locally calcareous siltstone-shale Cintura Formation, the deposit is essentially an epithermal quartz stockwork gold system. The quartz veins often have an open-space cockscomb texture and locally, quartz pseudomorphs after calcite are common. As in the other Santa Gertrudis gold deposits, gold mineralization is associated with fine-grained, disseminated pyrite though surficial weathering has resulted in a variable, but generally 100m-deep level of oxidation.

While the focus of past and present activities in the district has been on the sedimentary-rock-hosted gold occurrences, there are several other mineral deposit types. These include gold-copper deposits in skarn (± magnetite), gold-bearing quartz vein deposits, and locally, placer gold deposits. Polymetallic quartz vein systems, with or without gold, and containing some combination of silver, copper, bismuth, lead, and zinc also have been prospected in the past. In both the southeastern (Greta area) and southern (San Enrique area) portions of the district there are indications of intrusive systems with a copper–molybdenum-silver affinity.

1.3 Exploration and Historic Resource Estimates

Modern exploration began in 1984 when Phelps Dodge Mining Company ("Phelps Dodge") identified several sedimentary-rock-hosted gold occurrences in the district. Phelps Dodge developed the Santa Gertrudis mine and produced gold from 1991 to 1994 from multiple open pits. The property was sold in 1994 to Campbell Red Lake Resources Inc. ("Campbell"), who continued to mine and conduct exploration under the name of their Mexican operating company, Oro de Sotula S.A. de C.V ("Oro de Sotula"). The nearby Amelia mine was operated by Minera Roca Roja starting in the late 1980's until it also came under the control of Campbell in 1999.

Campbell declared bankruptcy and ceased operations within the Santa Teresa mining district in 2000 and, through a series of transactions, the property was again divided, with the López-Limón concessions under the control of Sonora Copper LLC and the remainder of the property transferred to Queenstake Resources Ltd ("Queenstake") in January 2002 when Queenstake exercised their option to obtain 100% of the shares in Oro de Sotula. Queenstake then transferred ownership of the Oro de Sotula properties to International Coromandel. Subsequently, International Coromandel changed its name to Sonora Gold and held the original Santa Gertrudis claims under the Mexican corporation First Silver Reserve, S.A. de C.V. and the former Roca Roja Amelia claim block under the Mexican corporation Recursos Escondidos S.A. de C.V. Sonora Gold conducted limited exploration on selected targets within the district but no known exploration activities were conducted by the Lopez-Limon group. The two groups of claims were consolidated again by Animas in 2007 and exploration was reinitiated.

To date, Animas has completed three drilling campaigns at Santa Gertrudis during which 42 holes were drilled for a total of 12,926.00 meters of drilling completed (37 core hoes, 3 reverse circulation holes, and 2 combination core/reverse circulation holes). A total 13 different areas were evaluated, and although many of the holes were drilled to test inferred down-dip and strike extensions of known gold mineralization, several areas with large tonnage gold potential and one are of large tonnage Mo-Zn potential were also drill tested.

Historic pre-Animas exploration drilling, according to the reconstructed drill-hole database, totals 2,187 drill holes for an aggregate 221,194m. This includes 539 diamond drill ("core") holes totaling 53,925m and 1,648 reverse circulation ("RC") holes totaling 167,269m. The historic exploration also includes over 1,000 shallow percussion holes and at least 23 sampled and recorded surface trenches. In total, over 100 target areas have been tested. Importantly, exploration has been conducted only to generally shallow but variable depths of ~150m around known deposits and ~100m in other target areas.

Several historic resource estimates have been made for gold deposits within the Santa Gertrudis property, but due to the past divided land package, there has not been an all-inclusive statement that considers the current Animas property. A historic resource estimate covering all of the ground now controlled by Animas except for the former Minera Roca Roja property (Amelia mine) was completed by Campbell in 2000. The 2000 historic estimates reported a Measured and Indicated resource of 1,446,000 tonnes at an average grade of 2.05g Au/t, totaling approximately 95,000 ounces of gold. The 2000 estimate also reported an Inferred Resource of 14,791,000 tonnes at an average grade of 1.28g Au/t, totaling approximately 607,000 ounces of gold. These estimates are not compliant with NI 43-101 and cannot be relied on. The authors cannot, due to lack of documentation and supporting data, make an assessment of reasonableness of these historic mineral inventories, but it is likely that any future reported resources within the constraints of CIM and NI 43-101 guidelines would be different due to the requirement for the reported material to have "reasonable prospects for economic extraction"; higher cost extraction processes required for the unoxidized material will mandate using higher cutoff grades for reporting and may thereby decrease the reportable resources when following CIM and NI 43-101 guidelines.

1.4 Historic Production

Between 1991 and 2000, approximately 565,000 ounces of gold were mined in the district from what is now part of Animas' Santa Gertrudis property. A total of 8,244,000 tonnes at an average grade of approximately 2.13g Au/t were mined from open pits from 22 sedimentary-rock-hosted, disseminated-gold deposits. This total includes production by Phelps Dodge and Campbell from the Santa Gertrudis mine and production at the Amelia mine. Production at the Amelia mine (98,000 ounces gold) is not well documented and these figures should be considered approximate. Daily production at the Santa Gertrudis mine ranged from 2,000tpd to 3,000tpd with an average stripping ratio of about 5.1. Phelps Dodge, Campbell and Roca Roja employed conventional heap leach extraction techniques with metal recovery by CIC adsorption, stripping, and Merrill Crowe (MC) zinc precipitation. Average gold recovery for the Santa Gertrudis mine was in excess of 70% with excavation and processing mainly confined to the oxide portions of the gold deposits.

1.5 Metallurgy

Phelps Dodge completed a significant amount of metallurgical testing for their 1988 mine feasibility study. This work included numerous bottle-roll tests on various ore types; agitation and column-leach studies, with and without agglomeration, on primarily oxide ore; flotation and roasting tests on carbonaceous sulfide ore; and dye penetration tests. A large amount of the testwork was conducted on the Agua Blanca and Los Becerros deposits while more limited work was performed on samples from the El Corral and Hilario deposits. The flotation and roasting tests were performed on samples from the Amelia and Maribel deposits.

The Phelps Dodge metallurgical testing completed for their feasibility study indicated that the oxide ore at a size of 38mm or finer is amenable to recovery of gold by heap leaching. The average recovery was forecast at 82%. Upon completion of mining, Phelps Dodge determined that overall gold recovery was 80% for the life of the mine. This was calculated from metal production and residue assays of the leach pads from material mined from the Agua Blanca, Becerros Sur, Becerros Norte, and some ore from the El Corral pits.

Bottle-roll and column leach testing on the deep, carbonaceous material indicated poor gold recoveries due at least in part to the preg-robbing character of the material. Initial flotation and cyanide agitation-leach testing resulted in recoveries less than 10% of the gold from the carbonaceous material. Flotation testing that included a roasting circuit before leaching increased recoveries to 60% of the gold. Due to the high cost of gold recovery from this carbonaceous, sulfidic material, the deep mineralization was excluded from Phelps Dodge's mineable reserves.

During 2005 and 2006, Sonora Copper completed additional metallurgical testwork on carbonaceous and refractory sulfide samples from the Dora and El Corral pits. The initial testing indicated that these were transition-type materials containing a combination of oxide, sulfide, and carbonaceous mineralization. The testing focused on using flotation for removing the sulfides and carbon, and cyanide leaching for recovering the gold in the tails. Flotation was tested using different grind sizes, copper sulfate activation, and cleaning of the concentrate. Copper sulfate activation was found to improve the gold recovery. Carbon-in-leach ("CIL") treatment of the tails was also proposed because not all of the carbon was floated and adsorption on active carbon might override any preg-robbing tendencies.

The flotation testing results indicated a gold recovery of between 80% and 90% with between 50% and 60% of the gold recovered in the flotation concentrate. No further testing was performed on the flotation cleaner concentrate. Some method to treat the refractory sulfides, such as roasting, autoclaving, or bio-oxidation will still be needed.

The Cristina gold deposit metallurgical testing is limited to work completed by Phelps Dodge in 1991 and 1992. The Phelps Dodge testwork consisted of 57 bottle-roll cyanide leach tests using reverse circulation drill sample reject material, and a single bulk column leach test on material from two surface trenches. Average gold recovery from all of the bottle-roll tests was 73%, with lime and cyanide consumptions of 1.5kg/t and 0.05kg/t, respectively. Additional testing on a single sample with a gold recovery of 48% indicated that the low gold recovery was probably due to silica encapsulation and/or coarse gold and not from sulfide encapsulation, or preg-robbing by carbonaceous material.

The bulk sample column test consisted of a composited 2,300kg sample leached in a 15in-diameter by 20ft-high column. The size of the material as removed from the excavation was approximately 80% minus 2.5cm and the head grade of the material was 0.82g Au/t. Overall gold recovery was 82% after 84 days of leaching and water washing. This compares with a recovery of 74% by bottle roll leaching of a split of the same sample crushed to 80% minus 1.25cm.

1.6 Database

In preparation for this technical report, and to serve as a foundation for further exploration work, Animas and Mine Development Associates (MDA) compiled various historic data and constructed a working project database. MDA started with a database provided by Animas that was composited from approximately 58,700 files restored from various digital archives. Of these files, 892 summary files were used to create the initial database. After removing duplicates and correcting for errors, the composited database contains over 1.7 million distinct assay records. This database is currently being used as the "historic database".

A second "certificate" database is constructed from two sources: original lab certificates obtained electronically and hand-verified data from scanned images of the original certificates. There is a high degree of data integrity within the certificate database. To create a third "working" database, to be used by

Animas for exploration planning and in resource estimation, data missing from the certificate database is pulled in from the historic database. Currently, about 70% of the data in the working database comes from the certificate database. Data continues to be incorporated into the certificate database, prioritized by project area as needed.

The current Santa Gertrudis project working drill hole database consists of 2,422 collar records, with a total meterage of 250,539.8m. The database includes holes drilled between April of 1984 and December 2010. Where known the collar records are also coded as to drill hole types (core, RC, *etc*.) and target areas.

1.7 Cristina Resource Estimation

A first independent NI 43-101-compliant estimate for the Cristina gold deposit is detailed in a SEDAR filed document (Ristorcelli, et al, 2009). The work included compiling and auditing the Cristina database, which was treated as a distinct subset of the total Animas database and building a geologic model on cross section. Presently, it is believed that all exploitation at Cristina would be by open pit methods. Considering cyanide-extraction recoveries, it is believed that the resource reporting cutoff for heap leachable open pit material would be approximately 0.3g Au/t. The reported Inferred resource at the 0.3g Au/t cut-off grade is 7,139,000 tonnes at an average grade of 0.66g Au/t for a total of 152,000 ounces gold. This NI 43-101-compliant resource compares with the most recent historic estimate, completed by Campbell in 2000, of 126,000 ounces gold. Campbell also classified the resource as Inferred but the 2000 reported resource was based on a 0.5 g Au/t cut-off grade in contrast to the 0.3g Au/t cut-off grade in use in the 2009 study.

Dr. Roger C. Steininger, CPG, a Qualified Person as defined by NI43-101 reviewed the document and concurs with the method of resource estimation, approaches used, and the conclusions reached.

1.8 Resource Estimates – Ore Reserves Engineering 2010

Alan Noble of Ore Reserves Engineering (ORE) was requested by Animas Resources, in June of 2010, to prepare updated resource estimates for several of the Santa Gertrudis gold deposits. This process commenced with a 2-day site visit to the property by Mr. Noble in early July, 2010. Resource estimation started in September, 2010, and continued through October. Eight gold deposits with 17 mineralized zones were estimated by ORE, including:

- Tigre – two mineralized zones
- Greta – three mineralized zones
- Tracy – one mineralized zone
- La Gloria – two mineralized zones
- Dora – three mineralized zones
- Mirador – two mineralized zones
- Escondida – two mineralized zones
- Trinidad – two mineralized zones

Table1.1 Inferred Resource Estimates for the Santa Gertrudis Project

Deposit	Cutoff (ppmAu)	Tonnes (1,000's)	Grade (ppm Au)	Contained Ounces Gold
Trinidad	0.30	1,100	1.69	59,900
Escondida	0.30	1,389	1.16	52,000
Greta	0.30	800	2.41	62,000
La Gloria	0.30	500	2.68	43,100
Tigre	0.30	350	1.94	21,900
Tracy	0.30	500	2.42	38,900
Dora	0.30	1,200	2.53	97,600
Mirador	0.30	520	1.80	30,100
Total O.R.E. Oct 2010 Estimates (1,2,3,4,5,6)	0.30	6,359	1.98	405,500
Cristina (MDA 2009) (1,5,7,8,9)	0.30	7,139	0.66	151,500
Project Total	0.30	13,498	1.28	557,000

1. CIM definition standards were followed for the resource category estimates.
2. The 2010 resource models by O.R.E. use inverse-distance-power (IDP) grade estimation within three-dimensional block models with mineralized envelopes defined by wire-framed solids. Grade zones were defined using nearest-neighbor assignment. A block size of 2x2x2-meters was used for the block models.
3. A total of 48,815.47 meters of drilling in 574 drill holes were used in the 2010 resource estimates by O.R.E. The majority of the drilling is reverse circulation (RC) drilling.
4. Dilution is included for a minimum mining width of 2.0 m in the 2010 estimates O.R.E. Estimates for reserves will require additional dilution depending on the mining method and selectivity.
5. Mineral Resources that are not mineral reserves do not have economic viability
6. Resources may contain sulfide material that may be significantly less economically viable than oxide material.
7. The 2009 resource model for Cristina used IDP grade estimation within mineral zone outlines interpreted on N60°E looking cross-sections. A block size of 6x6m horizontally and 3m vertically was used for the block model (Ristorcelli, 2009).
8. A total 7,159 meters of drilling in 13 core holes and 58 RC holes were used for the Cristina estimate.
9. Resource parameters/methodology are detailed in the previously released Animas NI 43-101 report on Santa Gertrudis (Ristorcelli, 2009).
10. Additional drilling and geologic modeling will be necessary to upgrade these resources to indicated or measured status.

1.9 Conclusions and Recommendations

The authors believe that the Santa Gertrudis project is a property of merit whose principal asset is a large land position controlling a major gold district with significant past production, and existing resources with historic estimates. Bringing the historic estimates up to NI 43-101 standards will require varying levels of site-specific work which could include, but is not limited to, metallurgy, sample integrity work, confirmation drilling, more detailed geology, *etc.*

The size and exploration potential of the Santa Gertrudis property is demonstrated by the occurrence of approximately 30 gold deposits within in a northwest-trending belt that is approximately 20km long and up to 8km wide. The emphasis of further work at the Santa Gertrudis project should be the exploration for larger tonnage, undiscovered mineralization beneath the known deposits or peripheral to them under post-mineralization cover. Of secondary focus should be the expansion of mineralization immediately adjacent to the known gold deposits. The exploration history of the district suggests that any mineralization discovered at depth will likely be sulfide-bearing so the precious metal grades will need to be higher than historically mined grades.

Animas' exploration work has resulted in the identification of specific features within the Santa Teresa mining district which guide further exploration efforts and aid in the development of drill targets. Some of the more significant features are: 1) the size and extent of mineralization indicates more than one mineralizing source or event, 2) mineral zoning suggests that the known gold mineralization occurs distal to a large hydrothermal system, or systems, 3) the identification of four possible intrusive centers, and 4) the potential for further discoveries extends under post-mineralization alluvial cover.

The most important aspect of any exploration is defining the geologic setting. As such, we recommend that Animas complete the following:

- **Continue surface geologic mapping of the Molybdenum target at El Tigre.** Continue surface mapping with special attention drill target definition using the mineralization and alteration is warranted.

- **Target definition and prioritized selection of best targets and projects.** GIS analysis and data integration will be the largest part of this work, culminating in identifying targets for additional exploration.

- **Complete resource estimates for drilled areas.** Work on this would require six months to fully assess all the potential resource-bearing areas.

- **Preliminary Economic Assessment (Scoping studies).** It is important to assess potential economics of the Santa Gertrudis resources by completing preliminary economic assessments on at least those resources having the greatest economic potential.

- **Maintain the necessary land holdings.** As the evaluation of the project continues, some areas will be shown to have much less potential than others, and Animas should consider reducing costs by reducing the size of its property holdings. The cost is $ 500,000.

Stage 2 Recommendations

Following successful completion of Stage 1 tasks, it is anticipated that drilling will be justified.

- **Drilling several of the larger targets.** We believe that 5,000m of drilling in 10 holes is merited at El Tigre. We prefer a balance of more cost effective RC drilling, with core drilling.

- **Infill/expansion drilling on existing resources.** If the preliminary economic studies prove positive, then infill drilling will be needed to upgrade the resources and provide independent verification and possibly resource expansion. Some 30 holes, mostly RC with selective core, could be justified.

- **Continued exploration as described in Stage 1 Recommendations.**

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 General

This Technical Report, which includes a first-time NI 43-101-compliant resource estimates, was prepared by Ore Reserves Engineering ("ORE"), Dr. Roger C. Steininger, John R. Wilson and Gregory E. McKelvey at the request of Animas Resources Ltd ("Animas"), formerly Deal Capital Ltd., a publicly traded Canadian corporation listed on the TSX Venture Exchange. The purpose of this report is to provide a technical summary of the Santa Gertrudis project and report the first-time NI 43-101-compliant resource estimate for Animas. The scope of this study includes a review and reporting of pertinent technical reports and data, provided by Animas, relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, interpretations, resources, and metallurgy.

Animas reports the following work related to and since their acquisition of the Santa Gertrudis project:

- Signed final purchase agreements with Sonora Gold Corporation and with Sonora Copper LLC.
- Exercised its option and acquired the Greta and San Enrique properties (Animas press release March 6, 2008).
- Re-negotiated the terms of the property option agreement with López and Limón on June 6, 2007.
- Completed the formal closing of the acquisitions of three Mexican companies - Compañia Minera Chuqui S.A. de C.V., First Silver Reserve S.A. de C.V., and Recursos Escondidos S.A. de C.V. (Animas press release dated July 10, 2007).
- Entered into an option agreement August 25, 2007 with Victor M. Juvera for three concessions in the Santa Gertrudis property – La Peque T-191734, La Peque 1 T-181078 and El Tascalito T-216066 (Animas press release Nov 28, 2007) and subsequently amended the option agreement (Animas press release January 16, 2009).
- Entered into an option agreement with Agustin Albelais Varela for two concessions – La Vibora T191263 and El Aguaje T-191900 (Animas press release Nov 28, 2007).
- Staked a total of 36,472 hectares of mineral concessions on the northwest, west and southwest boundaries of the original claim block from July 2007 to May 2008.
- Signed a letter of intent for the purchase of two concessions from Minera Lixivian, S.A. de C.V. (Animas press release July 21, 2008). These claims are adjacent to the Amelia historic mining operations. This transaction was formally completed on October 17, 2008 (Animas press release October 17, 2008).
- Completed 22 diamond drill holes and 3 reverse circulation drill holes (5,691m total) at nine target areas. These holes have been logged, the core has been cut and submitted for assay and subsequent quality control quality assurance ("QA/QC") conducted by Animas' Qualified Professional, Dr. Roger C. Steininger.
- Completed 135.2 line-km of IP / resistivity surveys (Animas press release dated October 28, 2008) and reprocessed historic geophysics.
- Consolidated the database.
- Updated topographic maps and control.
- Acquired new high resolution aerial photography over main zones of interest.
- Acquired all historic royalties.

This report was written to be in compliance with disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101, Companion Policy 43-101CP, and Form

43-101F1, collectively called 43-101. The purpose of this document is to report on both the new resource estimate and to report on the compilation, re-construction and audit of the drill-hole database and other exploration work conducted at Santa Gertrudis. Alan Noble (ORE) P.E., Dr. Roger C. Steininger and Gregory E. McKelvey are qualified persons under Canadian Securities Administrators' National Instrument 43-101. John R. Wilson is currently employed by Animas Resources Ltd. and all their subsidiaries as defined in Section 1.4 of NI 43-101 and in Section 3.5 of the Companion Policy to NI 43-101. The authors have made such independent investigations as has been deemed necessary in the professional judgment of the authors to be able to reasonably present the conclusions given herein.

Historical aspects and information on the Santa Gertrudis project including historic resource and reserve estimates and past production are presented in this report. All but one of the resources reported in Section 6.0 pre-date NI43-101 and therefore do not comply from a reporting standpoint with those regulations. The 2005 resource estimate was considered NI 43-101 compliant when completed though the authors of the 2005 resource estimate (Kern and Sibthorpe, 2007) rescinded this designation and reported in 2007 that this estimate is no longer NI 43-101compliant. Therefore, the authors consider all resources and reserves reported in Section 6.0 as historic by NI 43-101 regulations. Some NI 43-101 resources have been reported by previous issuers of Technical Reports, but ORE makes no comment as to whether they are NI 43-101-compliant or not. Because ORE has begun the process of making new resource estimates, the authors consider the previous estimates historic for the purposes of this report and should not be relied on.

The Santa Gertrudis project consists of approximately thirty sedimentary-rock-hosted disseminated gold deposits. Reported production is approximately 565,000 ounces of gold since 1991 (Anderson and Hamilton, 2000) from numerous open pits. Mining has been by open pit with heap leach gold recovery.

In compiling the text for this report, the authors relied extensively, on the information presented in the technical report for International Coromandel Resources Ltd., by William Hamilton (2003); the 43-101 report for Sonora Gold Corporation, by Kern And Sibthorpe (2005); the technical report for Compañia Minera Chuqui S.A. de C.V., by Wallis (2006); the 43-101 report for Deal Capital Ltd, by Wallis (2007); and the 43-101 report for Deal Capital, Ltd., by Kern and Sibthorpe (2007), and a NI43-101 compliant resource estimate for the Cristina gold deposit by MDA (Ristorcelli, 2009). Additionally information was taken from other historic reports and from press releases posted on Animas' website (http://www.animasresources.com) and through personal communications with Animas. All historic work was superseded by recent work and information gathered by Animas if and when it existed.

2.2 Definitions

Currency Unless otherwise indicated, all references to dollars ($) in this report refer to currency of the United States.

Frequently used acronyms and abbreviations

AA	atomic absorption spectrometry
Ag	silver
Au	gold
cm	centimeter
core	diamond drilling method
^{o}C	degrees Centigrade
FA-AA	fire assay with an atomic absorption finish
g	grams
g Ag/t	grams of silver per metric tonne

g Au/t	grams of gold per metric tonne
gpt	grams per tonne
ha	hectares
kg	kilograms
km	kilometers
lbs	pounds
m	meters
mm	millimeter
NSR	net smelter return
oz	ounces
ppb	parts per billion
ppm	parts per million
RC	reverse circulation drilling method
t	tonnes (1,000 kilograms)
tpd	tonnes per day
t/m^3	tonnes per cubic meter
ton	short ton (2,000 pounds)

The following is a list of the companies who controlled claims now held by Animas:

Campbell Resources Inc ("Campbell") **–** acquired the Santa Gertrudis mine from Phelps Dodge and later acquired the Roca Roja claims (Amelia mine); original acquisition under the name "Campbell Red Lake Resources".

Compañia Minera Chuqui S.A. de C.V. ("Chuqui") **–** Mexican subsidiary of Sonora Copper.

Compañia Minera Zapata S. de R.L. de C.V ("Zapata") **–** Mexican subsidiary of Phelps Dodge.

Deal Capital Ltd ("Deal") **–** predecessor of Animas, acquired claims controlled by Sonora Copper and Sonora Gold, including the San Enrique and Greta properties, thereby consolidating the property.

First Silver Reserve S.A. de C.V. ("First Silver") **–** registered holder of Santa Gertrudis claims (Santa Gertrudis mine).

International Coromandel Ltd. ("International Coromandel") **–** predecessor of Sonora Gold, acquired the claims held by Queenstake.

Minera Roca Roja, S.A. de C.V ("Minera Roca Roja") – operator of the Amelia mine before acquisition of the Roca Roja claims by Campbell, reportedly a subsidiary of Walhalla Mining Company NL of Australia.

Minera Teck Cominco S. A. de C. V. ("Teck") **–** optioned the San Enrique and Greta properties from Sonora Gold.

Oro de Sotula, S. A. de C. V. ("Oro de Sotula") **–** Mexican subsidiary of Campbell.

Phelps Dodge Mining Company ("Phelps Dodge") **–** staked the original Santa Gertrudis claims through their Mexican subsidiary Minera Zapata, produced gold from the Santa Gertrudis mine from 1991 to 1994.

Queenstake Resources Ltd ("Queenstake") **–** acquired the property held by Campbell, including the Amelia mine and the Santa Gertrudis mine, but not the López-Limón claims

Rescursos Escondidos S.A. de C.V. ("Rescursos Escondidos") **–** registered holder of Roca Rojas claims (Amelia mine).

Sonora Copper LLC ("Sonora Copper") **–** acquired the López-Limón claims from Campbell and held them prior to acquisition by Deal.

Sonora Gold Corporation ("Sonora Gold") **–** originally International Coromandel and now Canada Gold Corporation.

Names of areas, mines and projects within the Santa Gertrudis project area can be ambiguous or unclear. Explanations and descriptions are provided below:

Santa Gertrudis – Many historic documents refer to the property as being in the Santa Gertrudis mining district. Recent information shows that the district is correctly named the Santa Teresa mining district. All references in this report reflect this correction, unless the reference is in directly quoted material. The term Santa Gertrudis has also been used for the mine and this report will explicitly modify Santa Gertrudis with "mine". The "mine" itself is a composite of several separate mines and/or deposits, including the Dora, El Corral, Amelia, Becerros Norte, Becerros Sur, Maribel, Agua Blanca, Trinidad, El Toro, Katman, Camello, Cristina and Carmen.

Unless specifically referenced as Santa Gertrudis mine, all usage of the term Santa Gertrudis refers to the project and property as controlled by Animas.

Santa Teresa mining district– Animas' Santa Gertrudis project is in the Santa Teresa mining district. Many historic documents incorrectly identify this district as the Santa Gertrudis mining district.

Amelia mine -- this name refers to both a specific deposit, but also to the composite operation, which exploited mineralization from the Amelia, Pirinola, Viviana, and Santa Teresa deposits.

3.0 RELIANCE ON OTHER EXPERTS

The authors assume that all the data provided by Animas and reviewed in preparation for this report is accurate and complete in all material aspects. Animas warranted that it has fully disclosed all material information in its possession or control at the time of writing this report and that the data is complete, accurate, and not misleading.

This report is based on information known to the authors as of December 31, 2010.

The authors have visited, and worked at, the property sufficiently to verify the geology, data available, and description in this report. The conclusions of this report relay on data supplied by Animas, observations in the field, the geology of the area, and the author's experience with gold and molybdenum deposits of the type described in this document.

The geophysical surveys discussed in this report directed by, or interpreted by, John Reynolds, geophysical consultant, of Durango Geophysical Operations, Inc. The authors did not review the raw data but did review the reports produced as part of the several geophysical surveys and had numerous detailed discussions with Reynolds relating to his interpretation of the geophysical surveys.

A metallurgical summary of past production and test work is presented in Ristorcelli (2009) and referenced in this document. The authors are not Qualified Persons in metallurgy and rely on the information in Ristorcelli (2009) which was prepared by a Qualified Person as defined in NI43-101.

The authors are not Qualified Persons in environmental issues and not Registered Landmen or Lawyers. Discussions on environmental issues are not professional opinions. A qualified expert should be consulted if a professional Environmental Report is required. Discussions on land issues are also not professional opinions and a title report should be completed if legal land rights are required. The discussions of the several acquisition agreements were supplied by G. E. McKelvey.

4.0 PROPERTY DESCRIPTION AND LOCATION

The authors have not done an independent investigation of Animas' rights and obligations respecting mineral and surface rights on the Santa Gertrudis property, nor is ORE qualified to undertake such investigations. The information contained in this section concerning legal, land, environmental or permitting matters in Mexico has been provided by Animas and their Mexican legal counsel and environmental consultants. Animas' Mexican Legal Counsel, Sanchez–Mejorada, Velasco y Ribe has provided Animas with a mining rights title report and surface rights report on the Santa Gertrudis property.

4.1 Location

The Santa Gertrudis project is situated in the Santa Teresa mining district, Arizpe, Cucurpe, and Imuris Municipalities, in northeastern Sonora State, Mexico. It is located 170km south of Tucson, Arizona, 180km north of Hermosillo, Mexico and 40km east of the town of Magdalena de Kino. The approximate co-ordinates of the center of the property are UTM system 543800mE and 3388300mN (Zone 12, NAD 27). The latitude is 30^{o} 35' N and the longitude is 110^{o} 32' W. Figure 4.1 and Figure 4.2 are maps showing the location of the Santa Gertrudis property.

4.2 Description of the Concessions

As of December 31, 2010, the Santa Gertrudis property consisted of 53 concessions that cover a total of 56,153 hectares. The list of concessions together with their title numbers and individual number of hectares is attached hereto as Appendix A. The property is an amalgamation of several claim blocks that have been controlled by various companies in recent times. The Santa Gertrudis property consists of claims that cover the area previously held by Sonora Copper (1,420 hectares) and Sonora Gold (16,547 hectares), plus 17 concessions (1,714 hectares) optioned by Animas that are contiguous with or internal to the original Santa Gertrudis claims. An additional 36,472 hectares of concessions were staked by Animas on the northwest, west and southwest boundaries of the original claim block. These claims are all contiguous though there are small inliers within the claim block in which the mineral rights are not controlled by Animas. Figure 4.2 is a map showing the location of Animas' concessions.

Prior to 2005, exploration concessions were valid for six years and could not be extended but could be converted into one or more exploitation concessions after the six year period concluded, provided the bi-annual fee and work requirements were in good standing.

As a result of the Mexican Mining Law being amended in 2005, all concessions granted by the Dirección General de Minas (DGM) became mining concessions and there are no longer separate specifications for mineral exploration or exploitation concessions. This change resulted in all mining concessions being granted for 50 years provided the concessions remained in good standing. As part of the change, all former exploration concessions which were in force when the amendment became effective, previously granted for 6 years, were automatically extended to 50 years.

Figure 4.1 Santa Gertrudis Location Map

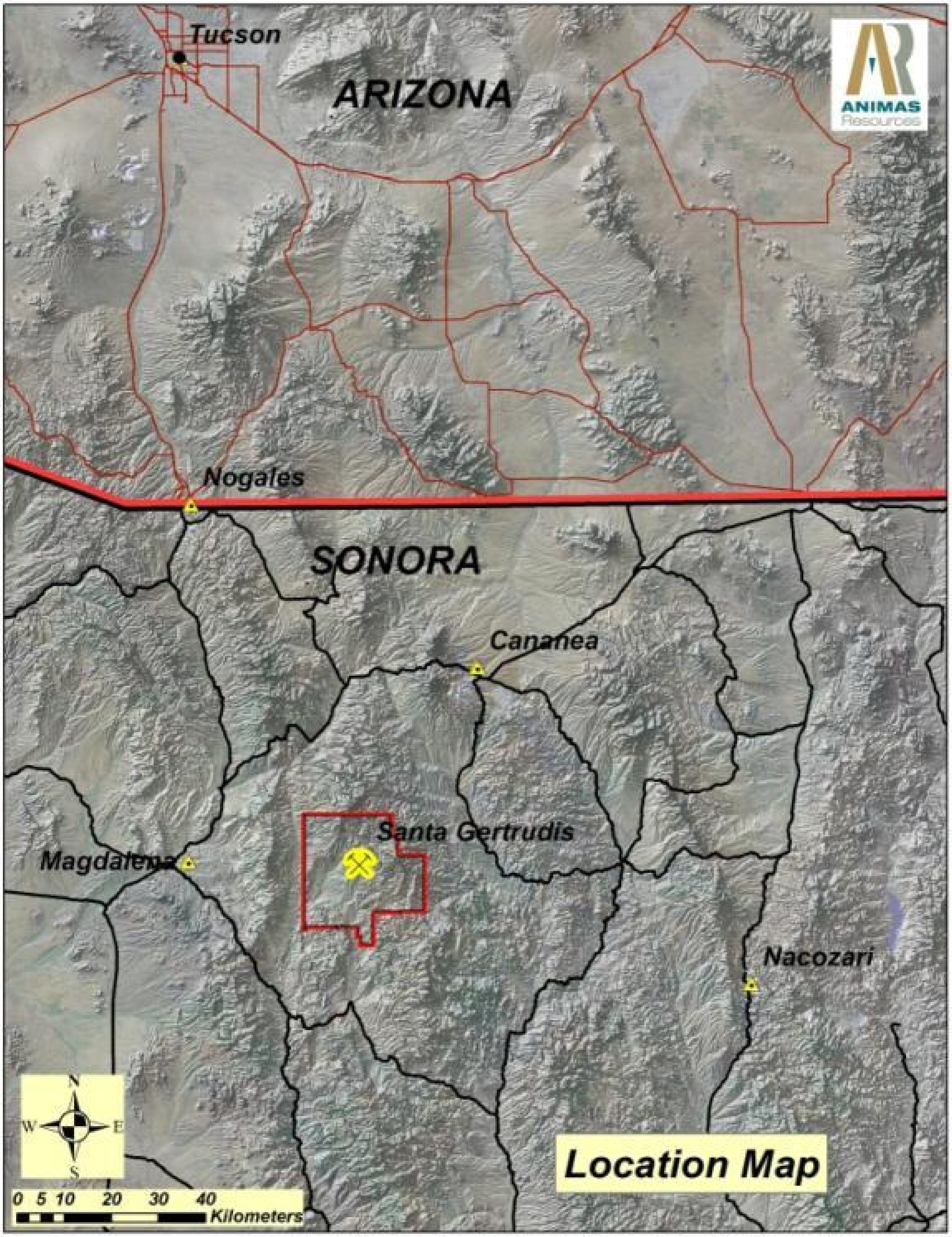
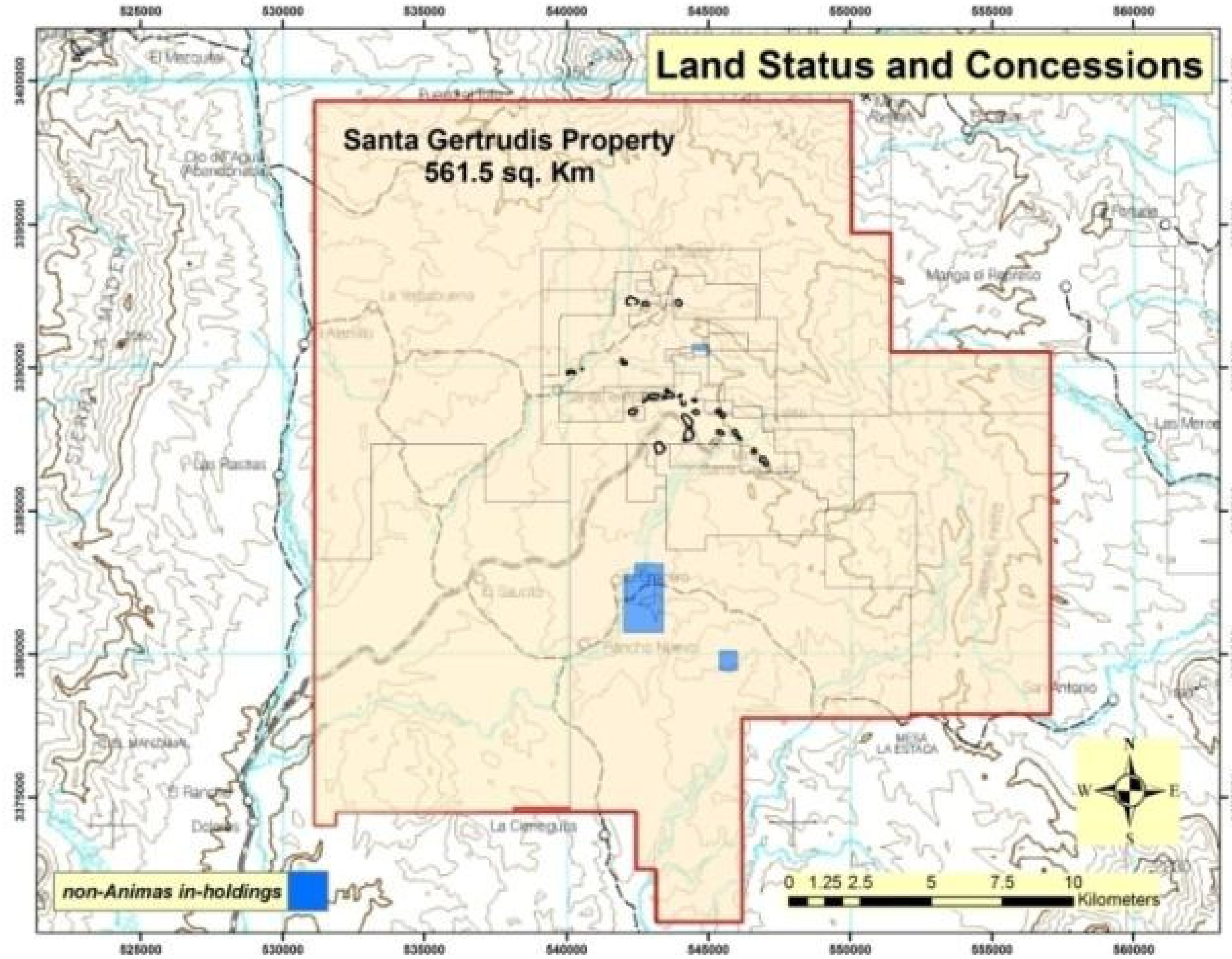


Figure 4.2 Land Status and Concessions
(from Animas, Zone 12, NAD 27)



Note to above figure: irregular outlined areas are known gold deposits

For any concessions to remain valid the semi-annual fees must be paid and a report has to be filed by May of each year which covers the work conducted during the preceding year. Concessions are extendable provided that the application is made within the five year period prior to the expiry of the concession and the bi-annual fee and work requirements are in good standing.

The semi-annual fees are based on a number of factors. Prior to January 2006, exploration and exploitation mineral concessions had two different fees based on the type of mineral concession and the amount of time since they were issued. After January 2006, in accordance with the 2005 changes in the mining laws, a single fee per hectare was implemented, at a rate which escalates based on the age of the title.

Animas anticipates having to pay approximately a total of 2,435,992 Mexican pesos in 2010 to keep the properties in good standing (that represents approximately US$235,356).

All mineral concessions must have their boundaries orientated astronomically north-south and east-west and the lengths of the sides must be one hundred meters or multiples thereof, except where these conditions cannot be satisfied because they border on other mineral concessions. The locations of the concessions are determined on the basis of a fixed point on the land, called the starting point, which is either linked to the perimeter of the concession or located thereupon. Prior to being granted the concession by the DGM, the company must present a topographic survey to the DGM within 60 days of staking. Once this is completed the DGM will usually grant the concession.

4.3 Nature of Animas' Interest

Of the 53 concessions that comprise the Santa Gertrudis property, Animas has a 100% interest in 38 concessions. These concessions are controlled by Animas through its wholly owned subsidiaries, Chuqui, First Silver and Recursos Escondidos. The remaining 15 concessions are subject to three separate option agreements pursuant to which Animas may earn a 100% interest in the concessions that are the subject of the applicable option agreements.

The authors of this report have been advised that the Santa Gertrudis property is not subject to any third-party royalty payments. All historic royalties have been acquired by Animas. Further, the authors of this report have been advised that there are no back-in rights, payments or other agreements (other than as previously described) and encumbrances to which the property is subject.

4.3.1 Option agreements

The following is a summary of the three option agreements and the remaining option payments that must be made to the individual optionors in order for Animas to earn its 100% interest in the remaining concessions:

Lopez-Limon Option Agreement

Animas signed an option agreement on June 1, 2007 to purchase 10 mineral claims (185883, 219219, 195368, 218137, 218138, 219096, 219095, 221737, 222689, and 222690) in the Santa Gertrudis property at any time on or before June 1, 2011. In April 2009, Animas amended the option agreement as follows:

	Amount (US$)	
June 1, 2007	$ 50,000	Paid
December 1, 2007	75,000	Paid
June 1, 2008	75,000	Paid
December 1, 2008	150,000	Paid
June 1, 2009	30,000	Paid
December 1, 2009	30,000	Paid
June 1, 2010	190,000	Paid
December 1, 2010	250,000	Paid
June 1, 2011	600,000	
December 1, 2011	700,000	
Total	$ 2,150,000	

Victor Juvera Option Agreement

On December 26, 2008, Animas and Victor Juvera amended its original agreement signed on July 24, 2007 to purchase three mineral claims (216066, 191734, and 195805) in the Santa Gertrudis property by making the following cash and share payments:

Amount in cash or common shares at the discretion of the Company

	Amount in cash (US$)		Amount in Animas common shares (US$)
At signing	$ 25,000	Cash Paid	$ 20,000 Issued
July 24, 2008	25,000	Cash paid	25,000 Issued
January 24, 2009	65,000	Shares issued	-
July 24, 2009	77,500	Shares issued	-
January 24, 2010	90,000	Shares issued	-
July 24, 2010	100,000	Shares issued	-
January 24, 2011	110,000		-
July 24, 2011	127,500		-
January 24, 2012	135,000		-
July 24, 2012	150,000		-
Total	$ 905,000		$ 45,000

Albelais Varela Option Agreement

On August 13, 2007, Animas signed an option agreement with Agustin Albelais to purchase two mineral claims (191263, 191900) in the Santa Gertrudis property by making the following cash payments:

	Amount in cash (US$)	
August 13,2007	$ 20,000	Paid
August 13, 2008	20,000	Paid
February 13, 2009	20,000	Paid
August 13, 2009	20,000	Paid
February 13, 2010	20,000	Paid
August 13, 2010	20,000	Paid
February 13, 2011	20,000	
August 13, 2011	20,000	
February 13, 2012	20,000	
August 13, 2012	20,000	
Final option payment	20,000	
Total	$ 220,000	

4.3.2 Surface Agreements

Animas and its Mexican subsidiaries have entered into a series of land access agreements with the local *ejido* and the various land owners who have the surface rights to the land that comprises the Santa Gertrudis property. Animas' Mexican legal counsel reviewed all of these land access agreements;

however, they have not provided any opinions with respect to the validity or enforceability of such agreements. Animas advised the authors of this report that they believe they have all necessary access agreements in place to conduct the required work on the property.

4.4 Environmental Issues

The information in Section 4.4 has been provided to the authors of this report by Animas, and personnel working on behalf of Animas, and is included herein to fulfill reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101. The authors are not qualified to assess the validity of the information in this section and therefore the authors present the information with no opinion.

An environmental report has been prepared by Consultores Asociados (2009) from Hermosillo, Mexico which addresses the current permitting and environmental status of the Santa Gertrudis property. The report is attached as Appendix B to the Technical Report on the Santa Gertrudis Gold Project dated May 1, 2009. That environmental report is the basis for the information presented in Section 4.4.1, 4.4.2, and 4.4.3. Animas provided the authors of this report with their judgment on the environmental status of the property.

4.4.1 Permitting

A water concession permit is in place until January 12, 2012. Prior to a mine being put into production, Animas will need to file an Environmental Impact Statement or an Environmental Risk Study and a Technical Study to justify Land Use Change.

4.4.2 Environmental Liabilities

Animas has advised the authors of this report that there are no known current environmental liabilities associated with the Santa Gertrudis property.

First Silver and Recursos Escondidos, the registered holders of the Santa Gertrudis and Roca Roja claims, respectively, each received certifications from the environmental authorities dated March 27, 2009 to the effect that they have no environmental liabilities derived from inspection procedures against both companies started in 2002 and 2003 and which were closed in 2006. Chuqui has not received a similar certificate; however, Animas is not aware of any environmental liabilities either historic or current that relate to the concessions held by Chuqui.

4.4.3 Reclamation Obligations

Animas states that a reclamation obligation will arise upon the abandonment of the project or transfer of the concessions. The reader is referred to the Consultores Asociados (2009) report (Appendix B to the Technical Report on the Santa Gertrudis Gold Project dated May 1, 2009; pages 2 and 3) for additional information on this reclamation obligation. The authors have no opinion nor will make any judgment as to the full details or current status of this reclamation obligation.

In reference to future mining, Animas states that while specific reclamation obligations will be set by the environmental authorities upon permitting, they typically include removal of all structures, neutralizing the leach pads, stabilizing and re-planting the leach pad slopes, stabilizing the pit benches and slopes and revegetating roads and other areas that will have no future use.

4.5 Water Rights

The waters rights, held in the name of First Silver Reserve, S.A de C.V., cover three capped wells located approximately 3km west-southwest from the Santa Gertrudis project field office (see Figure 5.1) in the quebrada of the Ejido 6 de Enero. These rights are for mining and exploration needs. Environmental testing of the water quality by A.L.S. Indequim S.A. de C. V. (part of ALS Laboraory Group) in Monterrey, Mexico confirms that the water is of acceptable quality.

4.6 Socio Economic Impacts

There are no known socio-economic issues in the area (McKelvey, written comm., 2009). The area is largely made up of private cattle ranching with limited access and no through-going roads past the historic mined areas and ranches.

The Santa Gertrudis property historic mines and current prospects are located 40km from Magdalena del Kino, Sonora State, Mexico; a stable source of skilled workers and supplies. Previous mining in the district by Phelps Dodge, Campbell, and Roca Roja, used available local labor.

There are no operating mining operations within or adjacent to the current Animas-controlled concessions. The local economy is dominated by cattle ranching by private ranch owners and the Ejido 6 de Enero.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The following information is based on Hamilton (2003), Wallis (2006) and Kern and Sibthorpe (2007).

Access to the Santa Gertrudis project is via a 39km gravel road which branches off the paved Magdalena-Cucurpe Highway, about 23km southeast of Magdalena de Kino. Ranch, exploration and ore-haulage roads provide excellent access throughout the property.

The property is located in the Basin and Range physiographic province, in an area characterized by wide, alluvium-filled basins and north-trending ranges. Elevations on the property vary from 1200 to 1700m, with gently rolling topography in the south and more deeply incised topography in the north.

Summers are hot and winters are cool; the nearest weather station at Cananea reports an average yearly temperature of 18°C, with an average high of 34°C in July and an average low of 1°C in December and January. The rainy season is in July and August, and often there are flash floods in the *arroyos*. Average precipitation amounts to 55cm per year. Snow may accumulate during the winter months, but usually melts in a few hours. The project can be operated year around.

The climate is semi-arid desert and the local vegetation is predominantly grassland, various types of cacti, and scattered black oak, mesquite and other shrubs and bushes. Pine trees locally grow at the higher elevations. The land is used primarily for grazing cattle.

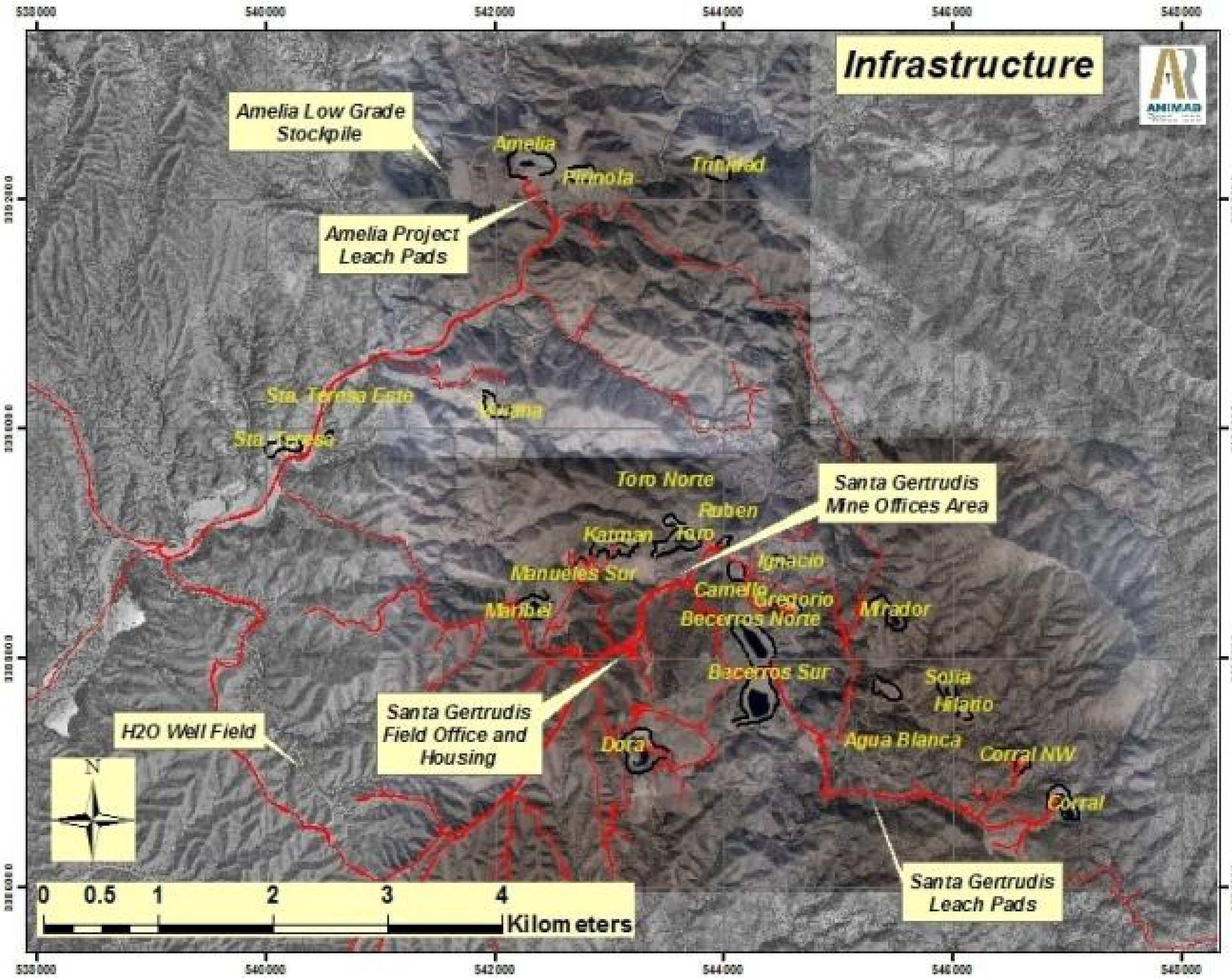
Past open-pit mining, conducted by previous operators between 1991 and 2000, had been from numerous deposits located primarily in the north-central portion of the project area. At the present time, the surface has water-filled historic-mined pits, waste piles (most have been recontoured) and a lined, zero-discharge historic leach pad at Santa Gertrudis and two lined pads near Amelia (G. E. McKelvey, written comm., Jan 2009).

The service and accommodation buildings that had been used by previous operators had fallen into disrepair by the time that Animas acquired the property. According to Kern and Sibthorpe (2007) these have been weather-proofed and basic services and furnishings restored. The camp water tank has been filled, drill sample handling facilities built and standard office machinery acquired. Trash has been removed. The old residence area is now serviceable to be used as an exploration camp, with residences, an office and a dining hall (G. E. McKelvey, written comm., Jan 2009).

The closest town for supplies is Magdalena, where fuel and general supplies are available. The town would also be the source of employees for an operation, but skilled labor is available at the nearby major mining town of Cananea.

According to G. E. McKelvey (written comm., Jan 2009), there is sufficient land to conduct a mining operation, including waste disposal, processing facilities, and pads for heap leaching. The source of power would be either a local generator or extending a power line 20km to the camp. Water could be obtained from the permitted water wells owned by First Silver Reserves and shown on Figure 5.1.

Figure 5.1 Historic Mine Locations and Infrastructure



6.0 HISTORY

There is no specific information available concerning pre-1980's exploration or production in the Santa Teresa mining district before Phelps Dodge Mining Company ("Phelps Dodge") became involved in the property. Phelps Dodge (1988) reports that small-scale lode and placer mining sporadically occurred in the district for many years previous to their involvement in the property. Limited amounts of copper-silver ore were mined from scattered workings and minor lode gold was mined from the old Santa Gertrudis and El Espiritu mines. Placer gold workings occur in the southern portion of the district.

Phelps Dodge exploration personnel first visited the Amelia mine in May 1984. They were alerted to the property when a local prospector began making periodic shipments of silica flux, grading 13.4g Au/t, to the Phelps Dodge smelter in Douglas, Arizona. At the time of the property examination, local miners were operating small mines at Amelia, Carmen, and Maribel. Ore was shipped to smelters in Mexico (Cananea and Sonora) and the United States (Douglas, Arizona) as gold-bearing silica flux. Approximately 23,000 tonnes averaging 13.4g Au/t were shipped from the Amelia mine to the Douglas smelter and about 5,000 tonnes averaging 8g Au/t were shipped from the Maribel mine. Phelps Dodge (1988) reported that both mining operations later switched to heap leaching and on-site recovery of gold.

Exploration began in 1984 and Phelps Dodge identified several sedimentary-rock-hosted gold occurrences throughout the district. Phelps Dodge developed the Santa Gertrudis mine and produced gold from 1991 to 1994. The operation was initially a 2,000tpd heap leach with metal recovery by CIC adsorption, stripping, and Merrill Crowe zinc precipitation of precious metals from the strip liquor. Precipitates were shipped to the Phelps Dodge refinery at El Paso, TX (pers. comm., J. Hanks, 2009). The property was sold to Campbell Red Lake Resources Inc ("Campbell"), who continued to mine until 2000. The nearby Amelia mine was operated by Minera Roca Roja, S.A. de C.V. ("Minera Roca Roja"), reported to be a subsidiary of Walhalla Mining Company NL of Australia, until it also came under the control of Campbell in 1999.

According to Anderson and Hamilton (2000) "*In the Santa Teresa mining district, between 1991 and 2000, in excess of 564,000 ounces were mined from 8.244 million tonnes of ore grading 2.13g Au/t in 22 sedimentary-rock hosted, disseminated-gold deposits.*" Anderson and Hamilton (2000) includes estimated production from the Amelia mine and because of this, the above statement implies more accuracy than exists.

Campbell declared bankruptcy and ceased operations at Santa Gertrudis in 2000 and through a series of transactions the property was again divided, with the López-Limón concessions under the control of Sonora Copper LLC and the remainder of the property under the control of Sonora Gold Corporation. The two groups of claims were consolidated again by Animas in 2007.

Figure 5.1 shows the locations of mines and different prospect areas within the current Animas property (see Section 2.2 for compilation list of various prospects, mines, etc). Section 6.0 is a compilation of available historic information and the authors have no way to verify the reported information nor do the authors warrant that all these data can be relied upon. The information presented here is a summary to give the reader a sense of the history of the project. Different owners have reported on the portion of the property they controlled at the time, but these subsets of data do not necessarily make a complete description of the entire project as it now exists. Details from the reports were minimized here to alleviate confusion as contradictory information exists in some reports.

6.1 Property History

6.1.1 Phelps Dodge Mining Company History

Phelps Dodge Mining Company ("Phelps Dodge") was the first major exploration company to recognize the importance of the Santa Teresa mining district. In 1984, Phelps Dodge, through their Mexican subsidiary Compañia Minera Zapata S. de R.L. de C.V. ("Zapata"), staked claims encompassing 2010.85ha. Using a Carlin-type, sedimentary-rock-hosted, disseminated-gold model as a guide, Zapata completed soil and *arroyo* sediment sampling, induced polarization surveys and both reverse circulation and diamond drilling. An initial discovery was made in 1986 and an open pit mine feasibility study was completed in 1988. Phelps Dodge staked additional concessions in the district and these were held by two other Mexican subsidiary companies: Minera Tubac S.A. de C.V. ("Tubac") and Minera Palo Verde S.A. de C.V. ("Palo Verde").

The Zapata concessions covering the mining area were transferred by Phelps Dodge to an operating company, Minera Santa Gertrudis, and mining commenced at the Santa Gertrudis mine in 1991. Minera Santa Gertrudis was a 49/51joint venture between Phelps Dodge and Grupo Aristegui. Under Mexican law at the time, foreign companies could not have majority ownership so Grupo Aristegui, a consortium of Mexican investors, was formed to serve as majority owner of Minera Santa Gertrudis. Initially, production was 2,000tpd and was increased to 2,750tpd in an open pit, heap-leach operation exploiting oxide ore. Production was from seven deposits: Agua Blanca, Becerros Norte, Becerros Sur, El Corral, Gregorio, Hilario and El Toro (Phelps Dodge, 1988).

According to Strathcona Mineral Services Limited ("Strathcona"), three million tonnes of ore were mined with an average grade of 2.0g Au/t. From this 4300kg of gold was recovered by heap leaching for a cumulative recovery of approximately 70% (Thalenhorst, 1994). This would result in total recovered gold for Phelps Dodge at the Santa Gertrudis mine of approximately 138,000oz.

6.1.2 Amelia Mine History

During this same period, and until 1998, various operators, including Minera Roca Roja, mined on a small-scale at the Amelia mine, approximately 4.5km north-northwest of the Santa Gertrudis mine. Gold production was from four pits (Amelia, Pirinola, Viviana, Santa Teresa), using an on-off leach pad system. Minor underground mining occurred at Amelia and Pirinola (G. E. McKelvey, written comm., 2009). Anderson (2000) reports the production from 1991 through July 2000 from these four deposits as 1.06 million tonnes grading 2.88g Au/t for a total of 98,483 ounces of gold mined, but his source of information is not referenced (Note that this is mined ounces, not recovered ounces, and only since 1991. Production dates to at least 1984). Hamilton (2003) reports "Production figures from the Roca Roja property are not well documented, but past production is estimated to approximate 100,000 ounces of gold, before suspension of mining by Minera Roca Roja in 1998."

6.1.3 Campbell Resources Inc History

In 1994, Campbell Resources Inc, through its Mexican subsidiary Oro de Sotula, S. A. de C. V. ("Oro de Sotula"), purchased all of Phelps Dodge's assets within the Santa Teresa mining district, including the Santa Gertrudis mine and the Minera Tubac and Minera Palo Verde land holdings. A second Mexican subsidiary, First Silver Reserve S. A. de C. V. ("First Silver"), was formed by Campbell to handle the exploration properties while Oro de Sotula remained the operating company.

Campbell continued to mine oxide ore at the Santa Gertrudis mine at a rate of 3000tpd from 1994 until late 1997 and then on a smaller scale from late 1999 until October 2000. Hamilton (2003) states that "the Santa

Gertrudis mine-site has produced 332,000 ounces of gold since 1991." This would include production by Phelps Dodge and Campbell.

In May 1999, Campbell bought the adjacent Roca Roja property, including the past-producing Amelia mine (Hamilton, 2003). Campbell formed another Mexican subsidiary, Recursos Escondidos, S. A. de C. V. ("Recursos Escondidos"), to hold the Roca Roja properties. By 2000, Campbell held 62 claims covering 27,030.3ha (Hamilton, 2003).

As reported by Hamilton (2003), Campbell carried out a systematic exploration program from 1994 to November 2000, spending a total of ~$11,000,000 (see Section 6.2). Details of Campbell's drill program can be found in Section 11.4.

In December 2000, Campbell transferred three claims, the Los Manueles, the Maribel and the Fraction 4-Agua Blanca to two former employees of the company, Ignacio Limón and Francisco López. These claims, which are often referred to as the Limón-López concessions, cover the Maribel and Katman pits as well as the Cristina deposit. In 2001 and 2002 Campbell dropped or cancelled option agreements on a series of claims, and by January 2002 the +27,000ha property was reduced to 24 claims covering 6461.24ha (Hamilton, 2003). This remaining group of claims included the original Santa Gertrudis mine property, the Greta property and the San Enrique property, all held by First Silver, and the Roca Roja claims (Amelia mine) held by Recursos Escondidos.

6.1.4 Queenstake Resources Ltd History

Campbell stopped both production and exploration on the Santa Gertrudis mine in October 2000 and in January 2002 Queenstake Resources Ltd ("Queenstake") exercised its option to acquire all of the shares of Oro De Sotula, which included First Silver, from Campbell. Queenstake carried out remedial work on the site, but did not undertake any exploration (Hamilton, 2003). Queenstake re-sold the property in November 2002 to International Coromandel Ltd., the predecessor company to Sonora Gold Corporation (Kern and Sibthorpe, 2007).

6.1.5 Sonora Gold Corporation History

In 2002, Sonora Gold Corporation ("Sonora Gold") (originally International Coromandel Ltd.) acquired many of the claims originally controlled by Campbell. This included the First Silver holdings covering the Santa Gertrudis mine property (7 claims over the Santa Gertrudis mine), the Greta property (two claims) and the San Enrique property (four claims), and the Recursos Escondidos holdings covering the Roca Roja property (Amelia mine). The Santa Gertrudis property and the Roca Roja ground formed a block of 18 contiguous claims while the Greta and San Enrique claims, located to the southeast and south, respectively, were not contiguous with the first group or each other. Sonora Gold did not control the Limón-López concessions.

After acquisition in 2002, Sonora Gold completed an exploration program of drilling, surface sampling, and data review as detailed in Sections 6.2, 6.3, and 11.6.

6.1.6 Minera Teck Cominco, S.A. de C.V. History

In June 2005 the San Enrique property and the Greta property were optioned by Sonora Gold to Minera Teck Cominco ("Teck") (Kern and Sibthorpe, 2005; Hernández, 2007; Barboza, 2007; Smith, 2006). Teck held the property through 2007, and completed several exploration campaigns that included geologic mapping, surface rock chip and soil sampling, IP surveys and drilling. Teck drilled nine holes on San Enrique to test a molybdenum-copper target. Teck discontinued their option in mid-2007.

6.1.7 Sonora Copper LLC History

In 2006, the López-Limón concessions, now totaling 10 claims, were optioned to Sonora Copper LLC ("Sonora Copper") through their subsidiary Compañia Minera Chuqui S.A. de C.V. ("Chuqui"). Later, Chuqui staked four additional claims, for a total of 28,489ha (Wallis, 2007).

Sonora Copper, through Chuqui, conducted no exploration on their claims, other than taking five grab samples for analysis in 2005 (Wallis, 2007). An additional ten samples were collected for the purpose of metallurgical testing; four dump samples of approximately 30lbs each in early 2006 and then in April 2006, an additional six samples (Wallis, 2007). This work is discussed in Section 16.0 Mineral Processing and Metallurgical Testing.

Additionally, in conjunction with Sonora Gold, Chuqui did some data recovery and mapping, reporting, camp restoration and general data compilation (Kern and Sibthorpe, 2005).

6.1.8 Deal Capital Ltd History

Deal Capital Ltd ("Deal") signed a Letter of Intent dated February 13, 2007, to acquire from Sonora Copper all the issued shares of Chuqui in the Santa Teresa mining district (Wallis, 2007) and a letter of intent with Sonora Gold for their properties in the Santa Teresa district. Deal acquired private data sets, and began on-site data processing (Kern and Sibthorpe, 2005). Deal Capital Ltd, in July 2007, changed its name to Animas Resources Ltd. Animas's work since that time is the subject of this report.

6.2 Historic Exploration

6.2.1 Phelps Dodge Exploration (1984-1994)

Phelps Dodge began exploration in 1984 though only limited internal documentation, besides the original drill logs and cross-sections, exists describing their work. Several post-Phelps Dodge reports discuss Phelps Dodge exploration, mainly pertaining to the López-Limón concessions, but none of them present a comprehensive history. The information that follows is admittedly an incomplete account of Phelps Dodge's work.

The Phelps Dodge (1988) mine feasibility study reported that over 16,500m of diamond drilling was completed through June 1988. The drilling was concentrated in those deposits that were open-pit mined in the early 1990's while a number of other targets were also tested. There is no mention within the feasibility study of any reverse circulation drilling completed by Phelps Dodge up through June 1988. [The current Animas database indicates that just 15 reverse circulation holes for 2,181m were completed by Phelps Dodge through June 1988.]

There are no known comprehensive Phelps Dodge reports concerning the post-1988 exploration programs. Rodriguez and Lopez (1992a, 1992b) reported on the exploration and drilling results for the Cristina and Dora deposits, respectively, while a Zapata annual report by Rodriguez-Barraza, et. al., (1994) reported on district-wide exploration completed in 1993. The latter report stated that year 2003 drilling totaled 274 RC holes for 25,122m and two core holes for 704m.

Wallis (2006) reporting on the López-Limón property describes the following work:

> *Work on the Dora area by Phelps Dodge included soil geochemistry, one line of dipole-dipole induced polarization, 85 reverse circulation holes totaling 11,781m, and two diamond drill holes totaling 290m. Work on the Cristina area by Phelps Dodge included seven lines of induced*

polarization, soil geochemistry, 56 reverse circulation holes totaling 6,173m, and nine diamond drill holes totaling 904m. Drill hole samples taken by Phelps Dodge were on one-metre intervals. Trench samples were usually taken on two-metre to three-metre intervals. The core was stored on site.

Reynolds (written communication, 2009) reports that the Phelps Dodge geophysical work at Dora consisted of three lines of induced polarization ("IP"), one with 300m-spaced dipoles oriented northwest/southeast and two orthogonal line with 100m-spaced dipoles oriented northwest/southeast and northeast/southwest. Phelps Dodge's work at Cristina consisted of two lines of 300m-spaced dipoles oriented northwest/southeast and north/south.

Phelps Dodge carried out reconnaissance soil sampling and arroyo sediment sampling over several parts of their property. The soil survey was conducted by collecting samples at 100m intervals along 200m-spaced lines. The precise methodology of the arroyo sediment sampling survey is not known (Hamilton, 2003).

Durango Geophysical Operations ("Durango") (2009a) describes the Phelps Dodge geophysical exploration program as follows: "The IP and orientation surveys (ground Total Field magnetics and VLF-EM programs) were run under the direction of Anthony M. Hauck, III, Chief Geophysicist for Phelps Dodge Mining Company (PD) and their Mexican subsidiaries, Compania Minera Zapata and Compania Minera Santa Gertrudis." The Phelps Dodge IP surveys began in late 1988 and 1990 and these early programs, run by Sr. Luis Ortiz Herrera, Hermosillo, Sonora, consisted of 50m detail investigations of the Maribel and Manueles Sur areas in 1988 and 300m reconnaissance dipole-dipole survey lines run along the main Santa Gertrudis trend in 1990. The 300m and 100m dipole-dipole IP surveys were run by BAR GEOphysics, Englewood, Colorado, during 1992. A combined BAR GEOphysics and Phelps Dodge crew continued the 300m reconnaissance and 100m detail program in the fall of 1993. Detailed descriptions and evaluations of this exploration program can be found in the complete text of the Durango (2009a) reference which has been included in Appendix B.

The data compilation work completed by Animas indicates a total of 814 holes for 90,131m had been drilled by Phelps Dodge from 1986 through 1994. This includes 538 reverse circulation ("RC") holes for 62,219m and 276 diamond core ("core") holes for 27,912m. The database also includes 107 holes (36 RC and 71 core) totaling over 11,000m that cannot be attributed at this time to a specific company but it is believed that most of these holes were likely drilled by Phelps Dodge. The Phelps Dodge drilling was concentrated in those areas that were open-pit mined but additional exploration areas were also targeted. Target information within the database indicates 27 specific areas drilled by Phelps Dodge.

6.2.2 Minera Roca Roja (Amelia mine) Exploration (1989-1998)

According to McKelvey (written comm., 2009), Minera Roca Roja completed extensive geologic mapping, surface sampling and drilling at the Amelia mine between 1989 and 1998.

Campbell examined the property as part of an evaluation when a purchase was being considered (Kachmar, 1998). Six prospects were assessed and evidence of trench sampling and about 30 drill holes on those prospects were noted. He also noted poor record-keeping on the part of Minera Roca Roja. Hamilton (1998) states that there is evidence that close to 200 holes were drilled by Minera Roca Roja.

Currently, Animas has coordinates, depths, azimuths, and gold assays for a total of 247 Roca Roja holes totaling 31,890m of drilling completed. Although the collar coordinates are in a local grid that is different from the Phelps Dodge/Campbell grid, all have been transformed into the WGS84 Zone 12N datum and are currently in the Animas global drill hole database.

6.2.3 Campbell Resources Exploration (1994-2000)

According to Hamilton (2003), between 1994 and November 2000, Campbell's exploration program expenditures totaled $13,180,000. As detailed by Hamilton (2003), Campbell completed the following exploration work:

- The geology was mapped on a regional-scale (1:5,000 or 1:10,000).

- Soil geochemical surveying was done on a reconnaissance-scale followed by more detailed infill sampling. There were over 21,000 samples collected and analyzed for gold, mercury and numerous trace elements. Samples were collected at 100m spacing, and in-fill samples were taken at 50m and 25m spacing to follow-up anomalous areas.

- Airborne magnetic, electromagnetic, and radiometric geophysical surveys were conducted. The magnetic survey (1,950 line-kilometers) was completed by High Sense Geophysics in 1995, and further magnetic, electromagnetic and radiometric surveys (3,474 line-kilometers) were flown over the entire property by Aerodat in 1996 and 1997 (Johnston, 1996; Durango, 2009a). Detailed descriptions and evaluations of these exploration programs can be found in the complete text of Durango (2009a) which has been included in Appendix C.

- Detailed mapping, sampling and drilling was concentrated on specific targets. There were over 34,000 rock samples; 98,620m of reverse-circulation drilling in 1,017 holes; and 21,122m of diamond drilling in 225 holes. (The current Animas database has totals for the Campbell drilling that closely approximate, but are not exactly the same as the numbers reported by Hamilton (2003). See Sections 6.3.3 and 11.0 for more details).

- Trench mapping and sampling was done on several targets. A rigorous channel sampling protocol controlling sample width, length and depth was followed to minimize sampling variance.

As stated in Hamilton (2003), approximately $2 million of Campbell's total expenditures was for reserve-definition and condemnation drilling, mine planning, and metallurgical testing. The reserve-definition and condemnation drilling totaled approximately 23,500m of reverse-circulation drilling and 6,000m of diamond drilling. (This drilling is included in the total reverse-circulation and diamond drilling figures stated in item 4 above).

Along with the work noted in the Hamilton (2003) report, a petrographic report on the Cristina mineralization was completed for Oro de Sotula by an outside consultant (Segura, 1995).

Hamilton (2003) discussed the results of Campbell's exploration work and the subsequent development of targets categorized by whether they have near-surface, oxide or deep, sulfide, high-grade gold potential. A summary of these two target types follows:

Near-Surface, Oxide Gold Mineralization Targets: The principal targets for near-surface, oxide gold mineralization were La Eme, Samuel, Viviana NE and San Enrique. The first three are located 1 to 2kms west and south of the Amelia mine, and were believed to be extensions or structural off-sets of the main Amelia mineralized zone or had similar alteration/structural characteristics. The targets had anomalous surface geochemistry (Au, As, Sb, and Hg) with rock and trench samples that ranged up to 19g Au/t. Campbell drilled two reverse circulation holes in both the Samuel and Viviana NE targets in 2000; only weakly anomalous gold mineralization was encountered.

The San Enrique target is within the southern portion of the concessions about 6.5kms south of the Santa Gertrudis mine. The target is delineated by an approximately 4km diameter soil geochemical anomaly, defined by highly elevated Au, Ag, Cu, Mo, and Zn, situated over a broad, domal structure cored by shallowly dipping limestone, calcareous siltstone, and sandstone. These rocks contain pervasive ductile deformation structures, regional hornfels alteration, and have been intruded by various intrusive phases including a granitic pluton, dikes and sills ranging from diorite through granite, and abundant lamprophyre (Hamilton, 2003). Campbell drilled two reverse circulation holes in the northeast margin of the San Enrique target in 1998. Both encountered anomalous Au, Cu and Zn, but the only significant gold value was 2.108g Au/t over 1.5m from 88.5m to 90.0m (down hole depth). No additional holes were completed, due to a dispute with the local surface-rights owner (Hamilton, 2003).

Deep, High-Grade Gold Mineralization Targets: Based on Campbell's work, Hamilton (2003) believed that several targets for deep, sulfide ± oxide, high-grade gold mineralization existed on the Santa Gertrudis property. Seven deep drill holes (>300m) had been drilled on the property by Phelps Dodge, Minera Roca Roja, and Campbell. Although they were all essentially negative from the standpoint of significant gold mineralization, one hole drilled near the Manueles Sur deposit intersected a 53.04m interval with moderate silicification and pervasive disseminated pyrite. Hamilton (2003) described this alteration as similar to what is seen in the lower portion of the Dora pit, and also similar to that described in deep, high-grade gold deposits along the Carlin trend (e.g., Teal and Jackson, 1997).

Based on this potential for high-angle feeder structures, Hamilton (2003) proposed targets for exploration based on a combination of favorable geology, geophysics and geochemistry. In particular, the Greta and Amelia areas were selected based on the "*down-plunge projection of favorable structural intersections between high-angle feeder structures, favorable stratigraphic units, and the peripheries of shallow buried intrusions*".

Later reports by Kern and Sibthorpe (2005 and 2007) also noted the association of intrusives and Carlin-like gold deposits at Santa Gertrudis, and made an argument that exploration was warranted for deep, high-grade gold mineralization.

6.2.4 Sonora Gold Exploration (2002-2007)

Sonora Gold acquired the Santa Gertrudis property in 2002 and began an extensive program which included preliminary studies in preparation for future mining. Their exploration was concentrated on the near-surface, oxidized gold mineralization. The list below was compiled from Hamilton (2003), Kern and Sibthorpe (2005), and Kern and Sibthorpe, (2007) and summarizes Sonora Gold's exploration work:

- Drilled a total of 16 reverse-circulation drill holes on the La Eme, Amelia #5, and El Tascalito targets.
- Negotiated and received surface access rights to the San Enrique claims, a block of four claims covering 1,800ha located 5km southwest of the main Santa Gertrudis property.
- Completed 5.5km of road building and 3,420m of trenching at San Enrique with back-hoe and bulldozers, took 583 samples from surface exposures and trenches, and submitted these for gold, silver and ICP analyses.
- Completed the 100m-spaced soil sample survey over the entire San Enrique claim block, for 321 additional samples.

- Drilled 1,995.6m of NQ core in 16 holes (1,434 core samples) at the San Enrique copper-molybdenite prospect; holes located based on geological mapping and prospecting, soil and rock geochemistry, and airborne geophysical data interpretation.

- Completed a percussion drill program at the Ontario Zone; 105 holes drilled totaling 1,050m with 1,050 samples submitted for assay; metallurgical testing on ore-grade material.

- Retrieved, compiled and inventoried all mine and exploration data.

- Completed an environmental program to ensure compliance with governmental requirements regarding past mining activities.

- Conducted a preliminary review of the historic resource inventory at Santa Gertrudis for possible resumption of mining operations.

- Engaged a general contractor for operations including an ore reserve study (using GEMCOM mining software) and cost estimates.

- Conducted studies regarding processing equipment acquisition and costs and conducted specific metallurgical work.

- Made repairs to the main camp buildings and key operational structures.

- Initiated and completed an Environmental Impact Study in 2004 by Ing. Carlos Becerra.

- Opened a corporate office in Hermosillo, Mexico and retained new legal, accounting and land management services, discharged all land fees and taxes pertaining to the property.

- Established survey points and carried out trenching and sampling in pit bottoms to provide input for GEMCOM study.

Kern and Sibthrope (2005) discuss the general exploration potential in the district and also Sonora Gold's specific exploration work. They point out that in addition to sedimentary-rock-hosted gold deposits, gold occurs in the Santa Teresa mining district in porphyry, skarn, vein, distal-disseminated, low-sulfidation epithermal, and placer deposits (Bennett, 1993; Alaya and Clark, 1998). The Sonora Gold exploration focused on some of the near-surface, oxidized gold targets developed by Campbell (as discussed in Section 6.2.3). It is not know if Sonora Gold completed any work on the deep, high-grade targets.

The Sonora Gold exploration at San Enrique consisted of a program of trenching over the prominent Au, Ag, Cu, Mo, and Zn soil anomalies delineated by Campbell followed with drilling directed at the metal-bearing structures exposed in the trenches. Kern and Sibthorpe (2005) state that "*the sampling from the trenches and roadcuts reflected the metal values obtained from the 100m-spaced soil sampling program. Trench values were very geochemically anomalous and typically higher than corresponding soil sample values, but relatively few high individual values were obtained. The trenching program did provide rock exposures permitting determination of locations and attitudes of through-going mineralized structures.*" Kern and Sibthorpe (2005) does not provide actual metal values so it is not known what is meant by "very geochemically anomalous" or "high individual values". The results of the 16 core holes indicated that compared with the Carlin-like deposits found to the north, San Enrique displays more silicification and higher grade metamorphism. The mineralization is characterized by widespread base metals and sulfides, as disseminations and veinlets in hornfels and diorite host rock (Sonora Gold press release, 2005 and Kern and Sibthorpe, 2005).

In 2005, Sonora Gold optioned the San Enrique area to Minera Teck Cominco

6.2.5 Sonora Copper LLC Exploration (2005-2007)

Sonora Copper, through Chuqui, conducted no exploration on their claims, other than taking five grab samples for analysis in 2005 while evaluating the property for acquisition (Wallis, 2007). Ten samples were collected for metallurgical testing; four dump samples of approximately 30lbs each in early 2006 and then in April 2006, an additional six samples (Wallis, 2007).

In conjunction with Sonora Gold, Chuqui completed some data recovery and mapping, reporting, camp restoration and general data compilation (Kern and Sibthorpe, 2005).

6.2.6 Minera Teck Cominco Exploration (2005-2007)

Teck optioned the San Enrique and Greta properties from Sonora Gold from 2005 through 2007 (Kern and Sibthorpe, 2005; Hernández, 2007; Barboza, 2007; Durango, 2008b, 2009a). They considered the San Enrique area a copper-molybdenum target and analyzed their samples for Cu, Mo, Au, and Zn (Sonora Gold Corp, 2006).

Teck completed the following exploration programs:

- geologic mapping of the entire property at 1:2500,
- detailed geological/structural/alteration study (Smith, 2006),
- collecting and analyzing on the order of 700 rock chip samples,
- soil sampling,
- an IP survey using 100m pole-dipole (23.3 line-km) over the San Enrique prospect,
- four reverse circulation drill holes at San Enrique (RCSE-001 to RCSE-004) for a total of 1,198m, and
- five diamond drill holes at San Enrique (DSE-001 to DSE-005) for a total of 1,217m.

Detailed descriptions and an evaluation of the Teck geophysics exploration program can be found in Durango (2008b, 2009a). The Durango (2009a) summary report has been included in Appendix C.

According to Hernández (2007), Teck discontinued their option because they concluded that the gold mineralization was restricted to narrow high grade zones, that surface sampling failed to detect gold in the magnetite-sulfide skarns, and that the deep molybdenum target was not supported by drill results.

6.3 Historic Drilling Summary

There is no one source that provides a complete record of the drilling history on the ground now controlled by Animas within the Santa Teresa mining district nor can the full drill history be reconstructed by combining information provided in the historical reports. The previous historic reports discuss work completed by individual companies or in specific areas but these are often incomplete and provide just glimpses into the full drill history.

The current Animas database (see Section 11.0 for additional details), which is still under construction but considered to be over 95% complete, indicates that 2,187 holes totaling 221,194m have been drilled on the property now held by Animas between 1984 and 2006.

6.3.1 Phelps Dodge Drilling

Phelps Dodge controlled claims covering most of the current Animas project area (except for the Amelia mine) between 1984 and 1994. Various drilling campaigns were completed between 1986 and 1994 but only limited information is available that describes the drilling programs. The Phelps Dodge (1988) mine feasibility study reported that over 16,500m of diamond drilling was completed through June 1988. Of that total, over 10,500m of NC and NX core was drilled in the seven deposits (Agua Blanca, Becerros Norte, Becerros Sur, El Corral, Gregorio, Hilario and El Camello) that were put into production in 1991. This drilling was generally on 40m centers with local in-fill on 20m centers. Structural, geologic and assay data were obtained on the core. There is no mention within the 1988 feasibility study of any reverse circulation drilling completed by Phelps Dodge up through June 1988. (The current Animas database indicates that just 15 reverse circulation holes for 2,181m, all within the El Toro deposit, were completed by Phelps Dodge through June 1988.)

There are no other known comprehensive Phelps Dodge reports concerning the post-1988 drilling. Rodriguez and Lopez,(1992a, 1992b) reported on the exploration and drilling results for the Cristina and Dora deposits, respectively, while a 2003 annual report by Rodriguez-Barraza, et. al., (1994) reported on the district-wide exploration program completed that year. The latter report stated that Phelps Dodge drilled 274 RC holes for 25,122m and two core holes for 704m in 2003.

Hamilton (2003) noted that Rodriguez-Barraza, et. al., (1994) report on four deep (>300m) holes (GD-01 through GD-04) between the Dora, Gregorio, and Corral deposits that were drilled to test deeper targets on the property.

Wallis (2006) reporting on the López-Limón property describes the following drilling:

> *Work on the Dora area by Phelps Dodge included…85 reverse circulation holes totaling 11,781m, and two diamond drill holes totaling 290m. Work on the Cristina area by Phelps Dodge included…56 reverse circulation holes totaling 6,173m, and nine diamond drill holes totaling 904m. Drill hole samples taken by Phelps Dodge were on one-metre intervals. Trench samples were usually taken on two-metre to three-metre intervals. The core was stored on site.*

Kern and Sibthorpe (2007) noted that Phelps Dodge's core was lost due to the collapse of a core shack but that the reverse circulation chips were stored on site. These chips are no longer available.

The current Animas database indicates a total of 814 holes for 90,131m had been drilled by Phelps Dodge from 1986 through 1994. This includes 538 reverse circulation ("RC") holes for 62,219m and 276 diamond core ("core") holes for 27,912m. The database also includes 108 holes (72 RC and 36 core) totaling over 11,000m that cannot be attributed at this time to a specific company, but it is believed that most of these holes were likely drilled by Phelps Dodge. The Phelps Dodge drilling was initially focused on those deposits to be mined in the early 1990's. Some early drilling and the later drilling targeted many of the other prospective area within the Santa Gertrudis mine area. The database lists 27 specific targets for the Phelps Dodge drilling.

6.3.2 Minera Roca Roja (Amelia mine)

Prior to 1998, Minera Roca Roja held the concessions covering the Amelia, Santa Teresa, Viviana, and Toro Norte mine areas. Currently, Animas and ORE have digital data, including collar, local down-hole survey and assay data, for a total of 247 Minera Roca Roja ("RR") holes. The original collar coordinate data were in a local grid that is not correlative with the historic local grids, but these all have now been transformed into the WGS84 Zone 12N datum and are in the MDA v.7 database.

6.3.3 Campbell Resources Drilling

Campbell Resource held the Santa Gertrudis mine property from 1994 to 2000 and controlled the Amelia mine from 1999 to 2000. Hamilton (2003) reports that Campbell completed 98,620m of RC drilling in 1,017 holes and 21,122m of diamond core drilling in 225 holes. This drilling included pit definition and condemnation drilling of which approximately 23,500m was RC drilling and 6000m was diamond drilling (Hamilton, 2003).

The drilling attributed to Campbell in the Animas database totals 1,238 drill holes for 115,542m. This includes 1,032 RC holes for 96,539m and 206 diamond core holes for 19,003m. The number and meterage differences with those reported by Hamilton (2003) cannot be explained by the authors, since Hamilton (2003) does not include a list of individual holes to compare with the Animas data. Further data compilation and research might indicate that some of the core holes with the company designation of "unknown" within the database are actually Campbell holes.

The Campbell drilling targeted many of the same areas as the Phelps Dodge drilling but also explored a significant number of other targets. The new target areas were within the Santa Gertrudis mine property previously held by Phelps Dodge, Sebastian and Tigre for example, while a number of others were within the Amelia mine area acquired in 1999, Viviana and Samuel for example. The database has a total of 107 different target areas drilled by Campbell; some of these have just a few holes while others can be considered "sub-targets", i.e., Escondido Centro, Escondido Este, Escondido NW, etc.

6.3.4 Sonora Gold Drilling

All of the information available on Sonora Gold's drilling is found in Kern and Sibthorpe (2005) and Kern and Sibthorpe (2007). In 2003 through early 2005, Sonora Gold drilled a total of 137 holes at five prospects on their property: La Eme, Amelia #5, El Tascalito, San Enrique and Ontario. This included 16 RC holes for >867m, 16 diamond core holes for 1994m, and 105 percussion holes totaled 1,050m. The total RC meterage is not stated or able to be calculated because the drill lengths for seven RC holes were not reported by Kern and Sibthorpe (2005, 2007). Additional drilling may have been done elsewhere on the property, but the records are incomplete.

Kern and Sibthorpe (2005) indicate that a total of seven RC holes were drilled by Sonora Gold at the La Eme, Amelia #5, and El Tascalito areas in 2003. No further information as to total meterage or number of holes within each specific target is reported.

La Eme Prospect: Nine RC holes (LEME-02 through LEME-10) for 867m were drilled by Sonora Gold at the La Eme property in early 2004. This program was designed to further investigate the gold intercepts encountered in hole LEME-01 drilled in 2003. LEME-01 reported separate intervals of 6m assaying 5.8g Au/t, 6m assaying 4.6g Au/t and 4.5m assaying 4.8g Au/t; all interpreted to be hosted within an extension of the Amelia fault (Kern and Sibthorpe, 2005). Eight of the nine 2004 RC drill holes tested along strike from the LEME-01 mineralization while the ninth (LEME-08) was drilled to test the down-dip extension of the LEME-01 intercepts. Only LEME-08 reported significant gold values (4.5m assaying 1.8g Au/t and

7.5m assaying 4.2g Au/t). The LEME-01 and LEME-08 gold intercepts were interpreted to be within a "shoot" along the Amelia fault (Kern and Sibthorpe, 2005).

San Enrique Prospect: Sixteen diamond drill holes (NQ-size) were completed at San Enrique totaling 1994m of drilling. Four areas were tested and the drilling specifically targeted gold-bearing (up to 15g Au/t) jasperoid in limestone, soil and rock gold anomalies associated with northeast- and northwest-trending structures, and high base-metal surface geochemistry dominantly in hornfels and diorite. Compared to the Santa Gertrudis mine area to the north, the alteration at San Enrique was more silicic, the rocks were metamorphosed to a higher grade, and sulfides were more prevalent.

The drilling results indicated just weakly anomalous gold (50 to 500 ppb Au range) associated with the surface jasperoids and soil and rock gold anomalies. Drilling in the base-metal targets returned anomalous values in copper and molybdenum, with one hole containing an interval of 27m grading 0.308% copper and 0.24% molybdenum. Gold and silver values were generally less than 100ppb Au and 2g Ag/t. The mineralization, which is found mainly in hornfels and diorite, appears to be associated with a wide structural feature dipping at a low angle to the north.

Ontario Zone Percussion Drilling: The Ontario Zone in the Greta area was tested with 105 close-spaced percussion (air hammer) drill holes, each 10m deep, for a total of 1050m of drilling. The program was designed to define a shallow-dipping high-grade gold zone that had been located by previous operators. Kern and Sibthorpe (2005) state that *"the program outlined an area of mineralization of some 2,000 square meters averaging 4 meters in thickness grading 8.5 gpt gold, drilled off on 5 meter centers with mineralization open to the north and the west. Metallurgical tests were carried out on representative Ontario Zone ore and recoveries exceeding 90% were achieved.*

The Animas database has no information on any of the La Eme area RC drill holes. The database does have collar information, but no assay data, for the sixteen core holes at San Enrique and the 105 percussion holes at the Ontario zone.

6.3.5 Minera Teck Cominco Drilling

Teck explored the San Enrique prospect area from June 2005 until mid-2007. They drilled four reverse circulation drill holes (RCSE-001 to RCSE-004) for a total of 1198m and five diamond drill holes (DSE-001 to DSE-005) for a total of 1217m (Kern and Sibthorpe, 2005).

The Animas database contains data for all nine Teck holes with no discrepancies with the previously reported information.

6.4 Historic Resource Estimates

6.4.1 Historic Resource Estimates Discussion

This section of the report, like the previous sections, is a restatement of other workers' and operators' reports. For completeness, the authors are reporting these as they are stated in the referenced reports. It should be noted that none of these reports present a complete record of resources and reserves, and while contradictions were noted, these could not be resolved and are therefore reported here as they were in the original reports. The resources reported in Section 6.4.3 through 6.4.5 all pre-date NI 43-101 and do not comply, at least from a reporting standpoint, with those regulations. Therefore, all resources and reserves reported in Section 6.4.3 through 6.4.5 are historic by NI 43-101 regulations. The resources reported in Section 6.4 were included within a 2005 Technical Report whose authors state that the reported resources are NI 43-101 compliant (Kern and Sibthorpe, 2005). Due to a subsequent loss of data, the same authors state that the 2005 reported resources are no longer to be considered NI 43-101 compliant (Kern and Sibthorpe, 2007). The authors are therefore including the 2005 resource estimate into Section 6.0 and are considering it as a historic resource estimate. These historic estimates are presented for comparison to the compliant resource estimates presented in Section 17 of this report.

The area now controlled by Animas is a consolidation of several claim groups; therefore any property-wide resource compilations would also be a compilation from several sources. The most recent Measured and Indicated resources on the claims formerly held by Sonora Gold are those reported by Kern and Sibthorpe (2005, 2007) and discussed in Section 6.4. The most recent Measured and Indicated resources on the claims formerly held by Sonora Copper are those calculated for Campbell by Barrera (2000) and discussed in Section 6.4.5. The most recent Inferred resource available for the claims formerly held by Sonora Gold and Sonora Copper are those calculated for Campbell by Barrera (2000) and discussed in Section 6.4.5. The Barrera (2000) Inferred resource estimate was the basis for the later reporting by Hamilton (2003) and Wallis (2006) in their discussion of the Sonora Gold and Sonora Copper properties, respectively.

There are no known resource/reserve estimates for the former Minera Roca Roja property (Amelia mine).

6.4.2 Phelps Dodge 1988 Historic Resource/Reserve Estimates

Historic resource/reserve estimates were completed by Phelps Dodge in 1988 as part of a mine feasibility study on the seven deposits (Agua Blanca, Becerros Norte, Becerros Sur, El Corral, Gregorio, Hilario and El Camello) that were put into production in 1991 (Phelps Dodge, 1988). The geologic resource estimate (stated as a geologic reserve by Phelps Dodge) used standard cross-sectional techniques with grade contours at a 0.5g Au/t cut-off plotted on the cross-sections. Average grades were determined from duplicate fire assays of the drill core samples. The geologic resource based on drilling through June 1988 totaled 3,805,000 tonnes at an average grade of 2.4g Au/t for a total of 9,132,000g gold (294,000 oz gold).

The mineable reserves calculated by Phelps Dodge in 1988 were based on a 0.5g Au/t cut-off grade and 10% mining dilution for all deposits except Becerros Norte and Becerros Sur where a 15% dilution was coupled with a 5% ore loss. The pit design parameters included variable pit slopes as steep as 59° and 5m bench heights. The mineable reserve totaled 3,059,000 tonnes at an average grade of 2.45g Au/t. Stripping averaged 6.9:1 though this number ranged from 0.9:1 at Agua Blanca to 11.7:1 at El Toro.

6.4.3 Phelps Dodge 1992 Historic Resource Estimates

Historic resource estimates for the Cristina and Dora deposits (Table 6.1) were completed by Phelps Dodge in 1992 (Swanson and Waegli, 1992a and 1992b). The Phelps Dodge estimates employed a 0.5g Au/t cut-off and a specific gravity of 2.5 g/cm^3 for all material. The estimates were a) prepared using inverse distance algorithms, b) are unclassified, and c) would, according to Wallis (2006, 2007), correspond to inferred resources under then-current CIM definitions. The Cristina historical resource does not contain carbonaceous material and is reported to comprise mainly oxidized material. The Dora deposit is a mix of oxide, mixed and unoxidized material. Dora was mined by Campbell in the 1990's but Wallis (2006, 2007) notes that approximately 370,000 tonnes of oxide mineralization in the Dora resource may remain un-mined. There may have been other resources estimated by Phelps Dodge in 1992 for other deposits that are now part of the Animas claims, but only those from what became the López-Limón concessions (Dora and Cristina deposits) had been found at the time of this writing.

Table 6.1 Phelps Dodge Historic Resources 1992
(from Swanson and Waegli, 1992a and 1992b)

Pit	*Oxide*		*Mixed*		*Carbonaceous*		*Total*		
	Tons ('000)	*g/t Au*	*Tons ('000)*	*g/t Au*	*Tons (000)*	*g/t Au*	*Tons (000)*	*g/t Au*	*Oz. Au (000)*
Dora	*1,388*	*2.04*	*121*	*1.69*	*1096*	*1.73*	*2,605*	*1.89*	*158.6*
Cristina	*4,965*	*0.83*					*4,965*	*0.83*	*132.5*

6.4.4 Phelps Dodge/Campbell 1994 Historic Resource/Reserve Estimates

In June 1994, Strathcona (Thalenhorst, 1994) reported reserves and resources at Santa Gertrudis for Campbell. At that time Campbell did not control the Amelia mine, but did control the Lopez-Limon concessions. The Strathcona work was done when Campbell took over the operation from Phelps Dodge and was an audit of a reserve estimate that had been done by Phelps Dodge in January 1994. Selective descriptions follow:

- density of 2.5 t/m^3, but based on no actual density measurements,
- reporting cutoff of 0.5g Au/t,
- GEOMIN Datamine software was used by Phelps Dodge,
- compositing sample data to 6m benches estimating into blocks 6m high by 10m across strike by 15m along strike,
- the grade of each block was estimated using a variety of interpolation methods and search distances as each deposit has different characteristics, and
- Lerchs-Grossmann pit optimization algorithms were run with various economic parameters: gold price of $350, metallurgical gold recovery of 77.5% to 82.5%, pit slopes of 40^o to 55^o, and operating costs (mining and processing) of $6.04 to $6.41 per tonne.

Strathcona audited the reserves by reconciling the mine production with the reserve estimate. This reconciliation indicated that the global mineable reserve, as a compilation of all deposits, was within 20% of total gold and 5% of total tonnage. This degree of reconciliation would warrant assignment to the category of Proven (historic only). However, the reconciliation showed high variance of individual deposits (+60% to -30% of gold content); therefore all mineable reserves at Santa Gertrudis were assigned to the Probable category (historic only). As of June 30, 1994, the reported Probable reserves were 1.4 million tonnes grading 1.7g Au/t with 7.9 million tonnes of waste and a strip ratio of 5.5. The resource (not including reserves above) was not categorized and was given as 2.06 million tonnes grading 1.5g Au/t (Thalenhorst, 1994).

6.4.5 Campbell Resources, Inc 2000 Historic Reserve/Resource Estimates

According to Hamilton (2003), when Campbell Resources ceased mining in October 2000, they prepared an in-house "ore reserve statement", dated November 30, 2000 (Barrera, 2000). Campbell's reserve estimate was calculated using $280/oz Au, a 0.5g Au/t cut-off grade for reporting, and a density of 2.5 t/m^3. Pit optimization parameters included a 56° pit slope, 6m bench height, and 10m wide ramps at 12° incline. The reserves were listed in both Probable and Possible categories. In addition, Barrera (2000) also listed an Indicated resources category. Barrera (2000) defined the various categories as:

Probable reserves: "*Deposit has been drilled but may require infill drilling in some area to finalize details for mine planning. Also economic viability has been demonstrated but detailed mine planning may not be completed. There are included those ore blocks defined by close drilling but its low grade, high strip ratio or low gold price make them low or none profitable if mined.*".

Possible reserves: "*Deposit has been outlined by drilling but spacing may be insufficient for detailed mine planning. Preliminary pit designs and economic studies have been completed indicating a marginal profit or loss. Production may become feasible given a reasonable change in strip ratio, operating cost, grade, recovery and /or gold price.*"

Indicated resources: "*Tonnage and grade has been calculated based on drill holes at various spacing. Calculation may have been undertaken by computer block model or manually on sections. The deposits are either uneconomic under present conditions or economic studies have not been undertaken. Geologic resources include material below or in the walls of past, current, or future pits whose designs have been economically optimized. As such, by definition this material is sub-economic and would require an inordinate change in the relevant economic parameters to alter profitability. It is reasonable however that a moderate change in economic parameters could upgrade a portion of the geologic resources. This classification includes late stage exploration projects with widely spaced drilling. Thus, Indicated resources should not be considered as current or near future ore but rather as targets for definition drilling programs.*"

These categories were later downgraded due to continued low gold prices (Annual Report on Form10K for the fiscal year ended December 31, 2000, filed by Campbell with the U.S. Securities and Exchange Commission). Hamilton (2003) restated the reserves and resources as downgraded by Campbell. For the reserves originally categorized as Probable, Hamilton (2003) "*believes that in conjunction with infrastructure supported by other nearby deposits these mineral resources have a reasonable expectation of becoming economically exploitable, and, in addition, the geological, engineering and metallurgical levels of confidence are sufficient that these resources can be considered as equivalent to a Measured Mineral Resource as defined by the Resource and Reserve Definitions (CIM 2000).*" The Measured resources, as shown in Table 6.2, total 320,000 tonnes with an average grade of 2.70g Au/t.

Table 6.2 Campbell Resources, Inc- 2000 Historic Measured Resources

[estimated by Barrera (2000); re-categorized by Hamilton (2003)]

Deposit	**Tonnes**	**Grade (g Au/t)**	**Contained Au (g)***	**Contained Au (oz)**
Mirador	94,345	3.28	309,452	9,949
Escondida Norte	99,917	2.30	229,809	7,389
Trinidad	70,085	2.92	204,648	6,580
Escondido Centro	55,428	2.17	120,002	3,858
Total	**319,775**	**2.70**	**863,911**	**27,776**

* reported numbers have some rounding differences

For the reserves originally categorized by Campbell as Possible, Hamilton (2003) states "*there is thus a sufficient level of certainty in the geological characteristics of these zones to allow confident interpretation of the geological framework and to reasonably assume the continuity of the mineralization. This material can be considered as equivalent to an Indicated Mineral Resource as defined by the Resource and Reserve*

Definitions (CIM 2000)". The Indicated resources, as shown in Table 6.3, total 1,126,000 tonnes with an average grade of 1.87g Au/t.

For the resources originally categorized by Campbell as Indicated, Hamilton (2003) states that there is *a lower level of confidence in the geological information and consequently these mineral resources should be considered as equivalent to Inferred Mineral Resources as defined by the Resource and Reserve Definitions (CIM 2000).* The Inferred resources, as shown in Table 6.4, total 14,791,000 tonnes with an average grade of 1.28g Au/t.

The authors of the current report must indicate that under current NI 43-101 standards, portions of the Historic Inferred Resources stated in Table 6-4 would not be currently classified as such due the reported sub-economic nature of the mineralization.

Table 6.3 Campbell Resources, Inc- 2000 Historic Indicated Resources

[estimated by Barrera (2000); re-categorized by Hamilton (2003)]

Deposit	**Tonnes**	**Grade (g Au/t)**	**Contained Au (g)***	**Contained Au (oz)**
Mirador	166,070	2.21	366,184	11,773
Toro Norte	29,132	1.31	38,163	1,227
Escondida Norte	40,083	5.85	226,549	7,284
Trinidad	856,050	1.67	1,429,604	45,964
Escondida Centro	35,077	1.17	41,097	1,321
Total	**1,126,412**	**1.87**	**2,101,597**	**67,569**

* reported numbers have some rounding differences

Table 6.4 Campbell Resources, Inc- 2000 Historic Inferred Resources

[estimated by Barrera (2000); re-categorized by Hamilton (2003)]

Deposit	Tonnes	Grade (g Au/t)	Contained Au (g)*	Contained Au (oz)**
Mirador	612,744	1.02	626,224	20,134
Trinidad	118,000	2.10	247,800	7,967
Escondida Centro	469,283	1.13	530,252	17,048
Escondida Oeste	480,000	0.94	451,200	14,506
Escondida Este	56,800	0.90	51,120	1,644
Escondida NW	187,500	1.39	260,625	8,379
Greta/Ontario	894,856	1.97	1,762,866	56,677
Greta NE	186,550	1.26	235,053	7,557
Tracy	245,064	3.58	877,329	28,207
Tracy N	94,575	1.62	153,212	4,926
Melissa NW	163,750	0.74	121,175	3,896
El Tigre	230,889	1.60	369,422	11,877
Becerros Sur	247,000	2.60	642,200	20,647
La Gloria	442,196	2.80	1,237,707	39,793
El Toro Extension	725,000	1.56	1,127,375	36,246
Ruben	205,000	2.06	422,915	13,597
El Corral	628,000	1.66	1,039,968	33,436
El Corral NW	46,000	2.70	124,200	3,993
Melissa	128,000	1.88	240,384	7,729
San Ignacio	14,000	2.30	32,200	1,035
Cristina	6,030,000	0.65	3,919,500	126,015
Dora	1,530,000	1.80	2,754,000	88,543
Becerros Norte	269,000	1.15	309,350	9,946
Maribel	196,000	1.60	313,600	10,082
Emma	137,000	1.70	232,900	7,488
Mariana	100,000	2.00	200,000	6,430
Berta	95,000	1.10	104,500	3,360
Sofia	95,000	1.60	152,000	4,887
Sebastian	90,000	2.70	243,000	7,813
Hilario	74,000	1.40	103,600	3,331
Total	**14,791,207**	**1.28**	**18,885,677**	**607,189**

* reported numbers have some rounding differences

** MDA calculated numbers

Hamilton (2003), reporting on International Coromandel holdings, Kern and Sibthorpe (2005, 2007), reporting on Sonora Gold and Deal Capital holdings, and Wallis (2006, 2007), reporting on Chuqui (Sonora Copper) holdings, each present a portion of the Campbell resources or reserves as they pertain to the claims held by the respective company that controlled those portions of the property. The one difference with the Campbell estimate noted in these later reports is the addition by Wallis (2006, 2007) of the Manueles deposit to the Campbell list of Inferred Resources. Wallis (2006, 2007) indicates a Manueles Inferred resource of 207,000 tonnes at an average grade of 2.0g Au/t. It is clearly stated in Wallis (2006, 2007) that the Chuqui Inferred resources are historic as reported by Campbell (Barrera, 2000). No additional work on Chuqui ground had been completed post-Campbell which would require a revision of the Campbell estimate. The authors of the current report do not know the origin or circumstances of the Manueles Inferred resource as reported by Wallis (2006, 2007).

6.5 Historic Production Discussion

Any quantitative reporting on total production would need to compare the reports of ounces of gold mined to the reports of ounces of gold produced. There is no production information prior to 1991, but shipments of ore were made to smelters in Mexico and the United States. . Because the properties — Santa Gertrudis mine, Amelia mine, Lopez-Limon concessions — were controlled by different owners at different times, it is difficult to make a comprehensive inventory. Table 6.5 is the most recent and complete listing of ounces mined; its source of information for the Amelia mine is undocumented, but otherwise it is the most accurate information available.

Between 1991 and 2000, approximately 565,000 ounces of gold were mined in the district, in what is now part of Animas' Santa Gertrudis property. This includes production by Phelps Dodge, production at the Amelia mine, and production by Campbell. A total of 8.244 million tonnes were mined via open-pit, with an average grade of approximately 2.13g Au/t, from 22 sedimentary-rock-hosted, disseminated-gold deposits (Hamilton, 2003). As noted previously, since the production at the Amelia mine is not well documented, these figures are probably more approximate than they appear. Hamilton (2003) states that the average gold recovery for the Santa Gertrudis mines was in excess of 70%. Recent communications with Phelps Dodge personnel indicate that the gold recovery calculated from metal production and residue assays was slightly over 80% (private communication with Mr. Ted Mackey, Santa Gertrudis Plant Manager, personal knowledge, J. T. Hanks).

6.5.1 Phelps Dodge

Phelps Dodge (through the Mexican subsidiary Zapata) began production from the Santa Gertrudis mine in May 1991. Production was from an oxide-ore, open pit, heap leach mine that was initially operated at 2,000tpd, but was increased to 2,750tpd in 1992. The gold occurred as fine disseminations in silicified lime-rich shale and siltstone of Cretaceous age and was found in a number of deposits along a northwest-striking belt approximately 5km long and 3km wide. From May 1991 until May 31, 1994, Phelps Dodge mined 3,140,881 tonnes of ore grading 2.0g Au/t from seven pits: Agua Blanca, Becerros Norte, Becerros Sur, El Corral, Gregorio, Hilario and El Camello. Metal recovery was by CIC adsorption, stripping, and Merrill Crowe zinc precipitation of precious metals from the strip liquor. Precipitates were shipped to the Phelps Dodge refinery at El Paso, TX (pers. comm., J. Hanks, 2009). The total mined production was approximately 204,000oz gold. The average strip ratio was 6.0 but varied from 1.1 to 11.5, and the recovery was 70% for a total production of 4,409kg (141,752oz) gold sold (Thalenhorst, 1994). [Note that elsewhere in Thalenhorst (1994) the total gold production is listed as 4300kg. Also note that production from June 1994 is not included in the table but may be available by implication elsewhere in the report.]

6.5.2 Amelia Mine

The Amelia mine, located approximately 4km north-northwest of Santa Gertrudis, was operated by several small companies from before the time of Phelps Dodge's operation in the district until 1998. The earliest reports of production cite approximately 23,000 tonnes of silica flux averaging 13.4g Au/t having been shipped to the Phelps Dodge smelter in Douglas, Arizona (Anderson and Hamilton, 2000). Minera Roca Roja eventually took control of the Amelia mine properties in the 1980's and produced from four pits (Amelia, Pirinola, Viviana and Santa Teresa), using an on-off leach pad system, until 1998 (Hamilton, 2003). Anderson and Hamilton (2000) reports 1,063,481 tonnes of ore mined, grading 2.88g Au/t for an approximate mined production of 98,483 ounces of gold. Hamilton (2003) states that the recoveries from the Minera Roca Roja deposits are not well documented, but past production is estimated to be approximately 100,000 ounces of gold.

6.5.3 Campbell Resources

In July 1994 Campbell Resources purchased the property from Phelps Dodge. Campbell operated the Santa Gertrudis mine (through its Mexican subsidiary Oro de Sotula) at a rate of 3,000 tonnes per day of processed ore until December 1997. Behre Dolbear (1997) states that as of October 1997, "*Campbell has produced approximately 144,000 ounces of gold at a grade of 2 grams per tonne*". Limited operations were reinitiated in November 1999 and ceased in October 2000, with leaching continuing until January 2001. Anderson and Hamilton (2000) report detailed production from the various deposits at Santa Gertrudis, but the data are inclusive of production by Phelps Dodge and at the Amelia mine. Subtracting the production by Phelps Dodge and at the Amelia mine from the Anderson and Hamilton (2000) data, it is estimated that Campbell produced on the order of 260,000 ounces of gold. These estimates are not compliant with NI 43-101 and cannot be relied on.

Table 6.5 Total Production May 1991 to October 2000, Santa Gertrudis District

(Anderson and Hamilton, 2000)

Deposit	Host Formation	Ore mined (tonnes)	Grade (g Au/t)	Au mined (ounces)	Strip ratio (waste:ore)
Becerros Norte	Cintura	1,596,189	2.07	106,242	5.0
Amelia*	lower Mural	1,063,481	2.88	98,483	6.6
Dora	middle Mural	1,019,540	2.35	77,039	10.5
Becerros Sur	Cintura	790,016	2.16	54,869	14.2
Corral	middle Mural	487,200	2.50	39,164	6.6
Agua Blanca	upper Mural	631,354	2.12	43,038	1.3
Maribel	Morita	346,590	2.19	24,406	11.3
Toro	m & u Mural	471,040	1.51	22,870	6.1
Katman	Cintura	373,115	1.48	17,756	8.1
Trinidad	Glance/Morita	225,625	2.12	15,380	5.5
Gregorio	middle Mural	252,961	1.45	11,794	5.6
Manueles Sur	Cintura	127,485	2.69	11,027	3.4
Mirador	middle Mural	221,865	1.43	10,202	8.8
Sofia	middle Mural	177,830	1.26	7,205	6.0
Camello	middle Mural	198,365	1.08	6,889	3.3
Ruben	lower Mural	51,840	3.85	6,418	4.3
Toro Norte	lower Mural	60,310	2.80	5,430	3.8
Corral NW	middle Mural	44,115	2.40	3,404	9.4
Hilario	middle Mural	105,465	0.95	3,222	2.9
Total		**8,244,386**	**2.13**	**564,838**	**6.5**

* Rough estimate; includes Amelia, Pirinola, Viviana, and Santa Teresa deposits

These estimates are not compliant with NI 43-101 and cannot be relied on.

7.0 GEOLOGIC SETTING

7.1 Regional Geology

Three north-south-trending physiographic provinces transect the State of Sonora, Mexico. From west to east these are the Basin and Range, the Transition Zone, and the High Plateau (Sierra Madre Occidental). The Santa Teresa mining district is within the extreme eastern margin of the Basin and Range, at the western edge of the Transition Zone. The physiography of the district consists of closely spaced ranges that form topographical highs with relatively narrow intervening shallow valleys. This region contains a wide variety of rock types and ages, with Tertiary volcanic rocks predominating (Figure 7.1). The principal regional structural elements are the north-trending Basin and Range normal faults. The Sierra Madera core complex is located west of the Santa Teresa district, and it may be responsible for some of the observed structural features seen in the region. The bulk of Mexico's copper production occurs in the Basin and Range province, principally at Cananea and La Caridad. Regionally, gold occurrences are commonly associated with Tertiary dilational faults, many of which occur in calcareous sedimentary rocks, and locally, some replacement-type mineralization is reported. There also are a number of stockwork epithermal vein gold occurrences within the region, and the Animas' Cristina deposit in the Santa Teresa mining district is an excellent example of this style of gold mineralization.

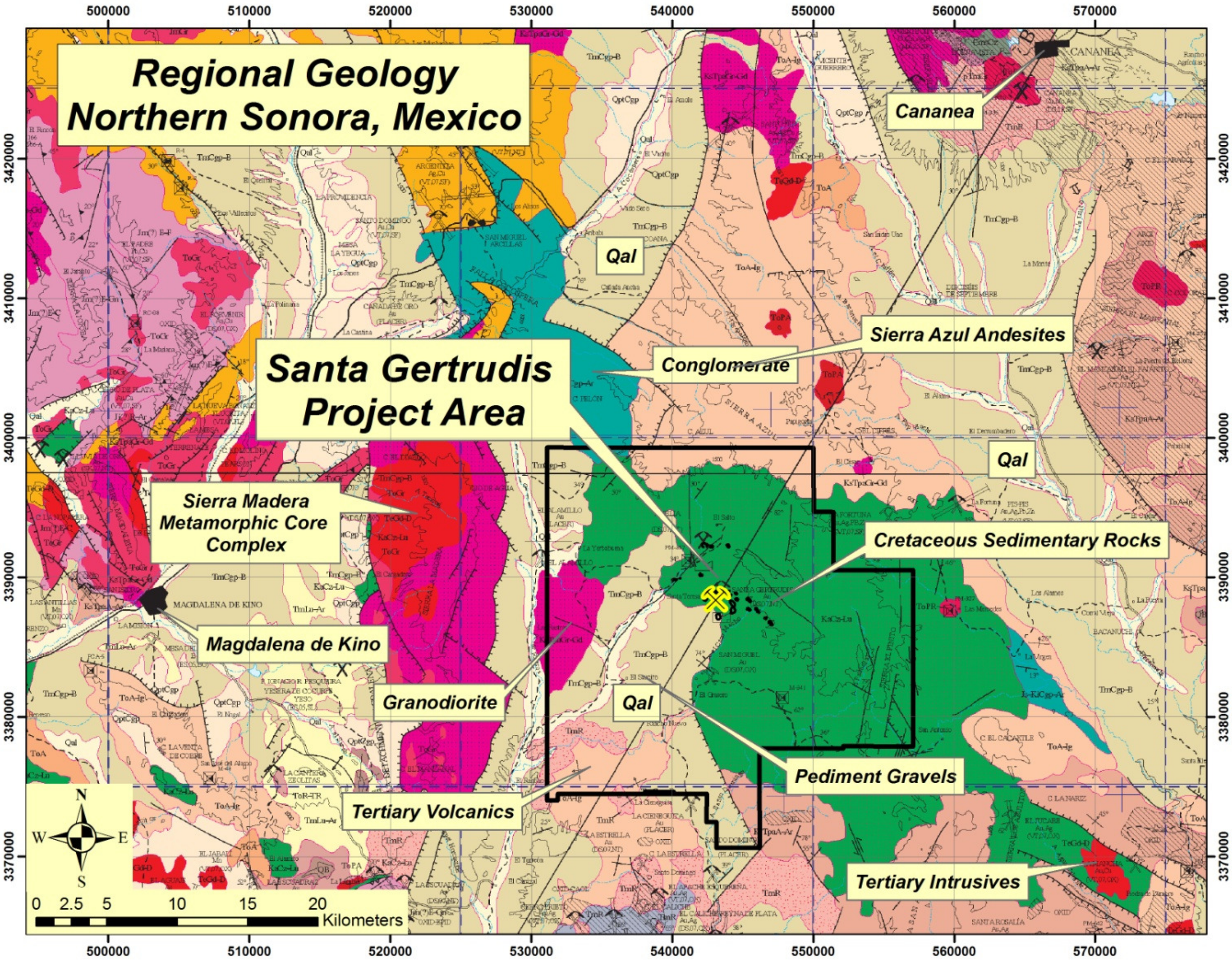
The Lower to Middle Cretaceous, Bisbee Group-equivalent, sedimentary rocks host the majority of the gold mineralization in the Santa Teresa mining district. The Bisbee-equivalent sedimentary section in the district filled the late Jurassic-early Cretaceous San Antonio Basin, one of a number of similar-age basins that formed along the southwestern margin of North American craton. These basins appear to have formed as pull-apart basins at releasing bends of the sinistral late Jurassic Mojave-Sonora fault system (Anderson, T.A., et al, 2005). These extensional, fault-controlled basins contain thick deposits of locally derived conglomerate, clastic, and carbonate sedimentary rocks. Fault orientations suggest that the sedimentary-filled basins formed in response to transtensional strain associated with sinistral movement along the inferred Mojave-Sonora fault system (located to the south of the Santa Teresa mining district). Northwest-striking, left-lateral faults that terminate at east-striking normal faults define releasing left fault steps at which crustal pull-apart structures formed.

Late Jurassic faults of this transtensional fault system appears to have controlled the regional distribution of pull-apart basins and influenced the orientation and style of many of the younger structures, intrusions, and perhaps even gold mineralization. Most Jurassic-Cretaceous faults were reactivated during subsequent episodes of tectonism. Northeast-directed compression during the late Cretaceous Laramide Orogeny reactivated northwest-oriented sinistral faults as reverse thrust faults. Later, these same northwest-oriented faults may have influenced the position of breakaway zones for Miocene detachment zones associated with Tertiary extension/gneiss dome formation.

A major plutonic/volcanic event began during the late Cretaceous (Laramide), and continued into the Eocene. Miocene, high-angle normal faults appear to have served as conduits for the gold-bearing hydrothermal fluids, and in almost all cases, gold mineralization appears to be closely associated with these features.

The Santa Teresa mining district is centered on a 25km by 10km belt of sedimentary rocks that are surrounded and partly covered by Oligocene ignimbritic volcanic rocks (Sierra Madre volcanics) and alluvial gravels. The Bisbee Group correlative rocks in the district are a minimum 1,300m thick and are equivalent, in ascending order, to the Glance Conglomerate, Morita Formation, Mural Limestone, and Cintura Formation. Dioritic, andesitic, and felsic dikes and sills are common throughout the district, and one potassium/argon date from a biotite diorite dike (lamprophyre) in the eastern part of the district yielded an age of 26.1 ± 0.7 Ma (Bennett, 1993).

Figure 7.1 Regional Geology, Northern Sonora, Mexico



7.2 District Geology

7.2.1 Introduction

The Santa Teresa mining district contains approximately thirty gold deposits that are hosted in rocks correlative with the Upper Jurassic-Lower Cretaceous Bisbee Group clastic and carbonate lithologies of southeastern Arizona (Figure 7.2). These gold deposits occur in a northwest-trending belt that is approximately 20km long and up to 8km wide. Although the entire Cretaceous section is not exposed within the district, it is believed that the sedimentary package has a minimum thickness of 1,300m. Dikes and sills of varying composition ranging from andesite to rhyolite are common throughout the district and most appear to pre-date gold mineralization. The lowest unit of the Bisbee Group is the Glance Conglomerate which is overlain sequentially by the Morita Formation (sandstone-limestone-siltstone), the Mural Formation (limestone-calcareous siltstone-carbonaceous shale) and the Cintura Formation (sandstone-limestone-siltstone). In general, these units are exposed in a northwest-trending belt that is covered by Tertiary volcanic and recent gravels to the northeast and southwest. While outcrop in the central part of the district is reasonably good much of the district is covered by a thin veneer of alluvium and colluvium.

The district is structurally complex and locally the rocks are strongly folded and faulted. During the Laramide, the area was subjected to northeast-southwest-directed compression, and the Bisbee Group rocks were folded and thrust faulted along a northwest-trending structural axis. Thrust faulting occurred mainly along bedding planes and locally the units are overturned to the southwest. Extensional, tectonism occurred during the Miocene and this resulted in the formation of several southwest-dipping low-angle normal fault sheets. Following the extensional event, north, northeast, and east-west-trending Tertiary normal faulting occurred and subsequently, these faults were cut by Basin and Range-style north-northwest-trending normal faults.

7.2.2 Sedimentary Rocks

Upper Jurassic (?) to Lower Cretaceous Glance Formation equivalent rocks are more than 300m thick and consist of a green, mottled, massive, pebble to boulder conglomerate interbedded with coarse sandstone and minor siltstone. A majority of the clasts are felsic- to intermediate-composition volcanic rocks set in a sandy matrix. The depositional environment is interpreted as having been in alluvial fans during the initial stages of sedimentation along the margins of the Chihuahua trough (Hamilton, 2003). The Glance Conglomerate does not typically host gold mineralization within the district; however, a protion of the Trinidad gold deposit and several small gold occurrences at the eastern end of the Escondida structure do appear to be locally hosted within this unit.

The Lower Cretaceous Morita Formation is at least 400m thick and is comprised of massive, weakly calcareous, purple siltstone interlayered with thin gray to purple arkosic sandstone and pebble conglomerate. Most of the pebbles are comprised of volcanic detritus and are most common at the base of the conglomerate, becoming upwardly more fine-grained. Conglomerate is more common in the upper portions of the formation. Only minor amounts of gold mineralization are hosted in the Morita Formation, although in the Trinidad area, gold is hosted within the lower Morita Formation in a more calcareous unit that is locally named the Cerro de Oro formation.

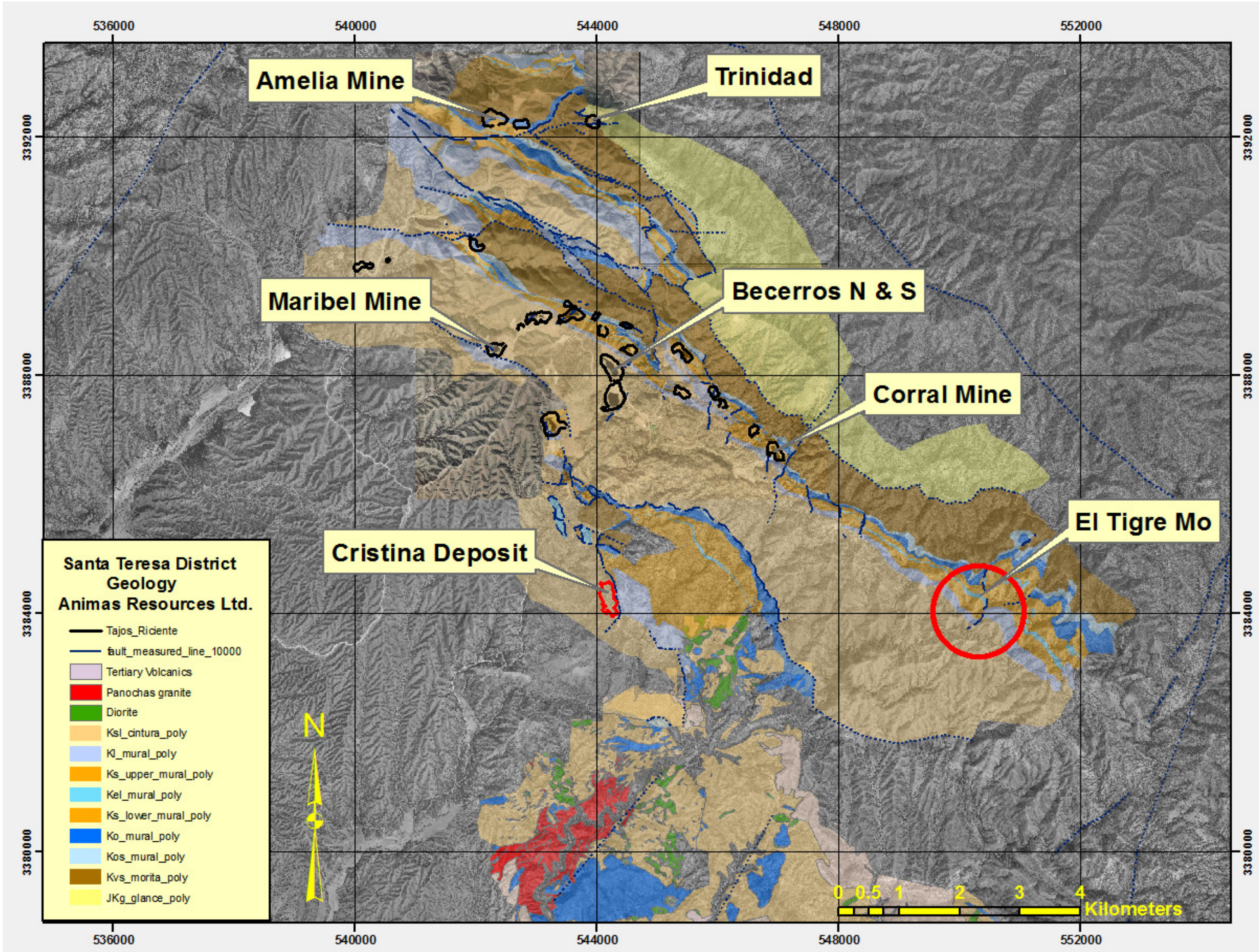


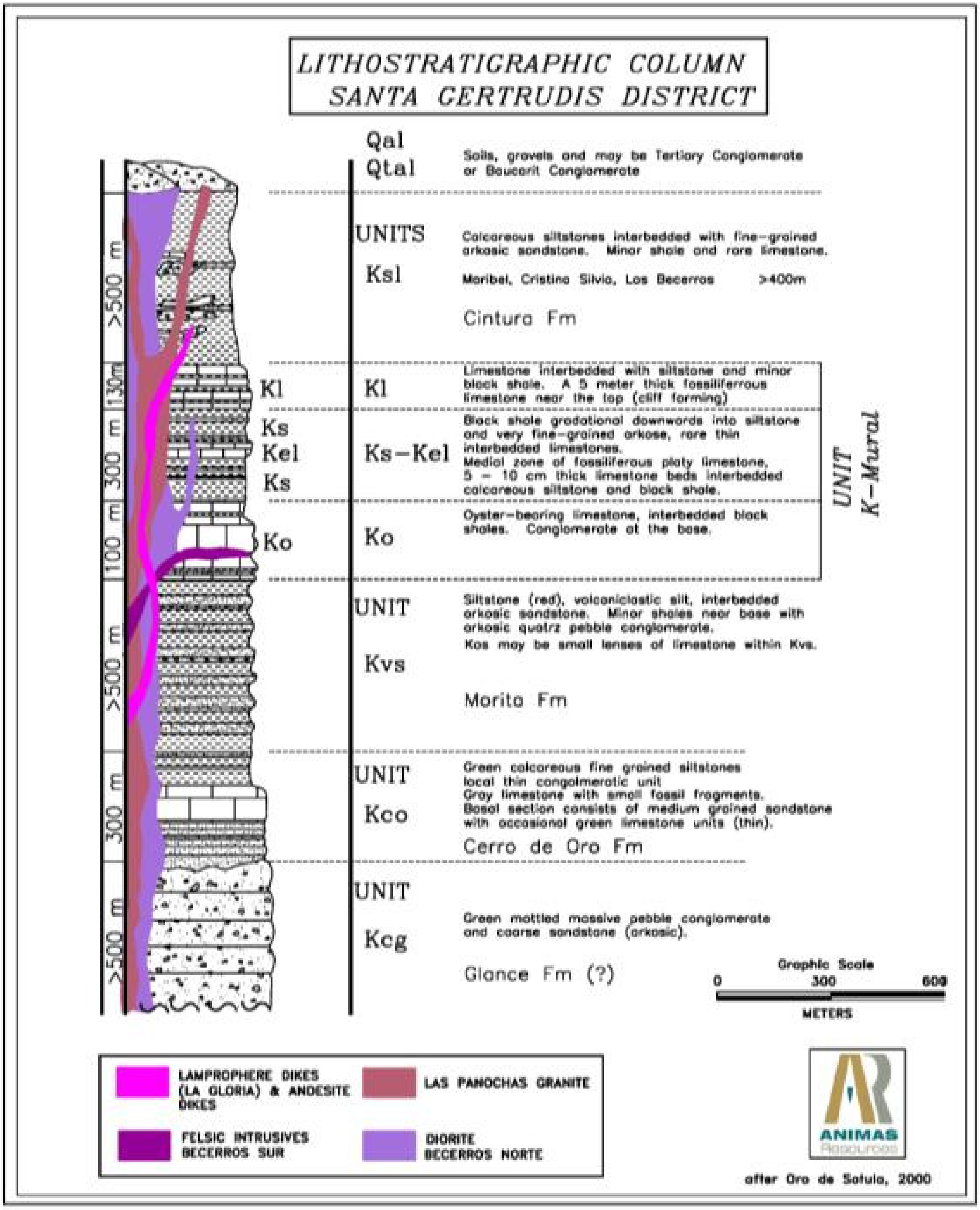
Figure 7.2 Santa Teresa Mining District Geology (Animas 2010)

The Lower Cretaceous Mural Formation is about 380m thick and is subdivided into several members that serve as excellent marker horizons which are used for district-wide stratigraphic correlations and structural analyses. The lowest member is a 100m to 125m thick fossiliferous limestone interbedded with gray to black, calcareous siltstone, fine- to coarse-grained sandstone and minor conglomerate. The upper part of this member is a 40m to 50m thick, thick-bedded, dark-gray-weathering oyster-bearing limestone (Ko). The middle member is 195m to 205m thick, consisting of thin-bedded gray-black, calcareous siltstone, intercalated locally with thin beds of limestone or calcareous fine-grained sandstone. A marker unit is located in the central part of this member. The marker consists of a 15m thick, light-gray, thinly bedded, and weakly fossiliferous limestone (Kel). The upper member (Kl) is 15m to 80m thick, consisting of about 1.5m thick beds of massive, fossiliferous limestone intercalated with greenish-black, calcareous siltstone and minor fine-grained sandstone. Many of the gold deposits in the district are hosted within the Mural Formation.

The Lower Cretaceous Cintura Formation is located stratigraphically above the Mural Formation and is estimated to be greater than 800m thick. Cintura is comprised of reddish-brown to green, calcareous siltstone, interbedded with massive- to thin-bedded weakly calcareous sandstone and minor lenses of pebble conglomerate. In general, the lower portion of the Cintura is more calcareous, and it clearly becomes less calcareous up-section. The Cintura Formation is a known favorable host for gold mineralization and several significant gold deposits are hosted within this unit.

A graphic representation of the Santa Teresa stratigraphic section is shown in Figure 7.3.

Figure 7.3 Stratigraphic Section – Santa Teresa Mining District



7.2.3 Igneous Rocks

Intrusives are common throughout the district and seem to be grouped by age and composition. Diorite stocks, sills, and dikes appear to be the oldest. The next youngest intrusive is a two mica S-type peraluminous granite in the southwestern part of the district (Las Panochas granite). Mineralization associated with this intrusive has been dated by Geospec (2006) at 42.3 ± 0.3 Ma (Re-Os date from molybdenite) while a later alteration event has been dated by Bennett (1993) at 36.1 ± 0.9 Ma (K-Ar date from muscovite). The two-mica granite intrusive is considered to be late Laramide in age. A biotite diorite dike (lamprophyre?) in the eastern part of the district has been dated by Bennett (1993) at 26.1 ± 0.7 Ma (K-Ar date from biotite) and numerous, lamprophrye dikes/sills are seen throughout the district. Where exposed in mine pits, the dikes range from 1-3m in width, are relatively unaltered and appear to be spatially associated with gold mineralization. Locally, lamprophyre dikes also have been emplaced along low-angle normal faults of presumed Miocene age. There also are undated felsic (rhyolite?) sills/dikes in the Greta, Maribel, and Becerros areas and based on field observations, these intrusives appear to be older than the lamprophyres. The felsic dikes generally are discontinuous and rarely exceed 2m in thickness, and they are frequently pyritized (now goethite after pyrite), pervasively altered to sericite, and locally quartz veined.

Large areas of hornfels are exposed at San Enrique, Amelia, Mirador, and El Tigre (previously named Greta). Hornfels are fine-grained, metamorphosed rocks which were produced by isochemical contact metamorphic alteration of the sedimentary units, and it is inferred that large, unexposed intrusives exist at depth in these areas. Although the age of these inferred intrusive is unknown, based on field relations, they are believed to be older than the extensional faulting event, and they are inferred to be late Laramide in age (?).

It should be noted that the 2010 drilling within the area of Enedina Hill (hole ARET-004) intersected a potentially multi-phased (?) felsic intrusive which exhibits strong stockwork quartz veining and brecciation. This same intrusive unit also has now been recongnized in the Fragment Knob area southwest of the top of Enedina Hill. The rocks exposed at Fragment Knob are likewise strongly quartz veined and brecciated, and are similar to the altered and mineralized intrusive rocks observed in ARET-004.

The intrusive(s) in hole ARET-004 contains numerous fragments of different felsic phases. Clear cross-cutting relationships between the various felsic fragment types are rare, and it is difficult to determine their relative ages. What might be the oldest of the intrusive phases is an aphanitic felsites and a potentially younger (slightly) intrusive that contains only traces of pinpoint quartz phenocrysts in an aphanitic felsic groundmass may also be present. The youngest of the intrusives appears to be a quartz-feldspar porphyry with a pink groundmass. Some, or all, of these may be variations of one older intrusive, or possibly several separate intrusive phases. Three core samples from the intrusive in ARET-004 were stained by sodium cobaltnitrate, and it is permissive that they may be significantly enriched in potassium. More detailed information relating to the intrusive at El Tigre can be found in Section 10.1.3.2 Animas 2009 Drilling Program (El Tigre) and in a report entitled *An Evaluation of the Molybdenum Potential, El Tigre Prospect, by Dr. Roger C. Steininger (6 September, 2010).*

7.2.4 Structure

The district is characterized by several periods of complex deformation. Simplistically, much of the district lies within a major northwest-trending, northwest-plunging, anticlinal fold belt. The Glance Conglomerate may have served as a buttress to this folding event and most of the deformation appears to have occurred within the more easily deformed Morita, Mural, and Cintura Formations. Parasitic folds and drag folds locally are well developed. Although the fold axes generally trend northwesterly and the axial planes dip to the southwest, in the northwestern portion of the district between the Camello and Amelia deposits, the beds are overturned to the southwest.

The Laramide thrust faulting appears to be primarily bedding-parallel (northwest-striking, south dipping), and the actual amount of displacement is difficult to determine. More localized compressional-style folding and deformation appears to have accompanied this event, and individual beds are often highly deformed.

Following the Laramide compressional event, the region underwent uplift (doming?), general extension, and southwest-directed, low-angle normal faulting occurred. These faults generally trend northwesterly and dip to the southwest at between 20º and 40º, and they clearly cut the previously described late Laramide contact metamorphic thermal event and possibly, the felsic dike event. This low angle faulting event has been described by some authors as listric normal faulting, and it potentially is related to a well-documented period of Miocene regional extension and gneiss dome formation. Although the displacement on these faults is not well documented, it is believed that the individual plates have not moved more than a few kilometers, at most. In the La Gloria/Jabali and Mirador areas, the low-angle faults place large blocks of Mural Limestone on top of a normal stratigraphic section of northwest-trending Mural, Cintura, and Morita Formations. The displaced plates generally are comprised of weakly metamorphosed siltstones/limestone that, in some locations, lie discordantly on a package of thermally altered hornfels. At least three major allocthonous plates have been identified to date, and it is permissive that the main district has been offset like a deck of cards sliding to the southwest.

The low-angle normal faults appear to be both intra- and post-mineralization in age, and in some locations, they clearly cut and displace gold mineralization.

Subsequent to the folding, thrust faulting and low-angle normal faulting, extensional northeast and north-northwest-trending faulting occurred. Following the extensional faulting, Basin and Range faulting occurred and resulted in the formation of high-angle north-northwest-striking normal faults. The north-northwest-trending faults appear to post-date the low-angle normal faults, and they also may have reactivated the older, northwest-trending thrust faults. In the southeastern portion of the district, the northeast-trending faults cross-cut the felsic and lamprophyre dikes and the low-angle normal faults, and it is clear that this faulting is at least younger than 26.1 Ma (lamprophyre age date). In this area, the lamprophyres locally appear to be controlled by the low-angle normal faults, but they also generally exhibit a fault-parallel cleavage. The northeast and north-northwest faults show both right-lateral and left-lateral, oblique strike slip movement based on stratigraphic offset and slicken lines measurements.

8.0 DEPOSIT TYPES

Historic production for the Santa Teresa mining district was principally from sedimentary-rock-hosted gold deposits that have been characterized by some authorities as "Carlin-type" in character. As noted in Section 9.0, although there are several features similar to Carlin-type gold systems, there are also many differences.

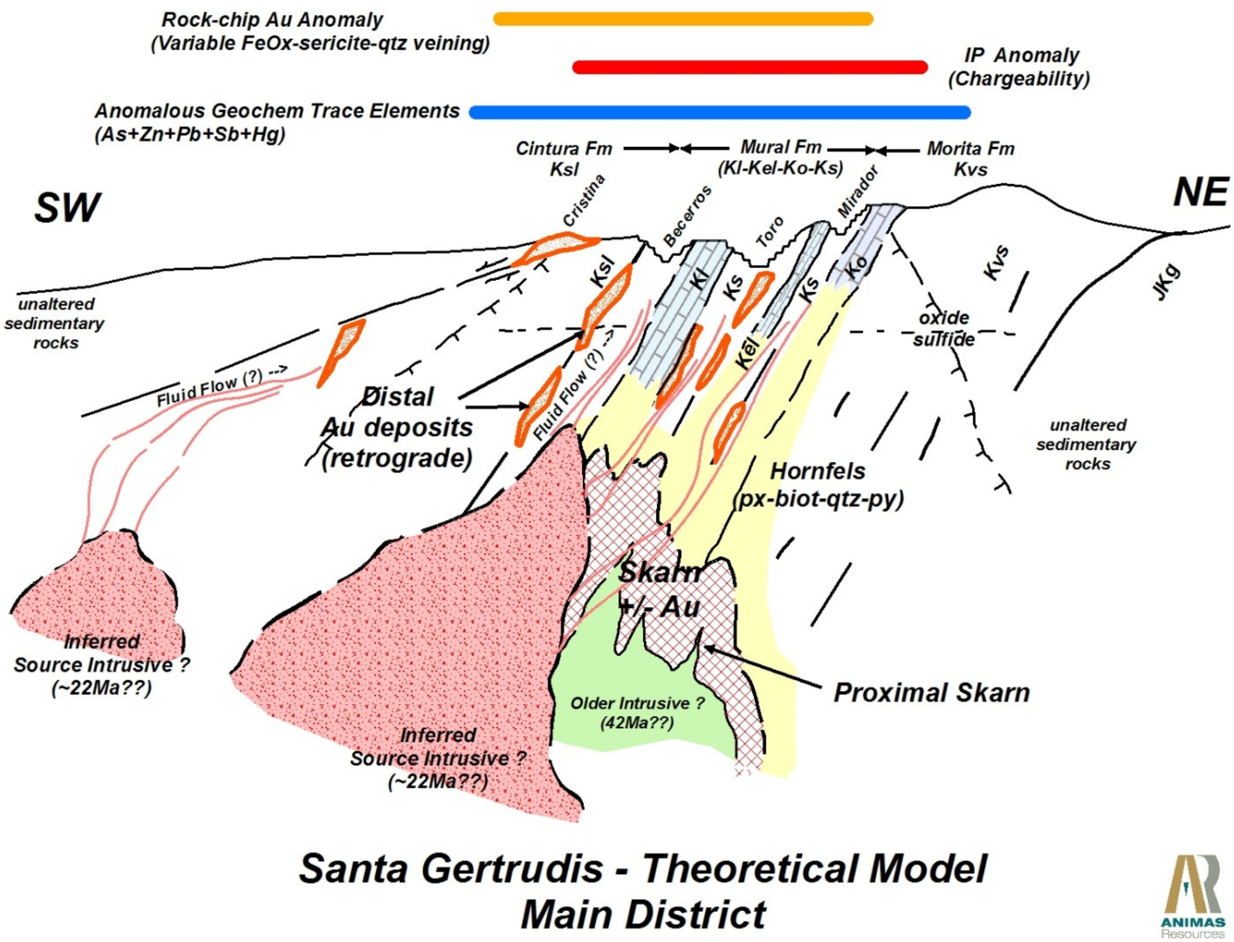
The majority of the gold mineralization in the Santa Teresa mining district, and specifically the higher-gold grades (>~3g± Au/t), occurs within fault and shear zones, in contrast to the greater dissemination typical of Carlin-type systems. The district contains abundant carbonate rocks, yet decalcification is not a prominent alteration feature associated with the gold mineralization. Silicification is also not as pervasive as in the Nevada Carlin-type gold systems, with the silicification generally occurring as quartz veins rather than wholesale jasperoidal replacement of the rocks. The style of sedimentary-rock-hosted gold mineralization observed in the Santa Teresa district is generally referred to as "Carlin-like" and is more similar to deposits classified as distal-disseminated gold deposits. Recognition of similarities with these deposits provides useful exploration guides for further exploration within the district. For example, sedimentary-rock-hosted gold deposits might be targeted for exploration within the entire periphery of intrusion-centered hydrothermal systems for distances up to ~10km away from the intrusive center.

Although the majority of the known gold deposits within the Santa Teresa mining district can be characterized as structurally controlled deposits within sedimentary rocks, the Cristina deposit represents a significantly different deposit type. Although Cristina is hosted within the Cintura Formation (locally calcareous siltstone-shale), the deposit is essentially an epithermal quartz stockwork vein-type gold system.

While the focus of past and present exploration activities in the district has been on the sedimentary-rock-hosted gold occurrences there are several other mineral deposit types. These include gold-copper deposits in skarn (± magnetite), quartz vein deposits, and locally, placer gold deposits. Polymetallic quartz vein systems, with or without gold, and containing some combination of silver, copper, bismuth, lead, and zinc also have been prospected in the past.

In the southeastern portion of the district (El Tigre area) and in the San Enrique area there are indications of intrusive systems with a molybdenum±copper±silver±zinc affinity. Although only limited volumes of intrusive rock are exposed in the El Tigre area (Fragment Knob area), the geochemistry of both areas is reminiscent of other porphyry Mo (±Cu) systems known to exist elsewhere in Sonora and southern Arizona. Although these two systems are clearly base-metal biased on the surface, there is some evidence that there was also an associated weak gold event. This is indicated in the geochemical sample results (weak gold in magnetite-garnet skarn and hornfels), and it also is permissive that there may be unexposed, base-metal and gold type, skarn systems associated with these intrusive rocks at depth. A permissive conceptual model for this style of gold mineralization is shown below in Figure 8.1.

Figure 8.1 Deposit Model



9.0 MINERALIZATION

This section not only outlines the general characteristics of mineralization throughout the Santa Teresa mining district, including associated alteration and geochemistry, but it also includes detailed discussions of some of the more important gold deposits. While there are approximately thirty gold deposits known in the district, it is beyond the scope of this document to include discussions of each. As such, a few of the larger and more characteristic deposits will be discussed in more detail below.

9.1 Mineralization

9.1.1 Gold Mineralization

Field mapping and rock-chip geochemical sampling by Animas personnel within the Santa Teresa mining district confirms the presence of gold mineralization along northeast-striking (~045º), steeply west-dipping, normal and oblique slip faults. Gold mineralization appears to occur primarily within the hanging wall portions of the fault zones and these faults are believed to be the primary "feeder" structures for the known gold mineralization. Where the northeast-trending faults intersect northwest-trending, reactivated, bedding-parallel thrust faults (~345º) and deformation zones, gold mineralization tends to bleed out along these more permeable zones. Tensional, conjugate sets of north-south and east-west-trending faults also control the localization of gold mineralization, but these zones generally are less well mineralized than the northeast- and northwest-trending set of faults. It should be noted that the relationship of the northeast and northwest fault intersections acting as a control for gold mineralization has been noted since Phelps Dodge worked in the area in the late 1980's.

In the southeastern portion of the district in the general Greta area (Figure 10.1), gold mineralization is also locally noted to occur along some of the low-angle normal faults. When mineralization is seen in this structural environment it is almost always located in close proximity to a northeast-trending "feeder" structure, and it is inferred that the low-angle faults serve as favorable, permeable channels for the gold mineralization. It should be noted however, that if gold mineralization is controlled by the Miocene low-angle fault structures, the implication is clear that gold mineralization at least locally post-dates this faulting event. These low-angle faults also locally contain mineralized lamprophyre dikes (Bennett, 1993, 26.1 ± 0.7 Ma), and this, by necessity, would make the gold mineralizing event younger than 26± Ma. The previously described northeast- and northwest- to north-northwest-trending, steeply west-dipping faults often have gold-bearing silicified breccia along the fault planes and locally, weakly gold-bearing, locally pyritic (now goethite-hematite) stratiform silicification (*i.e.*, jasperoid) occurs within the Ko and Kos members of the Mural Limestone. Although the silicification and jasperoids are most common east of the El Corral deposit, they also have been noted in Ruben, El Toro, and Toro Norte areas.

Sigmoidal tension gashes in close proximity to the northeast faults are locally filled with quartz breccia and jasperoid replacement clearly occurs in the hanging walls of these faults, and this indicates that hydrothermal fluids were utilizing these faults as fluid conduits. Structural preparation played a key role in the distribution of mineralization and structural intersections may have provided the traps needed to concentrate the gold.

Helmstaedt (1996) illustrated the potential importance of structural intersections in a report prepared for Campbell Resources. In that report Helmstaedt documented northeast-trending faults crosscutting and mineralizing the older northwest-trending faults (?) in the Ruben area.

Although the northeast and northwest-trending (reactivated thrusts(?)) faults appear to be important in controlling gold deposition, it is obvious that east-west-trending faults also are important for gold localization. The best evidence for this is seen in the Escondida, Trinidad-Pirinola-Amelia, and possibly the Berta areas. In these areas east-west faults and fracture zones appear to clearly control gold mineralization.

Although northwest-trending reactivated thrust faults appear to be important in the localization of gold mineralization, it is clear that there is a more profound and fundamental northwest control for gold mineralization. In general, the Santa Teresa mining district trends northwesterly, and although this is also the trend of the more favorable host rocks (*i.e.*, Mural Formation), it is believed that a deep-seated structural suture may well exist below the district. This direction is the trend of the Bisbee rift basin and earlier continental accretion sutures, and it is permissive that the gold mineralization at Santa Gertrudis is controlled by deep-seated Precambrian structures.

Additional evidence for the existence of an old and deep-seated structure(s) is seen in the occurrence and distribution of the numerous lamprophyre dikes seen throughout the district. These dikes almost universally strike northwesterly and are near vertical, and based on their whole rock chemistry, most authorities believe that they originated within the upper portions of the mantle and were rapidly emplaced into higher levels of the crust. If these intrusive rocks really are deep-seated in origin, they almost certainly had to have been intruded upwards along older, extremely deep penetrating zones of structural weakness.

Mineralization appears to occur preferentially in rocks that were both structurally prepared and had chemical properties that allowed for gold deposition. Calcareous siltstone and limestone in La Gloria, Greta, and Santiago show strong local dissolution and jasperoid replacement is present throughout the district on a small and large scale. This pattern of intersection of faults in preferred host rocks is repeated throughout the district and has been the model used to explore the district since the early Phelps Dodge days. Based on this apparent fact, any larger deposits to be found at depth or under alluvial cover probably will likewise be associated with favorable structural intersections and chemically reactive calcareous host rocks.

Gold mineralization within the Santa Teresa mining district is most common in areas of structural ground preparation and less so as replacement deposits in calcareous units. Favorable ground preparation produced by a combination of high-angle, bedding-plane, and near bedding-plane faults and fractures resulted in the formation of zones that can have considerable lateral and presumed down-dip extent. This type of mineralization is most characteristic at El Toro, El Corral, Mirador, Escondida, Becerros Norte, Manueles Sur, Maribel, and Camello. Mineralized zones are generally 10-30m thick, and locally extend outward to a limited extent as replacement of the calcareous units. The most favorable structural settings for gold mineralization clearly are where northeast- and northwest-trending fault zones intersect.

Similar structurally controlled mineralization is exposed in outcrop away from the main deposits though many of these occurrences appear to be relatively narrow, and lack vertical and lateral continuity. Commonly, mineralization can be traced for only several tens of meters to a few hundred meters along strike and down-dip.

In the southern portion of the district, particularly in the La Gloria and Greta areas, replacement-style gold mineralization is more common. Gold is associated with jasperoid-like silicification of calcareous lithologies that is more typical of Carlin-type gold deposits. Within these deposits there is less evidence of structural ground preparation than found in the deposits in the northwestern part of the district (as at Maribel-Katman, El Toro-Toro Extension, Amelia, and Camello).

A third style of mineralization is displayed only at Cristina where gold is closely associated with a stockwork of quartz ± calcite veining. The style of quartz veining in this deposit is reminiscent of more classical epithermal type vein deposits (multiphase, open space quartz veins with 1% pyrite and local quartz pseudomorphs after calcite). The gold occurs in the hanging wall of a north-northwest-trending (330º±) fault that dips southwest at about 30º. The main fault zone also contains a massive silica breccia with angular fragments of silica and silica vein material set in a siliceous matrix. The siliceous breccia generally does not contain significant gold, and it may post-date the main mineralizing event.

All of the gold deposit types within the Santa Teresa mining district are obviously associated with faults and fracture zones, and there is a clear indication that the faults served as the primary conduits for ascending hydrothermal fluids.

Although the Mural Formation is the most favorable host lithology for gold mineralization, all of the sedimentary units contain some concentrations of gold. Furthermore, historic records (Hamilton, 2003) indicate that approximately 41% of all gold production came from non-Mural units. Historic average deposit grades vary widely from about 0.95g Au/t to about 3.85g Au/t, further suggesting that gold mineralization in the district is highly variable, and geologically diverse. Past production, grade, and host formations are shown in Table 9.1.

Throughout the district there are numerous andesite and diorite sills and dikes that contain low levels of gold, but potentially economic gold grades are not known to occur in the igneous units. It is likely that the intrusive rocks did not fracture as readily as the sedimentary host rocks and therefore are a less favorable host due to their lack of permeability.

Based on the work completed to date, it appears that gold occurs primarily as disseminated, submicron particles of native gold, commonly in quartz veins or silicified zones. Sulfide minerals locally are spatially associated with the gold mineralization and these include pyrite and minor amounts of arsenopyrite, stibnite, chalcopyrite, sphalerite, and galena in the unoxidized mineralization. Although these minerals (elements) will be discussed in more detail below, in general they are more widely distributed than the gold mineralization and they appear to serve as pathfinder elements.

Table 9.1 Production by Host Lithology

(From Hamilton, 2003)

Deposit Name	Production Au in oz	Grade g Au/t	Formation	Percent by Deposit	Percent by
Becerros	106,242	2.07	Cintura	18.8	
Becerros Sur	54,869	2.16	Cintura	9.7	
Katman	17,756	1.48	Cintura	3.1	
Manueles Sur	11,027	2.69	Cintura	**2.0**	**33.6**
Maribel	24,406	2.19	Morita	4.3	
Trinidad	15,380	2.12	Glance/Morita	**2.7**	**7.0**
Amelia	98,483	2.88	lower Mural	17.4	
Ruben	6,418	3.85	lower Mural	1.1	
Toro Norte	5,430	2.80	lower Mural	**1.0**	**19.5**
Dora	77,039	2.35	middle Mural	13.7	
El Corral	39,164	2.50	middle Mural	6.9	
Gregorio	11,794	1.45	middle Mural	2.1	
Mirador	10,202	1.43	middle Mural	1.8	
Sofia	7,205	1.26	middle Mural	1.3	
Camello	6,889	1.08	middle Mural	1.2	
Corral NW	3,404	2.40	middle Mural	0.60	
Hilario	3,222	0.95	middle Mural	**0.6**	**28.2**
Agua Blanca	43,038	2.12	upper Mural	7.6	
Toro	22,870	1.51	upper Mural	**4.1**	**11.7**
Total	**564,838**	**2.13**		**100.00**	**100.00**

9.1.2 Base Metal Mineralization

Significant base metal mineralization (primarily Mo and Cu) is known to exist at three locations within the Santa Teresa mining district: La Verde, San Enrique, and El Tigre. All of these occurrences appear to be related or inferred to be related to major intrusive centers, and they all seem to have at some Laramide porphyry-type characteristics.

The La Verde is located approximately 10 kilometers west of the main gold production area, and it is associated with a multiphase, rather coarse-grained, diorite to quartz monzonite batholith of probable Laramide age (as per SGM). The intrusive has intruded the lower Bisbee Group sedimentary rock sequence (Morita?), and locally, isolated roof pendants of skarnified (garnet) sedimentary rocks can be found. Erratic copper oxide mineralization is seen locally on fractures and in some local areas quartz-chalcopyrite veins and veinlets are present. The intrusive is clearly a deep-seated body, and it is generally unaltered and unmineralized. Oro de Sotula drilled 3 holes into one of the pendants, and results were generally negative (500± ppm Cu and 10-20ppm Mo). Based on the lack of true porphyry copper-style alteration/ mineraliztion, the erratic distribution of surface copper mineralization, and the poor drilling results, this area is not thought to have significant potential for a major copper deposit.

The San Enrique area is located approximately 8 kilometers south of the main area of historic gold production, and geologically, it is comprised of a coarse-grained, multiphase, peraluminous granite and potentially younger quartz monzonite dikes that have intruded Bisbee Group sedimentary rocks. The intrusive body is elongate in a northeasterly direction and is approximately 2.5 kilometers long by 1.0 kilometer wide. The sedimentary rocks adjacent to intrusive are generally strongly hornfelsed (and occasionally skarned), and locally strong quartz-muscovite±CuOx-chalcopyrite -(molybdenite) veining is present in both the granite and the surrounding hornfelses. In general, the inferred younger quartz monzonite is unaltered and unmineralized. Both Sonora Gold and Teck-Cominco have drilled in the area, and although spectacular Cu-Mo grades have been intersected locally (associated with relatively thin quartz veins), the area is not thought to have significant potential for a major Cu-Mo deposit.

The El Tigre area is located approximately 8 kilometers southeast of the main gold production area, and although no major intrusive body is exposed at the surface, one is inferred to exist at depth below the area. The greater El Tigre area is geologically comprised of northwest-striking, southwest-dipping Cintura, Mural, and Morita formations which have been variably pyritized-pyhrrotized and hornfelsed (diopside-biotite). This hornfels zone is almost circular in shape, and it is approximately 6 kilometers in diameter. Within the central portion of this hornfels zone there exists a superimposed, nearly circular zone of moderate to strong quartz±pyrite-magnetite veining. This zone of silicification is approximately 700 meters in diameters, and it contains anomalous Cu (up to 1,700ppm), Mo (up to 2,100 ppm), and Au (up to 2.3 g/t Au). Immediately north of the El Tigre silicified zone, outcropping skarnified (garnet) Mural formation (Kl unit) occurs, and locally, it contains erratic but very anomalous Zn (to 1.0+ percent), Cu (up to 5,616 ppm), Mo (up to 5,877 ppm), and Mn (up to 2,594 ppm). Soil geochemical sampling in this area further substantiates the strong base metal bias of the El Tigre area. This sampling clearly shows a barren central zone (corresponding to the central quartz vein zone) surrounded by outbound, sequential annular rings of Mo, Cu, and Zn-Mn. Additional, more detailed information relating to the base metal mineralization at El Tigre can be found in Section 10.1.3.2 Animas 2009 Drilling Program (El Tigre) and in the report entitled *An Evaluation of the Molybdenum Potential, El Tigre Prospect by Dr. Roger C. Steininger (6 September, 2010).*

9.2 Alteration

9.2.1 Silicification

Silicification is an important style of alteration, with respect to gold mineralization, within the Santa Teresa mining district, and it occurs primarily as quartz veins and more locally as jasperoidal replacement bodies.

Four types of quartz "veins" have been observed in close spatial association with the known gold mineralization within the Santa Teresa mining district: massive white quartz, open-space quartz, milky quartz, and siliceous breccias. Based on field relationships, the oldest quartz vein event is represented by the relatively massive white quartz veins. These veins range from less than one centimeter to greater than one meter in thickness, and generally are discontinuous and erratic along strike (and probably down dip). These veins usually have replacement silica halos of varying width, and they generally are barren of gold mineralization. The next youngest vein event is represented by banded quartz veins with a cockscomb quartz texture. These veins generally are less than a few centimeters in width, have ≤ 1cm replacement silica halos, and usually contain ≤ 1% pyrite (or limonite after pyrite), calcite and/or siderite. These veins generally occur within siltstone and shale, and they almost always contain variable quantities of gold. The milky quartz veins are less then 1m in width, have replacement silica halos, and are generally barren of gold mineralization. The siliceous breccias are usually less than a few meters in width and generally occur along recognizable fault zones. Although the breccias are somewhat variable, they usually contain abundant pyrite (or limonite after pyrite), are comprised of variably-sized angular siliceous fragments set in a siliceous matrix, and can be quite high grade (>10g Au/t).

In the southeastern portion of the Santa Teresa mining district, more massive, gray, siliceous replacement bodies (jasperoids) are found in close association with feeder faults/structures (mainly Ruben, Centinela and La Gloria areas). The jasperoids primarily occur within the hanging wall of the northeast-trending feeder structures, and they generally tend to develop along the contact between the thicker limestone units and the adjacent calcareous siltstone/shale. In some locations fairly large bodies of jasperoid can be found and in the Centinela area (±1km southwest of El Corral) the jasperoid is in excess of several hundred of meters in length and more than 100m wide. Gold content within the jasperoids is variable, ranging from barren silica to in excess of 1 g/t Au.

It should be noted that an additional but relatively local style of silicification is present in the Cristina area. As previously described in Section 9.1, a massive siliceous breccia occurs at the base of the Cristina gold deposit. This unit occurs within a northwest-striking, southwest-dipping fault zone, and it is up to 5m thick and crops out for more than 200m along strike. This unit is comprised of angular siliceous fragments (containing local quartz veins) set in a massive silica-coarse calcite matrix. Based on sampling results, this unit is generally barren of gold, and it may post-date the main-stage gold mineralization at Cristina.

Silicification also is well developed within the Tigre-Enedina and San Enrique areas but its character and metal associations (Cu-Mo-Zn biased) are quite different than those observed within the main areas of known gold mineralization. In the San Enrique area, 0.5 - 2+ cm, clear to milky, locally open-space quartz±pyrite veins are contained in the Las Panochas granite and the adjacent hornfelsed sedimentary rocks. These veins/veinlets oftentimes both contain and have an adjacent halos of coarse, grey muscovite ± pyrite (≤1 percent), and they are very reminiscent of Sn-associated, greisen-style alteration.

The silicification found in the Tigre-Enedina area is somewhat different than that observed at San Enrique, and the veins in this area consist of 0.5cm to 1+m wide, locally open-space, vitreous quartz±pyrite-magnetite.

Additional, more detailed information relating to the style of silicification at El Tigre can be found in Section 10.1.3.2 Animas 2009 Drilling Program (El Tigre) and in the report entitled *An Evaluation of the Molybdenum Potential, El Tigre Prospect by Dr. Roger C. Steininger (6 September, 2010).*

9.2.2 Decalcification

Although decalcification is not an important or widespread style of alteration within the Santa Teresa mining district, there usually is some degree of decalcification in the calcareous clastic units. Decalcification generally is associated with silicification and it may correlate directly with the overall intensity of hydrothermal alteration/mineralization. Argillization is often directly associated with decalcification, and some portion of the clay may be residual from the original host rock.

It should be noted that although decalcification does not appear to be an important alteration type on the surface, a considerable amount of decalcification was seen locally in some of the 2009 drilling in the Toro-Gregorio area. In holes ARTG-001 and ARTG-004 hundreds of meters of variably decalcified Mural Formation (mainly the Ks unit) were observed. In these areas, decalcification was locally intense (complete destruction of original rock textures), and it resulted in the formation of a black, residual carbon-rich, clay-rich, collapse breccia with weak pervasive silicification and locally 1-3 volume percent finely disseminated pyrite. The collapse breccia undoubtedly resulted from the removal of calcite from the original rocks and attendant volume reduction and increase in overall rock permeability. Although the decalcified zones only contained locally anomalous gold (100-300ppb), the presence of this alteration type indicates that significant volumes of hydrothermal solutions have passed through the rocks.

9.2.3 Argillization-Limonite

Geological mapping within Santa Teresa mining district has delineated large areas of weak to moderate pervasive clay alteration and variable hematite-goethite-(jarosite) staining. Some of these zones of alteration-mineralization are in excess of several kilometers long and up to 500m wide, and they generally occur along major, inferred northwest- and east-west-trending structural zones (El Toro-Mirador, Trinidad, and Escondida zones).

Although these alteration zones clearly contained 1-2% disseminated and fracture-controlled pyrite of hydrothermal origin, the origin of the clay alteration is somewhat more problematic. It is permissive that the clay alteration is simply of supergene origin and that it formed as a result of the oxidation of the pyrite and associated acid generation. However, it likewise is permissive that the clay may be of hypogene origin resulting from the hydrothermal alteration of detrital feldspar, or some combination of primary detrital clay with a supergene overprint.

Many of the major historic mines are contained within these large zones of alteration and mineralization, and it is believed that these alteration zones formed during the primary gold mineralizing event. Although these zones obviously are much larger than the individual gold deposits contained within them, they are thought to represent significant, major centers of hydrothermal activity.

9.2.4 Contact Metamorphism

Four large areas of hornfels development, ranging in size from 2-9km^2, have been identified within the district: immediately south of Amelia, Mirador, Greta, and San Enrique zones (Figure 9.1). Each area is comprised of black to dark brown biotite and pyroxene hornfels with variable quartz-pyrite-calcite veinlets, 2-3% disseminated pyrite, anomalous gold, and locally, retrograde chloritic alteration. Although the hornfels is very hard and dense, remnant bedding can be preserved locally, and usually the more pure limestone units are only slightly recrystallized. The hornfels development within the Amelia zone is located immediately south of the Amelia mine and the gold mineralization at the mine does not appear to be directly associated with the hornfels alteration.

The primary contact metamorphic event was almost certainly isochemical in nature, and it resulted in the formation of diopsidic pyroxene (diopside hornfels), secondary biotite (biotite hornfels), local garnet, and disseminated pyrite-(±pyrrhotite). Subsequent to the main thermal recrystallization event, it appears that a more truly hydrothermal event occurred. This event is represented by the quartz-calcite-pyrite-(± arsenopyrite-sphalerite) veining (locally approaching a stockwork) and subsequent retrograde chloritization.

Although a two mica, peralkaline, S-type granite (Las Panochas Granite) is clearly responsible for the hornfels alteration in the San Enrique area, no intrusives are exposed in the Amelia, Mirador, and Greta areas. However, intrusives are inferred to underlie these areas.

In addition to the large areas of hornfels described above, the sedimentary rocks adjacent to the diorite sills (Los Becerros area) also are thermally altered. Generally, the metamorphic aureole is relatively thin (≤10m), and it appears to be comprised of fine-grained, green diopside(?). The diorite and associated hornfels appears to be pre-mineralization in age, and locally, they are weakly quartz veined.

Based on field mapping it is clear that the hornfels-style alteration is cut and displaced by Miocene low-angle normal faulting. This fact, coupled with the published age dates (Geospec, 2006 and Bennett, 1993) and similar style of alteration seen at San Enrique, implies that this intrusive event probably occurred at the end of the Laramide Orogeny (40-45Ma).

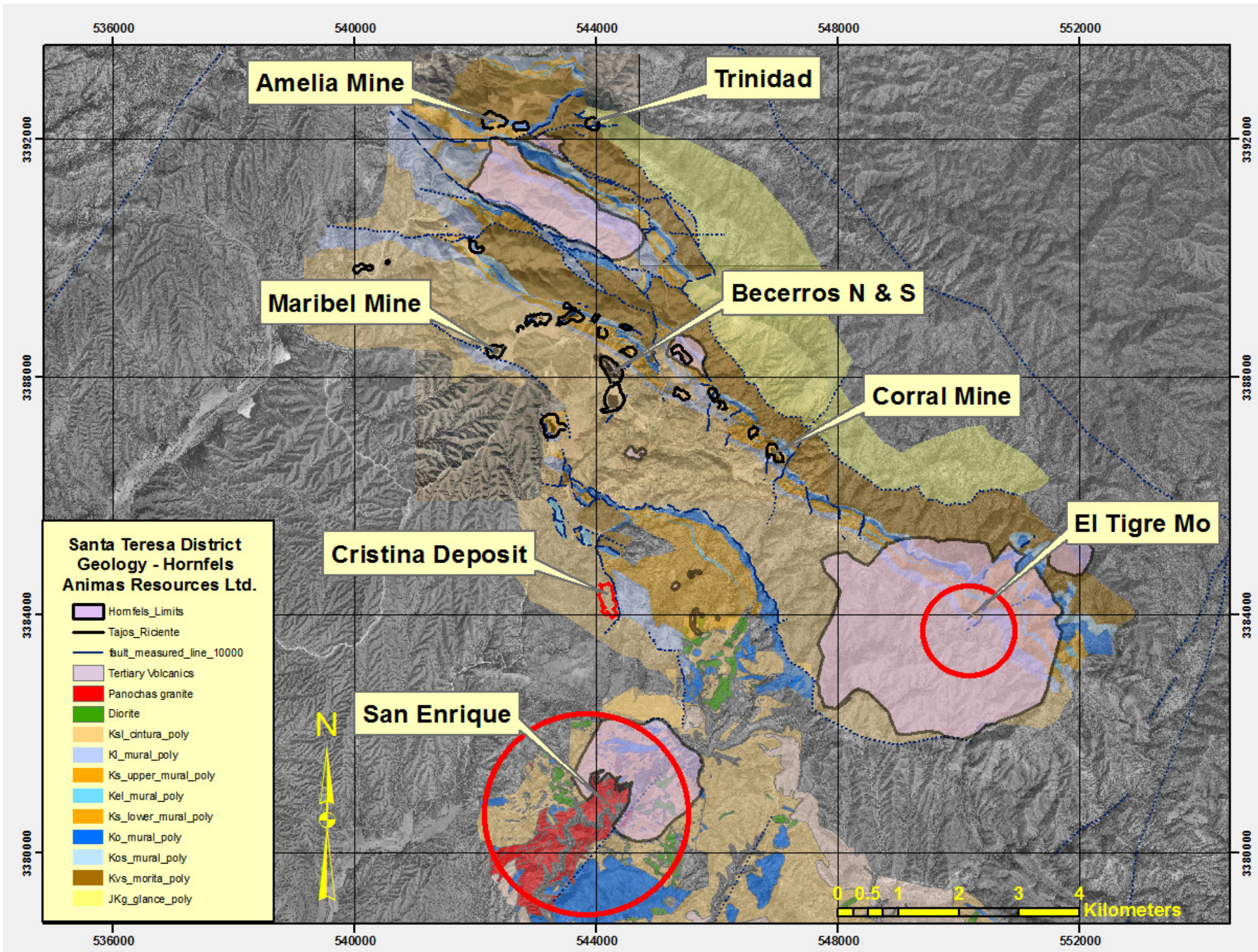


Figure 9.1 District Contact Metamorphic Centers

9.2.5 Oxidation and Possible Supergene Enrichment

All of the known gold deposits within the Santa Teresa mining district are either partially or completely oxidized, and this oxidation extends to depths of up to 150m below the current surface. Within the oxidized zone, iron oxides consist of a fine-grained assemblage of goethite, hematite, and locally, jarosite. Liesegang banding also is locally quite common. At depth, below the zone of surface oxidation, the Mural Formation commonly is very dark black (carbon rich?) and oftentimes contains up to 5% disseminated pyrite. Locally, as in the case of the Dora deposit, the unoxidized Mural Formation also contains anomalous to in excess of 1g Au/t gold mineralization. Generally there is a relatively sharp contact between oxidized and unoxidized rock, but in places oxidized rock is seen to extend hundreds of meters below the surface along fault and fracture zones.

Although there is not a great deal of supporting quantitative data, it appears that supergene gold enrichment may have occurred locally at Santa Gertrudis. This is based on some of the results from Animas' drilling program as well as a detailed review of pre-Animas cross sectional information. In general, it appears that gold grades decrease immediately below the existing pits, and the near-surface, high-grade gold values (>2g Au/t) generally do not project to depth. The apparent supergene enrichment may be a consequence both of gold immobility during rock-mass loss with weathering and/or increased gold mobility in oxidizing chloride-rich groundwater.

9.3 Geochemistry

A massive amount of soil and rock-chip geochemical sampling has been completed within the Santa Teresa mining district. Phelps Dodge and Campbell Resources collected more than 20,000 soil samples and more than 29,900 rock-chip samples, and to date, Animas Resources has collected approximately 1880 rock-chip geochemical samples. Although most of the Campbell and Phelps Dodge rock-chip samples were only analyzed for gold and select trace elements, most of the soil samples and all of the Animas samples were analyzed for multiple elements. Unfortunately, most of the available soil sampling was done subsequent to the mining of some of the deposits, and in these mined areas, no "pre-mining" soil geochemistry exists.

A much more in depth evaluation of the geochemical data currently has been completed by consulting geochemist Dr. J. Jaacks of Denver, Colorado, and his work has added greatly to our overall understanding of the geochemistry of the Santa Teresa mining district.

9.3.1 Surface Rock-Chip Geochemistry

The Santa Teresa mining district can characterized as having a gold geochemical anomaly of profound size and tenor. Based on existing results from rock-chip samples collected by Phelps Dodge, Campbell Resources, and Animas Resources, the zone of anomalous gold (>100 ppb) is approximately 20km long (northwest to southeast) and up to 8km wide, and locally, numerous samples exceed 1ppm gold (Figure 9.2).

Although the sample data are somewhat more limited, historic and Animas rock-chip sampling in El Tigre, Mirador, San Enrique, and Amelia hornfels areas also show recognizable and in some cases profound (San Enrique and El Tigre) copper (>100ppm), molybdenum (>10ppm), Zn (>100ppm), Mn (>200ppm), and lead (>100ppm) anomalies. Based on the work that both Animas and consulting geochemist Dr. J. Jaacks have completed, it is clear that these four areas have a distinctly different elemental assemblage than does the main area of past gold production, and in all probability, these zones of anomalous base metals are associated with older, intrusive-related systems of probable Laramide age.

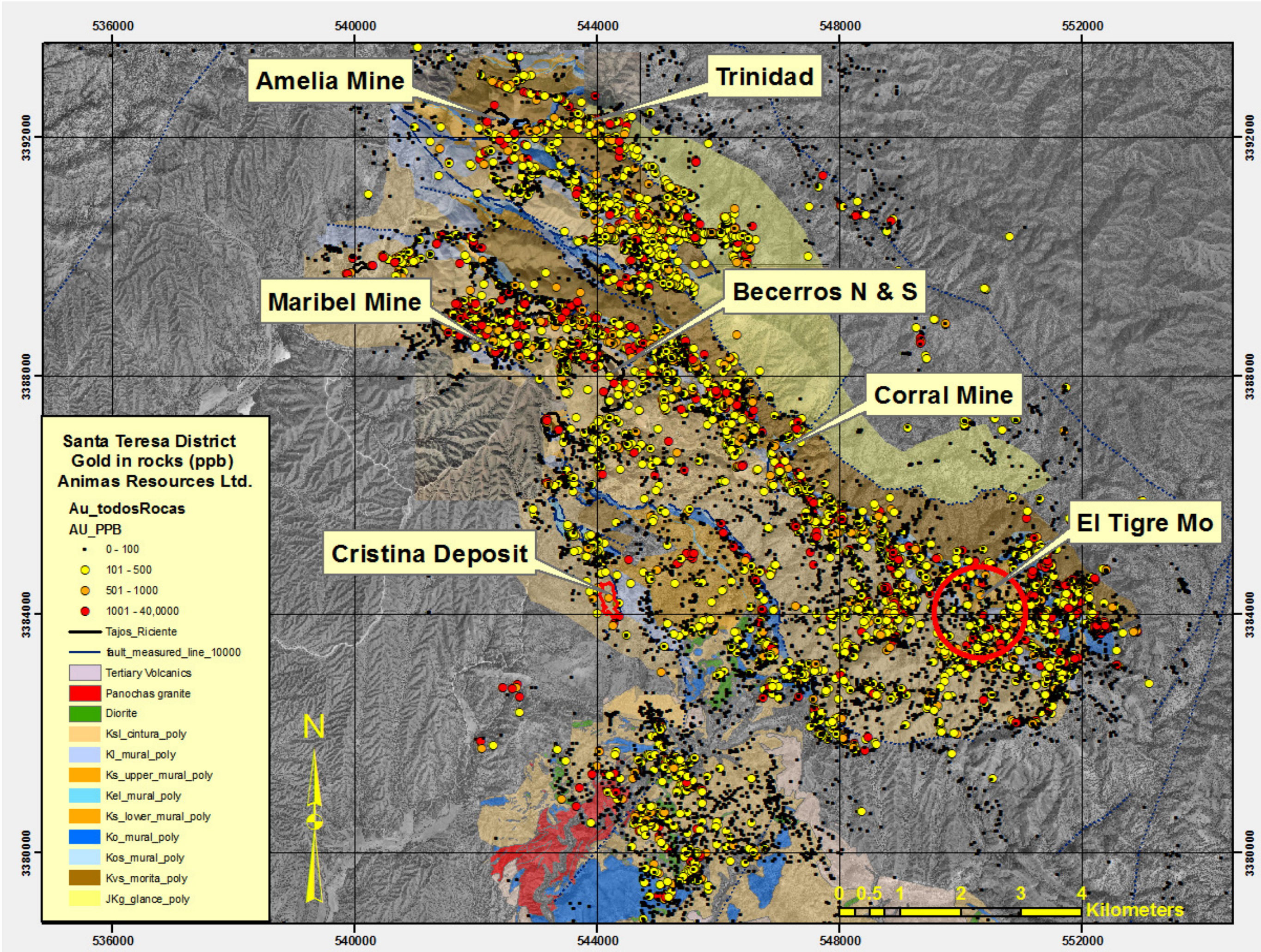


Figure 9.2 District Geochemistry – Gold in Rocks (ppb)

9.3.2 Soil Geochemistry

Based on the soil sampling work completed to date, it is clear that gold mineralization is closely associated with anomalous arsenic (>100ppm), but that arsenic is much more widely dispersed than gold (Figure 9.3 and Figure 9.4). Weakly anomalous antimony (+10ppm) and mercury (+100ppb) both appear to be widespread within the district, and they are not particularly useful in delineating mineralizing centers.

Unfortunately, the soil data are more limited over the majority of the deposits due to historic mining disturbances, and so the relationship between the soil geochemistry and the known gold deposits cannot be determined. It should be noted that the soil sampling data also may be somewhat suspect because of surface down-slope redistribution/enrichment and the lack of residual soils.

A great deal of pre-Animas and pre-mining soil sampling was done over the Amelia, Mirador, El Tigre, and San Enrique hornfels areas. These areas all have pronounced Cu (>100ppm), Mo (>20ppm), Zn (>100ppm), and Mn (>100ppm) anomalies, and at El Tigre, there is a molybdenum anomaly which is surrounded sequentially by a peripheral copper anomaly, and then a Zn-Mn anomaly (Figure 9.5). At Amelia and to some extent at Mirador, the copper anomalies are more pronounced and the molybdenum anomalies are more subdued, and it is permissive that the inferred intrusive source in these two areas may be deeper than at El Tigre.

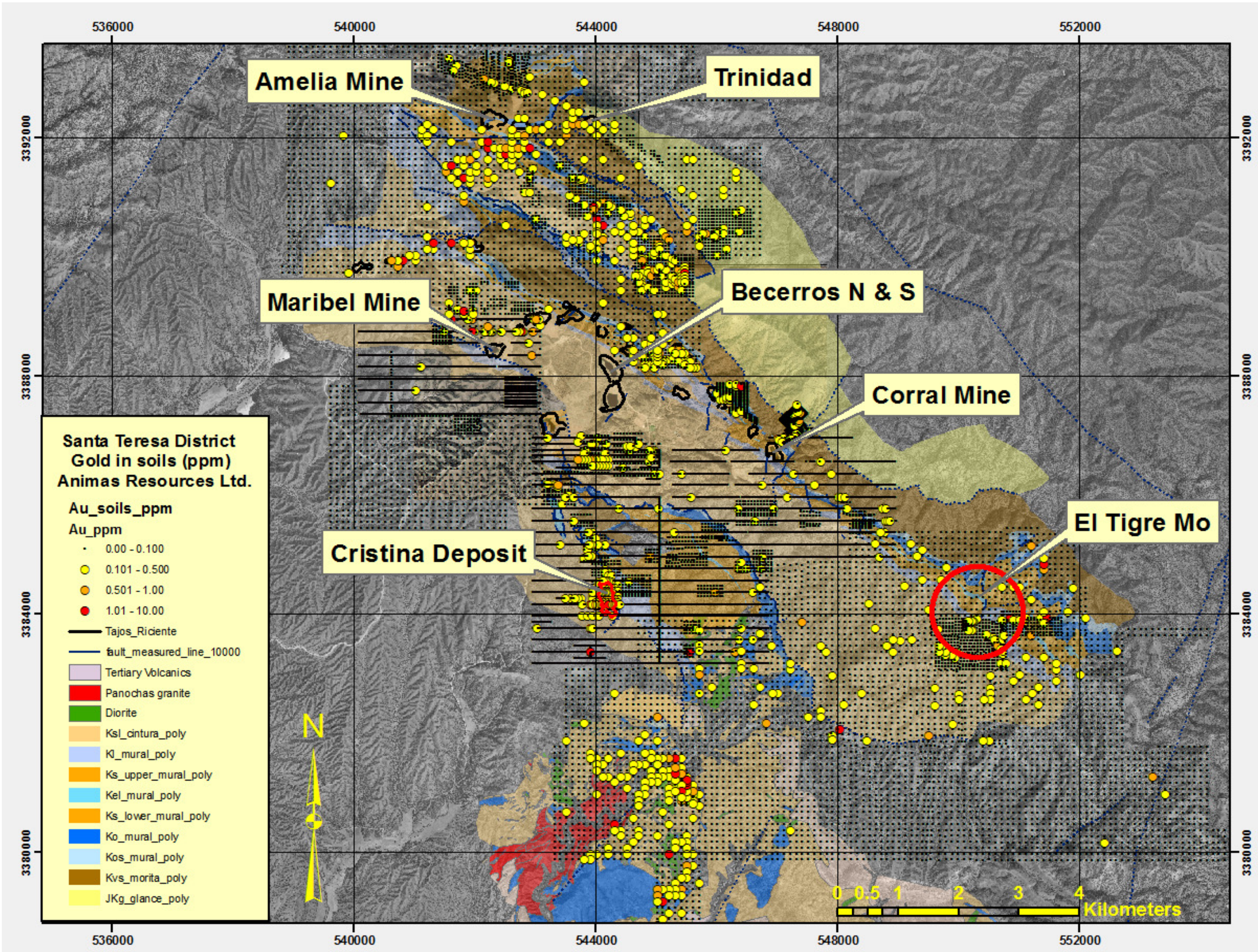


Figure 9.3 District Geochemistry – Gold in Soils (ppm)

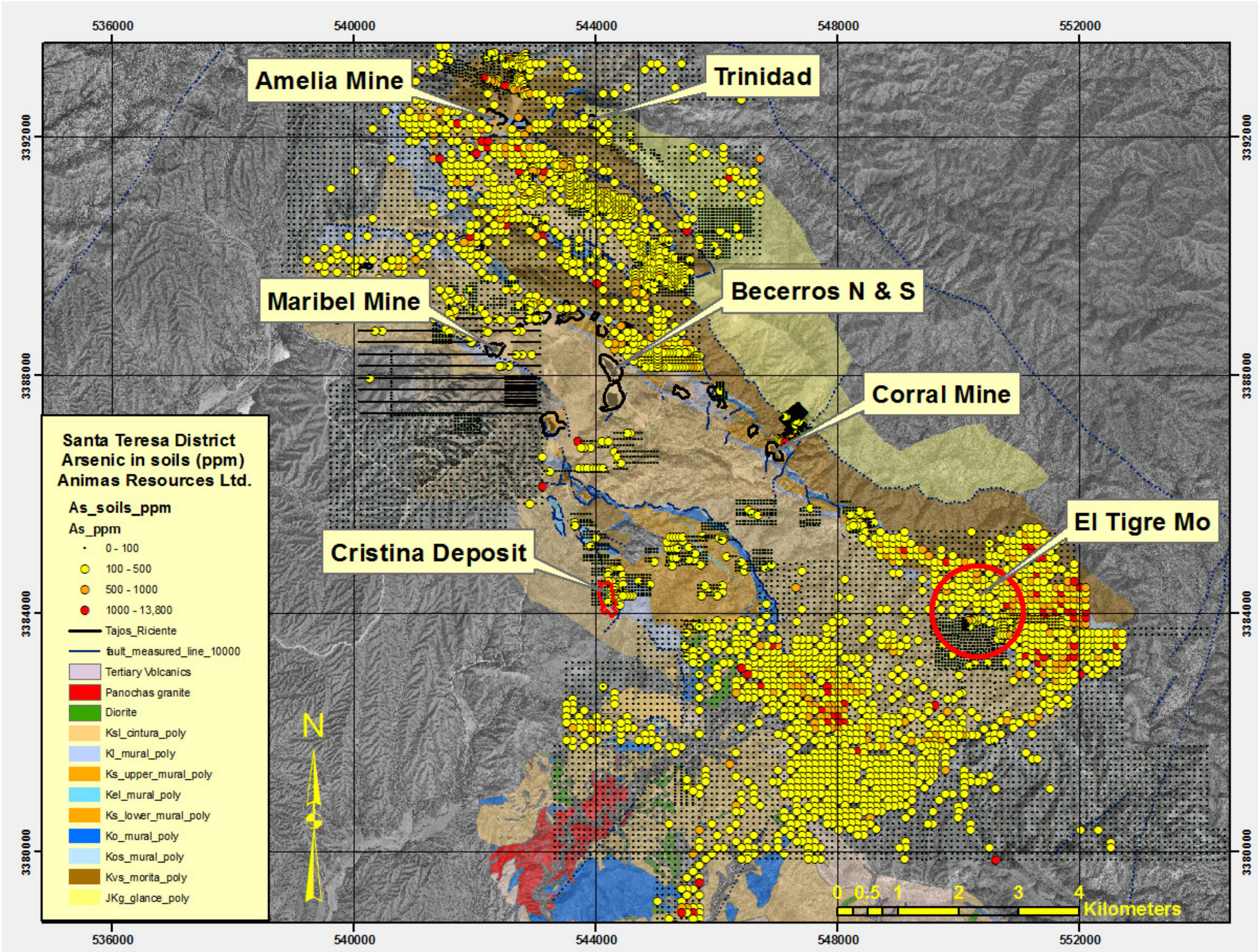


Figure 9.4 District Geochemistry – Arsenic in Soils (ppm)

9.3.3 Deposit Geochemistry

Based on previous drilling and actual mining data, it appears that the gold to silver ratio within the Santa Gertrudis deposits is approximately 1:1. However, sampling work at the more typically "epithermal" Cristina deposit indicates that silver is much more abundant in this system, and here the gold to silver ratio is closer to 1:10. This further strengthens the idea that this deposit is somewhat different than the known deposits within the main district.

9.4 Deposit Descriptions

Since there is such a diversity of styles of mineralization in the district some details of several gold deposits for which new resources studies have been recently completed are presented here to support the more general statements about geology, alteration, and mineralization presented above. The deposits described in this section are shown on Figure 9.5.

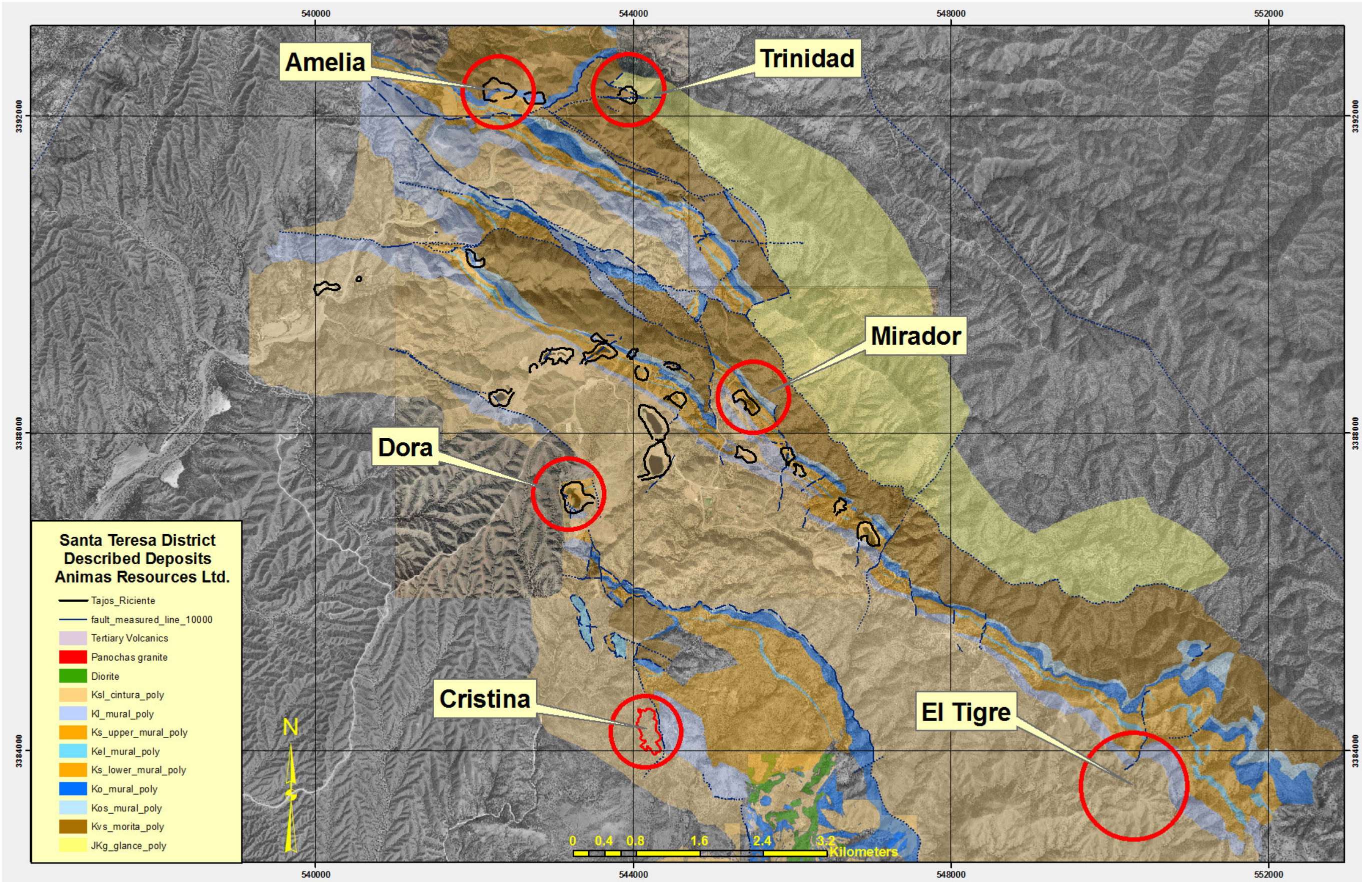


Figure 9.5 Described Deposits

9.4.1 Dora Deposit

The Dora gold deposit was partially mined by Phelps Dodge and Campbell in the 1990's as part of the Santa Gertrudis mine; total production was approximately 1,020,000 tonnes at an average grade of 2.35g Au/t. The deposit is hosted in a tectonically dislocated portion of the Mural Formation. The rocks within the pit dip west to northwest and are comprised of calcareous siltstone, carbonaceous siltstone-shale that contains ±5% fine-grained disseminated pyrite, sandstone, and limestone. Felsic dikes with localized quartz phenocrysts and sparse biotite phenocrysts cut the sedimentary rocks in the ramp on the east side of the pit.

Animas drilling in the Dora area, along with previous Campbell geological mapping and Phelps Dodge pit blast hole maps, indicate that a major post-mineralization (?) low-angle normal fault underlies and terminates the Dora mineralization. This fault strikes north-northwest and dips at approximately 30º to the southwest, and the Cintura and Mural Formations are tectonically emplaced over underlying Cintura Formation.

The Dora blast hole maps suggest that gold mineralization occurs at the intersections of a main northwest-trending, steeply west-dipping fault and at least two, high-angle northeast-trending fault/fracture zones. A majority of local deformation (folding, shearing, and fracturing) has occurred along these faults, and where the deformation is intense, the rocks are oxidized producing intense goethite and hematite.

In addition to the structurally-controlled gold mineralization, precious metals also appear to occur in selected calcareous beds within the sedimentary units (replacement bodies?). Gold is associated with variable argillization and local silicification. Secondary silica occurs primarily as locally open-space, quartz veinlets consisting of quartz-iron carbonate-iron oxide (and/or pyrite). The mined portions of the deposit appear to have been totally oxidized, and although some of the remaining gold resource probably is oxidized, significant sulfide-bearing mineralization also remains.

Past drilling has not completely defined mineralization down-dip and some potential for additional mineralization still exists southwest of the main pit. In this area, a post-mineralization fault has been mapped, and it is permissive that a portion of the deposit has been down dropped to the southwest approximately 100-150m.

9.4.2 La Gloria Deposit

The La Gloria deposit is located approximately 9 kilometers southeast of main area of historic mining activity, and this deposit was originally discovered by Phelps Dodge in the late 1980's. This deposit was never mined by either Phelps Dodge or Oro de Sotula, and it is one of a group of four gold deposits with are known to exist within the area (La Gloria, Greta-Ontario, Tracy, and Tigre). It should be noted that La Gloria is very similar geologically to the Greta-Ontario deposit, and both deposits appear to have similar geometry and mineral, structural and lithologic controls.

Inasmuch as this deposit has never been mined and because no significant drill core/cuttings remain from the previous exploration drilling programs, much of the following discussion is based on the Animas surface mapping work and a reinterpretation of the old and oftentimes poorly done historic drill logs.

The La Gloria deposit is hosted within calcareous siltstones (locally decalcified) and shales of the Kos unit (lowermost Mural Formation) immediately below the Ko unit (a large fossil-bearing, limestone marker horizon). The deposit actually consists of two morphologically different zones of mineralization both of which appear to be primarily structurally controlled.

The lowermost (deepest) portion of the deposit appears to be controlled by a reactivated(?), bedding-parallel shear zone of probable Laramide age which occurs immediately below the Ko limestone, and it is permissive that at least some replacement-style mineralization may be present within the sedimentary units adjacent to the shear zone. This mineral zone strikes approximately west-northwest, dips to the south at 10º-20º, and varies from a few meters to a maximum 10-15m in thickness.

The second zone of gold mineralization outcrops on the eastern side of the surface projection of the deeper mineralization deposit, and it appears to trend north-south and dips at approximately 40º to the west. This zone is rather irregular and discontinuous on the surface, and it is charaterized in outcrop as consisting of a massively silicified breccia (jasperoid) which has an adjacent zone of strongly silicified, stratified Ko unit.

It is believed the near north-south-trending surface jasperoid zone may represent an older structural gold "feeder" zone which also mineralized the more flat lying shear in the Kos as the hydrothermal solutions ascended along the the primary north-south fault. If this was the case, gold mineralization probably was deposited preferentially within the more favorable structural/lithologi horizons (favorable Kos and faults/shears).

9.4.3 Mirador Deposit

The Mirador deposit it located approximately 1.5 kilometers north of the old leach pad, and it was discovered and mined by Oro de Sotula in the mid- to late 1990's. Although two separate ore bodies comprise the Mirador deposit, they were mined from one contiguous pit.

The Mirador deposit is hosted within the hornfelsed Ks unit (middle Mural Formation), and it appears to be controlled by two, steeply southwest-dipping, northwest-striking, reactivated, bedding-parallel shear zones of presumed Laramide age. Prior to the hornfelsing event, the Ks unit consisted of calcareous siltstone-shale which was subsequently converted primarily isochemical, thermal metamorphism to variable pyritized, diopside-biotite hornfels. An interbedded limestone unit (Kel) separates the the lower Ks from the upper Ks units, and the hornfels event resulted in this unit being weakly recrystallized.

The eastern-most deposit is located in the lower Ks unit stratigraphically below the Kel unit (a thin limestone marker horizon) whereas the western-most deposit is hosted within the Ks stratigraphically above the Kel unit. The two deposits appear to overlap somewhat in the middle, and they appear to have an almost en echelon geometry. Gold miineralization appears to continue somewhat down-dip from the exisitng pit, but unfortunately it does not appear to continue for any great distance along strike to either the northwest or southeast.

9.4.4 Amelia Deposit

The Amelia gold deposit was mined by several small operators and then Minera Roca Roja in the 1980's and 1990's; total production is not well documented but past production is estimated to be approximately 100,000 ounces of gold. The Amelia deposit is hosted within the Mural Formation which strikes approximately east-west and generally dips to the north at 50º-70º. The Mural within the immediate mine area though has a near-vertical dip and below the mine, the units are overturned to the south. It is possible that the Amelia deposit is underlain by a north-dipping low-angle fault (normal or thrust fault?). If this is the case, then the gold deposit may be located in an allochthonous plate.

The Amelia mine is at the western end of an inferred east-west trending shear/fault zone that may control mineralization within the Trinidad and Pirinola deposits to the east. Gold is associated with argillization and iron-oxide staining (goethite-hematite) and locally variable, open-space, quartz veining. The quartz veins are generally <1cm in width, and contain quartz-iron carbonate-pyrite (or goethite after pyrite). Locally within the more calcareous units, weak decalcification is also evident. Although the rocks exposed within the main Amelia pit generally are strongly oxidized, along the south wall of the pit, black pyritic (>5%) shale with quartz veining is exposed. Rock-chip geochemical sampling of the pyritic black shales indicates that no significant gold is present within these units (≤ 50 ppb Au).

The immediate Amelia mine area has been extensively drilled by previous operators, and it is clear that the Amelia gold mineralization does not appear to connect with the Pirinola mine located to the immediate east. However, the area to the south of the Amelia-Pirinola mines has not been extensively explored (Lixivian property), and appears to have good exploration potential.

It should be noted that there is a large area of hornfels located immediately south of the Amelia pit. The Mural and Cintura Formations in this area are strongly recrystallized to diopside, and locally garnet, hornfels, and an intrusive is inferred to be present at depth.

9.4.5 Cristina Deposit

The Cristina deposit is located approximately three kilometers south-southeast of the Dora deposit, and it represents a rather unique style of gold mineralization within the greater Santa Teresa mining district. The Cristina deposit has not been mined.

The Cristina deposit is hosted within the Cintura Formation which is in fault contact with underlying Mural Formation (Kl limestone). The Cintura generally strikes northwest and dips southwest at approximately

30º. A major fault separates the two formations and strikes approximately north-northwest and dips southwest at 30º-40º. It is believed that this fault served as the main conduit for the mineralizing fluids.

Gold mineralization within the Cintura Formation is immediately above the fault, and is closely associated with a near stockwork quartz vein zone and weak though pervasive argillization. The veins vary from ≤1cm to +20cm in width and locally contain ±1% pyrite (or goethite after pyrite). The veinlets locally have a preferred north-south and northwest orientation, and they often have an open-space cockscomb texture and locally, quartz pseudomorphs after calcite. The main fault zone contains a massive silica breccia with angular fragments of silica and silica vein material set in a fine-grained, granular siliceous matrix. The siliceous breccia generally does not contain significant gold, and may post-date the main mineralizing event. A late, post-silica, calcite event also is evident at Cristina, but this likewise appears to be devoid of gold mineralization.

In contrast to the approximate 1:1 gold to silver ratio throughout the district, at Cristina it is approximately 1:10.

The main mineralized zone at Cristina strikes north-northwest and dips to the southwest, and appears to be open down-dip to the west and along strike to the south.

9.4.6 Trinidad Deposit

The Trinidad deposit is located approximately 3.5km north of the historic Santa Gertrudis mine office complex.

The Trinidad deposit was discovered by Campbell Resources in 1995 and a reported 15,380oz of gold at an average grade or 2.12g Au/t were produced from the deposit (Hamilton, 2003).

The Trinidad area is comprised of Glance Conglomerate and Morita Formation. The Glance Conglomerate generally consists of interbedded siltstone, sandstone, and coarse-grained, rounded cobble conglomerate. The Morita Formation is generally comprised of siltstone/sandstone with relatively thin interbedded pebble conglomerate. Within the Trinidad area, the lower portion of the Morita Formation is comprised of a sequence of interbedded calcareous siltstone, conglomerate, and limestone, that is locally referred to as the Cerro de Oro "formation". The Glance Conglomerate and Morita Formation generally strike northwest and dip southwest at approximately 40º-75º.

Two major faults and subsidiary fault sets are in the immediate Trinidad area: a northwest-trending, near-vertical to southwest-dipping fault (+70º) and an east-trending, steeply north-dipping (+75º) fault. The northwest-trending fault set appears to be the older of the two faults, and it is cut and offset (dextral displacement) by the east-trending fault set. It should be noted that although the Glance Conglomerate and Morita Formation generally strike northwest and dip to the south, within the structural block bounded by these two faults, the sedimentary units generally strike northwest and dip north at 60º-75º.

The Trinidad gold deposit exhibits a high degree of structure control, and the best grade gold mineralization and most intense hematite-goethite staining/argillization appear to be spatially associated with the above-described east-, and to a lesser degree, northwest-trending faults. Between the two faults, a V-shaped (open to the west) zone of weaker fracturing/faulting and hematite-goethite staining/argillization has developed, but gold grades within the central portion of this structurally bounded block generally are low.

Gold mineralization at Trinidad clearly is associated with the major fault zones and generally, the highest-grade gold mineralization occurs near the intersection of the two faults. It also is fairly clear that gold mineralization is hosted locally within hanging wall splays extending off of the east-trending fault zone.

In general, the zone of most intense surface hematite-goethite staining/argillization is approximately 600m long in an east-west direction and up to 50m wide, and it tends to weaken and ultimately disappears to the west. The east-trending fault projects directly towards the Amelia and Pirinola deposits, and it is permissive that it also controls gold mineralization in these areas.

10.0 EXPLORATION

All historic exploration is summarized in Section 6.2.

10.1 Animas Resources Ltd Exploration

Since July 17, 2007 Animas has been conducting exploration on the Santa Gertrudis project. As of December 2010, they have completed the following work, which will be detailed in Section 10.1.1, 10.1.2, 10.1.3 and Sections 11.0, 12.0, 13.0 and 14.0:

- Drilled 37 diamond drill holes, 3 reverse circulation holes, and 2 reverse circulation/diamond drill holes for a total of 12,926.0 meters of drilling completed. These holes were drilled at thirteen prospective areas, and although the majority of this drilling drilling was focused primarily on lateral and down-dip extensions from known gold intercepts, ten holes tested concepts specific to larger targets,

- Recompiled and integrated the existing geophysics database with the goal of re-processing and modeling the previously acquired geophysical data sets using 2D and 3D state-of-the-art geophysical processing and computer modeling routines,

- Completed 151.0 line-km of Induced Polarization/Resistivity "IP" surveys and a Reconnaissance Induced Polarization "RIP" survey within the main district, the alluvial-covered pediment area west of the district, and at the Tigre Mo prospect. This work included two and three dimensional remodeling of these surveys and a re-evaluation of existing aeromagnetic, electromagnetic and radiometric surveying,

- Completed a semi-detailed, ground gravity survey covering the entire Santa Teresa mining district Completed multiple petrographic studies of drill core (by Dr. Efren Perez S. Unison, Hermosillo, Sonora, Mexico and Dr. Odin Christensen, Independent Consulting Geologist, Mancos, Colorado),

- Compiled all known current and historic data, including geology, rock and soil geochemistry, and drill hole data including locations, assays, and geology,

- Contracted Cooper Aerial Surveys Co. ("Cooper"), based in Tucson, Arizona, to complete an air photo-based topographic map update,

- Conducted extensive geologic mapping with an emphasis on alteration/mineralization patterns and structural geology (approximately 100 km^2),

- Collected approximately 2,800 rock-chip samples for gold and multi-element analysis, and

- Supported a Masters Student thesis at Arizona State University under Dr. Stephen Reynolds, specifically to study the relationship of structure to gold mineralization.

10.1.1 Animas Geophysics

During 2008, Animas Resources completed the following ground geophysical surveys within the Santa Teresa mining district:

- A major (128.7 line-km), pole-dipole Induced Polarization survey by Quantec Geoscience USA Inc. ("Quantec"),

- More limited, detailed, dipole-dipole Induced Polarization surveys (100 and 200m dipole separations) by Durango Geophysical Operations (Durango) totaling 22.3 line-kilometers in the area of the Mirador pit, the El Toro-Gregorio, andthe El Tigre areas, and

- A Reconnaissance (~30 km²) Induced Polarization survey ("RIP" survey)by Durango in the gravel-covered pediment area west of the main district.

In addition to the Animas ground geophysical work, a significant portion of the historic geophysical work was reprocessed and/or re-evaluated using more advanced modeling techniques. This work included:

- All Phelps Dodge ground dipole-dipole Induced Polarization data were reprocessed and modeled in 2D by Durango and Wave Geophysics ("Wave"),

- All Oro de Sotula airborne magnetic data were reprocessed and modeled by Wave,

- The Oro de Sotula airborne EM and radiometric data were reprocessed and remodeled by Condor Consulting, Inc ("Condor"), and

- The Minera Teck pole-dipole Induced Polarization data from the San Enrique area were re-evaluated by Durango.

A brief review of this work follows below. See Section 19.0 for a further discussion of the geophysical results and exploration targeting.

10.1.1.1 Durango Geophysical Operations

In the spring of 2008, Durango completed preliminary multi-phase and multi-discipline electrical geophysical surveys over the Santa Gertrudis project area (Durango, 2008a). This work consisted of a Reconnaissance Induced Polarization (RIP) survey over the shallow alluvial-covered pediment area west and southwest of the main area of historic mining activity and a detailed 50m dipole-dipole Induced Polarization/Resistivity survey (search depth ±150m) in the general Mirador-Agua Blanca area. The RIP survey identified several areas of potential exploration interest under shallow alluvial cover, and the detailed IP/Resistivity survey identified a well-defined, moderate chargeability anomaly (sulfide mineralization) in the general Mirador area. . In 2009 and 2010, Durango also completed local IP-Resistivity surveys over the Toro-Gregorio zone (10.6 line kilometers with a 100m dipole separation) and the Tigre Mo zone (5.2 line kilometers with a 200m dipole separation).

In addition to the above work, Animas' geophysics consultant, John Reynolds of Durango conducted an ongoing program of database re-creation, compilation, and clean-up with the goal of re-processing and modeling the previously acquired geophysical data sets using 2D and 3D state-of-the-art geophysical processing and computer modeling routines (Durango, 2008b, 2009a-d). As part of this ongoing database work, Reynolds also reviewed the existing Induced Polarization data from Minera Teck's work in the San Enrique area (Durango, 2008b, 2009a).

10.1.1.2 Quantec Geoscience USA Inc.

In June 2008 Quantec completed an IP survey on behalf of Animas. This work consisted of approximately 128.7 line-km of pole-dipole, Induced Polarization/Resistivity surveying on twenty-six separate lines using 100m dipole spacing. Data were collected in the time domain using a 0.125 Hz (2 seconds on 2 seconds off), and the IP/Resistivity data were presented as standard pseudosection format (Quantec, 2008). These data have been re-processed and modeled using 2D Zonge Smooth Model inversion code by John Reynolds of Durango.

Several large areas with mapped surface alteration/mineralization and coincident chargeability anomalies were delineated as a result of this work (Mirador and Dora South areas).

10.1.1.3 Condor Consulting, Inc

Condor was contracted by Animas to reprocess and analyze the frequency-domain EM survey done at Santa Gertrudis by Aerodat in 1996 (Condor, 2008). The original work was done on behalf of Oro de Sotula (Campbell) and used several data reprocessing approaches. These included Layered Earth Inversion and time constant derivation reprocessing, and this work resulted in the delineation of discrete EM responses from the profile data.

Although the Condor work did not result in the delineation of specific targets, it seemed to identify mapped, inferred, and previously unknown faults and structural deformation zones.

10.1.1.4 Wave Geophysics

Dr. Craig Beasley of Wave Geophysics, Golden, Colorado, re-processed Oro de Sotula (Campbell) aeromagnetic data and applied 3D computer model generation utilizing modeling routines developed by the Geophysical Inversion Center at the University of British Columbia (Durango, 2009a). Additionally, Dr. Beasley assisted Condor with work on the airborne electromagnetic datasets and provided a review of the airborne radiometric and VLF-EM data. Dr. Beasley's work with the aeromagnetic data aided Animas personnel in identifying areas potentially underlain by buried intrusives which are thought to be possible sources for the Santa Gertrudis gold mineralization.

Dr. Beasley also provided a 2D inversion model study of the historic Phelps Dodge 300m dipole-dipole IP data.

10.1.1.5 Magee Geophysics

In late 2009, Magee Geophysics of Reno, Nevada conducted an extensive ground gravity survey over the majority of the Santa Teresa mining district. This survey covered an area of approximately 400 km² (778 individual sites), and it was supervised in the field by J. R. Reynolds (Durango) and independent consulting geologist/geophysicist J. K. Chambers. Products received from this work were 1st and 2nd Vertical Derivative, Horizontal Gradient, and Complete Bouguer maps/interpretations.

Although a detailed review of this work is beyond the scope of this report, a rather significant and unique gravity low was recognized in the El Tigre area, and it is permissive that this feature represents an unexposed felsic intrusive body at depth beneath the El Tigre Mo prospect.

10.1.2 Animas Surface Sampling

Animas collected approximately 2,800 rock samples for gold and multi-element analysis. These samples were collected to support the ongoing surface geological mapping program and to provide data for specific studies supporting graduate student investigations. Combined with the historic soil and rock samples collected by previous workers, the resultant database provides extensive geochemical data for target identification and district-wide mineral zoning. See Section 9.3.1 for a discussion of the existing geochemical data.

10.1.3 Animas Drilling Program

To date, Animas Resources has conducted 3 drilling campaigns at Santa Gertrudis during which 42 holes were drilled for a total of 12,926.00m of drilling completed. A total of 13 different areas were evaluated, and although many of the holes were drilled to test inferred down-dip and strike extensions of known gold mineralization, several areas with large tonnage gold potential and one area of major Mo-Zn potential also were drill tested (Figure 10.1).

Each of the general drilling areas is described briefly below, and significant assay results are shown in Figure 10.1.

10.1.3.1 Animas 2008 drilling Program

During 2008, Animas Resources drilled 22 diamond core and 3 reverse circulation drill holes for a total of 5,690.2m of drilling. This drilling was done in ten general areas: Amelia Sur, Berta, Camello, Dora, El Corral, Mirador, Pirinola Este, Real Viejo, Santa Teresa, and the alluvial-covered area west of the main area of historic mining (Figure 10.1).

Each of the general drilling areas is described briefly below, and significant gold assay results are shown in Table 10.1.

Table 10.1 Animas 2008 Drilling - Significant Assay Results (Gold)

Drill hole	Area	Drill Interval From (m)	To (m)	Thickness (m)	Grade g Au/t
ARAS-001	Amelia Sur	205.90	208.70	2.80	1.330
ARAS-002	Amelia Sur	151.55	163.80	12.25	0.596
ARAS-003	Amelia Sur	164.40	169.00	4.60	1.306
ARBE-001	Berta	238.05	246.55	8.50	2.980
ARBE-004	Berta	19.30	28.25	9.95	0.967
ARBE-004	Berta	41.25	48.60	7.35	0.909
ARBE-004	Berta	57.45	65.95	8.50	2.814
ARBE-004	Berta	379.75	383.50	3.75	1.148
ARCM-001	Camello	173.25	178.60	5.30	0.422
ARCO-001	El Corral	100.70	102.25	1.55	3.220
ARCO-002	El Corral	171.60	181.00	9.40	0.469
ARCO-002	El Corral	220.50	222.00	1.50	2.700
ARCO-003	El Corral	91.90	119.00	27.10	0.318
ARCO-003	El Corral	127.40	132.20	4.75	0.933
ARCO-003	El Corral	220.50	222.00	1.50	1.690
ARMR-001	Mirador	171.45	174.20	2.75	0.432
ARMR-002	Mirador	165.55	168.00	2.45	0.534
ARMR-003	Mirador	184.95	186.50	1.50	2.480
ARMR-003	Mirador	342.35	344.50	2.10	1.127
ARPR-002	Pirinola Este	44.40	46.60	2.20	1.370
ARPR-003A	Pirinola Este	88.50	109.50	21.00	0.446
ARRV-001	Real Viejo	134.25	141.05	6.80	1.760
ARST-001	Sta. Teresa	98.60	100.10	1.50	3.040
ARST-001	Sta. Teresa	128.80	133.55	4.75	0.793
ARST-002	Sta. Teresa	21.85	24.60	2.75	1.091
ARST-002	Sta. Teresa	81.20	84.20	3.00	0.923
ARST-002	Sta. Teresa	90.20	116.40	26.60	1.405

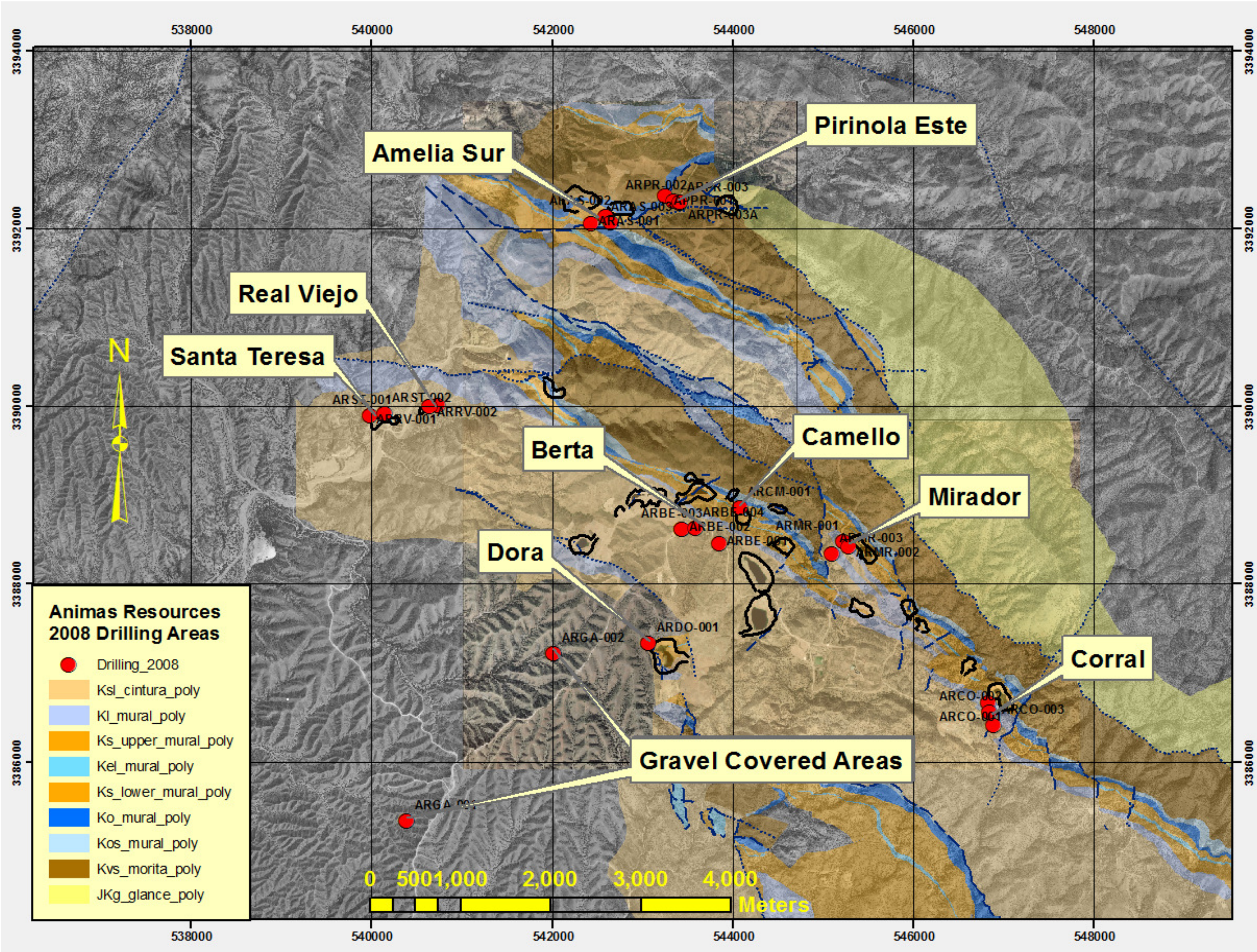


Figure 10.1 Animas 2008 Drilling

Amelia Sur

Three diamond core holes (ARAS-001 through ARAS-003) were drilled in the Amelia mine area for a total of 703.75m. The holes were drilled entirely within an overturned and fault-repeated section of Mural Formation, and the drilling was done to test the down-dip projection of three zones of surface alteration (pyroxene hornfels and FeOx) containing highly anomalous gold mineralization (up to 6.6g Au/t).

Many relatively thin zones (2m to 4m) of low-grade grade gold mineralization (less than 0.5g Au/t) and one 12.25m zone of 0.596g Au/t were intersected in this drilling. It is of interest to note that these holes also intersected local zones of highly anomalous arsenic ± zinc and antimony that were spatially associated with the gold mineralization.

All three holes cut significant intersections of pyritized and locally quartz-veined pyroxene ± garnet hornfels at depth, but no significant intrusive bodies were seen in any of the holes.

Berta

Four diamond core holes (ARBE-001 through ARBE-004) were drilled in the Berta area for a total of 1,133.7m. The holes were drilled within the Lower Cintura Formation, and the drilling was done to test the down-dip projection of strong surface alteration (clay-FeOx) containing anomalous gold mineralization (up to 7.4g Au/t).

Several relatively thin zones of good grade gold mineralization (8.5m of 2.81g Au/t and 3.75m of 1.15g Au/t,) and several thicker zones of low-grade gold mineralization (9.95m of 0.97g Au/t as example) were intersected.

The Berta area is still considered to have potential to contain a significant gold deposit, and the Animas geological staff is continuing to review all available data from the area.

Camello

One diamond core hole (ARCM-001) was drilled in the Camello mine area for a total of 226.6m. The hole was drilled entirely within an overturned section of Mural Formation, and tested the northwest strike extension of gold mineralization intercepted within a historic drill hole (12m of 1.45g Au/t).

Low-grade grade gold mineralization (5.3m of 0.42g Au/t,) was intersected in this drilling and the hole did end in 3.5m of 0.55g Au/t.

The Animas hole is located along the southwestern margin of a large IP anomaly and the low-grade mineralization encountered in the drill hole could be reflecting a substantial area of mineralization associated with the IP anomaly. The area is still considered to have potential to contain a significant gold deposit, and the Animas geological staff is continuing to review all available data from the area.

Dora

One diamond core hole (ARDO-001) was drilled in the Dora mine area for a total of 254.3m. The hole was drilled to test the down-dip projection of a mineralized historic drill intercept (11m of 0.81g Au/t) in the Mural Formation.

Although no significant gold mineralization was encountered in this hole, a major low-angle normal fault was intersected. This fault is believed to be post-mineralization in age, and it appears to separate overlying Mural Formation from underlying Cintura Formation hornfels.

El Corral

Three diamond core holes (ARCO-001 through ARCO-003) were drilled in the El Corral area for a total of 783.05m. The holes were drilled mainly within the Lower Mural Formation and to a limited extent, within the upper portion of the underlying Morita Formation. In general, the drilling tested both the inferred El Corral “feeder” structure at depth and the down-dip projection of mineralized historic drill intercepts (15m of 3.0g Au/t, 18m of 2.41g Au/t, and 28m of 0.52g Au/t).

Drilling results indicated that although gold mineralization did continue to depth, grades and thicknesses decreased rather dramatically. In general, only thin intercepts of relatively high-grade gold mineralization (1.55m of 3.22g Au/t and 1.5m of 2.7g Au/t) or wider zones of low grade gold mineralization (27.1m of 0.318g Au/t) were intersected. The El Corral “feeder” structure was not clearly intersected in any of the holes, and although the fault/feeder structure may still exist (there are several weakly mineralized faults in the holes), it does not appear to be strongly mineralized.

Mirador

Three diamond core holes (ARMR-001 through ARMR-003) were drilled in the Mirador mine area for a total of 1,028.6m. The holes were drilled mainly within the Lower Cintura Formation, the Mural Formation, and to a limited extent, within the upper portion of the underlying Morita Formation. In general, the drilling tested the down-dip projections of shallower, historic drill-indicated, gold mineralization (19m of 2.51g Au/t) and also explored for the inferred heat source for the widespread hornfels alteration seen in the area (variably quartz-veined and pyritized, biotite-pyroxene hornfels).

Drilling results indicated that gold mineralization does continue to depth, but that grades and thicknesses decreased rather dramatically. In general, only thin intercepts of relatively high-grade gold mineralization (1.5m of 2.48g Au/t) or wider zones of very low-grade gold mineralization were intersected. No intrusive that could be inferred to be responsible for the extensive hornfels alteration was intersected in any of the three Animas holes.

Pirinola Este

Three diamond core holes (ARPR-001 through ARPR-003) and one reverse circulation hole (ARPR-003A) were drilled in the Pirinola Este area during 2008 for a total of 421.05m. The holes were drilled in an overturned section of Morita Formation and the drilling tested the down-dip projection of a zone of strong surface clay and iron oxide alteration containing anomalous gold mineralization (up to 1.73g Au/t).

In general, the rock in this area is highly fractured and faulted, and drilling conditions were extremely difficult. Consequently, all three of the core holes failed to reach their proposed depths.

Although no potentially economic gold grades were intersected in the three holes, drill hole ARPR-003A intersected 21m of 0.45g Au/t. This mineralization is believed to be controlled by an east-west or northwest-trending mineralized fault, and it may be associated with the Trinidad mineralized zone which is located approximately 500m to the east.

Real Viejo

Two diamond core holes (ARRV-001 and ARRV-002) were drilled in the Real Viejo area for a total of 353.35m. The holes were drilled in an overturned section of Cintura Formation (Ksl) and tested the down-dip projections of several mineralized historic drill intercepts that contained up to 21.0m of 1.32g Au/t, and Animas surface channel samples that averaged 10.5m of 1.44g Au/t.

Drilling results indicated that gold mineralization does continue to depth, but that grades and thicknesses decreased. Although generally only relatively thin intercepts of low-grade gold mineralization were intersected, hole ARRV-001 intercepted a 6.8 meter zone that averaged 1.76g Au/t. Anomalous arsenic and zinc also were associated with the gold mineralization.

Santa Teresa

Two diamond core holes (ARST-001 and ARST-002) were drilled in the Santa Teresa area for a total of 399.1m. The holes were drilled in an overturned section of Cintura Formation and tested the down-dip projection of historic drill intercepts that contained 11.2m of 1.73g Au/t and 9.0m of 1.54g Au/t.

Drilling results indicated that gold mineralization does continue down-dip. A number of thin mineralized intercepts were encountered and hole ARST-002 intersected 26.6m of 1.405g Au/t.

Alluvial-Covered Area

Two reverse circulation holes (ARGA-001 and ARGA-002) were drilled in the alluvial-covered area west of the main area of historic production for a total of 387.0m. The holes were drilled to test two large airborne magnetic anomalies which are covered by thin, post-mineralization, alluvial cover. ARGA-001 intersected unaltered diorite and ARGA-002 intersected unaltered Cintura Formation.

In general, drilling results were not encouraging, and only one significant drill intercept (3.0m of 0.24g Au/t in hole ARGA-001) was intersected. However, drilling did confirm that the alluvial cover was relatively thin in this area (35 to 66m thick) and that potentially favorable host rock for gold mineralization in the Cintura Formation also is present. As such, it is permissive that economically viable gold systems could be present under shallow alluvial cover west of the main area of historic mining.

10.1.3.2 Animas 2009 Drilling Program

During 2009, a total of 11 core holes and 2 combination core/reverse circulation holes were drilled for a total of 5,537.15m of drilling completed. These holes were drilled in the Toro-Gregorio, Pirinola, Escondida, Crisitina Sag, Tigre, and Enedina areas. The Toro-Gregorio, Pirinola/Pirinola Este, Escondida, and Cristina Sag areas were explored for large tonnage gold deposits and the Tigre-Enedina area was explored for both large tonnage zinc skarn mineralization as well as for large tonnage, molybdenum porphyry style mineralization.

Each of the general drilling areas is described briefly below, and significant assay results are shown in Table 10.2.

Table 10.2 Animas 2009 - Significant Assay Results (Gold)

Drill hole	Area	Interval From - To	Thickness	Grade g Au/t
ARTG-001	Toro-Gregorio	192.65m to 195.6m	2.95m	0.124
		325.50m to 332.45m	6.95m	0.312
		475.95m to 479.55m	3.60m	0.636
ARTG-002	Toro-Gregorio	0.00m to 6.10m	6.10m	2.390
		256.75m to 263.00m	6.25m	0.702
		430.50m to 435.30m	4.80m	0.271
ARTG-003	Toro-Gregorio	32.85m to 42.45m	9.60m	5.450
ARTG-004	Toro-Gregorio	119.45m to 122.45m	3.00m	0.219
		145.95m to 167.35m	21.40m	0.214
		189.5m to 216.35m	26.85m	0.221
		228.95m to 231.00m	2.15m	0.306
		240.85m to 258.80m	17.95m	0.184
		267.80m to 284.10m	16.30m	0.494
		352.05m to 354.75m	2.70m	2.230
ARTG-005	Toro-Gregorio	No significant intervals		-
ARTG-006	Toro-Gregorio	546.70m to 549.75m	2.55m	0.149
ARTG-007	Toro-Gregorio	203.05m to 205.60m	2.55m	0.257
		250.00m to 254.20m	4.20m	2.077
		268.25m to 269.30m	2.55m	0.280
		430.20m to 433.20m	3.00m	0.224
		441.00m to 462.15m	21.12m	1.224
ARES-001	Escondida Splay	57.35m to 61.85m	4.50m	0.203
		145.00m to 155.45m	10.45m	0.160
		270.00m to 339.05m	69.05m	0.221
ARCS-001	Cristina Sag	No significant intervals		
ARET-001	El Tigre	81.90m to 85.75m	3.85m	0.233
		98.40m to 101.40m	3.00m	0.220
		137.70m to 141.45m	3.75m	0.248
ARPR-004	Pirinola	48.50m to 53.00m	4.50m	0.318
		133.40m to 143.85m	10.45m	0.214
		149.75m to 162.00m	12.25m	0.264
ARPR-005	Pirinola	244.55m to 248.50m	3.95m	0.232
		263.20m to 267.20m	4.00m	0.485
		136.85m to 146.90m	10.05m	2.900
		142.95m to 146.90m	3.95m	6.210
		194.30m to 197.75m	0.45m	0.583
		226.20m to 236.30m	10.10m	0.889
		240.35m to 245.80m	5.45m	0.130
		250.80m to 262.15m	11.35m	0.276
AREN-001	Enedina	No significant intervals		

El Toro-Gregorio

Seven inclined diamond core holes were drilled in this area for a total of 3,297.25m of drilling completed. These holes were drilled for the purpose of evaluating the down-dip, large-tonnage, gold potential of the main Toro-Gregorio mineralized zone. The Toro-Gregorio zone is characterized by a large surface zone of weak, pervasive, clay alteration, and weak to moderate, limonite-hematite-staining which is approximately 1.5 kilometers long (WNW-trending) and 400m wide This zone of alteration/mineralization is hosted mainly within the Mural formation (and subordinate amounts of Cintura formation), and it contains 5 previously-mined gold deposits (Toro, Ruben, Camello, San Ignacio, and Gregorio). Surface rock-chip samples from the area are highly anomalous in gold and IP/Resistivity surveying (Durango) in the area delineated a moderately strong chargeability anomaly at depth under the surface alteration zone/known deposits. The target was further enhanced on the basis of drill hole ARCM-001 (drilled immediately north of the Camello pit) which ended in 5.3m of strongly decalcified Ks containing 0.422 g/t Au.

Although no long intercepts of ore grade gold mineralization were encountered in any of this drilling, thick intervals of strong decalcification (black, residual carbon-rich, collapse breccia), weak silicification, and variable pyritization were intercepted. This alteration indicates that significant volumes of hydrothermal solutions had passed through the rocks, and this is considered to be an extremely encouraging feature. Furthermore, hole ARTG-004 (drilled below Gregorio Pit) cut 7 zones of anomalous gold ranging from 3.0m @ 0.219 g/t Au to 26.85m @ 0.221 g/t Au and hole ARTG-007 cut 21.12m @ 1.224 g/t Au. As such, it is permissive that the Toro-Gregorio target could still have signifcant, untested potential for gold mineralization.

For additional, more detailed information, the reader is referred to the Animas 2009 - Significant Assay results table (Table 10.2)

<u>Pirinola and Pirinola Este</u>

The Pirinola-Pirinola Este area is located approximately 6.0 kilometers north-northwest of the old Phelps Dodge-Oro de Sotula leach pad.

Two diamond core holes were drilled in this area for a total of 572.4m of drilling completed. Geologically, the area is comprised of an allochthonuos plate of structurally overturned Morita formation which is "underlain" by the younger Mural formation. A 3 kilometer long zone of moderate, pervasive clay alteration and limonite-hematite-staining extends from the Trinidad gold deposit westward to the Amelia deposit, and this zone of alteration/mineraliztion is thought to represent the surface trace on a major gold feeder zone (Trinidad-Amelia structural zone).

These holes were drilled for the purpose of testing the east-west-trending exposed Amelia-Trinidad alteration/mineralization zone west of the Trinidad mine, for testing the down-dip extension of the Pirinola mineralized zone, and for testing the Trindad-Amelia structural zone where it projects under the Amelia allochthon.

Hole ARPR-005 intercepted 11.35m containing 0.276 g/t Au, and based on this drilling and the results of the 2008 drilling program in this area (ARPR-001, ARPR-002, ARPR-003, and ARPR-003A), the Pirinola Este area is no longer believed to have potential for significant gold mineralization. However, hole ARPR-004 (down dip from the Pirinola Pit) intersected 9 separate zones of highly anomalous gold (3.0m @ 0.22 g/t Au) to relatively high grade gold (3.95m @ 6.21 g/t Au and 10.05m @ 2.90 g/t Au). As such, it is permissive that this area still has significant, untested gold potential.

For additional, more detailed information, the reader is referred to the Animas 2009 - Significant Assay results table (Table 10.2)

Escondida

The Escondida area is located approximately 3.5 kilometers north of the old Phelps Dodge-Oro de Sotula leach pad.

One diamond core hole was drilled in this area for a total of 368.0m of drilling completed. This hole was designed to test the down-dip intersection of the known, gold-bearing, Escondida (E-W-trending) and Escondida Splay (NW-trending) structures where they were inferred to intersect the Mural formation. Geologically the area is comprised of a fault slice of near vertically dipping Mural formation which is structurally bounded on the east by the Glance Conglomerate and on the west by the Morita formation.

Although no significant, thick intercepts of ore grade gold mineralization was encountered in this drilling, a relatively thick zone of highly anomalous gold mineralization was encountered in this hole (69.05m @ 0.221 g/t Au). Although no additional drilling is currently planned for this area, it is believed that this zone may have significant potential for hosting a large tonnage, low grade gold deposit.

For additional, more detailed information, the reader is referred to the Animas 2009 - Significant Assay results table (Table 10.2)

El Tigre

The El tigre area is located approximately 7 kilometers southeast of the old Phelps Dodge-Oro de Sotula leach pad.

One diamond core hole was drilled in this area for a total of 563.2m of drilling completed. Geologically the area is comprised of southwest-dipping hornfelsed and locally skarnified (garnet with locally massive magnetite) Cintura formation that overlies skarnified Mural formation (Kl unit). This area is contained within a large (4-5 km in diameter), strongly hornfelsed zone that is believed to be underlain by a large, but unexposed, intrusive body.

This hole was designed to test the down-dip projection of an outcropping zone of strongly skarnified and mineralized (Zn, Mo, Mn) Mural formation where it was believed to be in contact with an inferred, buried intrusive.

Although no thick intercepts of ore grade zinc were encountered, highly anomalous Zn (1.0m-1.5m zones with up to 4.76 percent Zn), Mo (up to 1,335 ppm), and F (up to 1,940 ppm) were found in strongly veined Cintura hornfels and skarned Kl. As such, the area is still believed to have significant untested potential for both zinc and molybdenum porphryry-style mineralization.

For additional, more detailed assay information, the reader is referred to the Animas 2009 - Significant Assay results table (Table 10.2)

Enedina

The Enedina area is located approximately 6 kilometers southeast of the old Phelps Dodge-Oro de Sotula leach pad.

One combination diamond core/reverse circulation hole was drilled in this area for a total of 418.90m of drilling completed. Geologically, the area is comprised of strongly hornfelsed (diopside-biotite), northwest-striking, southwest-dipping (25º- 60º) Cintura formation.

This hole was designed to test the center of an outcropping, 700 meter wide zone of strongly quartz veined Cintura formation which contained anomalous Cu (up to 1,700ppm), Mo (up to 2,100 ppm), and Au (up to 2.3 g/t Au). The area that was drilled is located approximately in the middle of a large (4-5 km in diameter), strongly hornfelsed zone that is believed to be underlain by a large, but unexposed, intrusive body with Cu and/or Mo porphyry potential.

Although the hole never intersected an intrusive body at depth, it did cut strong quartz veined, hornfels with magnetite and erratic, anomalous Mo up to 520 ppm and F up to 1,970 ppm. As such, the area is still believed to have significant, untested potential for Mo porphyry-style mineralization.

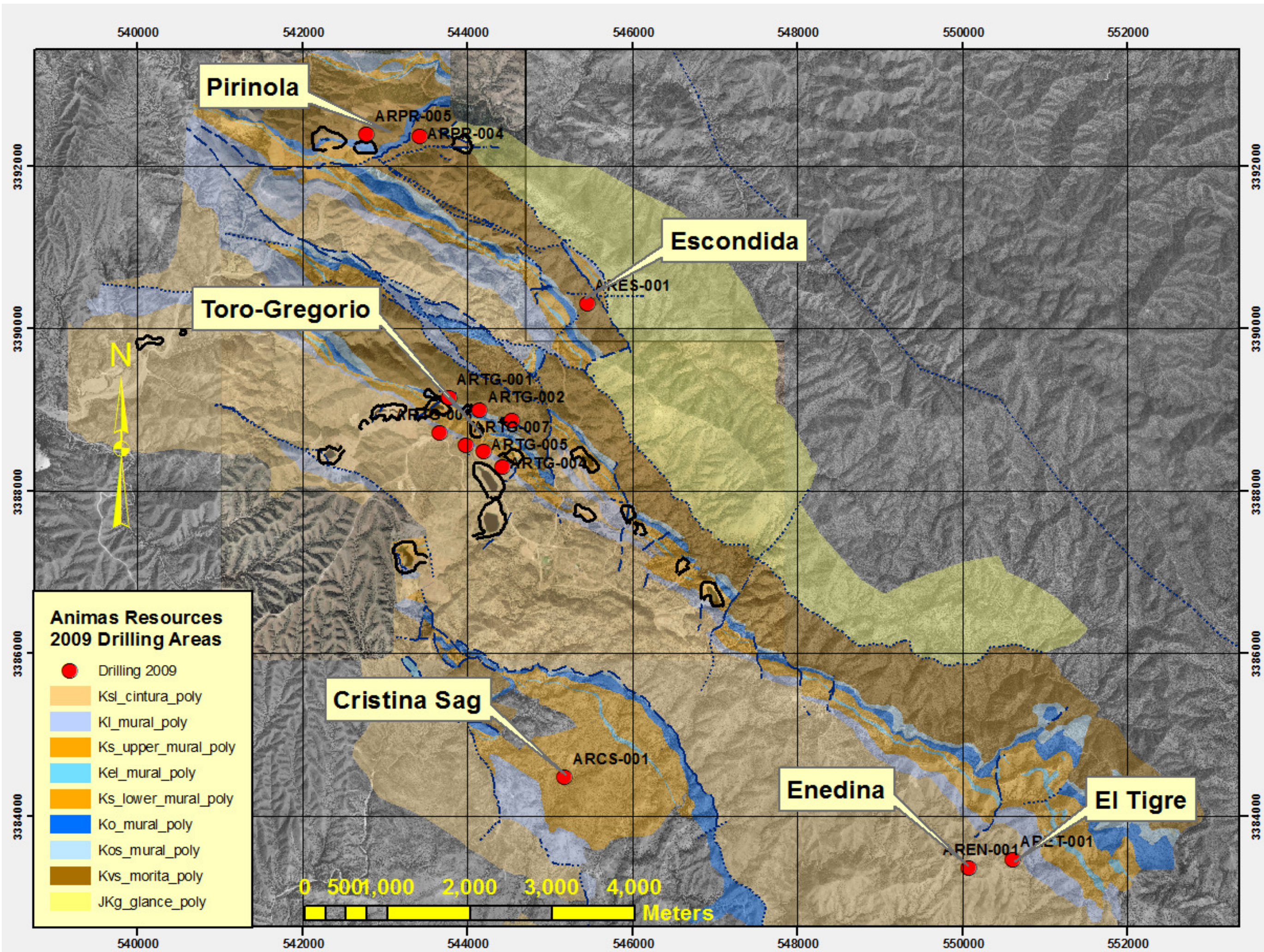


Figure 10.2 Animas 2009 Drilling

10.1.3.3 Animas 2010 Drilling Program

During 2010, a total of 4 core holes were drilled for a total of 1698.65m of drilling completed. These holes were drilled in the El Tigre area for the purpose of exploring for large tonnage, zinc skarn deposits (10-20MM tonnes @ 4.0± percent Zn) and for large tonnage, molybdenum porphyry-style mineralization (100+MM tonnes @ 01.0+ percent Mo). It should be noted the two areas previously referred to a Tigre and Enedina are now considered to be only one area, and they are both included in what is now referred to as the Tigre area. It should be noted that during this program, two holes were drilled to explore for zinc skarn deposits (ARET-002 and ARET-003) and two holes were drilled to explore for a molybdenum porphyry deposit (ARET-004 and ARET-005).

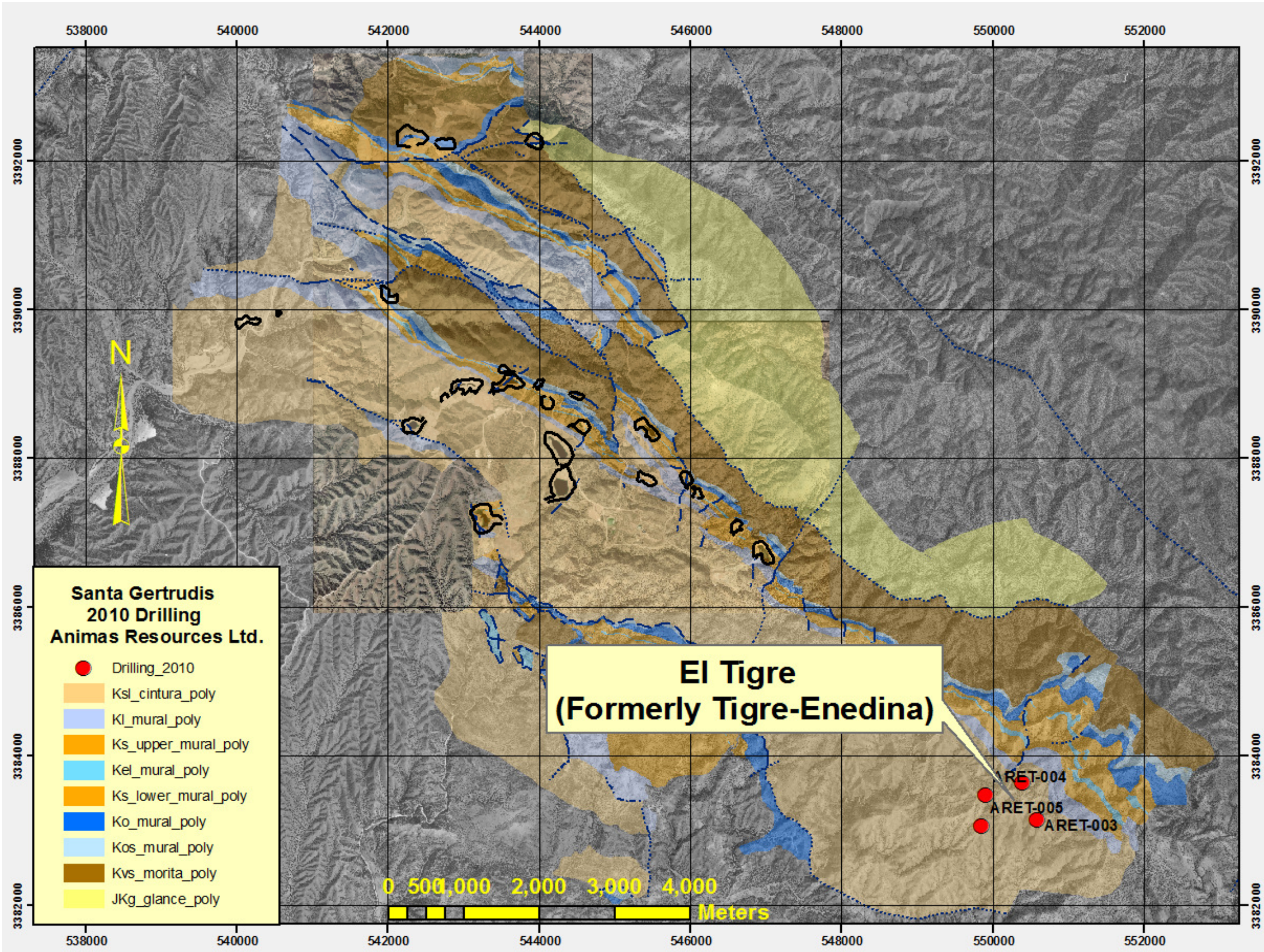


Figure 10.3 Animas 2010 Drilling

El Tigre Area

Six drill holes (Table 3) and initial geological mapping/geochemical sampling of the surface exposures at the El Tigre prospect have identified what appears to be an igneous intrusive center with related molybdenum mineralization. Felsic intrusives and intrusive breccias with a variety of quartz porphyry clasts indicate that multiple intrusive events with related molybdenum mineralization are present at El Tigre. Numerous cross-cutting veins and complex igneous relationships indicate that this is potentially a multi-phased molybdenum system. All of the drill holes encountered strongly anomalous molybdenum, and surface sampling has defined an extensive area of anomalous molybdenum in soils and rock-chip samples. Trace element geochemistry from core and soil sampling reveals a picture that is supportive of a potentially significant area of molybdenum mineralization.

Animas initially targeted the El Tigre area on the basis of its base metal skarn potential. Alteration at El Tigre is defined by a 20+ Km^2 area of hornfels, most of which probably had a thermal origin, within which is a 4-5 Km^2 skarn/silicified zone. Yet within this large area of altered rock the only known intrusives are volumetrically insignificant. Initially the program targeted the down-dip, favorable sedimentary units in the Mural Formation (Kl, Kel, and Ko) in the area of skarn, but subsequently the inferred center of alteration, skarnification, and anomalous geochemistry (Mo, Zn, Mn, K) was targeted for exploration. During late 2009 and 2010, at El Tigre, Animas completed six diamond drill holes totaling 2,677.8 meters, two short di-pole di-pole survey IP lines and a gravity survey. One hole was specifically targeted to search for evidence of an intrusive center (ARET-004).

The large hornfels alteration areas at Santa Gertrudis are well defined though Animas' mapping of the district, but there are remarkably few intrusive rocks associated with any of these large areas. Throughout the entire district, less than six narrow quartz porphyry or feldspar porphyry dikes are known and none are directly associated with the El Tigre area. The exception is a small 20 by 40 meter hill previously mapped as a quartz stockwork area now known as Fragment Knob.

INTRUSIVES

The only known surface exposure of potentially molybdenum related intrusive activity is in the Enedina Hill area at Fragment Knob, where there are exposures of a matrix supported intrusive breccia. Fragment Knob is near the center of a quartz vein zone. The breccia contains angular to sub-rounded clasts in a silica matrix. The matrix is generally fine-grained but in places has a granular texture. Observed fragments include hornfels, diorite(?), and at least one type of quartz porphyry with some possible square quartz phenocrysts. There are at least five generations of quartz veins within the breccias, the earliest of which are hairline to a few millimeters wide barren quartz veins that seem to be restricted to clasts and cut-off at the clast margins. The remaining four vein types appear to be post-clasts and from oldest to youngest are banded quartz veins, thinner quartz veins, dark colored veins, and finally gossan rich veins after oxidized pyrite.

Other observed occurrences of intrusive activity are in several of the Animas drill holes. Of the six holes (AREN-001, and the five ARET holes) breccias and felsic intrusives were observed in holes ARET-001, 002, 003, and 004. Several of the holes contain altered biotite porphyry dikes that are probably part of the district wide lamprophyre suite. There is no clear indication of age relationship between the biotite porphyry and felsic intrusive, although it is suspected that the latter are younger. Except for hole ARET-004 the felsic intrusives are narrow quartz-feldspar porphyry dikes and at least one aplite. The most extensive mass of quartz porphyry is in ARET-004 in the interval from 97.45 to 217.50 meters. The intrusive is composed of a aphanitic felsic groundmass with 1-2% subhedral alkali(?) feldspar phenocrysts up to 3 mm long, <1% subhedral quartz phenocrysts to 2 mm, and a few widely scattered feldspar phenocysts to 1 cm. For clarity, this intrusive will be termed ARET-004 Porphyry throughout this report. The ARET-004 Porphyry contains fragments of several other felsic intrusive phases. Cross cutting relationships between the several felsic fragment types are rare making it difficult to determine their relative ages except that ARET-004 Porphyry appears to be the youngest. What might be the oldest is an aphanitic felsites. A slightly younger(?) intrusive contains only traces of pinpoint quartz phenocrysts in an aphanitic felsic groundmass. The youngest intrusive may be a quartz-feldspar porphyry with a pink groundmass. Some, or all, of these may be variations of one intrusive, or possibly several separate intrusive phases. Three core samples the intrusives in ARET-004 were stained for potassium content indicating that the groundmass is enriched in the element. Without petrographic analyses the specific potassium mineral is not known, but in a few areas there are some patches that appear to be secondary replacement of alkali feldspar. Without thin section analyses it is impossible to determine how much primary or secondary feldspar is in the intrusive, and how much of the potassium stained area is sericite. The importance of secondary alkali feldspar is that this is a common constituent of molybdenum systems and associated with the molybdenite mineralization in time and space.

The most widespread intrusive event is what appear to be hydrothermal breccias, at least one of which cuts the ARET-004 Porphyry. These are matrix supported breccias with a light gray siliceous matrix that contains a few percent disseminated fine-grained pyrite and a few isolated aggregates of pyrite a few millimeters across. The majority of clasts are hornfels with lesser quartz porphyry fragments similar to the ARET-004 Porphyry. Most of the clasts are angular with some edge rounding to a few fragments that are completely milled. Quartz porphyry clasts, and to a lesser extent the hornfels fragments, contain 1-3 mm wide quartz veins that are cut-off at the clast boundary, indicating at least one earlier mineralizing event.

MINERALIZATION/ALTERATION

All of the Animas drill holes in the El Tigre area encountered quartz-molybdenite veinlets and veins, along with several other types of veining. A detailed analysis of the paragenetic sequence is beyond the scope of this study, although there are a few generalities that can be offered. Much of the veining is only a few millimeters wide, with a few veins up to a couple of centimeters wide. Quartz is the most common constituent with variable amounts of magnetite, pyrite, molybdenite, and white mica (in decreasing order of abundance), however locally thin molybdenite only veinlets also occur. Quartz-magnetite veins are common in the hornfels and less common in the porphyry, particularly in the ARET-004 Porphyry and hydrothermal breccias.

There are at least a few paragenetic relationships that seem to hold between, and within, drill holes. Quartz-disseminated molybdenite veins and quartz-banded molybdenite are early and are cut by quartz-magnetite veins, which are cut by milky white quartz$\pm$white mica$\pm$pyrite. There appears to be a very late pyrite event with the iron sulfide occurring on fracture surfaces. There are also a few molybdenite fracture coatings which appear to have formed late in the sequence of events. In a clast within the ARET-004 Porphyry there are a few patches of incipient crenulate quartz veins, which is a common constituent in felsic molybdenum systems (Figure 7). There are a few quartz-alkali feldspar veins that contain minor disseminated molybdenite along the margins; these also appear to be a late event. In many areas veining forms a stockwork, in both the hornfels and porphyries.

In hole ARET-004, where there is a significant interval of porphyry, the hornfels is zoned from black hornfels to brown (possibly secondary biotite resulting from potassium metasomatism) hornfels as the intrusive contact is approached. Bleaching is common along the margins of veins in the hornfels, and this likewise appears to increase as the porphyry contact is approached. In hole ARET-004 there is also a general increase in the amount of added silica (both veining and replacement) as the intrusive contact is approached. Some of the wider quartz-pyrite veins contain margins of quartz-sericite-pyrite alteration. Stained slabs of the intrusive from the ARET-004 Porphyry display a strong potassium contact suggesting at least some feldspathation, and/or a high alkali feldspar content, and possibly secondary sericite.

GEOCHEMISTRY

The premise in approaching the geochemistry for El Tigre is that mineralization is related to a felsic intrusive center and that elemental distribution is similar, but probably not as intense, as "Climax-type" molybdenum systems. There is a wealth of unpublished geochemical data about these systems, particularly Henderson, which was used to interpret the El Tigre data. Three sets of multi-element data are available, analyses of soil samples from previous operators, geochemical analyses from the six Animas drill holes at El Tigre, and the geochemistry of rock chip samples from Fragment Knob.

There is a strong and consistent trace element distribution around felsic molybdenum systems that can be simplified for this evaluation. Molybdenum is certainly at the core of the system, with the 100 ppm Mo zone within a few hundred feet of economically attractive grades. Marginal to this are concentrations of tin and tungsten. The peripheral base metal zone can be exemplified by manganese and zinc. Fluorine is an important element, increase in concentration toward the center of the system.

Three soil geochemical elements patterns were used to outline the apparent center of molybdenum mineralization. Zinc appears to form a broad halo surrounding the El Tigre area. Manganese suggests a halo around the drilled area with a concentration to the north and northeast. Generally, molybdenum distribution suggests a donut pattern with AREN-001 near the center and a slight concentration to the north and northeast. An alternative interpretation is that there are two overlapping molybdenum rings with two central areas of molybdenum depletion.

Composites on approximately 20 meter intervals were made from the El Tigre drill pulps and were analyzed for fluorine and tin. The use of composites rather than analyzing individual pulps was chosen as an initial approach to determining general concentrations of these elements. The resulting analyses indicate that these two elements are present in significant levels, are important pathfinder elements, and should be used more extensively in future programs.

Table 10.3 summarizes the fluorine and tin analyses in the six drill holes. Fluorine is commonly present in >0.1%, which is consistent with the outer margins of a Great Basin-type rhyolitic (felsic) molybdenum system. Elevated concentrations of fluorine are in holes AREN-001, and ARET-004 and 005. Of these holes ARET-004 is most interesting since there is a significant increase in fluorine down-hole. Tin is expected to be closer to the center of the molybdenum system. ARET-004 contains the highest levels of tin, the highest composite grade is 54 ppm. These tin values are also indicative of the outer margins of a rhyolitic (felsic) molybdenum system.

Table 10.3-Fluorine and Tin distribution in drill hole at El Tigre

Hole	F range in ppm	Average ppm	Sn intervals above 10 ppm (meters in hole)	Average ppm
AREN-001	1180-2200	1579		trace
ARET-001	600-1940	1062	225.70-227.20	27
ARET-002	640-1870	1071	64.85-108.35	12
ARET-003	640-1780	1182		trace
ARET-004	110-1740	1038	545-665.80	34
below 289.50 m	1060-1740	1438		
1190-1650	1190-1650	1381		trace

Analyses from seven rock chip samples from Fragment Knob are tabulated in Table 10.4. They are anomalous in molybdenum and weakly anomalous in fluorine, with the remaining elements of little interest.

Table 10.4-Selected trace elements from Fragment Knob rock chip sample
(All analyses in ppm)

Sample #	Mo	Cu	Mn	Pb	W	Zn	F
140177	25	7	153	6	<10	11	250
140178	24	17	150	5	<10	14	320
140179	70	7	317	59	<10	77	390
140180	10	5	158	2	<10	13	430
140181	14	13	333	16	<10	36	260
140182	18	6	677	36	<10	22	520
140183	6	27	209	<2	<10	42	500

Of the numerous elements in the drill hole only the above mentioned elements are used as proxies for the important elements that form a halo around porphyry molybdenum systems. The most significant concentration of molybdenum is in ARET-004, while the other Animas holes contain anomalous molybdenum (>100 ppm) with holes ARET-001 and 003 containing better concentrations (Table 10.5 is a listing of significant intervals of Mo in drill hole). Tungsten is anomalous in ARET-001 and 004, with 004 containing the strongest anomaly. A peripheral zone (or zones) of manganese and zinc in ARET-001, 002, and 003 suggest more distal portions of the system.

Table 10.5-Significant molybdenum intervals in El Tigre drill holes
(>100 ppm Mo over intervals of >5 meters)

Hole	Interval (meters)	Thickness (meters)	Average grade (ppm Mo)	Highest individual interval (ppm Mo)
AREN-001	393.90-401.40	7.5	191	520
ARET-001	89.15-103.85	14.7	266	1335
	382.10-387.80	5.7	125	163
	485.35-505.85	20.5	143	369
ARET-002	181.60-186-85	5.25	437	1585
	372.20-393.40	21.2	160	781
ARET-003	72.15-79.45	7.3	171	218
	86.45-99.05	12.6	144	390
	146.50-156.80	10.3	122	178
	189.00-218.95	29.95	174	411
ARET-004	75.45-79.95	4.5	323	459
	449.75-458.45	8.7	186	319
	494.00-501.30	7.3	103	159
	549.50-561.90	12.4	179	675
	574.40-591.90	17.5	328	1300
	607.25-646.90	39.65	329	996
ARET-005	36.50-44.00	7.5	142	307

STRUCTURE

Drill hole geochemistry suggests that ARET-004 is closer to the center of the suspected molybdenum deposit. The soil geochemistry indicates that the area may be tilted to the south and southwest, presenting a somewhat deeper erosional level in the north and northeast. An alternative explanation is that the system is still sub-vertical and a portion of the system has been cut-off to the south by the inferred, northwest trending, post-mineral Santo Niino fault.

Bryan MacFarlane developed an interesting structural interpretation of possible tilting at El Tigre. Molybdenum bearing skarn in the northern part of El Tigre, along with the surrounding hornfels, displays an axial planar cleavage that strikes sub-parallel to bedding but dips moderately to the northeast. In this same area, bedding dips to the southwest. Bryan uses this as evidence to indicate that the entire (pre- and post-cleavage development), the youngest could be tilted to the southwest by Basin and Range processes.

It is evident that there are several possible working hypotheses that are under consideration and additional work is required to resolve these structural interpretations.

GEOPHYSICS

Two geophysical data sets are important at El Tigre. The two IP/resistivity lines are mostly outside of the area of molybdenum interest and do not supply much direct information to the possible location of a porphyry molybdenum system. There is a suggestion of a weak IP response along Line 1 NE between -200 and -400, and possibly at the northwestern end of the line at -1000, and along Line 2 NW at depth from -400 to +200. This might be the suggestion of the outer pyrite halo around a molybdenum system with a plunge to the south/southwest. However, the Ks unit of the Mural Formation is also known to contain disseminated pyrite (diagenetic or thermal recrystallized), and it is permissive that this is the source of the aforementioned weak IP anomaly.

The vertical derivative gravity displays an area of low gravity to the west of ARET-004 that may suggest an area of felsic intrusive(s) and less magnetite veining/hornfels at depth. This feature is a local low contained within a larger gravity feature and could suggest that it is related to an apophysis of a larger pluton at depth.

INTERPRETATIONS

Without whole rock chemical analyses it is difficult to classify the type of molybdenum system that may have formed at El Tigre. All of the intrusives that appear to be associated with the molybdenum mineralization appear to be felsic indicating that the molybdenum mineralization at El Tigre is not a quartz monzonite-type system. If this is the case there could be potential for a higher grade molybdenum deposit at El Tigre. Hole ARET-004 clearly demonstrates the presence of multiple intrusive and mineralizing events which supports the interpretation that a higher grade molybdenum deposit may be present at El Tigre.

The intrusives identified at El Tigre are porphyries with low quartz phenocryst content. This coupled with the low level of fluorine at Fragment Knob and peripheral anomalous zinc mineralization in soil samples suggest the molybdenum system is probably a low-fluorine-type typical of the Great Basin (Mt. Hope and Pine Grove) rather than a “Climax-type” system. While the two types of molybdenum systems have similar alteration and geochemical patterns the principal difference is the intensity of the alteration and geochemistry. ARET-004 contains the largest concentrations of molybdenum and tungsten suggesting that the hole is closest to the center of the system. This supports the conclusion that El Tigre represents a zoned system, and that geochemical and alteration patterns can be used as vectors. The gravity low west of ARET-004 may represent the most direct evidence for the center of the system.

The presence of multiple felsic intrusives, some of which are intramineral in character, the complex vein history, favorable geochemistry, and strongly anomalous molybdenum support the conclusion that El Tigre may contain a substantial molybdenum deposit, or deposits. It is therefore concluded that additional exploration is warranted.

11.0 DRILLING

The Santa Gertrudis project area has been drilled by six companies (Phelps Dodge, Minera Roca Roja Campbell, Sonora Gold, Teck and Animas). The historic drilling and results are discussed in Sections 6.2 and 6.3, while the Animas drilling results are discussed in 10.1.3. Section 11.0 will provide the status of and the information contained within the current Animas drill database. Specific drilling information for the various drill programs, if available, is also discussed.

11.1 Animas Database

A summary of the drilling data within the Animas database is in Table 11.1. As discussed in Sections 6.2 and 6.3, there are some discrepancies with historic reports concerning number of holes and meterage which cannot be resolved at this time.

Company	**Years**	**No. RC Holes**	**RC (m)**	**No. Core Holes**	**Core(m)**	**Total Holes**	**Total(m)**
Phelps Dodge	1988-1994	538	62,218.8	276	27,912.1	814	90,130.9
Campbell	1994-2000	1,032	96,539.5	206	19,002.7	1,238	115,542.2
Sonora Gold	2002-2005			16	1,994.0	16	1,994.0
Percussion	?	105	1,050.0			105	1,050.0
Minera Teck	2005	4	1,198.0	5	1,217.0	9	2,415.0
Roca Roja	1990's (?)	247				247	39,890.0
Unknown		72	7,313.5	36	3,798.5	108	5,690.2
Animas	2008-2010	3	517.5	39	12,408.5	42	12,926.0
TOTAL		**1,998**	**200,727.3**	**578**	**64,338.2**	**2,579**	**269,638.3**

* does not include 16 RC holes reported to be drilled in the La Eme, Amelia #5, and El Tascalito areas or 105 shallow percussion holes.

Table 11.1 Santa Gertrudis Drill Hole Summary (from Animas database)

The drill-hole database contains collar coordinates, azimuths, dips and depths for all drilling. These data has been compiled from various digital sources, as described in greater detail in Section 14.6.1, while the specific collar coordinate survey information (companies, techniques, and equipment used) are discussed in Section 11.8.

Down-hole survey readings are included within the database for many of the historic core holes. Some of these data can be checked against the recorded information on the individual drill logs but for many holes there is not a non-digital source. There is no information available which describes the equipment or techniques used by past operators in collecting the down-hole survey data. Information on the Animas down-hole survey program is provided in Section 11.7.

Assays have been compiled for most of the drilling. The database currently contains 108,751 gold assays, with a lesser number of silver, arsenic, mercury and base metal analyses. These data have been compiled primarily from historic digital and paper files. The historic gold "final" values currently in the database are frequently an average of two or more individual assays and due to the incomplete historic record, the individual assay values and assay type employed are often not known. As a result, both fire assay and atomic absorption gold assay values can be unknowingly mixed within the same data set.

The database continues to be updated by Animas from both digital sources and from what appears to be a full set of original drill logs on file in the Santa Gertrudis field office. Section 14.1 provides information on the status of the on-going data compilation and verification effort.

A map of the historic Santa Gertrudis project drilling (Figure 11.1), as currently compiled in the Animas database, indicates that drilling is distributed over a 15km by 8km area. This map does not include, due to a lack of specific collar and assay data, the approximately 200 drill holes that Hamilton (2003) estimated were drilled by Minera Roca Roja at the Amelia mine.

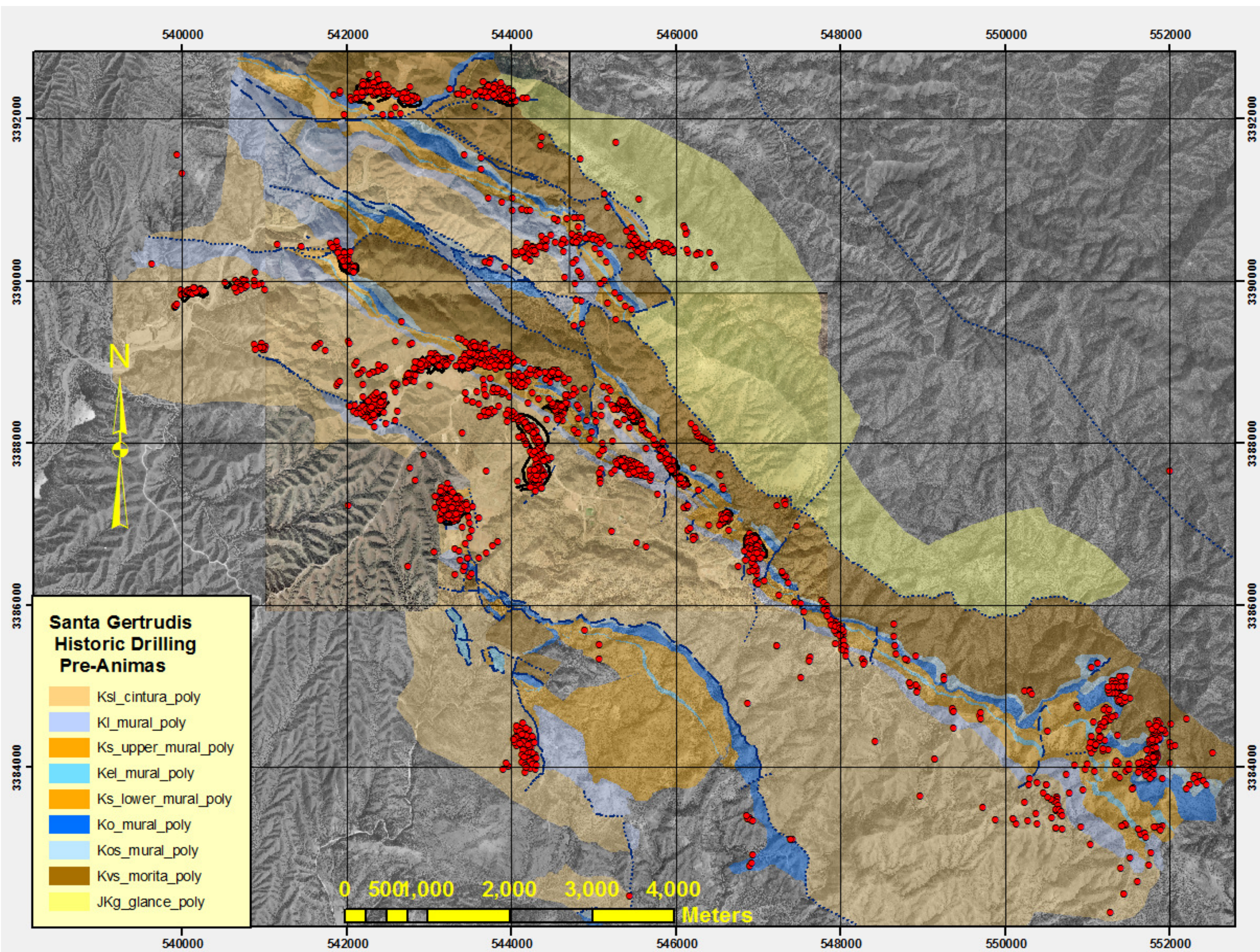


Figure 11.1 Historic Drill Hole Map

The following sections describe the current knowledge of the drilling details for the various historic drill programs. Unfortunately, the historic reports cited in this Technical Report provide very limited specific information on the historic drill programs. Any detailed information concerning the following topics can only be found as notes on the historic drill logs: name of drill contractor and type of drill rig, core size, reverse circulation drill hole diameter, wet or dry reverse circulation sampling, sample recovery, etc. A compilation of this information is ongoing.

Previous operators' core, reverse circulation samples, coarse rejects and pulps, with very few exceptions, have been destroyed or rendered unusable.

All of the drilling contractors known to have operated on the Santa Gertrudis property are large, well-known companies and it is assumed that industry-standard practices were followed while drilling and collecting samples for analysis.

11.2 Phelps Dodge Drilling

Various drilling campaigns were conducted by Phelps Dodge between 1986 and 1994, yet there is limited information on the drilling programs within the historic record. Phelps Dodge (1988) reported that over 16,500m of diamond drilling was completed through June 1988. Of that over 10,500m of NC and NX core was drilled in the seven deposits that were put into production in 1991. This drilling was on 40m centers with local in-fill on 20m centers. Structural, geologic and assay data were obtained on the core.

Rodriguez and Lopez (1992a, 1992b) reported on the exploration and drilling results for the Cristina and Dora deposits, respectively, while a 2003 annual report by Rodriguez-Barraza, et. al., (1994) reported on the district-wide exploration program completed that year. None of these in-house reports contain specific drill data.

The current Animas database has 814 holes for 90,131m drilled by Phelps Dodge between 1986 and 1994. This includes 538 reverse circulation ("RC") holes for 62,219m and 276 diamond core ("core") holes for 27,912m. The database also includes 107 holes (36 RC and 71 core) totaling over 11,000m that cannot be attributed at this time to a specific company but it is believed that most of these holes were likely drilled by Phelps Dodge.

As determined from an initial review of most of the Phelps Dodge drill logs, with some assumptions made that the same contractor and drill rig was used for a temporal sequence of holes, Boyles Brothers of Mexico ("Boyles Brothers") was the primary diamond drilling contractor. It appears that over 230 core holes were drilled by Boyles Brothers with less than five holes each drilled by Tonto Dynatec and Perforacione DIGSE. Thirty-three core holes have an unknown drill contractor. Information on the type of drill rig is more sporadic but where noted, the primary drill rig used was a truck-mounted Longyear 44. Other drill rig types reported were Joy 22 and Joy 44 rigs but these were noted on fewer than ten drill logs. Core size, which was noted only rarely on the drill logs, was NC (48mm-diameter core). The "NX" core size (54mm-diameter core) noted in the Phelps Dodge (1988) report was not recorded on any of the drill logs.

Core recovery data was recorded for most core holes, though for many holes only a single average recovery value was noted on the log. There are a number of core holes, usually clustered within the main deposits, in which more detailed recovery data and other rock quality determination ("RQD") data were recorded on separate geotechnical sheets. None of the various recovery and RQD data have been compiled and/or included within the current database.

Little of the Phelps Dodge core is still intact due to the pre-Animas collapse of the core storage shed and the discarding of much of the material; however, Animas personnel have been able to salvage a small percentage of the Phelps Dodge core.

The Phelps Dodge RC drill logs indicate that Drilling Services Mexico ("Drilling Services") was the primary RC drilling contractor having drilled 383 RC holes. Major Drilling of Mexico ("Major") is noted as the drill contractor for nineteen holes while Tonto Dynatec drilled 2 RC holes. The drill contractor is unknown for 134 RC holes but it is expected that further data compilation will reduce this number. Where noted, Drilling Services used a truck-mounted TH-60 RC rig that utilized a 5.25in-diameter drill bit though there is no record of drill bit type (rotary tri-cone, percussion hammer, etc.). A larger 5.75in-diameter bit is noted for the 56 RC holes drilled in the Cristina deposit though the drill contractor is unnamed for these holes.

There are no records of any RC sample recovery data and on none of the drill logs reviewed are there any notes concerning wet versus dry drilling. The original RC samples (rejects and pulps) are no longer available.

11.3 Minera Roca Roja Drilling

Minera Roca Roja completed a great deal of drilling within the Amelia, Santa Teresa, Real Viejo, and Toro Norte areas, but unfortunately Animas does not have the complete Roca Roja database. Currently, Animas has coordinates, depths, azimuths, and gold assays for a total of 247 holes totaling 31,890m of drilling completed. Additionally, the logs for these holes are either very general or missing, and at present, we do not have a hole-type designation for any of these holes. Also, very little in the way of core or cuttings are available from this work.

11.4 Campbell Resources Drilling

Hamilton (2003) reports that Campbell drilled 98,620m of reverse circulation drilling in 1,017 holes and 21,122m of diamond drilling in 225 holes. These drill figures include pit definition and condemnation drilling of approximately 23,500m of reverse circulation drilling and 6,000m of diamond drilling. No drilling details concerning contactor, hole size, recovery, etc., are noted in any of the historic reports.

The drilling attribute to Campbell in the Animas database is 1,032 RC holes for 96,540m and 206 diamond core holes for 19,002.8m for a drilling total of 1,238 drill holes for 115,541m. The number and meterage differences with those reported by Hamilton (2003) cannot be explained by the authors at this time. Further data compilation and research might indicate that some of the core holes in the database with the company designation of "unknown" are actually Campbell holes.

From the information recorded on the drill logs, and making the same temporal assumptions as for the Phelps Dodge drilling, it appears that almost all core holes drilled for Campbell were completed by Major. Only six core holes are noted as being drilled by Dateline International ("Dateline") while just one core hole was drilled by Layne of Mexico ("Layne"). No additional drilling details (hole size, core recovery, etc.) for the Campbell core drilling have been compiled at this time.

Both Dateline and Layne were used for the RC drilling. Dateline appears to have drilled over 500 RC holes while Layne drilled over 300 RC holes. The drill contractor for approximately 200 holes is still unknown. No other RC drilling information has been compiled at this time. It is not known what proportion of the RC drilling was wet versus dry but the statement from Hamilton (2003) that:

> “*Reverse circulation sampling by Campbell was done in 1.5 metre intervals. The chips were processed through a Jones splitter wherein 50% of the sample was discarded after mixing and splitting.”*

indicates that dry drilling techniques were employed since a Jones splitter is used on RC rigs for dry samples. This does not rule out that some RC drilling was wet.

None of the Campbell core or RC samples are still available.

11.5 Sonora Gold Drilling

Kern and Sibthorpe (2005 and 2007) report that Sonora Gold drilled sixteen RC holes for an unknown meterage in the La Eme prospect area, sixteen core holes for 1,995m in the San Enrique area, and 105 shallow percussion holes for 1,050m in the Ontario zone in the Greta prospect area. Neither individual nor total drill depths are reported for the first nine RC holes; the last nine have a reported total meterage of 867m. Additional drilling may have been done elsewhere on the property, but the records are incomplete. No drilling details are provided in the historic reports.

Animas has not identified information on any of the La Eme area RC drill holes, except through Sonora Gold press releases, so the database does not include those holes. The database does have collar information, but no assay data, for the sixteen core holes at San Enrique and the 105 percussion holes at the Ontario zone. The collar information was compiled from a digital source. No other drilling details are available. None of these samples are available.

11.6 Sonora Copper Drilling

According to Wallis (2006), *“Chuqui* (Mexican subsidiary of Sonora Copper) *has not carried out any drilling in the Project area.”*

11.7 Teck Cominco Drilling

Teck Cominco held the San Enrique and the Greta/Ontario prospect areas from June 2005 until mid-2007 (Kern and Sibthorpe, 2005; Hernández, 2007; Barboza, 2007). They considered it a copper/molybdenum prospect and drilled four reverse circulation holes (RCSE-001 to RCSE-004) for 1,198m and five core holes ((DSE-001 to DSE-005) for 1,217m on the property. No drilling details are provided in the historic reports.

The nine Teck Cominco drill holes, with the same meterages as reported above, are in the Animas database. The database does have collar information compiled from a digital source, but no assay or geology data, for the nine holes. No other drilling details are available.

11.8 Animas Drilling

To date, Animas Resources has completed 37 diamond core drill holes (11,672.2m), 3 reverse circulation holes (517.50m), and 2 core/reverse circulation holes (736.30m) for a total of 12,926.00m of drilling completed. Because core and cuttings from previous drill campaigns have been mostly destroyed or otherwise lost, Animas focused on core drilling for the additional geologic information it would provide. The location of the Animas drilling is shown in Figure 11.1 while the specific drill hole data is listed in Table 11.2. Animas’ drilling tested ten targets spread throughout the property. The exploration target descriptions and drilling results are discussed in Section 10.1.3. All of the Animas drill data are in the current database. The drill contractor for the Animas drilling was Major Drilling de Mexico (“Major”) based in Hermosillo, Sonora State, Mexico. The holes were completed using a truck-mounted UDR-1000 drill rig that is capable of drilling both RC and core. The core drilling was completed predominantly with HQ drill bits (63.5mm-diameter core) though one drill hole (ARMR-003) was reduced in size and the final 143.05m finished with NQ (47.6mm-diameter core) when drilling became difficult.

Down hole survey readings were collected by Major on all complete or partial core holes (38 holes total). The survey equipment was a Reflex EZ-Shot gyro-based instrument which recorded magnetic and temperature data along with the hole azimuth and dip data. Upon the completion of the hole, survey readings were taken a few meters above the final drill hole depth and then at approximate 100m intervals up the hole. The azimuth readings were adjusted to true north using an 11° E magnetic declination.

Core recovery and RQD data were recorded for every core hole. A detailed compilation of these data has not been completed.

The RC holes were drilled using a tricone at the start of the hole and a percussion hammer for the majority of the drilling. The drilling was dry within the upper portions of all four RC holes although water was encountered in all four holes and these holes were completed by drilling wet. Significant groundwater was encountered at the base of the gravel (50m to 60m depth) in the two holes (ARGA-001 and ARGA-002) within the alluvium-covered area west of the historic mine. Groundwater was also encountered in the RC hole (ARPR-003) drilled at Pirinola Este, at a depth of 100m. Animas believes that groundwater occurs at a depth of about 100m below the surface throughout the property. This is borne out by the presence of water in the bottom of all the historic open-pits. Down hole survey readings were not collected for the RC drill holes.

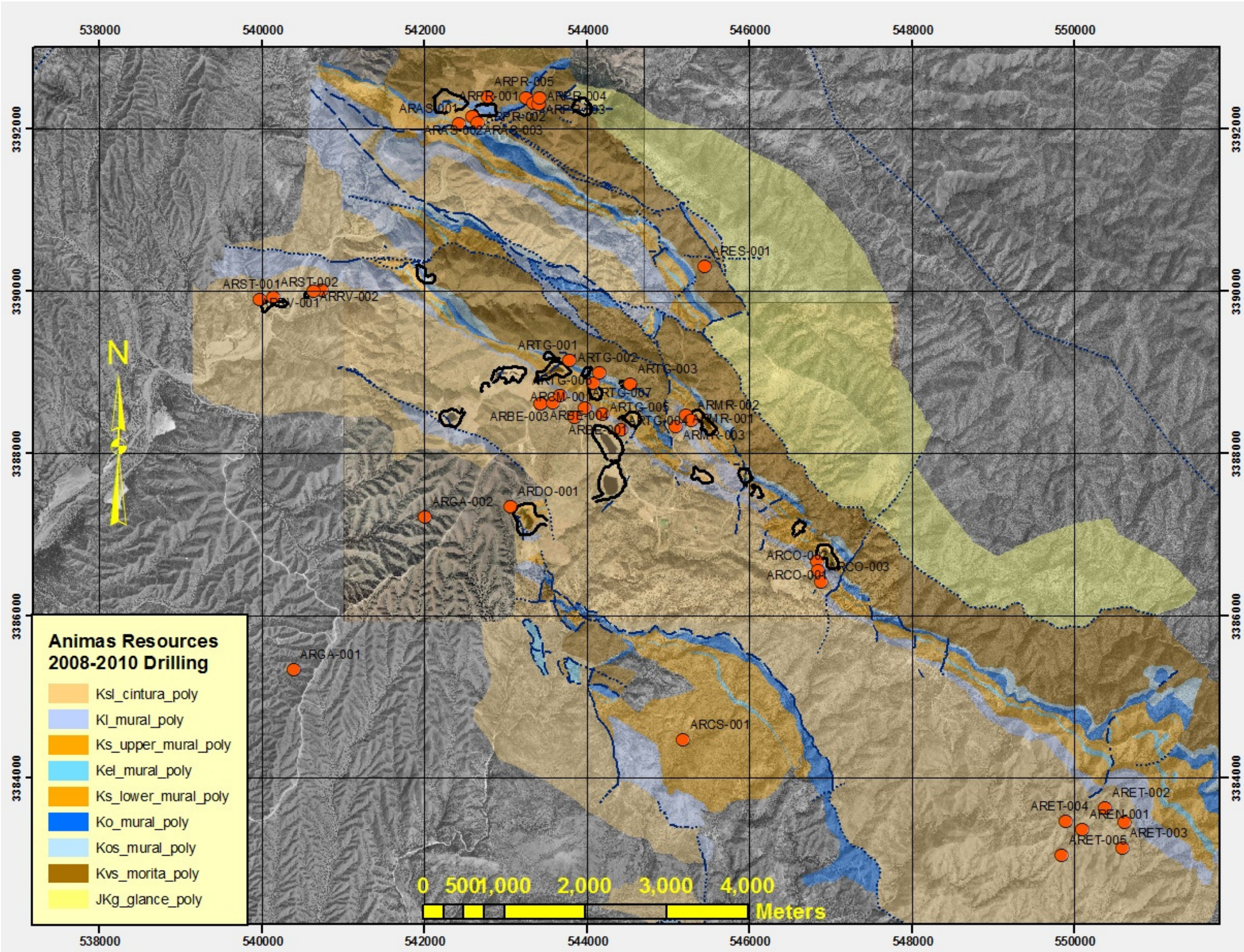


Figure 11.2 Animas Resources Ltd.- All Drilling (2008-2010)

Table 11.2 Animas Resources 2008-2010 Drilling Summary

Hole No.	Area	Type	AZ	Inclination	Depth (m)
ARET-001	Tigre Skarn	Core	na	-90.0	563.20
ARET-002	Tigre Skarn	Core	na	-90.0	518.15
ARET-003	Tigre Skarn	Core	38.00	-70.0	304.30
ARET-004	Tigre Skarn	Core	na	-90.0	671.07
ARET-005	Tigre Skarn	Core	na	-90.0	205.13
ARAS-001	Amelia Sur	Core	195	-60.0	332.45
ARAS-002	Amelia Sur	Core	203	-70.0	191.30
ARAS-003	Amelia Sur	Core	203	-80.0	180.00
ARBE-001	Berta	Core	240	-50.0	264.85
ARBE-002	Berta	Core	195	-50.0	143.15
ARBE-003	Berta	Core	195	-50.0	317.10
ARBE-004	Berta	Core	195	-50.0	408.60
ARCM-001	Camello	Core	na	-90.0	226.60
ARCO-001	Corral	Core	50	-60.0	259.30
ARCO-002	Corral	Core	60	-65.0	247.05
ARCO-003	Corral	Core	45	-65.0	276.70
ARDO-001	Dora	Core	na	-90.0	254.30
AREN-001	Enedina	RC/Core	na	-90.0	418.90
ARES-001	Escondida	Core	55	-60.0	368.00
ARGA-001	Gravas	RC	na	-90.0	150.00
ARGA-002	Gravas	RC	na	-90.0	237.00
ARMR-001	Mirador	Core	40	-60.0	262.05
ARMR-002	Mirador	Core	45	-70.0	280.55
ARMR-003	Mirador	Core	40	-75.0	486.00
ARPR-001	Pirinola Este	Core	190	-60.0	195.85
ARPR-002	Pirinola Este	Core	190	-60.0	55.10
ARPR-003	Pirinola Este	Core	190	-60.0	39.60
ARPR-003A	Pirinola Este	RC	190	-60.0	130.50
ARPR-004	Pirinola	Core	180	-60.0	297.45
ARPR-005	Pirinola	Core	180	-70.0	274.95
ARRV-001	Real Viejo	Core	180	-70.0	158.80
ARRV-002	Real Viejo	Core	180	-55.0	194.55
ARST-001	Sta. Teresa	Core	135	-60.0	243.30
ARST-002	Sta. Teresa	Core	135	-65.0	155.50
ARTG-001	Toro-Gregorio	Core	212	-70.0	509.50
ARTG-002	Toro-Gregorio	Core	212	-70.0	509.35
ARTG-003	Toro-Gregorio	Core	212	-60.0	201.30
ARTG-004	Toro-Gregorio	Core	32	-70.0	472.75
ARTG-005	Toro-Gregorio	Core	32	-70.0	519.40
ARTG-006	Toro-Gregorio	Core	32	-60.0	607.00
ARTG-007	Toro-Gregorio	Core	32	-60.0	477.95
ARCS-001	Cristina Sag	RC/Core	na	-90.0	317.40

11.9 Drill Hole Collar Coordinate Surveys

11.9.1 Historic Survey Information

Phelps Dodge established a local "Mine Grid" covering the project area at Santa Gertrudis. The claim monument for the "Santa Gertrudis" claim (PP - E4184) was chosen as the location for 50,000E and 100,000N on the Mine Grid. The Mine Grid utilized a NAD27 Zone 12N datum without any rotation with the conversion to Mine Grid as:

Mine Grid	to NAD27 Z12N
50,000E	542794.2647E
100,000N	3391646.6259N

Phelps Dodge used a system of control points normally located on hilltops and scattered around the district for use in drill-hole collar surveying and all other mine surveying matters. These control points were established by standard land surveying techniques by the engineering group within Phelps Dodge's Mexican operating subsidiary Compania Minera Santa Gertrudis. The survey equipment used by Phelps Dodge is not known.

Following the sale of the Santa Gertrudis assets of Phelps Dodge to Campbell Resources' Oro de Sotula Mexican subsidiary, Oro de Sotula personnel continued to use the Phelps Dodge "Mine Grid" for their exploration and production activities. It is assumed that Oro de Sotula used a combination of standard land surveying equipment and incorporated GPS technology as it became available.

There is no drill hole collar survey information available concerning the Sonora Gold, Sonora Copper, or Teck Cominco exploration work.

11.9.2 Animas Resources Surveying

Animas Resources made the decision to translate the various data sets into the WGS84 Zone 12N coordinate base. Animas helped establish a coordinate conversion factor for the historic "Mine Grid" coordinates to WGS84 coordinates. That conversion is:

[WGS84 X] = [Mine Grid X] + 492724.5241

[WGS84 Y] = [Mine Grid Y] + 3291839.7306

An updated coordinate conversion factor was developed by ORE in 2010 that is discussed in Section 17.1.1 of this report.

Animas utilized Ing. Francisco Javier López Olivas ("López"), a licensed surveyor certified by the Mexican government, during claim status due diligence and for the location of control points for the 2008 Cooper aerial photography work. López, who had previously worked for Phelps Dodge and Oro de Sotula, also re-located 18 of the historical drill-hole collars and assisted in the effort to re-consolidate the Santa Gertrudis database. Due to the significant surface disturbance from the past mining, only a few historic drill holes can be accurately located in the field. Lopez utilized a Trimble 4600 series Real Time Kinematic GPS acquisition system. Precision for this system is 1.5cm horizontal and 2.0cm vertical.

A 2009 GPS study undertaken on behalf of Animas by Ingenieria Topografica ("Topografica") based in Hermosillo, Sonora continued the effort to re-capture Phelps Dodge and Oro de Sotula drill-hole collar locations. Topografica re-located 15 historic drill hole collars and also acquired collar coordinates on the 27 drill holes drilled during 2008 by Animas. All surveying completed by Topografica used a Topcon Model Hiper / GB500, Real Time Kinematic GPS acquisition system. Precision for this system is 1.5cm horizontal and 2.0cm vertical.

12.0 SAMPLING METHOD AND APPROACH

All available information regarding sampling method and approach for all previous operators is included in the sections below. The authors cannot give any opinion on their sample quality or reliability. Geological information, including rock types is described where known. Mineralized zone geometry is not recorded in the available historical literature.

12.1 Phelps Dodge Sampling Method and Approach

There are few records available concerning Phelps Dodge's sampling method and approach for either diamond drilling or reverse circulation drilling. Wallis (2006) states that *"drill hole samples taken by Phelps Dodge were on one-metre intervals. The core was stored on site."*

In 1999 Phelps Dodge's core shack collapsed and a majority of their core was lost. Campbell attempted to salvage representative drill holes from each of the deposits developed by Phelps Dodge (Hamilton 2003). As of the date of this report, all core previously stored on site has been lost or rendered un-usable.

12.2 Campbell Resources Sampling Method and Approach

According to Hamilton (2003):

> *Core sampling by Campbell ranged in lengths from 10 centimetres to a maximum of two metres. The drill hole was sampled from top to bottom, including visually unmineralized sections. Generally the weathered and friable core was split with a manual splitter, although a diamond saw was occasionally employed if the drill core was sufficiently competent. Reverse circulation sampling by Campbell was done in 1.5 metre intervals. The chips were processed through a Jones splitter, wherein 50% of the sample was discarded after mixing and splitting. The remaining 50% of the mixed material was split into two equal parts, one of which was shipped to the laboratory, while the second split was retained as a witness sample. The individual samples so collected averaged between six and eight kilograms.*

According to Kern and Sibthorpe (2007):

> *Generally, deposits were drilled off* (by Campbell) *on 20-meter sections prior to mining. The majority of the core drilled by Campbell is stored on site at several core shacks.*

The majority of Campbell and Phelps Dodge core stored on site has been rendered useless.

12.3 Sonora Gold Sampling Method and Approach

There is no information available on Sonora Gold's sampling method or approach.

12.4 Teck Cominco Sampling Method and Approach

There is no information available on Teck Cominco's sampling method or approach.

12.5 Animas Sampling Method and Approach

Roger Steininger, Qualified Person for Animas sampling reports (Steininger, 2008) on the drill sampling methods at Santa Gertrudis for the 2008 drilling program:

> *The current* [2008] *drill program is collecting core that is 5.5 cm in diameter. Fairly typical core handing procedures are in place at the drill starting when the wireline core tube is removed from the drill steel and the core is slid into a metal catchment tray. The driller is responsible for marking footage blocks that correspond with the drill hole footage of the lower end of each core run. The core is then moved from the metal tray into plastic core boxes. A wooden footage block is place in the core box at the end of the interval. Core boxes are numbered in sequence, the lid secured, and the boxes are transported to the core cutting facility at camp.*

In August 2008, Steininger noted that during transfer of the core from the metal catchment tray to the plastic core boxes there can be small chips of core and fine material from the drilling that remain in the tray and thus are lost to the sample. A core handling procedure was implemented at that time to assure that the complete sample, including all fines, was transferred to the core box with all pieces going to their respective places in the core sequence.

13.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

The information available concerning sample preparation, analysis and security for Phelps Dodge, Campbell, Sonora Gold and Teck are summarized in the following sections. Information regarding sample integrity and validity is not available. The authors cannot express an opinion regarding the adequacy of the sample preparation, security or analytical procedures for these operators.

13.1 Phelps Dodge Sample Preparation, Analysis and Security

According to Phelps Dodge (1988), all core samples taken through 1988 were analyzed at Skyline Laboratories in Tucson, Arizona. First-pass assays were by atomic absorption methods using hot cyanide digestion. In mineralized areas these were followed by duplicate one assay-ton fire assays for gold and silver. Check analyses were performed on duplicate pulps from every tenth sample and check fire assays were run on every fifth sample by another laboratory (LeDoux West). Data from check analyses indicated that the reproducibility and accuracy were good.

According to Wallis (2006):

> *Phelps Dodge samples were analyzed at Skyline Laboratories in Tucson, Arizona, and American Assay in Reno, Nevada. Gold in excess of 0.5 g/t was reassayed using a 2 t gravimetric assay [sic]. Standards were submitted every 20 samples, and batches were rerun if the checks deviated from the mean.*

According to Hamilton (2003):

> *The majority of the diamond drill core drilled by Phelps Dodge was lost when the Agua Blanca core shack collapsed in 1999, although attempts were made by Campbell to salvage one or more representative drill holes from each of the deposits developed by Phelps Dodge. All of the chip trays of reverse circulation holes drilled by Campbell and most of the holes drilled by Phelps Dodge are stored on site in the core shacks* (Hamilton, 2003).

13.2 Campbell Resources Sample Preparation, Analysis and Security

According to Hamilton (2003):

> *Core holes drill*[ed] *by Campbell were logged and split at the core shack adjoining the exploration office at the Santa Gertrudis mine site. As described above, reverse circulation samples were split at the drill site, with the primary sample transported to the exploration office on a daily basis for shipment to the laboratory. The witness sample was transported to a storage area. Upon receipt of the assay results, a decision was made to either retain those witness samples corresponding to mineralized intersections, or to discard the samples. Beyond sample splitting, no sample preparation was performed on site.*
>
> *During Campbell's exploration programme from 1994 to 2000, three laboratories were used for assaying of drill samples, as well as rock and soil samples. These were SGS XRAL Laboratories, Barringer Laboratories Inc. (now Inspectorate America Corporation) and Bondar Clegg Laboratories (then part of Intertek Testing Services). SGS XRAL Laboratories carried out gold fire assays as well as cold vapour atomic adsorption mercury analyses in Hermosillo, Mexico and any other multi-element analyses in Toronto, Ontario. Barringer Laboratories only had a preparation lab in Hermosillo, and all analyses were performed in Sparks, Nevada. Bondar Clegg carried out*

gold assaying in Hermosillo, and all multi-element analyses were undertaken in North Vancouver, British Columbia.

All gold assays were performed on a 50 gram sub-sample by standard fire assay techniques with an atomic absorption finish. Any over-limit sample (i.e.; greater than 10 grams of Au) was re-assayed by fire assay with a gravimetric finish. Multi-element analyses were generally performed on all reconnaissance-scale rock samples, and both the initial trench samples and drill holes into a new target. These comprised the standard (generally 30 to 33 elements) packages available from the laboratories, with mercury analyzed by cold vapour atomic absorption techniques. Blanks, standards and duplicates were routinely run by the three laboratories and these values were reported to Campbell; however, no control samples were submitted by Campbell. All intersections of significance were checked by having the sample rejects of the mineralized interval and several surrounding samples analyzed at a different commercial laboratory. Occasionally, the reverse circulation witness sample was assayed by the laboratory at the Santa Gertrudis mine site. This not only provided a check between the commercial and the company laboratories, but also allowed comparison between the primary and the witness sample. Exploration samples were only rarely assayed at the mine site laboratory due to an inability of the laboratory to handle the volume of samples generated, as well as a lack of multi-element analysis capability.

Campbell's soil samples were largely analyzed by Barringer Laboratories, although Bondar Clegg performed some of the work. In addition to the laboratories' internal quality control measures, a duplicate sample was submitted every twentieth sample. These samples were carefully monitored for quality control problems.

The majority of the diamond drill core drilled by Campbell is stored on site in several core shacks. All of the chip trays of reverse circulation holes drilled by Campbell and most of the holes drilled by Phelps Dodge are stored on site in the core shacks. Due to the lack of significant results from the drill holes, coupled with limited storage space, none of the witness samples were retained.

13.3 Sonora Gold Sample Preparation, Analysis and Security

Reporting for Sonora Gold, Kern and Sibthorpe (2005, 2007) state that:

During the week of February 7th 2005, Richard Kern, the qualified person revisited quality control methods in place during the current exploration program and concluded that procedures put in place for rock chip, soil geochemistry and exploration drilling conform to 43-101 standards.

Soil geochemistry surveys followed standard procedures. Grid baselines are established using a GPS with 3m accuracy. The high relief of the area allowed location of intermediate points using topography. All sample points were labeled with aluminum tags on wooden stakes. Holes were dug to the C horizon to eliminate as much organic material as possible and reduce the surface weathering effect. A minimum of 1,000 grams of soil was collected in olefin bags and closed securely. Sample numbers were written on the bags, a sample tag placed inside and a brief description given of the sample. The samples were shipped to ALS Chemex in Hermosillo in rice sacks. Sample preparation involved crushing and pulverizing the entire sample to -10 mesh and further pulverizing 100 grams to -80 mesh. A 30 gram split was digested with aqua regia and analyzed with ICP for Au, Ag, Cu, and associated elements. The geochem lab includes standards, blanks and repeat samples in its procedure.

Numerous dozer and excavator trenches have been semi-channel sampled on 3m intervals using tied olefin bags. Sampling was done only where outcrop is exposed. Approximately 2 kg of rock was *taken per sample horizontally along the trench using care to take equal amounts of sample throughout. Wooden stakes with numbered aluminum tags were placed in the ground above the sample sites. The sample number was written on the outside of the bag and a sample tag placed inside. From this point on the samples were treated the same as soil samples.*

Core samples, with footage blocks at least every 3m were brought from the drill rig daily and stored in secure storage. Under the supervision of a project geologist the core was logged and split using 1.5m intervals. Splitting was done using a hand operated core splitter. One-half of the core was sampled on 1.5m intervals or less where relevant and sent to the lab for preparation and analysis as for soils and rocks. The remaining one-half core remains in secure storage. The core being split was still averaging +90 percent recovery and yielded reliable geochemical results. The sampling and analysis procedures in place at Santa Gertrudis meet current industry standards and are time and cost effective.

From a Sonora Gold press release dated 2005:

"Sonora Gold Corp has in place a rigorous QA/QC program consistent with National Instrument 43-101 and using best industry practice. ALS Chemex Labs of Hermosillo, Mexico and Vancouver, BC are responsible for all the Sonora Gold Corp assaying."

13.4 Teck Cominco Sample Preparation, Analysis and Security

There is no information available regarding Teck Cominco's sample preparation, analysis or security.

13.5 Animas Resources Sample Preparation, Analysis and Security

13.5.1 Sample Preparation and Security

Dr. Roger C. Steininger, Qualified Person for Animas sampling reviewed (Steininger, 2008) sample collection procedures at the drill and core cutting facilities at Santa Gertrudis, and the sample preparation laboratories in Hermosillo, Mexico and Skyline in Tucson. The following core splitting and sample shipping procedures are recorded:

Core boxes are delivered to the logging facility where the geologists are responsible for estimating recovery and laying out sample intervals at 1.5 meter increments. If there are significant lithologic and/or alteration changes shorter sample intervals are designated, but not less than 0.5m. Sample intervals are marked on the sides of the core boxes as a permanent record.

Core is moved to the sawing area by the cutting crew. The entire core is sawed in half with one half maintained in the core box for logging and future reference, and the second half bagged as an analytical sample. In areas of strongly broken rock half of the fractured rock is subdivided without sawing using a metal sampling device. Each analytical sample is given a unique number from pre-numbered sample tag books. That number is marked on the outside of the plastic sample bag. The sample tag is composed of two identically numbered parts, one remains in the book for future reference and has the drill hole number and footage recorded. The second half with only the sample number is placed in the numbered plastic bag with the sample. Each bag is sealed by the sample handler and not opened again until it reaches the sample preparation facility. Groups of sample bags are placed in rice bags that are also sealed and labeled to identify the contained individual samples. The rice bags are not opened until they reach the sample preparation facility.

The retained portion of the core is returned to the original core box that has been labeled with the hole number and representative core footage, both on the bottom and top of the core box. Labeling of the core boxes is the geologists' responsibility. After logging all core is stored on racks for future reference.

John Wilson is responsible for inserting standards into the sample stream as outlined below. A bag of standards is shipped with the samples and the standards are inserted at designated points in the pulp sequence after drill core preparation.

All of the samples that were transported to Hermosillo were hauled by Animas personnel. Samples shipped to Skyline Labs are hauled to the U.S. border by Animas personnel and transferred to the Skyline agent who imports them and arranges transportation to Skyline in Tucson.

Steininger recommended at the time of his report that more care be taken to divide all fines and small chips in any given core sample to assure that the split sample is representative of the whole.

Steininger further noted that, "Initially sawed core was shipped to Sonora Sample Preparation Labs in Hermosillo. After a site visit by John Wilson, Greg McKelvey, and Roger Steininger it was determined that the facility was unacceptable and sample preparation was moved to Skyline Labs in Tucson." Drill holes prepared in the Hermosillo facility are ARCO-0001, 002, and 003, ARMA-001 and 002, ARCM-001, ARBE-001 and ARAS-001. "All subsequent holes were shipped to Skyline."

The sample preparation procedures at Sonora Sample Preparation lab in Hermosillo, as noted by Steininger, are as follows:

Samples are received and placed on pallets and stored in the open in a closed yard until the preparation process is started. Several potential problems were immediately obvious; we were allowed to roam freely through the facility, there was no apparent security to insure no sample tampering, and during movement of the samples on pallets it was observed that some bags were ripped open and material spilled. Trays used to hold samples for drying were not fully cleaned after use, representing potential cross contamination.

The sample preparation procedure started with organizing samples in sequence and emptying each sample into a sample tray, which as noted above was not always thoroughly cleaned. During this stage of the processing it was observed that not all of the material was removed from the sample bag, particularly if the sample was wet. The sample tag in each bag is placed in the respective tray with the sample. Trays were placed on racks and placed in drying ovens at 80^0C. If the samples were not wet drying time was about two hours; if the samples were wet the minimum drying time was four hours, or until thoroughly dried. The drying ovens are immediately next to the crusher and pulverizing area with only a thin porous wall as separation. During our visit dust from the crushing and pulverizing area was abundant in the drying area and represented a potential source of contamination. The dust collection system in the lab seemed to be inadequate for the task at hand. Once dried the sample and the Animas sample tag were placed in new plastic bags, with the Animas sample number written on them by the lab personnel.

Each sample was crushed to 80% passing 10 mesh, and about 200 grams were split off and placed in a bag with the Animas number for pulverizing. The crusher and splitter are reportedly cleaned with compressed air after each sample. While we observed the splitter being cleaned after each use, the crusher was not always cleaned during our visit. The 200 gram sample was then placed in a ring and puck pulverizer and reduced to 95% passing 150 mesh and split into two analytical pulps. The pulps were placed into two envelopes marked with the Animas numbers. The lab *reported that all crushing and pulverizing sizes were checked every tenth sample. The analytical pulps were shipped by Sonora Labs directly to IPL without Animas regaining control.*

The sample preparation procedure at Skyline Labs in Tucson is as follows:

All of the core half samples are delivered by Animas personnel to Skyline's customs broker at Nogales, Mexico who arranges transport across the border and to Skyline in Tucson. At the lab it is decided if the samples need drying or can go directly to the preparation room. Drying is at about 105^{o}C for sufficient time to produce a crushable product.

Jaw crushing produces a product that is 70-80% passing 10 mesh. The sample size is checked each morning, or at the start of every new job. Computer-generated sample labels accompany each sample in a thoroughly cleaned tray throughout the process. The entire crushed sample is passed through a Jones splitter three times for blending and then about 270 grams are split out to be pulverized. The 270 gram split is placed in a ring-in-puck pulverizer and reduced to 95% -150 mesh and placed in an analytical envelope with the computer generated sample label adhered. The analytical pulps are shipped to IPL for analyses.

13.5.2 Sample Analysis

Split core samples were prepared and analyzed at Skyline Assayers & Laboratories in Tucson, Arizona and at Assayers Canada in Vancouver, British Columbia. Prepared standards and duplicates were inserted at the project site to monitor the quality control of the assay data. Analyses for gold was by one assay ton fire assay with an AA finish (Skyline's FA-1 procedure), and an additional one assay ton gravimetric fire assay for samples containing more that 3g Au/t in the original assay (Skyline's FA-3 procedure). Multi-element analyses were by *aqua regia* leach analyzed by ICP/OES for 34 elements (Skyline's TE-2 procedure). The quality assurance results are reviewed by Dr. Roger C. Steininger, an independent Qualified Person as defined by National Instrument 43-101.

14.0 DATA VERIFICATION

14.1 Phelps Dodge Data Verification

There is no information available concerning Phelps Dodge's data verification.

14.2 Campbell Resources Data Verification

Hamilton (2003) reports the following concerning Campbell's data verification:

> *Blanks, standards and duplicates were routinely run by the three laboratories and these values were reported to Campbell; however, no control samples were submitted by Campbell. All intersections of significance were checked by having the sample rejects of the mineralized interval and several surrounding samples analyzed at a different commercial laboratory. Occasionally, the reverse circulation witness sample was assayed by the laboratory at the Santa Gertrudis mine site. This not only provided a check between the commercial and the company laboratories, but also allowed comparison between the primary and the witness sample.*
>
> *Duplicate samples were submitted with every twentieth soil sample, and these comparative results were closely monitored.*

14.3 Sonora Gold Data Verification

There is little information available concerning Sonora Gold's data verification procedures. Kern and Sibthorpe (2005, 2007) discuss sampling methods, sample preparation and analysis (see Section 12.0 and 13.0) and state that, regarding soil sampling…*the geochem lab includes standards, blanks and repeat samples in its procedure.* They do not include a discussion of Quality Assurance/Quality Control ("QA/QC") regarding drill samples.

Sonora Gold did not directly sample material previously analyzed by Campbell (Kern and Sibthorpe (2005, 2007).

14.4 Sonora Copper Data Verification

According to Wallis (2006):

> *During SUNDANCE's* [consultant to Chuqui, subsidiary of Sonora Copper] *site visit, four samples were taken to verify the presence of mineralization. The samples were brought back to Vancouver by the author and submitted to Assayers Canada for analysis using standard fire assay techniques for gold and silver and wet chemical methods for the As. Table 14.1 gives the results which confirm the general tenor of the mineralization in the Project area.*

Table 14.1 Independent Sampling Results

Deal Capital Ltd. – López-Limón Concessions				
Location	*Sample #*	*Au (g/t)*	*Ag (g/t)*	*As (%)*
Dora pit, random chip, black shale	*3671*	*0.01*	*0.1*	*<0.01*
Dora pit, random chip ox shear	*3672*	*0.99*	*1.5*	*0.55*
Cristina, trench grab	*3673*	*1.19*	*33.7*	*<0.01*
Cristina, 1.5 m channel	*3674*	*1.21*	*34.8*	*<0.01*

According to Wallis (2007):

In 2005 Chuqui collected five grab samples and had them assayed at NA Degerstrom Inc. in Spokane WA as shown in Table 14.2. The El Corral samples are from a dump on the adjoining Santa Gertrudis property. SUNDANCE did not supervise this sampling and cannot confirm the location of the samples and they may not be representative of the mineralization on the property.

Table 14.2 Chuqui Sampling Results

Deal Capital Ltd. – López-Limón Concessions				
Location	*Sample #*	*Au (ppm)*	*Ag (ppm)*	*As (ppm)*
Dora black shale	*1*	*0.059*	*0.97*	*33*
El Corral black shale, bx	*2*	*4.187*	*192*	*184*
El Corral black shale stockwork	*3*	*0.44*	*2.48*	*32*
El Corral sandstone	*4*	*4.650*	*5.52*	*492*
El Corral west, sandstone	*5*	*6.047*	*3.77*	*405*

14.5 Teck Cominco Data Verification

There is no data verification information available.

14.6 Animas Data Verification

14.6.1 Animas Database Construction and Verification

In preparation for this technical report, and to also serve as a foundation for further exploration work, Animas compiled various historic data and construct a working project database. Ristorcelli (2009) started with a database provided by Animas that was composited from approximately 58,700 files restored from various digital archives. Of these files, 892 summary files were used to create the initial database. There were numerous errors in the individual source files, such as mislabeled column headings (oz Au/t instead of g Au/t), which caused problems in the final compilation. Data in the individual source files was also entered differently, with some of the sources using a negative value for analyses below the detection limits, others using a zero value, and still others using a positive value of half the detection limit. The original composited assay table had over 12 million records, many of which were duplicates. After removing duplicates, the composited database now contains over 1.7 million distinct assay records. This database is currently being used as a data source for information and is referred to as the “historic database”.

The certificate database is constructed from two sources: original lab certificates obtained electronically and hand-verified data from scanned images of the original certificates. The database is highly normalized to insure data integrity. The general structure of the database centers around two main tables, the collar table and the transmittal table. The collar table stores information about individual drill hole collars (or trenches), whereas the transmittal table stores the high level information about laboratory submittals. This structure allows for great flexibility in storing the data, enabling each drill-hole assay to be tracked back to the originating lab transmittal, while maintaining a high-degree of relational data integrity. The schema can be thought of as based on two distinct data centers, a “collar schema” and a “certificate schema”, which are connected through a single relational join.

The collar table has several related tables. The CollarSurvey table stores down-hole survey information for the drill holes. The CollarCoords table stores coordinates from different surveys in differing coordinate systems. The SampleFootage table details the down-hole samples taken and their disposition. On the Transmittal table side of the schema, the TransmittalAnalysis table stores information about the analyses for each analytical certificate (transmittal). The TransmittalSample table stores pertinent information about each sample sent to the lab, which includes a reference to the SampleFootage primary key, tying the “certificate side” of the database to the “drill hole” side of the database schema. The Assays table stores the individual analytical results and details of each sample received by the lab.

On the “certificate schema” side, the Transmittal table is storing the header information for over 3700 individual assay certificates. The TransmittalAnalysis table has descriptions of about 30,000 analyses. The TransmittalSample table has over 130,000 individual samples stored in it. The Assay table currently stores the original lab value for well over a million individual assays.

To create a working database to be used by Animas for exploration planning and by ORE in the current resource estimate, data missing from the certificate database is pulled in from the historic database using a set of rules created largely from experience in working with these historic data. As more and more data has been entered into the certificate database, the quality of the working database, created from both the certificate and historic databases, has increased dramatically. Currently, about 70% of the data in the working database comes from the certificate database. Data is continually being incorporated into the certificate database, prioritized by project area as needed, so this percentage will continue to increase with time.

The current Santa Gertrudis working database, as constructed by Animas and MDA Ristorcelli (2009), consists of 2,579 collar records, with a total meterage of 269,638 m. The database includes holes drilled between April of 1984 and October of 2008 and classified into the following hole types: air track, core, RC/core, RC, percussion, and unknown. Also included are sample data from 23 surface trenches.

In compiling the historic database, each drill hole was categorized by project area based on information provided in the original files. The purpose was to allow for priority to be given to complete and verify data for those project areas which will be the focus of further exploration or resource estimate work. The current historic database contains over 100 unique project areas; many have less than five holes while the largest single total (159 holes) is assigned to the Becerros area.

14.6.2 Animas Quality Assurance /Quality Control

As part of the 2008, 2009, and 2010 Santa Gertrudis drilling program, a limited Quality Assurance/Quality Control (“QA/QC”) program was implemented to insure that reliable analytical results were obtained. The QA/QC work consisted of inserting standards into the sample stream, in-lab pulp duplicate analyses, and quarter-core replicate samples from three Animas core holes. Dr. Roger C. Steininger was responsible for the Animas QA/QC program.

A set of four different certified pulp standards was purchased from Minerals Exploration & Environmental Geochemistry of Reno, Nevada (Table 14.3). Since the drill samples were in the form of sawed half of core and the standards consisted of pulverized material in individual sample envelopes it was impossible to conceal the standards. The procedure was to supply a bag of standards and instructions on where to insert each specific standard to the analytical laboratory with each batch of core samples. Each standard was labeled with the same number as the proceeding sample where it was to be inserted and an "A" was added to the standard sample number. While this was not the most advantageous approach to inserting standards, once the samples entered the lab they were assigned unique control sample numbers and the standards become blind to the assayer. One standard was inserted after each 15th sample at the lab and analyzed with the drill samples.

Table 14.3 Animas Resources QA/QC Standards

Standard Number	Gold Grade (g Au/t)
Standard 1	0.45
Standard 2	1.20
Standard 3	3.80
Standard 4	6.00

In addition to the standards, the laboratories routinely analyzed blind duplicates samples about every 10th sample. Samples to assay in duplicate were selected by the lab and reported on the assay certificates.

As analytical results were received the quality controls were reviewed before analyses were released for distribution. The protocol established at the start of drilling was that if any control data failed to meet a minimum standard, the lab was requested to re-analyze the batch in question. A total of 229 standard and 231 pulp duplicate analyses were completed. The pulp duplicate samples showed excellent reproducibility with only one duplicate above a gold grade of 0.25g Au/t having more than a 10% difference with the original pulp.

Six assays of standards fell outside of the two standard deviation error range but since these few standards were within intervals that were unmineralized it was considered insignificant and no request was made for re-analyses.

As a further check on quality, nineteen mineralized intervals within holes ARCO-001, 002, and 003 were quartered and submitted for assay at the end of the drilling program. The original assays on half core were conducted by IPL and the assays for the quartered core were performed by Assayers Canada; both are Vancouver, B.C. labs. A comparison of the results indicate that for the nine sample pairs above the 200 ppb Au level, the Assayers Canada quartered core samples on average have a 125% high bias as compared to the original IPL values. The variability ranged from a -59% to a +780% difference. Eliminating the one highly variable sample (+780%) reduces the bias to 41%. As a check on these results, the two sets of pulps were sent to American Assay Lab in Reno, Nevada for re-assay. The pulp duplicate analyses by American Assay confirmed the high bias in the quarter core versus the original half core samples. The American Assay pulp duplicates also showed a consistent 10% to 15% low bias as compared to both the IPL and Assayers Canada samples. The results from this limited quarter-core study suggest that there is potentially significant variability in the gold mineralization and/or there was a possible bias or error introduced in the sampling of the core. It is recommended that additional core duplicate samples be analyzed to provide greater understanding towards the potential natural variability of the gold mineralization. This additional work should include coarse reject and pulp duplicate checks.

15.0 ADJACENT PROPERTIES

Premium Exploration, Inc held claims directly south of and adjacent to the property controlled by Animas. In 2004 they did preliminary reconnaissance mapping and sampling on the claims, and identified mineralization in existing shallow pits and workings as "silicified fracture fills and quartz veins in shear zones and along lithic contacts as well as disseminated zones in stockwork mineralization." Their 122 surface samples averaged 1,606 ppb gold, with a high assay of 73,700 ppb gold (Struck, 2005). Premium does not hold the claims at this time.

According to Animas, no additional current exploration programs are known adjacent to the Animas Resources-controlled concessions.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The Santa Teresa mining district, the subject of this Technical Report, has a long history of precious metals mining. Small-scale lode and placer gold mining has occurred sporadically for many years. Limited amounts of copper-silver ore were mined in both the eastern and western parts of the district and minor lode gold was mined from the original Santa Gertrudis and El Espíritu areas. For a time limited amounts of ore were mined from the Amelia, Maribel, and Carmen deposits, and shipped to the Phelps Dodge smelter at Douglas, AZ as precious metal-bearing flux. All of these activities took place over varying time periods and are poorly documented, especially with respect to the source deposit. Small-scale heap leach and carbon in column ("CIC") operations were later developed on-site near the Phelps Dodge exploration camp, and a primitive metal recovery plant to strip the precious metals from the carbon was installed in the town of Magdelena, Sonora. The stripped solution was treated by Merrill Crowe precipitation. It is not clear where the precipitates were sold Hanks, J. T., personal knowledge based on numerous site-visits from1987 through 1989).

Beginning in 1984 Minera Zapata, a forty-nine percent owned subsidiary of Phelps Dodge, conducted systematic exploration in the area. This led eventually to the development by Phelps Dodge of the Santa Gertrudis project, initially a 2,000 tpd heap leach with metal recovery by CIC adsorption, stripping, and Merrill Crowe (MC) zinc precipitation of precious metals from the strip liquor. Precipitates were shipped to the Phelps Dodge refinery at El Paso. TX. In 1992 Phelps Dodge (Sections 16.2 and 16.3) sold the property to Campbell Red Lake Resources.

The information and data provided in Section 16.1, 16.2 and 16.6 was written and interpreted by independent qualified persons Jerry T. Hanks, P. E. (Sections 16.1 and 16.2) and James Bradbury, P. E. (Section 16.6) (Ristorcelli, 2009). Mr. Hanks was Phelps Dodge's staff metallurgist from 1986 to 1991. The primary reference for the Phelps Dodge historical test work and original reports, as described in Sections 16.1 through 16.2, is *"Phelps Dodge Exploration Company-- Santa Gertrudis Project Feasibility Study, KD Engineering Company, Tucson, October 1988, Vol I – IV.*" The primary references for the Sonora Copper test work, as described in Section 16.6, are the N.A. Degerstrom Lab Reports (Bradbury, 2006a-d).

The metallurgical testing discussed in this section was completed prior to, and during Phelps Dodge's production at the Santa Gertrudis mine. Additional testing was completed by Sonora Copper in 2005 and 2006.

16.1 Phelps Dodge Metallurgical Testing

The Phelps Dodge metallurgical testing included agitation and column leach studies, with and without agglomeration, on primarily oxide ore, flotation and roasting tests on carbonaceous sulfide ore, and dye penetration tests (Phelps Dodge, vol III, 1988). A large amount of the test work was conducted on the Agua Blanca and Los Becerros deposits. More limited work was performed on samples from the El Corral and Hilario deposits, and these were also included in the feasibility study. The flotation and roasting tests were performed on samples from the Amelia and Maribel deposits.

As stated in the metallurgy summary of the 1988 feasibility study (Phelps Dodge, vol I, 1988), "*Testwork has shown that the "ore" is very amenable to recovery of precious metals by heap leaching at a size of 38mm or finer. Average annual recoveries varying from 64 to 91 percent are forecast with an overall average of 82 percent*." The summary also indicates that deep samples from El Corral, Gregorio and El Toro "*gave poor recoveries in standard bottle roll tests. Further tests confirmed that the poor recoveries were due to "preg robbing, i.e., adsorption of leached gold from solution by carbonaceous material in the ore. This deep ore has been excluded from mineable reserves.*"

Two metallurgical studies report on the results of treating the carbonaceous sulfide material (Phelps Dodge, vol III, 1988). Both studies were done in 1985 by Mountain States Mineral Enterprises (Tucson, AZ) using material from the Amelia mine. The first testwork consisted of bulk rougher flotation and fine grind cyanide agitation leach. Results indicated gold extractions of 8% and 10% while similar testing of oxide material gave extractions of 89% to 90%. The initial flotation recovered over 70% of the gold for both the sulfide and oxide samples. The second testwork on two high-grade samples (12.12g Au/t and 23.83g Au/t) consisted of bulk flotation followed by roasting the flotation concentrate and cyanide leaching the roasted concentrate and the flotation tail. The tests indicated a 60% gold extraction though the report stated that a 70% overall extraction is anticipated under optimal roasting conditions.

In January 1993, a report by John O. Marsden was issued entitled: "*Summary of Preliminary Metallurgical Testwork Results for the Dora and Cristina Deposits of Minera Zapata, S.R.L. de C.V.* This report contains thirteen appendices detailing the test work, which covered cyanide leaching, principally bottle roll tests, mineralogy and preg-robbing characterization. Both deposits produce fairly good recovery on the oxide samples. However some of the material tested from the Dora deposit contained appreciable organic material which was found to be highly preg-robbing. A more detailed discussion of the Cristina test work and results is in Section 16.5.

16.2 Phelps Dodge Operating Results

Mining and processing of the Santa Gertrudis ores was limited to the oxide resources. The processing was conventional:

- Crushing
- Heap leaching
- Carbon adsorption and stripping
- Zinc precipitation

Production at Santa Gertrudis began in 1991. Because the Santa Gertrudis property contained numerous scattered deposits, the carbon columns were located near the initial heap, and were designed to be relocated as mining progressed to more remote deposits. Kern and Sibthorpe (2005) note that the material placed on the leach pads was crushed to four inches. The carbon, when loaded, was transported to the plant for stripping. The original concept was to use electrowinning to recover the precious metals from the strip solution, then smelting the deposited sludge to produce doré, but the design was changed to integrate Santa Gertrudis production with the Phelps Dodge refinery in El Paso, TX.

Only the Agua Blanca, Becerros Sur, Becerros Norte, and some ore from El Corral were mined during the time Phelps Dodge operated the property. El Corral could only be mined during daylight hours so the shovel or loader operator could avoid the dark, carbonaceous material (private communication with Mr. Gary Loving, formerly resident manager of the Santa Gertrudis operation).

During the first year of operation, the area received three times the normal annual precipitation. Under these conditions mining was difficult, and the pregnant solutions were diluted by rainfall and runoff. Additional columns were installed to handle the high flow rates. With the exception of the carbon adsorption circuit, the processing plant was capable of handling the increased flow. Additional mining equipment was added and eventually the mining rate reached 2,750tpd (from the original 2,000tpd design rate). Because no additional pad area was developed, the leach cycle was accelerated to match the mining rate (private communication with Messrs. John Marsden, Phelps Dodge Consulting Metallurgist, and Ted Mackey, Santa Gertrudis Plant Manager).

Despite the problems, the production was satisfactory with gold recovery of 78 to 80% based on metal production and head assays. After the operation was suspended, pending sale to Campbell, the heaps were drilled and assayed. The gold recovery calculated from metal production and residue assays was slightly over 80% (private communication with Mr. Ted Mackey, Santa Gertrudis Plant Manager, personal knowledge, J. T. Hanks).

16.3 Phelps Dodge Cristina Deposit Metallurgical Testing

The Cristina metallurgical testing is limited to work completed by Phelps Dodge in 1991 and 1992 and which is summarized in a report by Marsden (1993). The Phelps Dodge Cristina testwork consisted of 57 bottle-roll cyanide leach tests and a single bulk column leach test; the details of the individual test programs are included as Appendices in the Marsden (1993) report. The Cristina testing was completed in concert with the testing of material from the Dora deposit and both deposits were reported on, and summarized, in the Marsden (1993) report. The authors are not aware of any other metallurgical testing on material from the Cristina deposit. The following information is taken from the Marsden (1993) report.

16.3.1 Cristina Bottle-Roll Cyanide Leach Tests

The bottle-roll analyses were completed in two test programs. The first in August 1991 consisted of 16 analyses while the second, using 41 samples, was completed in March 1992. Both test programs used reverse circulation drill cutting samples and each sample tested was a 1m to 3m composite sample of the individual 1m drill intervals. All of the bottle-roll tests were run at Phelps Dodge's Tucson laboratory using a procedure of 1) crushing the whole sample to 100% minus 10 mesh (2mm) and 2) leaching 250g of the material in a 1.0 g/l NaCN solution at pH 11.0 for 48 hours. The average head grade of all samples was 1.27g Au/t though this value is skewed high by the inclusion of four samples which assayed greater than 5g Au/t.

Average gold recovery from all of the bottle-roll tests was 73%, with lime and cyanide consumptions of 1.5 kg/t and 0.05 kg/t, respectively. Four of the tests were repeated using a 96hr monitored procedure; two of these tests indicated that the gold is fast leaching while the two others tests showed considerable gold still dissolving at the end of the test. Silver recovery was highly variable but averaged 20%.

Two of the bottle-roll tests returned gold recovery values of less than 50%. One had a low head grade (0.20g Au/t) and the recovery value (36%) was attributed to sample variance. The second, with a recovery of 48% was strongly mineralized with a head grade of 9.59g Au/t. The latter high-grade sample was re-tested using the 96hr procedure which showed very little improvement in gold recovery over the 48hr result. Hot cyanide assays were done on the same head material, both as received, and after roasting at 600^{o}C. The similar results for hot cyanide assays indicate that the low gold recovery was probably due to silica locking and/or coarse gold and not from sulfide encapsulation, or preg-robbing from carbonaceous material.

16.3.2 Cristina Bulk Column Leach Test

Two bulk samples were taken from two surface trenches excavated across an outcrop at the top of the deposit. The samples were sent to McClelland Laboratories, Inc., Reno, Nevada where they were composited into one 2,300kg sample and leached in a 15 inch diameter by 20ft high column. The size of the material as removed from the excavation was approximately 80% minus 2.5cm. No agglomeration was required although 6.5kg/t lime were added prior to loading the column. The material was leached with a 1.0 g/l NaCN solution at pH10.5-11.0. Solution was applied at a rate of 0.005 gpm/ft^2. The head grade of the material was 0.82g Au/t.

Overall gold recovery was 82% after 84 days of leaching and water washing. This compares with a recovery of 74% by bottle roll leaching of a split of the same sample crushed to 80% minus 1.25cm. Cyanide consumption was moderate at 0.9 kg/t. The gold was distributed evenly throughout the tailings.

16.3.3 Cristina Metallurgical Testwork Summary/Conclusions

The following is a summary statement concerning the metallurgical testing from Marsden (1993):

"*Because of the low grade of the deposit (0.75g Au/t), leaching at run-of-mine size is likely to be the most economically attractive treatment scheme. Based on the limited amount of testwork, the Cristina ore appears to be amenable to cyanide heap leaching, with recoveries in the range of 65-70% at run-of-mine size projected from the testwork. The leaching rate appears slower than that of Dora material, based on the results of a single column leach test and the monitored (96 hr) bottle roll leach tests. However, no dye penetration tests were run on Cristina ore and in the absence of additional supporting data this is inconclusive. It would be wise to allow for extended leach times and gold production schedule when planning the development of Cristina.*

Cyanide consumption for Cristina is projected to be moderate at 0.5 kg/t. Initial indications are that lime consumption will be higher than Dora. Testing of the bulk surface sample indicated a high lime consumption of 6.5 kg/t, but this conflicted with the average bottle roll leach test lime consumption of 1.5 kg/t. Additional tests are required to confirm this since it represents a difference in operating costs of about $0.30/tonne.

Cristina does not contain any significant amount of carbonaceous material."

16.4 Campbell Resources, Inc Metallurgical Testing

Animas has not completed a full audit and analysis of the metallurgical testing completed by Campbell. Historic research has focused on metallurgical testing on Trinidad deposit material in preparation for a possible future resource estimate. Current knowledge is limited to work completed by Oro de Sotula (Campbell subsidiary) in 1996 and 1997 (Cohoon, 1996, Martinez, 1997a and Martinez, 1997b, respectively). The work consisted of 12 bottle rolls from core and RC holes, 2 column tests on material from core holes, and a single column test on a 2,900kg bulk sample collected from the small open-pit in 1997. All of the analyses were done at Oro de Sotula's in-house laboratory in Mexico. Animas is not aware of any other metallurgical testing on material from the Trinidad deposit.

16.4.1 Trinidad Bottle Roll Cyanide Leach Tests

Oro de Sotula created 12 composite intervals from core and reverse circulation reject samples for use in the bottle roll cyanide leach tests (Martinez, 1997a). Eleven of the samples were composited intervals from individual drill holes; with composite lengths ranging between 2m and 8m. The twelfth sample was a split of the composite core sample used in the column cyanide leach test described below. All of the bottle-roll tests were run at Oro de Sotula's laboratory using a procedure of 1) crushing the whole sample to 100 percent minus 6 mesh (3.35mm) and 2) leaching 200g of the material in a 0.5 g/l NaCN solution at pH 10.5-11.0 for 20 hours. The average head grade of all samples was 2.58 g Au.

The bottle roll results indicated recoveries ranging from 70% to 97% (85% average) with lime and cyanide consumptions of 3.1 kg/t and 0.8 kg/t, respectively (from table in Martinez, 1997a). The low recovery was for the composite core sample used in the column test. The next lowest recovery was at 77% with the remainder of the results progressing higher in small increments above the 77% recovery.

16.4.2 Trinidad Column Cyanide Leach Tests

16.4.2.1 Core Composite Column LeachTests

A total of 51m of split core from four core holes (TR-005 thru TR-008) was composited to create a single 64kg sample (Cohoon, 1996). This composite was sent to Oro de Sotula's laboratory where it was crushed to approximately 80% passing 1.25cm and then split into two samples for testing. The head grade of the core composite, as calculated by fire assay methods, was 2.04g Au/t (Martinez, 1997a). This compares to the weighted average grade of 1.485g Au/t (Cohoon, 1996) calculated using the weights of the individual core samples and the original assay (on the other half of the drill core). This reason for this difference has not been determined but indicates local sample variance within the deposit.

The two composites were leached in a 0.13m diameter by 2m high column for a 15 day period and then washed for 5 days. No agglomeration was required and there is no indication that any lime was added prior to leaching. The material was leached with a 0.5 g/l NaCN solution at pH10.5.

Overall gold recovery was 78% and 82% for the two tests while cyanide consumption was 0.71 kg/t and 0.54 kg/t, respectively. This compares with the recovery of 70% by bottle roll leaching of the same material as discussed above in Section 16.6.1. The reason for the discrepancy between the bottle-roll and column results is not known.

16.4.2.2 Bulk Column Leach Test

A single 2,900kg sample from the Trinidad Pit was sent to the Oro de Sotula laboratory where it was crushed to 80% passing 2.5cm (Martinez, L. A., 1997b). It is not known whether this sample is of one unique rock type or a composite of multiple rock types. The sample had a head grade of 3.53g Au/t. After an 87 day column test, a final recovery of 89% was attained with moderate CN consumption (Martinez, L. A., 1997b).

16.5 Sonora Gold Metallurgical Testing

There are no records that indicate that any metallurgical testing was completed by Sonora Gold.

16.6 Sonora Copper Metallurgical Testing

During Phelps Dodge's mining of the oxide ore, carbonaceous and refractory sulfide ore was encountered, and selective mining was implemented to avoid this material. Any future production of gold would likely be a combination of oxide material and carbonaceous and refractory sulfide material. In 2005 and 2006 Sonora Copper contracted with the N. A. Degerstrom Lab to run metallurgical tests on the carbonaceous and refractory ore to determine its metallurgical characteristics.

Samples for testing were taken from the Dora and El Corral pits. The results of that testwork are described in a series of informal reports or memoranda issued between September 2005 and June 2006 (Bradbury, J., 2006a, 2006b, 2006c, and 2006d).

It was found that the samples tested were transition-type ores containing a combination of oxide/sulfide/carbonaceous material. Testing also showed that not all samples containing carbonaceous material were preg-robbing. Basic flotation and cyanide leach testing showed that each method alone would not recover a significant percentage of the gold. However, cyanide leaching of the flotation tails did show overall good gold recovery. Flotation was shown to also recover and remove a good portion of the carbonaceous material from the ore.

Therefore, a concept was formulated to use flotation for removing the sulfides and carbon, and cyanide leaching for recovering the gold in the tails. Carbon-in-leach ("CIL") treatment of the tails was also proposed because not all of the carbon was floated and adsorption on active carbon might override any preg-robbing tendencies. The proposal and the results summarized below are described in Bradbury, J., (2006a, 2006b, 2006c, and 2006d).

The second batch of samples was sent from Santa Gertrudis and different blends were made up according to their classification:

- Blend 1: oxide/sulfide (3.29g Au/t)
- Blend 2: oxide/sulfide/carbonaceous; non-preg-robbing (5.79g Au/t)
- Blend 3: oxide/sulfide/carbonaceous; preg-robbing (3.53g Au/t)

Flotation was tested using different grind sizes, copper sulfate activation, and cleaning of the concentrate. Copper sulfate activation was found to improve the gold recovery. Cyanide leaching was done on the flotation tails, both with and without CIL. In Blend 3, it was found that CIL treatment would override the effect of its preg-robbing characteristic.

Bulk sulfide flotation, using PAX (potassium amyl xanthate), with copper sulfate activation, seemed to work well with this type of material and cyanide CIL leaching of the flotation tailings worked well, with low lime and moderate cyanide consumptions (3.0 to 4.4 lb/ton lime, 3.8 to 5.2 lb/ton NaCN).

A summation of this flotation/cyanide CIL leach testing is shown:

	Flotation Au Recovery	**Weight Upgrade Ratio**	**Cleaner Conc. Au (oz/ton)**	**CIL Leach Au Recovery**	**Total Au Recovery**	**Head/Tail Au Recovery**
Blend 1	52.7%	25.0	0.474	86.7%	93.7%	88.2%
Blend 2	58.0%	15.5	1.275	70.9%	87.8%	79.6%
Blend 3	52.5%	21.6	0.303	82.2%	91.5%	83.5%

Although these tests were encouraging, the tests were on transitional ores and the deeper ores generally trend to more sulfide and carbonaceous material and less oxide.

A CIL treatment of the tails could be used to recover the gold in the tails. No testing was performed on the flotation cleaner concentrate and some method to treat the refractory sulfides, such as roasting, autoclaving, or bio-oxidation would be needed.

This testing was preliminary in nature and any future work should entail testing of deeper ores, locked-cycle flotation, slime depression, and continuous cyanide CIL leaching.

16.7 Animas Resources Ltd Metallurgical Testing

Animas has not undertaken any metallurgical testing to date.

16.8 Summary Statement

Phelps Dodge completed a significant amount of metallurgical testing for their 1998 mine feasibility study. This work included numerous bottle-roll tests on various ore types, agitation and column leach studies, with and without agglomeration, on primarily oxide ore, flotation and roasting tests on carbonaceous sulfide ore, and dye penetration tests. A large amount of the test work was conducted on the Agua Blanca and Los Becerros deposits while more limited work was performed on samples from the El Corral and Hilario deposits. The flotation and roasting tests were performed on samples from the Amelia and Maribel deposits.

The feasibility testing indicated that the oxide ore at a size of 38mm or finer is amenable to recovery of precious metals by heap leaching. The average recovery was forecast at 82 percent. This was confirmed at the completion of mining by Phelps Dodge when the overall gold recovery was determined to be 80 percent for the life of the mine. This was calculated from metal production and residue assays of the leach pads from material mined from the Agua Blanca, Becerros Sur, Becerros Norte, and some ore from El Corral pits.

Bottle-roll and column leach testing on the deep carbonaceous sulfide material indicated very poor gold recoveries and the initial flotation and cyanide agitation leach testing resulted in recoveries less than 10 percent. Additional flotation testing that included a roasting circuit before leaching increased recoveries to 60 percent. Due to the high cost of gold recovery from the carbonaceous, sulfidic material, the deep ore was excluded from Phelps Dodge's mineable reserves.

The Cristina deposit metallurgical testing is limited to work completed by Phelps Dodge in 1991 and 1992. The Phelps Dodge testwork consisted of 57 bottle-roll cyanide leach tests using drill sample reject material, and a single bulk column leach test on material from two trenches. Average gold recovery from all of the bottle-roll tests was 73%, with lime and cyanide consumptions of 1.5 kg/t and 0.05 kg/t, respectively. Silver recovery was highly variable but averaged 20%. Additional testing on a single sample with a gold recovery of 48% indicated that the low gold recovery was probably due to silica locking and/or coarse gold and not from sulfide encapsulation, or preg-robbing from carbonaceous material. The bulk sample column test on a composited 2,300kg sample had an overall gold recovery of 82% after 84 days of leaching and water washing. The bulk sample was approximately 80% minus 1 inch material with a head grade of 0.82g Au/t. No agglomeration was required although 6.5 kg/t lime were added prior to loading the column. Cyanide consumption was moderate at 0.9 kg/t. The gold was distributed evenly throughout the tailings.

Sonora Copper completed additional testwork on carbonaceous and refractory sulfide samples from the Dora and El Corral pits. The initial testing indicated that these were transition-type ores containing a combination of oxide/sulfide/carbonaceous material. The testing focused on using flotation for removing the sulfides and carbon, and cyanide leaching for recovering the gold in the tails. Carbon-in-leach ("CIL") treatment of the tails was also proposed because not all of the carbon was floated and adsorption on active carbon might override any preg-robbing tendencies.

The Sonora Copper results indicated a total gold recovery of between 80 and 90 percent with between 50 and 60 percent of the gold occurring in the flotation concentrate. No testing though was performed on the flotation cleaner concentrate and some method to treat the refractory sulfides, such as roasting, autoclaving, or bio-oxidation will still be needed.

17.0 MINERAL RESOURCE ESTIMATES

17.1 Resource Estimates – Ore Reserves Engineering 2010

Alan Noble of Ore Reserves Engineering (ORE) was requested by Animas Resources, in June of 2010, to prepare updated resource estimates for several of the Santa Gertrudis gold deposits. This process commenced with a 2-day site visit to the property by Mr. Noble in early July, 2010. Resource estimation started in September, 2010, and continued through October. Eight gold deposits with 17 mineralized zones were estimated by ORE, including:

- Tigre – two mineralized zones
- Greta – three mineralized zones
- Tracy – one mineralized zone
- La Gloria – two mineralized zones
- Dora – three mineralized zones
- Mirador – two mineralized zones
- Escondida – two mineralized zones
- Trinidad – two mineralized zones

These deposits are shown relative to the property boundary in Figure 17.1.

All ORE resource estimates were done by Alan C. Noble, P.E. of Ore Reserves Engineering, Lakewood, CO, USA. Mr. Noble is a qualified person for resource estimation based on having received a B.S. Degree in Mining Engineering from the Colorado School of Mines, registration as a Professional Engineer in the State of Colorado, USA, and over 40 years of experience with resource estimation on over 150 mineral deposits throughout the world. Mr. Noble is independent of Animas Resources using all the tests of NI 43 - 101. Resource estimation was done using Datamine Studio3 software and is compliant with the standards required by NI 43-101.

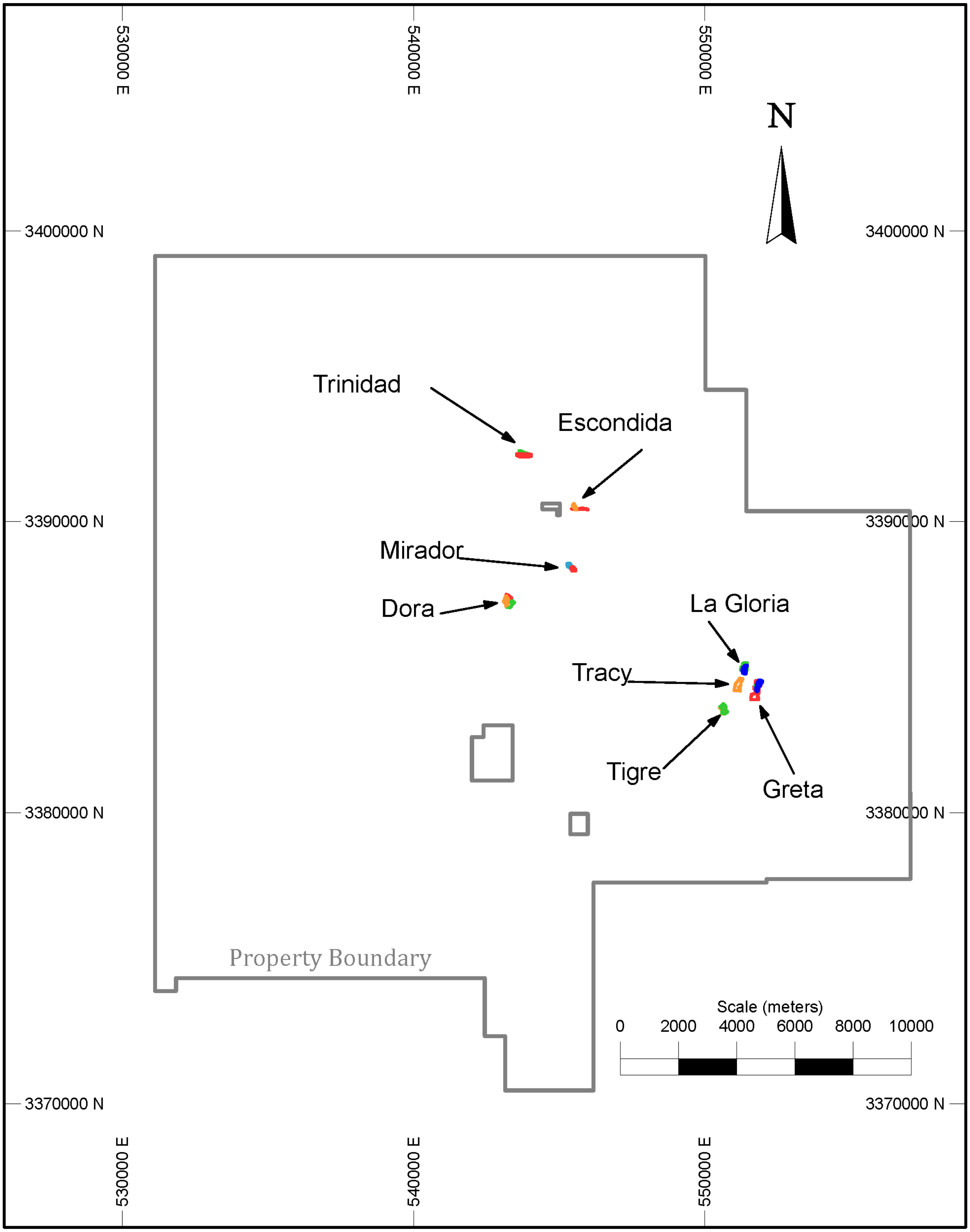


Figure 17.1 Location of resource areas estimated by ORE, shown relative to the Animas property boundary.

17.1.1 Local-to-UTM Coordinate Transformations

Transformation of the local coordinates used by Phelps Dodge and Campbell Resources to UTM/WGS84 coordinates was reviewed by ORE and a revised transformation was developed using multiple linear regression where each UTM coordinate was estimated as a function of both local coordinates. 25 drill-hole collar locations were available for this study with surveys coordinates in both the local grid system and in UTM/WGS84. The conversion equations are as follows:

$$X(UTM) = -0.00392223 \times Y(LOCAL) + 0.99953320 \times X(LOCAL) + 493129.468$$
$$Y(UTM) = 0.99949453 \times Y(LOCAL) + 0.00423554 \times X(LOCAL) + 3291677.278$$
$$Z(UTM) = Z(LOCAL) - 20.516$$

It should be noted that the above equations contain factors for both scaling and rotation, and that the scaling factors and rotation factors are different for the X and Y axes. The maximum radial, horizontal error between the surveyed and computed UTM coordinates for the study data points is 1.4 meters and the maximum vertical error is 3.9 meters.

The local to utm coordinate transformation is believed to have sufficient accuracy for preliminary resource evaluation; however, ORE recommends that Animas resurvey historic PD/Cambell survey control points when a surveyor is on the property with high-accuracy GPS equipment. With precise UTM locations for the historic survey control points, which would be the most accurately surveyed points in local coordinates, the accuracy of the transformation could be confirmed and upgraded.

17.1.2 Topographic Data

Topographic data were available for the central portions of the project from an aerial survey that was prepared by Cooper Aerial Surveys in April 2008. This data provides topographic coverage for the Dora, Mirador and Trinidad deposits and is in UTM/WGS84 coordinates.

The topography of the mined-out bottom of the Dora Pit was estimated based on blasthole data that was recovered from the PD/Campbell Datamine files. The resulting approximation of the mined-out pit topography is regarded as sufficiently accurate for inferred resource estimation, but should be upgraded with accurately located water depth measurements for pit design and resource estimation.

The mined-out bottom of the Mirador pit was based on depth soundings that were measured in the pit lake. Although the depth soundings are regarded as accurate, the XY position of the soundings was measured by hand-held gps and is not accurate. The mined-out topography within the pit lakes is believed to be sufficiently accurate for estimation of inferred resources, however, but should be upgraded with more accurately located depth measurements for pit design and resource estimation.

Topographic data for the Tigre, Greta, Tracy, and La Gloria deposits was based on 1995 mapping by Cooper Aerial Surveys. The 1995 Cooper Aerial data was converted from local coordinates to UTM/WGS84 coordinates using the above coordinate transformations.

Topographic data for the Escondida deposit was recovered from the PD/Campbell Datamine files and converted from local coordinates to UTM/WGS84 coordinates using the above coordinate transformations.

The transformed 1995 topography is believed to be sufficiently accurate for estimation of inferred resources, but should be upgraded with new aerial surveying for pit design and resource estimation.

17.1.3 Bulk Density

No bulk density measurement data were available and a density of 2.5 t/m^3 was used for these estimates. This density is the same as was used by PD/Campbell for resource estimation during project development and production. Measurement of rock bulk density is recommended for future sampling and drilling of the deposits, particularly if any core drilling is done.

17.1.4 Drill-Hole Data

The drill-hole data used for these models is a subset of the Animas drill-hole database, which was prepared by MDA and Animas staff. Most of the drilling is historical drilling that was done by the predecessors of Animas. A total of 25 Animas drill holes are included in the database, but most of those were not in the deposits selected for resource estimation. Plan map plots showing drilling and the mineral zone outlines are shown in Figure 5.1 and Figure 9.5.

Table 17.1 Summary of Drilling by Resource Zone

Zone	Holes	Intervals	Meters	Ave Interval Length	Ave Hole Length
Dora NW	35	5,496	5,670.80	1.03	162
Dora SE	50	4,062	4,749.70	1.17	95
Dora West	36	5,416	5,663.30	1.05	157
Escondida Main	35	2,201	3,255.57	1.48	93
Escondida NW	23	1,258	1,846.95	1.47	80
Greta 1	174	5,800	7,877.55	1.36	45
Greta 2	16	1,098	1,433.70	1.31	90
Greta 3	26	2,224	3,174.60	1.43	122
La Gloria 1	29	2,560	2,560.25	1.00	88
La Gloria 2	35	3,570	3,567.90	1.00	102
Mirador North	34	2,181	3,250.55	1.49	96
Mirador South	28	1,517	2,274.00	1.50	81
Tigre 1	18	1,030	1,545.00	1.50	86
Tigre 2	18	1,030	1,545.00	1.50	86
Tracy	22	1,613	2,419.50	1.50	110
Trinidad North	47	2,977	4,417.60	1.48	94
Trinidad South	63	5,061	7,348.70	1.45	117
Note - Drill holes may intersect more than one zone, and total of zones is not equal to the total used for resource estimation					
Total All Models	574	38,111	48,815.47	1.28	85

17.1.5 Mineral-Zone Solid Models

Three-dimensional solid models of the mineralized-zones were prepared for each of the deposits to define the limits of the mineralization and to prevent extrapolation of resources into obviously non-mineralized material. Construction of the mineralized zones was started with cross-sectional outlines that were drawn to enclose the mineralized portions of the drill holes, plus approximately five-to-ten meters of unmineralized rock on either side of the mineralized drill-hole intercepts. The cross-sectional outlines were then linked to form a three-dimensional wire-framed solid that was filled with blocks to create the base block model for resource estimation. Mineralized drill-hole intercepts that did not show continuity of mineralization between drill holes were not included in the zone models and are excluded from the resource.

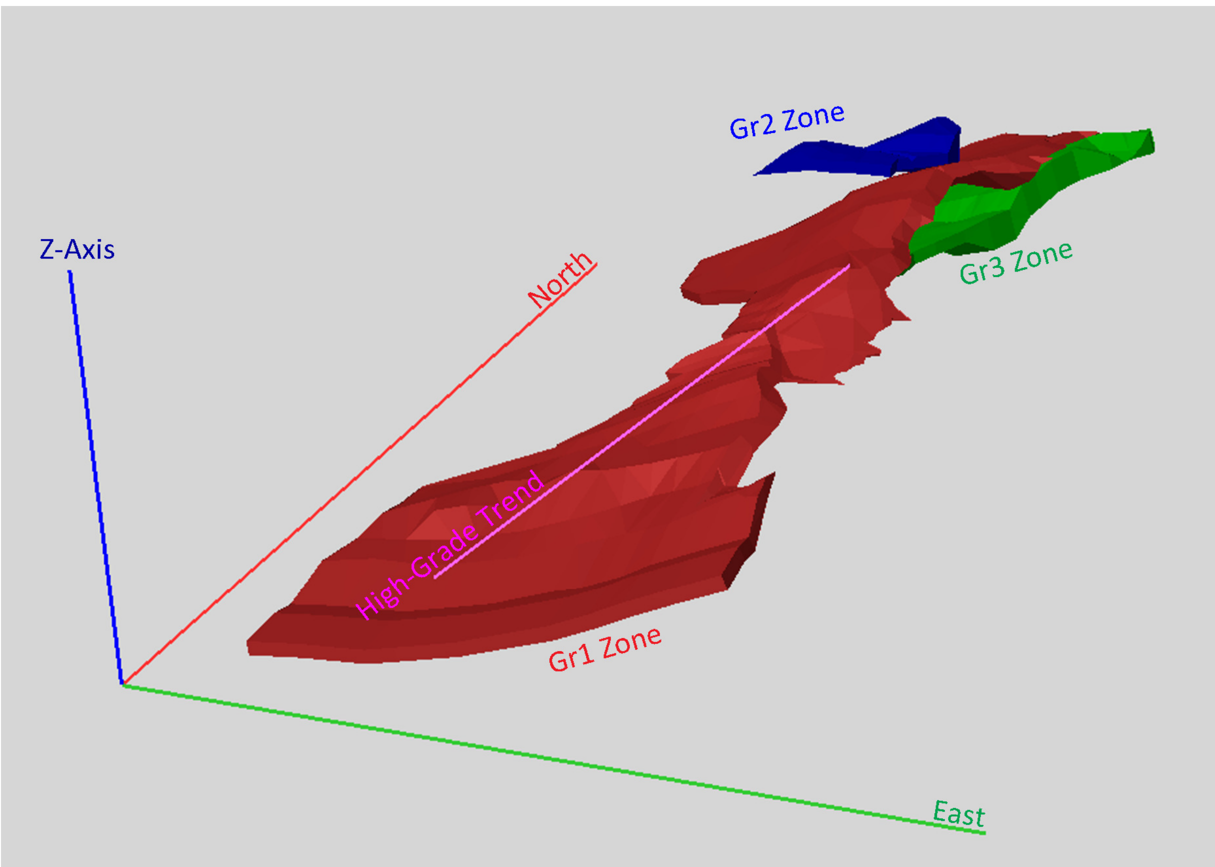


Figure 17.2 Perspective view of the Greta mineralized zones looking down 14° at N26W.

<u>Greta Deposit</u>

The Greta Deposit consists of three, subparallel, zones of mineralization that dip about 20° to the west, as shown in Figure 17.2. The largest zone is the Gr1 Zone, which has dimensions of 660 meters along the north-south strike and 370 meters down dip. The Gr1 Zone is approximately 12-meters thick and is tightly confined to a thin layer that gives the appearance of a bedding plane or a flat-lying structural zone. The Gr1 zone is notable for a S37W-trending subzone of high-grade mineralization that is about 40-meters wide and one-to-five-meters thick. The high-grade mineralization crops out at surface towards the north, where it has been drilled with a five-meter-spaced grid of shallow drill holes. High-grade mineralization becomes thinner at depth, to the southwest, for a distance of more than 200 meters. Drilling is too widely spaced to determine whether high-grade mineralization continues at depth to the southwest.

The Gr2 Zone is a small 100-by-80-meter wide zone of flat-lying mineralization to the north of the Greta area. Thickness varies from 10-to-30-meters. Gold grades tend to be spotty and localization along intersections with high-angle structures is possible.

The Gr3 Zone is a zone of mineralization below, and subparallel to the Gr1 Zone. The zone strikes about N25W, dips about 20° west, and is about 400-meters long, about 100-meters wide, and 10-to-20-meters thick. The south end of the Gr3 zone appears to merge into the Gr1 zone near the outcropping zone of high-grade Gr1 mineralization, but Gr3 gold grade does not appear to increase near the intersection with the high-grade mineralization.

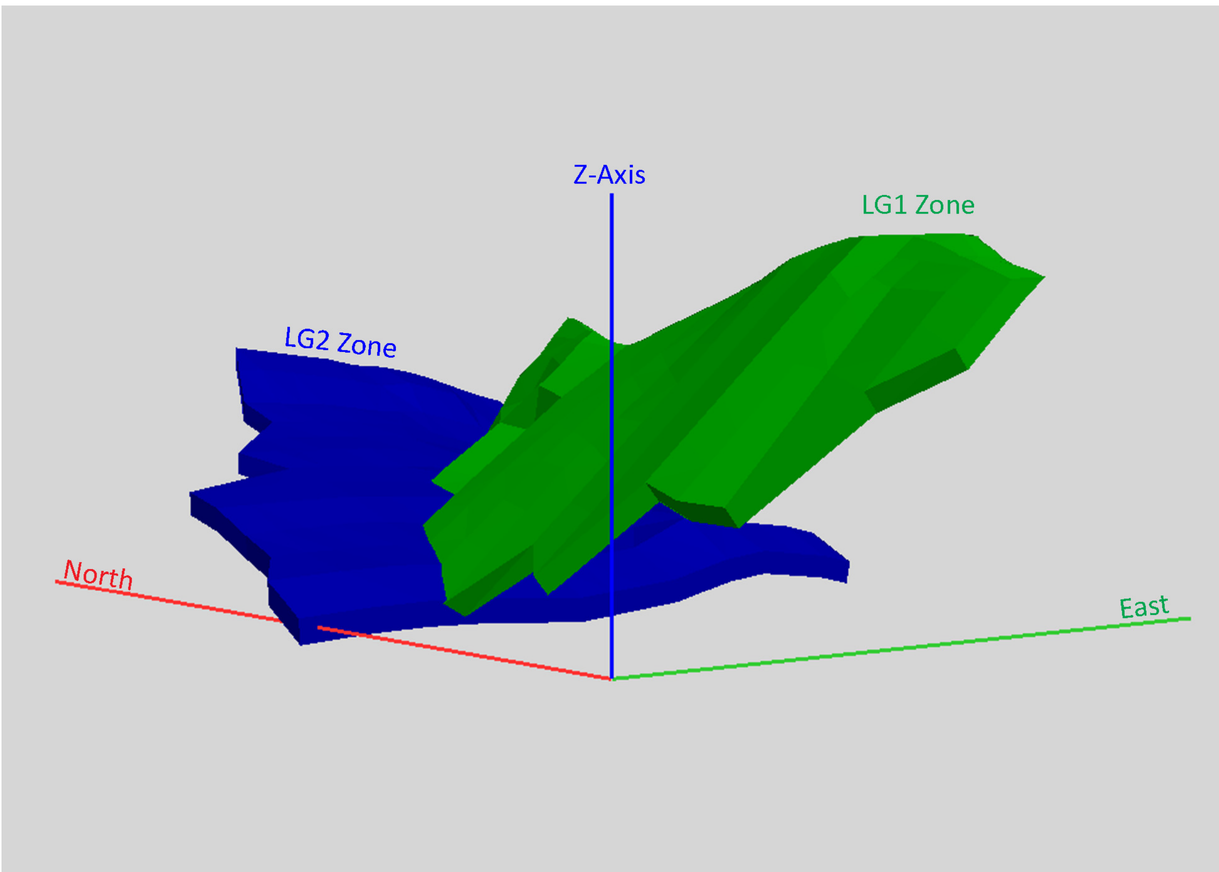


Figure 17.3 Perspective view of the La Gloria Deposit looking horizontally at N38E

La Gloria Deposit

The La Gloria deposit consists of two mineralized zones, as shown in Figure 17.3. The LG1 Zone is a west-dipping zone of mineralization that strikes about N10W, dips about 37° west, and is about 300-meters long, 150-meters wide, and 10-to-20-meters thick. The west end of the LG1 zone is truncated at depth against the south-dipping LG2, which strikes east-west and dips 18° to the south. The LG2 Zone is about 240-meters long, 170-meters wide, and 10-to-15-meters thick.

The relationships between the LG1 and LG2 Zones are unclear, but higher grades in LG2 Zone are in the central part of the zone and may be associated with the intersection with the LG1 zone. The LG1 Zone appears to be truncated on the LG2 Zone and does not appear to extend below the LG2. Highest grades in the LG1 Zone are located near the surface and some type of surficial enrichment of gold grades is possible.

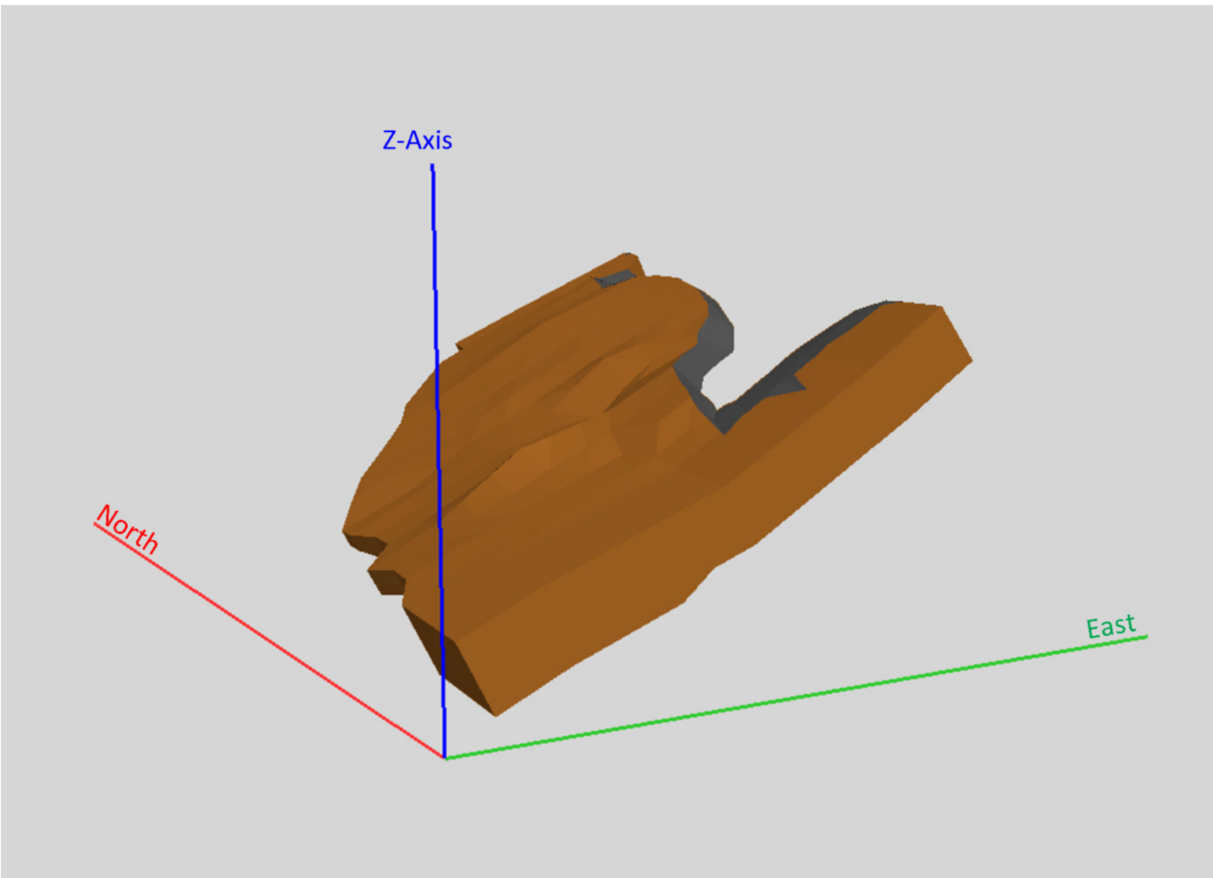


Figure 17.4 Perspective view of the Tracy mineralized zone looking down 11° at N30E

Tracy Deposit

The Tracy deposit consists of one mineralized zone, as shown in Figure 17.4. The Tracy Zone strikes about N5W, dips about 28° west, and is about 420-meters long, 220-meters wide, and 10-to-20-meters thick. Tracy mineralization is generally weak and spotty.

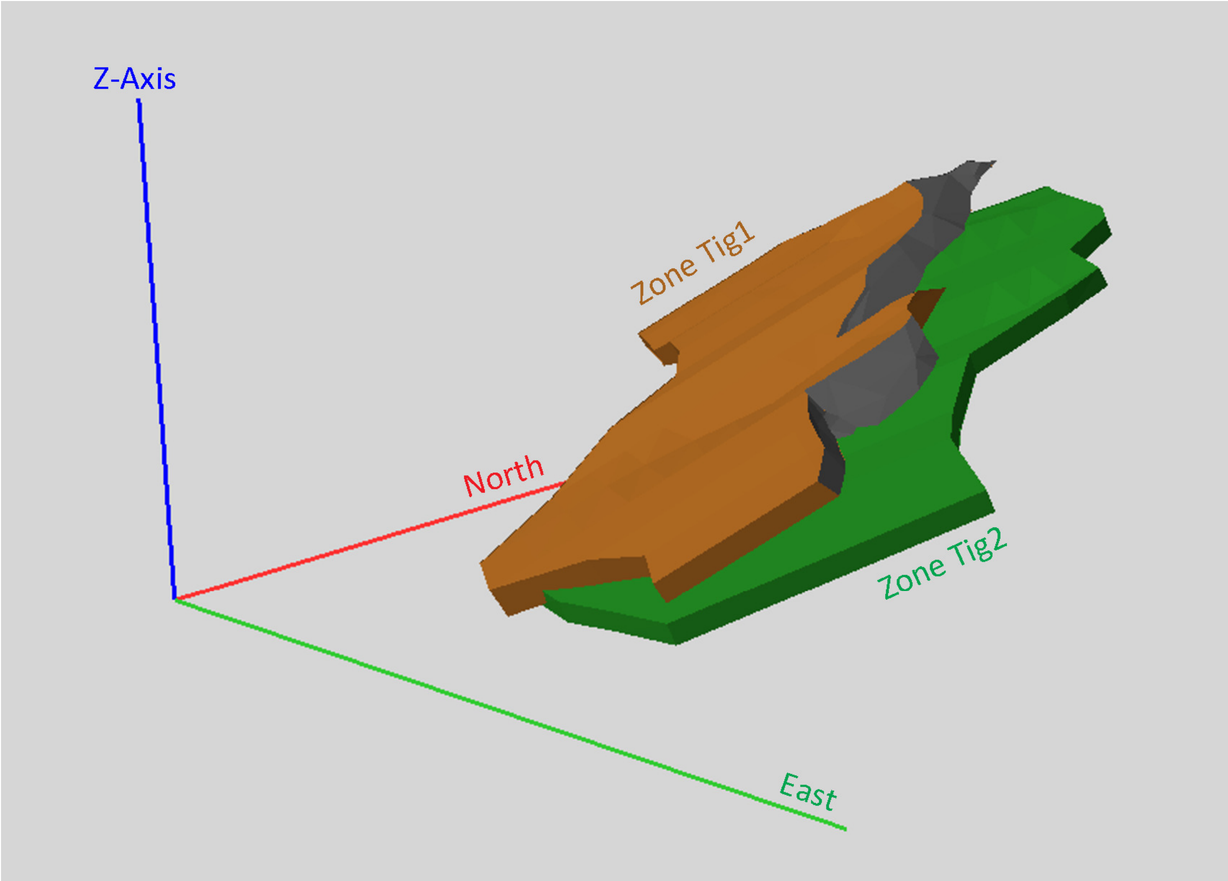


Figure 17.5 Perspective view of the Tigre Zones looking down16° at N40W

<u>Tigre Deposit</u>

The Tigre deposit consists of two mineralized zones, as shown in Figure 17.5. The upper, Tig1 Zone, is a southwest-dipping zone of mineralization that strikes about N50W, dips about 32° southwest, and is about 280-meters long, 240-meters wide, and 10-meters thick. The Tig1 Zone outcrops to the surface and better grades are in the near-surface part of the zone. The Tig2 Zone is about the same size of the Tig1 Zone, but dips at a shallower angle of 23 degrees SW and strikes a more westerly N55W. The Tig2 Zone does not outcrop and is somewhat lower grade than the Tig1 Zone.

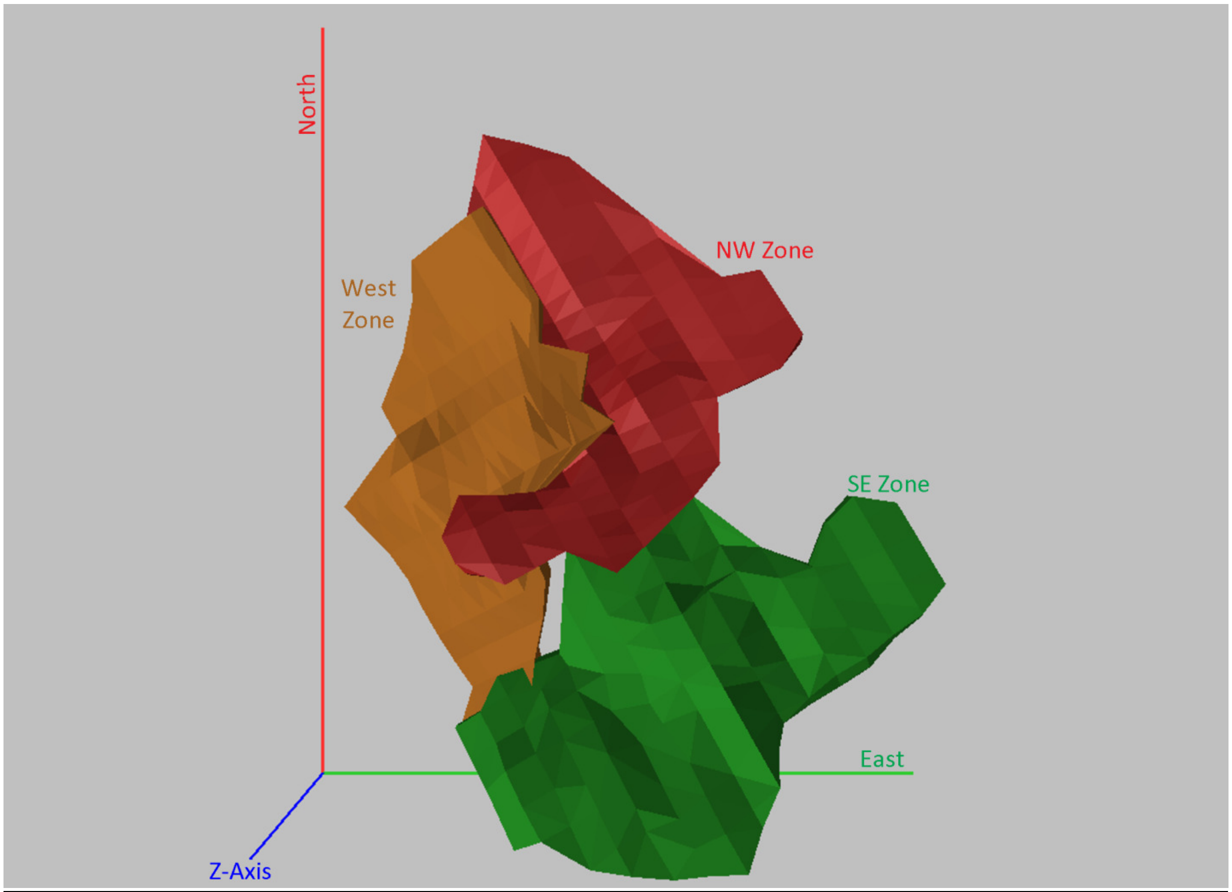


Figure 17.6 Perspective view of the Dora deposit looking vertically downwards

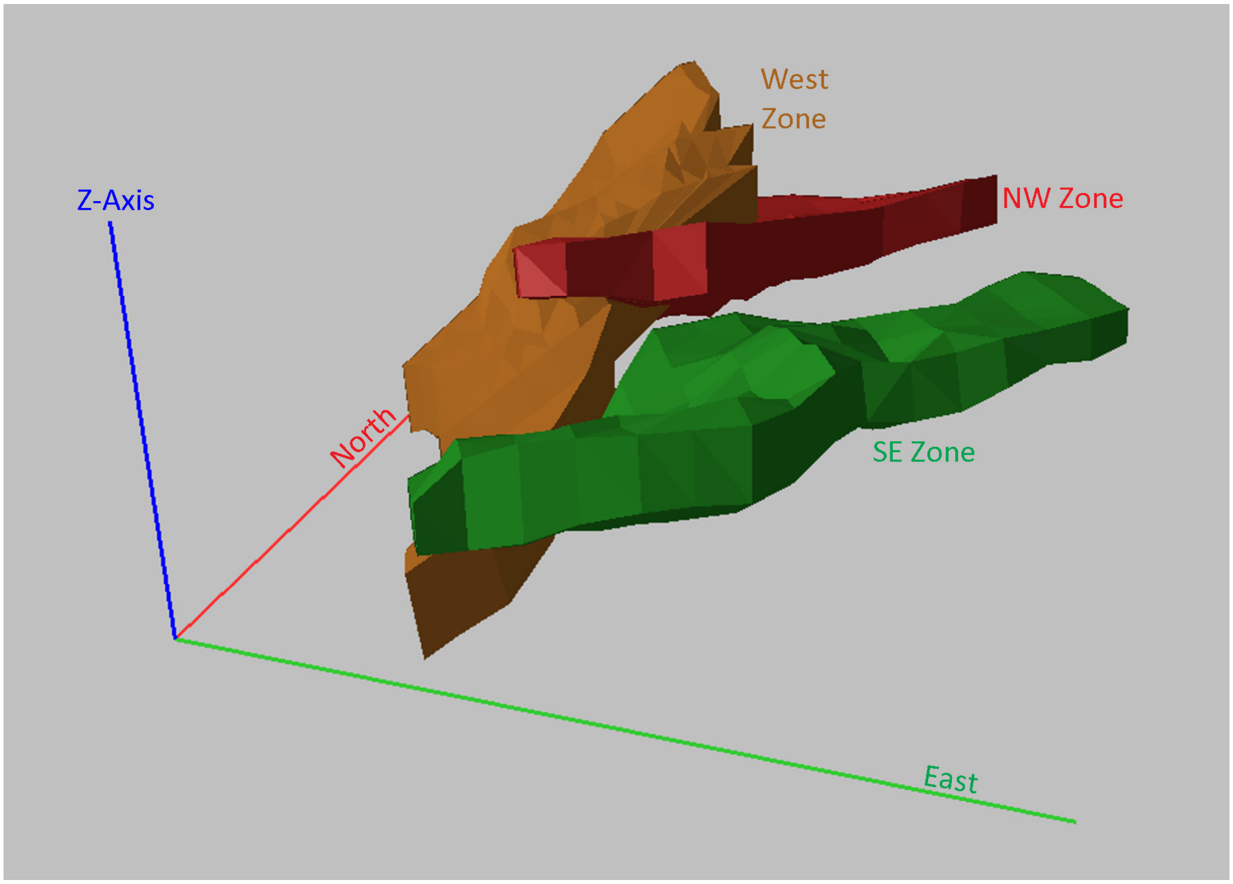


Figure 17.7 Perspective view of the Dora deposit looking down 26° at N18W

<u>Dora Deposit</u>
The Dora deposit is composed of 3 intersecting zones, as shown in Figure 17.6 and Figure 17.7.

The NW Zone strikes about N63E and dips 22° to the northwest. It is nominally 170-meters wide along strike, 270-meters long down-dip, and is 25-to-30-meters thick. The NW Zone appears to be bounded on all sides by barren holes.

The SE Zone strikes about N38E and dips 22° to the northwest. The zone is nominally 300-meters long along strike, 170-meters wide down-dip, and is 20-to-50-meters thick. The SE Zone is subparallel to the NW Zone and may be the down-dropped upper portion of the NW Zone. Mineralization in the SE Zone is much less continuous and is lower grade compared to the NW Zone. The SE Zone appears to be bounded on all sides by barren holes.

The West Zone strikes N30W and dips 31° to the southwest. The zone is nominally 200-to-250-meters long along strike, 100-to-200-meters wide down-dip, and is 20-to-50-meters thick. The West Zone appears to truncate the NW Zone to the northwest, but the southern end of the NW Zone appears to cross over the top of the West Zone. The West Zone is open to the west at depth.

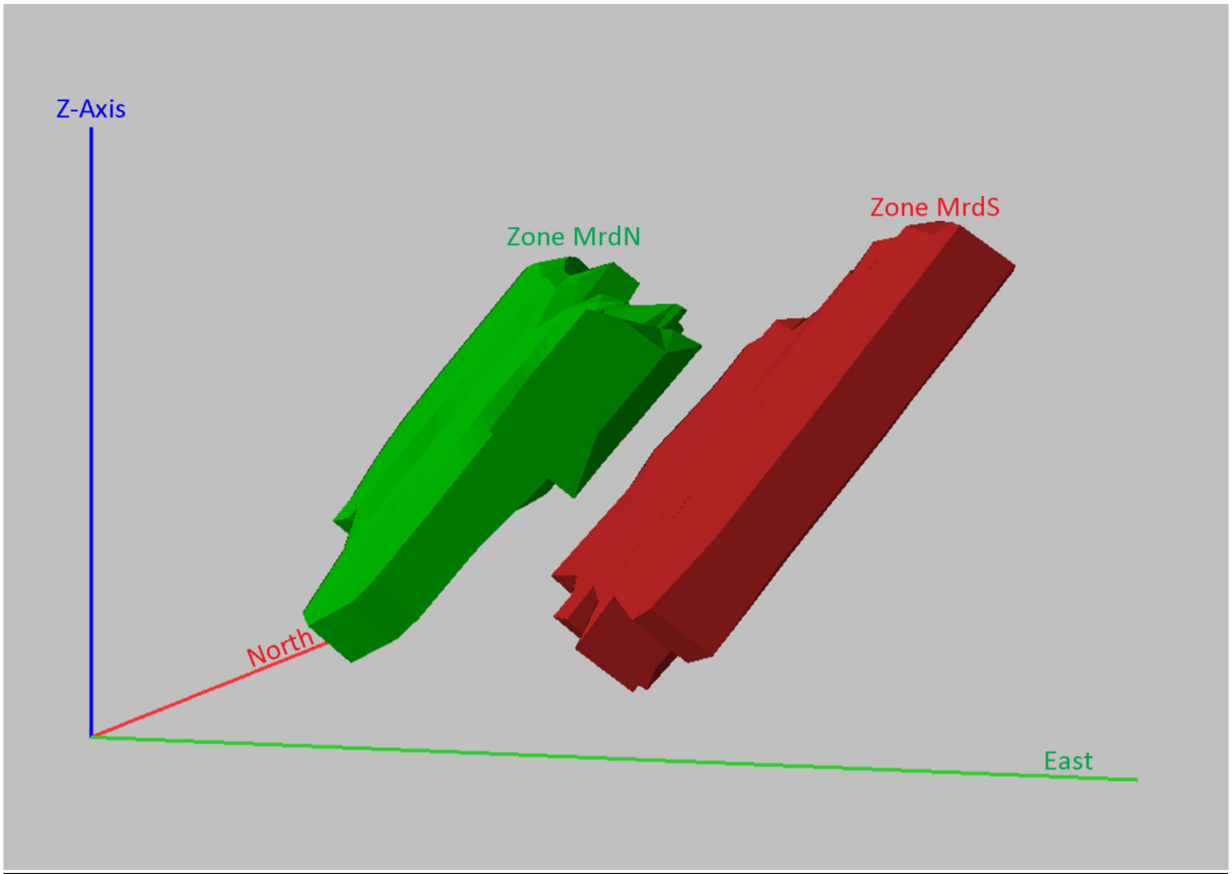


Figure 17.8 Perspective view of the Mirador deposit looking flat at N11W

Mirador Deposit

The Mirador deposit is composed of two mineralized zones, as shown in Figure 17.8, that appear to have originally been one continuous zone that has been cut and offset by a fault. Both zones strike about N20W and dip about 52° to the west. The southern zone is about 160-meters long along strike, 160-meters wide and 20-to-30-meters thick. The northern zone is about 200-meters long along strike, 180-meters wide and 20-to-30-meters thick.

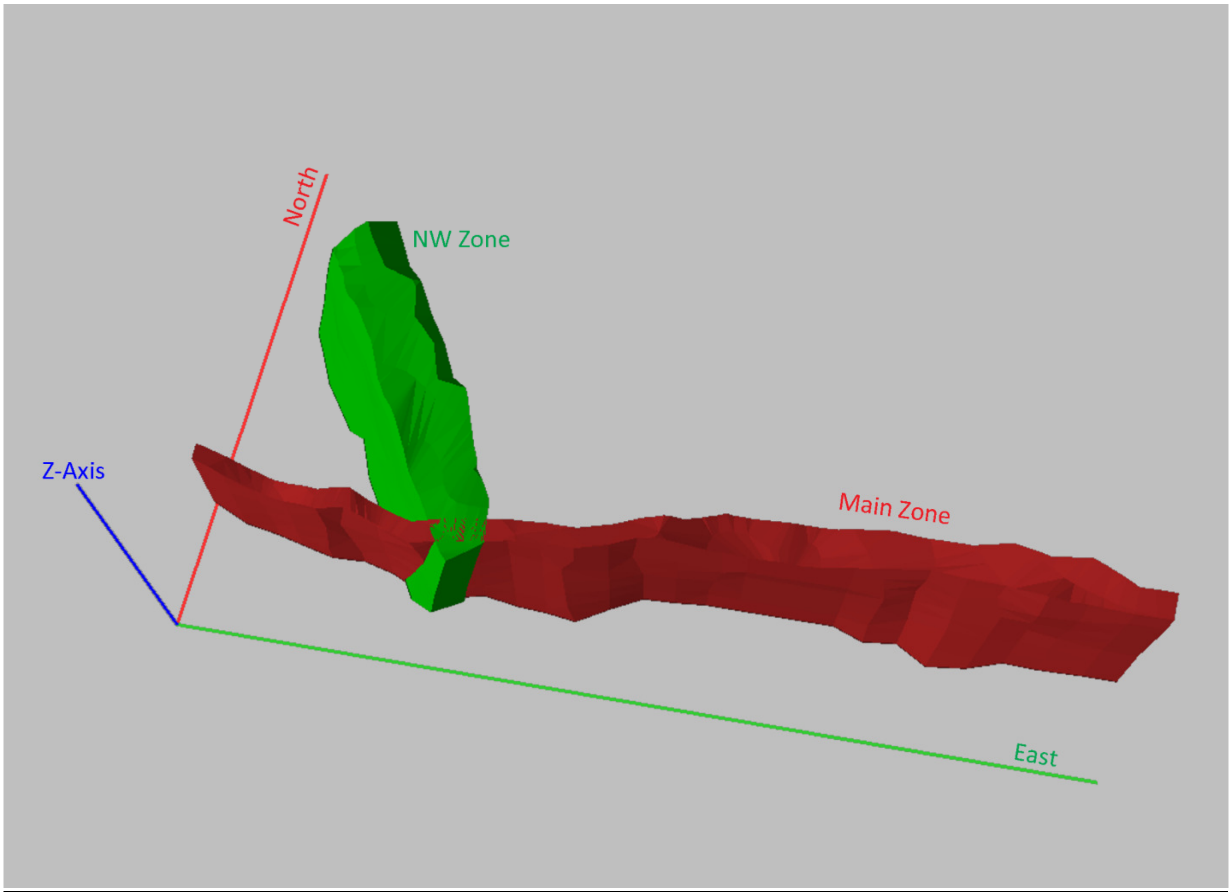


Figure 17.9 Perspective view of the Escondida deposit lookingdown 62° at N10W

Escondida Deposit

The Escondida deposit is composed of two mineralized structural zones, as shown in Figure 17.9. The Main Zone strikes due East-West and is dips vertically. Dimensions of this zone are about 560-meters along strike, 100-meters vertical extent, and 10-to-20-meters thick. The NW Zone strikes N34W and dips 69° to the west. Dimensions of the NW Zone are about 220-meters along strike, 100-meters vertical extent and 30-meters thick. The NW Zone appears to penetrate and extend through the Main Zone, and limited drilling suggests low-grade mineralization south of the Main Zone.

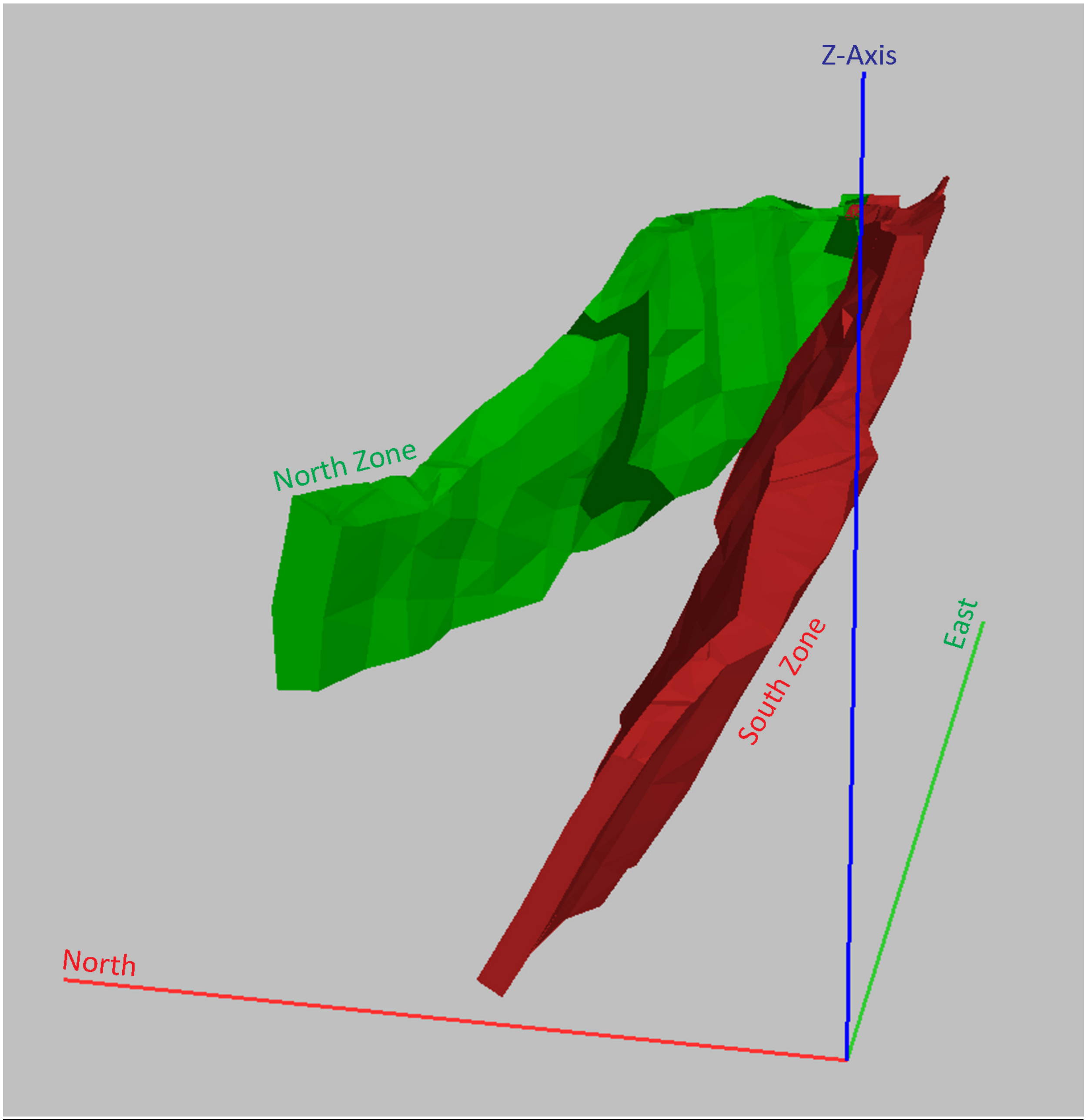


Figure 17.10 Perspective view of the Trinidad deposit looking down 14° @ N78E

Trinidad Deposit

The Trinidad deposit is composed of two mineralized structural zones, as shown in Figure 17.10. The South Zone strikes N82E and is dips 63° to the north and is the largest zone. Dimensions of this zone are about 500-meters along strike, about 125-meters vertical extent, and 10-to-24-meters thick. The North Zone strikes N70W and dips at steep, near-vertical angles to the north and south. Dimensions of the North Zone are about 200-meters along strike, 100-meters vertical extent and 20-meters thick. The North Zone appears to be truncated by the Main Zone and both zones terminate near the intersection of the two zones towards the east. Both zones are locally open to depth, but the lateral extent of mineralization appears to be well defined by drilling.

17.1.6 Block Models

The mineral zone wireframes were intersected with with the topographic digital terrain models to remove blocks above topography and to identify blocks that have been mined. Three-dimensional block models were then created by filling the wireframes with fixed-block-size blocks. Relatively small blocks were used to provide better resolution for the generally narrow mineralized zones and to allow analysis of dilution for different mining selectivity. The location and size parameters for the block models are summarized in Table 17.2.

Table 17.2 Block Model Size and Location Parameters

Model	Axis	Minimum (UTM)	Maximum (UTM)	Block Size (m)	Number Blocks	Length (m)
Greta	X (East)	551,250	552,200	2	475	950
	Y (North)	3,383,500	3,384,750	2	625	1,250
	Z (Elev)	1,350	1,800	2	225	450
La Gloria	X (East)	551,200	551,600	2	200	400
	Y (North)	3,384,700	3,385,200	2	250	500
	Z (Elev)	1,500	1,700	2	100	200
Tracy	X (East)	550,900	551,400	2	250	500
	Y (North)	3,383,900	3,384,700	2	400	800
	Z (Elev)	1,500	1,700	2	100	200
Tigre	X (East)	550,400	550,800	2	200	400
	Y (North)	3,383,300	3,383,800	2	250	500
	Z (Elev)	1,400	1,670	2	135	270
Dora	X (East)	542,900	543,700	2	400	800
	Y (North)	3,386,800	3,387,600	2	400	800
	Z (Elev)	1,100	1,760	2	330	660
Mirador	X (East)	545,100	545,700	2	300	600
	Y (North)	3,388,100	3,388,700	2	300	600
	Z (Elev)	1,300	1,540	2	120	240
Escondida	X (East)	545,300	546,050	2	375	750
	Y (North)	3,390,100	3,390,740	2	320	640
	Z (Elev)	1,400	1,700	2	150	300
Trinidad	X (East)	543,300	544,300	4	250	1,000
	Y (North)	3,392,000	3,392,600	2	300	600
	Z (Elev)	1,100	1,500	2	200	400

17.1.7 Trend Models

Because the shape of the mineralized zones is too irregular to use simple search ellipses, 3-dimensional trend models were developed to allow the interpolation to follow the shape of the mineralized zone. The initial trend model interpretation was done as lines on cross-sections that were defined based on the general shape of the zones and a visual interpretation of the continuity of mineralization. The trend lines were linked to form a 3-dimensional surface defining the general continuity of the mineralization.

The trend model was used for interpolation as follows:

1. The distance between the trend surface and the block-model block centroids was measured by calculating the perpendicular distance between the block center and the nearest face in the trend surface wireframe. The same procedure was repeated for the center-point location of composites.

2. The block model centroids were rotated so that the trend surface was as close to a horizontal plane as possible. The composite center-point locations were rotated using the same parameters.

3. After rotation, the Z-coordinate for the model and composites was replaced with the distance from the trend surface. At this point, the rotated model is analogous to projecting the mineralized zone into a longitudinal view and flattening it parallel to the trend surface. The rotation parameters are summarized in Table 17.3.

The resulting ZTREND values are banded parallel to trend surfaces and are flat. A typical cross-section showing the relationship between the mineralized zone and the trend surface is shown in Figure 17.11.

Table 17.3 Trend Model Rotation Parameters

Deposit	Zone	Rotation Point (UTM)			Transformed Rotation Point			Rotation Angle Around Axis		
		X	Y	Z	X	Y	Z	Z-axis	rotated X-axis	rotated Z-axis
Greta	Gr1	551,800	3,384,140	1,675	0	0	0	95	-25	0
	Gr2	551,813	3,384,351	1,728	0	0	0	90	0	0
	Gr3	551,872	3,384,393	1,685	0	0	0	110	-24	0
La Gloria	LG1	551,381	3,384,903	1,622	0	0	0	100	-37	0
	LG2	551,373	3,384,891	1,619	0	0	0	0	-18	0
Tracy	Trcy	551,150	3,384,400	1,582	0	0	0	95	-28	0
Tigre	Tig1	550,634	3,383,512	1,500	0	0	0	41	-32	0
	Tig2	550,658	3,383,537	1,492	0	0	0	35	-23	0
Dora	NW	543,255	3,387,330	1,304	0	0	0	153	-22	0
	SE	543,305	3,387,134	1,310	0	0	0	128	-29	0
	West	543,183	3,387,254	1,292	0	0	0	60	-31	0
Mirador	MrdN	543,350	3,388,470	1,445	0	0	0	70	-52	0
	MrdS	545,487	3,388,346	1,426	0	0	0	70	-52	0
Escondida	MAIN	545,770	3,390,410	1,486	0	0	0	0	-90	0
	NW	545,770	3,390,410	1,486	0	0	0	56	-69	0
Trinidad	TrN	543,840	3,392,340	1,310	0	0	0	200	-90	0
	TrS	543,795	3,392,265	1,275	0	0	0	172	-63	0
Note – All rotations are left-hand rotations. The rotated Y-axis points updip relative to the geometry of the zone.										

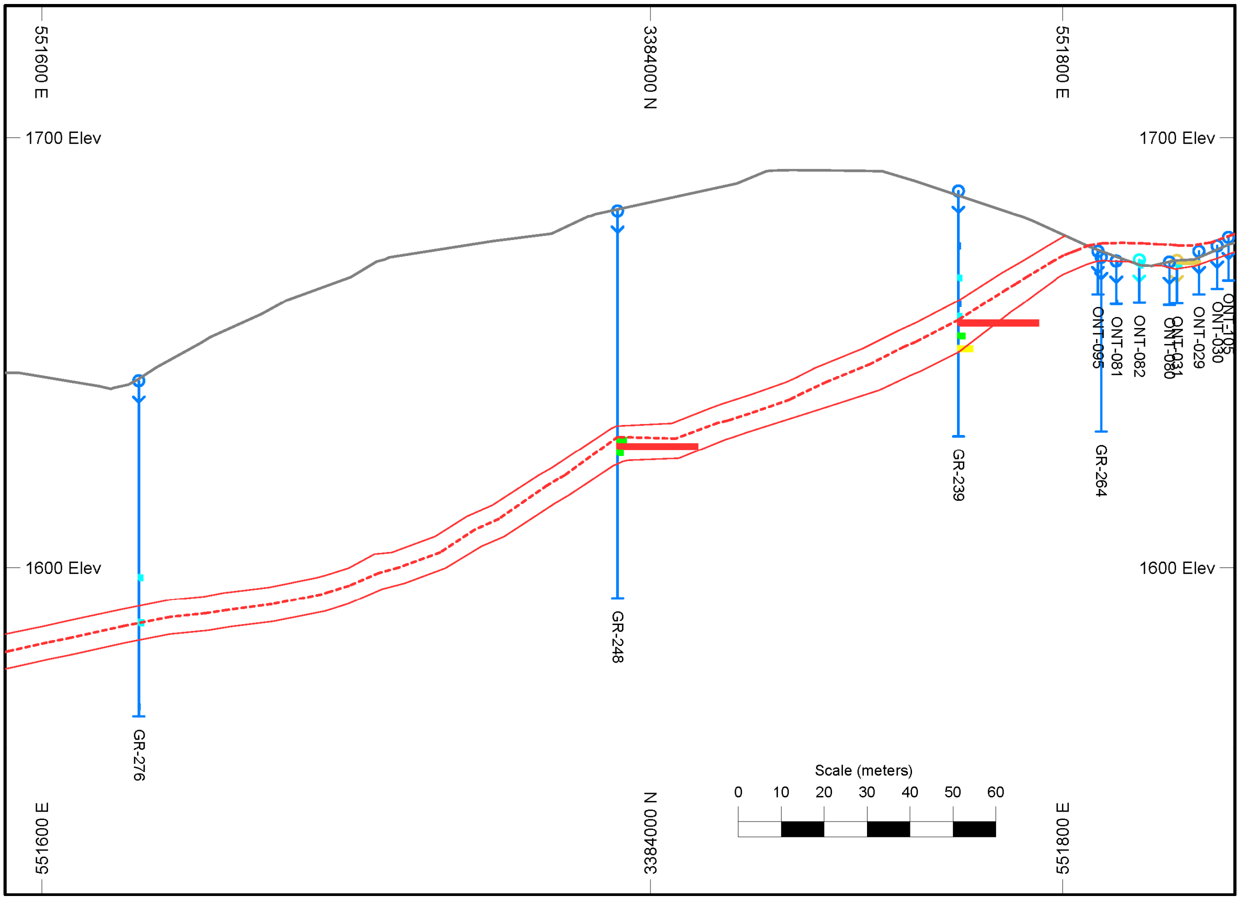


Figure 17.11 Cross section showing the relationship between the mineral zone (solid red lines) and the trend (dashed red lines).

17.1.8 Compositing and Grade Zoning

Drill-hole assays were composited into regular intervals and grade zones were formed using the following procedure:

1. Drill intervals were selected within the mineralized zone wireframes.
2. Grade-zone codes (OreZONE) were assigned using the following procedure to define continuous intervals of mineralization that are above cutoff grade and also have a specified minimum thickness of two meters (measured perpendicular to the zone). Grade-zoning cutoff grades are shown in Table 17.4.
   a. The closest point from the center of the drill-hole intervals to the trend surface wireframe faces was located.
   b. The true thicknesses of the drill-hole intervals were computed. The orientation of the closest face on the trend surface was assumed to define the orientation of the zone for computation of true thickness.
   c. The average true thickness, perpendicular to the trend surface, was determined for each drill hole. A true-thickness/composite-length category was determined using the following formula:

$$CMPCAT = \left(\frac{Average\ Actual\ Length}{Average\ Normal\ Length}\right) \times MinimumThickness$$

d. The CMPCAT was rounded to to a precision of 0.05 meters.
e. Drill holes were composited using the Datamine module COMPSE. This process computes composites that satisfy the minimum thickness, maximum included waste, and cutoff grade criteria. The minimum thickness for each OreZONE interval was set based on the average CMPCAT value for the interval.
f. Composites below the specified cutoff grade were labeled with an OreZONE code of zero (0). Composites above cutoff were assigned an OreZONE code of one (1).
g. OreZONE codes were extracted from the composited drill holes and merged with the drill-hole assay data for final compositing.

3. Composites were computed using the Datamine down-hole compositing routine COMPDH, with OreZONE used as the zoning-control variable. This routine composites data into nominal 2-meter-true-thickness intervals such that composite intervals start and end on OreZONE boundaries. The sample length is adjusted for each OreZONE interval to divide the interval into and integer number of samples with sample length as close as possible to the desired length.
4. A high-grade population was identified in the certain zones and a high-grade cutoff was used to assign a high-grade OreZONE code (2) to composites above the cutoff. High grade cutoffs are shown in Table 17.4.
5. The distance between the composite and the trend is computed using the method discussed previously in Section 17.1.7.

Table 17.4 Cutoff Grades for Composite Grade Zoning

Deposit	Zone	Low-Grade/ Mineralized Cutoff	High-Grade Cutoff
Greta	Gr1	0.35	3.25
	Gr2	0.35	NA
	Gr3	0.35	3.25
La Gloria	LG1	0.35	3.25
	LG2	0.35	3.25
Tracy	Trcy	0.35	3.25
Tigre	Tig1	0.35	3.25
	Tig2	0.35	3.25
Dora	NW	0.35	NA
	SE	0.35	NA
	West	0.35	NA
Mirador	MrdN	0.50	NA
	MrdS	0.50	NA
Escondida	MAIN	0.25	NA
	NW	0.25	NA
Trinidad	TrN	0.35	NA
	TrS	0.35	NA

17.1.9 Grade Estimation

Grade estimation was done with inverse-distance-power (IDP) estimation using the composited data within each zone as the data source. All estimation was done using block and composite coordinates transformed relative to the trend surface as discussed previously in Section 17.1.5. Because the drilling was not done on a grid and has a very irregular spacing, search parameters were defined individually for each zone to ensure that a representative selection of data was made for grade estimation, as follows:

1) The number of composites selected from any single hole was limited to 1 or 2 composites;
2) A customized search-ellipse expansion feature was used so that the search ellipse would be small as possible and still provide adequate data for grade estimation.

Grade zones were assigned to model blocks using nearest-neighbor assignment (NN) of the OreZONE code to blocks. The NN method was also used to create a NN gold-grade estimate for comparison with the IDP estimation. The NN search parameters are summarized in Table 17.5.

Table 17.5 Nearest-Neighbor Assignment Search Parameters

Deposit	Zone	Rotation (Rake)	Search Radius (Trend Coordinates-meters)		
			X'	Y'	Z'
Greta	Gr1	50	10	5	1
	Gr2	0	20	20	1
	Gr3	0	20	20	1
La Gloria	LG1	0	15	15	1
	LG2	0	15	15	1
Tracy	Trcy	30	10	5	1
Tigre	Tig1	45	15	5	1
	Tig2	40	15	5	1
Dora	NW	0	20	30	1
	SE	0	30	30	1
	West	0	30	30	1
Mirador	MrdN	0	20	20	1
	MrdS	0	20	20	1
Escondida	MAIN	0	20	20	1
	NW	0	20	20	1
Trinidad	TrN	0	25	25	1
	TrS	0	25	25	1
-The X and Y Search radii are multiplied by a 2X factor for each search pass. -The Z Search radius is unchanged for passes 1 to 4 and is increased to 3 meters if a 5th pass is required.					

Inverse-distance-power estimates (IDP) were done using the OreZONE code to provide zoning control. The zoning controls allow limited crossing of composites between adjacent grade zones, recognizing that the zone boundaries are gradational, fuzzy boundaries rather than hard boundaries. The grade-zoning controls allow composites from adjacent OreZONEs to be used for interpolation where the grade of the adjacent composites is not much different from the grade distribution for the target OreZONE. The composite selection grade ranges were adjusted for each zone to provide IDP estimates that were unbiased relative to the NN estimates. Capping grades were set at appropriate levels for each grade zone based on a brief review of composite grade distributions. OreZONE selection and grade capping parameters are summarized in Table 17.6.

Table 17.6 Grade Caps and OreZONE Control Limits

		Low-Grade Zone		Mineralized Zone			High-Grade Zone	
Deposit	Zone	Grade Cap	Max Grade From Low-Grade	Grade Cap	Min Grade From Low-Grade	Max Grade From High-Grade	Grade Cap	Min Grade From Mineralized
Greta	Gr1	0.25	0.25	6.00	0.15	5.50	35.00	1.50
	Gr2	0.25	0.25	6.00	0.15	NA	NA	NA
	Gr3	0.25	0.25	6.00	0.15	3.00	10.00	1.00
La Gloria	LG1	0.20	0.15	5.15	0.15	3.00	35.00	2.50
	LG2	0.20	0.45	5.10	0.15	4.00	35.00	5.00
Tracy	Trcy	0.20	0.35	5.15	0.05	3.00	35.00	3.00
Tigre	Tig1	0.20	0.15	5.15	0.20	4.00	35.00	2.25
	Tig2	0.20	0.30	5.15	0.30	4.00	35.00	4.00
Dora	NW	0.35	0.25	25.00	0.15	NA	NA	NA
	SE	0.35	0.25	25.00	0.15	NA	NA	NA
	West	0.35	0.25	25.00	0.15	NA	NA	NA
Mirador	MrdN	0.50	0.60	8.00	0.15	NA	NA	NA
	MrdS	0.50	0.50	8.00	0.25	NA	NA	NA
Escondida	MAIN	0.30	0.35	8.00	0.10	NA	NA	NA
	NW	0.35	0.25	8.00	0.25	NA	NA	NA
Trinidad	TrN	0.50	0.25	12.00	0.35	NA	NA	NA
	TrS	0.35	NA	8.00	0.25	NA	NA	NA

IDP estimation parameters were adjusted to provide IDP estimates with a smoothing factor of 60% to 65%. The smoothing factor is defined by the ratio of the relative variance of IDP estimates to the relative variance of NN estimates. The target smoothing ratio was based on experience with similar deposits.

If the smoothing factor was lower that the desired smoothing factor, the IDP power was increased, the number of selected points was decreased, and/or the search radius was decreased. If the smoothing factor was too high, the power was decreased, the number of selected points was increased, and/or the search radius was increased. The IDP parameters and the comparison of the IDP and NN estimates is are summarized in Table 17.7 and Table 17.8.

Table 17.7 Summary of IDP Estimation Parameters

Deposit	Zone	OreZONE	Rotation (Rake)	IDP Aniostropies			IDP Power
				X'	Y'	Z'	
Greta	Gr1	Low-Grade	50	20	20	1	3.50
		Mineralized	50	20	15	1	2.00
		High-Grade	50	20	10	1	3.50
	Gr2	Low-Grade	0	20	20	1	3.00
		Mineralized	0	20	20	1	4.00
	Gr3	Low-Grade	0	20	20	1	4.50
		Mineralized	0	20	20	1	2.00
		High-Grade	75	20	20	1	3.75
La Gloria	LG1	Low-Grade	0	20	20	1	4.50
		Mineralized	0	20	20	1	3.10
		High-Grade	0	20	20	1	2.00
	LG2	Low-Grade	0	20	20	1	4.50
		Mineralized	0	20	20	1	3.20
		High-Grade	0	20	20	1	2.45
Tracy	Trcy	Low-Grade	30	20	10	1	4.00
		Mineralized	30	20	10	1	2.75
		High-Grade	30	20	10	1	2.00
Tigre	Tig1	Low-Grade	45	20	10	1	4.00
		Mineralized	45	20	10	1	3.10
		High-Grade	45	20	10	1	2.00
	Tig2	Low-Grade	45	20	10	1	4.50
		Mineralized	45	20	10	1	2.75
Dora	NW	Low-Grade	0	20	30	1	2.80
		Mineralized	0	20	30	1	3.40
	SE	Low-Grade	0	30	30	1	4.00
		Mineralized	0	30	30	1	2.10
	WEST	Low-Grade	0	30	30	1	3.10
		Mineralized	0	30	30	1	2.60
Mirador	MrdN	Low-Grade	0	20	20	1	3.60
		Mineralized	0	20	20	1	2.40
	MrdS	Low-Grade	0	30	30	1	3.70
		Mineralized	0	30	30	1	2.70
Escondida	MAIN	Low-Grade	0	20	20	1	3.80
		Mineralized	0	20	20	1	3.80
	NW	Low-Grade	0	20	20	1	4.00
		Mineralized	0	20	20	1	2.50
Trinidad	TrN	Low-Grade	0	25	25	1	4.00
		Mineralized	0	25	25	1	2.85
	TrS	Low-Grade	0	25	25	1	2.70
		Mineralized	0	25	25	1	2.00

Table 17.8 Comparison of IDP and NN Estimates

Deposit	Zone	OreZONE	Number Blocks	Average IDP	Relative Variance IDP	Average NN	Relative Variance NN	Ratio IDP/NN	Smoothing Factor
Greta	Gr1	Low-Grade	102,702	0.043	0.969	0.043	1.770	1.006	0.547
		Mineralized	16,252	1.020	0.361	1.015	0.535	1.006	0.675
		High-Grade	4,208	9.531	0.227	9.558	0.381	0.997	0.596
	Gr2	Low-Grade	9,715	0.066	0.706	0.064	1.043	1.033	0.677
		Mineralized	5,275	1.322	0.493	1.394	0.773	0.948	0.638
	Gr3	Low-Grade	50,963	0.056	0.827	0.058	1.435	0.967	0.577
		Mineralized	11,428	0.882	0.349	0.885	0.506	0.997	0.689
		High-Grade	3,799	5.787	0.086	5.799	0.128	0.998	0.678
La Gloria	LG1	Low-Grade	44,321	0.038	1.301	0.039	2.442	0.954	0.533
		Mineralized	9,029	1.457	0.257	1.438	0.399	1.013	0.646
		High-Grade	3,200	4.899	0.046	4.983	0.057	0.983	0.809
	LG2	Low-Grade	38,473	0.038	1.473	0.042	2.647	0.903	0.556
		Mineralized	9,649	1.754	0.153	1.746	0.236	1.005	0.651
		High-Grade	3,826	5.524	0.087	5.584	0.137	0.989	0.637
Tracy	Trcy	Low-Grade	105,854	0.042	1.296	0.045	2.070	0.937	0.626
		Mineralized	17,107	0.934	0.435	0.941	0.687	0.993	0.633
		High-Grade	7,801	5.647	0.198	5.770	0.208	0.979	0.951
Tigre	Tig1	Low-Grade	32,755	0.022	1.872	0.022	3.140	1.012	0.596
		Mineralized	7,059	1.452	0.126	1.434	0.199	1.012	0.634
		High-Grade	1,357	9.134	0.225	9.092	0.263	1.005	0.855
	Tig2	Low-Grade	25,822	0.053	0.891	0.053	1.401	1.010	0.636
		Mineralized	9,148	1.214	0.158	1.261	0.248	0.962	0.639
Dora	NW	Low-Grade	88,549	0.051	1.086	0.050	1.697	1.007	0.640
		Mineralized	29,611	3.363	0.755	3.398	1.168	0.990	0.647
	SE	Low-Grade	128,540	0.049	1.346	0.049	2.052	0.993	0.656
		Mineralized	44,131	1.936	0.562	2.024	0.873	0.957	0.643
	WEST	Low-Grade	113,520	0.057	0.917	0.057	1.405	1.013	0.652
		Mineralized	41,505	2.806	1.005	2.880	1.516	0.974	0.663
Mirador	MrdN	Low-Grade	61,650	0.129	0.467	0.124	0.731	1.043	0.638
		Mineralized	15,544	1.515	0.499	1.557	0.746	0.973	0.669
	MrdS	Low-Grade	60,298	0.065	1.376	0.062	2.090	1.042	0.658
		Mineralized	15,288	2.125	0.405	2.146	0.622	0.990	0.650
Escondida	MAIN	Low-Grade	65,284	0.057	0.658	0.053	1.030	1.078	0.639
		Mineralized	45,096	0.964	0.756	0.956	1.221	1.009	0.619
	NW	Low-Grade	63,525	0.047	1.099	0.046	1.669	1.017	0.658
		Mineralized	27,449	1.456	0.892	1.463	1.356	0.996	0.658
Trinidad	TrN	Low-Grade	32,226	0.036	0.986	0.036	1.551	1.007	0.636
		Mineralized	8,368	2.401	0.855	2.218	1.315	1.082	0.650
	TrS	Low-Grade	59,540	0.086	0.487	0.086	0.865	1.003	0.562
		Mineralized	17,660	1.427	0.426	1.423	0.649	1.003	0.657

17.1.10 Resource Classification

Due to the preliminary nature of these estimates, all resources are classified as indicated. Specific items that need to be addressed to upgrade resources to measured and indicated include:

1. Density measurements are currently assumed based on historical values. Physical measurement of density using samples from the deposits.
2. Topography of some deposits is currently based on out-dated, poorly documented data in historical files. Current topographic mapping in UTM coordinates is recommended for all resource areas.
3. The depth of the underwater portions of the Dora and Mirador pits is estimated from historical blasthole data and inaccurately located depth samples. Detailed, accurately located depth soundings in the pit lakes is recommended.
4. Confirmation of the historical drilling/assaying should be done by limited confirmation drilling.
5. Confirmation and refinement of the Local-to-UTM coordinate transformation should be done by UTM surveying of the historical, local-grid survey control points.
6. Infill drilling in areas with widely spaced drilling will be required to upgrade some deposits to measured and indicated.
7. Additional modeling should be done to categorize the resources as oxidized and sulfide resources, since the degree of oxidation may have a significant effect on metallurgical recovery.

17.1.11 Summary of Resource

Resources are summarized for each of the deposits using a range of cutoff grades from 0.2 g Au/t to 1.0 g Au/t, in Table 17.9 to Table 17.16. Total resources for the all deposits estimated by ORE as part of the Oct 2010 study are shown Table 17.17. A cutoff grade of 0.3 g Au/t is used for reporting the total of all deposits, and is believed to be reasonable for an open-pit+heap-leach operation. It is also used to maintain compatibility with the Cristinas resource estimate that was previously reported by MDA.

Table 17.9 Greta Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	892	0.74	62,600
0.30	812	0.81	62,000
0.40	778	0.84	61,600
0.50	735	0.88	60,900
0.60	666	0.93	59,700
0.70	588	1.01	58,100
0.80	516	1.11	56,300
0.90	443	1.25	54,400
1.00	378	1.41	52,400

Table 17.10 La Gloria Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	515	1.48	43,200
0.30	515	1.48	43,200
0.40	513	1.48	43,100
0.50	500	1.52	42,900
0.60	491	1.55	42,700
0.70	480	1.58	42,600
0.80	464	1.63	42,200
0.90	441	1.69	41,600
1.00	417	1.75	40,800

Table 17.11 Tracy Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	500	2.42	38,900
0.30	492	2.46	38,900
0.40	471	2.55	38,600
0.50	431	2.75	38,000
0.60	354	3.23	36,700
0.70	320	3.50	36,000
0.80	298	3.70	35,500
0.90	282	3.86	35,000
1.00	266	4.03	34,600

Table 17.12 Tigre Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	352	0.63	21,800
0.30	352	0.63	21,800
0.40	346	0.64	21,800
0.50	329	0.65	21,600
0.60	313	0.66	21,300
0.70	305	0.67	21,100
0.80	291	0.68	20,800
0.90	271	0.70	20,200
1.00	253	0.72	19,600

Table 17.13 Dora Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	1,295	2.36	98,300
0.30	1,200	2.53	97,600
0.40	1,165	2.60	97,200
0.50	1,149	2.63	97,000
0.60	1,123	2.67	96,500
0.70	1,068	2.78	95,400
0.80	1,013	2.89	94,100
0.90	965	2.99	92,800
1.00	926	3.08	91,600

Table 17.14 Mirador Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	606	1.59	30,900
0.30	520	1.80	30,100
0.40	470	1.96	29,600
0.50	447	2.04	29,300
0.60	409	2.18	28,600
0.70	387	2.26	28,100
0.80	370	2.33	27,700
0.90	350	2.42	27,200
1.00	332	2.50	26,600

Table 17.15 Escondida Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	1,445	1.13	52,400
0.30	1,389	1.16	52,000
0.40	1,330	1.20	51,300
0.50	1,213	1.27	49,600
0.60	1,047	1.39	46,700
0.70	878	1.53	43,100
0.80	731	1.68	39,600
0.90	587	1.89	35,600
1.00	478	2.10	32,300

Table 17.16 Trinidad Deposit – ORE October 2010 Resource Estimate

Inferred Resources			
Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
0.20	1,224	1.55	60,800
0.30	1,102	1.69	59,900
0.40	1,073	1.73	59,600
0.50	1,016	1.80	58,800
0.60	968	1.86	57,900
0.70	899	1.95	56,500
0.80	802	2.10	54,100
0.90	725	2.23	52,000
1.00	664	2.35	50,100

Table 17.17 Summary of ORE October 2010 Resource Estimates

Deposit	Cutoff Grade (g Au/t)	Tonnes (1000's)	Grade (g Au/t)	Ounces Contained Gold
Trinidad	0.30	1,100	1.69	59,900
Escondida	0.30	1,389	1.16	52,000
Greta	0.30	800	2.41	62,000
La Gloria	0.30	500	2.68	43,100
Tigre	0.30	350	1.94	21,900
Tracy	0.30	500	2.42	38,900
Dora	0.30	1,200	2.53	97,600
Mirador	0.30	520	1.80	30,100
Total ORE Oct 2010 Estimates	0.30	6,359	1.98	405,500

17.2 Summary of Cristina Resource Estimate

Mine Development Associates (MDA) (Ristorcelli, 2009) produced the resource estimate for the Cristina gold deposit which is summarized in Ristorcelli, et al, May 1, 2009 and outlined in Table 17.18. This estimated was reviewed by Dr. Roger C. Steininger, and found to equal, or exceed, current industry standards. Therefore, it is concluded that the resource estimate for the Cristina gold deposit is reliable. Dr. Steininger's qualifications to conduct this evaluation are outlined in his AUTHOR'S CERTIFICATE AND SIGNATURE PAGE found at the end of this document. The following is a summary of Dr. Steininger's findings.

MDA conducted a drill hole data audit which is outlined in Section 14.6 of the above reference report. MDA was satisfied that the drill hole and assay database could be used to develop a reliable resource estimate for the Cristina gold deposit.

MDA developed a cross-sectional geological and mineralization model that outlined mineral domains to restrict the computer search for developing a block model. The geological model identified three types of mineralization that were closely tied to gold grades. These generally concentric zones are-

<0.4 g/t-weak silicification and widespread quartz veining

0.4 g/t to 5 g/t-moderate to strong silicification with stockwork quartz veining

>5 g/t-strong silicification and quartz veining

The lower grade mineralization is the outer zone with the high-grade mineralization occurring as small irregular zones in the interior. The importance of using this approach is to control compute search distances so as to not spread higher grades of gold mineralization into lower grade zones and therefore increasing the overall grade of the deposit. It also restricts computer searches so that gold mineralization is not extended beyond its natural boundaries into barren rock or below cutoff grade areas which could result in an increase in tonnage beyond what is justifiable.

Quantile plots of assays were used to identify any mineralization breaks, and since none were found MDA concluded that the deposit was most likely formed by a single mineralizing event. Therefore, with no assay outliers and a low coefficient of variations, it was decided that capping any assays was unnecessary.

The geological model was digitized and loaded into Minesight Mining Software, and three meter composites were constructed for each drill hole. Correlograms were produced indicating that there was no strong anisotropy. As a result MDA used an inverse distance estimatior as the base case for the resource estimate. Using the "CIM standards on Mineral Resource and Reserve, Definitions and Guidelines" MDA determined that the Cristina deposit should be classified as an Inferred resource. Table 17.18 outlines the Cristina resource for several cutoff grades.

MDA reported the resources at variety of cutoffs grades but considered the most reasonable cutoff grade to be 0.3 g Au/t for a deposit of this nature and potential mining approach given the economic conditions at the time. MDA considered that all exploitation at Cristina would be by open pit methods and the gold recovery by heap leaching. Considering cyanide-extraction recoveries described in Section 17.5 of Ristorcelli, MDA believed that the most reasonable cutoff for heap leachable open pit material would be approximately 0.3g Au/t. Given that the current gold price is substantially higher that that used by MDA a 0.3g Au/t cutoff still seems reasonable, as does the mining and gold recovery approaches (Table 17.18).

Table 17.18—Cristina Inferred resource at variable cutoff grades

Cutoff g Au/t	Tonnes	Grade g Au/t	Ounces Au
0.2	10,879,000	0.52	181,000
0.3	**7,139,000**	**0.66**	**152,000**
0.4	5,526,000	0.75	134,000
0.5	4,425,000	0.83	118,000
0.6	3,480,000	0.91	102,000
0.7	2,671,000	0.99	85,000
0.8	1,893,000	1.08	66,000
0.9	1,241,000	1.21	48,000
1.0	851,000	1.33	36,000
1.5	167,000	1.96	11,000
2.0	49,000	2.58	4,000
3.0	11,000	3.36	1,000

MDA used historic density and leachability tests to develop the resource estimates. While no new testing was conducted by Animas, using this historic information is reasonable for this type of deposit. Additional drilling will be required to bring the resource into Measured and Indicated status at which time additional density measurements and leaching test should be conducted.

18.0 OTHER RELEVANT DATA AND INFORMATION

The authors are not aware of any other relevant data or information that is not already discussed elsewhere in this report.

19.0 INTERPRETATION AND CONCLUSIONS

The authors believe that the Santa Gertrudis project is a property of merit whose principal asset is a large land position that controls a major gold district with significant past production and which contains existing resources with historic estimates and new 43-101 compliant resources. The size and exploration potential of the property is demonstrated by the occurrence of approximately 30 gold deposits within a northwest-trending mineral belt approximately 20km long and up to 8km wide. The full extent of the mineral belt is not known due to post-mineralization cover to the west and northeast.

The majority of Animas' exploration work completed during the past 3 years at Santa Gertrudis has been directed towards target identification and the discovery of large-tonnage, new gold resources. The work has included basic geological, alteration, mineralization, and structural mapping, a considerable amount of new rock-chip geochemical sampling, ground geophysical surveying and an in-depth re-interpretation of existing geophysical data, a compilation/review of the massive project database, and the drilling of 42 core and reverse circulation holes (12,926.00m). The results of this work have been invaluable in developing a better understanding of the global gold potential of the Santa Teresa mining district. Some of the more significant features of the Santa Teresa mining district are:

- Gold is hosted in most sedimentary rock types and persists over an area not easily explained by one source or event.
- While much of the gold mineralization is hosted in sedimentary rocks and have many features consistent with Carlin-like gold deposits, the mineral zoning identified from drilling and surface rock geochemistry indicate that the gold mineralization occurs distal to a large hydrothermal system, or systems.
- Four large (3+ km²), zones of contact metamorphic alteration (hornfels), which represent potential buried intrusive centers, have been identified.
- Many major structures are pre-mineralization and serve as important conduits and/or hosts for mineralization; post-mineralization structures off-set and can "hide" mineralization under un-mineralized rock.
- Numerous untested gold (>0.1g Au/t in soil and >1.0g Au/t in rock) and trace element anomalies occur within an area of approximately 160 km² (20km by 8 km).
- Surface mapping and drilling, complimented by geophysics, have identified several large potentially mineralized targets peripheral to known deposits.
- Additional potential for further discoveries extends under post-mineralization alluvial cover to the west.

The remaining exploration targets identified by Animas are subdivided into two sub-categories: "resource expansion"-type targets adjacent to existing, known deposits and new, "large-tonnage", molybdenum (±Zn?) porphyry-type targets that have been developed as a result of the more basic exploration conducted to date. The former target-types probably are relatively limited in size; each with the potential for an additional 50,000 to 100,000 ounces of new gold resources. However, the latter of these two target-types is thought to have significant resource potential, and it is believed that these target types could well add major, new molybdenum resources to the Company's existing mineral portfolio.

The exploration drilling completed during 2008-2010 was designed primarily to test clearly identified resource expansion-type targets. Primary exploration focus in the future should be the continuing delineation and drill testing of 13 targets that have the potential to more than double the existing, 43-101 compliant gold resource currently known to exist at Santa Gertrudis. Additionally, the El Tigre molybdenum porphyry prospect is recommended for additional geological mapping, geochemical sampling, and geophysics surveying, and the best of these targets should be drill tested.

It should be noted that except for two holes by Animas (ARGA-001 and ARGA-002) and a relatively few holes drilled by previous companies working in the area, no significant exploration work has been done in the gravel-covered areas west of the main mine area. This area appears to be a classic pediment, and based on the limited drilling done to date in this area, the gravel cover is relatively thin (<100m). Several of the known gold deposits at Santa Gertrudis are located on the very edge of the gravel-covered pediment (Dora, Maribel, and to some extent, Cristina), and it is probable that other gold deposits exist under shallow alluvial cover to the west of the main district. Unfortunately, existing search techniques (i.e., IP, geochemistry, soil gases, enzyme leach/MMI, etc) for these kind of alluvial-covered deposits do not appear to be particularly effective. However, new exploration techniques may well be developed in the future, and as these are developed, they should be strongly considered for use in the gravel-covered areas within the Santa Teresa mining district.

A brief review of the "large-tonnage" El Tigre target and other "extension"-type targets recommended for additional work/drilling follows. However, it is likely that these targets may be modified, or new targets identified, as additional work is done, and the following is meant to be a status-only review of where Animas now stands in this regard. These targets as well as other targets currently being evaluated are shown on Figure 19.1 and summarized in Table 19.1.

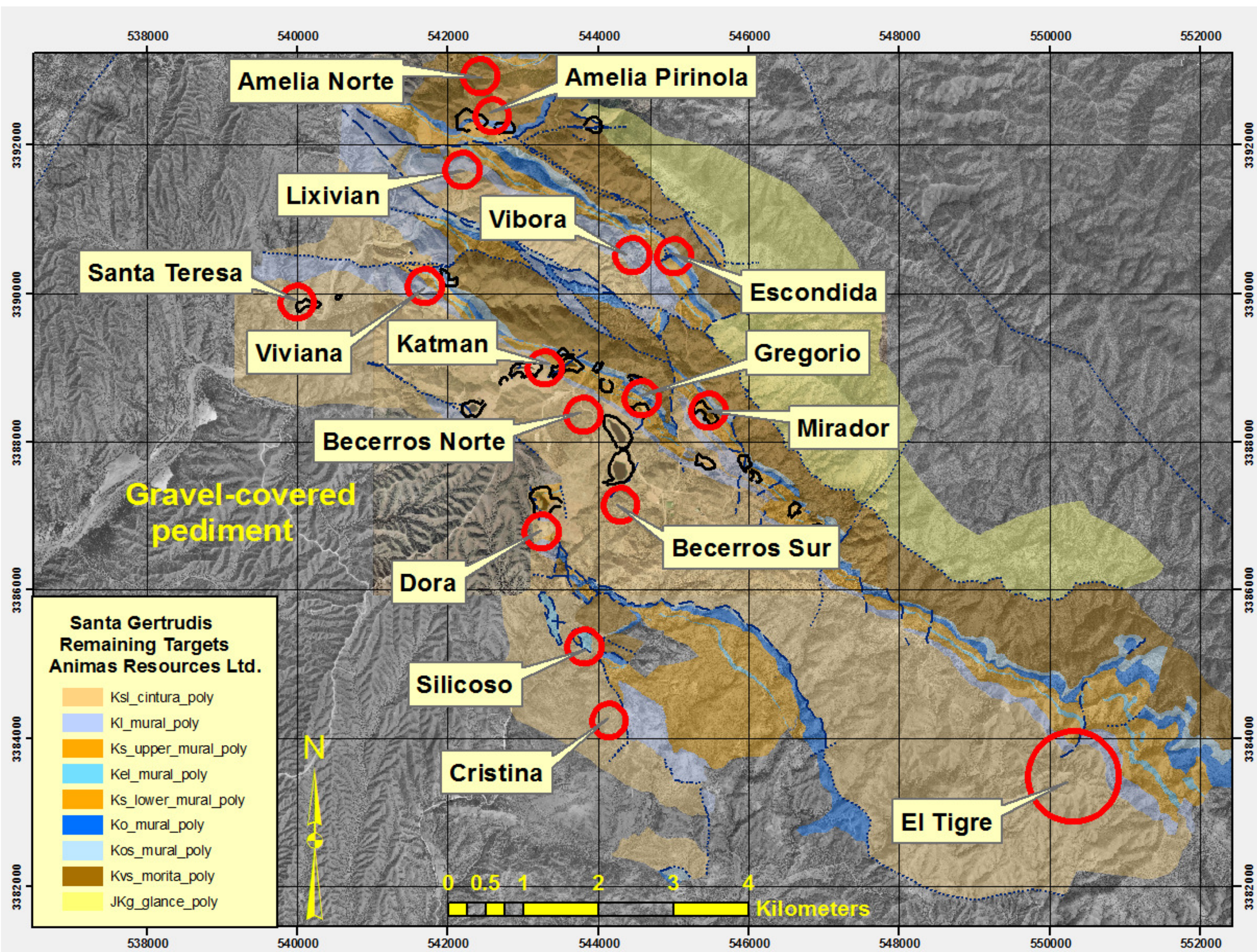


Figure 19.1 Santa Gertrudis Remaining Targets
(from Animas)

19.1 Large-Tonnage Targets

The primary large tonnage target at Santa Gertrudis is situated at El Tigre which is located approximately 8 kilometers southeast of the main area of historic gold production. The El Tigre target has many geological characteristics that are similar to known molybdenum prophyry deposits of the western U.S. and northern Mexico, and it is believed that this area has excellent discovery potential for a major new molybdenum porphyry deposit. This prospect will be discussed in more detail below.

It should be noted that other large thermal systems also exist at Santa Gertrudis (Mirador and Amelia), and should explorations efforts be successful at El Tigre, other areas will probably be recommended for additional exploration and/or drilling. The most interesting of these other potential targets is the Mirador hornfels system. This system is exposed in an erosional window through an allocthonous plate of weakly metamorphosed Mural and Cintura formations in the area of the Mirador pit. 2009 drilling west of Mirador pit in the Toro-Gregorio gold zone (holes ARTG-004, 005, and 006), all started in allochthonous Mural or Cintura formation and then passed into highly metamorphosed Ks (?). The hornfels was intersected at depths ranging from approximately 375m to 568m, and it is probable that this hornfels is a structurally-covered (under a post-mineral, low-angle, normal fault) continuation of the Mirador hornfels system. As such, it is permissive that a similar El Tigre-type Mo(?) system may be present at depth, south of the Toro-Gregorio and Mirador mines. It is expected that a great deal of new alteration and elemental zoning information will be developed as exploration continues at El Tigre, and it is hoped that this information will help Animas to better understand the potential of the partially-covered Mirador thermal system. This prospect also will be discussed briefly below.

19.1.1 El Tigre Molybdenum Target

The recent reorganization of the breccias at Fragment Knob indicates that more detailed mapping of the geology, structure, and alteration is needed to determine if there is additional evidence of felsic intrusive activity in the area. A good suite of hand specimens of any intrusive/breccias should be collected for petrographic and chemical analyses. As part of a mapping program the change in hornfels mineralogy, amount of bleaching of the hornfels, and the relative abundance of veining should be detailed to assist in providing vectors to the center of the system.

To help better understand the system petrographic analyses, with supporting whole rock analyses, of the several intrusive and breccias encountered in the drill holes is needed.

A Re-Os age date on the molybdenum currently is in progress and it is anticipated that this will help develop a better understanding of the relationship between the intrusion(s) and the structural evolution of the district.

An east-west IP/resistivity survey line through ARET-004 would assist in identifying the potential center of the mineralized system.

Once the above data are integrated, a drilling program of at least six holes, each a minimum depth of 300 meters is recommended. Initially one hole in the center of the gravity low would be important. The locations of the remaining drill holes would be contingent upon data from the above program and the results from the first new hole.

19.1.2 Mirador Molybedenum Target

The Mirador target is located in the vicinity of the historic Mirador and Sofia pits and at present, very little is known about its overall molybdenum potential. (Figure 19.1).

The 1,200m by 600m target area is comprised of limestone and calcareous siltstone/black shale of the lower Mural Formation which is overlain by locally calcareous siltstone and sandstone of the Cintura Formation. In this area, the Mural and Cintura Formations dip steeply south at -70º to -80º. The limestone units generally are unaltered but the adjacent siltstone/shale is moderately argillized, FeOxstained (goethite/hematite), locally quartz veined, and strongly altered to biotite-diopside hornfels. The zone of surface alteration trends westerly from the inactive Mirador pit and then projects under a post-mineral, allocthonous plate of Mural and Cintura formations which host the Gregorio, Camello, Ruben, Toro and Becerros gold deposits..

Surface rock-chip geochemistry (Animas and previous workers in the area) in the Mirador area indicates that the area is highly anomalous in gold (up to 3.1g Au/t) and arsenic (up to 3,370ppm As). The anomalous gold is spatially associated with the strong goethite-hematite-clay alteration and hornfels, and it is believed that it is in part genetically associated with the contact metamorphic alteration event.

Both the Mirador and the Sofia deposits appear to be controlled by northwest-trending faults/shears but no observable northeast-trending —feeder structures have been recognized. A low angle (30º±), southwest-dipping, normal fault has been mapped south of the Mirador deposit, but this fault appears to truncate the hornfels alteration. As such, this fault is believed to be post-hornfels in age, and it is permissive that the gold target may actually exist to the south under the post-hornfels low-angle normal fault.

Three holes were drilled in the Mirador area during 2008 and all holes intersected strong hornfels with a moderate to strong retrograde alteration assemblage of quartz-calcite-pyrite-chlorite veining. The strength of this retrograde alteration assemblage appears to decrease to the north, and it is permissive that the main center/source of the thermal metamorphism and retrograde alteration events could be located farther to the south or west.

19.2 Resource Expansion Targets

A total of 14 resource expansion-type targets remain to be evaluated at Santa Gertrudis. It is envisaged that all of these targets will need additional geological mapping, geochemical sampling, and possibly geophysical surveying before they are ready for drill testing. Although 25 holes currently are recommended for a total of approximately 8,000m of drilling, this program could be modified as a result of the future surface work. It is believed that the majority of the recommended drilling could be done by reverse circulation methods, and that if initial drilling is encouraging, additional drilling would be necessary to fully delineate new resources.

A very brief description of each target follows and the entire program is summarized below in Table 19.1.

19.2.1 Santa Teresa

The Santa Teresa target is located in the area of the Santa Teresa gold deposit and it is located approximately 3.5 kilometers west-northwest of the Santa Gertrudis camp/office complex. This deposit was partially mined by Minera Roca Roja during the 1990's (?), but apparently, they got into financial difficulties during the early phases of their mining operation at Santa Teresa, and only 2 or 3 levels of the deposit were ever mined.

The Santa Teresa deposit is hosted in northwest-trending, northeast-dipping, structurally overturned Cintura formation. The deposit appears to be controlled by a northeast-trending fault/structure that dips at 30º-50º to the northwest.

A review of the existing Roca Roja sections coupled with the results of Animas' drilling (ARST-002 intersected 6m at 2.0 g Au/t and 10m at 2.0 g Au/t) and surface mapping/sampling in the area, indicates that the deposit may be open down-dip and along strike to both the northeast and southwest. Any future exploration program in the area should be designed to more fully test the down-dip and strike extensions of this known deposit, and it should include additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.2 Cristina "Feeder" Target

The Cristina "feeder" target is located in the area of the Cristina gold deposit approximately 4.5 kilometers south of the Santa Gertrudis camp/office complex. The deposit is hosted within the Lower Cretaceous Cintura Formation which is in contact with the underlying Mural Formation (Kl limestone). A major, pre-mineralization fault separates the Cintura Formation from the underlying Mural Formation, and this fault strikes at approximately 340º and dips at 30º-40º to the southwest. This low angle fault appears to be a major normal fault, and although the amount of actual displacement cannot be measured, movement is inferred to have been southwest-directed. In outcrop, this fault can be traced on the surface from south of the Cristina deposit northwards to the Dora pit, and at several locations along this fault, the structure clearly controls strong hydrothermal alteration (silicification, goethite-hematite-staining, clay alteration) and variable gold mineralization.

Gold mineralization at Cristina is closely associated with stockwork quartz veining and weak to moderate pervasive argillization. The veins vary from 1cm to +20cm in width and locally contain about 1% pyrite (or goethite after pyrite). The veinlets locally have a preferred north-south and northwest orientation, and they oftentimes have an open-space cockscomb texture and locally, quartz pseudomorphs after calcite.

The main fault zone that forms the base of the deposit contains a massive silica breccia with angular fragments of silica and silica vein material set in a siliceous matrix. The siliceous breccia generally does not contain significant gold and there has been no testing or analyses of just the angular siliceous fragments to see whether they are mineralized and/or if they are locally derived.

The character of the Cristina gold deposit is much different than the known gold deposits within the main area of historic gold production, and it is believed that the deposit is a more typical stockwork epithermal-type gold deposit. As such, it is permissive that there may be a significant, previously unrecognized, bonanza-grade "feeder" system under the deposit (potential for 10+g Au/t). Any future exploration program in the area should be designed to evaluate the potential for a high grade bonanza vein at depth under the known Cristina gold deposit and should include additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.3 Vibora Target

The Vibora target is located approximately 2.5 kilometers north-northwest of the Santa Gertrudis mine camp/office complex. Known gold mineralization in this area is associated with an inflection in the near east-west-trending Escondida fault where it cuts and slightly offsets the lower Mural (Ko and Kos units) and the Morita formations. Previous drilling in this area has intersected significant thicknesses of hydrothermally altered Kos (120m wide zone) and low grade gold mineralization (22m at 0.90 g Au/t and 12.5m at 0.90 g Au/t). Additionally, numerous surface rock-chip samples from the area contain anomalous gold (up to 1.135g Au/t).

This zone of gold mineralization and alteration appears to be open at depth and along strike and any future exploration program in the area should be designed to more fully evaluate the down-dip and strike extensions of this known deposit by additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.4 Lixivian Target

The Lixivian target is located south of the Amelia mine waste dump approximately 3.7 kilometers north-northwest of the Santa Gertrudis mine camp/office complex. Known gold mineralization is associated with a bedding parallel shear zones within structurally overturned, Mural formation (Kl unit). Some limited drilling was done here in the past, and one hole (OFE D-14) interesected 21.0m at 2.0 g Au/t. Animas surface rock-chip sampling in the area also detected highly anomalous gold (up to 1.8g Au/t).

This zone of gold mineralization has not been well-tested by previous workers in the area, and any future exploration program in the area should be designed to more fully evaluate this zone of known, relatively high-grade gold mineralization by additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.5 Amelia-Pirinola Target

The Amelia-Pirinola target is located general Amelia mine area approximately 4.5 kilometers north-northwest of the Santa Gertrudis mine camp/office complex. Known gold mineralization in this area is associated with north-dipping, bedding parallel shears within an allocthonous plate of Mural formation. Previous drilling by Minera Roca Roja indicates that gold mineralization continues down-dip from the existing pit (drill hole RR-105 with 12.0m at 1.9g Au/t and hole RR-22 with 32m at 0.88g Au/t). Animas drilling in the area (ARPR-005) also intersected 20m of highly anomalous As (700ppm), Zn, and Au (775ppb) in the low angle normal fault that separates the Amelia allocthon from underlying hornfels. It is also permissive an El Tigre Mo system or Zn skarn deposit may exist in the underlying hornfelsed rocks.

This zone of gold mineralization has not been well-tested by previous workers in the area, and any future exploration program in the area should be designed to more fully evaluate the zone of known gold mineralization and the underlying thermal metamorphic zone.

19.2.6 Becerros Sur Target

The Becerros Sur target is located south of the Becerros Sur gold deposit approximately 1.5 kilometers southeast of the Santa Gertrudis mine camp/office complex. Geologically, the area is comprised of southwest-dipping Cintura formation which is cut by both northwest and northeast striking normal or strike-slip faults. Although rock exposure in the area is poor, limited rock-chip sampling has detected up to 200 ppb Au in clay altered and hematite-geothite-stained Cintura.

This zone of anomalous gold mineralization has never been drill tested, and any future exploration program in the area should be designed to more fully evaluate the zone by means of additional geological mapping, geochemical sampling, and if warranted, shallow reverse circulation drilling.

19.2.7 Dora Southwest Target

The Dora Southwest target is located immediately southwest of the Dora pit approximately 1.2 kilometers soth of the Santa Gertrudis mine camp/office complex. Geolgically, the area is comprised of Cintura formation which is in fault contact with Mural formation (Kl unit). The fault that separates the two units and trends in a north-south direction with the western side inferred to be down-dropped approximately 150m. This north-south fault clearly terminates the known

Dora gold mineralization and it is believed that that a down-faulted portion of the Dora ore body occurs at depth in this area.

This inferred, Dora offset has never been drill-tested by previous workers in the area, and any future exploration program in the area should be designed to more fully evaluate this potential offset of the Dora orebody by means of additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.8 Amelia Norte Target

The Amelia Norte target is located 300m north of the Amelia pit approximately 4.8 kilometers north-northwest of the Santa Gertrudis mine camp/office complex. Geologically, the area is comprised of overturned, northwest-striking, northeast dipping Morita formation. Geolgical mapping and geochemical sampling by Animas has delineated a northwest-trending zone of weak clay alteration, variable weak stockwork quartz veining, and hematite-goethite-staining. This zone of alteration is approximately 850m long and 50m wide and contains anomalous Au in rock-chip samples (up to 1.9g Au/t)

This zone of anomalous gold mineralization/alteration has never been drill tested and any future exploration program in the area should be designed to more fully evaluate the zone by means of additional geological mapping, geochemical sampling, and if warranted, shallow reverse circulation drilling.

19.2.9 El Gregorio Target

The El Gregorio target is located in the general area of the El Gregorio pit approximately 1.4 kilometers east-northeast for the Santa Gertrudis mine camp/office complex. Geologically this area is comprised of northwest striking, steeply southwest-dipping Mural and Cintura formations which are altered to clay-hematite-goethite and anomalously mineralized (up to 1.8g Au/t). Animas' 2009 drilling in the area (ARTG-004) intersected several hundreds of meters of variable, weak to very strong decalcification and highly anomalous gold ranging from 2.7m at 2.23g Au/t to 26.85m at 0.221g Au/t. The strength of the observed alteration system and the amount of anomalous gold present in the rocks indicates that a potentially strong hydrothermal system could be nearby, and additional work is clearly necessary to more fully evaluate this area.

This area needs additional exploration work and any future exploration program in the area should be designed to more fully evaluate the zone by means of additional geological mapping, geochemical sampling, and diamond core drilling.

19.2.10 Escondida Splay Target

The Escondida Splay target is located in the Escondida Centro area approximately 3.3 kilometers northeast of the Santa Gertrudis mine camp/office complex. Geologically the area is comprised of two north to northwest-trending faults that wedge a piece of Mural formation between Morita formation to the west and Glance Conglomerate to the east. The near east-west-trending Escondida fault cuts through the southern end of this Mural fault slice, and a structural vortex has been created in this area.

It should be noted that a new NI 43-101 compliant gold resource evaluation has been recently completed for this area (Animas) and is reported elsewhere in this report (Section 17).

Animas drilling in this area during 2009 (ARES-001) intersected 69.05m at 0.221g Au/t in this area, and it is believed that this area may have potential for large tonnage lower-grade gold mineralization.

This area needs additional exploration work, and any future exploration program in the area should be designed to more fully evaluate this thick, low-grade gold zone by means of additional geological mapping, geochemical sampling, and if warranted, diamond core drilling.

19.2.11 Katman Target

The Katman target is located between the Toro and Katman pits approximately 900 meters north of the Santa Gertrudis mine camp/office complex. Geologically the area is comprised of northwest-striking, northeast dipping, overturned Mural and Cintura formations. In this area, it is believed that the gold mineralization is controlled by east-west-trending, 50º north-dipping cleavage, and as such, the area was never properly drilled by previous workers in the area.

This area needs additional exploration work, and any future exploration program in the area should be designed to more fully evaluate this potentially cleavage-controlled gold zone by means of additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.12 Silicoso Target

The Silocoso target is located 900 meters north of the Cristina gold deposit and approximately 2.9 kilometers south-southwest of the Santa Gertrudis mine camp/office complex. Geologically this area is comprised of westerly- dipping Mural (Kl and Ks units) and Cintura formations. The Cintura formation in this area is in fault contact with the underlying Mural formation, and it's structural setting is almost identical to the Cristina gold deposit. The type of alteration and mineralization seen here is also very similar to the Cristina deposit and consists of stockwork quartz-pyrite veining (≤1 percent) and weak to moderate pervasive argillization. Limited surface rock-chip samples from the area locally contain up to 1.5g Au/t, and two previously drilled Phelps Dodge holes intersected gold up to .7g Au/t.

This area is almost identical in character to the Cristina gold deposit (similar structural setting, lithology, alteration, and mineralization), and it has not been adequately explored by past workers in the area. As such, any future exploration work in the area should include additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

19.2.13 Viviana Target

The Viviana target is located immediately southwest of the Viviana pit approximately 2.4 kilometers northwest of the Santa Gertrudis mine camp/office complex. Geologically the area is comprised of northwest-striking, northeast-dipping, overturned Mural formation (Ks, Kel, and Kl units). Although very limited sampling has been completed in this area, locally, erratic anomalous gold is present in rock-chip samples (up to 1.8g Au/t). Although the area does not have strong, surface alteration/mineralization, a strong, relatively shallow, IP anomaly has been delineated in the area, and it is permissive that gold mineralization is presentat depth in the favorable Ks unit.

This target is somewhat conceptual, but due to the relatively high gold grades that were mined in the adjacent Viviana pit (10+ g Au/t), additional work is justified in the area. Future exploration work in the area should consist of additional geological mapping, geochemical sampling, IP surveying, and if warranted, reverse circulation drilling.

19.2.14 Becerros Norte Target

The Becerro Norte target is located immediately northwest of the Becerros Norte pit approximately 800 meters east-northeast of the Santa Gertrudis mine camp/office complex. Geologically the area is comprised of northwest-striking and steeply southwest to northeast-dipping Cintura formation. The Becerros Norte pit alteration zone continues out the pit into this area and alteration continues to the northwest for an additional 500m. Gold values are rather erratic in this area, but one surface rock-chip samples from this area contained 3.7g Au/t.

Additional exploration work is need in this area, and the recommended 2011 program is designed to more fully evaluate this potential extension of the Becerros mineral zone. Future exploration work in the area should consist of additional geological mapping, geochemical sampling, and if warranted, reverse circulation drilling.

Table 19.1 Targets Recommended for Additional Work and/or Drill Testing

Target	Priority	Justification
El Tigre	1	6 km diameter hornfels zone with an inner, nested zone of strong quartz veining (600m diameter), (surface rocks-soils) Mo-Cu anomaly with peripheral Zn-Mn anomaly, outcropping and drill intercepted stockwork quartz-veined felsic intrusive, Mo veining-anomalous F in drill core, **a very high quality exploration target**
Sta. Teresa	2	SW and NE extension of known Sta. Teresa gold mineralization with open, down-dip intercepts of **6m at 2g Au/t and 10m at 2g Au/t, surface,** local surface soil/rock Au anomaly (to 1.6 g Au/t
Cristina Feeder	2	Exploration for potential "bonanza" grade feeder(s) zone beneath Cristina deposit, target is somewhat conceptual and no definitive "target" has been yet defined
Víbora	2	On main Escondida structure at a flexure in Ko-Ks, mineralized breccia on surface and a 120m wide alteration zone at depth with **22m at 0.9 g Au/t** in VI-106 and **12.50m at 0.9g AU/t** in VI-107
Lixivian	2	Mineralizad bedding parallel shear with anomalous surface Au and **21m at 2g Au/t** in OFE D-14
El Gregorio	2	Animas' hole (ARTG-004) intersected ~200m of variable, weak to very strong decalcification and highly anomalous gold ranging from 2.7m at 2.23g Au/t to 26.85m at 0.221g Au/t. The strength of the alteration system and the presence of anomalous gold indicates that a potentially strong hydrothermal system could be located nearby.
Amelia Pirinola	3	Four target zones down on dip projection to NE from Pirinola deposit **12m at 1.9g Au/t** in RR-105 and **32m at 0.88g Au/t** in RR-22 + test low angle structure; **20m high As- 700ppm Zn, Au 775 pbb** from ARPR-005; high angle E-W Trinidad zone, potential to connect Amelia/Pirinola
Dora SW	3	Offset of known Dora Au mineralization by high angle N-S normal fault with west side down approx 200m, IP anomaly at depththat may indicate Ks at depth (possible favorable and mineralized host rock)
Amelia Norte	3	Soil and rock chip anomaly with Au to1.9 ppm; arg weak , loc qzt stkw; zone 850x50m at 295º, north of Amelia Mine and edge of circular topographic feature
Becerros Sur	3	Possible offset of Becerros shear zone with Au, intersection of two N55E faults with N50W alignment; no drill holes , rock chip Au to 200ppm
Escondida	3	Follow-up of hole ARES-001 gold intercepts, zone of interest at intersection of EW-trending Escondida structure and N35W fault splay, black mudstone/ limestone with surface rock chip Au up to 3 g Au/t; hole ARES-001 intersected **69.05m @ 0.221 g Au/t**
Katman	3	Continuation of Katman to Toro mineralization, E-W cleavage at 50º north and several more small 45E structures, surface rock-chips **up to 2g Au/t**
Silicoso	3	Explore surface soil and rock-chip Au-Ag anomaly (Au up to 515ppb and Ag upt to 100ppm) at depth, mineralized breccia and strong stockwork quartz veining on surface, anomalous Au in holes SI-101 and SI-102 (≤ 0.7 g Au/t)
Viviana	3	IP anomaly at depth with erratic anomalous Au in soil (up to 212ppb Au) and rock (up to 1.85 g/t Au) at N70E, potential feeder for Viviana deposit, favorable stratigraphy at depth (lower of Ks or Ks if folded)
Becerros Norte	3	Anomalous rock-chip samples (up to 3.7 gpt), mod surface clay-hm-goethite alteration, NW projection of Becerros Norte mineralization, favorable diorite sill

20.0 STAGE 1 RECOMMENDATIONS

The most important aspect of any exploration is defining the geologic setting. As such, we recommend that Animas complete the following:

- **Continue surface geologic mapping of the Molybdenum target at El Tigre.** Continue surface mapping with special attention drill target definition using the mineralization and alteration is warranted. This is expected to take three months at a cost of US$30,000.

- **Target definition and prioritized selection of best targets and projects.** GIS analysis and data integration will be the largest part of this work, culminating in identifying targets for additional exploration, at a cost of US$20,000.

- **Complete resource estimates for drilled areas.** Work on this would require six months to fully assess all the potential resource-bearing areas. The cost of this work including site visits, modeling, and reporting are expected to be US$100,000.

- **Preliminary Economic Assessment (Scoping studies).** It is important to assess potential economics of the Santa Gertrudis resources by completing preliminary economic assessments on at least those resources having the greatest economic potential. This cost is expected to be US$200,000.

- **Maintain the necessary land holdings.** As the evaluation of the project continues, some areas will be shown to have much less potential than others, and Animas should consider reducing costs by reducing the size of its property holdings. The cost is $ 500,000

The total cost of these recommended Stage 1 tasks is approximately US$850,000.

20.1 Stage 2 Recommendations

Following successful completion of Stage 1 tasks, it is anticipated that drilling will be justified.

- **Drilling several of the larger targets.** We believe that 5,000m of drilling in 10 holes is merited at El Tigre. We prefer a balance of more cost effective RC drilling, with core drilling. The cost of this program would be US$1,000,000.

- **Infill/expansion drilling on existing resources.** If the preliminary economic studies prove positive, then infill drilling will be needed to upgrade the resources and provide independent verification and possibly resource expansion. Some 30 holes, mostly RC with selective core, could be justified, this cost would be US$1,500,000 assuming the holes are 200m each.

- **Continued exploration as described in Stage 1 Recommendations.**

The total cost of these recommended Stage 2 tasks is US$ 2,500,000.

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22.0 DATE AND SIGNATURE PAGE

This report titled "Technical Report and Resource Estimate on the Santa Gertrudis Gold Project, Sonora, Mexico" and dated December 31, 2010 prepared for Animas Resources Ltd. effective as of and dated December 31, 2010 was prepared and signed by the following authors

Alan Noble, P.E.

(signed) *Alan Noble*

Signature

John R. Wilson, VP of Exploration

(signed) *John R. Wilson*

Signature

Roger C. Steininger PhD, CPG

(signed) *Roger C. Steininger*

Signature

G. E. McKelvey, Registered Professional Geologist

(signed) *Gregory E. McKelvey*

Signature

23.0 CERTIFICATE AND CONSENT OF AUTHOR

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CERTIFICATE OF AUTHOR

As an author of the report entitled "Technical Report and Resource Estimate on the Santa Gertrudis Gold Project", dated December 31, 2010 (the "Technical Report") and prepared for Animas Resources Ltd., I, Alan C. Noble, P.E. do hereby certify that:

1. I am a self employed Mining Engineer doing business as:

   Ore Reserves Engineering
   12254 Applewood Knolls Drive
   Lakewood, Colorado 80215 USA

2. I graduated from the Colorado School of Mines, Golden, CO with a Bachelor of Science Mining Engineering in 1970.

3. I am a Registered Professional Engineer in the State of Colorado, USA, PE 26122. In addition, I am a Member of the Society of Mining, Metallurgy, and Exploration (SME).

4. I have practiced my profession as a mining engineer continuously since graduation for a total of 40 years. During that time I worked on mineral resource estimates and mine planning for over 140 mineral deposits, of which 75 were gold deposits.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration of a professional engineer, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I am responsible for Section 17.1 of this technical report and have prepared the resource estimates discussed in that section.

7. I have had prior involvement with the property that is the subject of the Technical Report. This prior involvement was in the late 1980's and early 1990's, during which time I worked in a resource-estimation advisory capacity to Phelps Dodge. I visited the Project on July 6, 2010 for a period of two days.

8. As of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

9. I am independent of the issuer, Animas Resources Ltd., applying all of the tests of section 1.5 of National Instrument 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and that form.

11. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 31st day of December, 2010

"Signed and Sealed,
Alan C. Noble"

Alan C. Noble, PE 26122.

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CERTIFICATE of Roger C. Steininger

I, Roger Steininger, PhD, CPG, do hereby certify that:

I am an independent consultant with an office at-
3401 San Mateo Ave.
Reno, NV 89509

I graduated from Colorado State University with a Ph.D. (Geology) in 1986.

I am a Certified Professional Geologist (CPG 7417) certified by the American Institute of Professional Geologists.

I have practiced my profession continuously for 40+ years.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, including involvement in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, and Mexico, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I am responsible for the preparation of sections of the technical report titled "**Technical Report and Resource Summary on the Santa Gertrudis Gold Project, Sonora, Mexico"**, dated December 31, 2010 (the "Technical Report") as fully outlined in the document, principally the sections relating to geology and the review of the Cristina resource. As an independent author, I reviewed the sections prepared by the two non-independent authors and concur with the information presented in the sections they compiled. I am not responsible for Secitions 17.1 and 16, and as noted in Section 3. I personally visited the site numerous occasions from 2008 through 2010.

I have had previous experience at Santa Gertrudis as a consultant to Phelps Dodge in the 1980s during which time I visited the property on two separate occasions.

During my 40+ years of experience I have been involved in numerous resource estimates starting in 1970 at the Climax mine. These projects include gold and base metal estimates for exploration projects, feasibility studies, and at operating mines. I am qualified to review the MDA work presented in the 2009 NI43-101 report titled "Technical Report on the Santa Gertrudis Gold Project, Sonora, Mexico" dated May 1, 2009 for the Cristina resource estimate and present the summary in this document.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report for which I am responsible that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

I am independent of the issuer applying all of the tests in Section 1.4 of NI 43-101.

I have read NI43-101 and Form 43-101F1, and the subject matter of the Technical Report for which I am responsible has been prepared in compliance with that instrument and form.

I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this31st day of December, 2010

(Signed) *Roger C. Steininger* [Sealed: CPG 7417]
Roger C. Steininger, PhD, CPG

John R Wilson
4279 Birch Valley Road
Hermantown, MN 55811

CERTIFICATE of John R. Wilson

I, John R. Wilson, do hereby certify that:

I am Exploration Vice President for Aniams Resources and project leader for the Snata Gertrudis Gold Project with an office at 4279 Birch Valley Road, Hermantown, MN 55811.

I graduated from University of Arizona, MS (Geology) in 1976.

I am a currently a member of the Society of Economic Geologists.

I have practiced my profession continuously for 40+ years.

I am currently employed by Animas Resources Ltd. and all their subsidiaries as defined in Section 1.4 of NI 43-101 and in Section 3.5 of the Companion Policy to NI 43-101.

I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

I am responsible for the preparation of sections of the technical report titled "**Technical Report and Resource Summary on the Santa Gertrudis Gold Project, Sonora, Mexico"**, dated December 31, 2010 (the "Technical Report") as fully outlined in the document. I personally visited the site numerous times from 2008 through 2010.

During my 40+ years of experience I have been involved in numerous resource estimates. These projects include gold and base metal estimates for exploration projects, feasibility studies, and at operating mines.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report for which I am responsible that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 31st day of December, 2010

(Signed) *John R. Wilson*
John R. Wilson

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CERTIFICATE of G.E. McKelvey

I, G.E. McKelvey, CPG, do hereby certify that:

I am the President of Animas Resources and an independent consultant with an office at-
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Pine, Arizona 85544

I graduated from Franklin & Marshell College with a Master of Science. (Geology) in 1967.

I am a Certified Professional Geologist (CPG 07448) certified by the American Institute of Professional Geologists.

I am Professional Geologist registed in the State of Wyoming (PG-504)

I have practiced my profession continuously for 40+ years.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, including involvement in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, and Mexico, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I am responsible for the preparation of sections of the technical report titled "**Technical Report and Resource Summary on the Santa Gertrudis Gold Project, Sonora, Mexico"**, dated December 31, 2010 (the "Technical Report") as fully outlined in the document. I personally visited the site numerous times from 2008 through 2010.

I have had previous experience at Santa Gertrudis as a empploye of Phelps Dodge in the 1980s during which time I managed the exploration program.

During my 40+ years of experience I have been involved in numerous resource projects. These projects include gold and base metal estimates for exploration projects, feasibility studies, and at operating mines.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report for which I am responsible that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

I have read NI43-101 and Form 43-101F1, and the subject matter of the Technical Report for which I am responsible has been prepared in compliance with that instrument and form.

I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 31st day of December, 2010

(Signed) *G.E. McKelvey* [Sealed: CPG 7448]
G.E. McKelvey, CPG

Appendix A

Name of claim	Holder	claim # Title	No. of file	type of concession	date of Title	hectares
Agua Blanca	First Silver	185587	321.1-9/797	minera	14-Dec-89	492.4498
Agua Blanca Fracc. X	First Silver	185584	321.1-9/802	minera	14-Dec-89	430.5168
Santa Teresa	First Silver	185882	321.1-9/874	minera	14-Dec-89	297.3420
San Ignacio	First Silver	179845	321.1-4/207	minera	17-Dec-86	10.0000
Cosahui	First Silver	191262	321.1-4/669	minera	19-Dec-91	347.3400
Cosahui I Fracc. Sur	First Silver	191231	321.1-4/671	minera	19-Dec-91	393.1968
Carmen	First Silver	179846	321.1-4/208	minera	17-Dec-86	40.0000
Fracc. 7 Agua Blanca I	First Silver	202598	4/1.3/1202	minera	8-Dec-95	459.0000
Fracc. 8 Agua Blanca I	First Silver	202879	4/1.3/1203	minera	2-Apr-96	495.0000
Fracc. 10 Agua Blanca I	First Silver	202600	4/1.3/1205	minera	8-Dec-95	229.9457
Fracc. 11 Agua Blanca I	First Silver	202878	4/1.3/1207	minera	2-Apr-96	350.0000
Fracc. 12 Agua Blanca I	First Silver	202601	4/1.3/1206	minera	8-Dec-95	450.0000
El Pinito I	First Silver	214804	4/2.4/2253	minera	15-Dec-98	828.0000
Rocio fracc 1	First Silver	225834	82/29745	minera	27-Jan-05	9,014.8899
Rocio fracc 2	First Silver	225835	82/29745	minera	27-Jan-05	561.0000
Amelia	Recursos	179904	321.1-4/209	Minera	20-Mar-87	25.2679
Espíritu	Recursos	190582	321.1-4/524Bis	Minera	29-Apr-91	14.5196
Amelia No. 2	Recursos	190583	321.1-4/589	Minera	29-Apr-91	35.0000
Amelia No. 6	Recursos	190646	321.1-4/604	Minera	29-Apr-91	54.0713
Amelia No 7 Fracc I	Recursos	190759	321.1-4/607	Minera	29-Apr-91	480.0000
Amelia No 7	Recursos	191693	321.1-4/606	Minera	19-Dec-91	496.3388
Amelia No. 4	Recursos	191724	321.1-4/590	Minera	19-Dec-91	29.5026
Amelia No. 3	Recursos	191725	321.1-4/603	Minera	19-Dec-91	22.0952
Amelia No. 5	Recursos	211857	4/1.3/1575	Minera	28-Jul-00	9.2460
Amelia No 8 Fracc I	Recursos	196284	4/1.3/818	Minera	16-Jul-93	433.5921
Agua Blanca No. 2	Recursos	198541	4/1.3/792	Minera	30-Nov-93	38.7967
Venado	Recursos	220540	82/28520	Minera	15-Aug-03	200.0000
Alce	Recursos	220541	82/28521	Minera	15-Aug-03	118.0496
Bura	Recursos	220539	82/28519	Minera	15-Aug-03	192.0000
Chuqui 1	Minera Chuqui	226284	82/29799	Minera	6-Dec-05	286.6572
Chuqui 2	Minera Chuqui	226285	82/29800	Minera	6-Dec-05	1,133.6668
Chuqui 3	Minera Chuqui	230022	82/31311	Minera	10-Jul-07	19,205.9116
Chuqui 4 Fraccion A	Minera Chuqui	230036	82/31312	Minera	11-Jul-07	5,837.4716
Chuqui 4 Fraccion B	Minera Chuqui	230037	82/31312	Minera	11-Jul-07	40.0000
Chuqui 5	Minera Chuqui	231176	82/31652	Minera	22-Jan-08	1,228.4781
Chuqui 6	Minera Chuqui	231845	82/31978	Minera	7-May-08	10,159.7300
Ofelia	Minera Chuqui	182549	321.1/4-326	Minera	27-Jul-88	23.2195
Santa Gertrudis	Minera Chuqui	190480	82/04184	Minera	29-Apr-91	42.0000
Don Victor - optioned concessions with Chuqui						
El Tascalito	Minera Chuqui	216066	4/2.4/2415	Minera	30-Jul-92	24.0000
La Peque	Minera Chuqui	191734	321.1/4/713	Minera	19-Dec-91	9.3864
La Peque I	Minera Chuqui	195805	321.1/4/712	Minera	22-Sep-92	7.4929
Albelais Varela - optioned concessions with Chuqui						
La Víbora	Minera Chuqui	191263	321.1/4/675	Minera	19-Dec-91	10.0000
El Aguaje	Minera Chuqui	191900	321.1/4/696	Minera	19-Dec-91	12.0000

Name of claim	**Holder**	**claim # Title**	**No. of file**	**type of concession**	**date of Title**	**hectares**
Lopez-Limon option concessions with Chuqui						
Maribel	Minera Chuqui	185883	321.1-9/876	Minera	14-Dec-89	20.0000
Fracc. 4 Agua Blanca I	Minera Chuqui	219219	4/2/00031	Minera	29-Nov-93	100.0000
Los Manueles	Minera Chuqui	195368	321.1-4/248	Minera	14-Sep-92	14.0000
Dora	Minera Chuqui	218137	82/28003	Minera	11-Oct-02	87.0000
Cuca	Minera Chuqui	218138	82/28004	Minera	11-Oct-02	83.2929
Erika	Minera Chuqui	219096	82/28182	Minera	4-Feb-03	140.0000
San Francisco	Minera Chuqui	219095	82/28181	Minera	4-Feb-03	16.8406
Fabiola	Minera Chuqui	221737	82/28684	Minera	19-Mar-04	272.0000
Karen	Minera Chuqui	222689	82/28873	Minera	13-Aug-04	115.6160
Susan	Minera Chuqui	222690	82/28874	Minera	13-Aug-04	737.0000
					Grand Total	**56,152.9244**

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Electrical Geophysics for the Exploration Industry
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Durango, Colorado 81302

Animas Resources Ltd. - Santa Gertrudis, Sonora

Interpretation and Logistical Report
on an
Induced Polarization and Resistivity Survey (Pole-Dipole Array)
on a portion of the

El Tigre - Enedina Project Area

March, 2010

A limited Induced Polarization and Resistivity (IP) test orientation survey has been completed over the Tigre - Enedina project area located in the southeast region of the Santa Gertrudis mining property of Animas Resources Ltd. The Santa Gertrudis property is located in the Cucurpe Municipality 45 kilometers east of Magdalena de Kino in northern Sonora, Mexico and approximately 75 kilometers south of Nogales, Arizona. Access to the Santa Gertrudis project area is via the paved Cucurpe highway east-southeast out of Magdalena (~ 25 kms.) then via improved gravel ranch roads to the northeast (~40 kms.) to the Santa Gertrudis mining camp. The Tigre - Enedina project area is located ~ 8.5 kms. southeast of the main Santa Gertrudis deposit area.

The Tigre - Enedina Project area is proximal to a very strong aeromagnetic anomaly that is commonly thought to be the expression of a buried intrusive complex located beneath Enedina Hill. A second, less accepted hypothesis regarding the strong aeromagnetic anomaly is that there may be enough near-surface magnetite present in the hornfelsed and skarn altered rocks in the Tigre - Enedina area to account for this aeromagnetic signature.

The suspected target(s) in the Tigre area was thought to be skarn type and possibly porphyry related mineralized system(s) located along the north, east and west contact areas of the suspected buried intrusive and favorable sedimentary units. An earlier drill hole, ARET-001 encountered hornfelsed and skarned sedimentary rocks containing very anomalous Mo, Zn, F, As, Bi, Sb, and Sn mineralization. The first two approximately orthogonal pair of 200m pole-dipole IP lines were centered on ARET-001, Line 1NE (N50^{o}W) and Line 2NW (N40^{o}E). Data were acquired in the Time Domain using an ElRec-2 receiver coupled to a 3KW Phoenix IPT1 transmitter. There were plans to run 4 or 5 lines over this area but logistical considerations and manpower limitations necessitated the reduction in this program to these two lines. Line 1NE (N50^{o}W), centered on the ARET-001, was targeted with the express goal of investigating the skarn related mineralization thought to be located along the northeast flank of the Enedina Hill magnetic intrusion. The southeastern end of the line was extended in an effort to add additional IP information across the Lupita - Esperanza zones.

Targeting concepts in the Enedina Hill area were less well defined but the presence of significant quartz veining and with molybdenum mineralization warranted a limited test of the IP response of this area. Line 2NW (N40^{o}E), again centered on the ARET-001 drill hole, was oriented NE/SW and, in addition to attempting to investigate the possible skarn mineralization on the northeast side of the Enedina Hill aeromagnetic response, it was hoped that the southwest portion of this could add additional information to the questions associated with the quartz and molybdenum occurrences centered on Enedina Hill the possible extension of prospective mineralization to the southwest.

As mentioned above, the original plans called for a series of four or five North-northeast / South-southwest 200 meter pole-dipole array IP lines to be run. It was originally thought that the brush and vegetation of the Tigre - Enedina area were sparse enough that the lines would not need to be brushed prior to field operations.

Field operations were begun on March 19th and it was immediately obvious that the proposed IP lines would need to be brushed before the crew would be able to effectively layout the long wires associated with a 200 meter pole-dipole array.

The main component of the on-site personnel of Minera Chuqui, Animas Resources' Mexican subsidiary, were scheduled to begin days off when the IP data acquisition began. The potential to hire additional crew assistance possibilities were determined to be somewhat limited. Two helpers extended their shift to help the crew acquire the IP data but the lack of additional helpers available for line brushing/cleaning of the main body of the lines precluded additional lines being brushed and then acquired so this phase of the IP program was limited to these two IP lines.

Crew personnel were John Reynolds and Shane Reynolds for Durango Geophysical Operations along with additional crew members supplied from the on-site personnel of Minera Chuqui, Animas Resources' Mexican subsidiary. Also Bryan McFarlane, geological consultant for Animas Resources assisted the crew and was able to add geologic information for each of the IP station locations.

Line 1NE (N50^{o}W)

Apparent Resistivity data from Line 1NE show a sharp "low" resistivity break located immediately southeast (~100+m) of the center of the line and this break is apparently not associated with the incised canyon located at about 300SE between the Tigre and Lupita areas. It is possible that the pronounced "low" between 00 and 200SE is related to a northwest trending fault or structural break that has been postulated by Campbell Resources geologists. Both the original observed data and the Zonge 2D Smooth Modeled Inversion data set show this feature clearly.

Rock between station 350SE and 850SE display higher apparent resistivity values probably correlating to the Mural Limestone mapped in this area.

A southeastern conductive zone (a resistivity "low") is seen between 850SE and about 1000SE and this zone apparently has the potential to extend to some depth. However, the line would need to be extended to the southeast to more fully investigate this zone should it be of interest.

The northwest side of this line is less distinct and the observed resistivity data shows a pattern thought to be the result of running semi-parallel to lithology as the changes in the data are more subtle. Conductive rocks are located between station 600NW and 800NW but geologic mapping in this region is limited and does not have the necessary detailed information to explain this observed response. It is possible that a northeast trending structural feature (fault?) crosses from the Cintura Formation in to the Mural Formation in this region as there is an apparent topographic lineation visible in the aerial images which supports this interpretation.

Polarization Data along Line 1NE display a near surface polarization low between stations 800NW and 400SE with higher polarization values open ended in both directions. The observed data pseudo-section shows a general increase in polarization values at depth beneath the central portion of the line. These data suggest either that the sulfide content increases with depth beneath station 0+00 or, due to the fact that the IP technique measures the electrical properties of the earth in 3 dimensions, this increase in polarization may be due to polarizable material located to the side of the line. It is possible that sulfides in the Ks shale unit located to the northeast of the line is the source of this response.

The open ended anomaly on the northwest is not well developed but there are visible outcropping sulfides in the arroyo below station 1000NW. An in-field geological check of these sulfides is recommended. Polarization data to the southeast display a significant open ended anomaly that is associated with mineralization from the Lupita and Esperanza Gold occurrences. Both ends of Line 1NE should be extended at some point.

2-Dimensional Zonge Smooth Model Inversion of these polarization data does place a small, concise polarizable body at a depth of about 150 meters beneath ~350NW. This response is located near an exposed lamprophyre dike / sill(?) visible in the southwest wall of the arroyo but the apparent depth of the anomaly might warrant further investigation beneath the flat lying lamprophyre.

The southeast polarization anomaly is depicted as a bi-lobed response and one body, located at about 750SE is located along the Cintura / Mural contact and apparently has not been drill tested by previous operators.

<u>Line 2NW (N40^{o}E)</u>

Apparent Resistivity data from Line 2NW present a generally higher average value than Line 1NE. This is due primarily to the line crossing the intense silicification present in the Enedina Hill area located southwest of station 0+00 (left side of the pseudo-section). Of interest is an area of high resistivity located at 200 to 300 meters depth beneath about 400NE. Mapped geology in this region shows the Mural Kl limestone mapped at the surface but this resistive body is apparently at some depth and probably is not the result of the surficial limestone unit. It should be remembered that the strata in this region is mapped as dipping relatively gently to the southwest. Historic Phelps Dodge and Campbell drilling in this area should be reviewed to check for a possible increase in silicification in this area.

A near surface conductive response is located immediately southwest of 0+00 and it is assumed that a fault structure may be the source of this response. An additional near surface conductive response is located around 300NE to about 700NE and this is assumed to be the product of the mapped Ks shale unit. The deeper readings uniformly show a decreased resistivity across the entire line length with a very strong, deep conductive feature located beneath 600NE. Since this line is oriented perpendicular to the general strike of stratigraphy, one possible explanation is that the Ks shale unit(s) may extend beneath Enedina Hill.

Another possible explanation is that the 3 dimensional exploration character of the IP measurement is actually being influenced by a conductive feature to one side of the line. It is possible that a major structural feature, located to the southeast and running sub-parallel to the line path, is the cause of this response.

Polarization Data from Line 2NW are similar to data from Line 1NE and display a near surface polarization low from the southwest end of the line to about station 300NE. The marked increase seen northeast of station 300NE is undoubtedly due to the presence of the Ks shale unit. The Ks contact is mapped at about 500NE but the indicated southwest dipping strata are at shallow enough depths to be responsible for this response being seen beneath 300NE.

The significant increase in polarization values seen in the observed polarization data at the deeper n-spacings may be associated with the possible lateral fault structure postulated in the Apparent Resistivity discussion for Line 2NW, above. The combined low resistivity and higher polarization values of this anomaly warrant additional investigations to tie down the source of this response and determine if economic mineralization present.

Zonge 2D Smooth Model Inversion data show a near surface polarization anomaly located slightly east of station 600NE. This anomaly occurs at the very end of the line and Line 2NW will need to be extended to further investigate this response. The 2D modeling study also shows a large, moderately anomalous body located at a depth of 500+ meter beneath the southwest central portion of the line. It is believed that 2010 drilling by Animas has intersected this region and assay data indicate the potential for economic mineralization.

Conclusions and Recommendations

The Induced Polarization and Resistivity orientation survey completed over the Tigre - Enedina area has shown the value of the technique to aid in the understanding of the geologic and economic potentials of the region. Stratigraphic units have reasonably identifiable characteristics, particularly in the Apparent Resistivity data set. Sulfide bearing units can be tracked even in areas of minimal exposure. It is felt that the presence of sulfide bearing sediments can be associated with gold mineralization in the Santa Gertrudis project area.

While all sulfide responses are not uniformly associated with economic gold mineralization, historical IP studies made pre-mining and during the early mining phases of Santa Gertrudis indicate that the original Santa Gertrudis deposits were located in area of increased polarization responses. The IP anomalous response identified in the Tigre - Enedina orientation survey should be further investigated. Additionally, the original grid of 5 northeast oriented IP lines covering the Tigre - Enedina project area are probably warranted and line brushing and subsequent data acquisition should aid in the further testing of the molybdenum mineralization encountered in the 2010 drilling program.