# TECHNICAL REPORT, UPDATED RESOURCE ESTIMATE AND PRELIMINARY ECONOMIC ASSESSMENT

# ON THE SANTA GERTRUDIS GOLD PROPERTY, SONORA STATE, MEXICO

# LATITUDE 30° 38' N LONGITUDE 110° 33' W

# FOR GOGOLD RESOURCES INC.

NI-43-101 & 43-101F1 TECHNICAL REPORT

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**P&E Mining Consultants Inc.,** Report 291

Effective Date: August 22, 2014 Signing Date: September 30, 2014

# TABLE OF CONTENTS

1.0	SUMN	1ARY	1
	1.1	INTRODUCTION	
	1.2	MINERAL RESOURCE UPDATE	3
	1.3	POTENTIAL MINE PRODUCTION AND MILL FEED	6
	1.4	CONCEPTUAL MINING AND PROCESSING PLAN	
	1.5	ENVIRONMENTAL IMPACT AND REHABILITATION	
	1.6	ECONOMIC EVALUATION	
	1.7	CONCLUSIONS AND RECOMMENDATIONS	
2.0		DOUCTION AND TERMS OF REFERENCE	
2.0	2.1	TERMS OF REFERENCE	
	2.2	SOURCES OF INFORMATION	
	2.3	UNITS AND CURRENCY	
3.0		NCE ON OTHER EXPERTS	
4.0	PROPI	ERTY DESCRIPTION AND LOCATION	
	4.1	PROPERTY LOCATION	
	4.2	PROPERTY DESCRIPTION AND TENURE	
	4.3	SURFACE RIGHTS OWNERS	
	4.4	ENVIRONMENTAL LIABILITIES AND RECLAMATION	24
5.0	ACCE	SSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND	
	PHY	SIOGRAPHY	25
	5.1	ACCESSIBILITY	25
	5.2	CLIMATE	25
	5.3	LOCAL RESOURCES	25
	5.4	PHYSIOGRAPHY	
	5.5	INFRASTRUCTURE	
6.0		DRY	
0.0	6.1	PROPERTY HISTORY	
	6.2	HISTORIC RESOURCE ESTIMATES	
	6.3	HISTORIC PRODUCTION	
7.0		OGICAL SETTING AND MINERALIZATION	
7.0		REGIONAL GEOLOGY	
	7.1		
	7.2	DISTRICT GEOLOGY	
	7.3	STRUCTURE	
	7.4	MINERALIZATION	
	7.5	ALTERATION	
	7.6	DEPOSIT GEOLOGY	
		7.6.1 Dora Deposit	
		7.6.2 La Gloria Deposit	47
		7.6.3 Mirador Deposit	48
		7.6.4 Amelia Deposit	48
		7.6.5 Cristina Deposit	49
		7.6.6 Trinidad Deposit	49
8.0	DEPO	SIT TYPES	
9.0		ORATION	
10.0		LING	
11.0		PLE PREPARATION, ANALYSES AND SECURITY	
	11.1	2008 TO 2010 SAMPLE PREPARATION PROCEDURES – ANIMAS	
		RESOURCES	56
	11.2	2008 DRILL PROGRAM	
	11.3	SKYLINE LABS PROTOCOL	
	11.5	~ 12 1 12 12 12 12 13 1 1 1 1 1 1 1 1 1 1	

	11.4	2009 AND 2010 DRILL PROGRAMS	
	11.5	2014 DRILLING CAMPAIGN- GOGOLD	58
12.0	DATA	VERIFICATION	
	12.1	SITE VISIT AND DUE DILIGENCE SAMPLING	
	12.2	QUALITY ASSURANCE/QUALITY CONTROL PROGRAM	
		12.2.1 2008 QC Program	60
		12.2.2 2009 and 2010 QC Program	61
	12.3	PERFORMANCE OF BLANK MATERIAL	63
	12.4	DUPLICATE SAMPLES	64
	12.5	2014 QC PROGRAM	64
	12.6	PERFORMANCE OF REFERENCE MATERIALS	64
	12.7	PERFORMANCE OF BLANK MATERIAL	66
	12.8	DUPLICATES	
	12.9	CONCLUSIONS TO DATA VERIFICATION	67
13.0	MINE	RAL PROCESSING AND METALLURGICAL TESTING	68
	13.1	AMELIA	68
	13.2	CENTRAL	68
	13.3	CRISTINA	69
	13.4	DORA	69
	13.5	ESCONDIDA	69
	13.6	MIRADOR	69
	13.7	LEACH PAD	70
	13.8	SOUTH	
	13.9	TRINIDAD	
	13.10	WEST	70
14.0		RAL RESOURCE ESTIMATES	
	14.1	INTRODUCTION	
	14.2	PREVIOUS RESOURCE ESTIMATES	72
	14.3	DATA SUPPLIED	73
	14.4	DATABASE VALIDATION	73
	14.5	REDOX DATA	74
	14.6	BULK DENSITY DATA	74
	14.7	DOMAIN MODELING	75
	14.8	COMPOSITING	77
	14.9	COMPOSITE SUMMARY STATISTICS	78
	14.10	TREATMENT OF EXTREME VALUES	80
	14.11	CONTINUITY ANALYSIS	81
	14.12	AMELIA PADS	82
	14.13	BLOCK MODELS	83
	14.14	ESTIMATION & CLASSIFICATION	84
	14.15	OPEN PIT OPTIMIZATION	85
	14.16	MINERAL RESOURCE ESTIMATE	86
	14.17	VALIDATION	88
15.0	MINE	RAL RESERVE ESTIMATES	91
16.0		IG METHODS	
	16.1	PIT OPTIMIZATIONS	93
	16.2	PIT DESIGNS	94
		16.2.1 Geotechnical Design Criteria	104
		Hydrogeological Design Criteria	
		16.2.2 Dilution and Losses Design Criteria	
	16.3	POTENTIAL HEAP LEACH FEED TONNAGE	
	16.4	PRODUCTION SCHEDULE	107
	16.5	OPEN PIT MINING PRACTICES	111
		16.5.1 Contract Mining	112

		16.5.2 Owners Mining Team	112
		16.5.3 Waste Dumps	112
		16.5.4 Mine Support Facilities	113
17.0	RECO	VERY METHODS	114
18.0	PROJE	ECT INFRASTRUCTURE	116
	18.1	SITE ACCESS ROAD	
	18.2	SITE HAUL ROADS	116
	18.3	POWER SUPPLY	116
	18.4	WATER SUPPLY	117
	18.5	OTHER SITE FACILITIES	117
19.0	MARI	KET STUDIES AND CONTRACTS	
20.0	ENVII	RONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY	
		CT	122
	20.1	PREVIOUS STUDIES	
	20.2	ASSUMED LIABILITIES	
	20.3	LOCAL CLIMATE AND EFFECT ON PROJECT ENVIRONMENTAL	
		ASPECTS	123
	20.4	WATER RESOURCES	
	20.5	LICENSING AND PERMITTING	
	20.6	ANTICIPATED ENVIRONMENTAL IMPACTS	
21.0		AL AND OPERATING COSTS	
21.0	21.1	CAPITAL COSTS	
		21.1.1 Mining Capital Cost	
		21.1.2 Process Plant Capital Cost	
		21.1.3 Infrastructure Capital Cost	
		21.1.4 Indirect Capital Cost	
		21.1.5 Contingency	
	21.2	OPERATING COSTS	
		21.2.1 Mining	
		21.2.2 Processing	
		21.2.3 General and Administrative (G&A)	
22.0	ECON	OMIC ANALYSIS	
	22.1	SUMMARY	
	22.2	BASIC ASSUMPTIONS	
	22.3	CASH FLOW SUMMARY	
	22.4	SENSITIVITIES	
23.0	ADIA	CENT PROPERTIES	
24.0		R RELEVANT DATA AND INFORMATION	
25.0		RPRETATION AND CONCLUSIONS	
26.0		MMENDATIONS	
27.0		RENCES	
28.0		IFICATES	
20.0	CLIT		1 17
Δ PPF	ENDIX I	. 3D DOMAINS	153
	ENDIX I		
	ENDIX V		
		/II. OPTIMIZED PIT SHELLS	
	· —	~	· · · · · · · · · · · · · · · · · · ·

# LIST OF TABLES

Table 1.1	Total Inferred Mineral Resources	
Table 1.2	Operating Cost Summary	
Table 1.3	Project Cash Flow Summary	10
Table 1.4	Gold Price Sensitivity	11
Table 1.5	Capital and Operating Cost Sensitivity (NPV5%)	11
Table 1.6	Sensitivity of Capital and Operating Costs (IRR)	11
Table 4.1	Mineral Concessions	
Table 4.2	Land Access Agreements	24
Table 5.1	Climate Data for the City of Cananea	25
Table 6.1	Santa Gertrudis Property History	28
Table 6.2	Historic Drilling Summary for Santa Gertrudis Property	29
Table 6.3	Summary of Recent Drilling Carried out by Animas	30
Table 10.1	Significant Results from GoGold's 2014 Drill Program	
Table 10.2	Location and Orientation of GoGold 2014 Drill Holes	55
Table 14.1	Summary of mineral resource estimate dated June 17, 2014	72
Table 14.2	Validated Drill Holes	
Table 14.3	Modeled Deposits	76
Table 14.4	Sample Length Distributions	78
Table 14.5	Composite Summary Statistics by Deposit	79
Table 14.6	Capping Thresholds	
Table 14.7	Modeled Orientation	81
Table 14.8	Amelia Pads Sample Statistics	83
Table 14.9	Block Model Setups	
Table 14.10	Economic Parameters for Resource Shells	85
Table 14.11	Consolidated Santa Gertrudis Mineral Resource Estimate	86
Table 14.12	Santa Gertrudis Mineral Resource Estimates by Deposit	87
Table 14.13	Wireframe Volume Vs Resource Volume Comparison	
Table 14.14	Deposit Au Grade Validation Statistics	90
Table 16.1	Pit Optimization Parameters	94
Table 16.2	Pit Design Parameters	95
Table 16.3	Dilution Parameters	106
Table 16.4	Mineable Feed Tonnage Summary	109
Table 16.5	Annual Mine Production Schedule Summary	110
Table 16.6	Mining Sequence (Waste + Feed Tonnes)	111
Table 16.7	Owners Mining Team	112
Table 20.1	Permits and Licenses Required for the Santa Gertrudis Project	124
Table 21.1	Capital Cost Summary	127
Table 21.2	Initial Capital Costs	129
Table 21.3	Sustaining Capital Costs (Life of Mine)	130
Table 21.4	Operating Cost Summary	131
Table 21.5	Contract Mining Cost	132
Table 21.6	Mining Fixed Cost	133
Table 21.7	Process Operating Cost Summary	134
Table 21.8	Process Salaried Employees	134
Table 21.9	Process Labour	134
Table 21.10	Reagents and Consumables	135
Table 21.11	G&A Operating Cost	136
Table 22.1	Economic Evaluation Summary	137
Table 22.2	Project Cash Flow Summary	138

Table 22.3	Gold Price Sensitivity	139
	Capital and Operating Cost Sensitivity (NPV5%)	
Table 22.5	Sensitivity of Capital and Operating Costs (IRR)	140

# LIST OF FIGURES

Figure 1.1	Overall Site Plan	7
Figure 4.1	Location of the Santa Gertrudis Property	18
Figure 4.2	Santa Gertrudis Property Concessions	
Figure 4.3	Areas Where Land Access Agreement with Ejido is in Affect	23
Figure 5.1	Santa Gertrudis Infrastructure Map	27
Figure 6.1	Location of Historical Drill Holes Carried out at Santa Gertrudis	
Figure 6.2	Location of Recent Animas Drill Holes Carried out at Santa Gertrudis	32
Figure 7.1	Regional Geology, Northern Sonora, Mexico	35
Figure 7.2	Santa Teresa Mining District Geology (Animas 2010)	37
Figure 7.3	Stratigraphic Section – Santa Teresa Mining District	
Figure 8.1	Deposit Model	
Figure 12.1	GoGold Due Diligence Sample Results for Gold: December 2013	59
Figure 12.2	GoGold Due Diligence Sample Results for Gold: February 2014	
Figure 12.3	Performance of S105004X for Gold	61
Figure 12.4	Performance of S107004X for Gold	61
Figure 12.5	Performance of Property Standard 1X for Gold	62
Figure 12.6	Performance of Property Standard 2X for Gold	62
Figure 12.7	Performance of Property Standard 3X for Gold	
Figure 12.8	Performance of Property Standard 4X for Gold	63
Figure 12.9	Performance of Blank Material for the 2009-2010 Drill Program	
Figure 12.10	Performance of Property Standard 2X	
Figure 12.11	Performance of Property Standard 4X	65
Figure 12.12	Performance of Blank Material	
Figure 12.13	Performance of Pulp Duplicates	67
Figure 14.1	Santa Gertrudis Modeled Deposits	77
Figure 14.2	Isometric view of the Amelia Pads, looking north	82
Figure 16.1	Overall Site Plan	
Figure 16.2	Amelia Area Pits and Existing Leach Pads	96
Figure 16.3	Mirador Area Pits	
Figure 16.4	Trinidad Area Plan	98
Figure 16.5	Escondida Area Pits	99
Figure 16.6	West Area Pits	100
Figure 16.7	Central Area Pits	101
Figure 16.8	Christina Pit	102
Figure 16.9	Dora Pit Plan	103
Figure 16.10	South Area Pits	104
Figure 16.11	Example Pit Walls	
Figure 16.12	Annual Production Profile Graphic (Feed & Waste)	108
Figure 16.13	Existing Offices Example	113
Figure 17.1	Process Flowsheet Block Diagram	114
Figure 18.1	Existing Buildings	
Figure 18.2	Historical Accommodations	118
Figure 18.3	Leach Pad Concept	
Figure 18.4	Proposed Leach Pad Terrain	
Figure 20.1	Accommodation Buildings from Previous Mining Operations	123
Figure 20.2	Santa Gertrudis Project Area	123

# 1.0 SUMMARY

# 1.1 INTRODUCTION

This Preliminary Economic Assessment ("PEA") Technical Report was prepared by P & E Mining Consultants Inc. ('P&E") at the request of Mr. Terence Coughlan, P.Geo. President and CEO of GoGold Resources Inc. ("GoGold" or the "Company"). GoGold is a Canadian company listed on the TSX under the symbol of GGD. The purpose of this report is to provide an independent, NI 43-101 Technical Report, Mineral Resource Update and Preliminary Economic Assessment (the "Report") on the Santa Gertrudis Gold Property ("Project" or "Property") located in northern Sonora State, Mexico. The Property is 100% held by Coanzamex Santa Gertrudis, S.A. de C.V. ("Coanzamex"), First Silver Reserve, S.A. de C.V., ("First Silver") and Recursos Escondidos, S.A. De C.V., ("Recursos Escondidos") all Mexican subsidiary companies wholly owned by GoGold. GoGold acquired the Property through the acquisition of Animas Resources Ltd. ("Animas") in April 2014.

The Santa Gertrudis property contains several former producing gold mines. Approximately 565,000 ounces of gold were produced in the district from what is now part of the Santa Gertrudis property between 1991 and 2000. A total of 8,244,000 tonnes at an average recovered grade of approximately 2.13 g/t Au were open pit mined from 22 sedimentary-rock-hosted, disseminated-gold deposits. This includes production by Phelps Dodge Mining Company and Campbell Red Lake Resources Inc. from the Santa Gertrudis Mine and production at the Amelia Mine.

The Santa Gertrudis project is located in the Santa Teresa mining district, Arizpe, Cucurpe, and Imuris Municipalities, in northeastern Sonora State, Mexico. The Project is situated 170 km South of Tucson, Arizona, 180 km north of Hermosillo, Mexico and 40 km east of the town of Magdalena de Kino. The approximate UTM co-ordinates (Zone 12, NAD 83) of the Santa Gertrudis project offices near the center of the Property are 543,495 mE and 3,388,612 mN. The latitude is 30° 38' N and the longitude is 110° 33' W.

The Santa Gertrudis property comprises 50 concessions covering a total of 41,989.9 ha. The Property is a combination of several claim blocks owned by several different companies, including concessions staked by Animas on the northwest, west and southwest boundaries of the original claim block. The claims are all contiguous, although there are small inliers within the claim block that are not controlled by the Company. The Property is not subject to royalties.

Access to the Project is via a 39 km gravel road, leading from the paved Magdalena-Cucurpe Highway. There is also a network of unpaved roads (ranch, exploration and ore-haulage roads) that provide excellent access throughout the Property. Hermosillo is the capital of Sonora and is located approximately two hours south of the Property via a well-maintained four-lane highway. It is the main economic center for the State and Region, as well as an important centre for agricultural and manufacturing.

The Property lies within a Basin and Range physiographic province, the landscape of which is defined by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. Property elevations vary from around 1,200 m to 1,700 m above sea level. The nearest weather station to the Project, located approximately 40 km northeast of the

Property, reports an average yearly temperature of 15.3°C, an average monthly maximum temperature of 23.5°C in the months of June to September and an average monthly minimum of 7.4°C in December and January. The climate is semi-arid desert and there is a dry season from the spring and early summer, a rainy season in the mid to late summer and fall that often causes flash floods in the arroyos (canyons). The Project can be operated year around.

Past production from open-pit mining was carried out by previous operators between 1991 and 2000 at numerous deposits primarily located in the north-central region of the Project area. These past mining activities have left water-filled historic-mined pits, waste piles and a lined, zero-discharge historic leach pad at Santa Gertrudis and two lined pads near Amelia. The Property has an exploration camp, office, water tank, drill sample handling facilities, and permitted water well. There is sufficient land to conduct a mining operation, for waste rock disposal, processing facilities and pads for heap leaching. Potential power sources include local generators or a 20 km power line extension to the camp.

Exploration in the 1980's undertaken by Phelps Dodge Mining Company ("Phelps Dodge") showed potential for Carlin-type sedimentary rock-hosted, disseminated gold deposits on the Property. The first major discovery was made in 1986, a feasibility study was completed in 1988 and production from the Santa Gertrudis mine-site commenced in May of 1991 from a heap leach operation which produced at 3,000 tonnes per day. Historic exploration drilling includes over 208,727 m of RC drilling and 66,333 m of core drilling. This work tested over 100 target areas and was generally conducted to shallow depths of around 150 m around known deposits and to around 100 m in other target areas.

A historic mineral resource estimate covering all of the Property, excluding the Amelia Mine, was completed by Campbell Red Lake Resources Inc. in 2000. Gold prices at the time were about \$300/oz. The 2000 historic estimates reported a Measured and Indicated resource of 1,446,000 tonnes at an average grade of 2.05 g/t Au, totalling approximately 95,000 ounces of gold. The 2000 estimate also reported an Inferred Resource of 14,791,000 tonnes at an average grade of 1.28 g/t Au, totalling approximately 607,000 ounces of gold. The reader is cautioned that the above historic resource estimates are not compliant with NI 43-101 guidelines, should not be relied upon and are superseded by the results in this report.

The Santa Teresa mining district is within the extreme eastern margin of the Basin and Range province. This region contains a wide variety of rock types, with Tertiary volcanic rocks predominating. The principal regional structural elements are the north-trending Basin and Range normal faults. 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. These extensional, fault-controlled basins contain thick deposits of locally derived conglomerate, clastic, and carbonate sedimentary rocks. 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 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. These gold deposits occur in a northwest-trending belt that is approximately 20 km long and up to 8 km wide. The Bisbee Group correlative rocks in the district are a minimum 1,300 m thick and are equivalent, in ascending order, to the Glance Conglomerate, Morita Formation, Mural Limestone, and Cintura Formation.

The district is structurally complex and locally the rocks are strongly folded and faulted. During the Laramide event, 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.

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.

Historic production for the Santa Teresa mining district was principally from sedimentary-rock-hosted gold deposits that have been characterized as "Carlin-type". The Cristina deposit represents a different deposit type and although hosted within the Cintura Formation (locally calcareous siltstone-shale), is considered to be an epithermal quartz-stockwork vein-type gold deposit.

# 1.2 MINERAL RESOURCE UPDATE

P&E has prepared an updated mineral resource estimate for the GoGold Santa Gertrudis property, Sonora, Mexico, using all data and information available as of August 22, 2014. This mineral resource estimate updates and supersedes two previous mineral resource estimates including the previous estimate dated June 17, 2014. The effective date of this mineral resource estimate is August 22, 2014.

The Santa Gertrudis property was visited by Mr. Fred Brown, P.Geo. from December 9 to 13, 2013, and again from February 11 to 21, 2014, for the purposes of completing site visits and due diligence sampling. General data acquisition procedures, core logging procedures and quality assurance/quality control ("QA/QC") were discussed during the visit. P&E has reviewed sampling procedures for the 2008, 2009, 2010 drilling programs carried out by Animas and the 2014 program carried out by GoGold. It is P&E's opinion that the sampling method, analyses and security were sufficient to ensure robust results for use in the mineral resource estimates.

Mr. Brown collected 12 samples from 10 diamond drill holes in December 2013, and 6 samples from 6 drill holes in February 2014. Samples were collected by taking the half core remaining in the core box. Once the samples were collected, they were placed in a large bag and taken by Mr. Brown to ALS Minerals in Hermosillo, Mexico ("ALS") for preparation and analysis. Samples at ALS were analyzed for gold by fire assay-AAS, and bulk densities were determined on 13 of the samples. P&E has evaluated the results of the quality assurance/quality control program set up and monitored for the 2008 to 2010 drilling programs inclusively, and in 2014 by GoGold and it

is P&E's opinion that the results demonstrate accurate data and an absence of contamination. These data are suitable for use in the current mineral resource estimate.

The mineral resource estimate presented herein is reported in accordance with the Canadian Securities Administrators' National Instrument 43-101 and has been developed in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserve. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Mineral resources may also be affected by further infill and exploration drilling that may result in changes to subsequent mineral resource estimates. P&E is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral resource estimate.

All mineral resource estimation work reported herein was carried out by F.H. Brown, P.Geo., an independent Qualified Person in terms of NI43-101, from information and data supplied by GoGold Resources Inc. A draft copy of this report was reviewed by GoGold for factual errors. Mineral resource modeling and estimation were carried out using Gemcom GEMS software

The drilling information provided by GoGold included collar coordinates, drill hole survey data, assay values, bulk density, lithology and redox intervals. Information used for this updated mineral resource estimate incorporates historical drilling and production data recovered from extensive records compiled by previous operators at Santa Gertrudis. The historical database as supplied contains 2,571 drill holes as well as trench and Blasthole sampling records. A total of 2,076 validated drill holes fall within the local area of interest, and 1,217 drill holes intercept the modeled deposits.

P&E typically validates a mineral resource database by checking for inconsistencies in naming conventions or analytical units, duplicate entries, interval, length or distance values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, and missing interval and coordinate fields. P&E noted a small number of out-of-sequence and zero-length interval errors, which were corrected. P&E believes that the corrected supplied database is suitable for mineral resource estimation.

GoGold supplied a total of 9,827 historic bulk density measurements within the project boundaries. The average reported bulk density value is 2.59 tonnes per cubic metre.

The Santa Gertrudis area contains multiple exploration targets and areas of historical mining, as well as extensive outcrop and trench sampling, within an area of approximately  $100 \, \mathrm{km}^2$ . P&E estimated mineral resources for 38 deposits including the remnant Amelia leach pads. Several identified targets were not modeled due to a lack of economic grade, low demonstrated continuity, insufficient information, complex geology or because the deposit has been largely depleted by previous mining.

Assay sample lengths within the modeled deposits range from 0.60 m to 13.80 m, with an average sample length of 1.25 m. A standard compositing interval of 1.00 m or 1.50 m was

selected for mineral resource estimation in each model. Higher-grade outliers for the composite data were identified for each individual deposit by reviewing composite summary statistics, histograms and probability plots. Composites were capped to the selected threshold prior to estimation.

Due to the small number of sample points in the individual modeled deposits, only a limited number of semi-variograms could be developed and interpreted. Based on the drill hole spacing, observed continuity of mineralization and scattered variography, a range of 30 m was selected as an appropriate guideline for classification.

Orthogonal block models were established containing one or more of the modeled deposits, with the block model limits selected so as to cover the extent of the economic mineralization and potential open pit dimensions, and with the block sizes reflecting the local continuity of the mineralization and the drill hole spacing. A volume percent block model was used to accurately represent the volume and tonnage contained within the constraining wireframes.

For each deposit, except the Amelia leach pads, a two-pass Inverse Distance Cubed ("ID<sup>3</sup>") linear weighting of capped composite values was used for block estimation. Composite data used during grade estimation were restricted to samples located within their respective deposit. For comparative purposes a Nearest Neighbour ("NN") model was also estimated using the same search and estimation criteria applied for the ID<sup>3</sup> model. Indicated resources were defined by blocks estimated during the first pass, and in general are located within 30 m of two or more drill holes. All remaining estimated blocks were classified as Inferred Resources.

P&E assessed the reasonable prospects of economic extraction for the modeled Santa Gertrudis deposits by applying constraining shells based on preliminary economics for potential open pit and heap leach mining methods. This assessment does not represent an economic analysis of the deposit, and P&E cautions that economic viability can only be demonstrated through prefeasibility or feasibility studies. Mineral resources and open pit constraining shells are based on a gold price of US\$1,300 per ounce, the approximate two year trailing average as of June, 2014.

With the exception of the Amelia Pads, the Santa Gertrudis mineral resources are reported inside an optimized pit shell. Total Indicated mineral resources comprise 809,700 ounces Au from 23.3 million tonnes at an average grade of 1.08 g/t Au. Total Inferred mineral resources comprise 254,500 ounces Au from 7,745,000 tonnes at an average grade of 1.02 g/t Au (Table 1.1).

Table 1.1 Total Inferred Mineral Resources <sup>(1-5)</sup>									
		]	Indicated	l		Inferred			
Type	Cut-off Au g/t	klonnes   Aii g/f					Au kOunces		
Oxide	0.16	22,072.3	1.06	751.2	6,696.8	0.96	207.1		
Mixed	0.25	815.8	1.47	38.5	851.5	1.44	39.4		
Sulphide	0.60	174.2	1.90	10.6	4.2	2.32	0.3		
Amelia Pads	0.20	244.3	1.19	9.4	192.5	1.25	7.7		
Total		23,306.6	1.08	809.7	7,745.0	1.02	254.5		

- (1) Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.
- (2) The quantity and grade of reported Inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.
- (3) The mineral resources in this estimate were calculated in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines as prepared by the CIM Standing Committee on Reserve Definitions, as well as the requirements of National Instrument 43-101.
- (4) All resources are reported within an optimized pit shell developed using the following economic parameters: Gold Price \$1,300 per ounce. G&A cost \$0.80 per tonne. Mining cost \$1.40 per tonne. Processing cost \$4.00 per tonne for oxides, carbonaceous oxides and mixed oxide/sulphide deposits, and \$22.00 per tonne for sulphides. Process recoveries used are 75% for oxides and leach pad material, and 50% for mixed oxide/sulphide deposits, and 90% for sulphides. Optimized pit slopes are 50 degrees.
- (5) The mineral resource table incorporates 35 deposits and associated optimized pit shells as well as three leach pads.

Block models were validated visually by the inspection of successive section lines in order to confirm that the model correctly reflects the distribution of high-grade and low-grade samples.

The total estimated volume reported at zero cut-off was compared by deposit to the calculated volume of the defining mineralization wireframe. All reported volumes fall within acceptable tolerances. As a further check on the model the average ID<sup>3</sup> model block grade was compared to the NN block average. No significant global bias between the block model and the input data was noted.

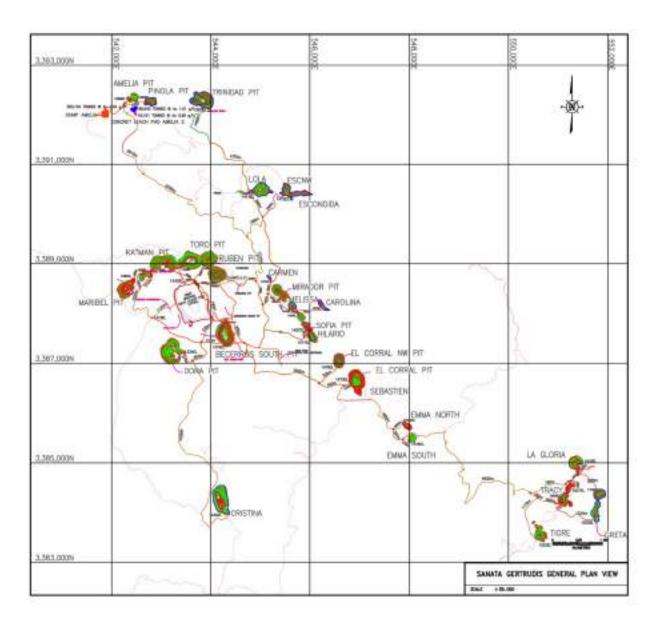
# 1.3 POTENTIAL MINE PRODUCTION AND MILL FEED

The engineering and economic modelling work undertaken on the Santa Gertrudis property to date is considered to be at conceptual levels of study only. According to NI 43-101 disclosure guidelines, a Preliminary Economic Assessment is considered preliminary in nature and includes the use of Inferred resources which are considered too speculative geologically to apply economic considerations that would enable them to be categorized as mineral reserves. As such, and according to the NI 43-101 Disclosure Guidelines, it is not possible to declare a mineral reserve.

The Santa Gertrudis property contains numerous gold deposits, some of which were partially mined in the past. The deposits are near surface and lend themselves to conventional open pit

mining methods. Figure 1.1 provides an overview of the project site showing all of the pit areas and the location of the proposed centrally located heap leach pad. The entire project area is about 10 km long in both the north-south and east-west directions.

Figure 1.1 Overall Site Plan



For the PEA production plan, 27 different open pits will be developed over the life of the project to support a heap leaching operation. Some heap leach feed material will also be mined from a historical heap leach pad that retains recoverable gold.

Based on preliminary pit optimizations, and the application of dilution and losses factors, potential mine production and heap leach feed tonnages were estimated for each deposit. The total quantity of material that would be sent to the leach pad is calculated to be 29.5 Mt containing 916 k oz of gold. The overall waste to potential heap leach feed ratio is 5.5:1.

# 1.4 CONCEPTUAL MINING AND PROCESSING PLAN

It is assumed that the Santa Gertrudis project will be operated as a contracted conventional truckand-shovel open pit mining operation. While owner-operated mining may be an option, this was not considered in this PEA since many of the other mines in northern Mexico rely on the use of mining contractors.

The various deposits will be mined sequentially and will deliver the heap leach feed to a single, centrally located heap leach facility for processing. The target heap leaching rate is approximately 2.7 million tonnes per year or approximately 7,500 t/day. The total daily mining rates of leach feed and waste combined, will range between 31,000 t/day to 55,000 t/day but average approximately 46,000 t/day.

The Santa Gertrudis property has been mined by several operators between 1991 and 2000. From the past mining activities, there remain haul roads, office buildings, accommodation buildings, water supply systems, partly mined open pits, waste dumps, and some historic leach pads. Some of these facilities are available for use in a new production facility. Electrical power for site operations will have to be provided by a site diesel power generation plant.

# 1.5 ENVIRONMENTAL IMPACT AND REHABILITATION

The project area has been affected by mining and logistical operations conducted by previous operators. Residual environmental and/or social liabilities caused by these previous operations, that are attributable to the Santa Gertrudis Project, would be the responsibility of GoGold.

Some infrastructure remains from previous operations, including buildings, access roads and site roads. Mine pit slopes appear to be un-remediated. However, the previous operators had reclaimed waste dumps, detoxified the heap leach pads and removed some of the mine buildings. Buildings for the accommodation of the previous workforces still remain. The Amelia mine site still has the remains of a small mill, leach pads and associated piping in place.

The locations selected for infrastructure to host the proposed mine activities are generally clean and free of debris and hazardous wastes. If a potential mining and processing operation is constructed on the site, then some of this residual infrastructure will be refurbished and used wherever possible.

With the exception of the Amelia mine site, only minimal site environmental remediation is expected to be required.

No issues related to acid rock drainage or heavy metal leaching are anticipated in waste rock or leached material because mainly oxide zones will be mined and processed.

No issues related to noise and dust are anticipated because the mining and leaching operations will be remote from villages and local haciendas. Shipment of materials in and out of the mine facilities will be minimal, which should limit concerns about local road traffic. Leaching solutions will be fully contained in lined containment areas. The local climate, which is typically very hot, sunny and dry, will provide a rapid and safe natural degradation of the contained cyanide in exposed solutions at the end of operations.

The principal environmental impacts will be those related to land disturbance.

The very dry conditions that predominate in the area through most of the year will permit the San Gertrudis project to operate on a zero-discharge basis. No solutions originating from the recovery processes will be discharged into the local environment during operations.

The permitting processes may take up to  $1\frac{1}{2}$  to 2 years to complete, depending on official requirements for environmental baseline data, the perceived complexity of the operation and the environmental disturbance anticipated to be incurred during mine and heap leaching operations. At closure, actions will be required to address the environmental disturbance caused by the mining and processing operation. Closure activities would normally include the removal of all structures and equipment, neutralizing the leach pads, removal of solution containment ponds, stabilizing and re-planting the leach pad surfaces, stabilizing the pit benches and slopes and revegetating roads and other areas of disturbance.

# 1.6 ECONOMIC EVALUATION

An economic evaluation of a potential mining and processing operation was carried out as part of this PEA. The results of this analysis are summarized in this subsection.

The total estimated cost to design, procure, construct and start-up the facilities described in this report is \$32.1 million. Most of this initial capital cost would be incurred over a two year construction period. In addition, life-of-mine sustaining capital is estimated to be in the order of \$15.6 million.

The operating costs of mining, processing, and support services over the life-of-mine are summarized in Table 1.2.

Table 1.2 OPERATING COST SUMMARY							
Description	Total (\$/M)	LOM Average Unit Cost (\$/t heap leach feed)	LOM Unit Cost (\$/t rock)				
Total Mining Contractor	\$ 290	\$9.84	\$1.51				
Mining Fixed Cost	\$ 6	\$0.20	\$0.03				
Processing (Oxide Feed)	\$ 99	\$3.54					
Processing (Mixed Feed)	\$ 5	Same as Oxide					
G&A Fixed Cost	\$ 21	\$0.71					
<b>Total Operating Cost</b>	\$ 422	\$14.29					

An economic evaluation of the potential mining and processing operation at Santa Gertrudis was performed using discounted cash flow methods. Heap leach recoveries of 75% and 50% were respectively used for respective potential oxide and mixed heap leach feed types.

Based on a constant gold price of US\$1,250 per troy ounce, the project has a post-tax internal rate of return ("IRR") of 58% and a 1.7 year payback of initial preproduction capital costs. The project will realize a post-tax NPV of US\$ 150 million at a discount rate of 5%.

Gold production will average 56,000 troy ounces per annum and total 671,000 troy ounces over the 12 year life of the mine.

The estimated annual production and life-of-mine cashflows for the Santa Gertrudis Project are summarized in Table 1.3.

TABLE 1.3 PROJECT CASH FLOW SUMMARY						
Description	Units	<b>Total LOM</b>				
Revenue						
Gold Price	\$US/oz	\$1,250				
Total Revenue (Life-of-Mine)	\$M	\$ 836				
Operati	ng Cost					
Mining Cost	\$M	\$ 296				
Processing	\$M	\$ 105				
G&A	\$M	\$ 21				
Total operating Cost	\$M	\$ 422				
Average Cash Cost	\$/t oz	\$ 628				
Capita	l Costs					
Initial Capital	\$M	\$ 32				
Total Sustaining Capital	\$M	\$ 16				
Total Capital	\$M	\$ 48				
Cash	Flows					
Revenue	\$M	\$ 836				
(-) Operating Cost	\$M	\$ 417				
(-) Additional Mining Tax	\$M	\$ 4				
(-) Capital Spending	\$M	\$ 48				
(-) Reclamation	\$M	\$ 4				
Pre-tax Cash Flow	\$M	\$ 362				
(-) Taxes	\$M	\$ 131				
After-tax Cash Flow	\$M	\$ 232				

The Santa Gertrudis Project economics were examined with a sensitivity analysis for several key variables. The results of the sensitivity analyses on the after-tax NPV5% are shown in Table 1.4 to Table 1.6.

Gold Price Sensitivity NPV & IRR (Table 1.4).

Capital and Operating Cost Sensitivity of NPV5% (Table 1.5) varying each cost area individually.

Capital and Operating Cost Sensitivity of IRR (Table 1. 6) varying each cost area individually.

TABLE 1.4 GOLD PRICE SENSITIVITY									
US\$/oz	US\$/oz 1,000 1,150 1,200 1,250 1,300 1,350 1,500								
NPV(5%)	\$ 74.3	\$ 120.5	\$ 135.4	\$ 150.4	\$ 165.3	\$ 180.2	\$ 224.9		
IRR (%)	34.0%	49.1%	53.5%	57.8%	61.9%	66.0%	77.7%		
Payback (years)	2.6	1.8	1.8	1.7	1.7	1.6	1.6		

TABLE 1.5 CAPITAL AND OPERATING COST SENSITIVITY (NPV5%)							
Change in20% -10% 0% 10% 20%							
Capex only	\$ 157.0	\$ 153.7	\$ 150.4	\$ 147.1	\$ 143.8		
Opex only	\$ 188.6	\$ 169.5	\$ 150.4	\$ 131.2	\$ 110.6		

TABLE 1.6							
SENSITIVITY OF CAPITAL AND OPERATING COSTS (IRR)							
Change in	-20%	-10%	0%	10%	20%		
Capex	69.4%	63.1%	57.8%	53.2%	49.2%		
Opex	70.4%	64.1%	57.8%	51.3%	44.1%		

# 1.7 CONCLUSIONS AND RECOMMENDATIONS

The Santa Gertrudis Indicated mineral resource now stands at 809,700 gold ounces contained in 23.3 million tonnes of material at a grade of 1.08 grams of gold per tonne. The mineral resource has an additional Inferred mineral resource of 254,500 gold ounces within 7.7 million tonnes of material at a grade of 1.02 grams of gold per tonne

P&E has evaluated drilling procedures, sample preparation, analyses and security and is of the opinion that the core logging procedures employed, and the sampling methods used were thorough and have provided sufficient geotechnical and geological information. The authors consider the data to be of good quality and satisfactory for use in a mineral resource estimate. P&E compared independent sample verification results versus the original assay results for gold and the P&E results demonstrate that the results obtained and reported by GoGold were reproducible.

The PEA has concluded that the Santa Gertrudis mineral resources could be treated by a conventional heap leach processing facility. Potential heap leach feed would come from 27 separate deposits and one existing heap leach pad. Similar heap leaching operations are currently in operation throughout Mexico.

The PEA has estimated that the project life would be approximately 12 years. Mining would involve the handling of 193 Mt of total material, of which 29.5 Mt (at an average grade of 0.97 g/t Au) would be potential heap leach feed.

The Santa Gertrudis project would recover approximately 671,000 oz of gold over the project life (56,000 oz per year average). The development capital cost would be in the order of \$US 32 million, plus an added life-of-mine sustaining cost of approximately \$US 16 million.

The economic model has concluded that the Project cash flows are potentially positive at a gold price of \$US 1,250/oz. The financial analyses are based on the scenario of 100%-equity financing for the project. The base case model generates an after-tax NPV at a 5% discount rate of approximately \$US 150 million and an IRR of 58%. The forecast capital payback time is within 1.7 years.

The mineral resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM"), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.

P&E recommends that the Company advance the project with extended and advanced technical studies particularly in metallurgical, geotechnical and environmental matters with the intention to advance the project towards a production decision.

Specifically, it is recommended that GoGold take the following actions to develop the project to a Pre-Feasibility Study level:

#### Mineral Resources

- At the Pre-feasibility study stage, only Measured and Indicated resources can be used in the economic analysis. Therefore, it is recommended that deposits with a high proportion of Inferred resources undergo further exploration to improve the classification of the contained mineral resources so as to allow them to be included in a potential production plan;
- The historic blasthole information can be used to refine grade estimation during the next stage of study.

### Mining

- For some of the larger pits, the use of internal pit phases may improve feed/waste scheduling and allow quicker access to higher grade feed;
- For the pits that will mined in the early part of the schedule, geotechnical and hydrogeological studies should be undertaken to develop the slope design criteria for the next stage of engineering;
- To complete optimization of the haul routes, topographic digital maps should be field vetted to confirm the constructability of new haul roads and verify the refurbishment needed for existing haul roads;

- For each of the pits, local waste dumps sites will need to be selected and should be identified in the field to define the preferred sites. Detailed engineering designs of each waste dump should be completed;
- The mining contractor should be provided with more specific information on the mine schedule and layouts to allow the firm to improve the accuracy of the mining cost estimates for the next stage of engineering.

# **Processing**

- Further metallurgical test work is required on many of the deposits to optimize crush sizes, reagent consumption, preg-robbing issues (volumetrically insignificant amount of heap leach feed), and determine recoveries for oxide, sulphide, and carbonaceous mineralization;
- The origin of samples used in past test work should be established to the extent possible to establish that they adequately represent the deposits;
- A simple test or tests should be adopted or developed to measure the activity of carbon in samples. The possibility of using a blinding agent to deactivate the carbon should be investigated;
- A trade-off study should be considered to establish the optimum crushing plant configuration. This would involve past or new test work to quantify the effect of crush size on heap leach recovery. Some data has been developed in the past on certain deposits;
- The heap leach pad area requires a detailed geotechnical foundation investigation to confirm the suitability of the proposed site and the design of the liner required and where solution ponds should be located;
- A water balance should be completed to evaluate process water requirements and define the sources of process water supply;
- Investigate options for 'satellite' heap leach pads near Cristina and elsewhere in addition to the Central Heap Leach Pad, to reduce material haulage distances;
- Determine if there is potential for revenue from silver reporting to the doré as a by-product credit.

#### Infrastructure

- The existing water supply well field should be tested to determine the capability of providing the volume of required process water;
- The various buildings at site should undergo detailed structural examination to confirm suitability for use in on-going operations.

# Environmental

- Complete the environmental baseline studies:
- Prepare and submit the various reports required for permits, particularly the Environmental, Impact Assessment, and the documentation required for the Permit for Change in Land Use on Forest Land.

# 2.0 INTRODUCTION AND TERMS OF REFERENCE

#### 2.1 TERMS OF REFERENCE

The following report was prepared to provide a National Instrument 43-101 ("NI 43-101") Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property ("Project" or "Property") located in northern Sonora State, Mexico. The Property is 100% held by Coanzamex Santa Gertrudis, S.A. de C.V. ("Coanzamex"), First Silver Reserve, S.A. de C.V., ("First Silver") and Recursos Escondidos, S.A. De C.V., ("Recursos Escondidos"), all Mexican subsidiary companies wholly owned by GoGold Resources Inc. ("GoGold").

This report was prepared by P&E Mining Consultants Inc. ("P&E") at the request of Mr. Terence Coughlan, P.Geo. President and CEO of GoGold Resources Inc. GoGold is a public, TSX-listed, mining company trading under the symbol "GGD", with its head office located at:

Suite 1301, 2000 Barrington Street Cogswell Tower Halifax, Nova Scotia B3J 3K1

Tel: 902-482-1998 Fax: 902-442-1898

This report has an effective date of August 22, 2014.

Mr. Fred Brown, P.Geo., a qualified person under the regulations of NI 43-101, conducted site visits to the Property on December 9 to 13, 2013, and again from February 11 to 21, 2014. Independent verification sampling programs was conducted by Mr. Brown during the site visits.

Ken Kuchling, P.Eng. also conducted a site visit from Dec 11 to Dec 12, 2013.

In addition to the site visit, P&E held discussions with technical personnel from the Company regarding all pertinent aspects of the Project and carried out a review of all available literature and documented results concerning the Property. The reader is referred to those data sources, which are outlined in the References section of this report, for further detail.

The present Technical Report is prepared in accordance with the requirements of NI 43-101F1 of the Ontario Securities Commission ("OSC") and the Canadian Securities Administrators ("CSA").

The Mineral Resources in the estimate are considered compliant with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions.

The purpose of the current report is to provide an independent, NI 43-101 Technical Report including an update to the mineral resource estimates and complete a Preliminary Economic Assessment on the Santa Gertrudis Gold Property. P&E understands that this report will be used for internal decision making purposes and will be filed as required under TSX regulations. The report may also be used to support public equity financings.

# 2.2 SOURCES OF INFORMATION

This report is based, in part, on internal historical company technical studies, maps and technical correspondence, published government reports, press releases and public information as listed in the References at the conclusion of this report. Several sections from reports authored by other consultants have been directly quoted or summarized in this report, and are so indicated where appropriate.

Sections 4, 5, 6, 9, and 10 of this report were prepared by Jarita Barry, B.Sc., under the supervision of Richard Sutcliffe, P.Geo., who acting as a QP as defined by NI 43-101, takes responsibility for those sections of the report as outlined in the "Certificate of Author" attached to this report.

The present Technical Report is prepared in accordance with the requirements of National Instrument 43-101 (NI 43-101) and in compliance with Form NI 43-101F1 of the Ontario Securities Commission (OSC) and the Canadian Securities Administrators (CSA). The Resource Estimate is prepared in compliance with the CIM Definitions and Standards on Mineral Resources and Mineral Reserves, which were in force as of the effective date of this report.

# 2.3 UNITS AND CURRENCY

Unless otherwise stated all units used in this report are metric. Gold assay values ("Au") are reported in grams of metal per tonne ("g/t Au") unless ounces per ton ("oz/T Au") are specifically stated. United States currency ("US\$") is used throughout this report unless otherwise stated.

The following list shows the meaning of the abbreviations for technical terms used throughout the text of this report.

# **Abbreviation** Meaning

"ALS"	ALS Minerals Lab
"Animas"	Animas Resources Ltd.
"Au"	gold
"BCG Consultores Legales"	Bensojo, Chávez y Gutiérrez, S.C.
"Campbell"	Campell Red Lake Resources Inc.
"cm"	centimetre(s)
"Coanzamex"	Coanzamex SantaGertrudis, S.A. de C.V., a wholly-owned
	subsidiary company of GoGold
"Company"	GoGold Resources Inc.
"CSA"	Canadian Securities Administrators
"DDH"	diamond drill hole
"First Silver"	First Silver Reserve, S.A. de C.V., a wholly-owned subsidiary
	company of GoGold
"ft"	foot
"GBMR"	General Bureau of Mines Regulation
"g/t"	grams per tonne
"g/t Au"	grams per tonne gold

"GoGold" GoGold Resources Inc.

"ha" hectare(s)

"ID<sup>3</sup>" Inverse Distance Cubed "IPL" International Plasma Labs

"km" kilometre(s)
"m" metre(s)

"Ma" millions of years

"MC" Merrill Crowe zinc precipitation "NI 43-101" National Instrument 43-101

"NN" Nearest Neighbor

"Oro de Sotula" Oro de Sotula S.A. de C.V.
"OSC" Ontario Securities Commission

"oz/T Au" Ounces per ton gold

"P&E" P&E Mining Consultants Inc Preliminary Economic Analysis "PEA" "Phelps Dodge" Phelps Dodge Mining Company "Project" Santa Gertrudis Gold Property "Property" Santa Gertrudis Gold Property "QA/QC" Quality Assurance/Quality Control "OMS" Quality Management System Queenstake Resources Ltd. "Queenstake"

"Recursos Escondidos" Recursos Escondidos, S.A. De C.V., a wholly-owned subsidiary

company of GoGold

"RR" Round robin"
"T" short ton(s)
"tonne" or "t" metric tonne(s)

"UTM" Universal Transverse Mercator grid system

"V.A.T." Value added tax

# 3.0 RELIANCE ON OTHER EXPERTS

P&E has assumed that all of the information and technical documents listed in the References section of this Report are accurate and complete in all material aspects. While the authors of this report have respectively reviewed the available information presented, it cannot be guaranteed to be entirely accurate and/or complete. P&E reserves the right to, but will not be obligated to, revise the Report and conclusions if additional information becomes known subsequent to the effective date of this Report.

Copies of the tenure documents, operating licenses, permits, and work contracts were not reviewed. Information on tenure was obtained from GoGold and included a legal due diligence opinion supplied by GoGold's Mexican legal counsel, Bensojo, Chávez y Gutiérrez, S.C. ("BCG Consultores Legales"). P&E has relied upon tenure information from GoGold and has not undertaken an independent detailed legal verification of title and ownership of the Santa Gertrudis Gold Project. P&E has not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties but has relied on, and believes it has a reasonable basis to rely upon GoGold to have conducted the proper legal due diligence.

Select technical data, as noted in the report, were provided by GoGold and P&E has relied on the integrity of such data.

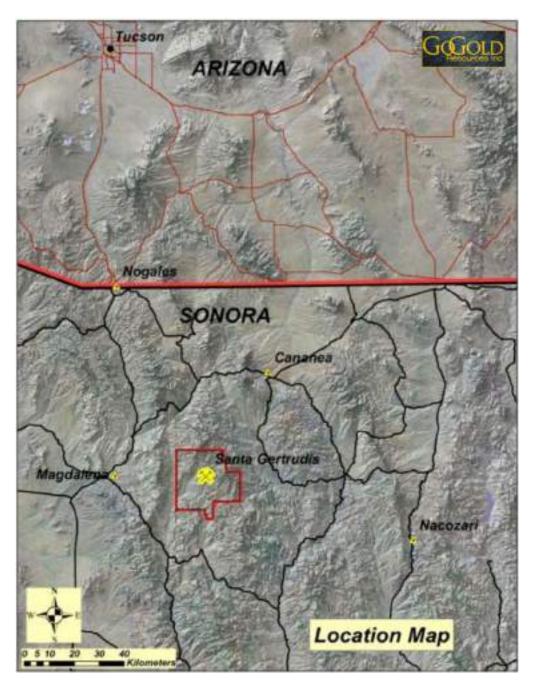
A draft copy of the report has been reviewed for factual errors by GoGold and P&E has relied on GoGold's knowledge of the Property in this regard. All statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this report.

# 4.0 PROPERTY DESCRIPTION AND LOCATION

# 4.1 PROPERTY LOCATION

The Project is located in the Santa Teresa mining district, Arizpe, Cucurpe, and Imuris Municipalities, in northeastern Sonora State, Mexico. It is situated 170 km South of Tucson, Arizona, 180 km north of Hermosillo, Mexico and 40 km east of the town of Magdalena de Kino. The approximate UTM co-ordinates (Zone 12, NAD 83) of the Santa Gertrudis offices near center of the Property are 543495 mE and 3388612 mN. The latitude is 30° 38' N and the longitude is 110° 33' W. The location of the Property is shown in Figure 4.1.

Figure 4.1 Location of the Santa Gertrudis Property



# 4.2 PROPERTY DESCRIPTION AND TENURE

The Santa Gertrudis claims are 100% held by Coanzamex (formerly Compania Minera Chuqui, S.A. de C.V.), First Silver and Recursos Escondidos, all Mexican subsidiary companies wholly owned by GoGold.

GoGold acquired 100% of the issued and outstanding securities of Animas Resources Ltd., including ownership of the Santa Gertrudis property, on April 23, 2014. The total consideration paid for Animas was \$12,956,501 including the issuance of 5,121,960 common shares of GoGold, \$4,213,128 cash, the issuance of a further 664,881 common shares in exchange for Animas Warrants, payment for fair value of non-controlling interest, and transaction costs, less cash and equivalents acquired (GoGold, March 31 2014 Interim Financial Statements).

P&E has not independently reviewed GoGold's land tenure. P&E is reliant on information provided by GoGold's legal counsel, BCG Consultores Legales, of the United Mexican States, and has included a recent legal due diligence opinion, as well as copies of licence certificates and land access agreements.

The Santa Gertrudis property comprises 50 concessions covering a total of 41,989.9 ha. The Property is a combination of several claim blocks owned by several different companies in recent years, including concessions staked by Animas on the northwest, west and southwest boundaries of the original claim block. The claims are all contiguous, although there are small inliers within the claim block that are not controlled by the Company.

A list of concessions, along with other relevant information is provided in Table 4.1 and concession map is given in Figure 4.2.

According to Mexican Mining regulations (January 1, 2006), there is no distinction between "Exploration" and "Exploitation" claims and both types of claims are combined under the term "Mining Claims". These claims may be held for 50 years and can then be renewed for an additional 50 years.

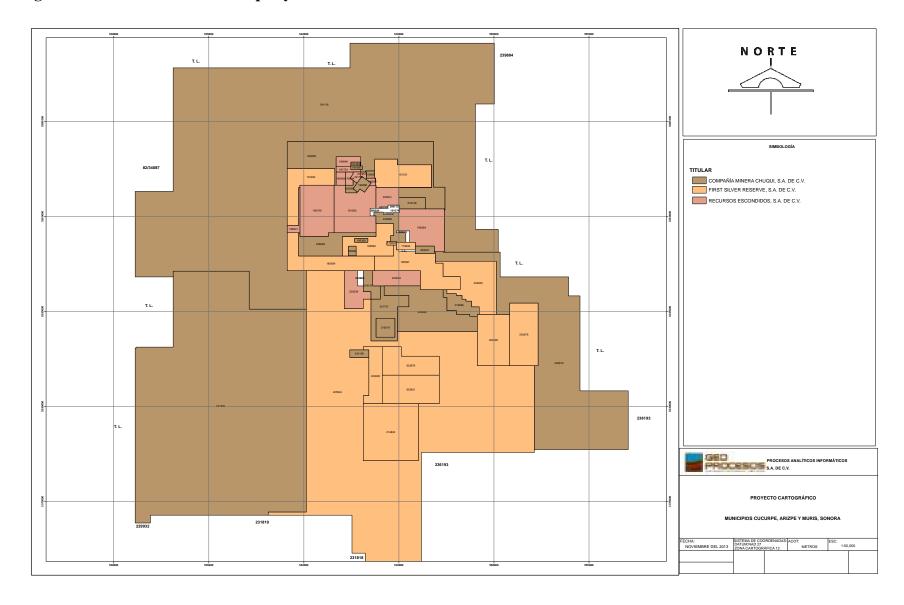
TABLE 4.1
MINERAL CONCESSIONS

<b>—</b>			AL CONC.			1	D .: 0 1
							Duties Owed
Concession Name	Title Holder	Title No.	File No.	Title Date	Expiry Date	Area (ha)	Semester 1
							(\$)
Maribel	Coanzamex SantaGertrudis	185883	321.1-9/876	14-Dec-89	12-Dec-39	20.0000	2,585
Fracc. 4 Agua Blanca I	Coanzamex SantaGertrudis	219219	4/2/00031	26-Nov-93	25-Nov-43	100.0000	12,924
Los Manueles	Coanzamex SantaGertrudis	195368	321.1-4/248	14-Sep-92	13-Sep-42	14.0000	1,810
Dora	Coanzamex SantaGertrudis	218137	82/28003	11-Oct-02	10-Oct-52	87.0000	11,244
Cuca	Coanzamex SantaGertrudis	218138	82/28004	11-Oct-02	10-Oct-52	83.2929	10,765
Ericka	Coanzamex SantaGertrudis	219096	82/28182	04-Feb-03	03-Feb-53	140.0000	18,094
San Francisco	Coanzamex SantaGertrudis	219095	82/28181	04-Feb-03	03-Feb-53	16.8406	2,177
Fabiola	Coanzamex SantaGertrudis	221737	82/28684	19-Mar-04	18-Mar-54	272.0000	35,154
Karen	Coanzamex SantaGertrudis	222689	82/28873	13-Aug-04	12-Aug-54	115.6160	14,943
Susan	Coanzamex SantaGertrudis	222690	82/28874	13-Aug-04	12-Aug-54	737.0000	95,250
Chuqui 1	Coanzamex SantaGertrudis	226284	82/29799	06-Dec-05	05-Dec-55	286.6572	21,053
Chuqui 2	Coanzamex SantaGertrudis	226285	82/29800	06-Dec-05	05-Dec-55	1,133.6668	83,257
Chuqui 3	Coanzamex SantaGertrudis	241116	4/2/00323	22-Nov-12	09-Jul-57	14,164.9163	125,077
Chuqui 4 Fracción A	Coanzamex SantaGertrudis	240819	4/2/00324	17-Jul-12	10-Jul-57	3,338.2148	29,477
Chuqui 4 Fracción B	Coanzamex SantaGertrudis	230037	82/31312	11-Jul-07	10-Jul-57	40.0000	1,470
*Chuqui 6	Coanzamex SantaGertrudis	231845	82/31978	28/05/2012 RED	06-May-58	6,921.6625	61,119
La Víbora	Coanzamex SantaGertrudis	191263	321.1/4/675	19-Dec-91	18-Dec-41	10.0000	1,293
El Aguaje	Coanzamex SantaGertrudis	191900	321.1/4/696	19-Dec-91	18-Dec-41	12.0000	1,551
Ofelia	Coanzamex SantaGertrudis	182549	321.1/4-326	27-Jul-88	26-Jul-38	23.2195	3,001
Santa Gertrudis	Coanzamex SantaGertrudis	190480	082/04184	29-Apr-91	28-Apr-41	42.0000	5,429
LALOMA	Coanzamex SantaGertrudis	241198	082/37096	22-Nov-12	21-Dec-62	40.0000	354
Agua Blanca	First Silver	185587	321.1-9/797	14-Dec-89	13-Dec-39	492.4498	63,645
Agua Blanca Fracc. X	First Silver	185584	321.1-9/802	14-Dec-89	13-Dec-39	430.5168	55,640
Santa Teresa	First Silver	185882	321.1-9/874	14-Dec-89	13-Dec-39	297.3420	38,429
San Ignacio	First Silver	179845	321.1-4/207	17-Dec-86	16-Dec-36	10.0000	1,293
Cósahui	First Silver	191262	321.1-4/669	19-Dec-91	18-Dec-41	347.3400	44,891
Cósahui I Fracc. Sur	First Silver	191231	321.1-4/671	19-Dec-91	18-Dec-41	393.1968	50,817
Cármen	First Silver	179846	321.1-4/208	17-Dec-86	16-Dec-36	40.0000	5,170
Fracc. 7 Agua Blanca	First Silver	202598	4/1.3/1202	08-Dec-95	07-Dec-45	459.0000	59,322
Frace. 8 Agua Blanca I	First Silver	202879	4/1.3/1202	02-Apr-96	01-Apr-46	495.0000	63,974
Fracc. 10 Agua Blanca	First Silver	202600	4/1.3/1205	08-Dec-95	07-Apr-40	229.9457	29,719
Frace. 11 Agua Blanca	First Silver	202878	4/1.3/1207	02-Apr-96	01-Apr-46	350.0000	45,234
Frace. 12 Agua Blanca	First Silver	202601	4/1.3/1207	08-Dec-95	07-Dec-45	450.0000	58,158
El Pinito I	First Silver	214804	4/2.4/2253	15-Dec-98	14-Dec-48	828.0000	107,011
*Rocío Fracción I	First Silver		4/2/329	28/05/2012 RED	26-Dec-55		60,570
Rocio Fracción II	First Silver	225834 225835	82/29745			6,859.5382	
Amelia	Recursos Escondidos	179904	321.1-4/209	27-Oct-05 20-Mar-87	26-Dec-55 19-Mar-37	561.0000 25.2679	41,200 3,266
Espíritu Amelia No. 2	Recursos Escondidos	190582 190583	321.1-4/524 Bis	29-Apr-91	28-Apr-41	14.5196	1,877 4,524
	Recursos Escondidos		321.1-4/589	29-Apr-91	28-Apr-41	35.0000	
Amelia No. 6	Recursos Escondidos	190646	321.1-4/604	29-Apr-91	28-Apr-41	54.0713	6,989
Amelia No. 7 Fracc. I	Recursos Escondidos	190759	321.1-4/607	29-Apr-91	28-Apr-41	480.0000	62,036
Amelia No. 7	Recursos Escondidos	191693	321.1-4/606	19-Dec-91	18-Dec-41	496.3388	64,147
Amelia No. 4	Recursos Escondidos	191724	321.1-4/590	19-Dec-91	18-Dec-41	29.5026	3,813
Amelia No. 3	Recursos Escondidos	191725	321.1-4/603	19-Dec-91	18-Dec-41	22.0952	2,856
Amelia No. 5	Recursos Escondidos	211857	4/1.3/1575	28-Jul-00	27-Jul-50	9.2459	1,195
Amelia No. 8 Fracc. I	Recursos Escondidos	196284	4/1.3/818	16-Jul-93	15-Jul-43	433.5921	56,038
Agua Blanca No. 2	Recursos Escondidos	198541	4/1.3/792	30-Nov-93	29-Nov-43	38.7967	5,015
Venado	Recursos Escondidos	220540	82/28520	15-Aug-03	14-Aug-53	200.0000	25,848
Alce	Recursos Escondidos	220541	82/28521	15-Aug-03	14-Aug-53	118.0496	15,257
Bura	Recursos Escondidos	220539	82/28519	15-Aug-03	14-Aug-53	192.0000	24,815
				TOTAL		41,989.9	1,540,776

Note: Titles listed in Table 4.1 as being held by Coanzamex SantaGertrudis are currently listed as in the name of Compania Minera Chuqui, S.A. De C.V., which was recently renamed Coanzamex SantaGertrudis.

<sup>\*</sup> In the process of reducing area of claim.

Figure 4.2 Santa Gertrudis Property Concessions



Concessions remain valid until the stated expiry dates, provided the following requirements are met:

The Company must file assessment reports detailing the construction and works completed on all concessions greater than 1,000 ha in area before the General Bureau of Mines Regulation ("GBMR") in May of each year, for the immediately preceding calendar year. Mining law establishes the required minimum investment amount that must be made on a concession and this amount is updated annually in accordance with the variation to the Consumer Price Index. This obligation is contained in the Article 27 number II of the Mining Law.

The Company must pay the mining rights for all concessions in the months of January and July of each year (on a per hectare basis), based upon a rate that is published in the Official Gazette of the Federation.

The Company anticipates having to pay a total of 1,540,776 Mexican pesos in the first semester of 2014 to keep the Property in good standing (representing approximately US\$119,636).

GoGold's legal counsel, BCG Consultores Legales, confirm that all claims are in good standing, and currently valid for purposes of exploitation and exploration. 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 were acquired by Animas.

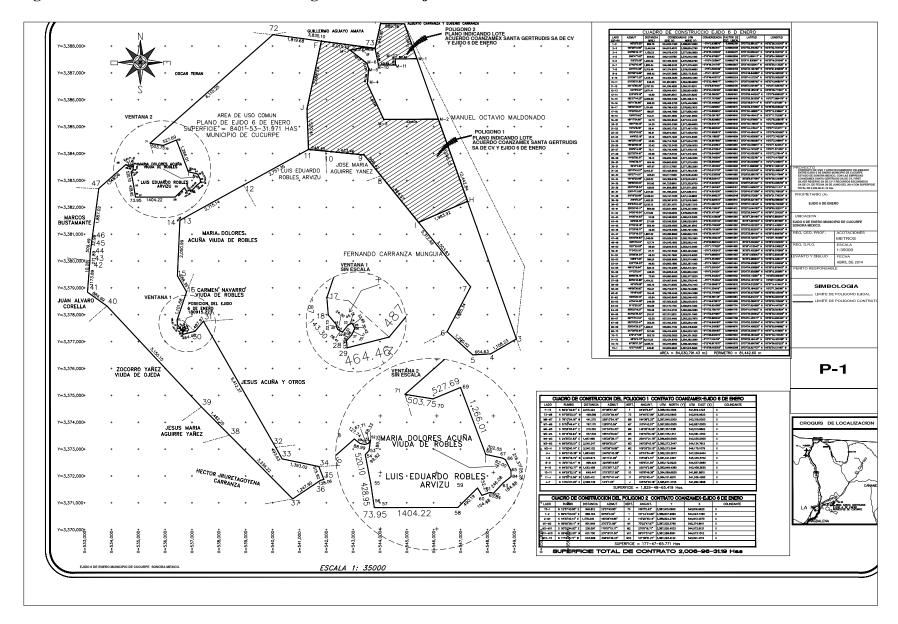
# 4.3 SURFACE RIGHTS OWNERS

The surface rights to the concessions are owned by the local "ejido" (a communal land area), Seis de Enero, as well as various landowners, and a land access agreement is required to conduct any work on the Property. Currently, there are several such agreements in place between various landowners and Coanzamex, First Silver and Recursos Escondidos.

The Company's recently renegotiated land access agreement with the Seis de Enero ejido, was signed on June 28, 2014. The agreement includes, but is not limited to, the following conditions:

- The Company has the right to explore and exploit the land outlined in Figure 4.3.
- The agreement is valid for ten years from the date of signing, with the option to renew for a further five years if both parties agree.
- The Company paid an amount of 1.5 million Mexican Pesos, plus value added tax ("VAT"), to the ejido upon signing of the agreement.
- The Company is further required to pay 500,000 Mexican Pesos, plus VAT, to the ejido at the anniversary of the signing date for the subsequent ten years up to and including June 28, 2024.
- The ejido owns the rights to process the materials (located at surface at the time of signing the agreement) in the leaching courtyard and "terreros" (mine dumps) on the Venado, Agua Blanca, Santa Teresa and Maribel concessions. The ejido is also responsible for any associated environmental liabilities.

Figure 4.3 Areas Where Land Access Agreement with Ejido is in Affect



The remaining land access agreements are outlined in Table 4.2.

The Company is currently renegotiating the four lease agreements, due to expire on December 31, 2014, for access, exploration and exploitation rights.

TABLE 4.2
LAND ACCESS AGREEMENTS

TABLE 4.2 LAND ACCESS AGREEMENTS									
Agreement Betwee	n	Agreement		Payment					
Land Owner	GoGold Subsidiary	Type Object		Amount	Currency	Due	Terms of Agreement	Valid To	
Mr. Carlos Gallego Aguilar (executor of Mr. Guillermo Aguayo	Coanzamex	Lease	Right to access and explore Santa Teresa Ranch (surface area of 529 ha) and permission to build access	\$2,100	USD	Monthly	Plus VAT monthly during the validity of the agreement.	December 31, 2014	
Amaya) and/or Sonia Elizabeth Ochoa Nava	Coanzamex	Lease	roads and ditches and carry out trenching and drilling.	\$3,000	USD	Monthly	Plus VAT monthly when the direct exploitation is renewed, with an increase of 6% after the second year of validity.	December 31, 2014	
Mr. Heriberto Anselmo Aguayo Amaya and/or Ramona Sandra Garza Moreno, Leonor Aguayo Amaya, Guillermo Aguayo Garza and/or Ramona Sandra Garza Moreno	Coanzamex	Lease	Right to access and explore Santa Teresa Ranch (surace area of 91 ha) and permission to build access roads and ditches and carry out trenching and drilling.	\$1,000	USD	Monthly	Plus VAT monthly during the validity of the agreement.	December 31, 2014	
Luis Alberto Carranza Aguirre	Coanzamex	Lease	Rights to access and explore Real Viejo Ranch (surface area of 678 ha) and permission to build access roads and ditches and carry out trenching and drilling.	\$2,000	USD	Monthly	Plus VAT monthly during the validity of the agreement.	December 31, 2014	
Maria Antonieta Maldonado Bustamente	Coanzamex	Lease	Rights to access and explore El Alamito Ranch (surface area of 3,370 ha) and permission to build access roads and ditches and carry out trenching and drilling.	\$2,000	USD	Monthly	Plus VAT monthly during the validity of the agreement.	December 31, 2014	
Martin Omar Guerrero Valle	Coanzamex	Exploration and Exploitation	Rights to explore and exploit the Pinos Cuates Ranch (surface area of 3,897 ha) and to perform all the activities related to the exploration and exploitation of minerals. The agreement can be renewed for five years with a payment of USD \$500,000.	\$1,071,429	USD	One-time payment	Plus VAT	February 14, 2014	

# 4.4 ENVIRONMENTAL LIABILITIES AND RECLAMATION

The Company will be responsible for the following reclamation obligations in the case of the abandonment of the Project or transfer of the concessions:

- To neutralize, restore, and reforest all the residual and marginal material, the product of old operation (leach pads and depleted mineralized fields);
- Close and reforest operation roads, as well as fence and stabilize Mining Pit slopes; and
- Dismantle and remove facilities, infrastructure and solid waste in general from the mines.

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) for additional information relating to this reclamation obligation.

Request also needs to be made to the appropriate authority for consent to reactivate mine development at either of the Santa Gertrudis or the Amelia Mines, by the Company. Application must be accompanied by a Manifestation of Environmental Impact, Particular modality (MINEP), a Study of Environmental Risk, Modality Analysis of Risk (ERI-level 2) and of a Technical Study for the Change of Use of the Grounds. The Company has confirmed to P&E that there are no further environmental liabilities that the Company is aware of as of the effective date of the report.

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

#### 5.1 ACCESSIBILITY

The Santa Gertrudis property is located in the northern part of the state of Sonora, Mexico, approximately 65 km south of the Mexico-U.S border, about 160 km south of Tucson, Arizona (Figure 4.1) and approximately 180 km north of the city of Hermosillo. The nearest town, Magdalena de Kino, is located 23 km west of the Project and has a population of just over 23,000.

Access to the Project is via a 39 km gravel road, leading from the paved Magdalena-Cucurpe Highway. There is also a network of unpaved roads (ranch, exploration and ore-haulage roads) that provide excellent access throughout the Property.

# 5.2 CLIMATE

The nearest weather station to the Project is situated in the city of Cananea, approximately 40 km northeast of the Property boundary (Figure 4.1), reporting an average yearly temperature of 15.3°C, an average monthly maximum temperature of 23.5°C in the months of June to September and an average monthly minimum of 7.4°C in December and January (Table 5.1).

TABLE 5.1
CLIMATE DATA FOR THE CITY OF CANANEA

Climate data for Cananea													
Month	Jan	Feb	Mar	Apr	May	Jun	Put	Aug	Sep	Oct	Nev	Dec	Year
Record high *C (*F)	94.0 (0.20	296.01 182.01	(82.80)	.00.0 (100:2)	39.0	45.0 11128	-42.0 (107.6)	(102.2)	40.0 (194)	280 0100	2014 18430	27 C	45 U (\$13)
Average high *C (*F)	145 (58.1)	16.7	17.6	(72.3)	26.8 (78.80	(D)(A)	107.40	00.0 00.02	98 ± 8270	28.9 (7.5)	17.6 (64)	(97.7)	32 n (73.2)
Average low 'C ("F)	2.5 (96.5)	4.0 (50.2)	5.1	6.8 (47.5)	11.3 (S2.3)	16.1 (61)	16.6 (61.6)	17.0 (62.6)	14.5 (SB.1)	10.4	3.6 (42.4)	(36.5)	9.5 (49.1)
Record low "C ("F)	-10.8	-7.1 [19.2]	-7.0 (19.4)	-4.4 (24.1)	(96.1)	9.0 (42.8)	8.0 (46.4)	7.0	5.0	-2.5 (27.5)	-5.0 (23)	-110.0 (14)	-10.0
Rainfall mm (inches)	46.5 (1.791)	28.7	24.1 (D.949)	6.2 (6.244)	7.6 (0.299)	17.4	125,9 (4.878)	89.6 (3.526)	56.2 (2.215)	48.1 (1.815)	22.5 (0.865)	42.8 (1.685)	510.7 (05.107)
Avg. rainy days	3-3	2.4	2.1	0.8	0.8	2.3	12.5	9.7	4.6	3.6	1.8	3.1	46.3
				Sume: SE	AMOROMA	TEDROL	OBICO NA	CKAMACE					

The climate is semi-arid desert and there is a dry season from the spring and early summer and a rainy season in the mid to late summer and fall that often causes flash floods in the arroyos (dry creek or stream beds). Rainfall is less intense throughout the winter but is of lengthier duration and precipitation can also occur as snow. Snow can accumulate during the winter months but usually melts within a few hours. February, March and April bring frequent frosts and hailstorms, as well as the occasional snowstorm. The average annual precipitation is 511 mm (Table 5.1).

The Project can be operated year round.

# 5.3 LOCAL RESOURCES

Hermosillo is the capital of Sonora and is located approximately two hours South of Magdalena de Kino via a well-maintained four-lane highway. It is the main economic center for the state and region, as well as an important centre for agricultural and manufacturing. Hermosillo has a

population of over 715,000 and represents 70% percent of the state's population, according to the Instituto Nacional de Estadística y Geografía in 2010.

Magdalena de Kino is the closest town with general supplies and fuel available. The town is also a potential source for labour. Cananea, an established mining town, is also an excellent source for skilled labour.

# 5.4 PHYSIOGRAPHY

The Property lies within a Basin and Range Physiographic Province, the landscape of which is defined by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. Local terrain is characterized by gently rolling topography in the southern part of the Project area and more deeply incised topography to the North. Property elevations vary from around 1,200 m to 1,700 m above sea level.

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

# 5.5 INFRASTRUCTURE

The following paragraphs discussing Property infrastructure have largely relied upon information contained in the Ristorcelli et. al., 2009 report on the Property, which in turn has relied upon information contained within written communication from G. E. McKelvey.

Past open-pit mining was carried out by previous operators between 1991 and 2000 at numerous deposits primarily located in the north-central region of the Project area. These past mining activities have left 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 (Figure 5.1).

Amelia Low Grade
Stockpile

Amelia Project
Leach Pads

Figure 5.1 Santa Gertrudis Infrastructure Map

Source: Noble et. al., 2010

The previous operators (Animas) had to undertake repairs and maintenance to the various service and accommodation buildings located around the Property. The buildings were weatherproofed and basic services and furnishings restored. The camp water tank was filled, drill sample handling facilities built, trash removed and standard office machinery acquired. The old residence area is functional as an exploration camp, with residences, an office and a dining hall.

There is sufficient land to conduct a mining operation, including waste disposal, processing facilities and pads for heap leaching. Potential power sources include local generators or a 20 km power line extension to the camp. Water could be obtained from the permitted water wells owned by First Silver Reserves and shown on Figure 5.1 (Ristorcelli et. al., 2009).

# 6.0 HISTORY

# 6.1 PROPERTY HISTORY

The following section on the Santa Gertrudis property has relied heavily upon the technical report completed on the Property by Noble et. al., (2010).

Investigations undertaken by Phelps Dodge Mining Company ("Phelps Dodge") in the 1980's showed potential for Carlin-type sedimentary rock-hosted, disseminated gold deposits at the Property. The first major discovery was made in 1986, a feasibility study was completed in 1988 and production from the Santa Gertrudis mine-site commenced in May of 1991 from a heap leach operation which produced at 3,000 tonnes per day (Kern and Sibthorpe, 2007).

Table 6.1 gives a summary of the Property history since Phelps Dodge's involvement beginning in 1984.

	TABLE 6.1 SANTA GERTRUDIS PROPERTY HISTORY							
Year	Company	Summary						
1984	Phelps Dodge	Modern exploration began in 1984 when Phelps Dodge identified several sedimentary-rock-hosted gold occurrences in the district.						
1991 - 1994	Phelps Dodge	Phelps Dodge developed the Santa Gertrudis Mine and produced gold from 1991 to 1994 from multiple open pits.						
1994	Campbell Red Lake Resources Inc. ("Campbell")	The Property was sold to 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").						
1999	Campbell	The nearby Amelia Mine also came under the control of Campbell in 1999. The mine was previously operated by Minera Roca Roja from the late 1980's.						
2000	Campbell	Campbell declared bankruptcy and ceased operations within the Santa Teresa mining district and through a series of transactions, the Property was again divided, with the López- Limón concessions under the control of Sonora Copper LLC						
2002	Queenstake Resources Ltd ("Queenstake")	The remainder of the Property transferred to 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.						

	TABLE 6.1 SANTA GERTRUDIS PROPERTY HISTORY							
Year	Company	Summary						
2007	Animas	The two groups of claims were consolidated again by Animas in 2007 and exploration was reinitiated. Animas completed three drilling campaigns at Santa Gertrudis, evaluating 13 different areas, which have been summarized in Table 6.3.						
2014	GoGold	GoGold acquired a 100% interest in the Santa Gertrudis property through the acquisition of Animas, on April 23, 2014.						

Historic exploration drilling tested over 100 target areas and was generally conducted to shallow depths of around 150 m around known deposits and to around 100 m in other target areas. Table 6.2 summarizes the historic drilling carried out at the Property and Figure 6.1 shows the historic drill hole locations.

TABLE 6.2 HISTORIC DRILLING SUMMARY FOR SANTA GERTRUDIS PROPERTY									
		RC I	Orilling	Core 1	Drilling	Total Drilling			
Company	Years	No. of Drill Holes	Total Metres	No. of Drill Holes	Total Metres	No. of Drill Holes	Total Metres		
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	39,890.0			247	39,890.0		
Unknown	?	72	7,313.5	36	3,798.5	108	11,112.0		
Animas	2008-2010	3	517.5	39	12,408.5	42	12,926.0		
Total		2,001	208,727.3	578	66,332.8	2,579	275,060.1		

<sup>\*</sup>Does not include 16 RC holes reported in the La Eme, Amelia #5 and El Tascalito areas.

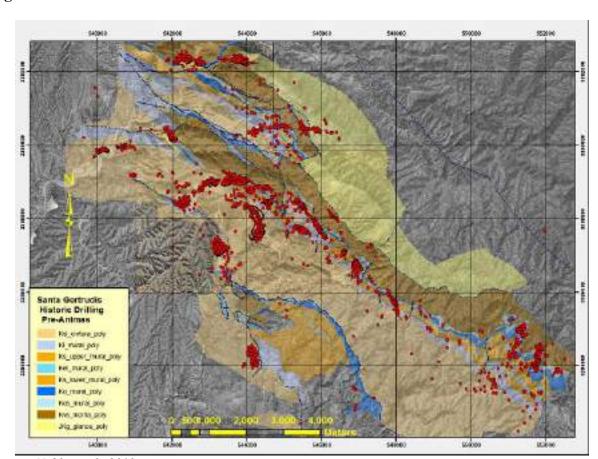


Figure 6.1 Location of Historical Drill Holes Carried out at Santa Gertrudis

Source: Noble et. al., 2010

Table 6.3 summarizes the recent drilling carried out by Animas and Figure 6.2 shows the recent Animas drill hole locations.

TABLE 6.3 SUMMARY OF RECENT DRILLING CARRIED OUT BY ANIMAS						
Hole No. From To		Area	Туре	No. of Holes	Depth (m)	
ARET- 001	ARET- 005	Tigre Skarn	Core	5	2,261.85	
ARAS- 001	ARAS- 003	Amelia Sur	Core	3	703.75	
ARBE- 001	ARBE- 004	Berta	Core	4	1,133.70	
ARCM- 001	ARCM- 001	Camello	Core	1	226.60	
ARCO- 001	ARCO- 003	Corral	Core	3	783.05	
ARDO- 001	ARDO- 001	Dora	Core	1	254.30	
AREN-	AREN-	Enedina	RC/Core	1	418.90	

TABLE 6.3 SUMMARY OF RECENT DRILLING CARRIED OUT BY ANIMAS						
Hole No.		Area	Type	No. of	Depth (m)	
From	To	11100	1340	Holes	Depth (iii)	
001	001					
ARES- 001	ARES- 001	Escondida	Core	1	368.00	
ARGA- 001	ARGA- 002	Gravas	RC	2	387.00	
ARMR- 001	ARMR- 003	Mirador	Core	3	1,028.60	
ARPR- 001	ARPR- 003A	Pirinola Este	Core/RC	4	421.05	
ARPR- 004	ARPR- 005	Pirinola	Core	2	572.40	
ARRV- 001	ARRV- 002	Real Viejo	Core	2	353.35	
ARST- 001	ARST- 002	Sta. Teresa	Core	2	398.80	
ARTG- 001	ARTG- 007	Toro- Gregorio	Core	7	3,297.25	
ARCS- 001	ARCS- 001	Cristina Sag	RC/Core	1	317.40	
Total				42	12,926.00	

<sup>\*</sup>Does not include 16 RC holes reported in the La Eme, Amelia #5 and El Tascalito areas.

### Animal Resources
2006-2010 Printing
NO. (See of the Control of

Figure 6.2 Location of Recent Animas Drill Holes Carried out at Santa Gertrudis

Source: Noble et. al., 2010

## **6.2** HISTORIC RESOURCE ESTIMATES

An historic resource estimate covering all of the Property but excluding the 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 2.05 g/t Au, totalling approximately 95,000 ounces of gold. The 2000 estimate also reported an Inferred Resource of 14,791,000 tonnes at an average grade of 1.28 g/t Au, totalling approximately 607,000 ounces of gold.

The reader is cautioned that the above historic resource estimates are not compliant with NI 43-101 guidelines. A Qualified Person (QP) has not carried out sufficient work to verify these historical estimates and therefore the company is treating the numbers as historical and indicative only, and as such the estimate should not be relied upon.

## 6.3 HISTORIC PRODUCTION

Approximately 565,000 ounces of gold were produced in the district from what is now part of the Santa Gertrudis property between 1991 and 2000. A total of 8,244,000 tonnes at an average recovered grade of approximately 2.13 g/t Au 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 2,000 tpd to 3,000 tpd 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.

#### 7.0 GEOLOGICAL SETTING AND MINERALIZATION

## 7.1 REGIONAL GEOLOGY

The following section on regional geology is quoted from the NI43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 GoGold's 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 trans-tensional 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 trans-tensional 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 25 km by 10 km 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 1,300 m 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  $26.1 \pm 0.7$  Ma (Bennett, 1993).

\$30000 550000 560000 570000 Regional Geology Northern Sonora, Mexico Cananea Sierra Azul Andesites Santa Gertrudis Conglomerate Project Area Qal Sierra Madera etamorphic Core Cretaceous Sedimentary Rocks Complex Magdalena de Kino Granodiorite Qui Pediment Gravels Tertiary Intrusives 560000

Figure 7.1 Regional Geology, Northern Sonora, Mexico

## 7.2 DISTRICT GEOLOGY

The following section on district geology is quoted from the NI43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 20 km long and up to 8 km wide. Although the entire

Cretaceous section is not exposed within the district, it is believed that the sedimentary (rocks have) a minimum thickness of 1,300 m. 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.

Upper Jurassic (?) to Lower Cretaceous Glance Formation equivalent rocks are more than 300 m thick and consist of a green, mottled, massive, pebble to boulder conglomerate inter-bedded 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 portion 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 400 m 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.

Amelia Mine

Amelia Mine

Becerros N & S

Corral Mine

Cristina Deposit

Animas Resource Ltd.

Animas Resource

Figure 7.2 Santa Teresa Mining District Geology (Animas 2010)

The Lower Cretaceous Mural Formation is about 380 m 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 100 m to 125 m 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 40 m to 50 m thick, thick-bedded, dark-gray-weathering oyster-bearing limestone (Ko). The middle member is 195 m to 205 m 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 15 m thick, light-gray, thinly bedded, and weakly fossiliferous limestone (Kel). The upper member (Kl) is 15 m to 80 m thick, consisting of about 1.5 m 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 800 m 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 favourable 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.

LITHOSTRATICRAPHIC COLUMN SANTA GERTRUDIS DISTRICT Qal Qtal er Brysont Canglomerote UNITS Kal Maribel, Cristine Silvio, Los Secorros Cintura Fm KI KI Ks Kel Ks-Kel Ks Ko UNIT Kvs Morita Fm UNIT Keo Cerro de Oro Fm UNIT Keg Glance Fm (?) LAS PAHOCHAS DANNIT DIGRAFE DECEMBOS MORTE

Figure 7.3 Stratigraphic Section – Santa Teresa Mining District

Intrusive (rocks) 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  $\pm$  0.3 Ma (Re-Os date from molybdenite) while a later alteration event has been dated by Bennett (1993) at 36.1  $\pm$  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  $\pm$  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 1-3 m 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 2 m 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 recognized 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 crosscutting 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 (slightly) younger 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. .... 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.

## 7.3 STRUCTURE

The following section on structure is quoted from the NI 43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 20° and 40°, 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 kilometres, 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 slickenside measurements.

## 7.4 MINERALIZATION

The following section on mineralization is quoted from the NI 43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 (~045°), 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 (~345°) 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, 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 favourable, 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,  $26.1 \pm 0.7$  Ma), and this, by necessity, would make the gold mineralizing event younger than  $26\pm$  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 favourable 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 favourable 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. Favourable 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 10-30 m thick, and locally extend outward to a limited extent as replacement of the calcareous units. The most favourable 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 metres to a few hundred metres 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  $\pm$  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 (330° $\pm$ ) fault that dips southwest at about 30°. 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 favourable 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.

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 favourable 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. Sulphide 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.

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 km 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/ mineralization, 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 km 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 km long by 1.0 km 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 km 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 km 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 m in diameter, 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.

#### 7.5 ALTERATION

The following section on alteration is quoted from the NI 43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 < 1 cm 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 than 1m in width, have replacement silica halos, and are generally barren of gold mineralization. The siliceous breccias are usually less than a few metres 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 (>10 g/t Au).

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 (±1 km southwest of El Corral) the jasperoid is in excess of several hundred of metres in length and more than 100 m 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, 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.

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 metres 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 (100-300 ppb), the presence of this alteration type indicates that significant volumes of hydrothermal solutions have passed through the rocks.

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 kilometres long and up to 500 m 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.

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 150 m 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 1 g/t Au 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 metres 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 (>2 g/t Au) 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.

## 7.6 DEPOSIT GEOLOGY

The following section on geology of some of the significant deposits is quoted from the NI 43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

# 7.6.1 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 2.35 g/t Au. 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  $\pm 5\%$  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 30° 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 sulphide-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 100-150 m.

## 7.6.2 La Gloria Deposit

The La Gloria deposit is located approximately 9 km 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 ... 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 fossilbearing, 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 10°-20°, and varies from a few metres to a maximum 10-15 m 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 40° to the west. This zone is rather irregular and discontinuous on the surface, and it is characterized 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 primary north-south fault. If this was the case, gold mineralization probably was deposited preferentially within the more favourable structural/lithologic horizons (favourable Kos and faults/shears).

# 7.6.3 Mirador Deposit

The Mirador deposit it located approximately 1.5 km 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 mineralized zones 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 siltstoneshale which was subsequently converted primarily isochemical, thermal metamorphism to variable pyritized, diopside-biotite hornfels. An interbedded limestone unit (Kel) separates 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 mineralization appears to continue somewhat down-dip from the existing pit, but unfortunately it does not appear to continue for any great distance along strike to either the northwest or southeast.

# 7.6.4 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 50°-70°. 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 <1 cm 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.

## 7.6.5 Cristina Deposit

The Cristina deposit is located approximately 3 km 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 30°. A major fault separates the two formations and strikes approximately north-northwest and dips southwest at 30°-40°. 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 <1 cm to +20 cm in width and locally contain  $\pm 1\%$  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.

# 7.6.6 Trinidad Deposit

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

The Trinidad deposit was discovered by Campbell Resources in 1995 and a reported 15,380 oz of gold at an average grade or 2.12 g/t Au 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 40°-75°.

Two major faults and subsidiary fault sets are in the immediate Trinidad area: a northwest-trending, near vertical to southwest-dipping fault (+70°) and an east-trending, steeply north-dipping (+75°) 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 60°-75°.

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 600 m long in an east-west direction and up to 50 m 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.

#### 8.0 DEPOSIT TYPES

The following section on deposit types is quoted from the NI 43-101 report for Animas on the Santa Gertrudis Gold Project by Noble et al. (2010).

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 7.0, although there are several features similar to Carlin-type gold systems, there are also many differences.

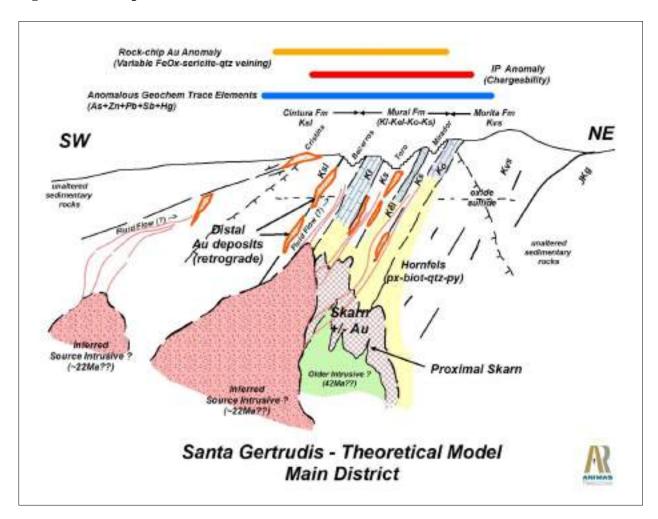
The majority of the gold mineralization in the Santa Teresa mining district, and specifically the higher-gold grades (>g/t Au), occurs within fault and shear zones, in contrast to the greater dissemination typical of Carlin-type systems. The district contains abundant carbonate rocks, yet decalcification 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 ~10 km 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 ( $\pm$  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 EXPLORATION

Since acquiring the property in early 2014, GoGold has carried out exploration consisting mainly of confirmatory drilling and sampling plus data compilation and certain field and site activities. Previous exploration, including work carried out by Animas up to 2010, is summarized in Section 6 of this report.

## 10.0 DRILLING

GoGold carried out a drilling program in 2014 in conjunction with the PEA. Results from 19 new holes totaling 2,001.4 m were reported in GoGold's news release dated July 31, 2014. The drilling program was designed to follow-up previously untested structural breaks where they cross the favourable limestone beds that host many of the mined deposits on the Property. Testing of the new targets began in late May with priority assigned to near surface, oxidized zones.

At the Rueben deposit, hole GGRU-002 intersected new high grade mineralization with 21 m of 2.22 g/t Au and GGRU-004 intersected 7.45 m of 11.28 g/t Au. At the Escondida deposit, drillhole GGES-010 intercepted a new zone of 48.7 m of 0.9 g/t Au and 45.2 g/t Ag including 22.4 m of 1.77 g/t Au and 84.5 g/t Ag. Drillhole GGES-009 intercepted the same zone with 10.9 m of 2.11 g/t Au and 41.1 g/t Ag (See tables 10.1 and 10.2).

TABLE 10.1 SIGNIFICANT RESULTS FROM GOGOLD'S 2014 DRILL PROGRAM						
Name	Hole No.	From (m)	To (m)	Length (m)	Gold g/t	Silver g/t
Rueben	GGRU-001	90.15	93.00	2.85	1.37	1.0
Rueben	GGRU-002	79.10	100.10	21.00	2.22	1.5
Rueben	Incl.	90.80	100.10	9.30	3.21	1.5
Rueben	GGRU-004	51.35	51.35	7.45	11.28	16.9
Escondida	GGES-002	56.85	65.30	8.45	1.32	7.8
Escondida	GGES-003	41.15	44.25	3.10	0.64	5.3
Escondida	And	53.00	56.90	3.90	0.47	15.3
Escondida	And	85.90	95.50	9.60	0.02	113.3
Escondida	GGES-004	90.45	95.30	4.85	1.72	6.8
Escondida	GGES-005	31.30	38.00	6.70	0.63	5.3
Escondida	GGES-006	40.00	52.20	12.20	0.31	2.5
Escondida	GGES-007	54.85	68.40	13.55	0.37	10.7
Escondida	And	75.80	79.60	3.80	1.73	10.6
Escondida	GGES-009	34.40	52.00	17.60	0.34	18.5
Escondida	And	67.50	78.40	10.90	2.11	41.4
Escondida	GGES-010	0.00	6.10	6.10	5.59	12.3
Escondida	And	22.75	34.95	12.20	0.86	14.1
Escondida	And	65.00	113.70	48.70	0.90	45.2
Escondida	Incl	88.70	111.10	22.40	1.77	84.5
Escondida	GGES-012	46.45	69.57	23.12	0.93	11.6
Escondida	GGES-013	60.80	65.00	4.20	0.63	8.0
Trinidad	GGTR-002	51.60	58.60	7.00	0.78	1.3

Source: GoGold news release July 31, 2014

			<b>TABLE 10.2</b>				
LOCATION AND ORIENTATION OF GOGOLD 2014 DRILL HOLES							
Hole. No.	Easting	Northing	Elevation	Azimuth	Dip	Length (m)	
GGTR-001	544032	3392245	1390	20	-55	90.8	
GGTR-002	544068	3392206	1390	20	-55	93.4	
GGES-001	545557	3390439	1501	55	-45	78.4	
GGES-002	545557	3390439	1501	55	-85	88.4	
GGES-003	545581	3390341	1518	55	-75	101.6	
GGES-004	545597	3390296	1534	55	-72	116.0	
GGES-005	545962	3390382	1553	0	-60	130.7	
GGES-006	545487	3390540	1502	55	-45	98.8	
GGES-007	545476	3390473	1512	55	-60	120.3	
GGES-008	545372	3390445	1480	187	-45	70.2	
GGES-009	544956	3390540	1440	187	-50	140.5	
GGES-010	545077	3390501	1444	187	-54	120.8	
GGES-011	546090	3390346	1541	7	-45	113.6	
GGES-012	546214	3390324	1540	7	-45	95.1	
GGES-013	545300	3390471	1482	187	-50	78.0	
GGRU-001	543958	3389063	1462	137	-50	105.2	
GGRU-002	543958	3389063	1463	137	-74	124.2	
GGRU-003	543921	3389038	1463	137	-55	123.5	
GGRU-004	543949	3389036	1460	137	-50	112.3	
Total						2001.4	

## 11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

There were three drilling campaigns completed by Animas Resources (previous owner), at Santa Gertrudis, taking place in the years 2008, 2009, and 2010. The sampling procedures were slightly different in 2008 than they were in 2009 and 2010.

In 2014, GoGold completed a drilling campaign at Santa Gertrudis. Sample preparation, analyses and security for all drilling campaigns are discussed in the following sections.

# 11.1 2008 TO 2010 SAMPLE PREPARATION PROCEDURES – ANIMAS RESOURCES

Core boxes were delivered to the logging facility where the geologists were responsible for estimating recovery and laying out sample intervals at 1.5 m increments. If there were significant lithologic and/or alteration changes, shorter sample intervals were designated, however none was less than 0.5 m. Sample intervals were marked on the sides of the core boxes as a permanent record.

Drill core was moved to the sawing area by the cutting crew. The entire core was 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 was subdivided without sawing using a metal sampling device. Each analytical sample was given a unique number from pre-numbered sample tag books. That number was marked on the outside of the plastic sample bag. The sample tag was composed of two identically numbered parts; one remained in the book for future reference and had the drill hole number and footage recorded. The second half with only the sample number was placed in the numbered plastic bag with the sample. Each bag was sealed by the sample handler and not opened again until it reached the sample preparation facility. Groups of sample bags were placed in rice bags that were also sealed and labeled to identify the contained individual samples. The rice bags were not opened until they reached the sample preparation facility.

## 11.2 2008 DRILL PROGRAM

Drilling in 2008 consisted of 18 holes. Of the 18 holes, the first three (ARCO-001, -002, -003) were sent to Sonora Sample Preparation Labs in Hermosillo, Mexico. After a site visit by John Wilson, Greg McKelvey, and Roger Steininger it was determined that the facility was unacceptable, and sample preparation for all subsequent holes was move to Skyline Labs in Tucson, Arizona, USA. In order to verify the preparation of the three holes sent to Sonora Prep labs, certain intervals from the drilling were selected and new pulps were prepared from rejects and sent to other labs for analysis. Approximately 15-20 selected intervals of varying grades were analyzed by different labs, and results were consistent with each other.

## 11.3 SKYLINE LABS PROTOCOL

Drill core was sawn in half, and the half core samples were delivered by Animas personnel to Skyline's customs broker at Nogales, Mexico who arranged transport across the border and to Skyline in Tucson. At the lab, samples were either dried in ovens at approximately 105°C or sent directly to the preparation room.

Samples were crushed to 70-80% passing -10 mesh. Quality control screen tests were performed each morning, or at the start of every new job. Computer generated sample labels accompanied each sample in a thoroughly cleaned tray throughout the process. The entire crushed sample was passed through a Jones splitter three times for blending, and 270 grams were split out to be pulverized. The 270 gram split was pulverized to 95% passing -150 mesh using a ring-in-puck pulverizer. The pulp was placed in an analytical envelope with the computer generated sample number adhered to it, and the pulps were shipped to International Plasma Labs, ("IPL"), in Richmond, BC, Canada for analysis.

IPL was a certified lab, and was purchased in September, 2008 by Inspectorate Labs. The IPL division specialized in geochemical and exploration analysis and with the 2008 purchase, became Inspectorate's fifth hub lab within the division. Inspectorate Group was in turn acquired, in 2010 by Bureau Veritas. In North America the Vancouver lab is ISO 9001:2008 certified. The lab participates in round robin testing, such as CanMet, and hires BC Certified Assayers, experienced technicians and chemists to complete all analytical work.

No QC samples were inserted with the first three holes, however for the remaining 15 holes certified reference materials, (standards) were purchased from Shea Clark Smith (Minerals Exploration and Environmental Geochemistry, MEG), of Reno, NV. Grades of the standards ranged from a low of 0.45 g/t Au to a high of 6.0 g/t Au. The standards were inserted every 15 samples, and a real-time review of the results was performed by Roger Steininger, Ph.D.

Skyline Assayers and Laboratories ("Skyline") is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system.

## 11.4 2009 AND 2010 DRILL PROGRAMS

A small group of samples was sent for prep and assay to Skyline in early 2009, and for the remainder of 2009 and all of 2010, all samples were sent to ALS Minerals Lab, ("ALS") in Hermosillo, Mexico for preparation and analysis.

ALS labs maintain ISO registrations and accreditations, providing independent verification that a Quality Management System, ("QMS") is in operation at the location in question. Most ALS laboratories are registered or are pending registration to ISO 9001:2008, and a number of analytical facilities have received ISO 17025 accreditations for specific laboratory procedures. Sample prep at ALS consisted of crushing the sample to 70% passing -10 mesh, reducing the sample through a Jones riffle splitter, and pulverizing to 85% passing -200 mesh. Gold was determined using fire assay on a 30 g aliquot, with AAS finish. Samples exceeding an upper threshold of 10 g/t Au were reanalyzed using gravimetric determination.

Following the 2008 drill program, it was decided to make property standards from material at Santa Gertrudis. Four property standards of varying grades were prepared by Shea Clark Smith (MEG). Five samples were sent to each of 10 different certified, commercial labs for a round robin ("RR") characterization. Statistics were applied to the results, and a mean and between-lab standard deviation were calculated for each standard. Grades of the property standards were 0.16 g/t Au, 0.56 g/t Au, 1.24 g/t Au and 4.12 g/t Au.

The non-mineralized Cintura formation was chosen from the site, and a "blank" sample created. The "blank" sample, was assayed extensively and determined to contain less than 5 ppb Au. For all the 2009 and 2010 drilling, a standard was inserted every 15 samples and three blanks (broken, uncrushed rock) were inserted per drill hole. Results were sent to R. Steininger for evaluation. Complete results of the quality control program for 2008-2010 are discussed in Section 12.

#### 11.5 2014 DRILLING CAMPAIGN- GOGOLD

GoGold completed a drilling campaign in 2014, which was comprised of 13 holes on the Escondida deposit, and 5 holes on the Ruben deposit. GoGold used Activation Laboratories ("Actlabs") in Zacatecas, Mexico, for all sample preparation and analysis.

The Actlabs' Quality System is accredited to international quality standards through the International Organization for Standardization /International Electrotechnical Commission (ISO/IEC) 17025 (ISO/IEC 17025 includes ISO 9001 and ISO 9002 specifications) with CAN-P-1758 (Forensics), CAN-P-1579 (Mineral Analysis) and CAN-P-1585 (Environmental) for specific registered tests by the SCC. The accreditation program includes ongoing audits, which verify the QA system and all applicable registered test methods.

All the samples were shipped in marked, sealed, tagged bags to Actlabs in Zacatecas, Mexico. Both the sample prep and analyses were completed at this location.

Gold was analyzed using fire assay-AAS up to a grade of 10,000 ppb Au, (10 g/t Au). Results exceeding 10,000 ppb Au were reanalyzed using fire assay with a gravimetric finish, and reported in g/t.

It is P&E's opinion that the sampling method, analyses and security were sufficient to ensure robust results for use in the mineral resource estimates.

## 12.0 DATA VERIFICATION

## 12.1 SITE VISIT AND DUE DILIGENCE SAMPLING

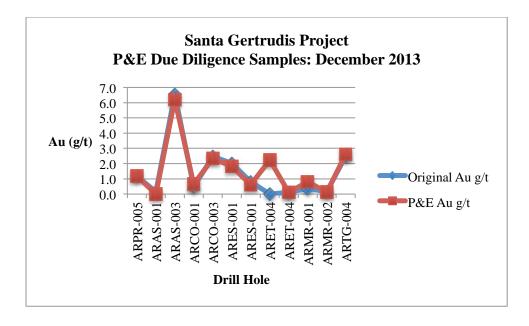
The Santa Gertrudis Property was visited by Mr. Fred Brown, P.Geo., from December 9 to 13, 2013, and again from February 11 to 21, 2014, for the purposes of completing site visits and due diligence sampling. General data acquisition procedures, core logging procedures and quality assurance/quality control (QA/QC) were discussed during the visit.

Mr. Brown collected 12 samples from 10 diamond drill holes in December, and six samples from six drill holes in February. Samples were collected by taking the half core remaining in the core box. Once the samples were collected, they were placed in a large bag and taken by Mr. Brown to ALS Minerals in Hermosillo, Mexico for preparation and analysis.

Samples at ALS were analyzed for gold by fire assay-AAS, and bulk densities were determined on 13 of the samples.

Results of the site visit due diligence samples are presented in Figures 12.1 and 12.2.

Figure 12.1 GoGold Due Diligence Sample Results for Gold: December 2013



Santa Gertrudis Project
P&E Due Diligence Samples: February 2014

4.0
3.5
3.0
2.5
Au (g/t) 2.0
1.5
1.0
0.5
0.0

Original Au g/t
P&E Au g/t

Drill Hole

Figure 12.2 GoGold Due Diligence Sample Results for Gold: February 2014

# 12.2 QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The quality assurance/quality control program ("QA/QC" or "QC") for Animas was set up and monitored by R. Steininger, Ph.D., P.Geo. in 2008, and with a few modifications, the program continued through 2009 and 2010.

In 2014, the QC program was maintained by GoGold, and monitored on a real-time basis by GoGold personnel.

# 12.2.1 2008 QC Program

The program in 2008 consisted of the insertion of four commercially certified reference materials purchased from Shea Clark Smith of MEG in Reno, NV. The standards were inserted at a rate of approximately 1:15.

Grades of the standards ranged from a low of 0.45 g/t Au to a high of 6.0 g/t Au. There was a total of 16 data points for these standards, which were inserted with the samples sent to Skyline Labs. Two of the standards were unidentifiable in as far as the statistical warning limits were concerned, therefore they are not presented here. They accounted for a total of 6 values. The other two standards performed within +/- two standard deviations from the mean.

Graphs of the results are presented in Figures 12.3 and 12.4.

Figure 12.3 Performance of S105004X for Gold

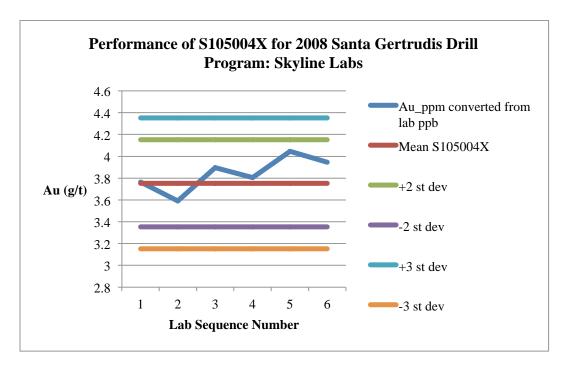
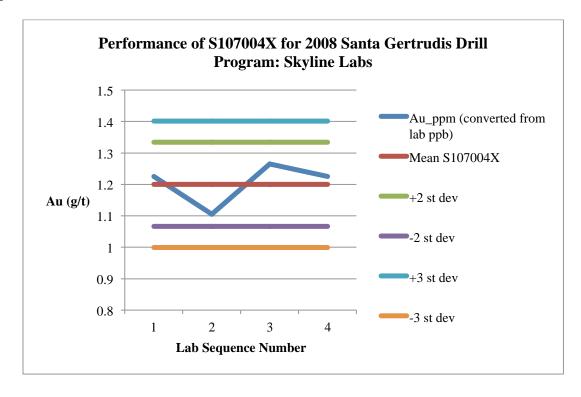


Figure 12.4 Performance of S107004X for Gold

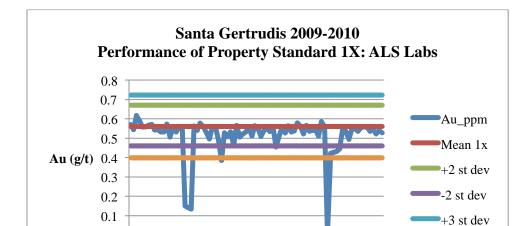


# 12.2.2 2009 and 2010 QC Program

In late 2008, and in time for the 2009 drill program, property standards were created from material at Santa Gertrudis. Four property standards, of varying grades were prepared by Shea Clark Smith (MEG). Five samples were sent to each of 10 different certified, commercial labs for a round robin ("RR") characterization. Statistics were applied to the results, and the mean and

between-lab standard deviation were calculated for each standard. Grades of the property standards were 0.16 g/t Au, 0.56 g/t Au, 1.24 g/t Au and 4.13 g/t Au.

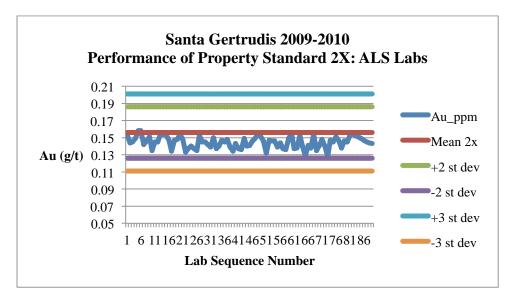
A total of 285 standard samples were submitted with the routine samples. The standards performed very well, with six failures below three standard deviations from the mean, and nine misallocations. All other values were within plus and minus two standard deviations from the mean. Performance for the four standards is displayed in Figures 12.5 through 12.8.



1 6 11 1621 2631 3641 4651 5661 6671 7681 **Lab Sequence Number** 

Figure 12.5 Performance of Property Standard 1X for Gold





-3 st dev

Figure 12.7 Performance of Property Standard 3X for Gold

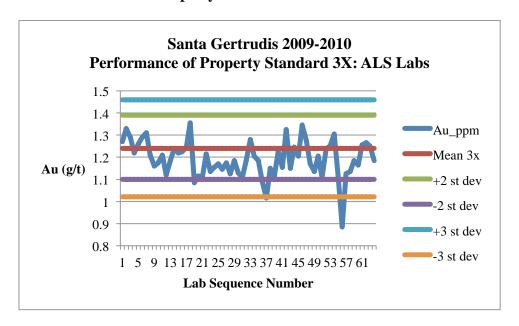
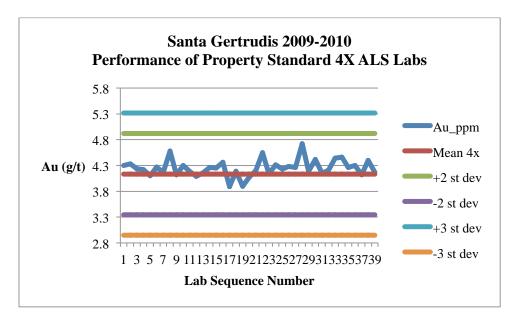


Figure 12.8 Performance of Property Standard 4X for Gold



## 12.3 PERFORMANCE OF BLANK MATERIAL

The blank material was prepared for the 2009 and 2010 drill programs from the Property-derived Cintura Formation. Twenty-nine blank samples were analyzed along with the routine samples, and all 29 returned values less than five times the detection limit for gold. Results are presented in Figure 12.9.

Figure 12.9 Performance of Blank Material for the 2009-2010 Drill Program

#### 12.4 DUPLICATE SAMPLES

There were no duplicate samples, (either ½ or ¼ core, RC cuttings, coarse reject or pulp) prepared on a regular basis by the Company. The labs ran pulp duplicates with their internal QC program, however the results were not compiled.

## 12.5 2014 QC PROGRAM

The 2014 QC program implemented by GoGold continued from programs set up by R. Steininger in previous years. Property standards 2x and 4X, created from Santa Gertrudis material, continued to be used, as well as a blank material purchased from the CDN Labs in Langley, BC, Canada. Pulp duplicates formed part of the program in 2014.

## 12.6 PERFORMANCE OF REFERENCE MATERIALS

The two property standards employed in 2014 were 2X and 4X used from previous years. The 2X had a grade of 0.15 g/t Au and the 4X had a grade of 4.13 g/t Au.

There were 36 data points for 2X, and all but one reported within  $\pm$ - two standard deviations from the mean. A low bias was noted with all points falling below the mean.

There were 32 data points for 4X, and all fell within +/- two standard deviations from the mean. A high bias was noted for this standard with all data points sitting above the mean. Figures 12.10 and 12.11 show the results for 2X and 4X, respectively.

Figure 12.10 Performance of Property Standard 2X

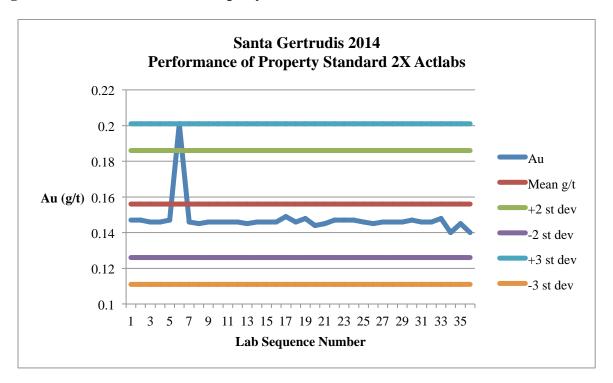
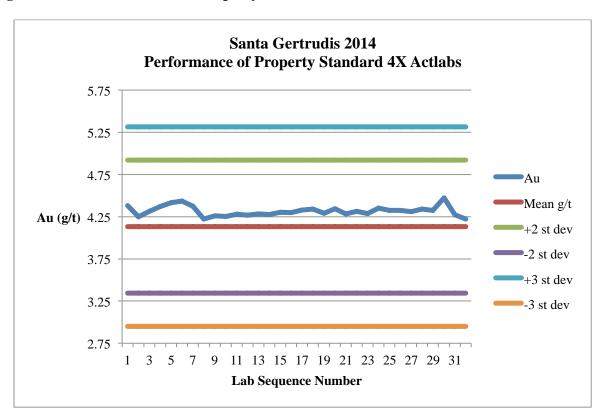


Figure 12.11 Performance of Property Standard 4X



## 12.7 PERFORMANCE OF BLANK MATERIAL

The blank material used in 2014 was purchased from CDN Resource Labs in Langley, BC, Canada as pre-pulverized material. Thirty-six blank samples were analyzed along with the routine samples, and all 36 returned values less than five times the detection limit for gold. Results are presented in Figure 12.12.

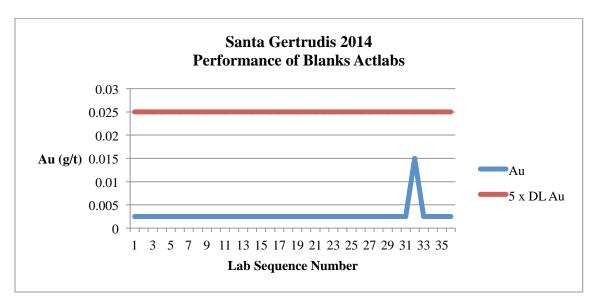
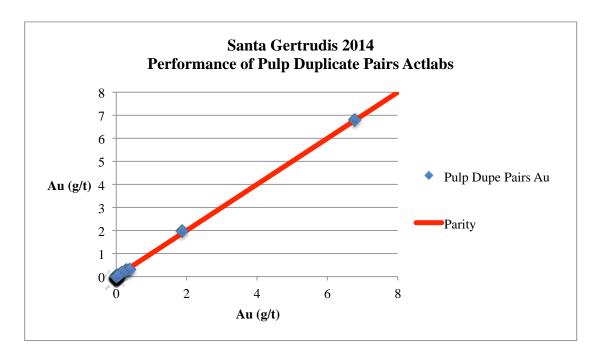


Figure 12.12 Performance of Blank Material

## 12.8 DUPLICATES

For 2014 there were pulp duplicates inserted as part of GoGold's internal QC program, and a total of 37 pairs were analyzed. Precision at the pulp duplicate level was excellent, with essentially a 1:1 ratio; even at grades below 0.5 g/t Au. Results are presented in Figure 12.13.

Figure 12.13 Performance of Pulp Duplicates



## 12.9 CONCLUSIONS TO DATA VERIFICATION

P&E has evaluated the results of the quality assurance/quality control program set up and monitored by R. Steininger from 2008 to 2010 inclusively, and in 2014 by GoGold, and it is P&E's opinion that the results demonstrate accurate and precise data and an absence of contamination. These data are suitable for use in the current mineral resource estimate.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The Santa Gertrudis project is comprised of 38 discrete gold deposits; of which 13 have been subjected to some metallurgical testing including bottle roll and column test work and a few have been partially mined. Production from Santa Gertrudis commenced in 1991 with a 2,000 tonne per day ("t/d") heap leach operation which was later increased to 3,000 t/d. Few operating records for past operations are available for review and recovery estimates are therefore based primarily on the available laboratory bottle roll and column leach test work. The samples used in the test work are often not well identified and the degree to which they represent the deposits is not known.

The deposits are typically comprised primarily of oxide material with lesser amounts of mixed and some sulphide material. In portions of some deposits there is an active carbonaceous component which is capable of adsorbing gold from solution. Sulphide material, representing a minor component of the mineralization, may be partially refractory to conventional processing. Oxide material leaches relatively rapidly and is fully amenable to heap leaching. Gold extraction from oxide under heap leach conditions is relatively insensitive to rock size and fine crushing is not required. Additionally, agglomeration of feed to the heap leach facility is not beneficial based on the available test work and is not included in the proposed flowsheet.

The metallurgical test work (bottle roll and column tests) yielded a range of gold extractions for oxide material, although they were insensitive to head grade. Gold extractions for oxide were typically between 75% and 90% and reagent consumptions were moderate. Recovery of gold from mixed material was typically lower and is not well defined.

For purposes of this Mineral Resource update and PEA, gold recoveries of 75% and 50% have been adopted for oxide and mixed material respectively in all deposits. Sulphide material was not considered in the PEA other than what is included with the mixed material.

The various deposits have been grouped into ten separate block model workspaces, as listed below. Summary metallurgical results for tested deposits within each block model workspace are included.

#### 13.1 AMELIA

In 1993, Metcom conducted bottle roll and column testing on the Amelia deposit. One bottle roll test yielded 93.1% extraction in 72 hr at 150 microns. Reagent consumptions were relatively high. 30-day column tests showed no recovery improvement with agglomeration and little improvement by crushing finer than 4 inches. Extractions ranged from 84.3% to 88% and averaged 86.4% over 6 tests. Reagent consumptions averaged 0.12 kg/t NaCN and 0.95 kg/t CaO (plus 1 kg/t cement).

#### 13.2 CENTRAL

Typical reported heap leach recoveries for the El Corral deposit were 50 -55%, probably due to the presence of active carbon. Fully oxidized material appeared to respond similarly to other deposits in the area, with bottle roll extractions of 80% to 90%.

#### 13.3 CRISTINA

Test work conducted on the Cristina project, include bottle roll tests conducted mainly in the 1991-93 period and several subsequent column tests, all by McClelland and Kappes Cassidy ("KCA"). Bottle roll tests were all conducted at a nominal grind of 10 mesh and retention times that typically were 2 (McClelland) to 4 (KCA) days. McClelland performed 57 tests which averaged 73% extraction and ranged from 36% to 89%. KCA conducted 22 tests (ignoring 6 tests on very low grade material), averaging 67.8% extraction with a range of 46% to 91%. McClelland ran one column test on surface material at minus 1 inch size and extraction was 82% after 84 days. KCA ran three column tests on uncrushed 2 inch drill core for 35 days which returned extractions of 21% to 27%. The tailings were crushed to -1/2 inch and re-leached but results are unknown. Given that the bottle roll tests show no significant effect of depth on extraction, the KCA column test results are discounted for the present study.

### **13.4 DORA**

A total of 60 bottle roll cyanide leaching tests were performed in 1993 on samples of reverse circulation drill cuttings from the Dora deposit. 32 of the samples tested gave gold extractions above 70% with average gold extraction of 89%. Of the remainder, 24 were severely pregrobbing with individual extractions below 30% and averaging 1%. The 4 remaining tests gave extractions between 30% and 70% averaging 51%.

A surface sample of -1 inch oxide material was column leached. Overall gold extraction was 86% after 69 days.

## 13.5 ESCONDIDA

There are no test data for any of the gold deposits in this model.

#### 13.6 MIRADOR

Five Hilario composites were evaluated in bottle roll tests by Phelps Dodge in 1988. At a crush size of 1/4 inch, extractions ranged from 74% to 82%. Cyanide consumptions ranged from 0.20 to 0.57 kg/t and CaO ranged from 2.8 to 3.8 kg/t. One composite exhibited minor preg-robbing.

In 1995, Campbell Resources conducted bottle roll tests at nominal 6 mesh crush size on 41 samples from drill holes SOF 104,105, 106, 109, 110, and 112 in the Sofia deposit. 10 samples were subjected to pre-robbing tests and 5 of these were rated as slight to severe. Extractions for 41 samples ranged from 39% to 94% and averaged 78%.

Bottle roll and column test work were conducted on Agua Blanca material by Bateman in 1987 - 1989. Two inch material was used in a column test and returned 78 % extraction in 90 days with cyanide and lime consumptions of 1.0 and 2.0 kg/t, respectively. A column test at 1-1/2 inch size by Phelps Dodge on a cut of the Bateman sample yielded 82% extraction in 28 days.

Four Agua Blanca column tests were reported in the Phelps Dodge feasibility study of October 1988. Crush sizes ranged were 0.75, 1.5, and 4 inch. The 4 inch test yielded 70% extraction in 85 days and was considered incomplete. The -1.5 inch test returned 80% recovery in 135 days and

the 0.75 inch test 83 - 85% in 134 days. One of the two minus 3/4 inch tests was agglomerated and returned the lower extraction.

#### 13.7 LEACH PAD

Some partially leached material is present on existing Amelia leach pads from the Amelia deposit. The degree of past leaching and the reason for termination are not known. No recent test work has been completed on leach pad samples.

#### **13.8 SOUTH**

Test work has been conducted only on the Gloria deposit of the South model and is limited to 12 bottle roll tests. Three of the Gloria tests showed poor extraction (as low as 12%) which appears to be related to encapsulation of gold in sulphides and not to preg-robbing. Two of the three samples could be visually identified as sulphide material; the third, not as refractory, was not as obvious. Ignoring the three refractory samples which would not be heap leach amenable, the average extraction based on the lab conditions was 76.5% with a range of 66% to 89%.

## 13.9 TRINIDAD

Campbell Resources arranged some metallurgical testing on the Trinidad deposit. Twelve 20 hr bottle roll tests of composite core and RC samples with an average grade of 2.58 g/t Au were conducted. Gold extractions for the bottle roll test were reported to have ranged from 70% to 97% and averaged 85%. Lime consumption was estimated at 3.1 kg/t and the CN consumption was estimated at 0.8 kg/t. Two column leach test were performed on composite core material with 80% passing 1.25 cm in size and having an average head grade of 2.04 g/t Au. Leach time was 15 days followed by a wash time of 5 days. Overall gold recovery ranged from 78% to 82% with CN consumption estimated at 0.71 kg/t and 0.54 kg/t, respectively. A bulk column leach test was conducted on a 2,900 Kg sample from the Trinidad pit. The sample consisted of material with 80% passing - 2.5 cm size with a head grade of 3.53 g/t Au. After an 87 day leach period a gold recovery of 89% was reported with "moderate" CN consumption.

### **13.10 WEST**

Five Bateman bottle roll tests in 1987 on Los Becerros 1/4 inch samples yielded extractions ranging from 85% to 92% with cyanide consumptions of 0.20 + 0.64kg and lime usage of 1 - 2 kg/t. Additional bottle roll tests on "shallow" and "deep" samples yielded 92% and 93% extraction, respectively, with 0.15 kg/t cyanide and 1.5 kg/t lime. Column tests at 3/4 inch crush size were also conducted and returned approximately 92% extraction for both shallow and deep samples in 58 days, with 1.3 kg/t cyanide consumption for both and 1.5 - 5.3 kg/t lime, respectively. In 1989, two column tests at 1.5 inch crush size were conducted by Bateman (?); one test evaluated the effect of including a rest stage in the leach cycle (which was not effective). Extraction after 50 days was 92% and after 184 days was 97%.

Bateman and Phelps Dodge ran parallel bottle roll tests on 10 composite samples of El Toro material at, apparently, -10 mesh. Head grades ranged from 1.7 to 8.8 g/t Au. With the exception of one test (where assaying was questionable), the two labs returned comparable results. Except for one composite, gold extractions ranged from 75% to 95% with cyanide and lime consumptions at 0.09 - 0.31 kg/t and 0.72 - 1.46 kg/t, respectively. One composite showed

significant preg-robbing, with an extraction of 31.6%. Average extraction was 85% excluding the low extraction test, and 79% for all tests.

In 1989, Phelps Dodge tested 18 Maribel samples by bottle roll; extractions ranged from 80 - 97% with one refractory at 48% (considered to not be preg-robbing). NaCN and CaO ranged from 0.09 - 0.24 kg/t and 1.42 to 1.88, respectively. Crush size was -10 mesh. The samples are identified by drill hole and interval. Another set of 6 tests crushed to 10 mesh yielded 76.6 - 91.3% extraction, except for one sulphide sample that returned 46% with high CN consumption. Overall average extraction for 18 bottle roll tests including two refractory tests was 83.2% with cyanide and lime consumptions 0.42 and 4.4 kg/t, respectively. Excluding the two sulphide tests, average extraction was 86.5 and cyanide/lime 0.20/3.4 kg/t. Sample material from the above 6 test series were used in column tests at a crush size of 1.5 inches. Two tests were devoted to the sulphide sample and each yielded an extraction of 39% in about 50 days. Oxide tests returned 90.3% - 92.6% in 28 to 59 days. One test with 5% sulphide added yielded 85%, suggesting that minor preg-robbing may have occurred.

#### 14.0 MINERAL RESOURCE ESTIMATES

## 14.1 INTRODUCTION

P&E has prepared an updated mineral resource estimate for the GoGold Santa Gertrudis property, Sonora, Mexico, using all data and information available as of August 22,, 2014. This mineral resource estimate updates and supersedes two previous mineral resource estimates. The effective date of this mineral resource estimate is August 22, 2014.

The mineral resource estimate presented herein is reported in accordance with the Canadian Securities Administrators' National Instrument 43-101 ("NI43-101") and has been developed in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserve. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Mineral resources may also be affected by further infill and exploration drilling that may result in changes to subsequent mineral resource estimates. P&E is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral resource estimate.

All mineral resource estimation work reported herein was carried out by F.H. Brown, P.Geo., an independent Qualified Person in terms of NI 43-101, from information and data supplied by GoGold Resources Inc. A draft copy of this report was reviewed by GoGold for factual errors. Mineral resource modeling and estimation were carried out using Gemcom GEMS software.

## 14.2 PREVIOUS RESOURCE ESTIMATES

P&E has released a previous mineral resource estimate for the Santa Gertrudis deposits with an effective date of June 17, 2014 (Table 14.1). That estimate has now been superseded by this report, which incorporates updated economic parameters, revised interpretation of local geological features, and a limited amount of additional drilling.

Table 14.1 Summary of mineral resource estimate dated June 17, 2014 <sup>(1)</sup>									
SUMMA	Cutoff		Indicated						
Type	Au g/t	kTonnes	Au g/t	Au k Oz	kTonnes	Au g/t	Au k Oz		
Oxide	0.23	14,576.7	1.06	496.0	3,790.5	0.86	104.7		
Carb Oxide	0.34	891.0	2.16	61.9	230.8	1.83	13.6		
Mixed	0.34	478.7	1.70	26.1	321.5	1.49	15.4		
Sulphide	0.70	216.9	2.32	16.2	0.0	0.00	0.0		
Amelia Pads	0.30	244.3	1.20	9.4	192.5	1.24	7.7		
Total		16,407.6	1.16	609.6	4,535.3	0.97	141.4		

(1) This mineral resource estimate has been superseded by the updated estimates in this Technical Report.

#### 14.3 DATA SUPPLIED

All exploration data were provided by GoGold (Table 14.2). The drilling information provided included collar coordinates, drill hole survey data, assay values, bulk density, lithology and redox intervals. The data supplied also included 205 test pit samples from the Amelia leach pads, as well as topographic surveys representing the current surface of the Amelia pads and basal liner surface.

The original topographic baseline for the Santa Gertrudis properties was derived from the 20 m contour government sheet H12B62. Animas subsequently completed an aerial survey in 2008, and in April 2014 GoGold completed a 1.0 m resolution aerial survey of the southern areas. All topographic and coordinate data are reported relative to WGS84 Zone 12.

Information used for this updated mineral resource estimate incorporates historical drilling and production data recovered from extensive records compiled by previous operators at Santa Gertrudis. The historical database as supplied, contains 2,571 drill holes as well as trench and blast hole sampling records. A total of 2,076 validated drill holes fall within the local area of interest, and 1,217 drill holes directly intercept the wireframes of the modeled deposits (Table 14.2).

TABLE 14.2 VALIDATED DRILL HOLES						
Type Count Total Metres						
Drill holes Intercepting Deposit Wireframes	1,217	128,081.70				
Additional Validated Drill holes	859	202,487.10				
Total	2,076	330,569.80				

### 14.4 DATABASE VALIDATION

Industry standard validation checks were completed on the supplied databases. P&E typically validates a mineral resource database by checking for inconsistencies in naming conventions or analytical units, duplicate entries, interval, length or distance values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, and missing interval and coordinate fields. Drill holes that are located well outside the area of interest, or demonstrated an excessive collar elevation error, were not used. P&E also noted a small number of out-of-sequence and zero-length interval errors, which were corrected.

In addition, P&E visually compared 12,554 database assay values with scanned historical certificates, approximately 64% of the total database. No certificates were available for the remaining assay values. P&E noted an error rate of approximately 5% in the samples checked (576 assays), the majority of which were related to unit discrepancies (e.g. ppb values entered as ppm). Where obvious errors were encountered P&E corrected the database values to the assay lab certificate values.

P&E believes that the corrected supplied database is suitable for mineral resource estimation.

#### 14.5 REDOX DATA

Historical geological logs contain 62,882 qualitative redox values associated with assay sample intervals. The historical redox logging recorded observed iron oxide and iron sulphide minerals on a scale of one to seven. P&E converted the qualitative observations to an oxide state for modeling purposes using the following criteria:

- Iron oxides values between 3 and 7 reported: classified as oxide material.
- Iron sulphide values between 3 and 7 reported: classified as sulphide material.
- If both oxide and sulphide values between 3 and 7 reported: classified as mixed material.
- If none of the above criteria were observed then classified as unknown.

Individual modeled deposits were then examined visually and defined as either an oxide, sulphide or mixed deposit based on the predominant oxide state observed in the drill holes. Although historical records have noted the presence of carbonaceous material in the Corral and Corral NW deposits, GoGold has indicated that the extent of the carbonaceous material is volumetrically insignificant (D Duncan, personal communication, August 2014), and the Corral and Corral NW deposits have been re-defined as oxide material.

Only the Dora deposit displays a distinct oxide/sulphide boundary, which was modeled as a surface and used to split the deposit into an upper oxide and lower sulphide zone for reporting purposes.

## 14.6 BULK DENSITY DATA

GoGold supplied a total of 9,827 historic bulk density measurements within the project boundaries, ranging from 1.69 tonnes per cubic metre to 4.67 tonnes per cubic metre. The average reported bulk density value is 2.59 tonnes per cubic metre. The majority of the supplied bulk density measurements were recovered from historical drilling logs and determined by the water immersion method on drill hole core.

Based on geological logs P&E assigned redox state values to the reported bulk density values and determined the following average values:

• Oxides: 2.57 tonnes per cubic metre

• Sulphides: 2.65 tonnes per cubic metre

• Mixed: 2.60 tonnes per cubic metre

• Waste: 2.59 tonnes per cubic metre

A bulk density value was assigned to each deposit based on the predominant redox state.

P&E notes that bulk density values as determined by pyncnometer from twelve check samples submitted to ALS Minerals Laboratories, Hermosillo, Mexico, returned an average value of 2.73 tonnes per cubic metre. The average value for seven oxide samples was 2.71 tonnes per cubic metre; for four sulphide samples 2.75 tonnes per cubic metre; and for one mixed sample was 2.76 tonnes per cubic metre. The results from the check sampling suggests that historical bulk density values may underestimate the resource tonnage.

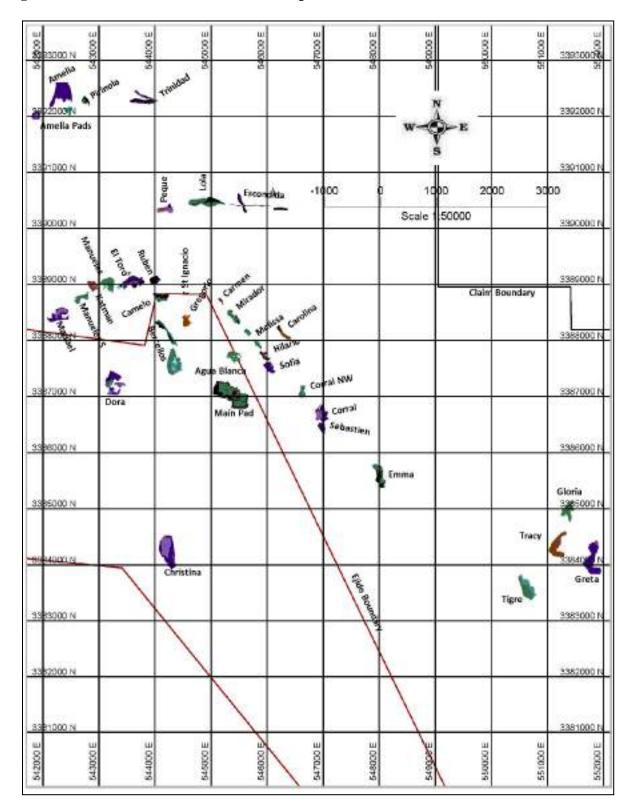
## 14.7 DOMAIN MODELING

The Santa Gertrudis area contains multiple identified exploration targets and areas of historical mining, as well as extensive outcrop and trench sampling, within an area of approximately 100 square kilometres. The constraining mineralized domain boundaries for the identified deposits were determined from lithology, structure and grade boundary interpretations based on the visual inspection of drill hole information in vertical sections. Where available, mineralization wireframes were also oriented using Blasthole assay data. The outlines for the gold mineralization domains were influenced by the selection of mineralized material above a nominal 0.30 g/t Au grade that demonstrated zonal continuity. In some cases mineralization below the selected nominal threshold was included for the purpose of maintaining zonal continuity between sections. Iterative smoothing was utilized to remove excessive deviations in the resulting wireframes in order to minimize potential triangulation errors. All polyline vertices were snapped directly to drill hole assay intervals, and polyline interpretations were digitized from drill hole to drill hole but not typically extended more than the predominant local drill spacing into untested territory. Interpreted polylines from each section were then consolidated into three-dimensional triangulated wireframes, which were clipped to the local topographic surface. The resulting mineralization domains were assigned a unique rock code and used for statistical analysis, grade interpolation, and mineral resource reporting. A total of 51 domain wireframes representing 33 deposits were constructed (Table 14.3 and Figure 14.1).

Several identified targets were not modeled due to a lack of economic grade, low demonstrated continuity, insufficient information, complex geology or because the deposit has been largely depleted by mining. The targets not included in the this mineral resource estimate include Agua Blanca, Allison, Amanda, Beatriz, Berta, Centauro, Centinela, Chupacabras, Cora, Cosahui, El Leon, El Salto, Elena, Enrique, Esperanza, Eva, Gallo, Graves, Ines, Jabali, Karla, Katie, Juliana, Verde, Laura, Leon, Lupita, Maria, Mariana, Mirna, MPDM Deep, Muerto, Nadia, Nelly, Patricia, Peluche, Pino Cuates, Real Viejo, Samuel, San Eduardo, Santiago, Sara, Sargento, Shelia, Silicoso, Sta. Teresa, Venado, Veronica, Vibora and Viviana.

TABLE 14.3 MODELED DEPOSITS					
Deposit	Rock Code	Deposit	Rock Code		
Amelia	3000	Greta	300		
Pirinola	3500	La Gloria	400		
Corral	1400	Tigre	600		
Corral NW	1400	Tracy	700		
Emma	1600	Trinidad	800		
Sebastien	3400	Becerros	1100		
Christina	900	Camello	1300		
Dora	100	El Toro	1500		
Escondida	200	El Toro Norte	1550		
Lola	1900	Gregorio	1700		
Peque	2300	Katman	1800		
Carmen	3100	Manueles	2000		
Carolina	2700	Maribel	2100		
Hilario	3200	Ruben	2400		
Melissa	2200	San Ignacio	2500		
Mirador	500	Amelia Pads	1, 2, 3		
Sofia	2600				

Figure 14.1 Santa Gertrudis Modeled Deposits



## 14.8 COMPOSITING

Assay sample lengths within the modeled deposits range from 0.60 m to 13.8 m, with an average sample length of 1.25 m. Two sample lengths predominate, with 44% of the assay sample

lengths equal to 1.00 m and 45% of the assay sample lengths equal to 1.50 m. In order to ensure equal sample support and mitigate any grade bias that may potentially result from variable sample lengths, a standard compositing interval of 1.00 m or 1.50 m was selected for mineral resource estimation in each model, based on the local distribution of sample lengths (Table 14.4).

TABLE 14.4 SAMPLE LENGTH DISTRIBUTIONS						
Deposits	Avg. Assay Length (m)	% > 1.00 m	Composite Length (m)			
Amelia & Pirinola	1.09	8	1.00			
Corral, Emma, Sebastien	1.12	28	1.50			
Christina	1.00	1	1.00			
Dora	1.09	18	1.50			
Escondida, Lola, Peque	1.47	94	1.50			
Carmen, Carolina, Hilario, Melissa, Mirador, Sofia	1.37	75	1.50			
Gloria, Greta, Tigre, Tracy	1.28	58	1.50			
Trinidad	1.40	88	1.50			
Becerros, Camello, El Toro, Gregorio, Katman, Manueles, Maribel, Ruben, St Ignacio	1.08	19	1.00			

Length-weighted composites were calculated within the defined mineralization domains, starting at the first point of intersection of the drillhole and the domain intersected, and halting upon exit from the domain wireframe. Composites were assigned a domain rock code value based on the domain wireframe that the interval fell within. A nominal grade of 0.001 g/t Au was used to populate a small number of un-sampled intervals within the mineralized domains (wireframes). Residual composites (tails) that were less than half of the compositing interval were discarded. Composite data were subsequently exported to extraction files for statistical analysis and estimation.

#### 14.9 COMPOSITE SUMMARY STATISTICS

P&E generated summary statistics for the composite samples within the modeled deposits in order to provide a baseline for model comparison and validation (Table 14.5).

	Composit		BLE 14.5 Y STATISTI	CS BY DI	EPOSIT	
Deposit	# of Samples	Minimum Au g/t	Maximum Au g/t	Mean Au g/t	Standard Deviation	Coefficient of Variation
Amelia	495	0.0001	41.28	1.26	4.11	3.25
Becerros #1	1,566	0.0001	34.07	1.01	2.36	2.34
Becerros #2	1,544	0.0001	34.46	0.79	2.10	2.67
Camello	552	0.001	22.68	0.52	1.36	2.59
Carmen	7	0.1	1.41	0.57	0.47	0.82
Carolina	30	0.0001	2.08	0.65	0.44	0.68
Christina #1	1,232	0.02	7.70	0.67	0.71	1.05
Christina #2	799	0.0001	12.02	0.56	0.92	1.65
Corral #1	344	0.001	20.72	1.34	2.42	1.81
Corral #2	322	0.001	19.06	1.66	2.99	1.80
Corral NW#1	187	0.0025	31.00	1.79	3.40	1.91
Corral NW#2	27	0.0025	1.72	0.27	0.38	1.43
Dora #1	370	0.0001	45.50	2.45	4.04	1.65
Dora #2	621	0.0001	19.20	1.15	2.14	1.86
Dora #3	216	0.0001	17.36	1.37	2.05	1.50
Dora #4	473	0.005	31.85	1.24	3.20	2.58
El Toro	1,116	0.0001	36.64	0.73	2.47	3.39
El Toro Norte	158	0.0001	27.83	2.29	4.87	2.13
Emma #1	152	0.0001	7.77	0.70	1.22	1.76
Emma #2	20	0.0075	4.50	1.12	1.53	1.37
Escondida	628	0.0001	34.51	0.98	2.45	2.51
Gloria #1	60	0.001	11.57	2.53	2.48	0.98
Gloria #2	126	0.0001	10.00	0.87	1.63	1.89
Gregario	337	0.0001	8.80	0.72	1.14	1.59
Greta #1	173	0.0001	22.07	1.02	2.89	2.83
Greta #2	39	0.007	26.25	2.78	5.63	2.03
Hilario	214	0.0001	3.97	0.61	0.74	1.20
Katman	343	0.0001	18.95	0.79	1.90	2.41
Lola	454	0.001	5.91	0.46	0.77	1.67
Manueles #1	94	0.0025	81.19	3.51	11.72	3.34
Manueles #2	483	0.0001	16.57	0.87	1.44	1.67
Maribel #1	393	0.003	32.21	1.57	3.28	2.08
Maribel #2	92	0.01	3.25	0.70	0.82	1.17
Melissa #1	38	0.01	2.57	0.48	0.48	1.00
Melissa #2	170	0.0001	7.14	0.86	1.41	1.64
Mirador #1	193	0.0025	9.80	1.20	1.87	1.57
Mirador #2	247	0.0025	11.60	1.02	1.68	1.64

	TABLE 14.5						
COMPOSITE SUMMARY STATISTICS BY DEPOSIT							
Deposit	# of Samples	Minimum Au g/t	Maximum Au g/t	Mean Au g/t	Standard Deviation	Coefficient of Variation	
Peque #1	87	0.001	53.07	1.84	7.82	4.24	
Peque #2	61	0.0001	3.46	0.55	0.85	1.57	
Pirinola	104	0.0001	21.50	1.30	2.89	2.22	
Ruben	616	0.0001	22.24	0.99	2.60	2.63	
Sebastien	114	0.01	1.88	0.38	0.42	1.10	
Sofia	147	0.0025	8.60	1.00	1.40	1.41	
St Ignacio	141	0.0001	17.66	0.92	2.43	2.63	
Tigre #1	49	0.0001	14.85	1.51	2.81	1.86	
Tigre #2	70	0.0001	3.68	0.53	0.81	1.52	
Tracy	58	0.0001	19.55	1.71	3.21	1.88	
Trinidad #1	478	0.0001	8.27	0.81	1.23	1.52	
Trinidad #2	266	0.0001	21.20	1.12	2.73	2.43	
TOTAL	16,180	0.0001	81.19	0.99	2.13	2.12	

## 14.10 TREATMENT OF EXTREME VALUES

Higher-grade composite values were adjusted prior to estimation in order to reduce the influence of anomalous data on the resulting mineral resource estimates. Higher-grade outliers for the composite data were identified for each individual deposit by reviewing composite summary statistics, histograms and probability plots. Composites were capped to the selected threshold value prior to estimation (Table 14.6).

	TABLE 14.6						
Deposit Capping Value Au g/t Deposit Capping Value Au g/t							
Amelia	10	La Gloria #1	10				
Pirinola	10	La Gloria #2	10				
Corral	15	Tigre #1	10				
Corral NW	15	Tigre #2	10				
Emma	15	Tracy	10				
Sebastien	15	Trinidad #1	6				
Christina	20	Trinidad #2	8				
Dora #1	30	Becerros #1	15				
Dora #2	10	Becerros #2	15				
Dora #3	10	Camello	15				
Dora #4	20	El Toro	15				
Escondida	9	El Toro Norte	15				
Lola	3	Gregorio	NA				

TABLE 14.6 CAPPING THRESHOLDS					
Deposit Capping Value Au g/t Deposit			Capping Value Au g/t		
Peque	3	Katman	15		
Carmen	NA	Manueles #1	15		
Carolina	NA	Manueles #2	15		
Hilario	NA	Maribel #1	15		
Melissa	NA	Maribel #2	15		
Mirador	NA	Ruben	15		
Sofia	NA	San Ignacio	15		
Greta	10	Amelia Pads	NA		

# 14.11 CONTINUITY ANALYSIS

Domain-coded, composited sample data were used for continuity analysis. Orientations for the modeled deposits were developed using the zonal geometry of the mineralization as well as local structural and lithological mapping. The best fit orientation for each modeled deposit was used to define an appropriate search strategy (Table 14.7).

Table 14.7 Modeled Orientation						
Deposit	ZXZ Rotation	Deposit	ZXZ Rotation			
Amelia	-90/-90/150	Greta #2	-170/-90/25			
Pirinola	-90/-90/150	La Gloria #1	-55/-90/15			
Corral	-155/-90/40	La Gloria #2	-5/-90/145			
Corral NW	-165/-90/55	Tigre #1	-150/-90/25			
Emma	-150/-90/40	Tigre #2	-150/-90/25			
Sebastien	-155/-90/55	Tracy	-15/-90/155			
Christina	90/-25/0	Trinidad #1	-85/-90/115			
Dora #1	35/-25/90	Trinidad #2	-110/-90/110			
Dora #2	55/-25/90	Becerros #1	-140/-90/65			
Dora #3	-60/35/-90	Becerros #2	-175/-90/40			
Dora #4	60/-35/90	Camello	-120/-90/120			
Escondida #1	0/-90/0	El Toro	-85/-90/140			
Escondida #2	-65/75/0	El Toro Norte	-65/-90/125			
Lola	-85/90/55	Gregorio	-180/-90/50			
Peque	0/-45/0	Katman	-50/-90/130			
Carmen	-50/60/-90	Manueles #1	-105/-90/145			
Carolina	-50/60/-90	Manueles #2	115/-90/30			
Hilario	-50/60/-90	Maribel #1	-60/90/155			
Melissa	-50/60/-90	Maribel #2	-50/-90/160			
Mirador	-50/60/-90	Ruben	-50/-90/125			

Table 14.7 Modeled Orientation					
Deposit ZXZ Rotation Deposit ZXZ Rotation					
Sofia	-50/60/-90	San Ignacio	-100/-90/110		
Greta #1	-15/-90/165	Amelia Pads	NA		

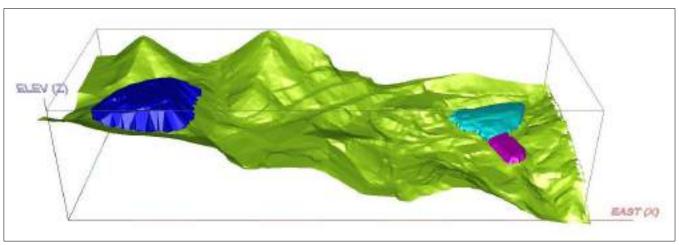
Due to the small number of sample points in the individual modeled deposits, only a limited number of semi-variograms could be developed and interpreted. Based on the drillhole spacing, observed continuity of mineralization and scattered variography, a range of 30 m was selected as an appropriate guideline for the Indicated resource classification.

## 14.12 AMELIA PADS

Three leach pads used for the historical Amelia and Pirinola mining operations were sampled by Animas (Figure 14.2). GoGold provided P&E with three-dimensional AutoCAD format representations of the pads, based on updated surveys of the pad topography and liner levels. Assay samples were taken by Animas primarily along the outer skin of the leach pads, with samples along the crest penetrating a maximum of 3.0 m into the pads.

A total of 556 sample values were reported by Animas, one of which is located outside the pad areas and was not used. Summary statistics of the leach pad sampling is given in Table 14.8.

Figure 14.2 Isometric view of the Amelia Pads, looking north



<sup>\*</sup>East-west field of view is 840 m. Pad-1 in blue; Pad-2 in magenta; Pad-3 in cyan.

	TABLE 14.8 AMELIA PADS SAMPLE STATISTICS								
# of Samples Wolume Minimum Au g/t Maximum Mean Standard Of Variat									
Pad 1	350	10,100	0.0025	3.63	1.36	0.48	0.36		
Pad 2	63	194,500	0.424	5.35	1.03	0.70	0.67		
Pad 3	142	38,100	0.337	3.62	1.00	0.58	0.58		
Total	555	242,700	0.0025	5.35	1.23	0.56	0.46		

Due to the consistent sample lengths and subsequent volumes, the assay sample values were used directly for block estimation. No capping threshold was applied, however, a 10.0 m search ellipse range restriction on assay values that exceed 2.0 g/t Au was implemented. Block grades were estimated in a single pass using anisotropic Inverse Distance Cubed weighting of between three and nine assay values. A horizontal search ellipse with dimensions of 100 m x 100 m x 10 m was used for sample selection. A nominal bulk density value of 1.80 tonnes per cubic metre was used for tonnage calculations.

All blocks within approximately six metres of the surface of the pad, and therefore within the influence of the sample coverage, were classified as Indicated. All other blocks were classified as Inferred.

#### 14.13 BLOCK MODELS

Orthogonal block models were established containing one or more of the modeled deposits, with the block model limits selected so as to cover the extent of the economic mineralization and potential open pit dimensions, and with the block sizes reflecting the local continuity of the mineralization and the drill hole spacing (Table 14.9). Modeled deposits within a block model are identified by a unique rock code, and each block model consists of separate folders for estimated grade, rock codes, percent, density and classification attributes. A percent block model was used to accurately represent the whole and partial block volume and tonnage contained within the constraining wireframes.

TABLE 14.9 BLOCK MODEL SETUPS									
Models Axis Minimum Maximum Number of Block Size Blocks (m)									
	<b>X</b> *	541,750	542,570	410	2				
Amelia Pads	y*	3,391,900	3,392,200	150	2				
	<b>Z</b> *	1,180	1,380	100	2				
	X	542,000	543,000	500	2				
Amelia & Pirinola	y	3,391,800	3,392,800	500	2				
	Z	1,220	1,440	220	2				
	X	546,350	548,350	500	4				
Corral, Corral NW, Emma & Sebastien	y	3,385,350	3,387,350	500	4				
Sebastien	Z	1,530	1,850	320	2				

TABLE 14.9 BLOCK MODEL SETUPS						
Models	Axis	Minimum	Maximum	Number of Blocks	Block Size (m)	
	X	543,800	544,800	250	4	
Christina	y	3,383,800	3,384,800	250	4	
	Z	1,360	1,410	50	4	
	X	542,900	543,700	200	4	
Dora	у	3,386,800	3,387,600	200	4	
	Z	1,332	1,432	100	4	
	X	543,950	546,500	510	5	
Escondida, Lola & Peque	y	3,389,750	3,391,250	300	5	
	Z	1,640	1,750	110	5	
Mirador, Carolina, Carmen,	X	545,000	546,500	375	4	
Hilario, Melissa, Mirador &	y	3,387,000	3,389,000	500	4	
Sofia	Z	1,640	1,740	100	4	
	X	550,200	552,200	500	4	
Gloria, Greta, Tigre & Tracy	y	3,383,300	3,385,300	500	4	
	Z	1,550	1,800	250	2	
	X	543,200	544,400	300	4	
Trinidad	у	3,391,800	3,392,800	250	4	
	Z	1,420	1,520	100	4	
Becerros, Camello, El Toro,	Х	542,000	545,000	500	6	
Gregorio, Katman, Maribel, Manueles, Ruben & St	y	3,387,300	3,389,820	420	6	
Ignacio & St	Z	1,375	1,500	125	3	

<sup>\*</sup> X relates to block model columns, y to rows and z to levels.

## 14.14 ESTIMATION & CLASSIFICATION

Mineral resources were estimated and classified in compliance with guidelines established by the Canadian Institute of Mining, Metallurgy and Petroleum:

Indicated Mineral Resource: "An 'Indicated Mineral Resource' is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed."

Inferred Mineral Resource: "An 'Inferred Mineral Resource' is that part of a mineral resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes."

For each deposit except the Amelia Pads a two-pass Inverse Distance Cubed ("ID<sup>3</sup>") linear weighting of capped composite values was used for block estimation. Composite data used during grade estimation were restricted to samples located within their respective deposit. For comparative purposes a Nearest Neighbor ("NN") model was also estimated using the same search and estimation criteria applied to the ID<sup>3</sup> model.

During the first pass, between three to nine composites from two or more drillholes were required for estimation, selected within a 30 m x 30 m x 5 m search ellipsoid oriented parallel to the modeled trend of the mineralization.

During the second pass, all blocks not assigned a grade during the first pass were estimated, using between three to nine composites from two or more drillholes, selected within a 300 m x 300 m x 50 m search ellipsoid oriented parallel to the modeled trend of the mineralization.

Indicated resources were defined by blocks estimated during the first pass, and in general are located within 30 m of two or more drillholes. The resulting block classifications were then iteratively refined to be geologically reasonable and consolidated by an envelope digitized around the central area of blocks estimated in order to prevent the generation of small, discontinuous areas of a higher confidence category being separated by areas of lower confidence mineral resources. This process downgraded scattered isolated higher confidence blocks and combined the Indicated mineral resources into a continuous unit. All remaining estimated blocks were classified as Inferred.

## 14.15 OPEN PIT OPTIMIZATION

All mineral resources are based on a US\$1,300 per ounce gold price. With the exception of the Amelia pad material, the reported mineral resources are contained within a Lerchs-Grossman pit shell. The results from the optimized pit shell are used solely for the purpose of reporting mineral resources and include both Inferred and Indicated mineral resources. An overall slope angle of 50 degrees was used for the pit definition and partial domain edge blocks were diluted at zero grade for the purposes of determining the final pit geometry. The updated economic parameters used for the mineral resource are listed in Table 14.10.

TABLE 14.10 ECONOMIC PARAMETERS FOR RESOURCE SHELLS									
	Oxide Sulphide Mixed Pads								
Process Recovery	75%	90%	50%	75%					
Process Cost \$/t	\$4.00	\$22.00	\$4.00	\$4.00					
G&A Cost \$/t	\$0.80	\$0.80	\$0.80	\$0.80					
Feed Mining Cost \$/t	\$1.22	\$1.22	\$1.22	\$1.22					
Waste Mining Cost \$/t	\$1.40	\$1.40	\$1.40	NA					
Overburden Mining Cost \$/t	\$1.30	\$1.30	\$1.30	NA					
Haulage Cost \$/t	\$0.36	\$0.36	\$0.36	\$0.36					
Cut-off Au g/t	0.16	0.60	0.25	0.20					

## 14.16 MINERAL RESOURCE ESTIMATE

All mineral resources have been estimated in compliance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves, Definitions and Guidelines, as prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council and National Instrument 43-101.

Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.

The Santa Gertrudis Indicated mineral resource now stands at 809,700 gold ounces contained in 23.3 million tonnes of material at a grade of 1.08 grams of gold per tonne. The mineral resource has an additional Inferred mineral resource of 254,500 gold ounces within 7.7 million tonnes of material at a grade of 1.02 grams of gold per tonne The total mineral resource in Table 14.11 below includes pit constrained oxide, sulphide and mixed material, as well as material from the Amelia pads (Tables 14.11 and 14.12).

Consol	Table 14.11 Consolidated Santa Gertrudis Mineral Resource Estimate <sup>(1-5)</sup>							
		Indicated			Inferred			
Туре	Cutoff Au g/t	kTonnes	Au g/t	Au kOunces	kTonnes	Au g/t	Au kOunces	
Oxide	0.16	22,072.3	1.06	751.2	6,696.8	0.96	207.1	
Mixed	0.25	815.8	1.47	38.5	851.5	1.44	39.4	
Sulphide	0.60	174.2	1.90	10.6	4.2	2.32	0.3	
Amelia Pads	0.20	244.3	1.19	9.4	192.5	1.25	7.7	
Total		23,306.6	1.08	809.7	7,745.0	1.02	254.5	

- (1) Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.
- (2) The quantity and grade of reported Inferred resources in this estimation are conceptual in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.
- (3) The mineral resources in this estimate were calculated in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines as prepared by the CIM Standing Committee on Reserve Definitions, as well as the requirements of National Instrument 43-101.
- (4) All resources are reported within an optimized pit shell developed using the following economic parameters: Gold Price \$1,300 per ounce. G&A cost \$0.80 per tonne. Mining cost \$1.40 per tonne. Processing cost \$4.00 per tonne for oxides, carbonaceous oxides and mixed oxide/sulphide deposits, and \$22.00 per tonne for sulphides. Process recoveries used are 75% for oxides and leach pad material, and 50% for mixed oxide/sulphide deposits, and 90% for sulphides. Optimized pit slopes are 50 degrees.
- (5) The mineral resource table incorporates 35 deposits and associated optimized pit shells as well as three leach pads.

TABLE 14.12 SANTA GERTRUDIS MINERAL RESOURCE ESTIMATES BY DEPOSIT								
SANTA	GERTRUDIS M							
Deposit	Cut-off Au g/t	Indicated			Inferred			
		KTonnes	Au g/t	Au kOz	kTonnes	Au g/t	Au kOz	
Amelia	0.16	105.3	2.06	7.0	71.4	0.70	1.6	
Pirinola	0.16	45.8	1.74	2.6	129.5	1.79	7.5	
Amelia Pads	0.20	244.3	1.19	9.4	192.5	1.25	7.7	
Corral	0.16	1,103.7	1.77	62.8	184.9	1.32	7.8	
CorralNW	0.16	149.1	1.96	9.4	187.9	1.98	11.9	
Emma	0.16	139.1	1.07	4.8	142.9	1.23	5.7	
Sebastien	0.16	0.2	0.37	0.0	491.0	0.52	8.2	
Christina	0.16	6,581.5	0.71	149.2	760.6	0.56	13.7	
Dora Oxide	0.16	1,061.5	1.76	60.2	525.6	1.54	25.9	
Dora Sulphide	0.60	174.2	1.90	10.6	4.2	2.32	0.3	
Escondida	0.16	745.5	1.24	29.7	3.7	0.72	0.1	
Esc East	0.16	0.0	0.00	0.0	249.9	0.85	6.8	
Esc NW	0.16	0.0	0.00	0.0	55.7	0.49	0.9	
Lola	0.16	2,940.7	0.60	56.9	137.8	0.44	1.9	
Peque	0.16	118.6	1.05	4.0	51.7	0.50	0.8	
Carolina	0.16	0.0	0.00	0.0	116.5	0.84	3.2	
Hilario	0.16	280.6	0.70	6.3	167.5	0.78	4.2	
Melissa	0.16	288.9	0.92	8.5	264.5	0.56	4.8	
Mirador Oxide	0.16	277.6	1.41	12.6	2.8	0.55	0.1	
Mirador Mixed	0.25	216.7	1.84	12.8	0.1	1.31	0.0	
Sofia	0.25	184.2	1.32	7.8	0.0	0.00	0.0	
Carmen	0.16	0.0	0.00	0.0	18.9	0.72	0.4	
Gloria	0.16	385.6	1.97	24.5	163.1	2.39	12.6	
Greta	0.16	282.0	1.81	16.4	180.1	1.68	9.7	
Tigre	0.25	251.6	1.46	11.8	465.6	1.23	18.4	
Tracy	0.25	0.0	0.00	0.0	380.0	1.71	20.9	
Trinidad	0.16	795.8	1.28	32.7	50.9	1.40	2.3	
Becceros Mixed	0.10	163.3	1.15	6.1	5.8	0.48	0.1	
Becceros Oxide	0.25	2,622.9	1.13	102.7	766.1	0.48	13.1	
Camello	0.16	795.8	0.55	14.2	843.1	0.33	21.1	
El Toro	0.16		1.22	40.0				
		1,023.8			66.8	2.36	5.1	
El Toro N	0.16	6.6	2.17	0.5	27.9	1.74	1.6	
Gregorio	0.16	79.4	0.93	2.4	239.7	0.70	5.4	
Katman	0.16	321.5	1.11	11.4	106.8	1.33	4.6	
Manueles	0.16	806.3	1.59	41.3	264.2	1.16	9.9	
Maribel	0.16	633.6	1.31	26.7	23.7	0.88	0.7	
Ruben	0.16	479.2	1.57	24.1	349.8	1.18	13.3	
St Ignacio	0.16	1.7	5.63	0.3	51.8	1.30	2.2	
Total		23,306.6	1.08	809.7	7,745.0	1.02	254.5	

## 14.17 VALIDATION

Block models were validated visually by the inspection of successive section lines in order to confirm that the block model Au values model correctly reflects the distribution of high-grade and low-grade assay samples (see appendix).

The total estimated volume reported at zero Au cut-off was compared by deposit to the calculated volume of the defining mineralization wireframe (Table 14.13). All reported volumes fall within acceptable tolerances.

TABLE 14.13 WIREFRAME VOLUME VS RESOURCE VOLUME COMPARISON					
Deposit	Resource Volume (1,000 M³)	Wireframe Volume (1,000 M <sup>3</sup> )			
Amelia	833	833			
Pirinola	155	155			
Corral	718	717			
Corral NW	176	176			
Emma	394	394			
Sebastien	345	350			
Christina	3,727	3,728			
Dora	1,015	1,016			
Escondida	975	975			
Lola	2,119	2,119			
Peque	183	183			
Carmen	24	23			
Carolina	77	77			
Hilario	380	386			
Melissa	304	304			
Mirador	359	359			
Sofia	158	158			
Greta	477	478			
La Gloria	290	290			
Tigre	541	541			
Tracy	282	282			
Trinidad	657	657			
Becerros	3310	3313			
Camello	1214	1214			
El Toro	1060	1063			
El Toro Norte	19	19			
Gregorio	356	357			
Katman	385	385			
Manueles	787	786			
Maribel	505	505			
Ruben	527	527			
San Ignacio	62	62			
Amelia Pads	243	243			

As a further check on the model the average  ${\rm ID}^3$  model block grade was compared to the NN block average. No significant global bias between the block model and the input data was noted (Table 14.14).

TABLE 14.14 DEPOSIT AU GRADE VALIDATION STATISTICS					
	ID <sup>3</sup> Model Mean	NN Model Mean			
DEPOSIT	Au g/t	Au g/t			
Amelia	1.13	0.92			
Pirinola	1.40	1.50			
Corral	1.33	1.34			
Corral NW	1.60	1.52			
Emma	0.70	0.67			
Sebastien	0.43	0.42			
Christina	0.58	0.58			
Dora	1.22	1.19			
Escondida	0.72	0.76			
Lola	0.42	0.51			
Peque	0.42	0.43			
Carmen	0.58	0.71			
Carolina	0.73	0.73			
Hilario	0.59	0.56			
Melissa	0.64	0.65			
Mirador	1.00	0.89			
Sofia	0.87	0.88			
Greta	0.88	0.78			
La Gloria	1.83	1.69			
Tigre	0.92	1.01			
Tracy	1.24	1.32			
Trinidad	0.89	0.85			
Becerros	0.70	0.77			
Camello	0.53	0.52			
El Toro	0.84	0.97			
El Toro Norte	1.64	1.32			
Gregorio	0.47	0.68			
Katman	0.74	0.69			
Manueles	1.04	1.06			
Maribel	0.98	1.13			
Ruben	0.98	0.91			
San Ignacio	0.87	0.84			
Amelia Pads	1.22	1.24			

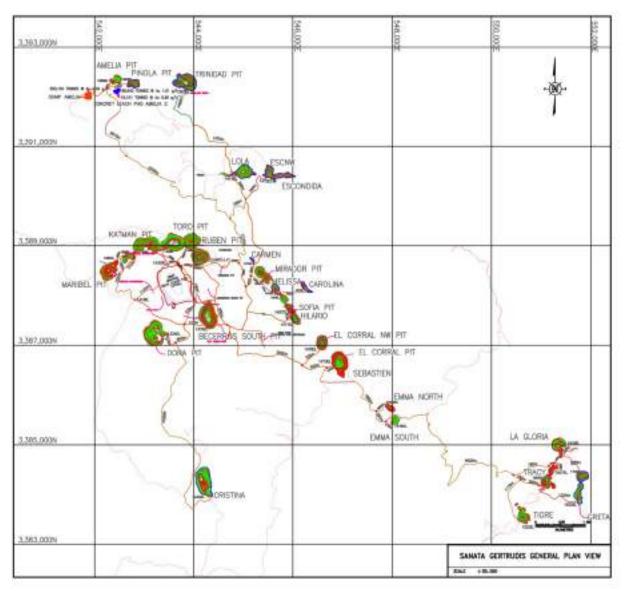
## 15.0 MINERAL RESERVE ESTIMATES

The work undertaken on the Santa Gertrudis property to date is considered to be at conceptual levels of study only. According to NI 43-101 disclosure guidelines, a Preliminary Economic Assessment is considered preliminary in nature and includes the use of inferred resources which are considered too speculative geologically to apply economic considerations that would enable them to be categorized as mineral reserves. As such, and according to the NI 43-101 Disclosure Guidelines, it is not possible to declare a mineral reserve.

## 16.0 MINING METHODS

The Santa Gertrudis property contains numerous gold deposits, some of which were partially mined in the past. The deposits are near surface and lend themselves to conventional open pit mining methods. Figure 16.1 provides an overview of the project site showing all of the pit areas and the location of the centrally located heap leach pad. The entire project area is about 10 km long in both the north-south and east-west directions.

Figure 16.1 Overall Site Plan



For the PEA production plan, 27 different open pits will be developed over the life of the project to support the heap leaching operation. Some heap leach feed material will also be mined from a historical heap leach pad that retains recoverable gold. The property contains a few additional small gold deposits that are not included in the PEA production plan at this time due to their limited size.

The topography across the project site is quite hilly and mining will generally occur in pits located along various hillsides. When mining in pits that were previously developed, in most cases pushbacks of the old pit walls will be required to enable deepening of the pits.

The excavation of the open pits will require the removal of four different materials, all of which are tracked separately in the production schedule. Not every pit will contain all four materials.

- Overburden: consists of gravel layers overlying some of the deposits, which will be stripped and hauled to nearby waste dumps.
- Waste Rock: is barren or low grade material, also placed into nearby waste rock dumps.
- Oxide Feed: is mineralized oxide rock above cut-off grade that will be hauled to a centrally located heap leaching facility.
- Mixed Feed: is mineralized mixed oxide and sulphide (or carbonaceous) rock above cut-off grade, and will also be hauled to the same heap leaching facility as the oxide feed.

The design of the open pit layouts and the mine production schedule requires several steps. These are:

- Run Lerchs-Grossman pit optimizations to select the optimal pit shells to be used for mine design.
- Design an operational pit (with ramps and benches) based on the optimal pit shell.
- Develop a life-of-mine mine production schedule, based on supplying 7,500 tonnes per day (2.7 million tonnes per year) of mineralized feed to the heap leach facility.

## 16.1 PIT OPTIMIZATIONS

Eight separate geological resource models were developed for the property, some of which contain only one deposit while others contained up to 11 deposits in the same block model space.

A series of Lerchs-Grossman pit optimizations were completed on the resource block models using the CAE Mining NPV Scheduler software package. This optimization process produces a series of nested pit shells each containing mineralized material that is economically mineable according to a given set of physical and economic parameters. The maximum NPV pit shell which corresponded to the proposed gold price was selected as the optimum shell to be used for the actual pit design.

The pit optimizations were run using the parameters shown in Table 16.1. It is assumed that waste materials would be hauled 1 km to a nearby waste dump at each pit and hence waste mining unit costs are the same for each deposit. Heap leach feed mining costs are different for each deposit since the haul distance to the central heap leach pad varies for each. For pit optimization, a base case gold price of \$US1,250/oz was used along with an overall pit slope of 50°. The optimization analysis included Indicated and Inferred resources. Optimization focussed on oxide and mixed material types only while underlying sulphide material (i.e. non-leachable) was considered as waste.

Not every deposit that was optimized was used in the production plan and Table 16.1 indicates which ones were included or excluded. In general, the oxide gold recovery was 75% and the mixed feed gold recovery was 50%.

Table 16.1 PIT OPTIMIZATION PARAMETERS							
Deposit	Feed Mine & Haul (\$/t)	Overburden Mining Cost (\$/t)	Waste Rock Mining Cost (\$/t)	Heap Leaching Cost (\$/t)	G&A Cost (\$/t)	H.L. Recovery (%)	Mined in PEA
Amelia	\$2.74	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Pirinola	\$2.74	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Corral (ox & carb)	\$2.14	\$1.31	\$1.40	\$4.00	\$0.83	75/50%	Yes
Corral NW (ox + c)	\$2.08	\$1.31	\$1.40	\$4.00	\$0.83	75/50%	Yes
Emma	\$2.44	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Sebastien	\$2.12	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Christina	\$2.53	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Dora	\$1.67	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Escondida	\$2.12	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Lola	\$2.03	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Peques	\$2.07	\$1.31	\$1.40	\$4.00	\$0.83	75%	No
Esc NW	\$2.02	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Esc East	\$2.17	\$1.31	\$1.40	\$4.00	\$0.83	75%	No
Carmen	\$1.74	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Carolina	\$1.98	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Hilario	\$1.90	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Melissa	\$1.87	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Mirador (mixed)	\$1.76	\$1.31	\$1.40	\$4.00	\$0.83	50%	Yes
Sofia (mixed)	\$1.90	\$1.31	\$1.40	\$4.00	\$0.83	50%	Yes
Gloria	\$3.46	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Greta	\$3.52	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Tigre (mixed feed)	\$3.38	\$1.31	\$1.40	\$4.00	\$0.83	50%	Yes
Tracy (mixed feed)	\$3.42	\$1.31	\$1.40	\$4.00	\$0.83	50%	Yes
Trinidad	\$2.53	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Becerros (oxide & mix)	\$1.49	\$1.31	\$1.40	\$4.00	\$0.83	75/50%	Yes
Camello	\$1.38	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
El Toro	\$1.33	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
El Toro N	\$1.36	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Gregorio	\$1.56	\$1.31	\$1.40	\$4.00	\$0.83	75%	No
Katman	\$1.72	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Manuele North	\$1.67	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Manuele South	\$1.67	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Maribel	\$1.63	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
Ruben	\$1.35	\$1.31	\$1.40	\$4.00	\$0.83	75%	Yes
San Ignacio	\$1.45	\$1.31	\$1.40	\$4.00	\$0.83	75%	No

## 16.2 PIT DESIGNS

The pit designs were developed using the optimized shell as a template. Usually a single deposit warranted a single open pit, however in a few cases multiple closely spaced deposits would combine into a single pit.

Engineering of the pit design included examination of preferred access points along the pit periphery, and then the location of benches, ramps and haul roads according to the parameters shown in Table 16.2.

Table 16.2 Pit Design Parameters					
Inter-Ramp Angle 50°					
Bench Face Angle	65°				
Berm Width	4.5 m				
Bench Height (4m triple bench)	12 m				
Haul Road Width (Double / Single)	18 m / 9 m				
Haul Road Gradient	10%				

Single lane haul roads and ramps were used in several of the pits to minimize the addition of excess waste from expanding the pit walls outwards more than required.

The application of pit phasing was considered; however due the small size of most of the pits no internal phases were developed for the PEA. Pit phasing can be examined further at the next stage of engineering.

The various pit layouts are shown in Figures 16.2 to 16.10. Waste dump locations have not been optimized at this stage of study.

Figure 16.2 Amelia Area Pits and Existing Leach Pads

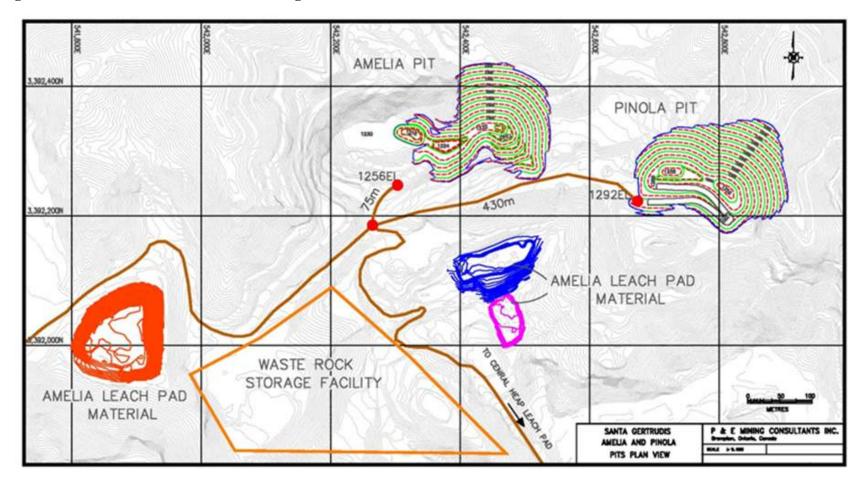


Figure 16.3 Mirador Area Pits

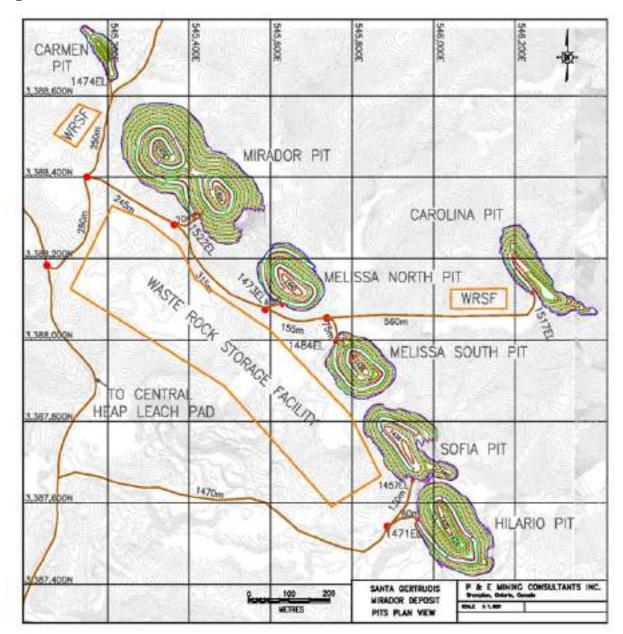


Figure 16.4 Trinidad Area Plan

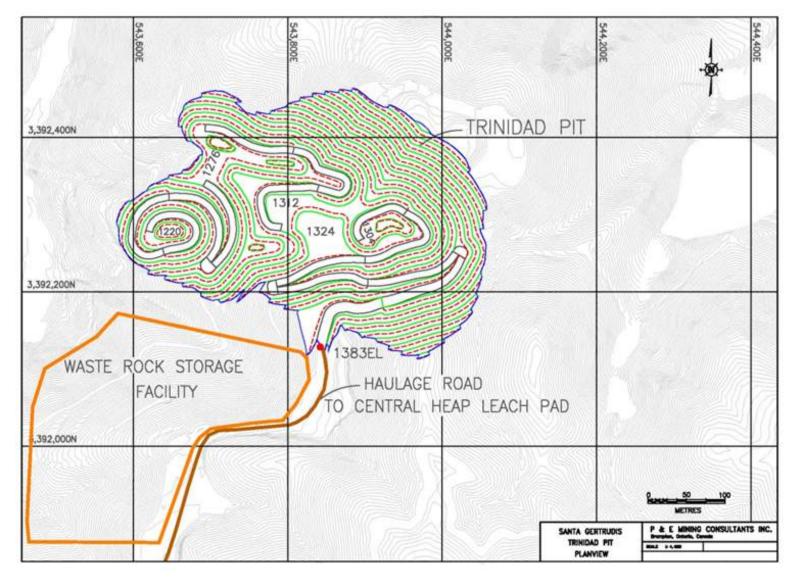


Figure 16.5 Escondida Area Pits

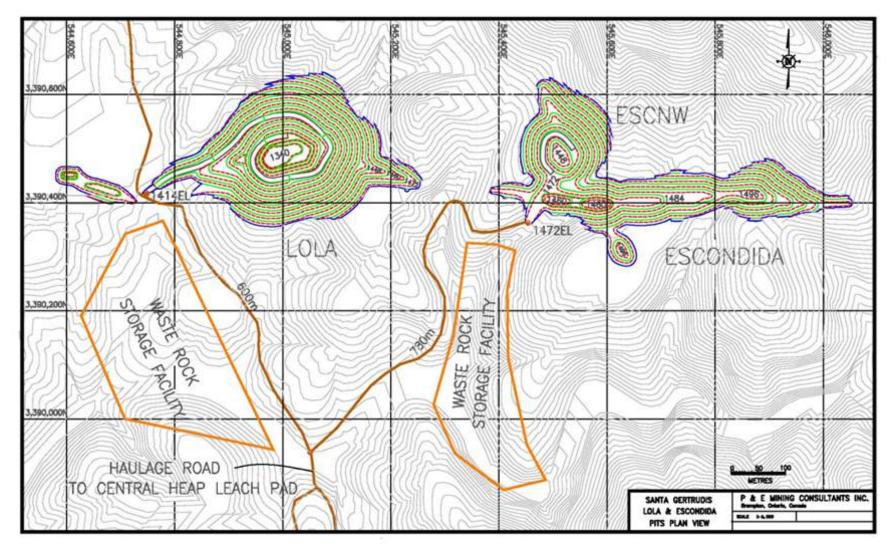


Figure 16.6 West Area Pits

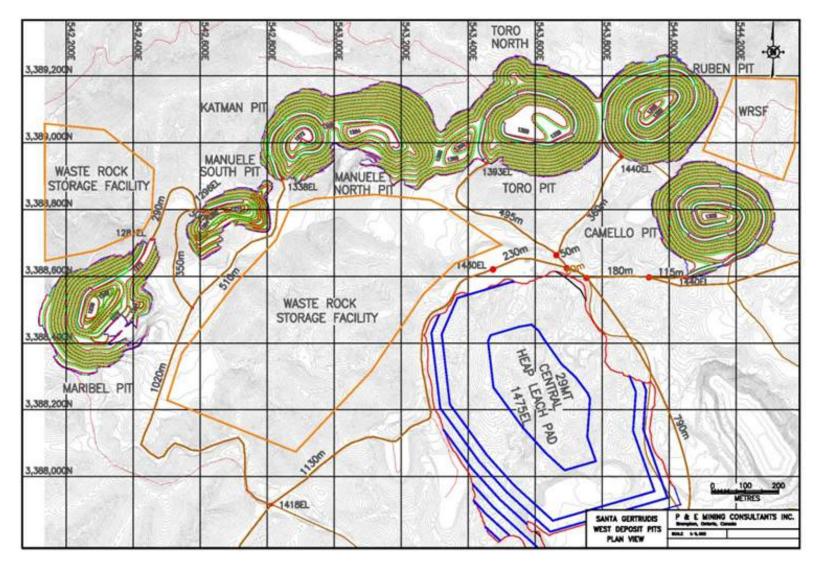


Figure 16.7 Central Area Pits

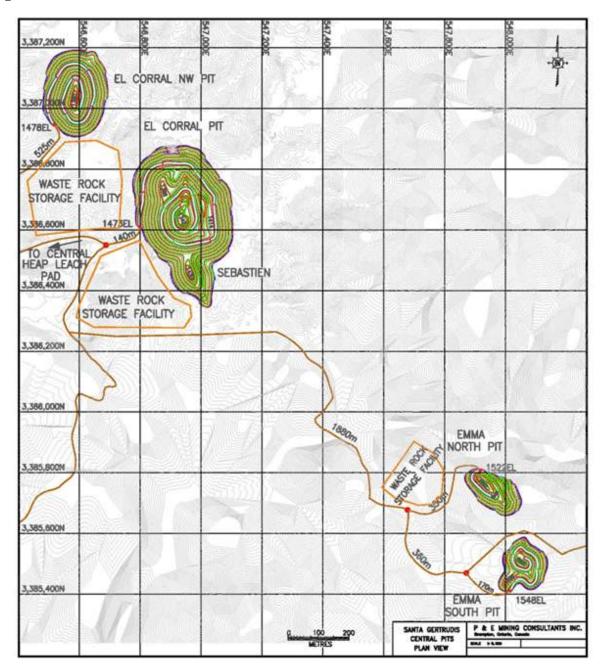


Figure 16.8 Christina Pit

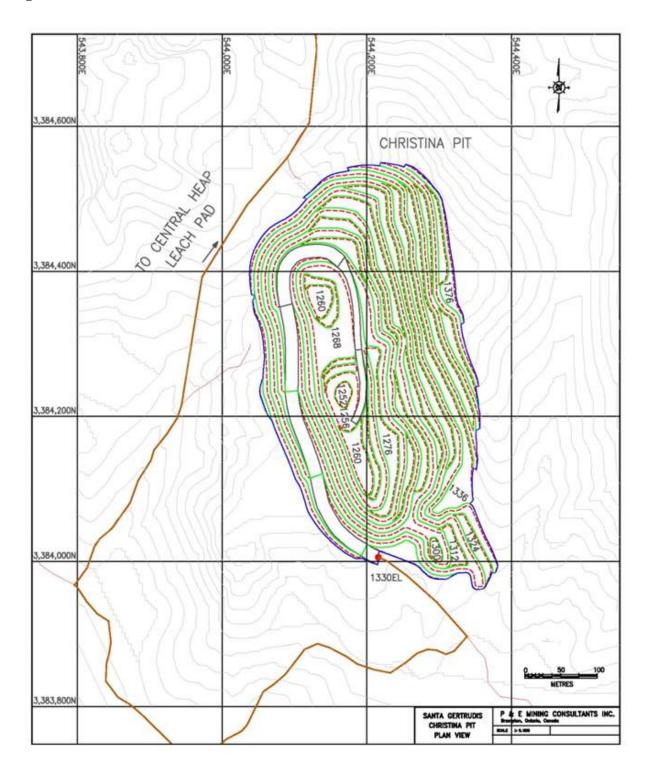


Figure 16.9 Dora Pit Plan

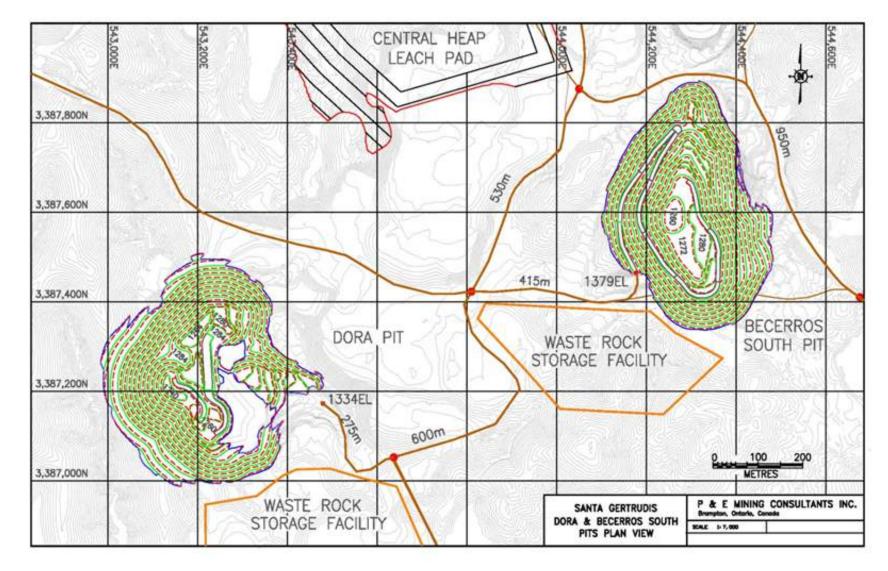
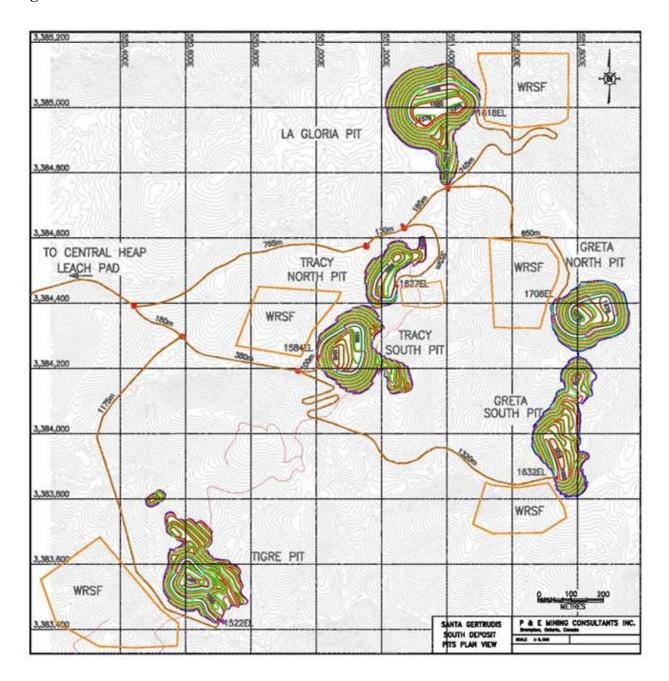


Figure 16.10 South Area Pits



## 16.2.1 Geotechnical Design Criteria

No pit slope geotechnical site investigations have been completed for the PEA. Since there are numerous existing pits on the property, an examination was made of the actual historical wall angles based on topographic maps. Pit slopes vary from 27° to 67° degrees at various heights. Some of the old pits have ponded water near the pit floor although the region is generally dry. Many of the old pit slopes are weathered and are no longer showing distinct benches and berms. Figure 16.11 provides two examples of typical existing pit walls.

For the purposes of the PEA an inter-ramp angle of 50° was used for all of the pit designs.

# Hydrogeological Design Criteria

No hydrogeological studies have been completed for the PEA to assess groundwater conditions. However as shown in Figure 16.11, there is a groundwater table at depth while the upper parts of the pit slopes are expected to be dry.

Figure 16.11 Example Pit Walls





## 16.2.2 Dilution and Losses Design Criteria

Heap leach feed waste dilution and material losses will occur during mining. It is assumed that some waste surrounding the feed zones would be mixed with the feed during mining, thereby causing dilution.

In order to estimate the amount of dilution, a one metre thick waste "skin" is assumed around the outside perimeter of the feed zone and this was modelled on the pit benches. The volume of this skin relative to the volume of the feed zone subsequently determines the percentage of dilution, which is then averaged over several benches in the pit in order to derive the overall average dilution percentage. Each deposit could have a different amount of dilution depending on the specific geometry of the feed zone.

A 3D solid is created for the waste "skin" outside the feed zone and the diluting grades estimated within that 3D solid. These waste grades will be applied as diluting grades, as summarized in Table 16.3.

Feed losses during mining are assumed at 3% for all deposits.

TABLE 16.3 DILUTION PARAMETERS							
Deposits	Dilution %	Diluting grade (g/t Au)					
Trinidad @ 0.21g/t Au cut off	21.4%	0.07					
Amelia @ 0.21g/t Au cut off	29.8%	0.04					
Pinola @ 0.21g/t Au cut off	23.2%	0.04					
Carmen @ 0.18 g/t Au cut off	35.6%	0.08					
Mirador ALL	18.3%	0.10					
Mirador mixed material has a cut off of 0.27g/t	18.3%	0.06					
Mirador oxide has a cut off of 0.18g/t Au	18.3%	0.14					
Mellissa ALL	16.2%	0.12					
Melissa North Pit @ 0.18g/t Au cut off	15.9%	0.12					
Melissa South Pit @ 0.18g/t Au cut off	16.5%	0.09					
Sofia Pit @ 0.27g/t Au cut off	27.3%	0.09					
Hilario @ 0.18g/t Au cut off	16.0%	0.11					
Carolina @ 0.19g/t Au cut off	27.6%	0.10					
Dora @ 0.18g/t Au cut off	15.0%	0.09					
Christina @ 0.20 g/t Au cut off	4.5%	0.10					
La Gloria @ 0.23g/t Au cut off	18.1%	0.09					
Tracy @ 0.35g/t Au cut off	22.6%	0.08					
Greta @ 0.24g/t Au cut off	22.8%	0.13					
Tigre @ 0.35g/t Au cut off	23.1%	0.08					
El Corral NW pit @ 0.19g/t Au cut off	21.6%	0.05					
El Corral @ 0.19g/t Au cut off	17.8%	0.09					
Sabastien @ 0.19g/t Au cut off	13.3%	0.08					
Emma @ 0.20 g/t Au cut off	27.4%	0.07					
Mirabel pit @ 0.17g/t Au cut off	17.7%	0.10					
Manuel South @ 0.18g/t Au cut off	16.4%	0.07					

TABLE 16.3 DILUTION PARAMETERS							
Deposits	Dilution %	Diluting grade (g/t Au)					
Katman @ 0.18g/t Au cut off	16.5%	0.03					
Manuel North @ 0.20 g/t Au cut off	16.2%	0.12					
El Torro @ 0.16 g/t Au cut off	18.9%	0.06					
El Torro North @ 0.17 g/t Au cut off	21.9%	0.06					
Ruben @ 0.16 g/t Au cut off	15.0%	0.04					
Camello @ 0.16 g/t Au cut off	10.1%	0.04					
Becerros @ 0.17 g/t Au cut off	12.1%	0.09					
Escondida Pit @ 0.19 g/t Au cut off	22.8%	0.07					
Lola Pit @ 0.19 g/t Au cut off	10.3%	0.10					

#### 16.3 POTENTIAL HEAP LEACH FEED TONNAGE

After the pit designs are completed and the dilution and feed loss factors are applied to the tonnage contained within, the potential heap leach feed and waste tonnages are reported inside each pit. These are summarized in Table 16.4. These diluted tonnages are used as the planning basis for the PEA production schedule.

The total quantity of material sent to the leach pad is 29.5 Mt containing 916k oz of gold. The overall waste to potential heap leach feed ratio is 5.5:1.

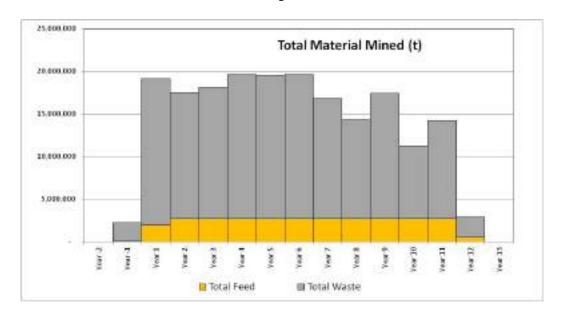
## 16.4 PRODUCTION SCHEDULE

The mine production schedule consists of one year of pre-production pre-stripping and twelve years of mine production.

The target heap leaching rate is approximately 2.7 million tonnes per year, or approximately 7,500 t/day. The total daily mining rates of leach feed and waste combined will range from 31,000 t/day to 55,000 t/day and average approximately 47,000 t/day.

Table 16.5 and Figure 16.12 present the mine production schedule. Table 16.6 presents the sequence in which the various deposits are mined over the 12 year period.

Figure 16.12 Annual Production Profile Graphic (Feed & Waste)



			M	INEABLI		E 16.4 ONNAG	E SUMMA	RY				
	Oxid	le Feed (dilute	d)	Mix	Mixed Feed (diluted) Total Feed (diluted)			Waste	Total Material	Strip		
Pit	kt	g/t Au	K oz	kt	g/t Au	K oz	kt	g/t Au	K oz	kt	kt	Ratio
Amelia	170	1.32	7.2				170	1.32	7.2	1,458	1,628	8.6
Pirinola	172	1.55	8.6				172	1.55	8.6	2,573	2,746	14.9
Corral/Sebastien	1,854	1.24	74.2	14	0.79	0.4	1,868	1.24	74.6	11,606	13,474	6.2
Corral NW	330	1.60	16.9	42	2.38	3.2	371	1.69	20.1	4,732	5,104	12.8
Emma	272	1.07	9.3				272	1.07	9.3	1,986	2,258	7.3
Christina	7,461	0.65	155.1				7,461	0.65	155.1	7,612	15,073	1.0
Dora	1,200	1.74	67.0				1,200	1.74	67.0	12,181	13,381	10.2
Escondida	713	1.08	24.8				713	1.08	24.8	3,472	4,185	4.9
Lola	2,786	0.59	52.7				2,786	0.59	52.7	5,723	8,509	2.1
Carmen	20	0.56	0.4				20	0.56	0.4	101	122	5.0
Carolina	117	0.71	2.7				117	0.71	2.7	518	634	4.4
Hilario	460	0.65	9.7				460	0.65	9.7	1,644	2,103	3.6
Melissa	502	0.65	10.4				502	0.65	10.4	1,830	2,331	3.6
Mirador	314	1.16	11.7	225	1.61	11.7	539	1.35	23.4	4,020	4,559	7.5
Sofia				185	1.08	6.4	185	1.08	6.4	723	909	3.9
Gloria	556	1.91	34.0				556	1.91	34.0	7,185	7,741	12.9
Greta	404	1.60	20.8				404	1.60	20.8	6,528	6,931	16.2
Tigre				630	1.24	25.1	630	1.24	25.1	2,956	3,586	4.7
Tracy				360	1.47	17.0	360	1.47	17.0	3,798	4,158	10.6
Trinidad	925	1.07	31.8				925	1.07	31.8	11,630	12,555	12.6
Becerros	3,407	0.97	106.6				3,407	0.97	106.6	13,353	16,761	3.9
Camello	1,693	0.62	33.7				1,693	0.62	33.7	9,523	11,216	5.6
El Toro	1,212	1.06	41.2				1,212	1.06	41.2	12,732	13,944	10.5
Katman	406	1.00	13.0				406	1.00	13.0	4,818	5,224	11.9
Manueles	1,110	1.31	46.7				1,110	1.31	46.7	9,649	10,759	8.7
Maribel	621	1.11	22.1				621	1.11	22.1	7,806	8,427	12.6
Ruben	915	1.19	34.9				915	1.19	34.9	13,030	13,945	14.2
Leach Pad - Amelia	437	1.22	17.1				437	1.22	17.1	Ź	437	-
Total	28.055	0.95	852.5	1,457	1.36	63.8	29,511	0.97	916.3	163,187	192,698	5.5

Note: The potential leach feed tonnages utilized in the PEA contain both Indicated and Inferred resources. The reader is cautioned that Inferred Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that value from such Resources will be realized either in whole or in part.

				_			E 16.5								
	ANNUAL MINE PRODUCTION SCHEDULE SUMMARY														
		Totals	-1	1	2	3	4	5	6	7	8	9	10	11	12
Waste- Overburden	Mt	2.9		2.3	0.0			0.6							
Waste-Other	Mt	160.3	2.1	14.9	14.8	15.5	16.9	16.2	16.9	14.1	11.6	14.7	8.6	11.5	2.4
<b>Total Waste</b>	Mt	163.2	2.1	17.2	14.8	15.5	16.9	16.8	16.9	14.1	11.6	14.7	8.6	11.5	2.4
Oxide Feed	Mt	28.1	0.1	1.9	2.7	2.7	2.7	2.7	2.7	2.7	2.2	2.2	2.7	2.3	0.5
Au Grade (g/t)	g/t	0.95	1.16	0.87	1.33	1.06	0.86	0.91	0.99	0.90	0.98	0.82	0.86	0.69	1.21
gold contained	koz	852.5	2.3	52.6	115.4	92.2	74.6	79.2	86.1	77.9	70.2	57.2	74.7	50.5	19.5
Mixed Feed	Mt	1.5	0.0	0.0	0.0	0.0					0.5	0.5		0.4	
Au Grade (g/t)	g/t	1.36	1.28	2.20	0.46	0.52	-	-	-	-	1.12	1.51	-	1.37	-
gold contained	koz	63.8	0.2	3.3	0.0	0.1					16.8	25.4		18.1	
Total Feed	Mt	29.5	0.1	1.9	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	0.5
Au Grade (g/t)	g/t	0.97	1.16	0.90	1.33	1.06	0.86	0.91	0.99	0.90	1.00	0.95	0.86	0.79	1.21
gold contained	koz	916.3	2.5	55.9	115.4	92.3	74.6	79.2	86.1	77.9	87.0	82.6	74.7	68.6	19.5
Total Material	Mt	192.7	2.2	19.1	17.5	18.2	19.6	19.5	19.6	16.8	14.3	17.4	11.3	14.2	2.9

	]	Min	ING S	EQUE		BLE 1 (WAS		FEEI	o Tor	NNES)	ı			
Feed + Waste	Mt	-1	1	2	3	4	5	6	7	8	9	10	11	12
Amelia	1.6												1.3	0.3
Pirinola	2.7												1.1	1.7
Corral/Sebastien	13.5		9.7	2.3	1.5									
Corral NW	5.1	2.2	2.9											
Emma	2.3			1.0	1.2									
Christina	15.1		1.4	2.1	1.1	2.4	2.2	1.7	1.6	1.4	1.2			
Dora	13.4		5.1	7.2	1.0									
Escondida	4.2										0.6	3.4	0.2	
Lola	8.5										2.5	4.4	1.6	
Carmen	0.1												0.1	
Carolina	0.6												0.6	
Hilario	2.1												2.1	
Melissa	2.3												1.4	0.9
Mirador	4.6												4.6	
Sofia	0.9												0.9	
Gloria	7.7								6.5	1.2				
Greta	6.9								0.8	3.7	2.5			
Tigre	3.6									2.2	1.4			
Tracy	4.2									0.9	3.2			
Trinidad	12.6									3.2	6.0	3.1	0.3	
Becerros	16.8				8.0	5.4	2.8	0.5						
Camello	11.2							4.6	4.9	1.7				
El Toro	13.9						5.6	5.5	2.8					
Katman	5.2							5.0	0.2					
Manueles	10.8			4.9	5.3	0.6								
Maribel	8.4						6.7	1.7						
Ruben	13.9					11.2	2.2	0.6						
Leach Pad -														
Amelia	0.4											0.4		
Total	192.7	2.2	19.1	17.5	18.2	19.6	19.5	19.6	16.8	14.3	17.4	11.3	14.2	2.9

## 16.5 OPEN PIT MINING PRACTICES

It is assumed that the Santa Gertrudis mine will be operated as a contracted conventional open pit mining operation. While owner-operated mining may be an option, this was not considered in this PEA since many of the other mines in northern Mexico rely on the use of contract mining with many experienced contractors being available and competitive. Contractor quotations for mining the Santa Gertrudis deposits were obtained for this PEA.

The mining contractor will undertake all drill and blast, loading, hauling, and mine site maintenance activities. The owner will provide overall mine management and technical services, such as mine planning, grade control, geotechnical, and surveying services.

## **16.5.1** Contract Mining

It is anticipated that the mining operations would be conducted 24 hours per day and 7 days per week throughout the entire year.

It is assumed that most of the materials mined will require drilling and blasting to some degree, except for the gravel overburden that will be free digging. The mining contractor will provide the blasting services and it is anticipated that blasting of the rock will be carried out using an ammonium nitrate fuel oil mixture ("ANFO").

The exact equipment fleet to be used by the mining contractor has not yet been defined in detail at the PEA stage. This will depend on the final production rates and the types of equipment the contractor has in its fleet. However it is expected that diesel powered front-end loaders (CAT 992 size) and small hydraulic excavators will be used to dig the blasted rock. The anticipated truck size is 90 t, similar to the CAT 777, although alternate truck sizes may be used depending on pit configuration and feed haulage distances.

The primary mining operation will be supported by the contractor's fleet of support equipment consisting of dozers, road graders, watering trucks, maintenance vehicles, and service vehicles.

Many of the deeper pits will likely experience groundwater seepage. No quantitative information was available to adequately predict the expected water inflow into the pit but the mining contractor will be responsible to keep the pits dry and operable. There is the potential that some of the pit water could be piped to the heap leach area and used as process water.

## **16.5.2** Owners Mining Team

The mine owner will be responsible for providing contract management and overall supervision of the mining contractor. The owner will also provide technical services, such as mine planning and scheduling, geotechnical engineering, grade control, and surveying. Table 16.7 lists the personnel on the owners mining team.

TABLE 16.7 OWNERS MINING TEAM								
Superintendent	1							
Foreman	1							
Chief engineer	1							
Mine engineer	1							
Geologists	2							
Surveyor	1							
Survey Technician	1							
Total	8							

## 16.5.3 Waste Dumps

Each of the pits will require the development of one or more waste dumps. Some of the waste will be placed into hill side waste dumps adjacent to the pit and, depending upon the mining

sequences, it may also be possible to backfill mined-out pits if there is no likelihood of re-mining those pits in the future.

At this stage of the PEA, the waste dumps were not designed in detail, however, potential dump sites were identified and field reconnaissance will be done at the next stage of study to confirm the preferred locations.

## **16.5.4** Mine Support Facilities

The Santa Gertrudis mine will require mine offices, maintenance facilities, warehousing, and cold storage areas. The mine offices for the owner's team are already in place from historical operations (see Figure 16.13 for an example) and only minor refurbishment will be required. These existing buildings will provide for mine management, engineering, geology, safety and first aid.

A maintenance shop area will be provided by the mining contractor. A fuel and lube station will also be provided by the contractor for fuelling the mining fleet.

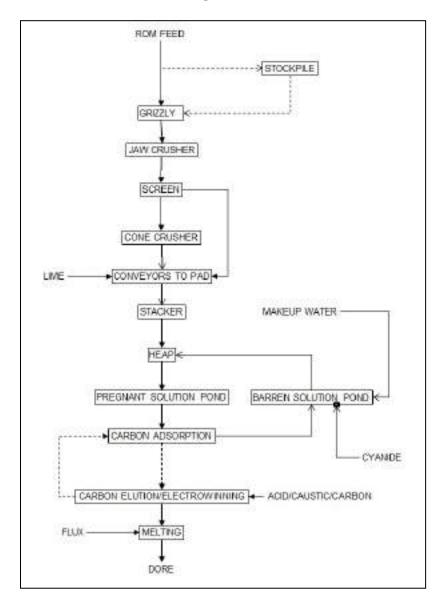
Figure 16.13 Existing Offices Example



#### 17.0 RECOVERY METHODS

The process design is based on the use of conventional heap leach technology with a process rate of 2.7 million t/a or 7,500 t/d (Figure 17.1).

Figure 17.1 Process Flowsheet Block Diagram



An area has been identified which is convenient to a number of deposits and should be able to accommodate the entire potential LOM production envisaged in this PEA.

Potential heap leach feed will be crushed in two stages and conveyed by a series of conveyors and a radial stacker capable of accessing the entire pad area. This material will be stacked in 6 m or 8 m high lifts and irrigated with dilute cyanide solution.

Pregnant solution will discharge the heap under gravity via embedded drainage piping and the contained gold will be adsorbed onto activated carbon in a five stage carbon-in-column (CIC) circuit. Gold will be eluted from the carbon periodically in a conventional batch pressure elution

process, then electrowon and smelted to produce doré on site. Pregnant and barren solution ponds will provide surge for the process solutions and an emergency pond capable of holding anticipated maximum storm event water plus drawdown from the heap in the unlikely event of a concurrent temporary loss of power.

A smaller "detox" pond will allow for possible treatment and discharge of water from the system. Normally the detox and emergency ponds will be empty.

#### 18.0 PROJECT INFRASTRUCTURE

Access to the Project is via a 39 km gravel road, leading from the paved Magdalena-Cucurpe Highway. There is also a network of unpaved roads (ranch, exploration and ore-haulage roads) that provide excellent access throughout the Property.

The Santa Gertrudis property has been mined by several operators between 1991 and 2000. From the past mining activities, there remains haul roads, office buildings, accommodation buildings, water supply systems, partly mined open pits, waste dumps, and some historic leach pads.

The Santa Gertrudis project will be able to make use of much of the existing infrastructure, some of which may only require limited levels of refurbishment.

The previous mining activities have left water-filled open pits, waste piles and a lined, zero-discharge historic leach pad at Santa Gertrudis and three lined pads near Amelia. Animas undertook repairs and maintenance to the various service and accommodation buildings located around the Property. The buildings were weatherproofed and basic services and furnishings restored. The camp water tank was filled, drill sample handling facilities were provided and the exploration camp was setup with residences, an office and a dining hall.

#### 18.1 SITE ACCESS ROAD

An existing gravelled site access road extending approximately 39 km is in place from the nearest paved highway. Most of this road has public access and is used by local ranchers. It is generally in good condition and will require limited improvement to support potential mining operations.

#### 18.2 SITE HAUL ROADS

Since mining has occurred over most of Santa Gertrudis property, there is a network of existing exploration trails, service roads, and haul roads. Some of these roads are currently being used for exploration purposes; however, some of the roads have fallen into disrepair due to erosion and vehicle traffic and therefore will require significant refurbishment. Very little new road construction is required to re-start operations though. Included in this would be about 2 km of new haul road at the Christina deposit to shorten the haulage distance to the heap leach facility.

#### 18.3 POWER SUPPLY

The plant site is not connected to any high capacity electrical power grid at this time. Therefore it is assumed that the power required for processing and support operations will be provided by a diesel powered electrical generator plant. This would consist of three 600 kW diesel generators (two operating, one standby).

As all of the open pits will primarily use diesel equipment, including water pumps if required, the mining operations will not be connected to the site electrical network.

#### 18.4 WATER SUPPLY

There is an operating water well field that is used to provide water via a pipeline to a storage tank for the exploration teams. It is expected that this well field will be able to provide the necessary process water during operations. However, confirmation of adequate and available well capacity for operations will be required in later stages of design and feasibility analysis.

Some of the existing open pits have been filled with water to the level of the water table. This may also provide a potential source of process water.

#### 18.5 OTHER SITE FACILITIES

The Santa Gertrudis project will also require facilities such as:

- Administration offices:
- Security gate;
- Yard lighting
- Water and fire water distribution, and sewerage rehabilitation
- Warehouses for maintenance components, spare parts, and reagents;
- Equipment laydown areas;
- Mine equipment maintenance facilities would be provided by the mining contractor.

Many of these buildings are already available at site, some of which are currently being used by the exploration teams (see Figure 18.1). Many of buildings will require some refurbishing but the structures themselves are expected to be in good shape.

Previous mine operators used an accommodation camp for the workers (see Figure 18.2). However, the current plan will be for employees to reside in local communities like Magdalena. A bus would provide transportation to and from site.

Figure 18.1 Existing Buildings





Figure 18.2 Historical Accommodations



#### Leach Pad

For the purposes of the PEA, it is assumed that a single, centrally located leach pad would be utilized for the LOM. However, in subsequent studies, remote 'satellite' leach pads could be considered, especially if the total heap leach feed tonnage for the operation increases above the amount currently envisaged.

Figure 18.3 provides an overview of the layout of the leach pad. The average pile height is 65 metres; however, the south end of the pile would have an overall height of 100 metres. No geotechnical studies have yet been completed for the foundations, nor have any crushing tests been done of the barren leached material to confirm whether the heights and the 3H:1V side slope used in design are appropriate. Figure 18.4 provides photos of the proposed leach pad foundation terrain.

The leach pad footprint will be developed in three stages to minimize upfront capital cost. Extensions to the lined pad area would be made in years 2 and 3.

Figure 18.3 Leach Pad Concept



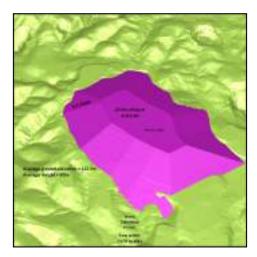


Figure 18.4 Proposed Leach Pad Terrain





## 19.0 MARKET STUDIES AND CONTRACTS

There were no market studies completed or contracts in place to support this Technical Report. The product from the process plant will be a gold doré bars. This will be shipped to any of several available refiners. In Mexico, the Met-Mex Peñoles facility is the main precious metal refinery, located in Torreon in the State of Coahuila. There are also several refineries located in the neighbouring USA. Prices for this gold doré will be based on the then-current gold prices, less respective refining charges.

# 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

#### 20.1 PREVIOUS STUDIES

In September 2014, Safe-Tech, an environmental specialist consulting company located in Mexico City, conducted a review of public files on past operations at the Santa Gertrudis site between 1986 and 1991. The intent was to identify any potential environmental concerns for the Project. No environmental issues were identified by Safe Tech, for the sites of exploration activity and potential future processing of material from mineral deposits.

Between March 23 and 28, 2014, Safe-Tech sent a team of specialists to the site to perform a Forest and Vegetation inventory, as required by the local forest regulations. This was part of the Environmental Study and Baseline plan for the Project. No significant issues were reported.

#### 20.2 ASSUMED LIABILITIES

The project area has been affected by mining and logistical operations conducted by previous operators. Residual environmental and/or social liabilities caused by these previous operations that may be attributable to the Santa Gertrudis Project would be the responsibility of GoGold. These previous operators had been obligated to perform the following actions on closure: <sup>1</sup>

- Neutralize, restore, and reforest all the residual and marginal material, the product of old operations (leach pads and depleted ore field);
- Close and reforest operation roads;
- Fence and stabilize mine pit slopes; and
- Dismantle and remove facilities, infrastructure and solid waste.

These actions were not fully completed as some infrastructure remains, including building, access roads and site roads. Mine pit slopes appear to be unremediated. However, the previous operators had reclaimed waste dumps, detoxified the heap leaches and removed many of the mine buildings. Buildings for the accommodation of the previous workforces still remain (Figure 20.1). The Amelia mine site still has the remains of a small mill and associated piping in place.

The locations selected for infrastructure to host the proposed mine activities are generally clean and free of debris and hazardous wastes. If a mining and processing operation is constructed on the site, then some of this residual infrastructure will be refurbished and used wherever possible.

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<sup>&</sup>lt;sup>1</sup> Sovereign Management Group, Scoping Study for the Santa Gertrudis Project, 23 May, 2011

Figure 20.1 Accommodation Buildings from Previous Mining Operations

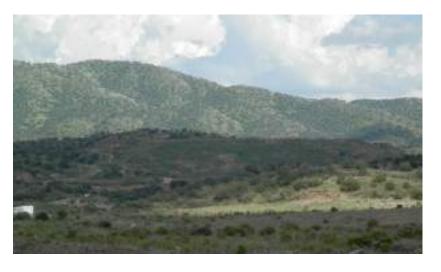


With the exception of the Amelia mine site, only minimal site environmental remediation is expected to be required.

#### 20.3 LOCAL CLIMATE AND EFFECT ON PROJECT ENVIRONMENTAL ASPECTS

The Santa Gertrudis concessions are in an area of low net precipitation, with a ratio of evaporation:precipitation of between 3.5 and 5. Hot ambient summer temperatures exceeding 40°C are experienced. A significant amount of precipitation in the form of rainfall, is normally limited to the summer months. The climate is very dry for the rest of the year. Vegetation is very sparse, as shown in Figure 20.2 and is dormant during the ten-month dry season.

Figure 20.2 Santa Gertrudis Project Area



These very dry conditions will permit the San Gertrudis project to operate on a zero-discharge basis. No solutions originating from the recovery processes will be discharged into the local environment during operations. Domestic water will be treated in a properly designed septic system.

The Project will be designed to accommodate severe storm events, which is defined here as greater than 100 mm of precipitation in a 24 hour period. Process ponds will be configured and operated to contain the run-off from such storm events. Wildlife and domestic animals can be attracted to process ponds so barriers (fences) will be installed to keep terrestrial animals away from the process ponds and 'stress-simulating' sound devices will be installed to divert birds.

#### 20.4 WATER RESOURCES

No surface water resources such as rivers and streams exist on site or in the immediate area. Three capped wells are located approximately three km west-southwest of the Santa Gertrudis project field office, in the quebrada of the Ejido 6 de Enero. Information currently available indicates that these wells are held in the name of First Silver Reserve, S.A. de C.V., a former facility operator. Subject to updating reporting requirements (from previous operations) and extending water use permits from Comisión National del Agua ("Conagua"), these wells will be used to provide both process and domestic water.

Additional water requirements will be involve only the need to compensate for evaporation in the leaching processes. Some significant water resources are currently available in the previously mined-out pits and these will be available to provide the initial process water inventory. The water quality in the pits is currently reported to be at a sufficiently high level to support a fish habitat and can be used without treatment. During operations, mine water produced from the active pits will be pumped up to sedimentation ponds before transferring to the metallurgical process.

#### 20.5 LICENSING AND PERMITTING

Mining proposals and operations in Mexico are subject to a wide range of environmental and permitting requirements. Most are administered by the Secretaría de Medio Ambiente y Recursos Naturales ("Semarnat"). Some are administered by Conagua. A summary of permits and authorizations is shown in Table 20.1.

	<b>TABLE 20.1</b>									
PERMITS ANI	PERMITS AND LICENSES REQUIRED FOR THE SANTA GERTRUDIS PROJECT									
Stage of Mining	Permit/Authorisation	Responsible	Documentation,							
Cycle		Authority	Comments							
Project Design and	Approval of	Semarnat	Environmental Impact							
Development	Environmental Impact		Assessment documentation							
_	Assessment		required. While the Project							
	(Manifestacion de		areas were disturbed by							
	Impacto Ambiental –		previous mining activity,							
	MIA)		no issues significant have							
			been reported.							
	Permit for Change in	Semarnat	Technical Justification							
	Land Use on Forest		Study Required							
	Land (Solicitud de									
	Dictamen de									
	Factihilidad de Uso de									
	Suelo)									
Facilities Re-	Water Use Permit	Conagua	Important consideration for							

PERMITS AN	Table 20.1 Permits and Licenses Required for the Santa Gertrudis Project								
Stage of Mining Cycle	Permit/Authorisation	Responsible Authority	Documentation, Comments						
Construction			process initiation, process makeup water, and for domestic water use.						
	Waste Water Discharge Permit	Conagua	Waste water discharge principally domestic waste water						
Operation	Environmental License to Operate	Semarnat	Application						
	Registration as a Generator of Hazardous Waste	Semarnat	Formal register – cyanide will be a main focus						
	Safety and Accident Prevention Program	Semarnat	Submission and approval						
	Permit to Import Hazardous Substances	Semarnat	Submission and approval						
	Hardous Waste Management Program	Semarnat	Submission and Approval						
Closure	Closure Plan	Semarnat	Funded plan Submission and Approval						

The permitting processes may take up to  $1\frac{1}{2}$  to 2 years to complete, depending on official requirements for environmental baseline data, the perceived complexity of the operation and the environmental disturbance anticipated to be incurred during mine and heap leaching operations.

As commonly experienced around the world, of increasing importance in the permitting process is the consultation with local people in the area, particularly if their lifestyles include the use of the concession lands. While this may not be a major issue in Sonora, Mexico for the Santa Gertrudis Project, it may be time consuming. The surface rights on the some of the concessions are owned by local Ejidos (land owners), which are essentially government sanctioned cooperatives consisting of local citizens who collectively utilize and manage the land. For the Santa Gertrudis Project, a Surface Occupation Lease is required with the Ejidos for any work that necessitates disturbing the ground surface, and limiting access to ranch lands.

As stated in a July 7, 2014 press release, GoGold announced that a land agreement to mine and explore on the Ejido property has been executed. The agreement allows GoGold to mine and explore the land that is owned by the local Ejido for a period of ten years with an option to renew for a further five years.

Upon closure of the permitted mining operations, actions will be required to address the environmental disturbance caused by the Santa Gertrudis project as defined by the terms of the permit issued for the mining operation. Some form of surety bond will be required to cover these activities. Closure activities would normally include the removal of all structures and equipment, neutralizing the leach pads, removal of solution containment ponds, stabilizing and re-planting the leach pad surfaces, stabilizing the pit benches and slopes, and revegetating roads and other areas of disturbance.

#### 20.6 ANTICIPATED ENVIRONMENTAL IMPACTS

No issues related to acid rock drainage or heavy metal leaching are anticipated in waste rock or leached material because only oxide zones will be mined and processed. Traces to very low levels of heavy metals have been measured in soils, rock, drill cuttings and leach pads.

No issues related to noise and dust are anticipated because the mining and leaching operations will be remote from villages and local haciendas. Shipment of materials in and out of the mine facilities will be minimal, which should limit concerns about local road traffic. Leaching solutions will be fully contained. The local climate, which is typically very hot, sunny and dry, will provide a rapid and safe natural degradation of the contained cyanide in exposed solutions at the end of operations.

The principal environmental impacts will be those related to land disturbance.

#### 21.0 CAPITAL AND OPERATING COSTS

#### 21.1 CAPITAL COSTS

The capital cost estimate addresses the engineering, procurement, construction and start-up of the Santa Gertrudis Project, which consists of several open-pit mines, a heap leach facility capable of processing 7,500 tpd, and associated ancillary facilities.

The capital cost estimate was developed to a level commensurate of that of a Preliminary Economic Assessment in order to evaluate the Santa Gertrudis project overall potential viability. After inclusion of the contingency, the capital cost estimate is considered to have an accuracy of  $\pm 30\%$ , Q3 of 2014. Where applicable, the exchange rate used is 12.5 Mexican peso per \$US.

The total estimated cost to design, procure, construct and start-up the facilities described in this report is \$32.1 million. Table 21.1 summarizes the capital cost estimate. The estimated cost includes a contingency allowance of approximately 20% or \$5.4 million. Some of the initial equipment required for the process plant (gen-sets, crushers, conveyors) are included in the sustaining capital as "capital lease" items.

Sustaining capital represents capital expenses for additional costs, leach pad expansion, and equipment purchases that will be necessary during the operating life of the project, and are not included in the normal operating costs. Life-of-mine sustaining capital is estimated to be \$15.6 million.

No provision has been included in the capital cost to offset future escalation.

TABLE 21.1 CAPITAL COST SUN	TABLE 21.1 CAPITAL COST SUMMARY							
Initial Capital \$US M								
Pre-stripping capitalized	\$ 4.3							
Mining Directs	\$ 1.2							
Plant Directs	\$ 14.5							
Infrastructure	\$ 0.9							
Project Indirects	\$ 5.8							
Contingency	\$ 5.4							
Total Initial Capital	\$ 32.1							
Sustaining Capital								
Mining	\$ 0.9							
Plant	\$ 6.1							
Capital Lease for Gen-sets	\$ 0.7							
Capital Lease for Crushers, etc.	\$ 5.3							
Contingency	\$ 2.6							
<b>Total Sustaining Capital</b>	\$ 15.6							
Total Capital (Life-of-Mine)	\$ 47.7							

Items not included in the capital estimate are:

- Sunk costs and costs prior to the start of basic engineering phase
- Escalation
- Insurance
- Working capital
- Interest and financing cost
- Taxes
- Reclamation and associated bonding requirements

## 21.1.1 Mining Capital Cost

Since the mining operation will use a mining contractor, the capital cost associated with the mine will be limited. As shown in Table 21.2, the main cost item is the capitalized pre-stripping undertaken in Year -1 (2.2 million tonnes of waste material to be stripped by the contractor).

Other capital costs required for the mine management team are office supplies, computers, surveying equipment, pickup trucks, etc. Table 21.2 summarizes the initial mine capital cost of \$5.5 million, without contingency.

Sustaining capital details are shown in Table 21.3. On-going road additions and equipment replacements will add another \$0.90 million over the life of the project.

# 21.1.2 Process Plant Capital Cost

Process capital costs are estimated based on a provisional equipment list generated from a preliminary process design criteria and flowsheet. Heap leach and pond construction costs are based on typical costs per unit area for site preparation, linings and piping and related equipment. Only the initial pad construction cost is included in the capital cost; the costs for pad expansion are included in sustaining capital.

Mechanical equipment costs are primarily developed from in-house cost data and correlations.

Direct costs other than equipment are factored on equipment or direct costs on a process area basis, using factors derived from historical projects. Certain equipment related to the process will be provided on a capital lease basis; the other direct costs associated with this equipment are included in the process plant capital. The process building cost has been estimated on a unit area cost basis using an assumed building footprint. Indirect costs are factored on direct costs using information derived from similar historical projects.

Table 21.2 summarizes the initial process plant capital cost of \$14.5 million, without contingency. Some initial capital equipment (gen-sets, crushers, conveyors) are not included in the initial capital cost but are shown as capital lease items in the sustaining capital (Table 21.3).

### 21.1.3 Infrastructure Capital Cost

The infrastructure capital cost is estimated at \$0.94 million, and includes construction labour, concrete, piping, and the installation of the gen-sets and conveyors.

There are also allowances in the capital cost estimate to refurbish and equipment the various offices and buildings present at the site, including water supply, sewage and fuel storage.

# 21.1.4 Indirect Capital Cost

Indirect capital costs are estimated at \$5.8 million and include construction indirects, EPCM, freight, construction equipment, first fills, and spares.

# 21.1.5 Contingency

An overall contingency of 20% was applied to all aspects of the capital cost estimate. The total contingency is \$5.4 million.

	TABLE Initial Capi				
	Description	Unit Cost	Units	Quantity	Installed Costs US\$
Mining Direct Costs (owner costs only)					
	Refurbish Haul Roads to CENTRAL pit area	\$ 30,000	per km	5	\$ 150,000
	New Haul Road to CHRISTINA pit	\$ 200,000	per km	2	\$ 400,000
	Refurbish Haul Roads to DORA pit	\$ 30,000	per km	2	\$ 60,000
	Pickup trucks for mgmt.	\$ 40,000	each	5	\$ 200,000
	Survey equip and field supplies	\$ 60,000	lump	1	\$ 60,000
	Software, PC's, office equip.	\$ 100,000	lump	1	\$ 100,000
	Sump Pumps, pipelines	\$ 100,000	lump	1	\$ 100,000
	Contractor Mobilization	\$ 150,000	lump	1	\$ 150,000
	Pre-strip Cost	\$1.92	Mt	2.20	\$ 4,254,000
	Sub Total				\$ 5,474,000
Plant Direct Costs					
	Equipment	\$ 3,829,000	lump	1	\$ 3,829,000
	Other direct costs	\$ 7,537,000	lump	1	\$ 7,537,000
	Heap Leach Pad prep and lining	\$ 2,674,000	lump	1	\$ 2,674,000
	Process Ponds prep and lining	\$ 446,000	lump	1	\$ 446,000
	Sub Total				\$ 14,486,000
Infrastructure					
	Diesel Genset Power Plant; Distribution	\$ 410,000	lump	1	\$ 410,000
	Access Road Refurbishment	\$ 50,000	lump	1	\$ 50,000
	Provision for leasing busses	\$ 40,000	each	1	\$ 40,000
	Administration offices, first aid	\$ 50,000	lump	1	\$ 50,000
	Change house and warehouse	\$ 50,000	lump	1	\$ 50,000
	Site area refurbishment, lighting	\$ 300,000	lump	1	\$ 300,000
	Security gate & systems	\$ 20,000	lump	1	\$ 20,000
	Communications	\$ 18,000	lump	1	\$ 18,000
	Sub Total				\$ 938,000
Project Indirect Costs					
	Construction indirects	\$ 2,429,000	lump	1	\$ 2,429,000

TABLE 21.2 Initial Capital Costs								
	Description	Unit Cost	Units	Quantity	Installed Costs US\$			
	EPCM & startup	\$ 2,410,000	lump	1	\$ 2,410,000			
	Freight	\$ 347,000	lump	1	\$ 347,000			
	Mobile equipment	\$ 200,000	lump	1	\$ 200,000			
	Spare parts	\$ 260,000	lump	1	\$ 260,000			
	First fills	\$ 200,000	lump	1	\$ 200,000			
	Sub Total				\$ 5,846,000			
Total Initial Cost w/o Contingency					\$ 26,743.000			
Contingency				20%	\$ 5,349,000			
Total Initial Capital C	Cost				\$ 32,092,000			

<sup>\*</sup>Some values have been rounded. Totals are accurate summations of the columns.

	TABLE SUSTAINING CAPITAL	E 21.3 Costs (Lif	E OF MI	NE)	
	Description	Unit Cost		Qty	Installed Costs US\$
Mining Sustaining			•		
	Mine Haul Roads to WEST pit	\$ 30,000	per km	1	\$ 30,000
	Mine Haul Roads to SOUTH pit	\$ 30,000	per km	5	\$ 150,000
	Mine Haul Roads to TRINIDAD pit	\$ 30,000	per km	7	\$ 210,000
	Mine Haul Roads to AMELIA PADS	\$ 30,000	per km	8	\$ 240,000
	Mine Haul Roads to AMELIA pits	\$ 30,000	per km	1	\$ 30,000
	Mine Haul Roads to MIRADOR pits	\$ 30,000	per km	1	\$ 30,000
	Replacement pickups (5 years)	\$ 40,000	each	5	\$ 200,000
	Sub Total				\$ 890,000
Plant Sustaining					
	Extension of pad area (year 2 & 3)	\$ 5,560,000	lump	1	\$ 5,560,000
	Pump, pile replacements (year 8)	\$ 500,000	lump	1	\$ 500,000
	Sub Total		•		\$ 6,060,000
Capital Leases					
	Capital Lease of Genset (6% for 4 years)	\$ 621,700	Plus interest	1	\$ 718,000
	Capital Lease of Crusher, Conv. (6%,4y)	\$ 4,632,300	Plus interest	1	\$ 5,347,000
	Sub Total				\$ 6,065,000
Total Initial Cost w/o Contingency					\$ 13,015,000
Contingency				20%	\$ 2,603,000
Sustaining Capital Total	Costs				\$ 15,618,000

<sup>\*</sup>Some values have been rounded. Totals are accurate summations of the columns.

#### 21.2 OPERATING COSTS

The operating costs estimate includes the cost of mining, processing, and General and Administration ("G&A") services. The life-of-mine ("LOM") average operating cost for the Project is summarized in Table 21.4.

Table 21.4 Operating Cost Summary							
Total LOM Average Unit Cost (\$/t LOM Unit Cost (\$/M) feed) rock)							
Total Mining Contractor	\$ 290.4	\$9.84	\$1.51				
Mining Fixed Cost	\$ 5.9	\$0.20	\$0.03				
Processing (Oxide Feed)	\$ 99.3	\$3.54					
Processing (Mixed Feed)	\$ 5.2	Same as oxide					
G&A Fixed Cost	\$ 20.9	\$0.71					
<b>Total Operating Cost</b>	Total Operating Cost \$ 421.7 \$14.29						

#### **21.2.1** Mining

The mining operation will be undertaken using a mining contractor. The owner will support the contractor by providing overall management and technical services. Therefore, the mining costs will consist of two components; the contractor cost and the owner cost.

#### **Contractor Mining Cost**

A local mining contractor familiar with the region and the mine site was contacted to provide a budgetary quotation. The quotation included all costs, including equipment, personnel, diesel fuel, and explosives.

The contract mining cost was provided for different haulage distances. The result is a base drill/blast/load price of 1.22/tonne with an added haulage component of 0.18/t-km. For example, a 2 km haulage distance would result in a unit mining cost of 1.58/tonne ( $1.22 + (2 \times 0.18)$ ).

The contractor also provided a gravel waste mining cost, which would not require drill and blasting at a unit cost of \$1.30/t including an assumed short haul distance. Only 2% of the total waste is gravel and thus is not a significant part of the total stripping cost.

For waste cost modelling, it was assumed that all waste materials would be hauled a short distance of approximately 1 km to a nearby waste dump. Hence, the waste mining cost would be \$1.40/tonne and essentially be similar for all pits.

For heap leach feed mining cost estimating, a large component of the overall mining cost would be the haulage to the central heap leach facility. This would be different for each deposit. Table 21.5 summarizes the waste, overburden and feed mining costs per pit.

TABLE 21.5 CONTRACT MINING COST					
Pit	Feed Haul Distance (km)	Waste Haul Distance (km)	Feed Mining Cost (\$/t)	Waste Mining Cost (\$/t)	Overburden Mining Cost (\$/t)
Amelia	7.9	1.0	\$2.64	\$1.40	\$1.30
Becerros	2.0	1.0	\$1.58	\$1.40	\$1.30
Carmen	2.6	1.0	\$1.69	\$1.40	\$1.30
Christina	7.0	1.0	\$2.48	\$1.40	\$1.30
Camello	0.6	1.0	\$1.33	\$1.40	\$1.30
Corral NW	5.6	1.0	\$2.22	\$1.40	\$1.30
Corral/Sebastien	5.7	1.0	\$2.25	\$1.40	\$1.30
Carolina	3.6	1.0	\$1.87	\$1.40	\$1.30
Dora	2.5	1.0	\$1.67	\$1.40	\$1.30
Emma	7.7	1.0	\$2.61	\$1.40	\$1.30
Esc NW	4.3	1.0	\$2.00	\$1.40	\$1.30
Escondida	4.3	1.0	\$1.99	\$1.40	\$1.30
El Toro	0.8	1.0	\$1.36	\$1.40	\$1.30
El Toro N	0.8	1.0	\$1.36	\$1.40	\$1.30
Gloria	14.6	1.0	\$3.84	\$1.40	\$1.30
Greta	14.3	1.0	\$3.79	\$1.40	\$1.30
Hilario	3.6	1.0	\$1.87	\$1.40	\$1.30
Katman	2.7	1.0	\$1.70	\$1.40	\$1.30
Lola	4.1	1.0	\$1.96	\$1.40	\$1.30
Leach Pad - Amelia	9.0	1.0	\$2.84	\$1.40	\$1.30
Mariana	4.0	1.0	\$1.94	\$1.40	\$1.30
Melissa	3.0	1.0	\$1.76	\$1.40	\$1.30
Mirador	2.7	1.0	\$1.70	\$1.40	\$1.30
Manueles	2.6	1.0	\$1.69	\$1.40	\$1.30
Maribel	2.8	1.0	\$1.72	\$1.40	\$1.30
Pirinola	8.2	1.0	\$2.70	\$1.40	\$1.30
Ruben	0.6	1.0	\$1.34	\$1.40	\$1.30
Sebastien	5.8	1.0	\$2.26	\$1.40	\$1.30
Sofia	3.7	1.0	\$1.88	\$1.40	\$1.30
Tigre	14.0	1.0	\$3.74	\$1.40	\$1.30
Trinidad	6.8	1.0	\$2.44	\$1.40	\$1.30
Tracy	13.5	1.0	\$3.65	\$1.40	\$1.30

An average LOM mining cost of \$9.84/t is calculated based on contract mining costs in Table 21.5 and the potential mine production schedule for the 28 deposits.

# **Owner Mining Cost**

The owner's cost to provide management and technical services will be a fixed cost per year, largely independent of the tonnage being moved. The estimated annual cost is \$0.49 million, as shown in Table 21.6. An exchange rate of 12.6 Mexican Peso:US\$ has been applied.

TABLE 21.6 MINING FIXED COST					
GoGold Mining Staff	Unit Cost (peso)	Number	Cost/month (peso)	\$US per month	
Superintendent	77,000	1	77,000	\$6,111	
Foreman	50,000	1	50,000	\$3,968	
Chief Engineer	66,000	1	66,000	\$5,238	
Mine engineer	50,000	1	50,000	\$3,968	
Geologists	50,000	2	100,000	\$7,937	
Surveyor	45,000	1	45,000	\$3,571	
Survey Technician	30,000	1	30,000	\$2,381	
Equipment		Allowance	50,000	\$3,968	
Supplies, assays,		Allowance	50,000	\$3,968	
Total Owner's Mining Cost		Total/month	518,000	\$41,111	
		Total per year		\$493,000	
		(\$/t feed)*		\$0.18	

<sup>\*</sup> Represents the value in a typical year. LOM average cost is slightly higher at \$0.20 per tonne

# 21.2.2 Processing

Process operating costs include all costs from receipt of feed through to doré production. Labour costs are based on Owner-provided current rates at another similar Mexican mining operation and estimated manning levels. The power unit cost is based on diesel generation at \$0.26/kWh. Reagent prices are based primarily on Owner experience at an existing operation and include an allowance for freight. Operating supplies are primarily crusher liners and screens and are derived by estimated allowances. Maintenance materials are factored on total process capital costs excluding heap and pond costs.

Indirect costs such as the following are not included in this section:

- Insurance
- Taxes
- Safety and security
- Research and development
- General, administration and head office expenses
- Depreciation and amortization

Table 21.7 summarizes estimated process operating costs.

Table 21.7 Process Operating Cost Summary					
Item	<b>\$US/t feed</b>	\$US/a			
Operating Labour	0.26	725,000			
Power	0.88	2,378,000			
Reagents	1.52	4,167,000			
Operating Supplies	0.40	1,091,000			
Maintenance Labour	0.08	224,000			
Maintenance Supplies	0.17	462,000			
Subtotal	3.31	9,047,000			
Contingency, at 7%	0.23	633,000			
Total cost	3.54	9,680,000			

Senior process staff are included in G&A costs. Other salaried personnel total nine including a planner, four shift supervisors and four analytical technicians (see Table 21.8).

TABLE 21.8 PROCESS SALARIED EMPLOYEES						
Title	Number	Salary, \$/a	Subtotal, \$/a	Burden, 25%, \$/a	Total, \$/a	
Planner	1	41,856	41,856	10,464	52,320	
Shifter	4	25,302	101,208	25,302	126,510	
Technician	4	13,953	55,812	13,953	69,765	
Total	9				248,595	

In order to accommodate the 24-hour operation, the number of hourly rated employees is listed in Table 21.9.

TABLE 21.9 PROCESS LABOUR								
Title	No./shift	hrs/shift	Shifts/d	Hours/a	\$/h	\$/a	Burden \$/a	Total, \$/a
Operators	3	12	2	26,298	5.48	144,000	36,000	180,000
Training	1	12	2	8,766	5.48	48,000	12,000	60,000
ADR operator	2	12	1	8,766	5.48	48,000	12,000	60,000
Helpers/labour	10	12	1	43,830	4.18	183,200	45,800	229,000
Mechanics	2	12	1	8,766	4.88	42,800	10,700	53,500
Electricians	1	12	1	4,383	4.88	21,400	5,400	26,800
Helpers/labour	4	12	1	17,532	4.18	73,300	18,300	91,600
Total								701,000

Reagents and consumable cost estimates are presented in Table 21.10.

TABLE 21.10						
	REAGENTS AND CONSUMABLES  Delivered					
	Consumption	Annual	Cost			
Item	kg/t	t/a	\$/kg	\$/t		
NaCN	0.450	1,232	2.500	1.125		
Lime CaO	2.000	5,475	0.135	0.269		
Antiscalant	0.010	27	3.279	0.033		
Caustic	0.018	49.3	0.940	0.017		
HCl	0.010	27.4	1.020	0.010		
Flocculant	0.010	27.4	5.457	0.055		
Carbon	0.002	5.5	3.060	0.006		
Fuel (L/t)	0.004	11.0	1.020	0.004		
Flux	0.001	2.7	3.060	0.003		
Total				1.522		

# 21.2.3 General and Administrative (G&A)

The administration costs have been estimated to a PEA level and include costs for management, accounting, training, health & safety, and environmental. The annual G&A cost is estimated at \$1.74 million or approximately \$0.64/t of feed processed (see Table 21.11).

TABLE 21.11 G&A OPERATING COST					
		Unit Cost	Total /month	Burden	Total
		Pesos/month	\$/month	25%	per month
General Manager	1	100,000	\$ 7,900	\$ 1,975	\$ 9,875
Plant Manager	1	65,000	\$ 5,200	\$ 1,300	\$ 6,500
Public relation/sustainability	1	50,000	\$ 4,000	\$ 1,000	\$ 5,000
Administration Manager	1	50,000	\$ 4,000	\$ 1,000	\$ 5,000
Human Resources	1	50,000	\$ 4,000	\$ 1,000	\$ 5,000
Safety & Security Officer	1	50,000	\$ 4,000	\$ 1,000	\$ 5,000
Metallurgist	1	40,000	\$ 3,200	\$ 800	\$ 4,000
Laboratory	1	35,000	\$ 2,800	\$ 700	\$ 3,500
Warehouse Supervisor	1	15,000	\$ 1,200	\$ 300	\$ 1,500
Purchasing	2	18,000	\$ 2,900	\$ 725	\$ 3,625
Security Team	16	12,000	\$ 15,200	\$ 3,800	\$ 19,000
Receptionist	1	6,000	\$ 500	\$ 125	\$ 625
Environmental Officer	1	35,000	\$ 2,800	\$ 700	\$ 3,500
Accountants	2	20,000	\$ 3,200	\$ 800	\$ 4,000
Human Resources Staff	1	20,000	\$ 1,600	\$ 400	\$ 2,000
General Office Expenses		160,000	\$ 12,700		\$ 12,700
Insurance		170,000	\$ 13,500		\$ 13,500
Outsourcing Administration		25,000	\$ 2,000		\$ 2,000
Other		250,000	\$ 19,800		\$ 19,800
Monthly Total			\$ 110,500	\$ 15,625	\$ 126,125
Contingency 15%			\$ 16,575	\$ 2,344	\$ 19,000
Monthly Total			\$ 127,075	\$ 17,969	\$ 145,000
12 month Total			\$ 1,524,900	\$ 215,625	\$ 1,740,000
Unit Cost (\$/t)*					\$0.64

<sup>\*</sup> Represents the value in a typical year. LOM average cost is slightly higher at \$0.71 per tonne

#### 22.0 ECONOMIC ANALYSIS

#### 22.1 SUMMARY

A discounted cashflow model was prepared using the production schedule described in Section 16 and the cost parameters described in Section 21. The PEA cashflow model was developed on a pre-tax and after-tax basis. The cash flow model is assumed to commence from the time a production decision is made. It does not cover time or costs for a pre-feasibility or feasibility study.

The Santa Gertrudis Project economic evaluation conclusions are summarized in Table 22.1. At a base case gold price of US\$1,250 per ounce, Santa Gertrudis has an estimated US\$232 million after-tax net cash flow ("NPV0%"), a US\$150 million after-tax net present value at a 5% discount rate ("NPV5%"), and an after-tax internal rate of return ("IRR") of 58%. The payback period is estimated to be 1.7 years.

Table 22.1 ECONOMIC EVALUATION SUMMARY					
Pre-Tax (\$M)  After Tax (\$M)					
NPV0%	\$ 362.4	\$ 231.7			
NPV5%	\$ 239.8	\$ 150.4			
NPV7%	\$ 205.1	\$ 127.5			
IRR=	79.3%	57.8%			
Payback period		1.7 years			

#### 22.2 BASIC ASSUMPTIONS

A discounted cash flow analysis of the Santa Gertrudis was prepared based on technical and cost inputs developed by the P&E.

The discounted cash flow analysis was performed on a stand-alone project basis with annual cash flows discounted. The financial evaluation uses a discount rate of 5%, discounting back to the commencement of construction (Year -2) of the Project.

All currency values are expressed in US dollars unless otherwise noted.

#### Gold Price Assumption

The gold price used in the financial evaluation is \$US 1,250/oz, and this remains constant throughout the life of the project. The sensitivity of the project return to variations in the actual gold price received was also examined.

#### Metallurgical Recoveries

The Santa Gertrudis Project's gold recovery assumptions for the feed types are summarized below:

Oxide Heap Leach feed: 75% recovery Mixed Heap Leach feed: 50% recovery

#### **Capital Costs**

Total capital costs are estimated to be \$47.7 million as outlined in the Capital and Operating Cost Section 21. Most of the initial capital costs are incurred over a two year construction period. The initial development cost is estimated to be \$32.1 million, while life-of-mine sustaining costs are approximately \$15.6 million.

The sustaining capital includes a capital lease provision for initial generators, crushing, and conveying equipment, which at a 6% annual interest rate and a 4-year payment period equates to \$6.1 million of the sustaining capital expended in Year 1 through Year 4.

#### Previous Expenses Provision

An amount of \$5 million was considered as a prior expense pool and these monies were deducted from income in Years 1 and 2 when determining the taxable income.

#### Income Tax Rate

The income tax is levied at a rate of 35% on the net taxable income.

#### Additional Mining Tax Rate

A 0.5% gross revenue tax was applied in the cashflow economics, and is considered to be deductible when determining taxable income.

#### 22.3 CASH FLOW SUMMARY

Based on a constant gold price of US\$1,250 per troy ounce, the project has a post-tax internal rate of return ("IRR") of 57.8% and a 1.7 year payback of initial preproduction capital costs. The project will realize a post-tax NPV of US\$ 150.4 million at a discount rate of 5%.

The estimated annual production and life-of-mine cashflows for the Santa Gertrudis Project are summarized in Table 22.2.

TABLE 22.2 PROJECT CASH FLOW SUMMARY Mine Production							
Total Heap Leach Feed	Mt	29.5					
Au Grade (diluted)	g/t	0.97					
Waste Total	Mt	163.2					
Total Material	Mt	192.7					
Strip Ratio	w:o	5.5:1					
PROCESSING							
Recovery (Oxide)	%	75.0%					
Recovery (Mixed)	%	50.0%					

PROJECT	TABLE 22	2.2 OW SUMMARY	
	Mine Produ		
Gold metal recovered (LOM)	OZ		671,300
	Revenu	e	
Gold Price	\$US/oz		\$ 1,250
Total Revenue (Life-of-Mine)	\$M		\$ 836
OPERATING COST		Avg Unit Cost	\$ Million LOM
Mining Cost	\$/t mat'l	\$1.54	\$ 296
Mining Cost	\$/t feed	\$10.04	\$ 296
Processing	\$/t feed	\$3.54	\$ 105
G&A	\$/t feed	\$0.71	\$ 21
Total operating Cost	\$/t feed	\$14.29	\$ 422
Cash Cost (Avg)	\$/t oz		\$628
CAPITAL COSTS			
Initial Capital	\$M		\$ 32
Total Sustaining Capital	\$M		\$ 16
Total Capital	\$M		\$ 48
CASH FLOWS			
Revenue	\$M		\$ 836
(-) Operating Cost	\$M		\$ (417)
(-) Additional Mining Tax	\$M		\$ (4)
(-) Capital Spending	\$M		\$ (48)
(-) Reclamation	\$M		\$ (4)
Pre-tax CF (0%)	\$M		\$ 362
(-) Taxes	\$M		\$ (131)
After-tax CF (0%)	\$M		\$ 232

#### 22.4 SENSITIVITIES

The Santa Gertrudis Project economics were examined with a sensitivity analysis for several key variables. The results of the sensitivity analyses on the after-tax NPV with a 5% discount rate are shown in Tables 22.3, 22.4 and 22.5.

Gold Price Sensitivity NPV & IRR (Table 22-3)

			TABLE 22 RICE SE	2.3 nsitivit	Y		
US\$/oz	1,000	1,150	1,200	1,250	1,300	1,350	1,500
NPV5%	\$ 74.3	\$ 120.5	\$ 135.4	\$ 150.4	\$ 165.3	\$ 180.2	\$ 224.9
IRR (%)	34.0%	49.1%	53.5%	57.8%	61.9%	66.0%	77.7%
Payback (years)	2.6	1.8	1.8	1.7	1.7	1.6	1.6

### Capital and Operating Cost Sensitivity of NPV at a 5% Discount rate

TABLE 22.4 CAPITAL AND OPERATING COST SENSITIVITY (NPV5%)							
Change in	-20%	-10%	0%	10%	20%		
Capex alone	\$ 157.0	\$ 153.7	\$ 150.4	\$ 147.1	\$ 143.8		
Opex alone	\$ 188.6	\$ 169.5	\$ 150.4	\$ 131.2	\$ 110.6		

### Capital and Operating Cost Sensitivity of IRR

<b>TABLE 22.5</b>							
SENSITIVITY OF CAPITAL AND OPERATING COSTS (IRR)							
Change in	-20%	-10%	0%	10%	20%		
Capex	69.4%	63.1%	57.8%	53.2%	49.2%		
Opex	70.4%	64.1%	57.8%	51.3%	44.1%		

23.0	ADJACENT PROPERTIES
No cui	rrent exploration programs are known adjacent to the GoGold concessions.

### 24.0 OTHER RELEVANT DATA AND INFORMATION

To t	he bes	t of	the	authors'	knowledge	there	is no	other	relevant	data,	additional	information	or
expl	anatio	n ne	ecess	ary to ma	ake the Repo	ort und	lersta	ndable	and not	misle	ading.		

#### 25.0 INTERPRETATION AND CONCLUSIONS

The Santa Gertrudis Indicated mineral resource now stands at 809,700 gold ounces contained in 23.3 million tonnes of material at a grade of 1.08 grams of gold per tonne. The mineral resource has an additional Inferred mineral resource of 254,500 gold ounces within 7.7 million tonnes of material at a grade of 1.02 grams of gold per tonne

P&E has evaluated drilling procedures, sample preparation, analyses and security and is of the opinion that the core logging procedures employed, and the sampling methods used were thorough and have provided sufficient geotechnical and geological information. The authors consider the data to be of good quality and satisfactory for use in a mineral resource estimate. P&E compared independent sample verification results versus the original assay results for gold and the P&E results demonstrate that the results obtained and reported by GoGold were reproducible.

The PEA has concluded that the Santa Gertrudis mineral resources could be treated by a conventional heap leach processing facility. Potential heap leach feed would come from 27 separate deposits and one existing heap leach pad. Similar heap leaching operations are currently in operation throughout Mexico.

The PEA has estimated that the project life would be approximately 12 years. Mining would involve the handling of 193 Mt of total material, of which 29.5 Mt (at an average grade of 0.97 g/t Au) would be potential heap leach feed.

The Santa Gertrudis project would recover approximately 671,000 oz of gold over the project life (56,000 oz per year average). The development capital cost would be in the order of \$US 32.1 million, plus an added life-of-mine sustaining cost of approximately \$US 15.6 million.

The economic model has concluded that the Project cash flows are potentially positive at a gold price of \$US 1,250/oz. The financial analyses are based on the scenario of 100%-equity financing for the project. The base case model generates an after-tax NPV at a 5% discount rate of approximately \$US 150 million and an IRR of 58%. The forecast capital payback time is within 1.7 years.

The mineral resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM"), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.

#### 26.0 RECOMMENDATIONS

P&E recommends that the Company advance the project with extended and advanced technical studies particularly in metallurgical, geotechnical and environmental matters with the intention to advance the project towards a production decision.

Specifically, it is recommended that GoGold take the following actions to develop the project to a Pre-Feasibility Study level:

#### Mineral Resources

- At the Pre-feasibility study stage, only Measured and Indicated resources can be used in the economic analysis. Therefore, it is recommended that deposits with a high proportion of Inferred resources undergo further exploration to improve the classification of the contained mineral resources so as to allow them to be included in a potential production plan;
- The historic blasthole information can be used to refine grade estimation during the next stage of study.

#### Mining

- For some of the larger pits, the use of internal pit phases may improve feed/waste scheduling and allow quicker access to higher grade feed;
- For the pits that will mined in the early part of the schedule, geotechnical and hydrogeological studies should be undertaken to develop the slope design criteria for the next stage of engineering;
- To complete optimization of the haul routes, topographic digital maps should be field vetted to confirm the constructability of new haul roads and verify the refurbishment needed for existing haul roads;
- For each of the pits, local waste dumps sites will need to be selected and should be identified in the field to define the preferred sites. Detailed engineering designs of each waste dump should be carried out;
- The mining contractor should be provided with more specific information on the mine schedule and layouts to allow the firm to improve the accuracy of the mining cost estimate for the next stage of engineering.

#### **Processing**

- Further metallurgical test work is required on many of the deposits to optimize crush sizes, reagent consumption, preg-robbing issues (volumetrically insignificant amount of heap leach feed), and determine recoveries for oxide, sulphide, and carbonaceous mineralization;
- The origin of samples used in past test work should be established to the extent possible to establish that they adequately represent the deposits;
- A simple test or tests should be adopted or developed to measure the activity of carbon in samples. The possibility of using a blinding agent to deactivate the carbon should be investigated;

- A trade-off study should be considered to establish the optimum crushing plant configuration. This would involve past or new test work to quantify the effect of crush size on heap leach recovery. Some data has been developed in the past on certain deposits;
- The heap leach pad area requires a detailed geotechnical foundation investigation to confirm the suitability of the proposed site and the design of the liner required and where solution ponds should be located;
- A water balance should be completed to evaluate process water requirements and define the sources of process water supply;
- Investigate options for 'satellite' heap leach pads near Christina and elsewhere in addition to the Central Heap Leach Pad, to reduce material haulage distances;
- Determine if there is potential for revenue from silver reporting to the doré as a by-product credit.

#### Infrastructure

- The existing water supply well field should be tested to determine the reliability of the volume of required process water capacity;
- The various buildings at site should undergo detailed structural examination to confirm suitability for use in on-going operations.

#### Environmental

- Complete the environmental baseline studies;
- Prepare and submit the various reports required for permits, particularly the Environmental, Impact Assessment, and the documentation required for the Permit for Change in Land Use on Forest Land.

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#### 28.0 CERTIFICATES

#### CERTIFICATE OF QUALIFIED PERSON

#### EUGENE J. PURITCH, P. ENG.

I, Eugene J. Puritch, P. Eng., residing at 44 Turtlecreek Blvd., Brampton, Ontario, L6W 3X7, do hereby certify that:

- 1. I am an independent mining consultant and President of P&E Mining Consultants Inc.
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I am a graduate of The Haileybury School of Mines, with a Technologist Diploma in Mining, as well as obtaining an additional year of undergraduate education in Mine Engineering at Queen's University. In addition I have also met the Professional Engineers of Ontario Academic Requirement Committee's Examination requirement for Bachelor's Degree in Engineering Equivalency. I am a mining consultant currently licensed by the Professional Engineers of Ontario (License No. 100014010) and registered with the Ontario Association of Certified Engineering Technicians and Technologists as a Senior Engineering Technologist. I am also a member of the National and Toronto Canadian Institute of Mining and Metallurgy.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

I have practiced my profession continuously since 1978. My summarized career experience is as follows:

- Mining Technologist H.B.M.& S. and Inco Ltd.,
   Open Pit Mine Engineer Cassiar Asbestos/Brinco Ltd.,
   Pit Engineer/Drill & Blast Supervisor Detour Lake Mine,
   Self-Employed Mining Consultant Timmins Area,
   Mine Designer/Resource Estimator Dynatec/CMD/Bharti,
   Self-Employed Mining Consultant/Resource-Reserve Estimator,
   1989-1995
   Self-Employed Mining Consultant/Resource-Reserve Estimator,
   2004-Present
- 4. I have not visited the Property that is the subject of this report.
- 5. I am responsible for co-authoring Section 14, 25, 26 of the Technical Report along with those sections of the Summary pertaining thereto.
- 6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
- 7. I have had no prior involvement with the project that is the subject of this Technical Report.
- 8. I have read NI 43-101 and Form 43-101F1. This Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

Effective Date: August 22, 2014 Signing Date: September 30, 2014

### *{SIGNED AND SEALED}*

[Eugene Puritch]

Eugene J. Puritch, P. Eng.

#### RICHARD SUTCLIFFE, Ph.D., P. GEO.

I, Richard Sutcliffe, Ph.D., P. Geo., residing at 100 Broadleaf Crescent, Ancaster, Ontario, do hereby certify that:

- 1. I am an independent geological consultant and Vice President Geology, P&E Mining Consultants Inc.
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I am a graduate of the University of Toronto with a Bachelor of Science degree in Geology (1977). In addition, I have a Master of Science in Geology (1980) from University of Toronto and a Ph.D. in Geology (1986) from the University of Western Ontario. I have worked as a geologist for a total of 32 years since obtaining my M.Sc. degree. I am a geological consultant currently licensed by the Association of Professional Geoscientists of Ontario (License No 852).

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. My relevant experience for the purpose of the Technical Report is:

•	Precambrian Geologist, Ontario Geological Survey	1980-1989
•	Senior Research Geologist, Ontario Geological Survey	1989-1991
•	Associate Professor of Geology, University of Western Ontario	1990-1992
•	President and CEO, URSA Major Minerals Inc	1992-2012
•	President and CEO, Patricia Mining Corp.	1998-2008
•	President and CEO, Auriga Gold Corp.	2010-2012
•	Consulting Geologist	1992-Present

- 4. I have not visited the Property that is the subject of this report.
- 5. I am responsible for authoring Sections 2-10, and 23 and co-authoring of Sections 24-26 of the Technical Report along with those sections of the Summary pertaining thereto.
- 6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
- 7. I have had no prior involvement with the project that is the subject of this Technical Report.
- 8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

Signing Date: September 30, 2014

{SIGNED AND SEALED}

[Richard Sutcliffe]

Effective Date: August 22, 2014

Dr. Richard H. Sutcliffe, P.Geo.

#### FRED H. BROWN, P.GEO.

I, Fred H. Brown, of 114 East Magnolia St, Suite 400-127, Bellingham WA 98255 USA, do hereby certify that:

- 1. I am an independent geological consultant and have worked as a geologist continuously since my graduation from university in 1987.
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I graduated with a Bachelor of Science degree in Geology from New Mexico State University in 1987. I obtained a Graduate Diploma in Engineering (Mining) in 1997 from the University of the Witwatersrand and a Master of Science in Engineering (Civil) from the University of the Witwatersrand in 2005. I am registered with the South African Council for Natural Scientific Professions as a Professional Geological Scientist (registration number 400008/04), the Association of Professional Engineers and Geoscientists of British Columbia as a Professional Geoscientist (171602) and the Society for Mining, Metallurgy and Exploration as a Registered Member (#4152172).

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101

My relevant experience for the purpose of the Technical Report is:

•	Resident Geologist, Venetia Mine, De Beers	1997-2000
•	Chief Geologist, De Beers Consolidated Mines	2000-2004
•	Consulting Geologist	2004-2008
•	P&E Mining Consultants Inc. – Sr. Associate Geologist	2008-Present

- 4. I have visited the Property that is the subject of this Technical Report on December 9 to 13, 2013, and again from February 11 to 21, 2014.
- 5. I am responsible for co-authoring Sections 12, 14, 24-26 of this Technical Report along along with those sections of the Summary pertaining thereto.
- 6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
- 7. I have not had any prior involvement with the Project that is the subject of this Technical Report
- 8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

Effective Date: August 22, 2014 Signing Date: September 30, 2014

{SIGNED AND SEALED [Fred H. Brown]	
Fred H. Brown, P.Geo.	

#### TRACY J. ARMSTRONG, P.GEO.

I, Tracy J. Armstrong, P.Geo., residing at 1739 Route 132 Est. St-Georges-de-Malbaie, QC G0C 2X0, do hereby certify that:

- 1. I am an independent geological consultant contracted by P&E Mining Consultants Inc.
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I am a graduate of Queen's University at Kingston, Ontario with a B.Sc (HONS) in Geological Sciences (1982). I have worked as a geologist for a total of 28 years since obtaining my B.Sc. degree. I am a geological consultant currently licensed by the Order of Geologists of Québec (License No. 566) and the Association of Professional Geoscientists of Ontario (License No. 1204);

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101:

- My relevant experience for the purpose of the Technical Report is:
- Underground production geologist, Agnico-Eagle Laronde Mine ......1988-1993 Exploration Manager, McWatters Mining ......1998-2003
- 4. I have not visited the property that is the subject of this Technical Report.
- 5. I am responsible for authoring Section 11 and co-authoring Sections 12, 25 and 26 along with those sections of the Summary pertaining thereto.
- 6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
- 7. I have not had prior involvement with the property that is the subject of the Technical Report.
- 8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

Effective Date: August 22, 2014
Signing Date: September 30, 2014

*{SIGNED AND SEALED}* [Tracy Armstrong]

Tracy J. Armstrong, P.Geo.

#### ALFRED S. HAYDEN, P. ENG

I, Alfred S. Hayden, P. Eng., residing at 284 Rushbrook Drive, Ontario, L3X 2C9, do hereby certify that:

- I am currently President of: EHA Engineering Ltd., Consulting Metallurgical Engineers Box 2711, Postal Stn. B. Richmond Hill, Ontario, L4E 1A7
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I graduated from the University of British Columbia, Vancouver, B.C. in 1967 with a Bachelor of Applied Science in Metallurgical Engineering. I am a member of the Canadian Institute of Mining, Metallurgy and Petroleum and a Professional Engineer and Designated Consulting Engineer registered with Professional Engineers Ontario. I have worked as a metallurgical engineer for over 40 years since my graduation from university.
  - I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 4. I have not visited the Property that is the subject of this report.
- 5. I am responsible for authoring of Section 13, 17 and 20 and co-authoring of Sections 18, 21, 25 and 26 of the Technical Report along with those sections of the Summary pertaining thereto.
- 6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
- 7. I have had no prior involvement with the Property that is the subject of this Technical Report.
- 8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

Effective Date: August 22, 2014 Signing Date: September 30, 2014

\_\_\_\_\_

Alfred S. Hayden, P.Eng.

*{SIGNED AND SEALED}* 

[Alfred Hayden]

#### KENNETH KUCHLING, P.ENG.

- I, Kenneth Kuchling, P. Eng., residing at 33 University Ave., Toronto, Ontario, M5J 2S7, do hereby certify that:
- 1. I am a senior mining consultant with KJ Kuchling Consulting Ltd. located at #2303-33 University Ave, Toronto, Ontario Canada.
- 2. This certificate applies to the technical report titled "Technical Report, Updated Resource Estimate and Preliminary Economic Assessment on the Santa Gertrudis Gold Property, Sonora State, Mexico" (the "Technical Report"), with an effective date of August 22, 2014.
- 3. I graduated with a Bachelor degree in Mining Engineering in 1980 from McGill University and a M. Eng degree in Mining Engineering from UBC in 1984. I have worked as a mining engineer for over 32 years since my graduation from university. My relevant work experience for the purpose of the Technical Report is 12 years as an independent mining consultant in commodities such as gold, copper, potash, diamonds, molybdenum, tungsten, and bauxite. I have practiced my profession continuously since 1980. I am a member of the Professional Engineers of Ontario.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

My relevant experience for the purpose of the Technical Report is:

- Chief Mine Engineer, Mosaic, Esterhazy K1 Operation. 1985 – 1989 Mining Engineering, Syncrude Canada Ltd. 1980 – 1983
- 4. I have visited the Property that is the subject of this Technical Report on Dec 11 to Dec 12, 2013.
- 5. I am responsible for authoring Sections 15, 16, 19 and 22 and co-authoring Sections 18, 21, 24-26 of the Technical Report along with those sections of the Summary pertaining thereto.
- 6. I am independent of the Issuer and the property that is the subject of this Technical Report, applying all of the tests in section 1.5 of National Instrument 43-101.
- 7. I have had no prior involvement with the project that is the subject of this Technical Report.
- 8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 9. As of the date of this 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.

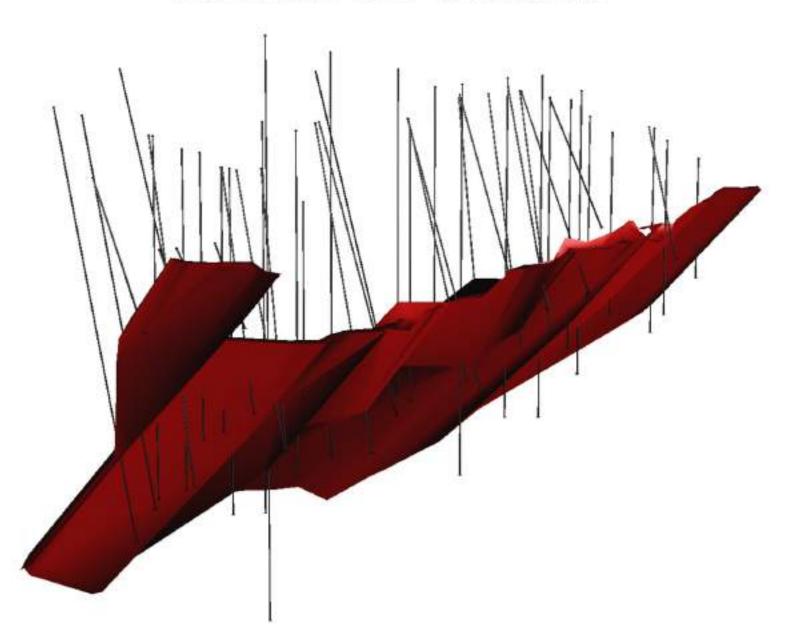
Effective Date: August 22, 2014 Signing Date: September 30, 2014

[Kenneth Kuchling]

Kenneth Kuchling, P.Eng.

### **APPENDIX I. 3D DOMAINS**

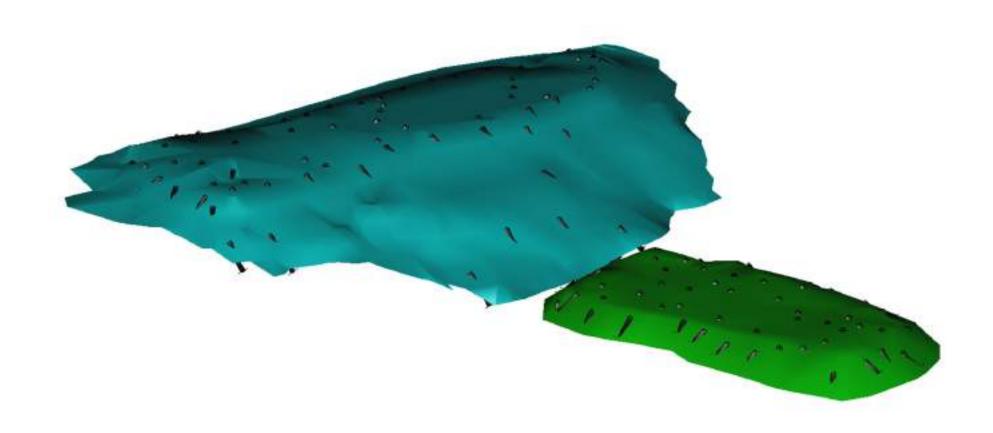
# **AMELIA DEPOSIT - 3D DOMAIN**



# **AMELIA LEACH PAD #1**

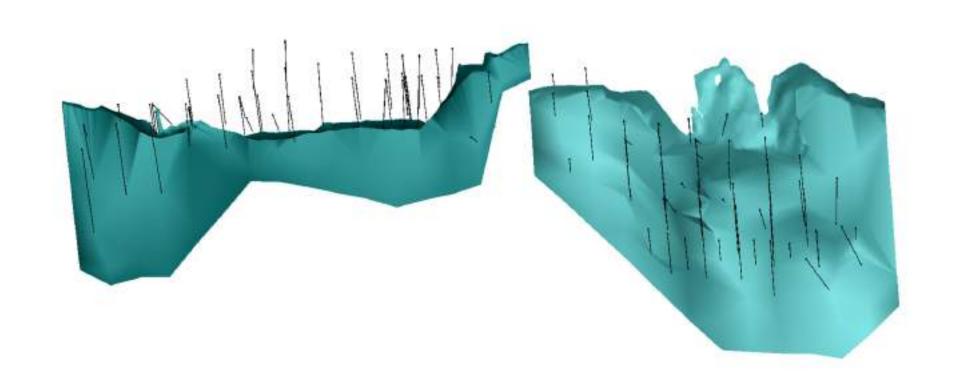


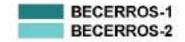
### AMELIA LEACH PAD #2 AND #3





### **BECERROS DEPOSIT - 3D DOMAINS**

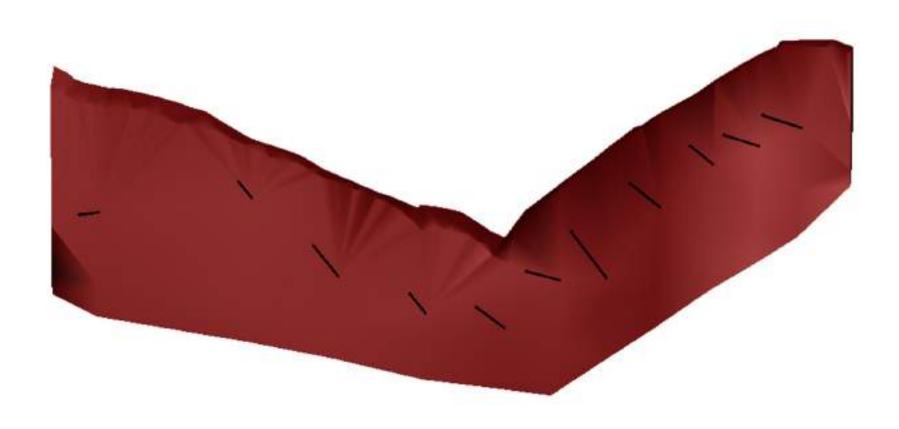




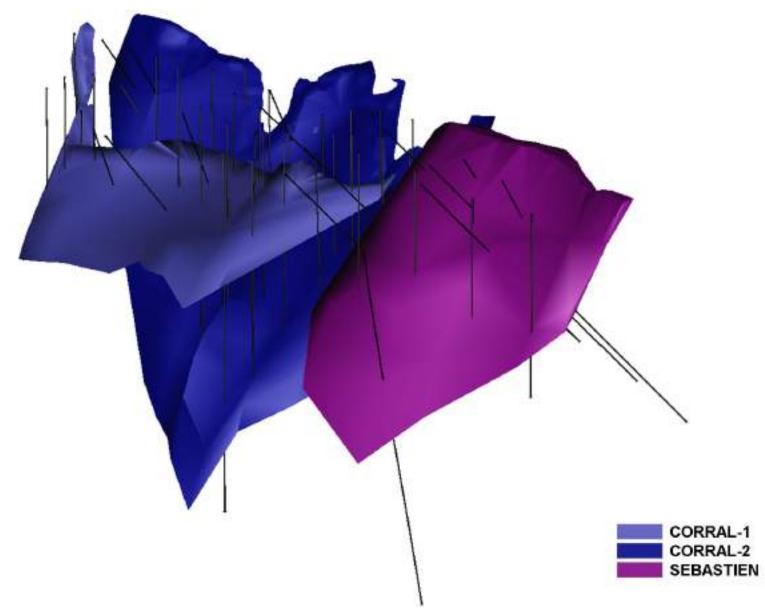
### **CARMEN DEPOSIT - 3D DOMAIN**



# **CAROLINA DEPOSIT - 3D DOMAIN**

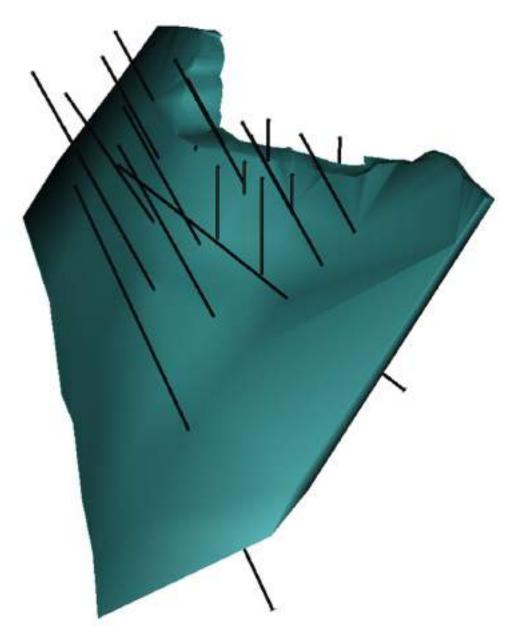


### **CORRAL AND SEBASTIEN DEPOSITS - 3D DOMAINS**

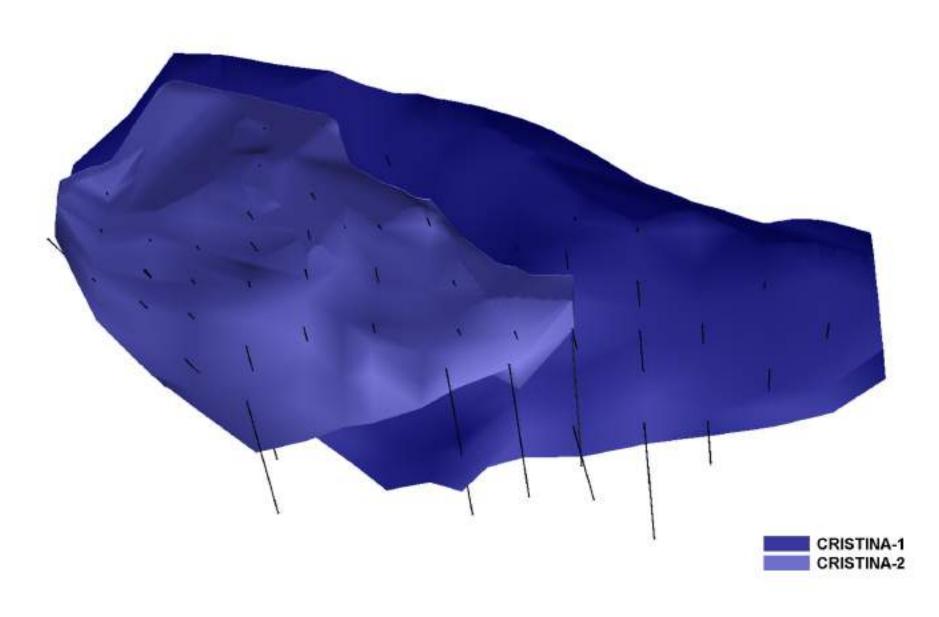


P&E Mining Consultants Inc., Report No. 291 GoGold Resources Inc. Santa Gertrudis Gold Property Page 160 of 283

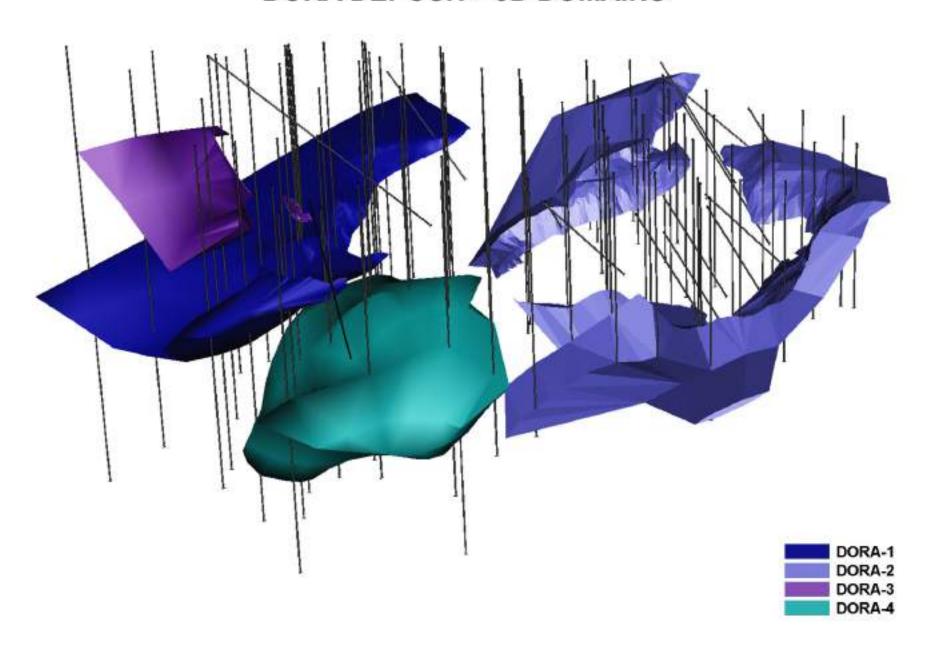
### **CORRAL NORTHWEST DEPOSIT - 3D DOMAIN**



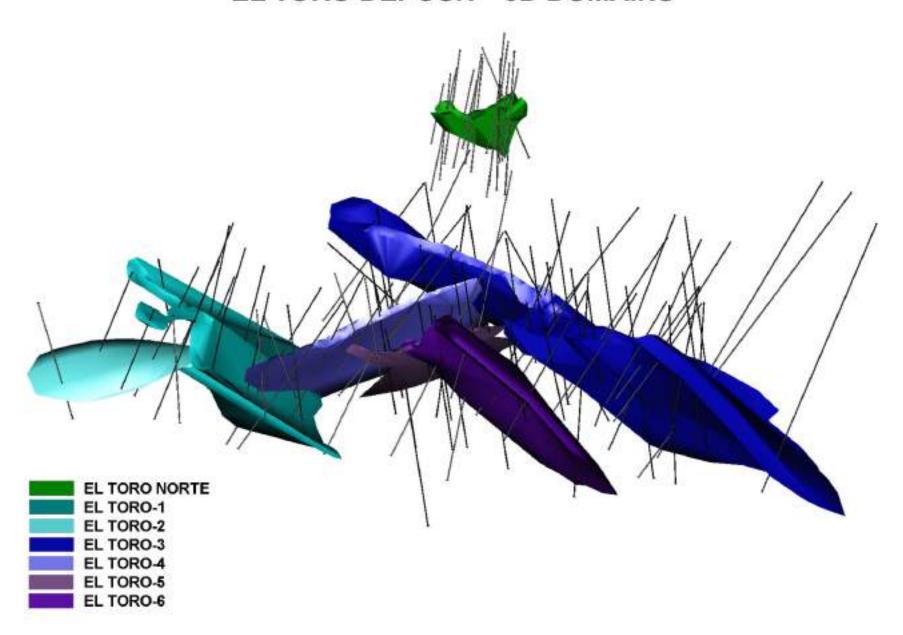
### **CRISTINA DEPOSIT - 3D DOMAINS**



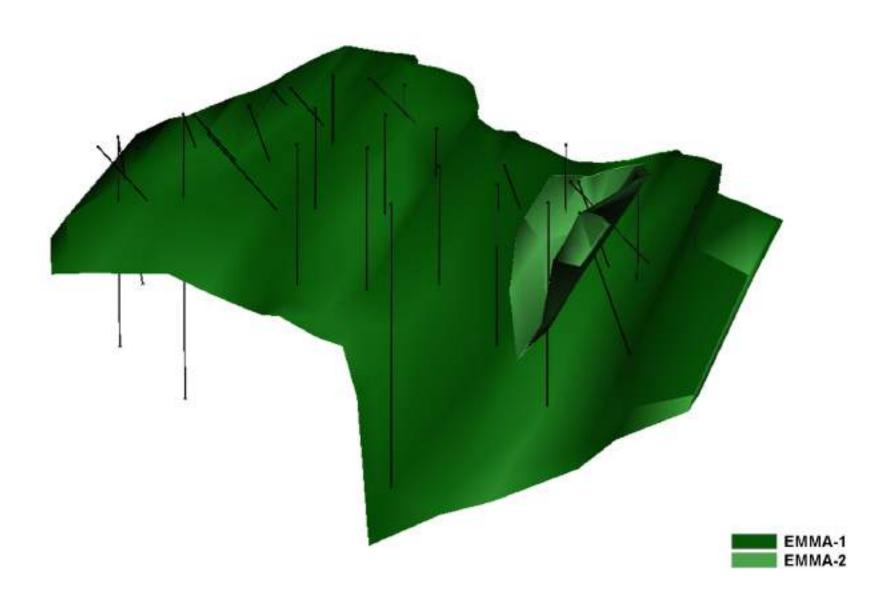
### **DORA DEPOSIT - 3D DOMAINS**



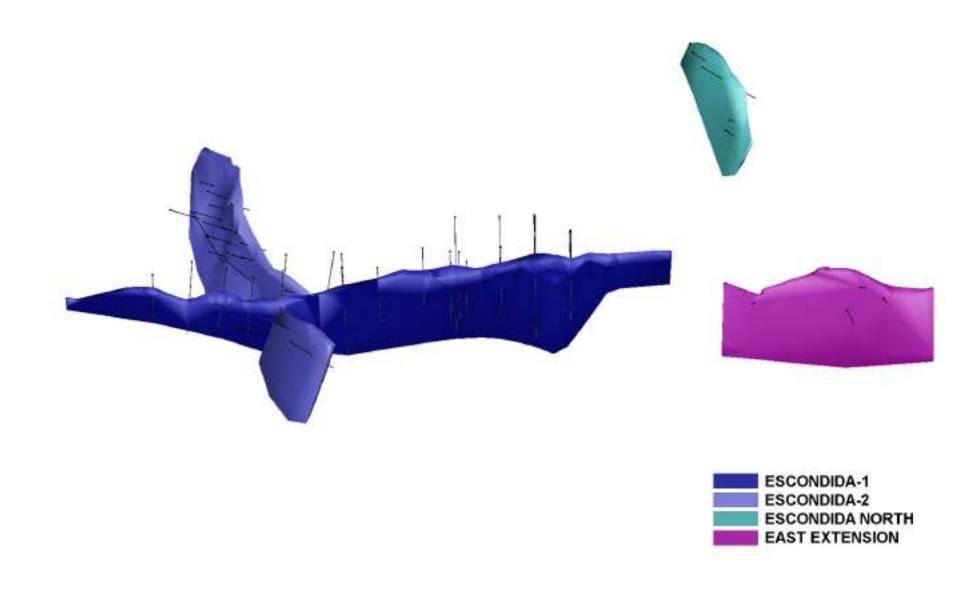
### **EL TORO DEPOSIT - 3D DOMAINS**



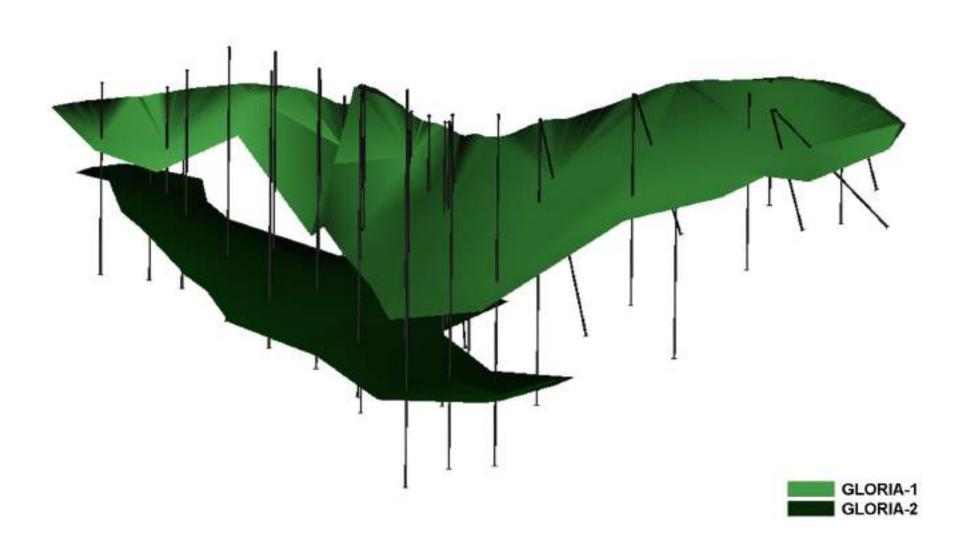
### **EMMA DEPOSIT - 3D DOMAINS**



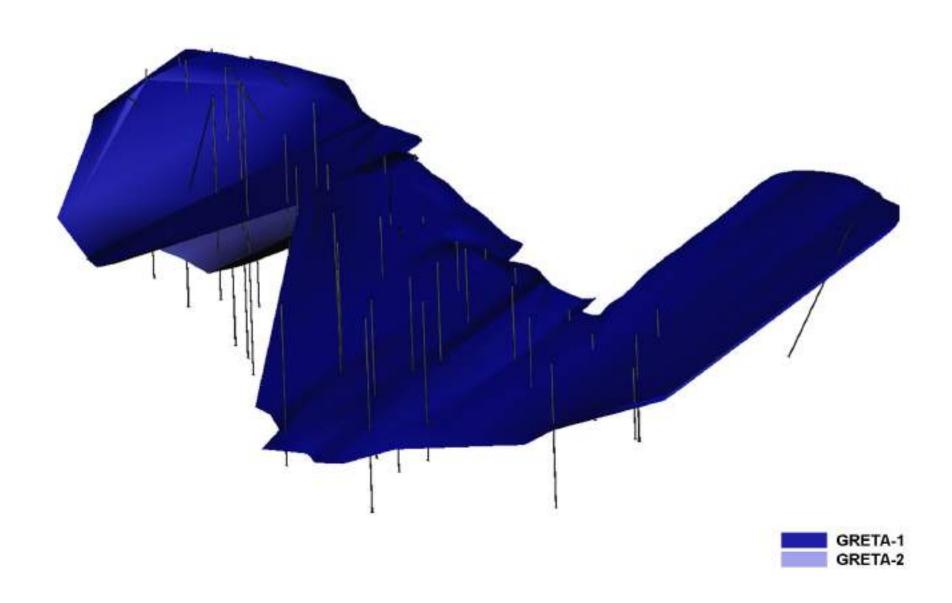
### **ESCONDIDA DEPOSIT - 3D DOMAINS**



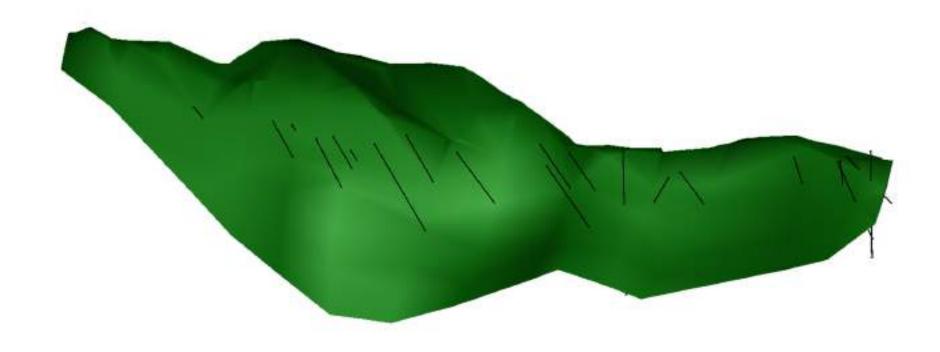
### **GLORIA DEPOSIT - 3D DOMAINS**



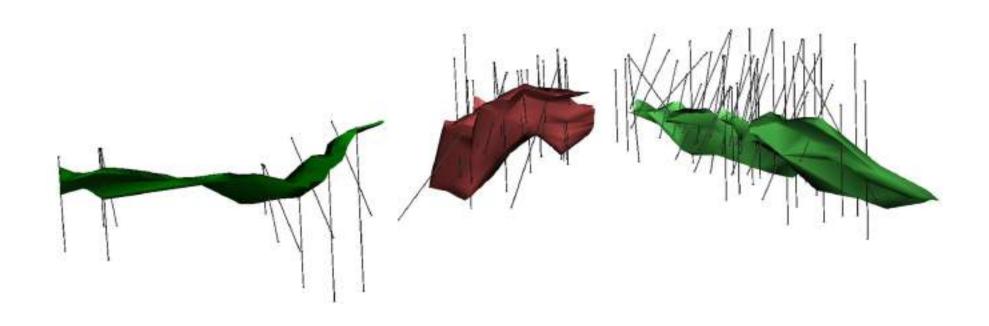
### **GRETA DEPOSIT - 3D DOMAINS**



# **LOLA DEPOSIT - 3D DOMAIN**

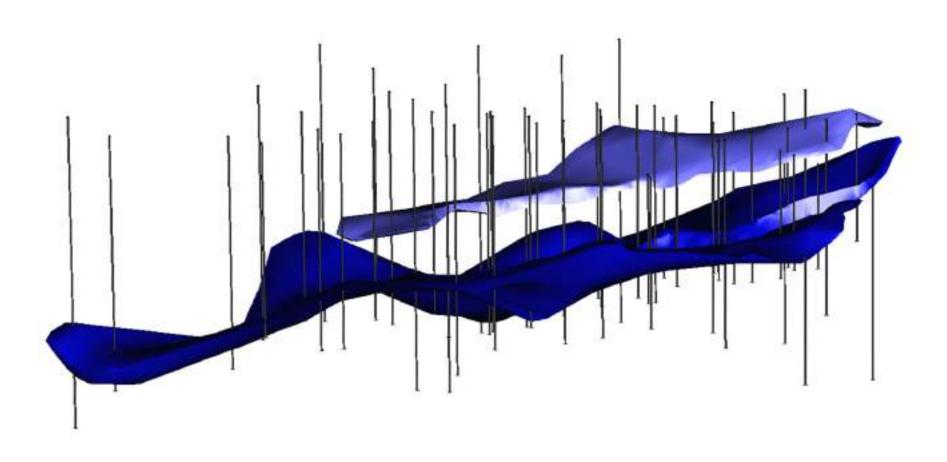


### **MANUELES AND KATMAN DEPOSITS - 3D DOMAINS**

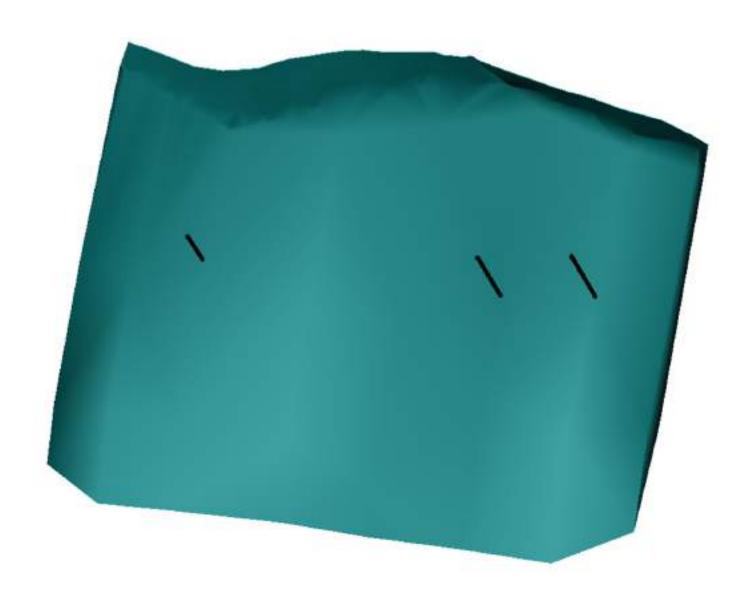




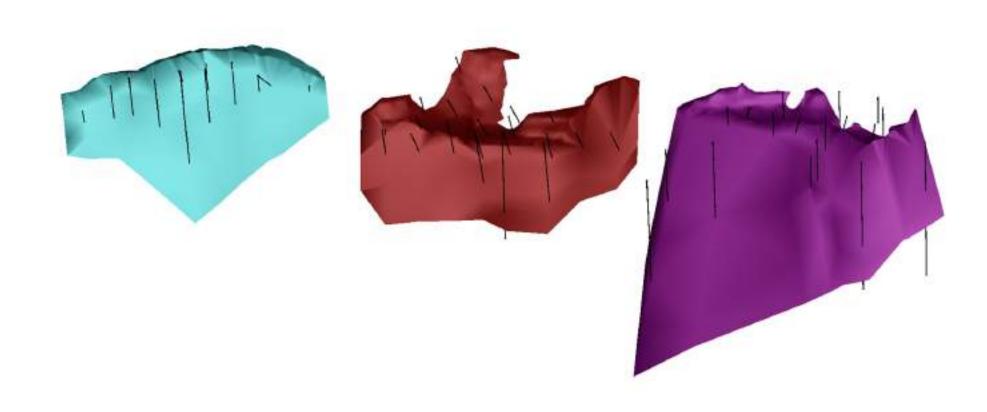
### **MARIBEL DEPOSIT - 3D DOMAINS**



### **MELISSA DEPOSIT - 3D DOMAIN**

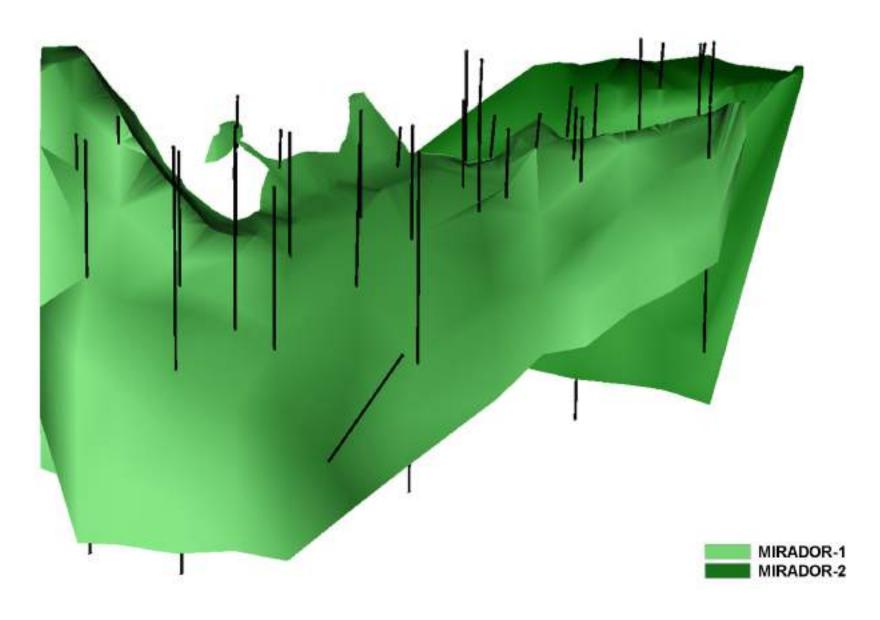


# **MELISSA, SOFIA AND HILARIO DEPOSITS - 3D DOMAINS**

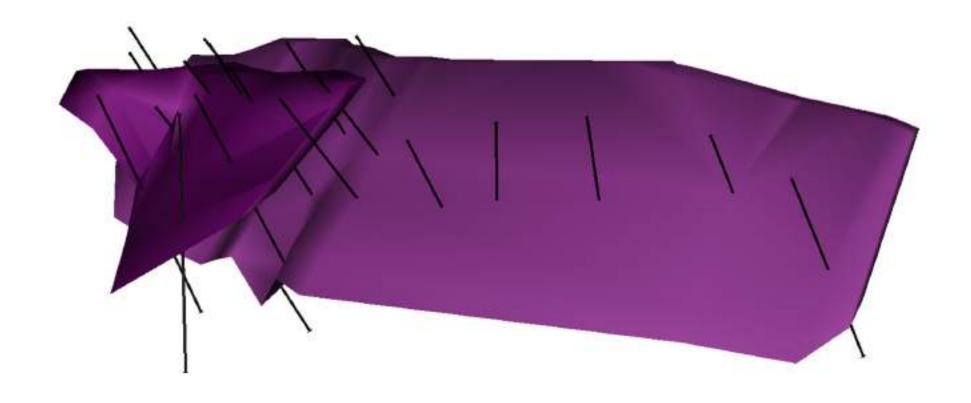




## **MIRADOR DEPOSIT - 3D DOMAINS**

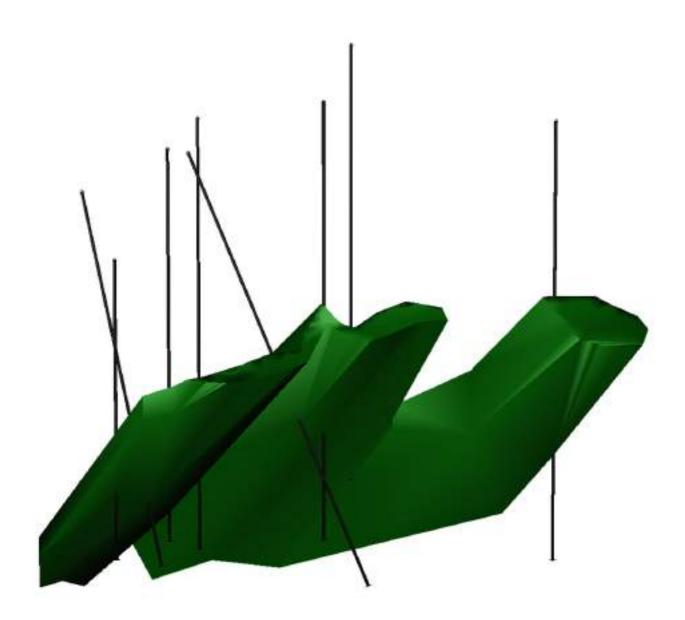


# **PEQUE DEPOSIT - 3D DOMAINS**

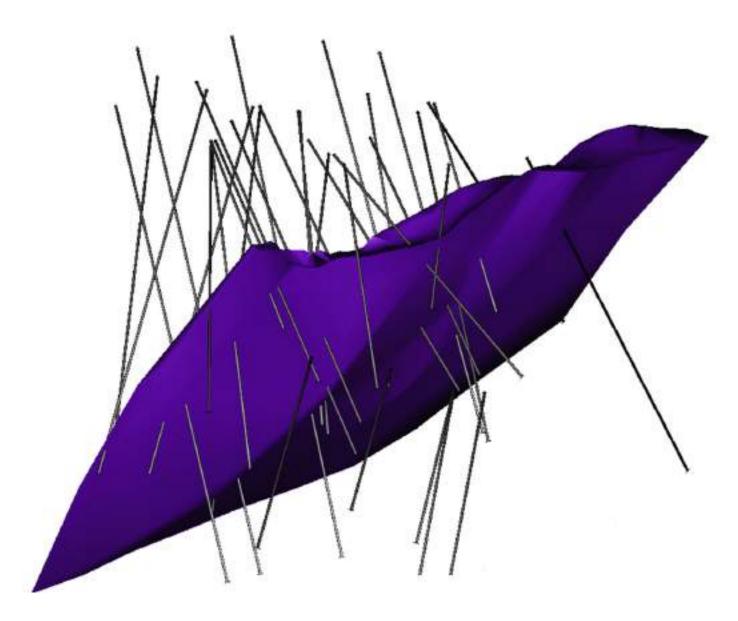




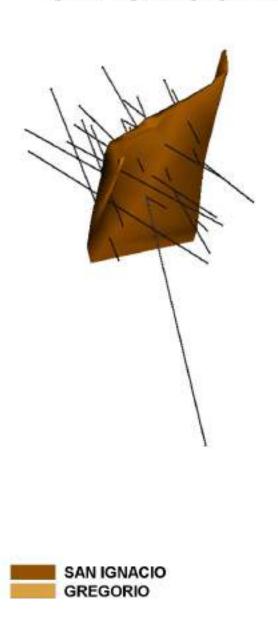
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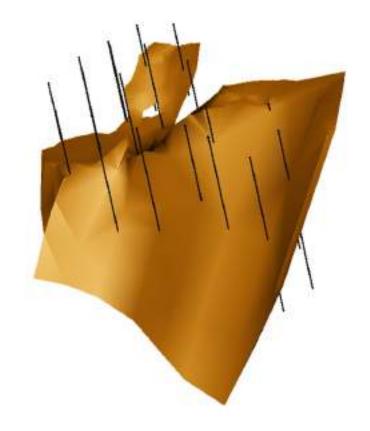


## **RUBEN DEPOSIT - 3D DOMAIN**

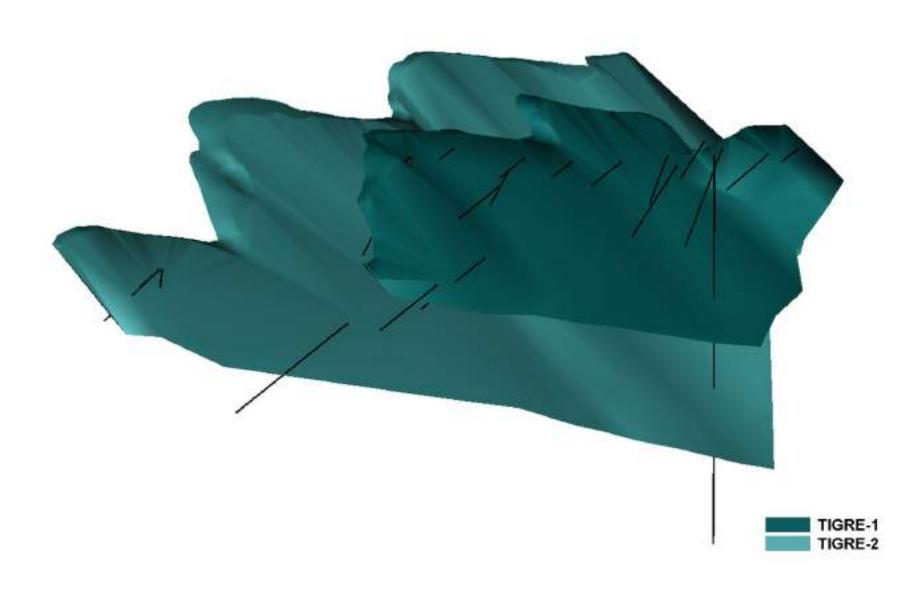


#### SAN IGNACIO AND GREGORIO DEPOSITS - 3D DOMAINS

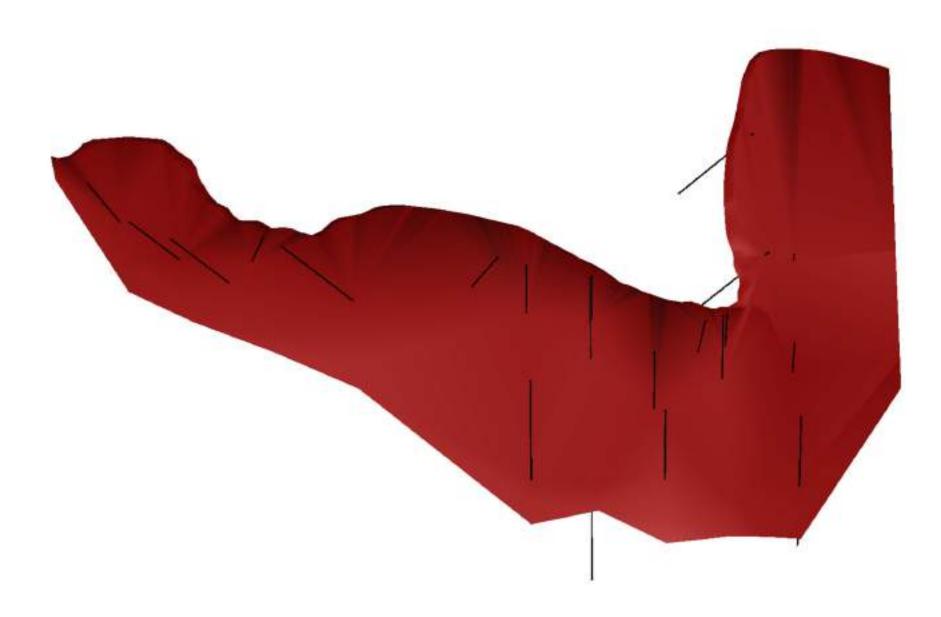




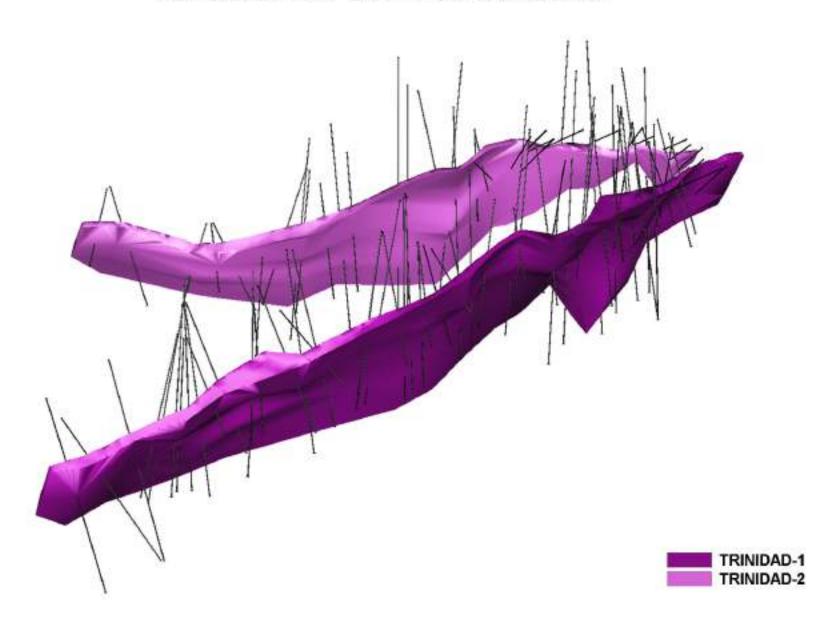
## **TIGRE DEPOSIT - 3D DOMAINS**



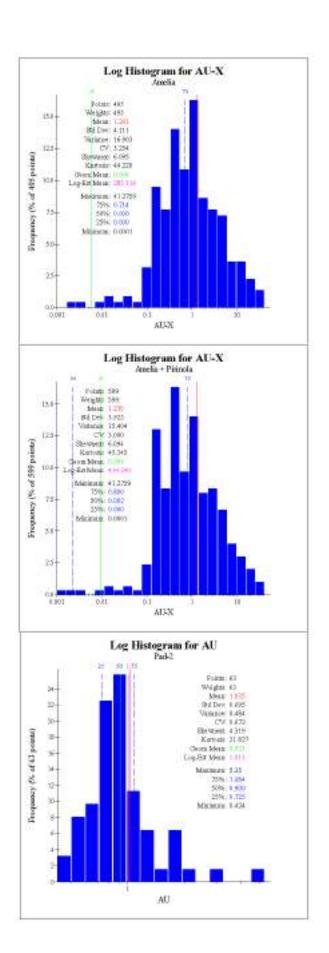
# **TRACY DEPOSIT - 3D DOMAIN**

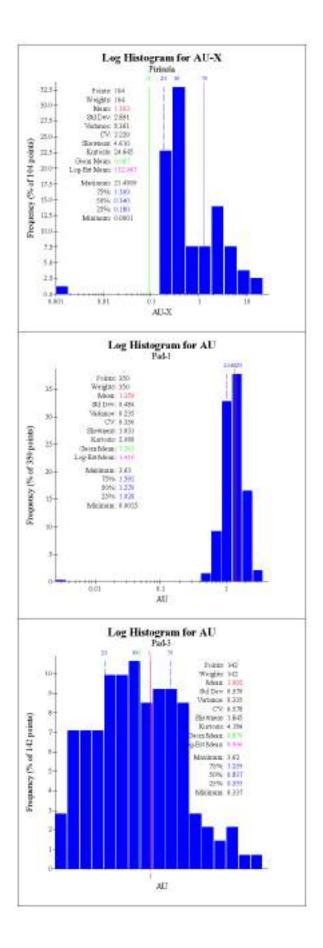


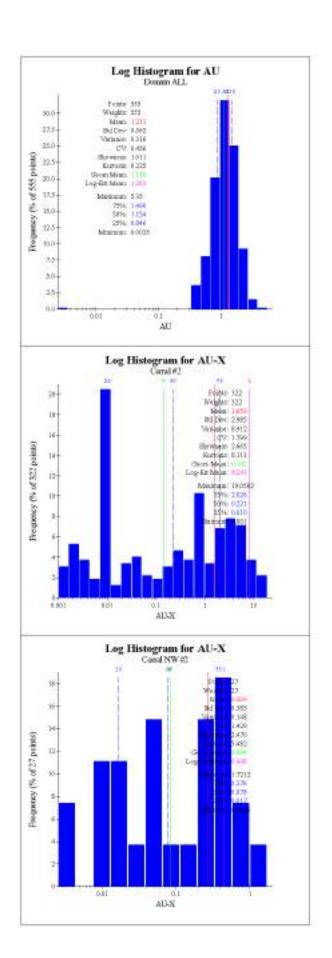
## **TRINIDAD DEPOSIT - 3D DOMAINS**

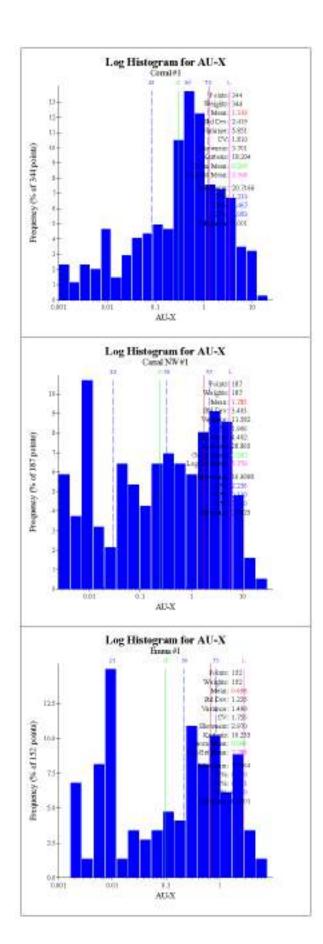


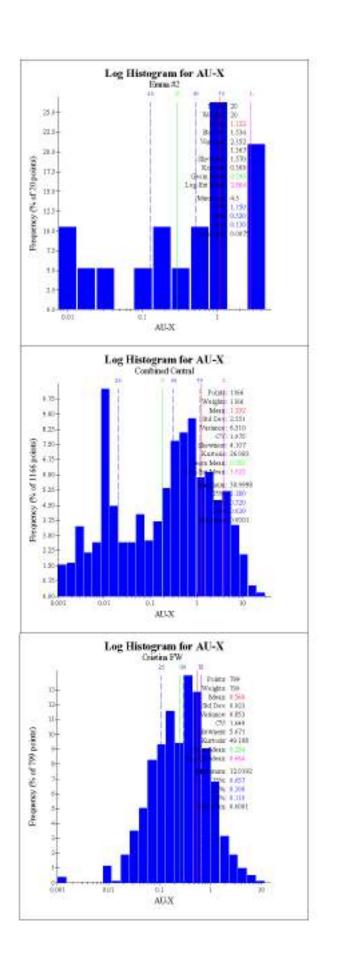
#### APPENDIX II.LOG NORMAL HISTOGRAMS

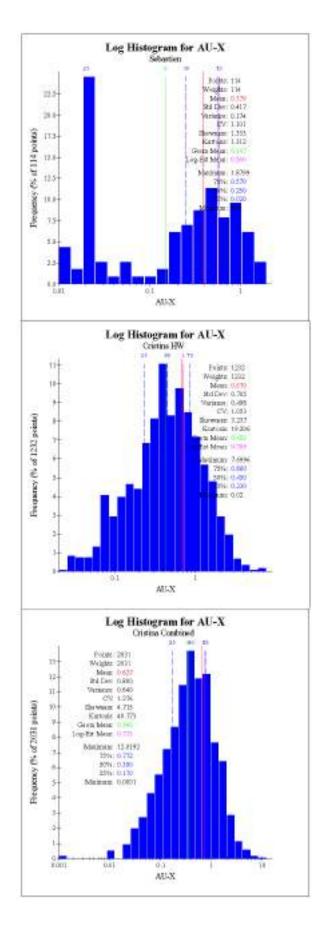


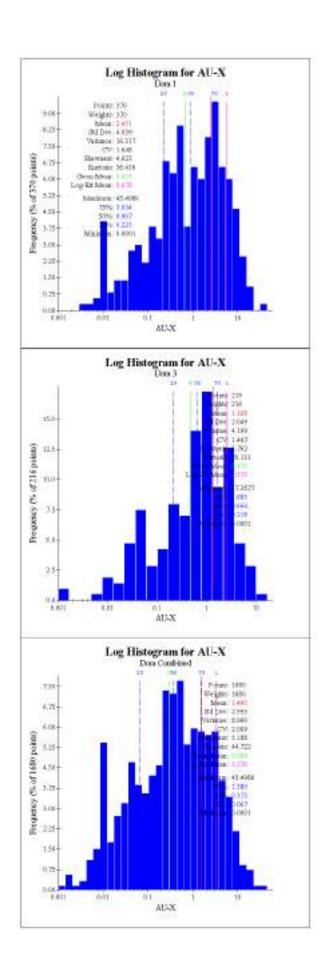


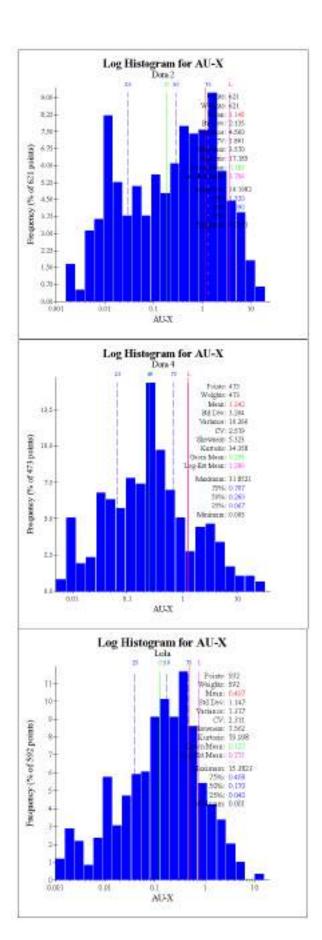


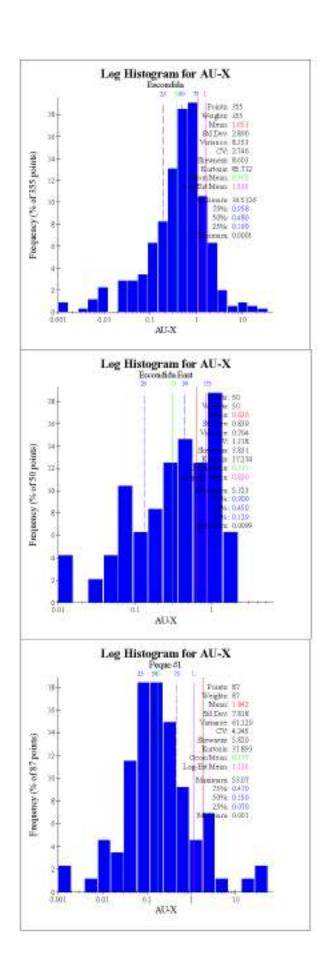


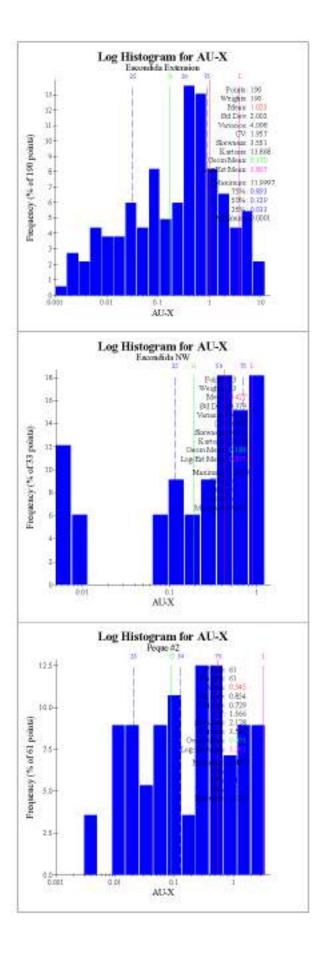


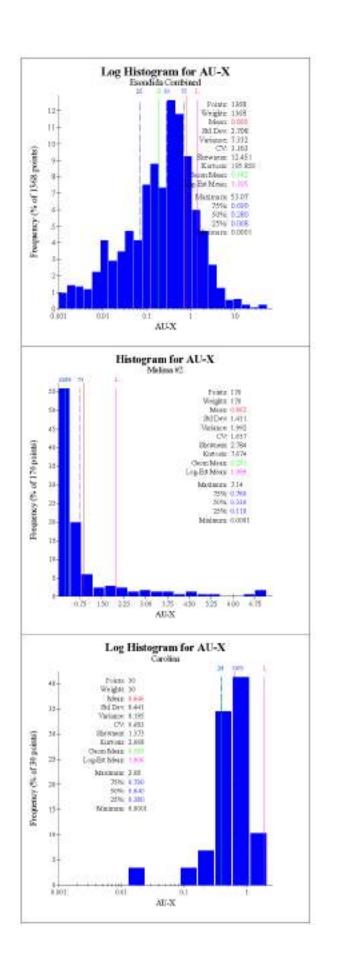


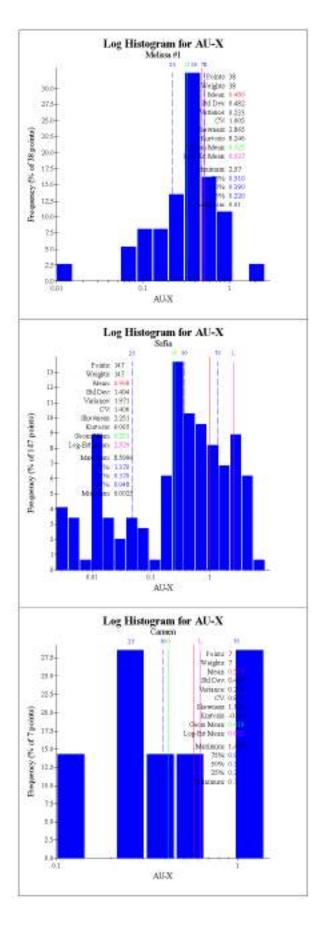


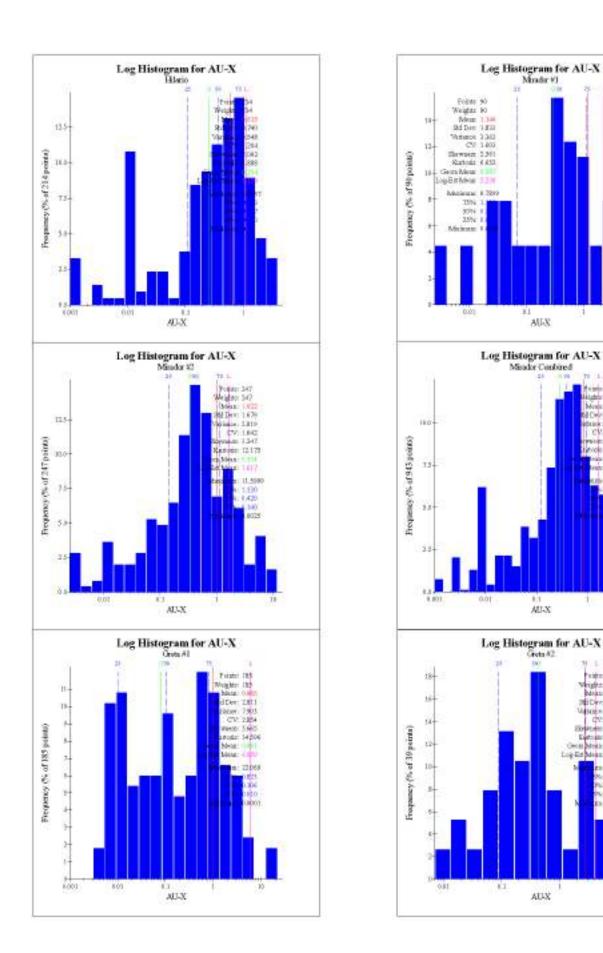


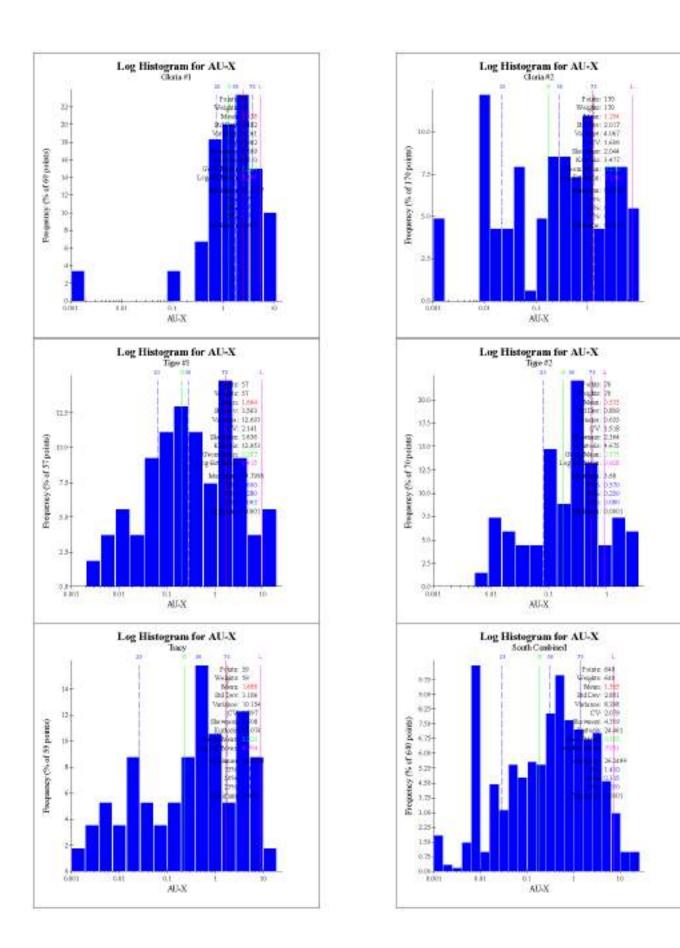


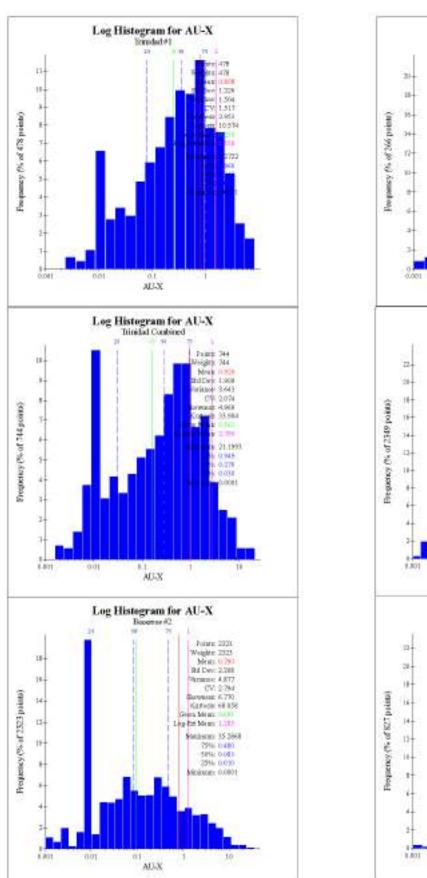


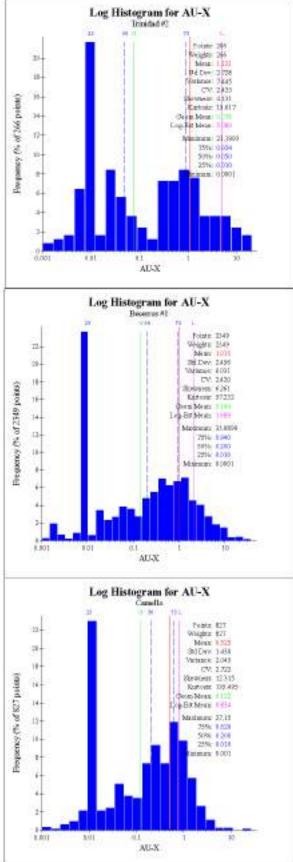


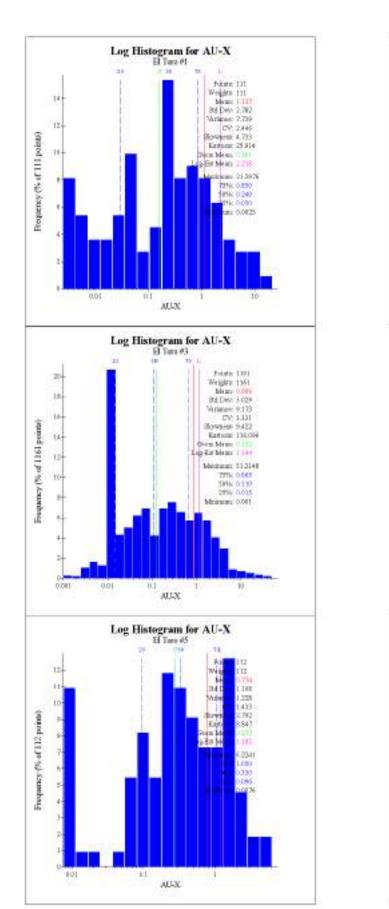


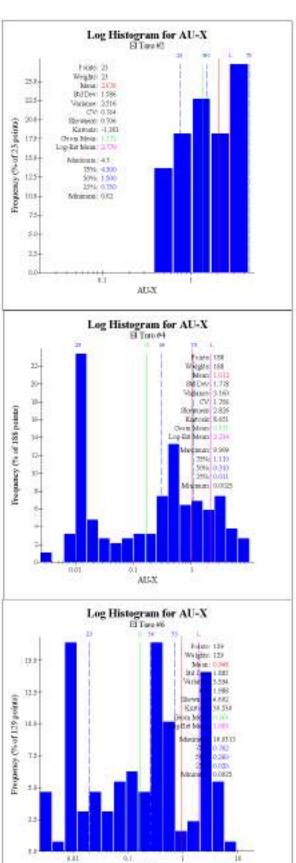




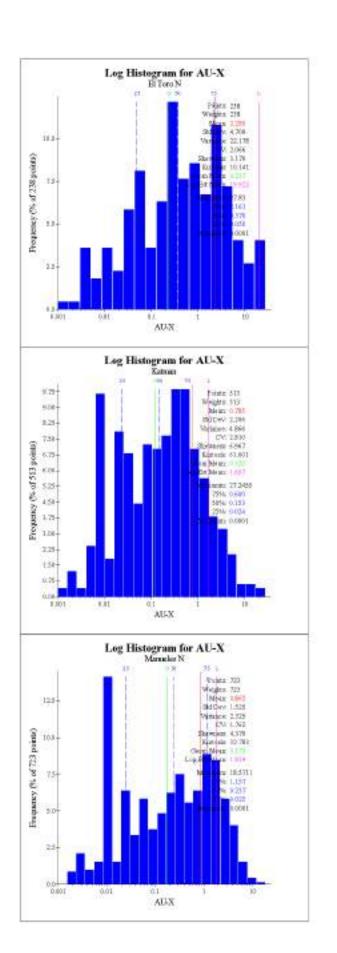


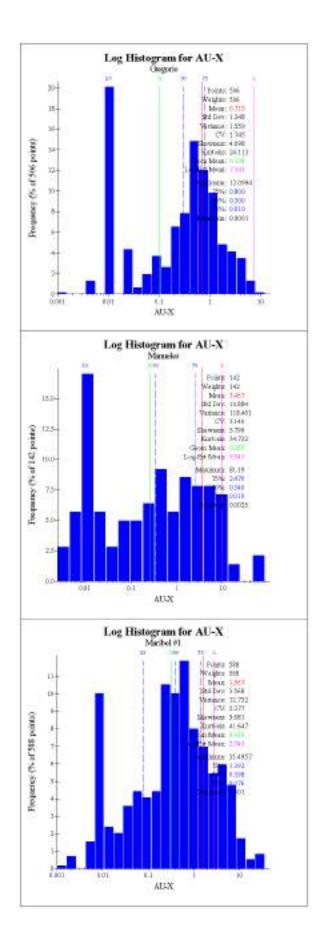


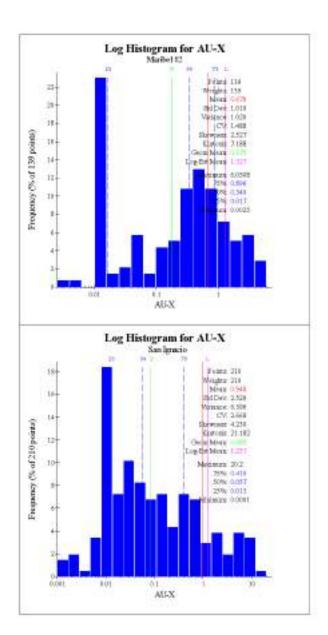


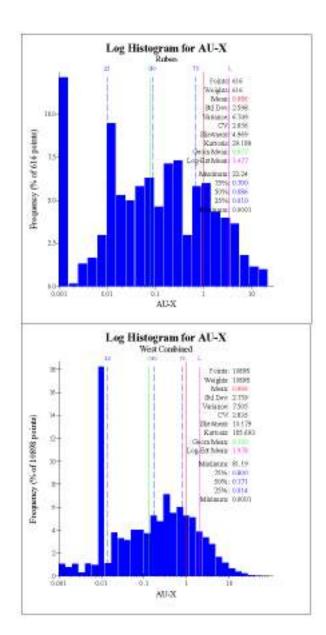


AUX

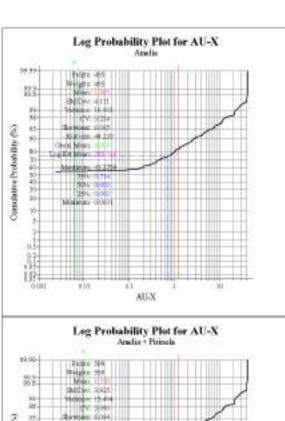


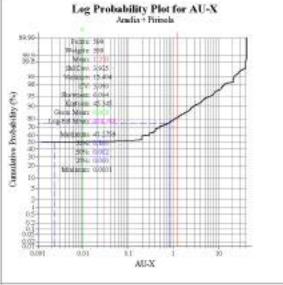


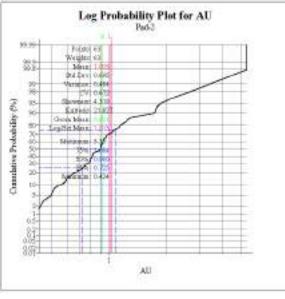


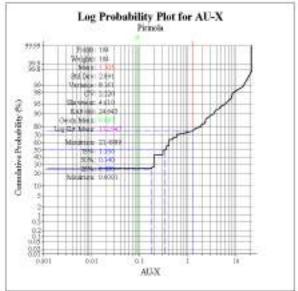


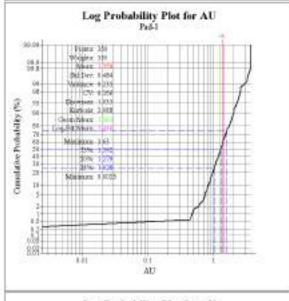
#### APPENDIX III. LOG NORMAL PROBABILITY PLOTS

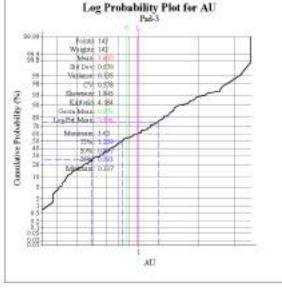


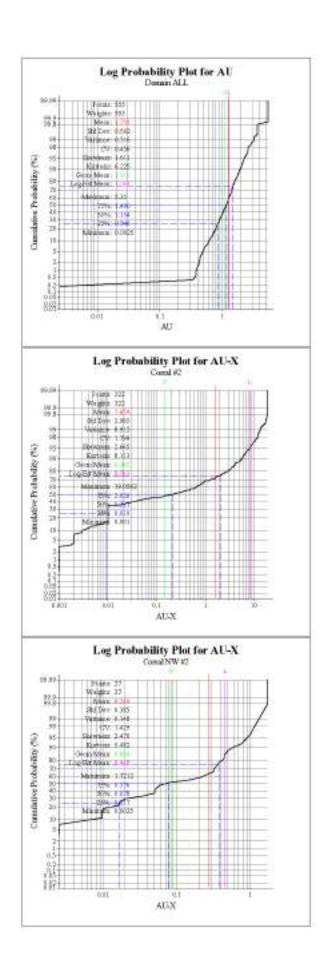


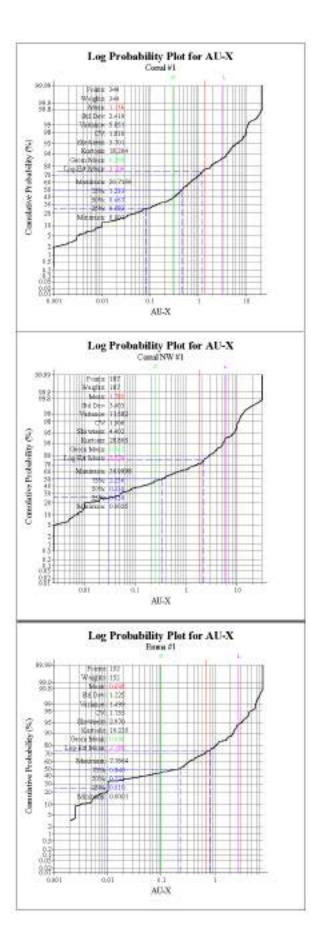


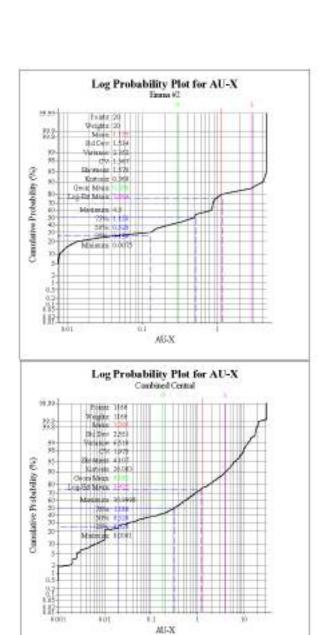


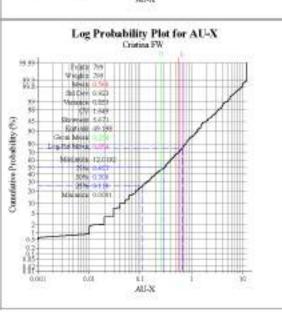


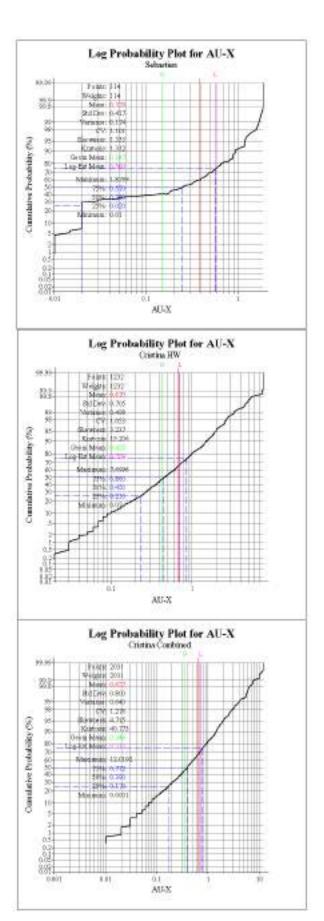


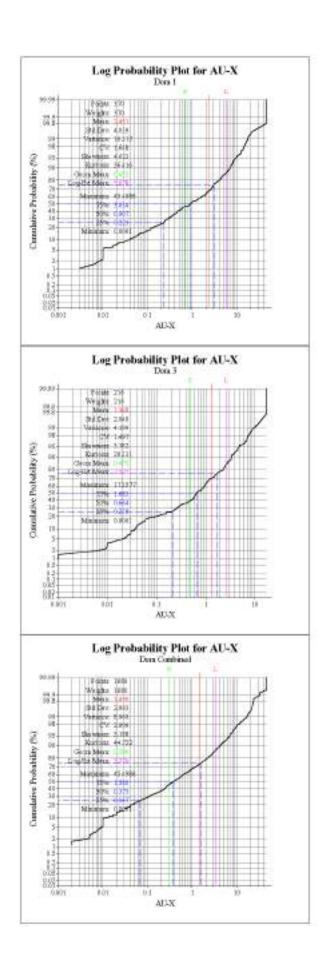


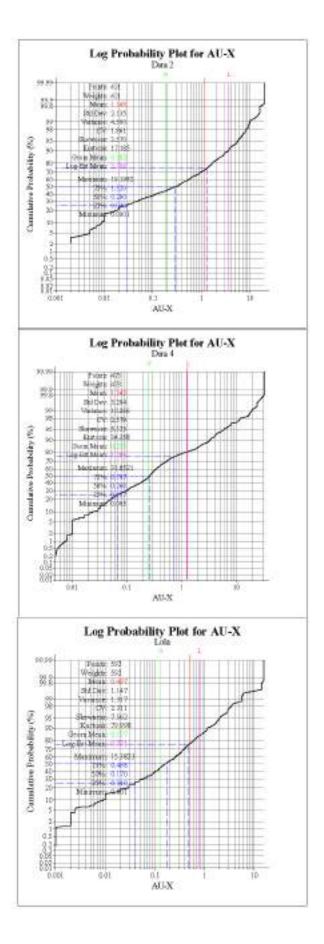


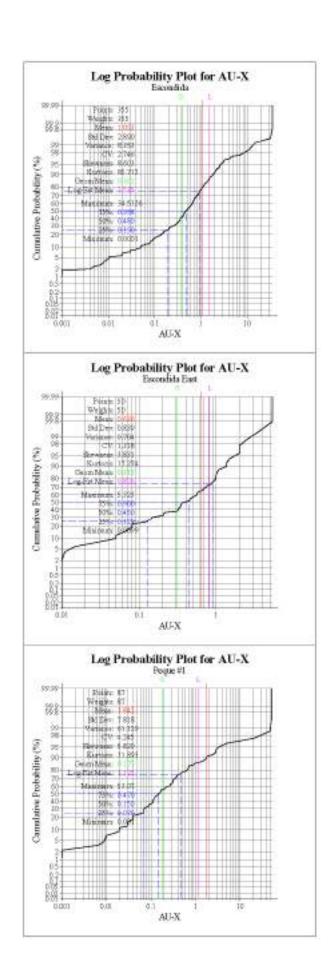


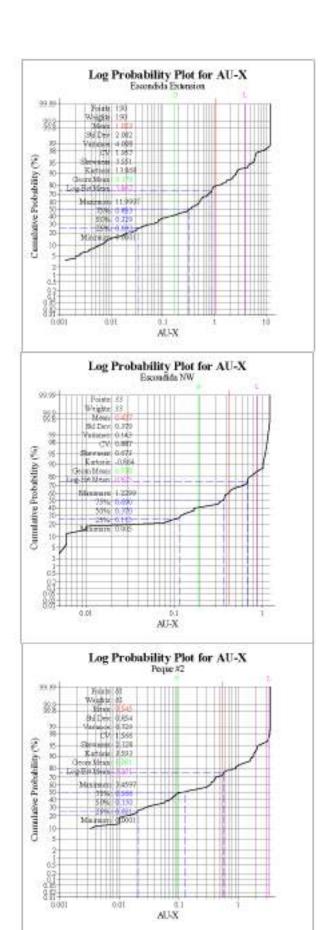


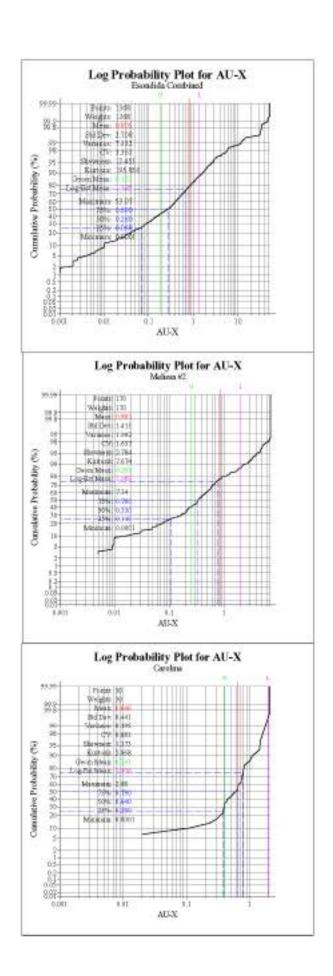


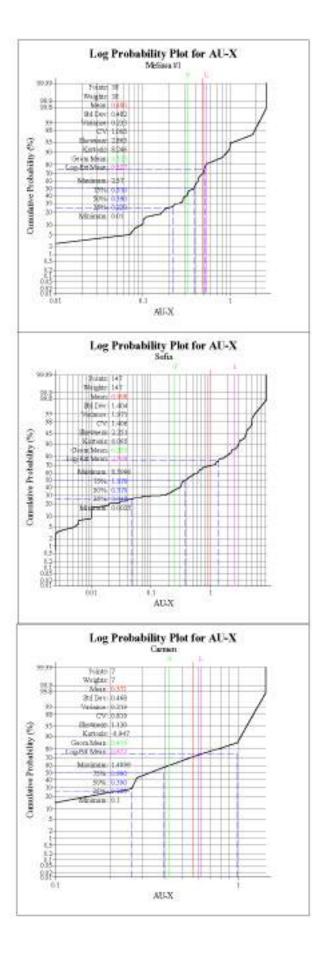


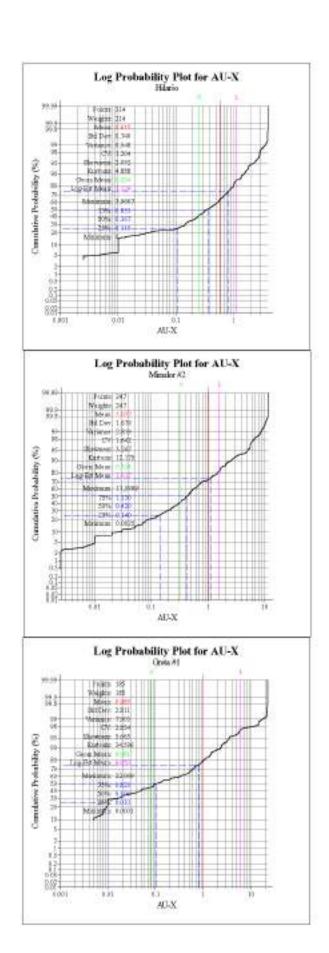


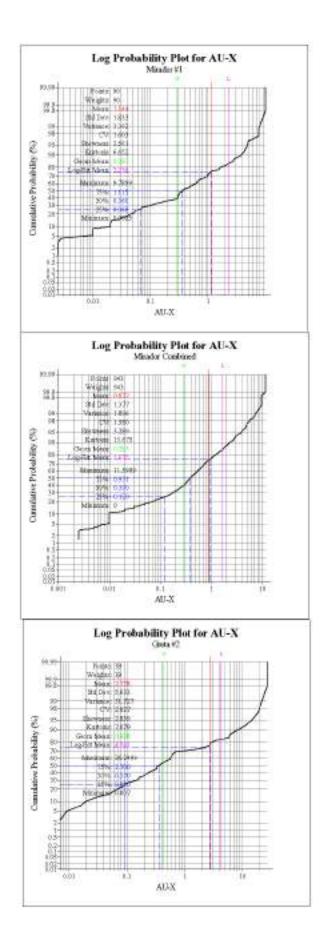


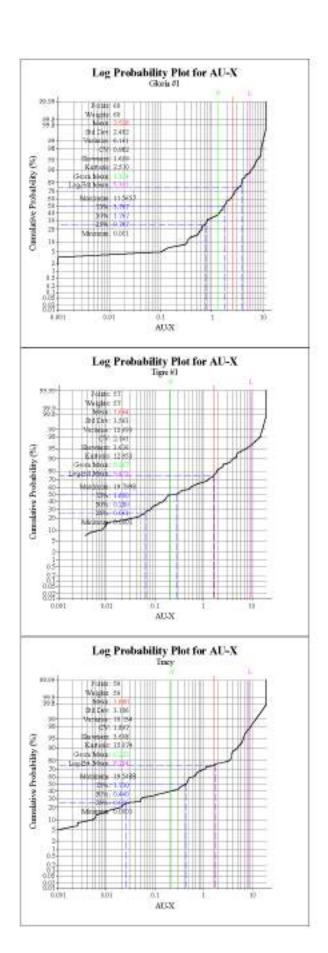


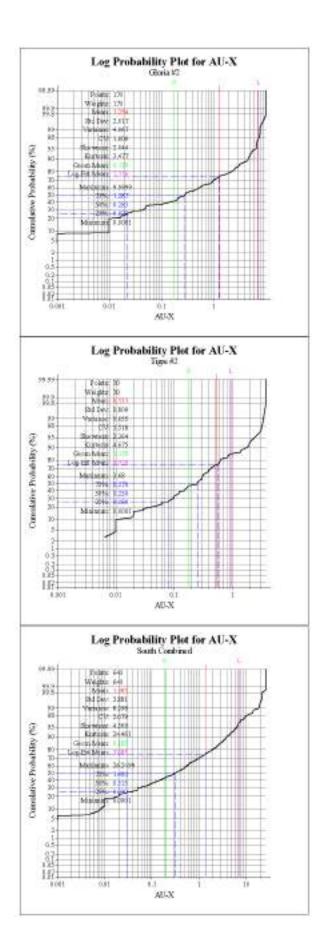


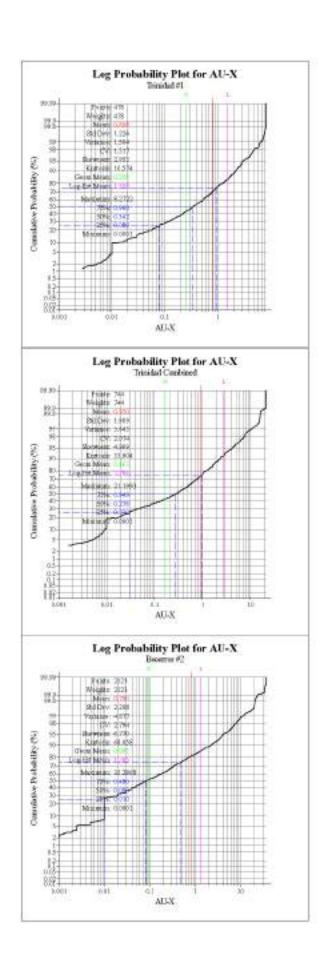


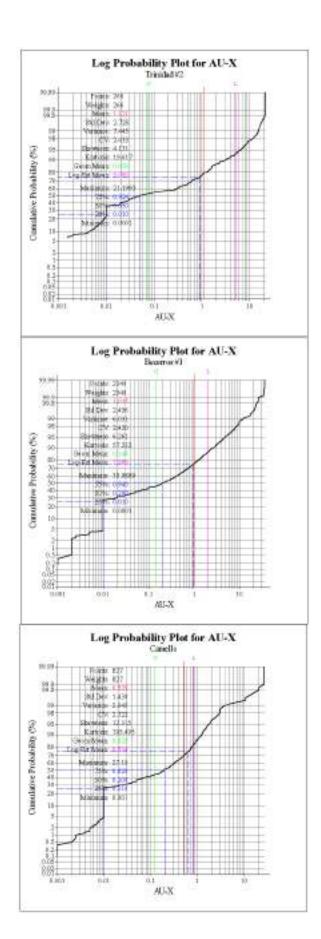


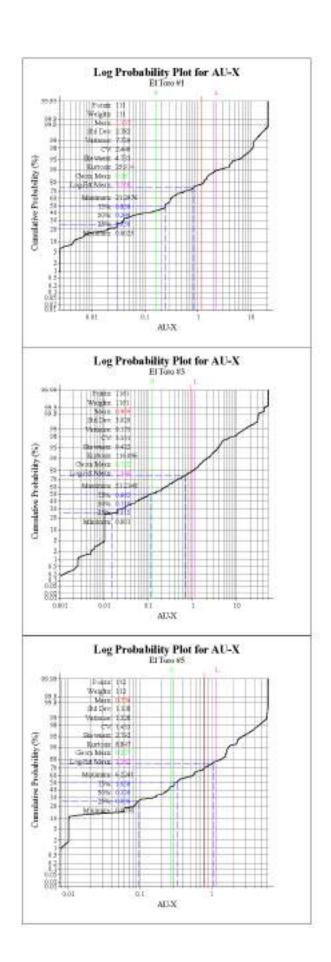


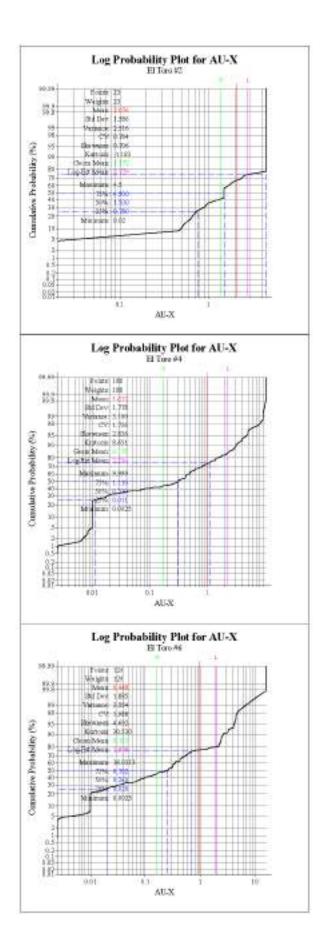


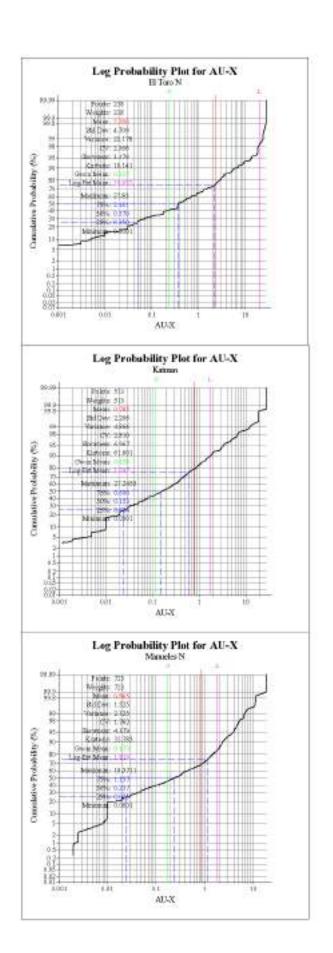


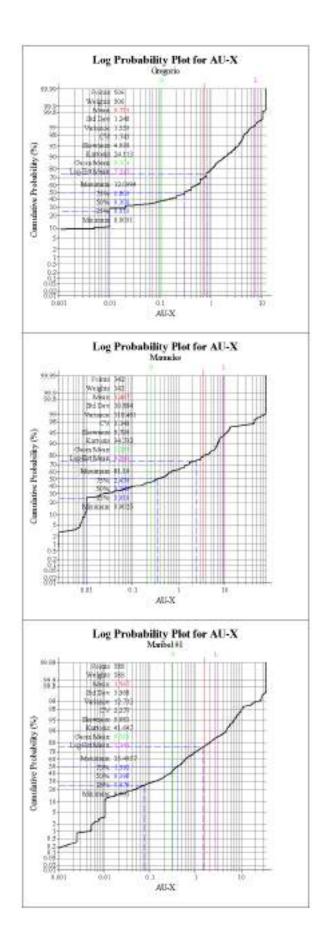


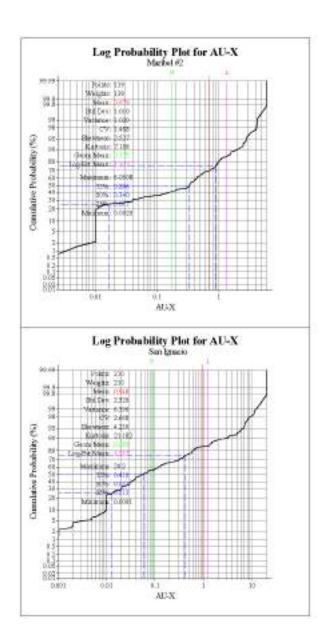


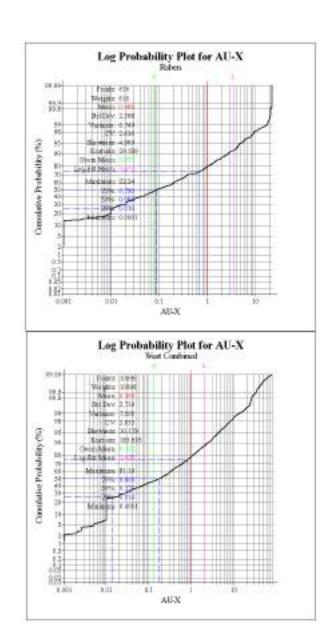




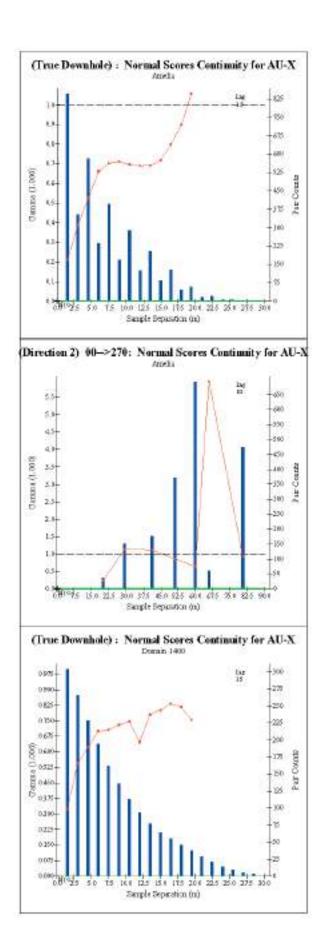


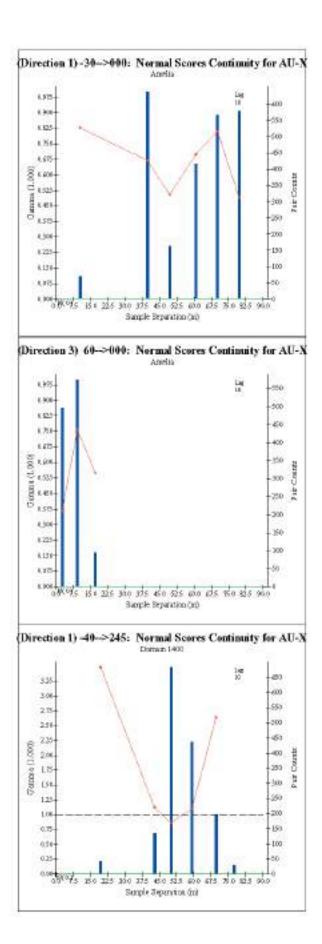


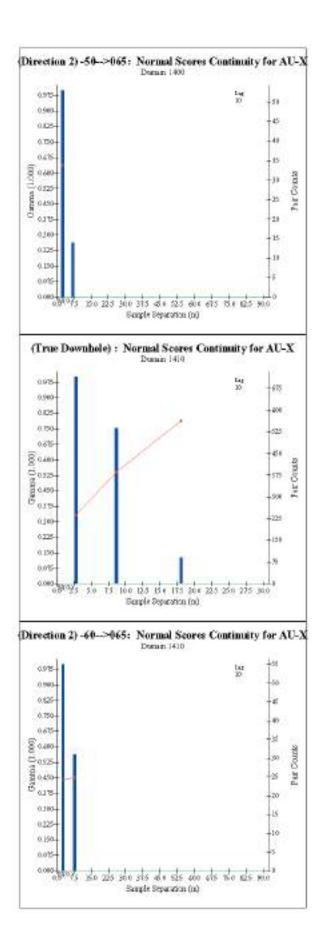


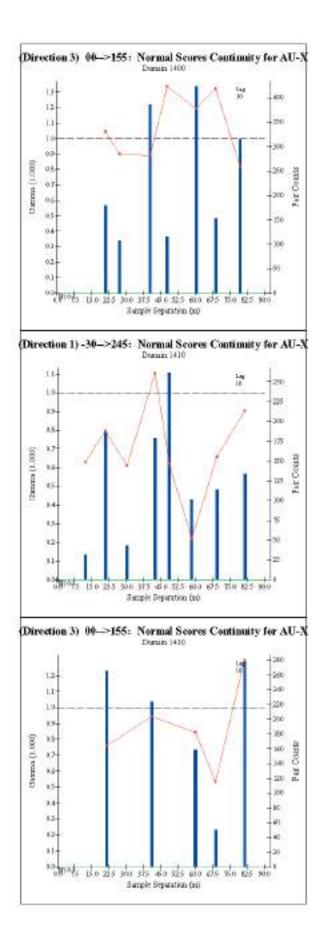


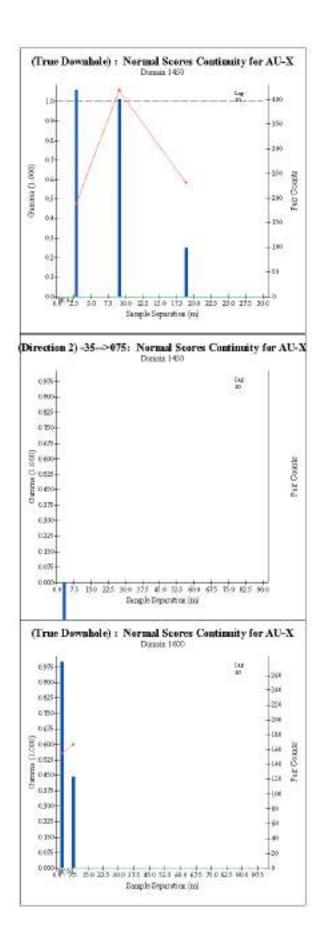
#### APPENDIX IV. VARIOGRAMS

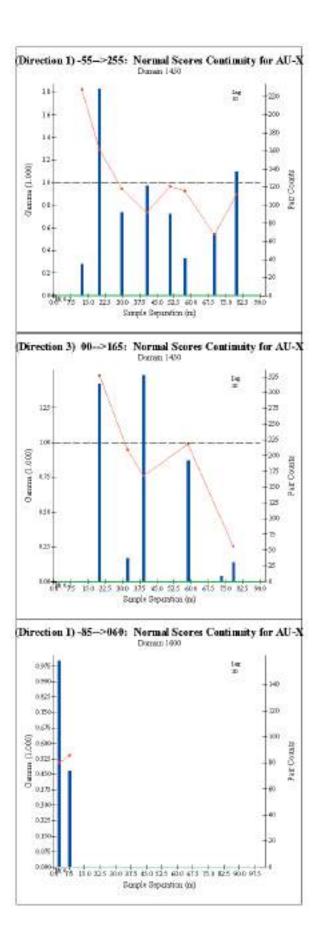


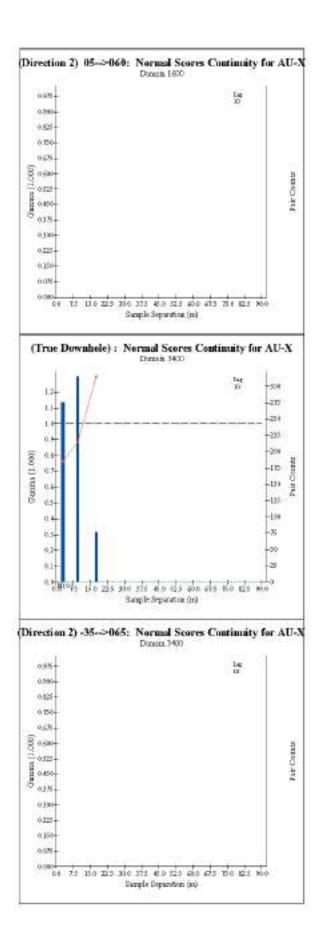


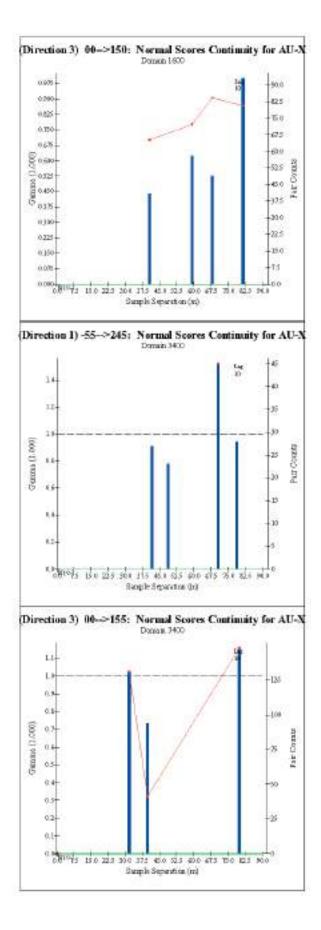


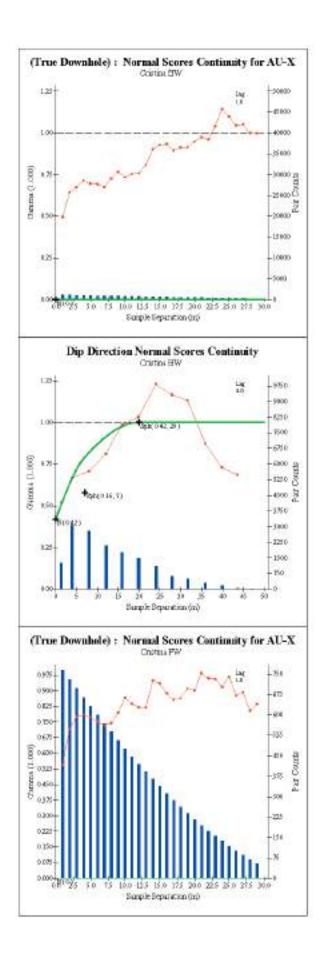


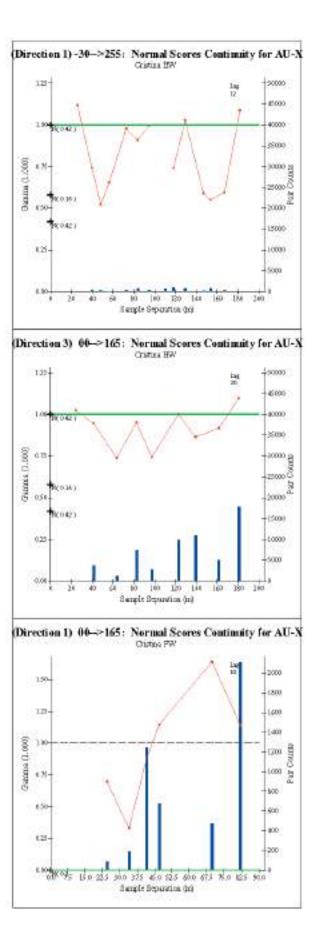


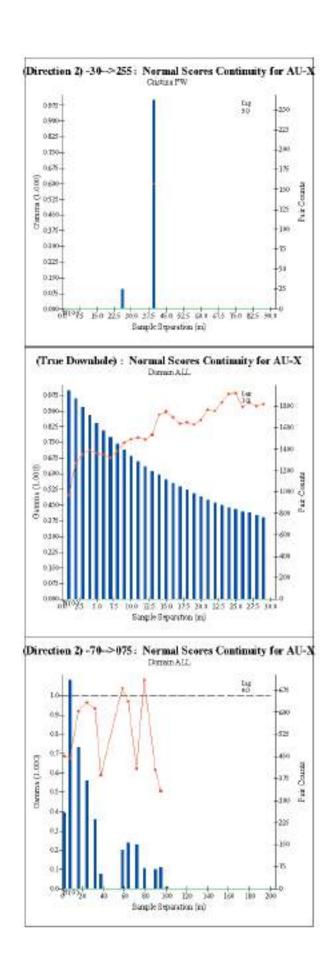


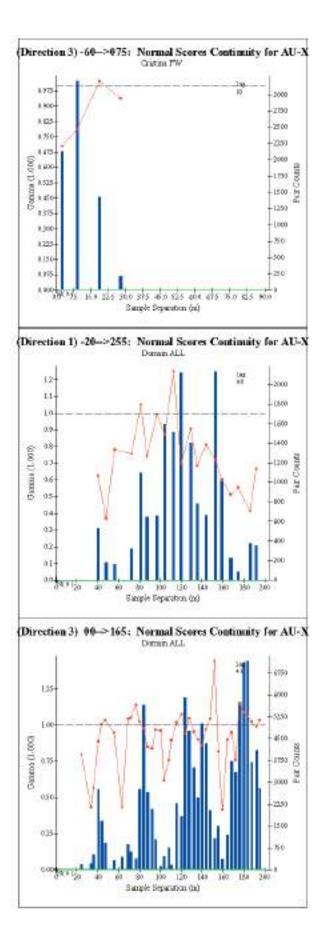


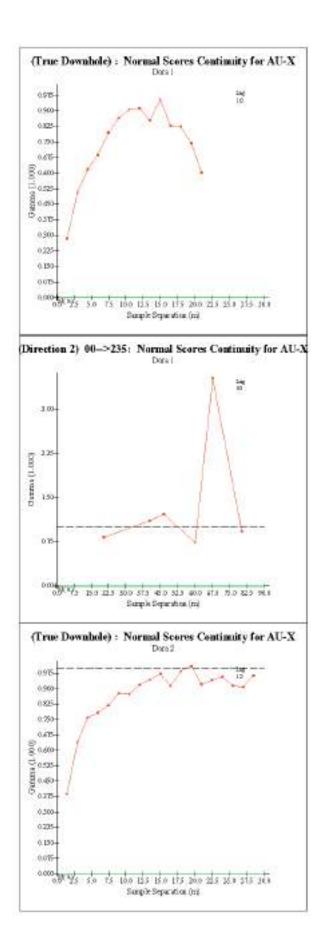


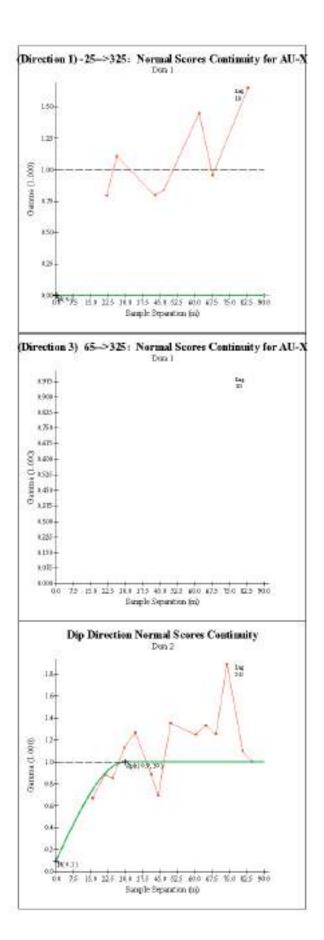


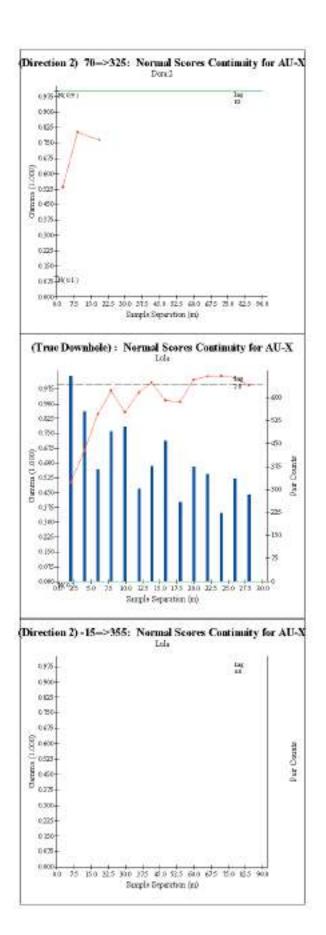


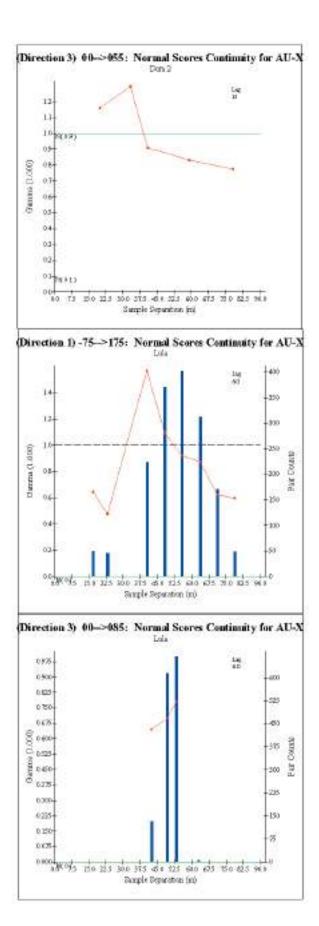


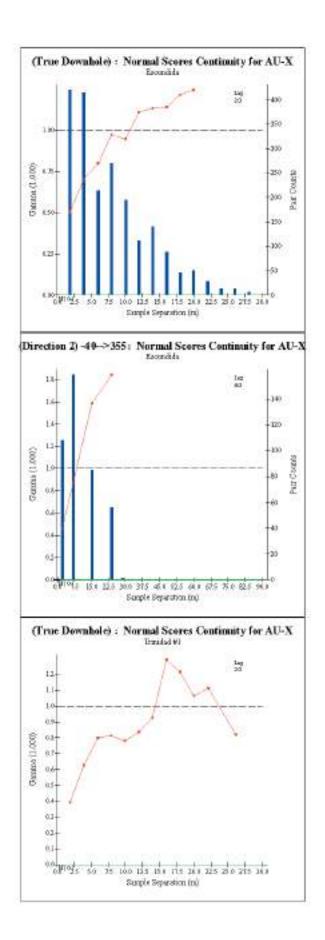


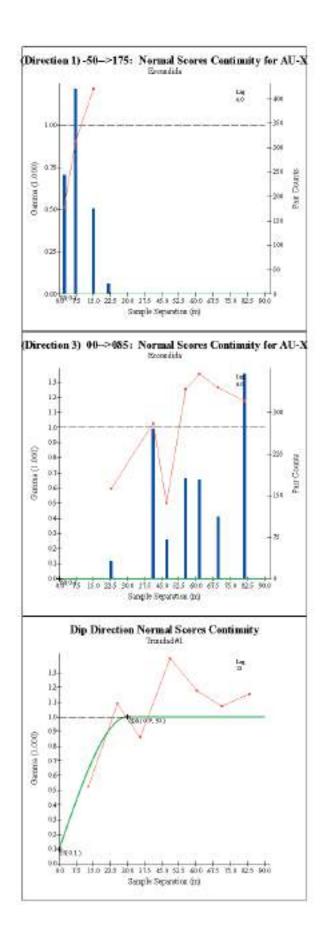


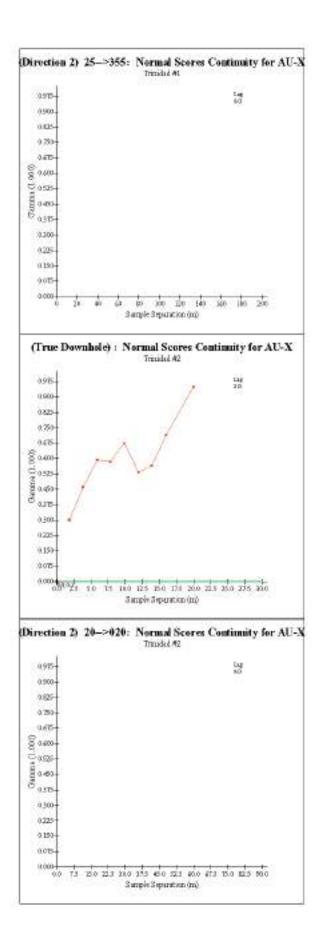


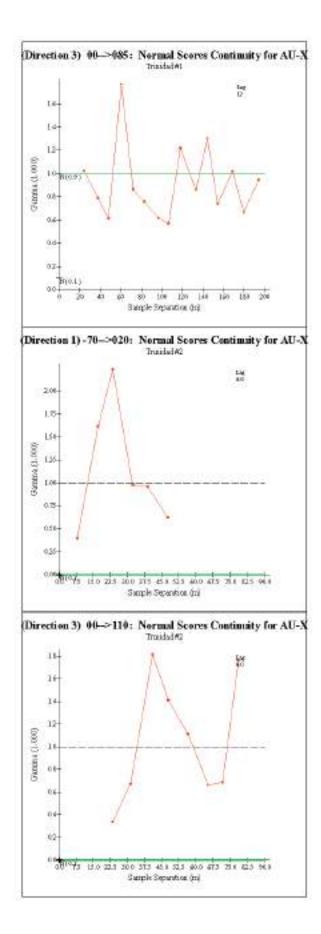


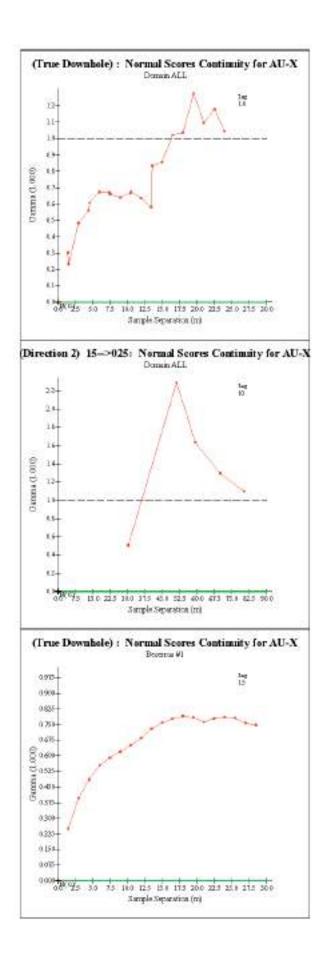


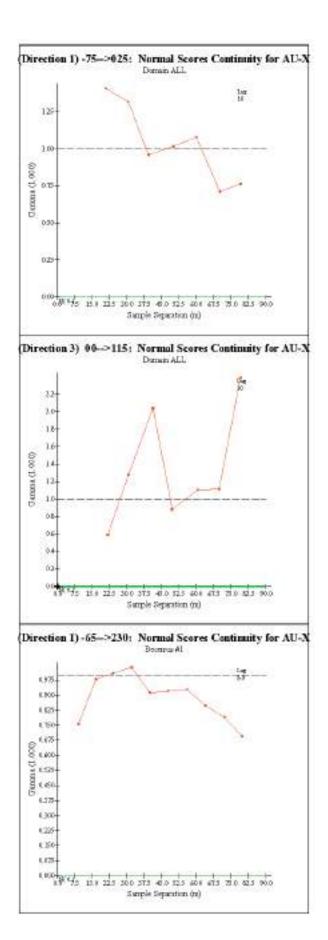


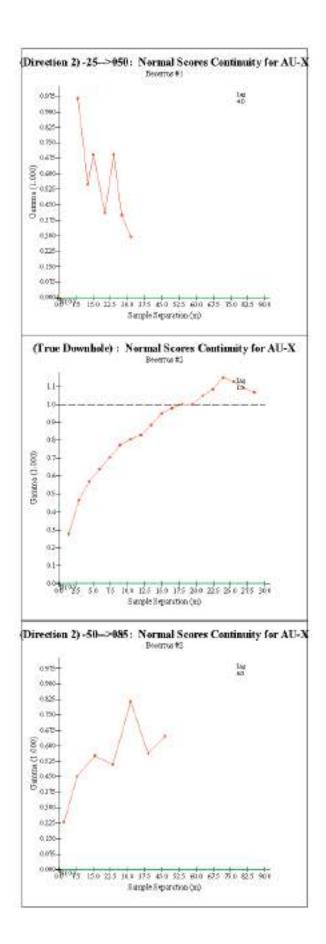


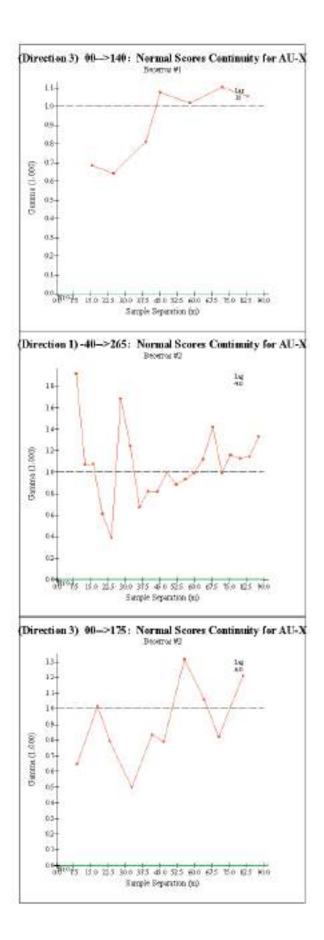


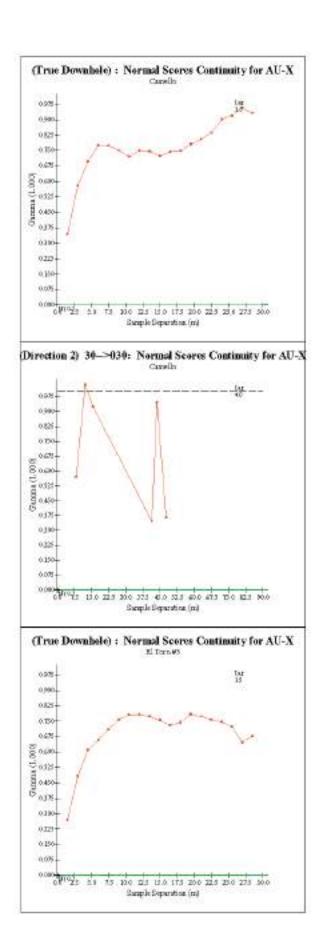


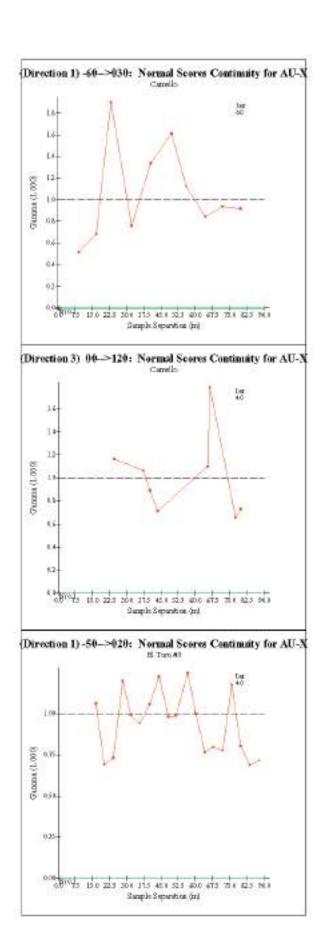


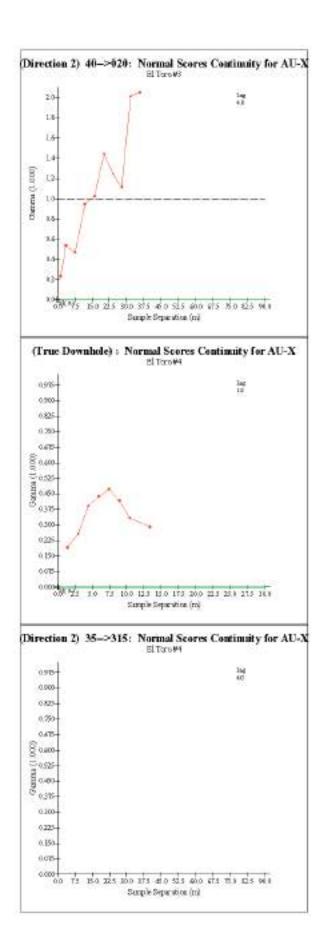


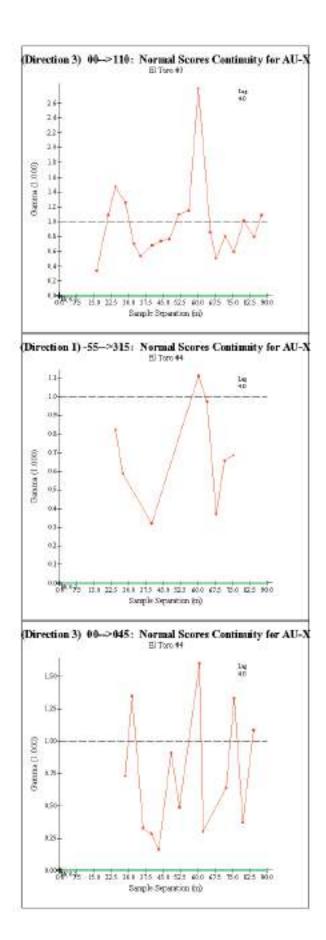


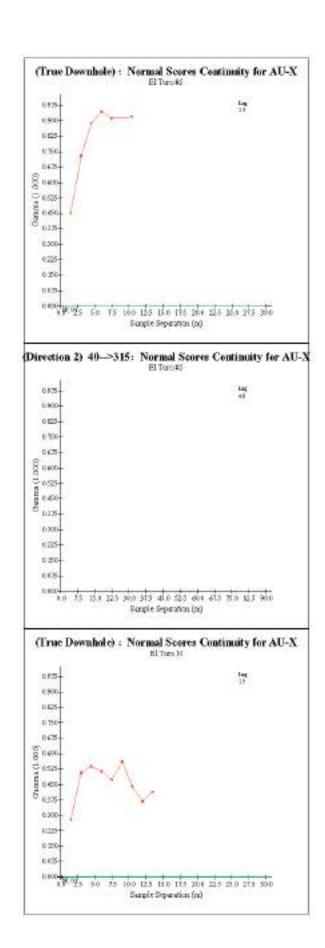


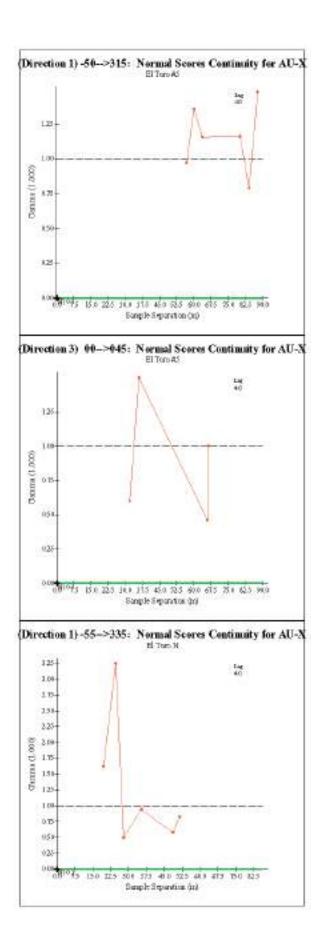


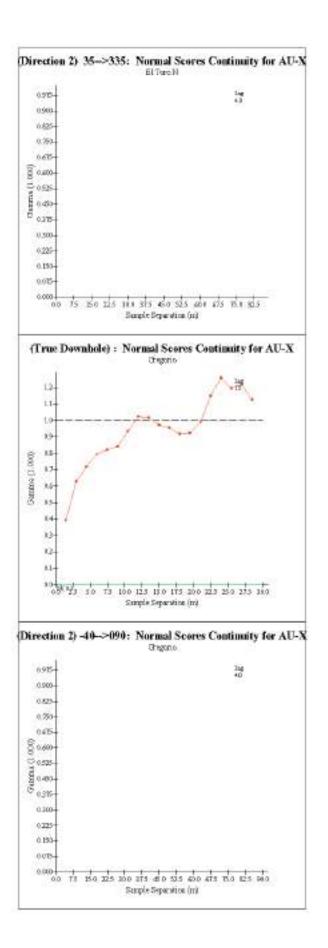


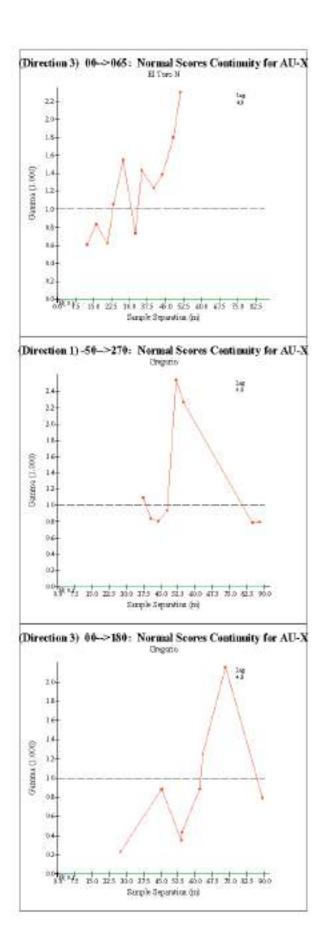


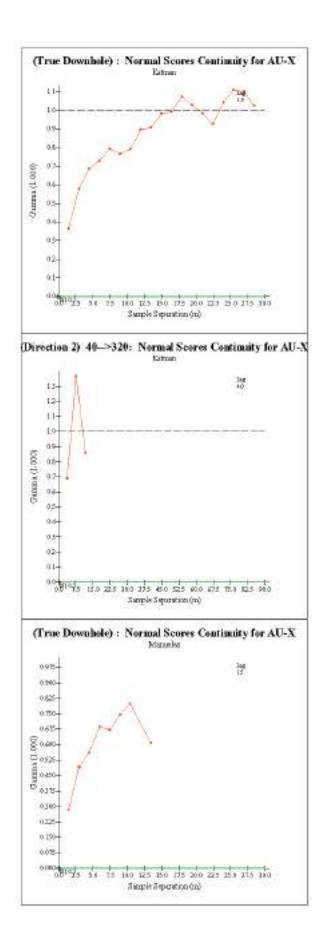


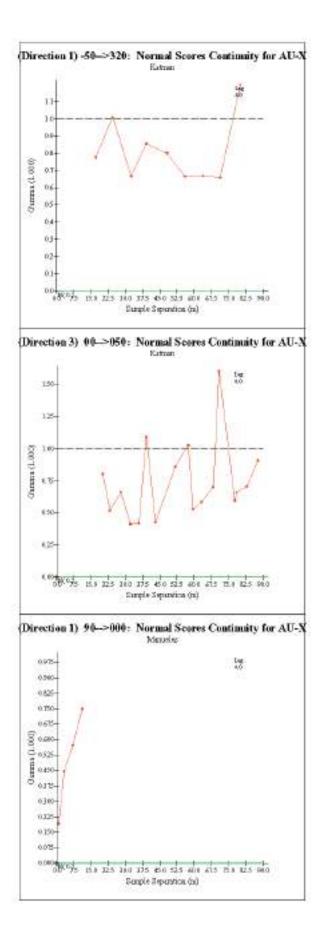


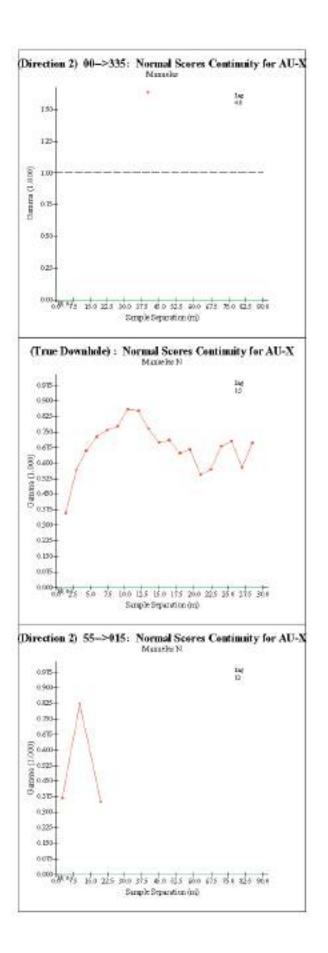


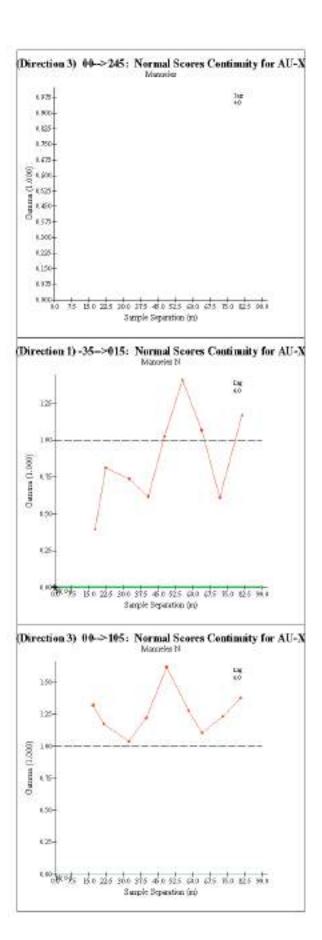


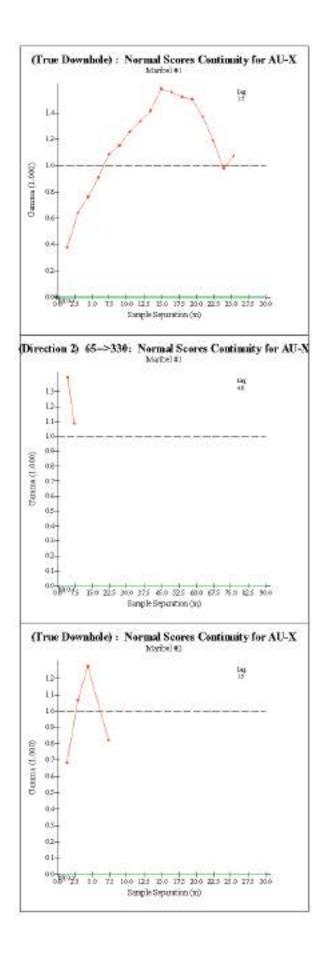


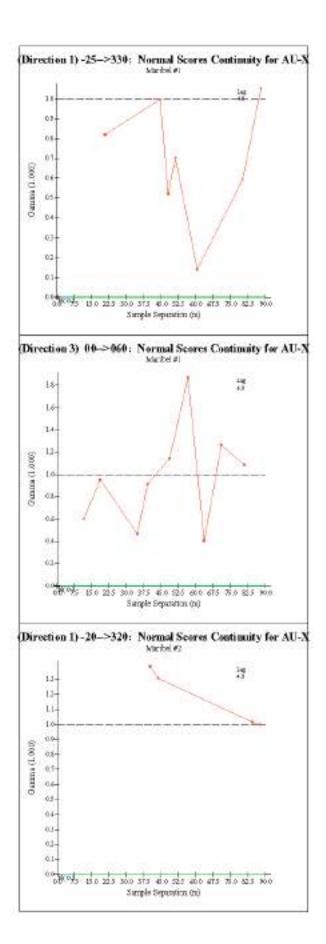


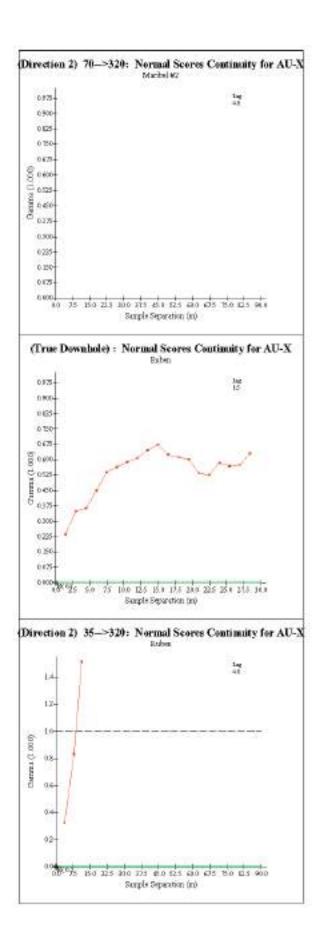


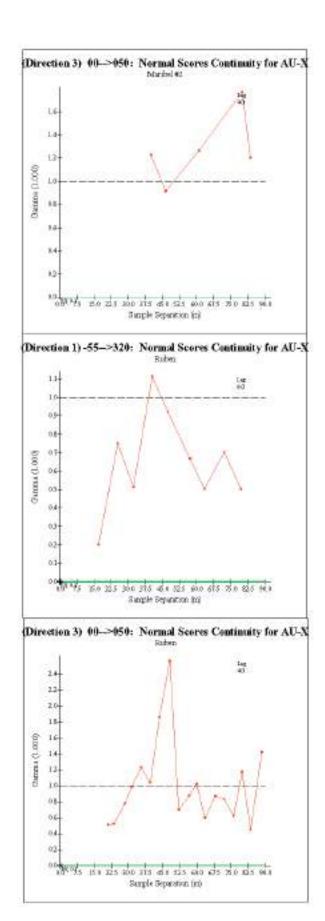


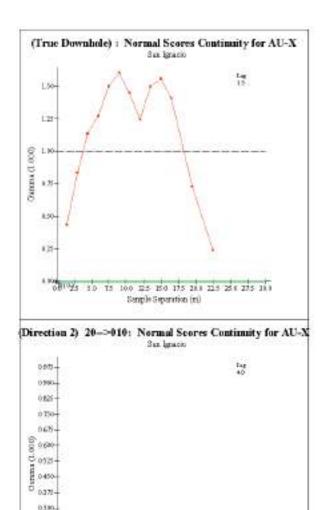










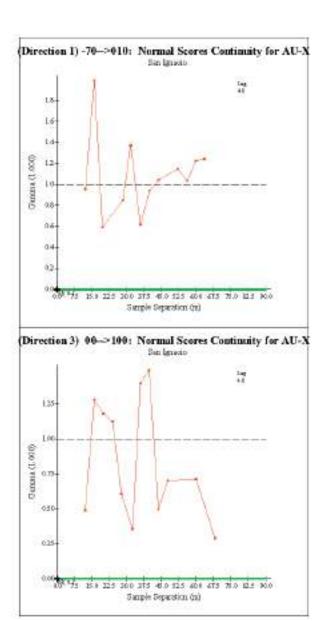


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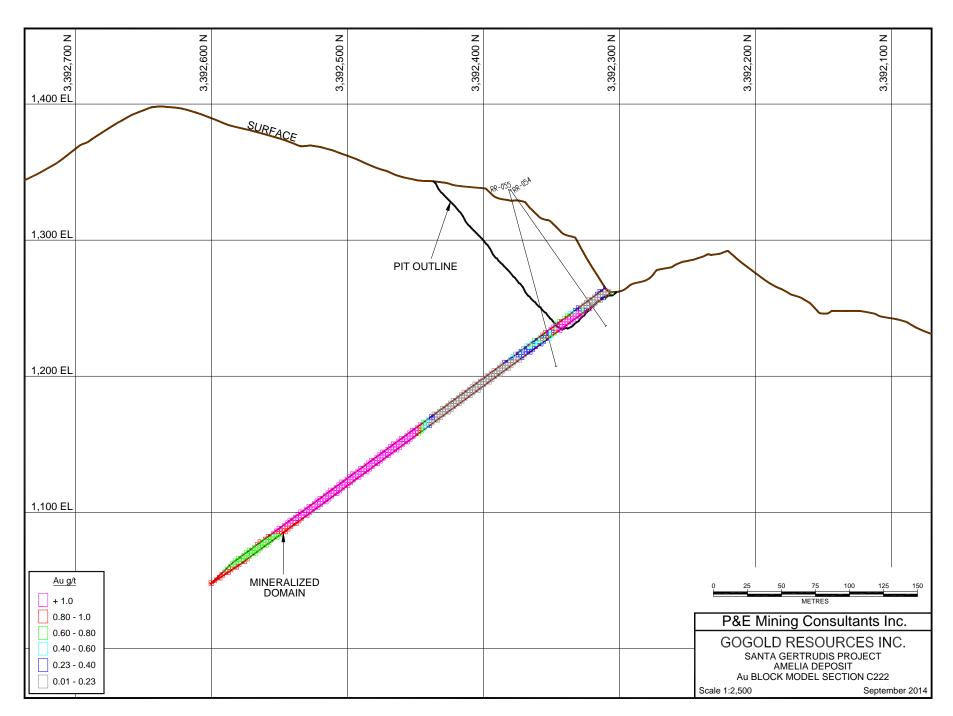
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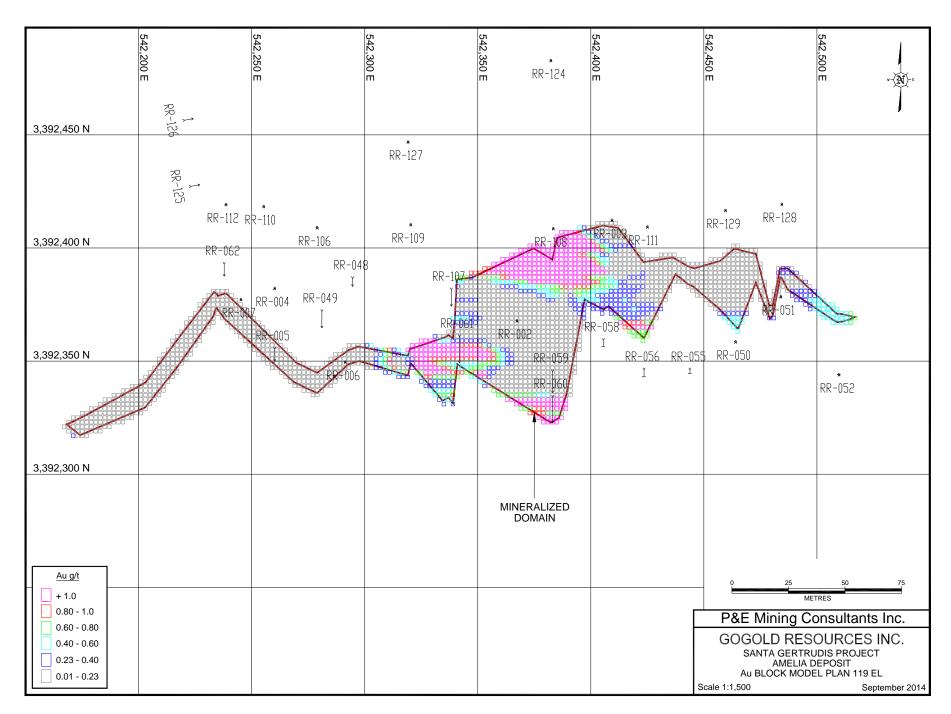
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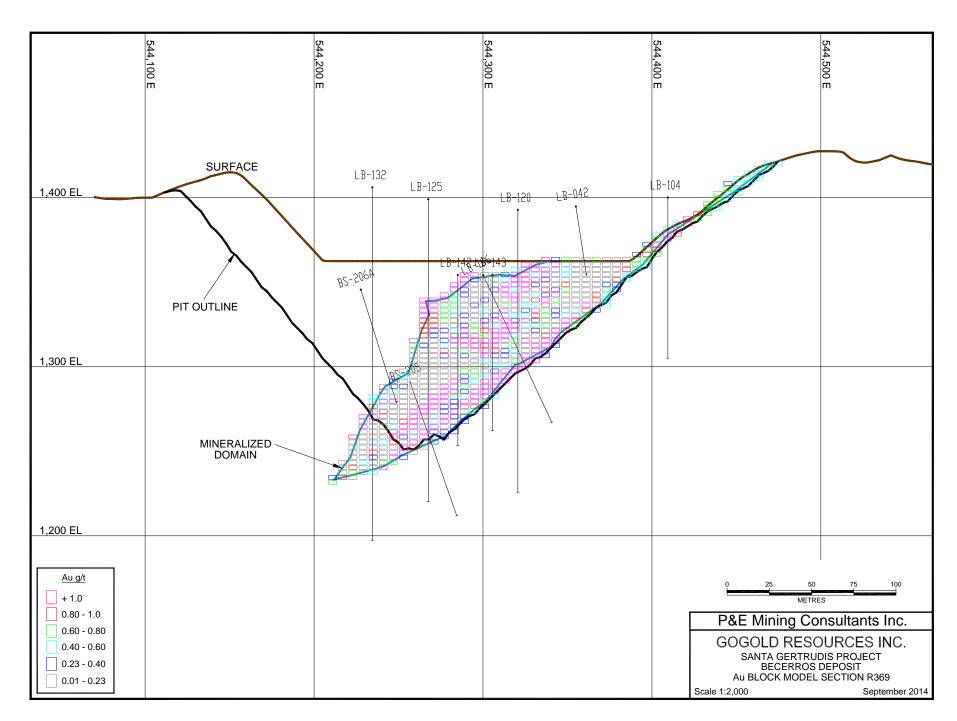
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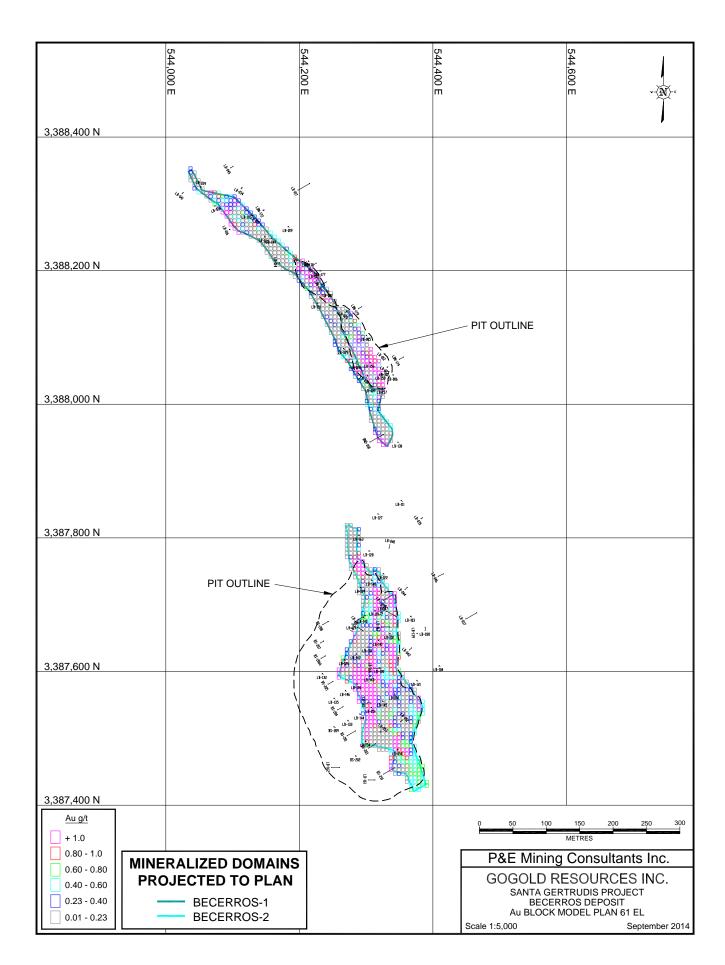


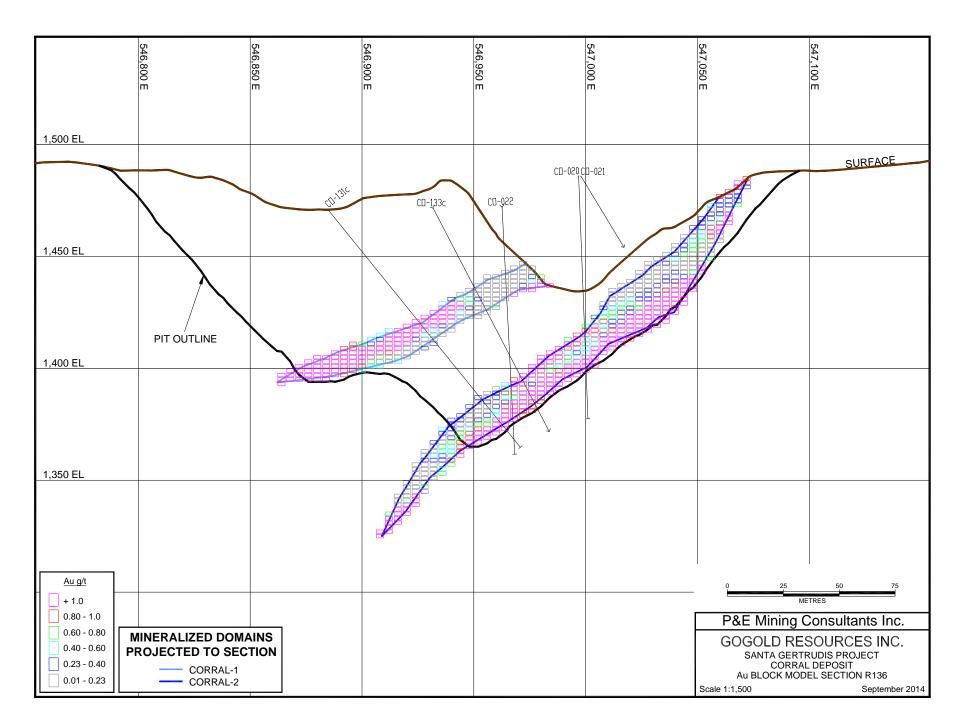
APPENDIX V. AU	BLOCK MODE	L CROSS SEC	TIONS AND I	PLANS

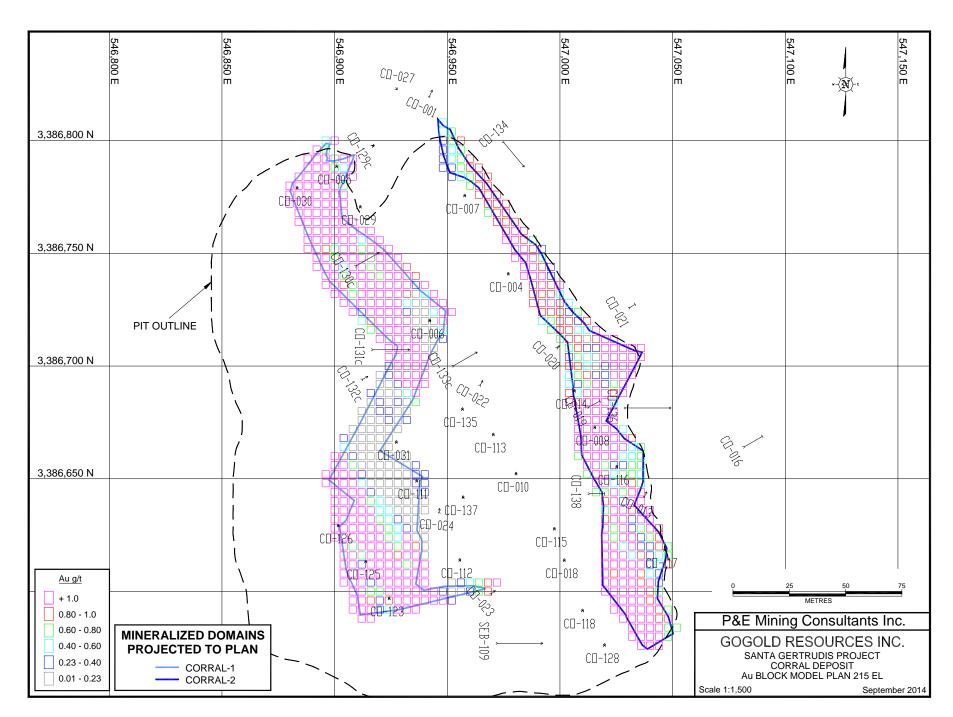


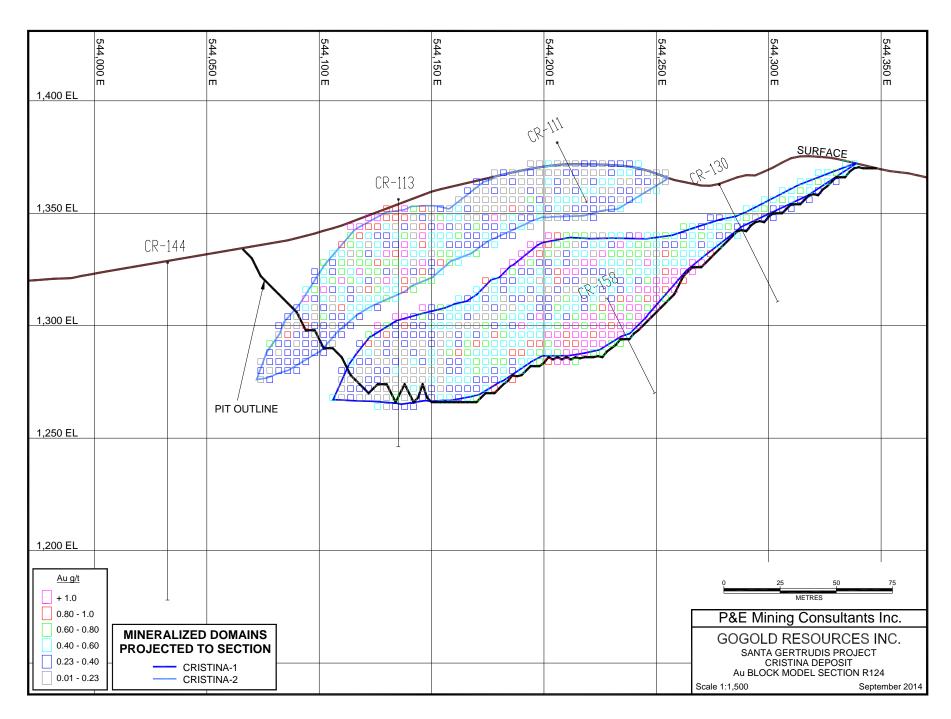


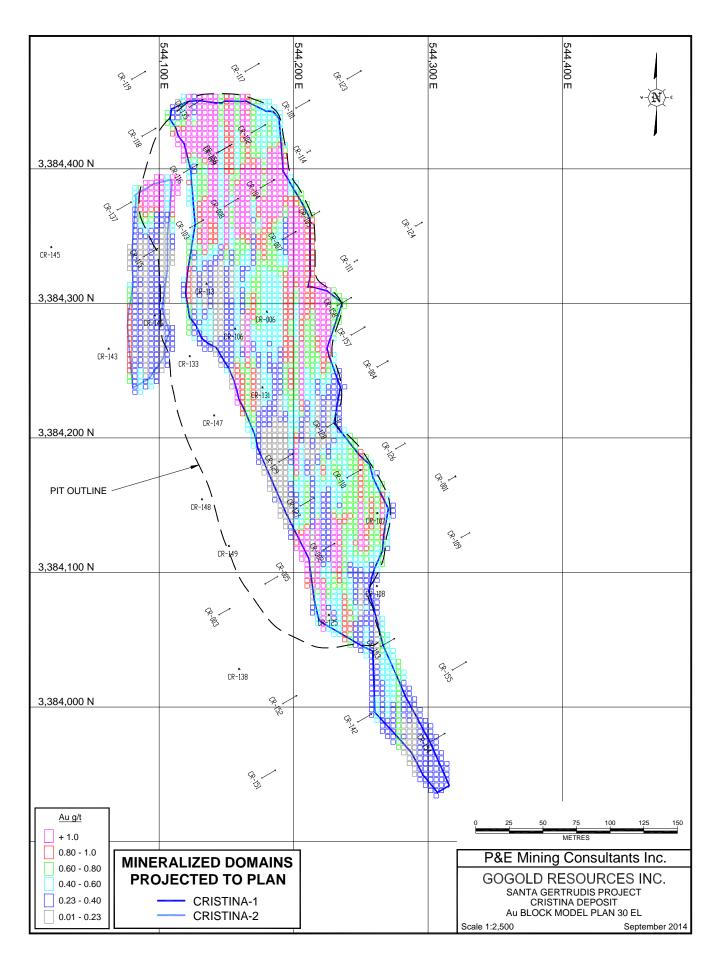


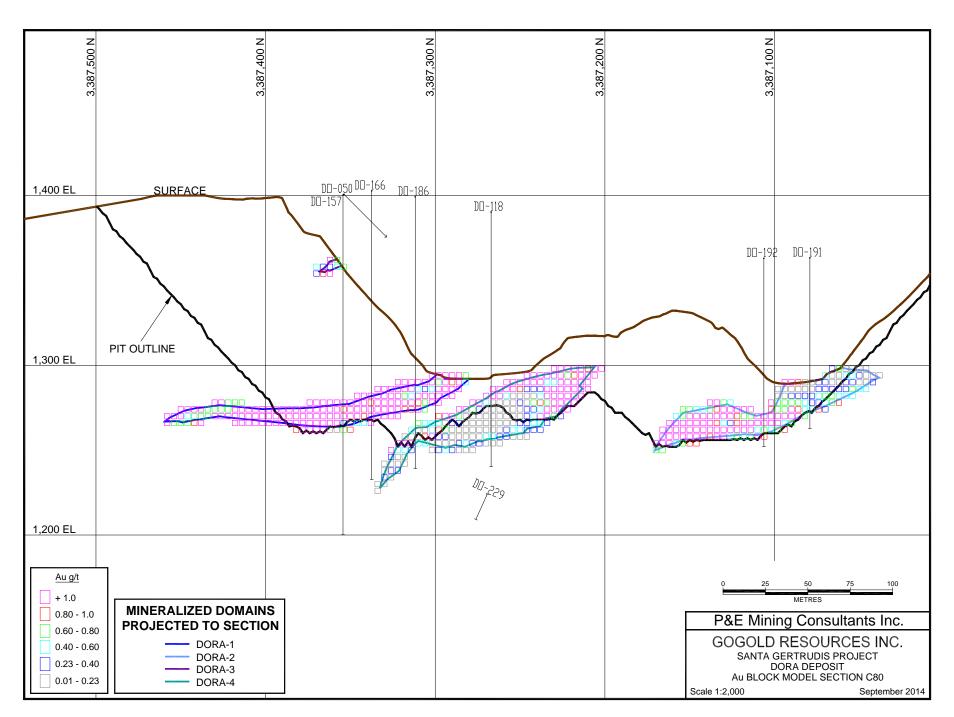


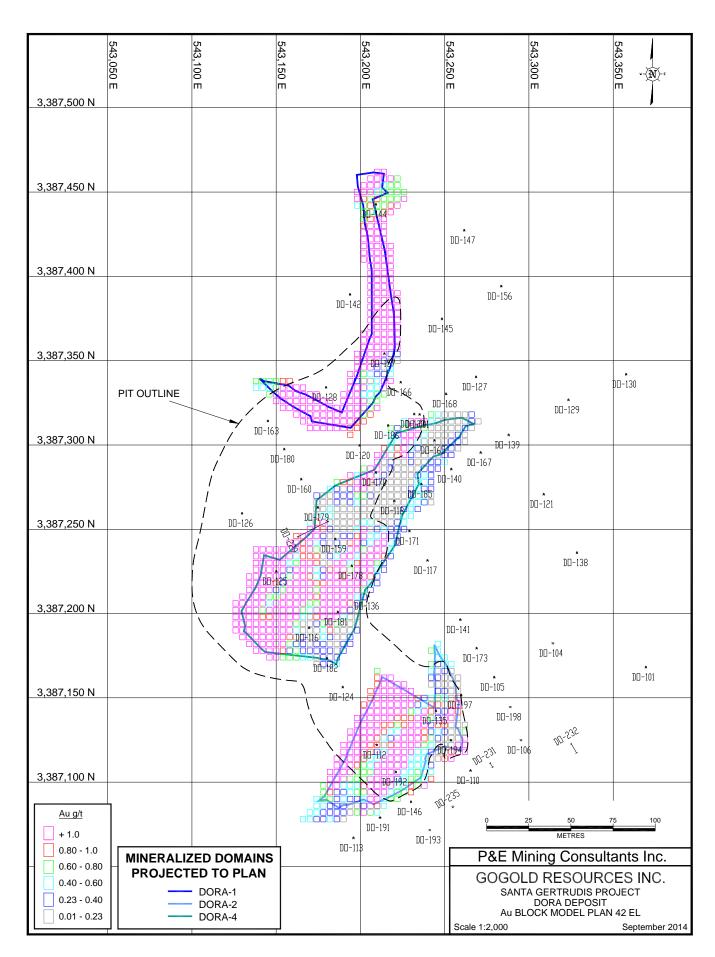


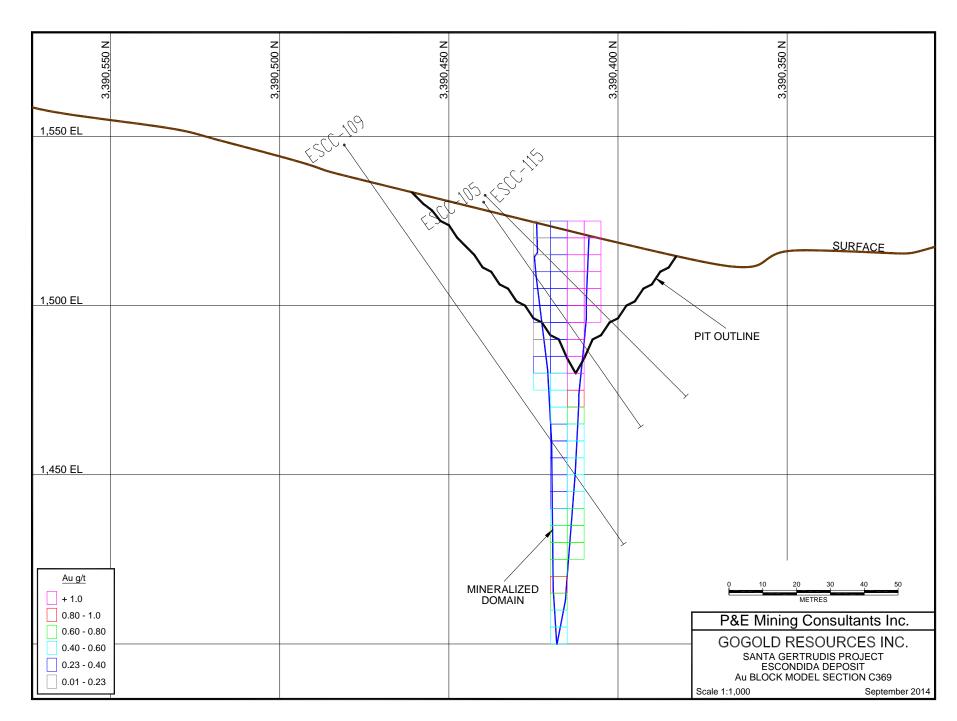


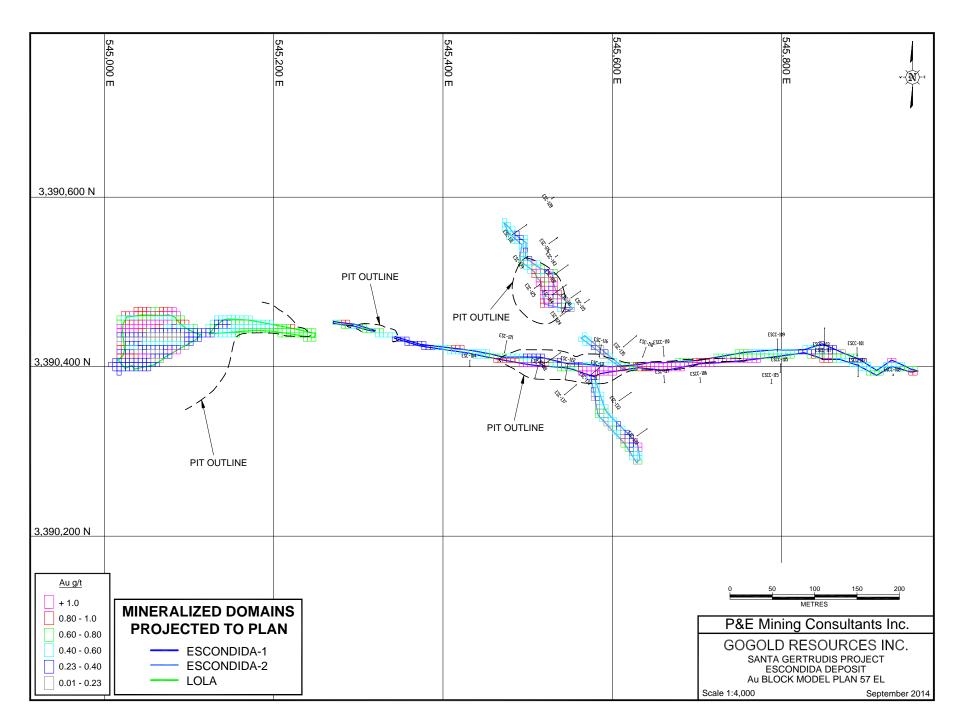


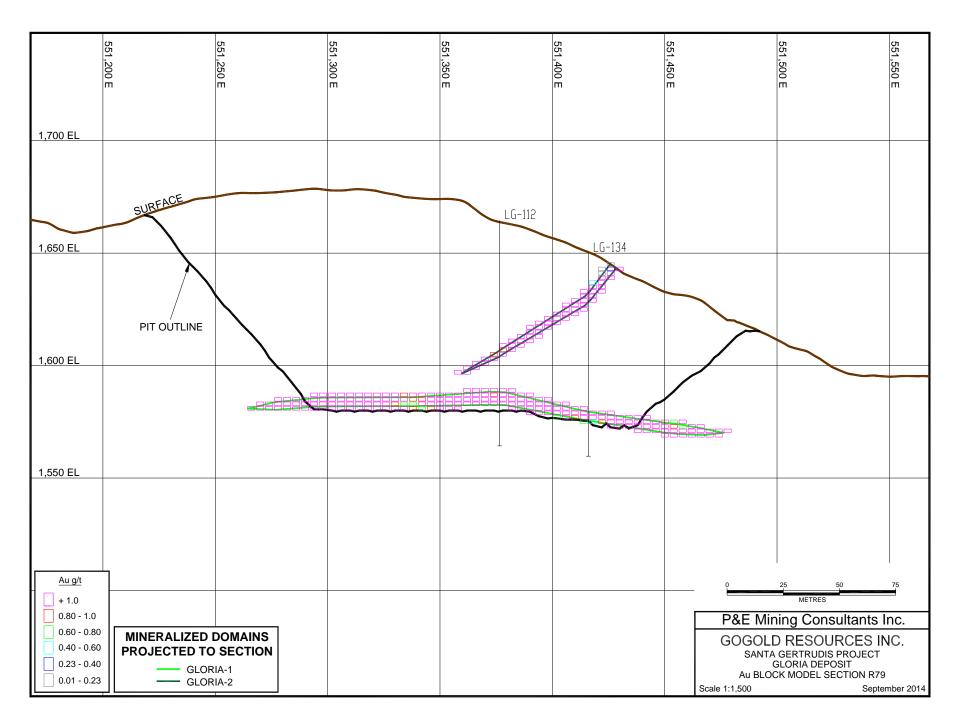


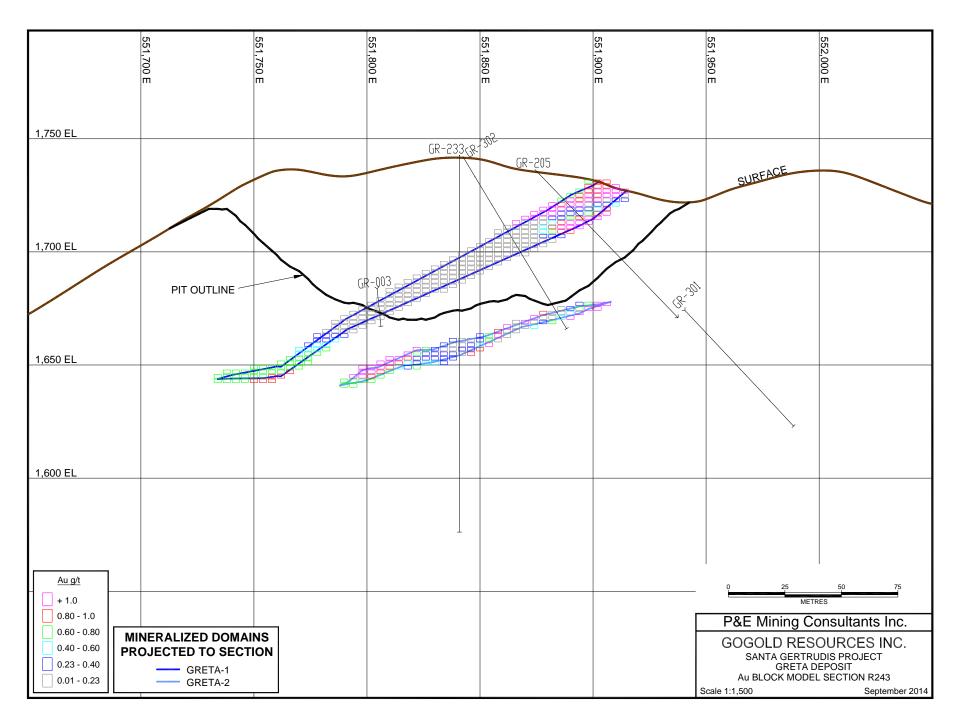


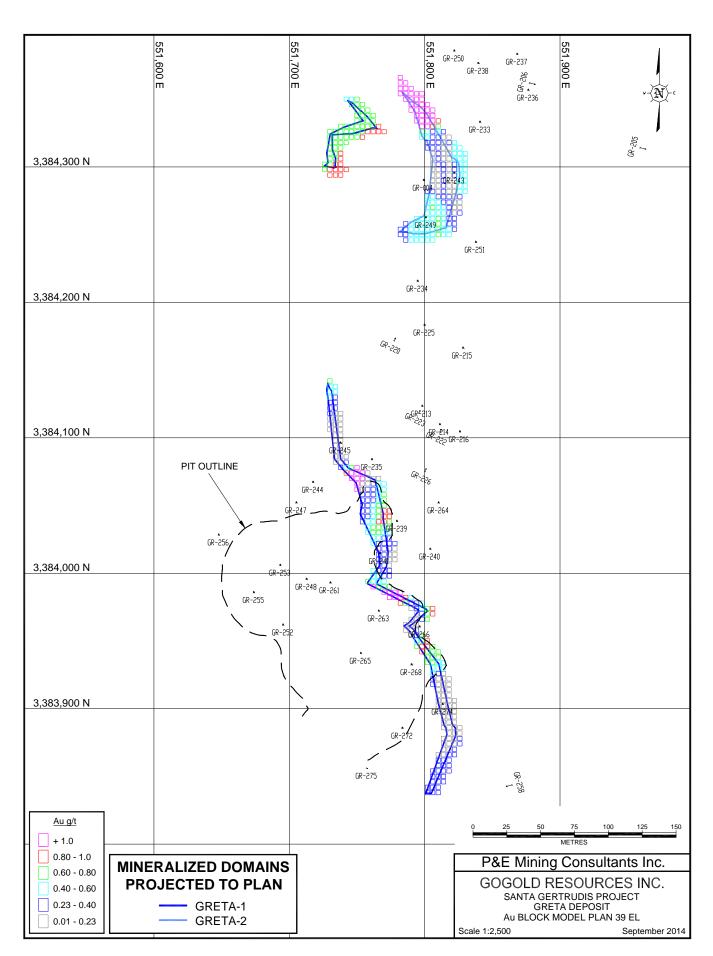


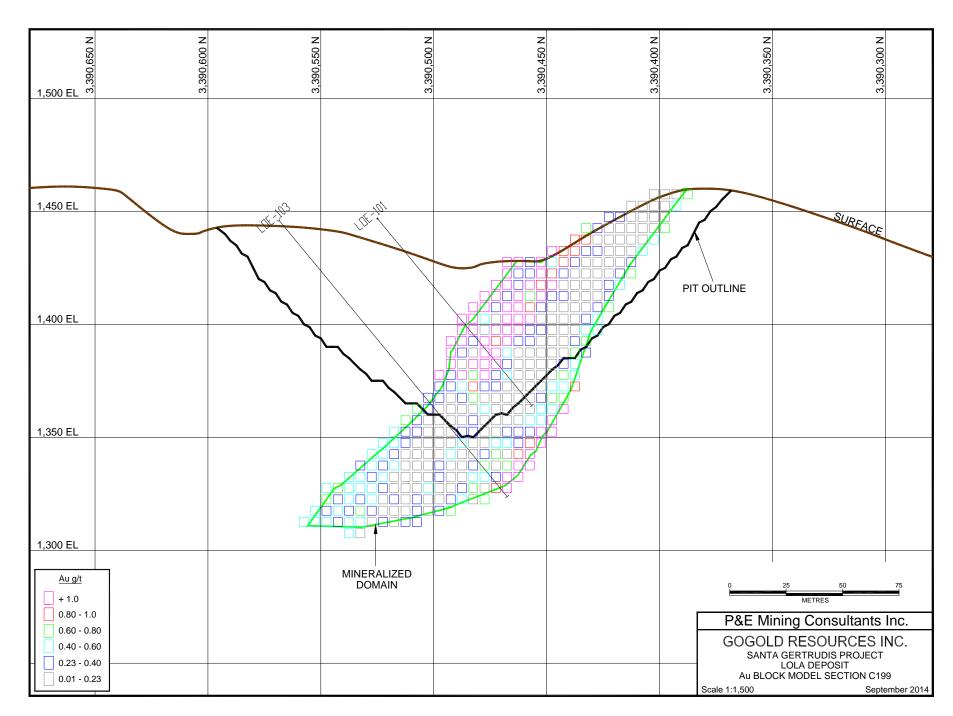


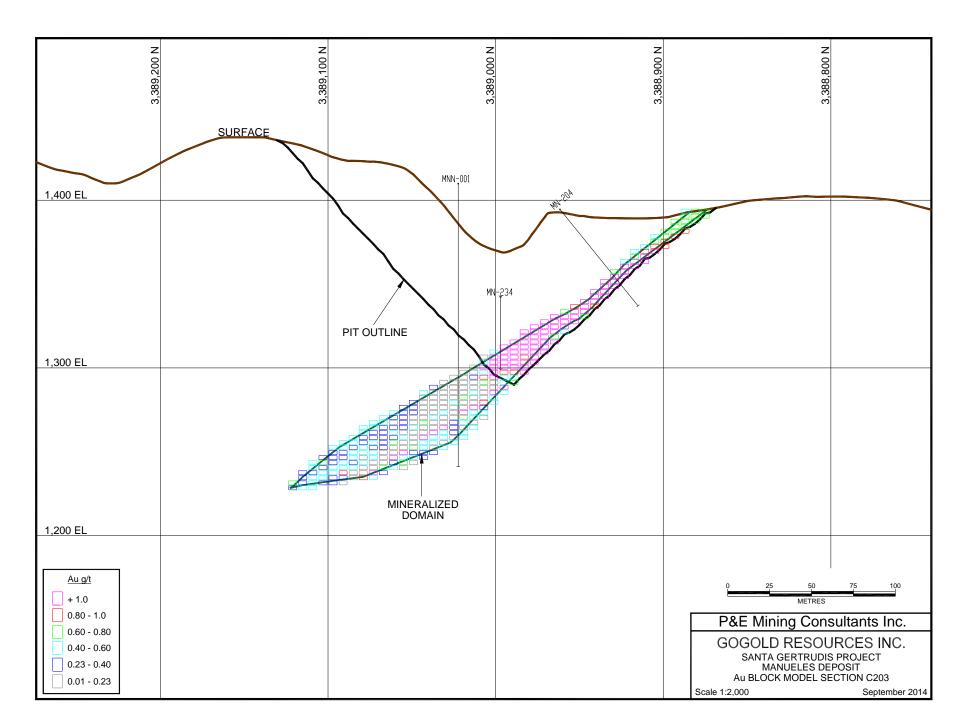


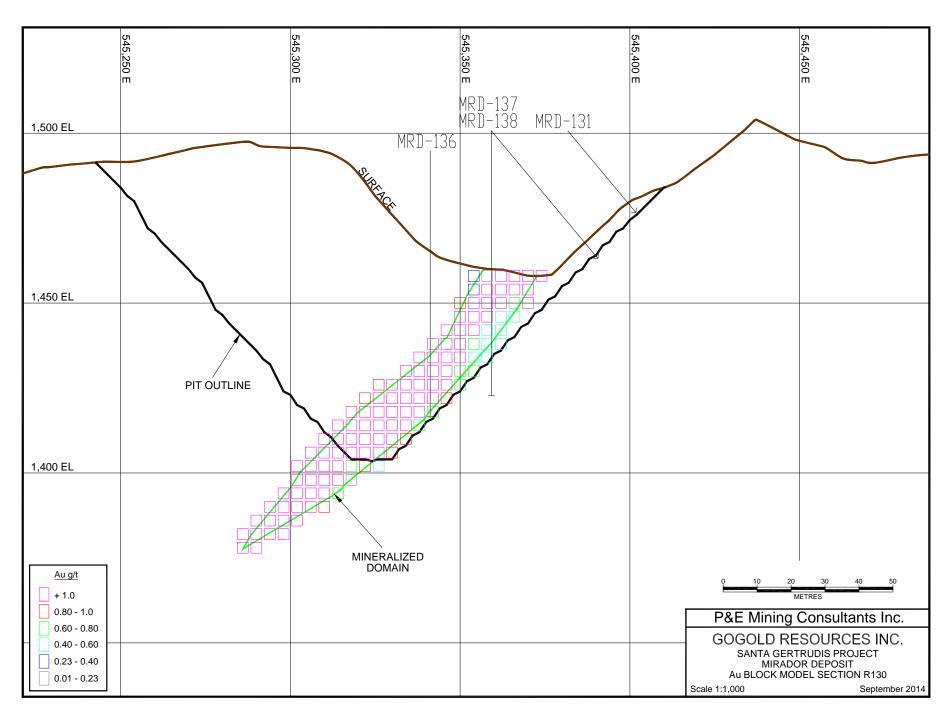


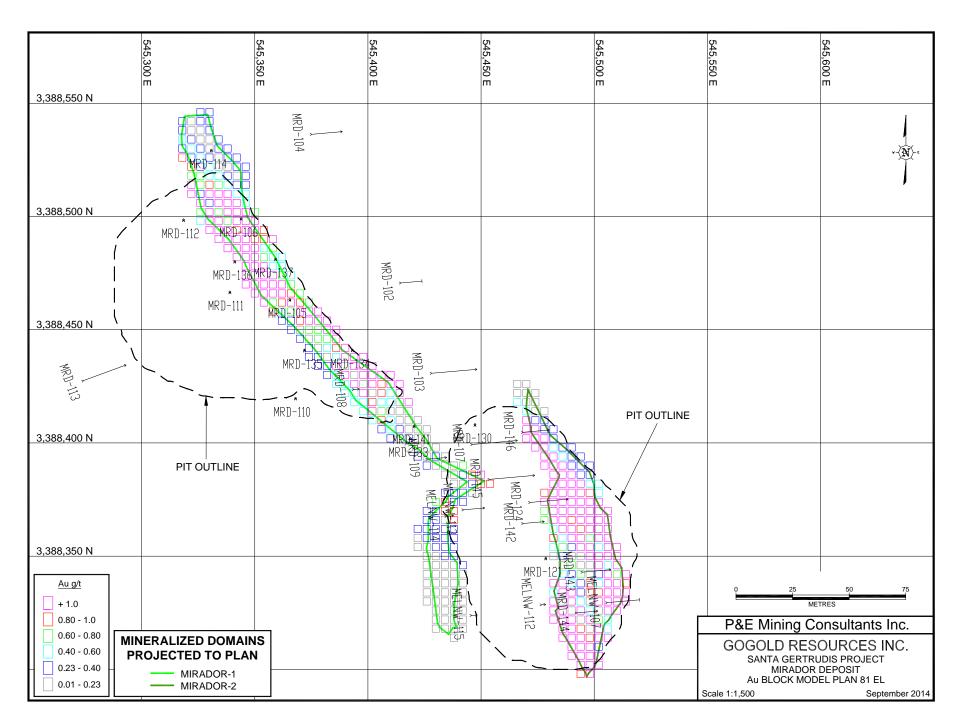


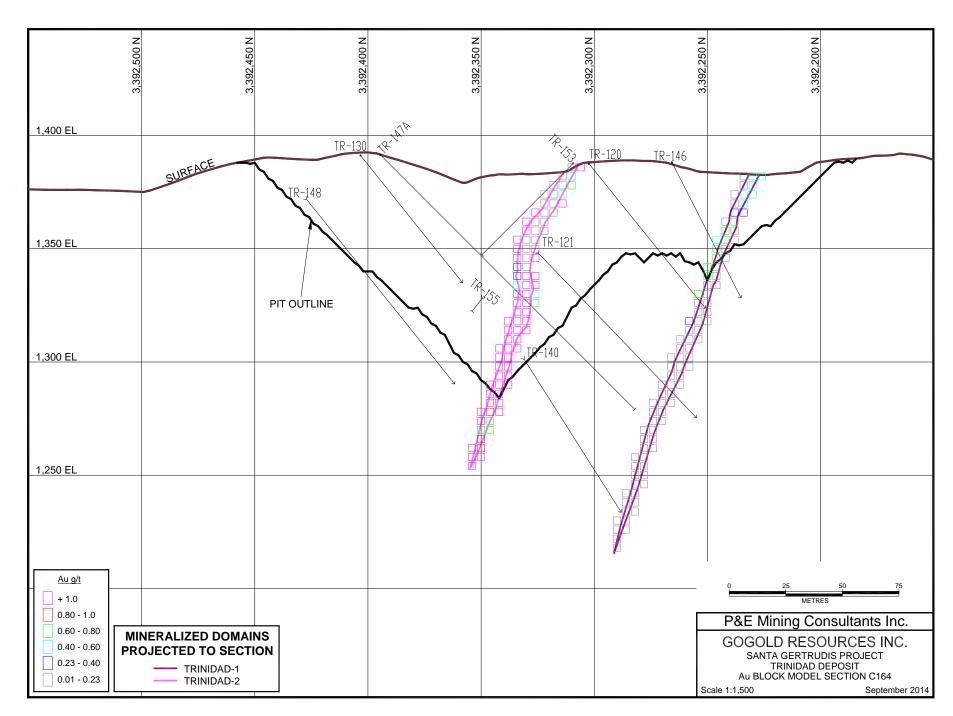


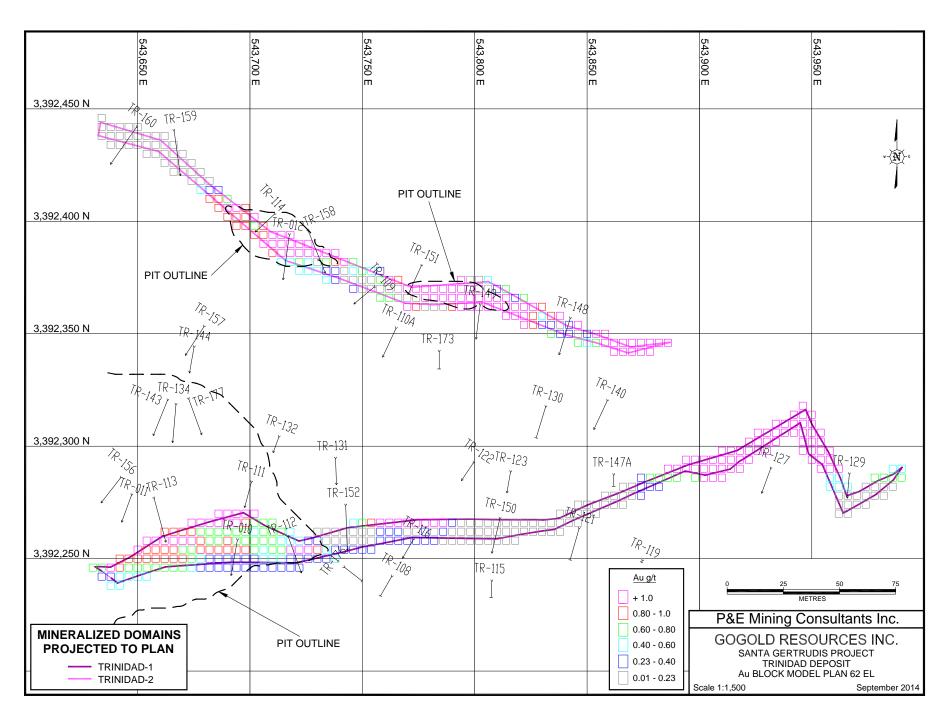




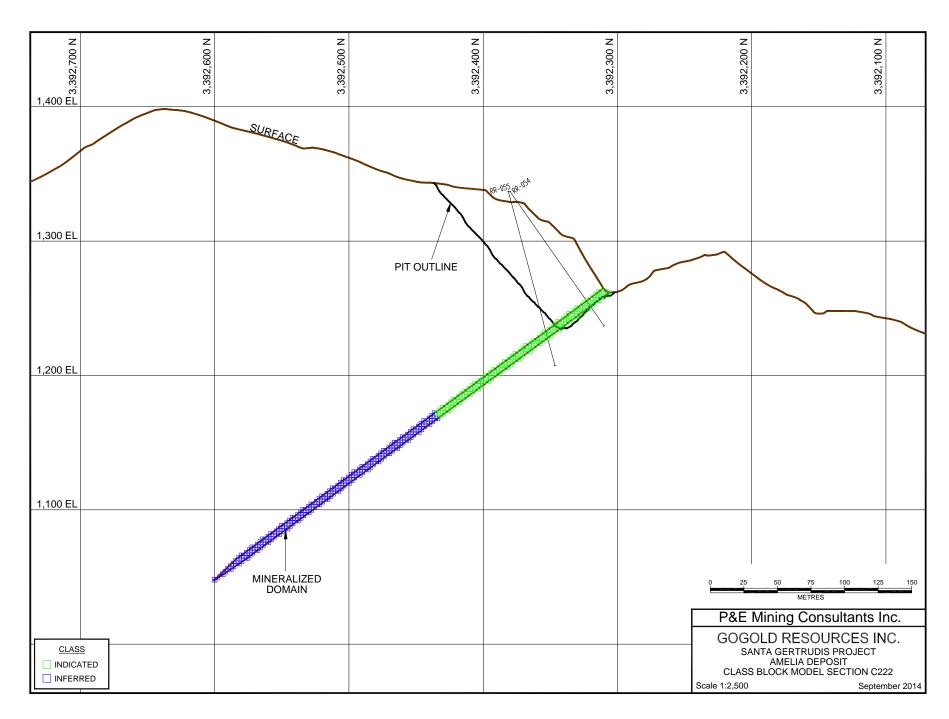


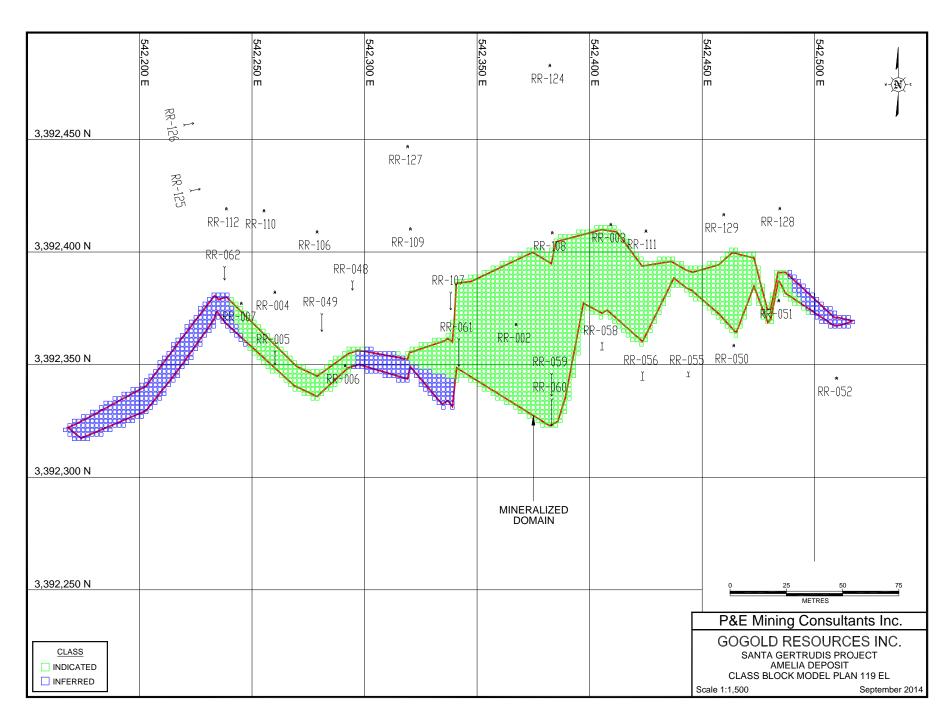


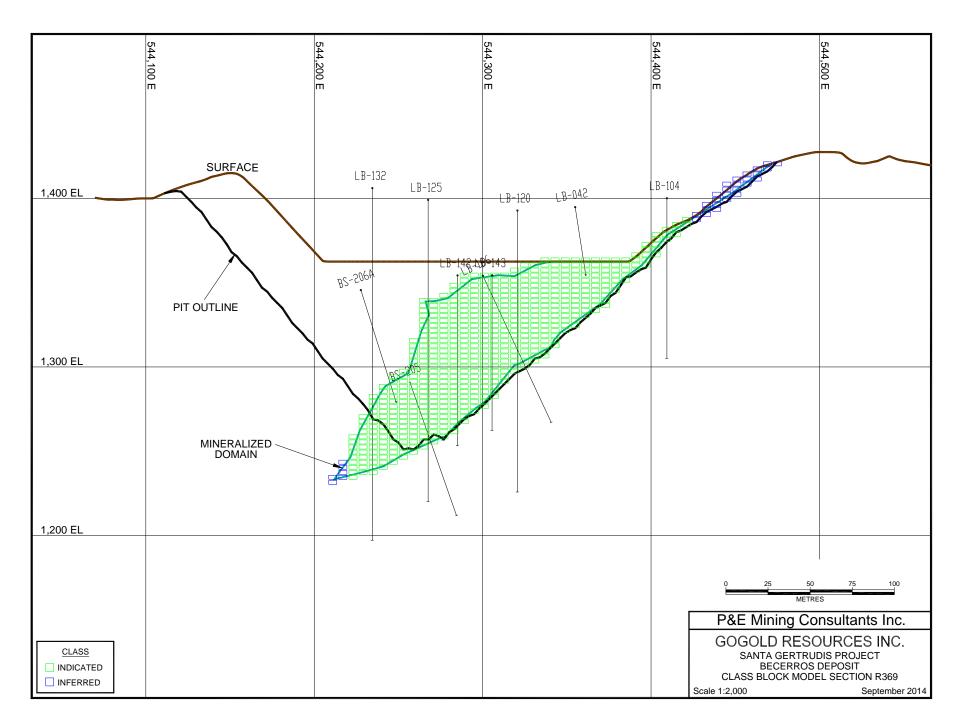


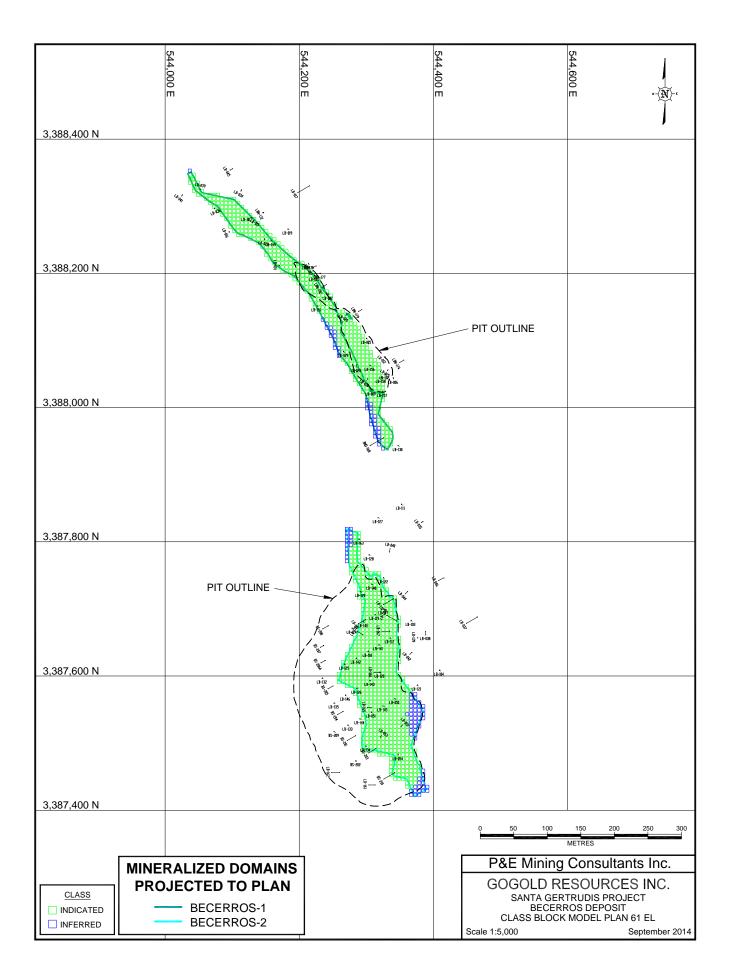


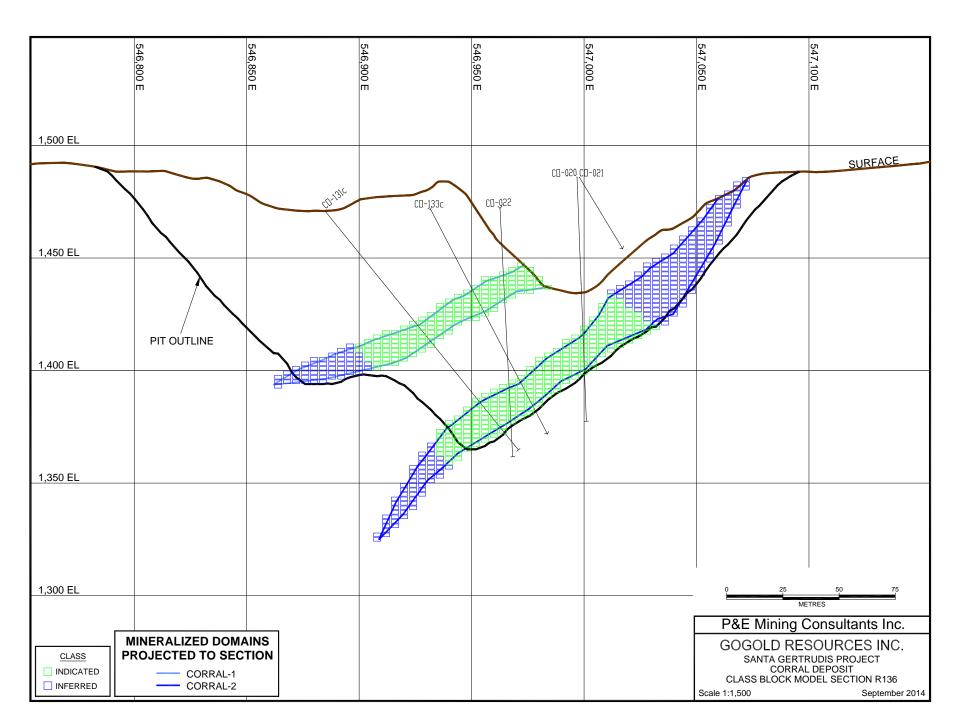
#### APPENDIX VI. CLASSIFICATION BLOCK MODEL CROSS-SECTIONS AND PLANS

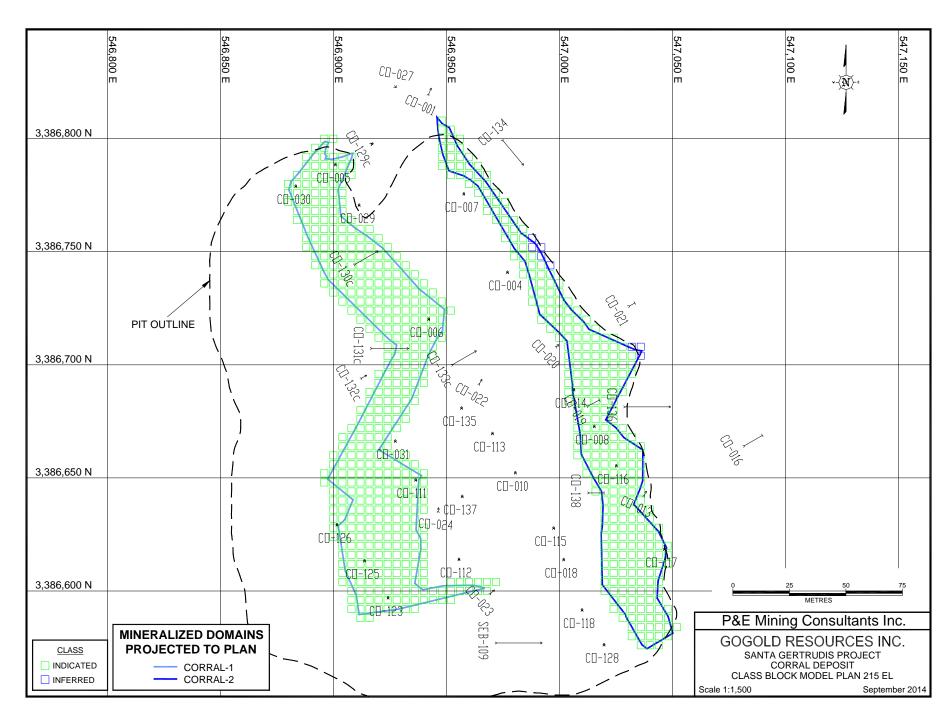


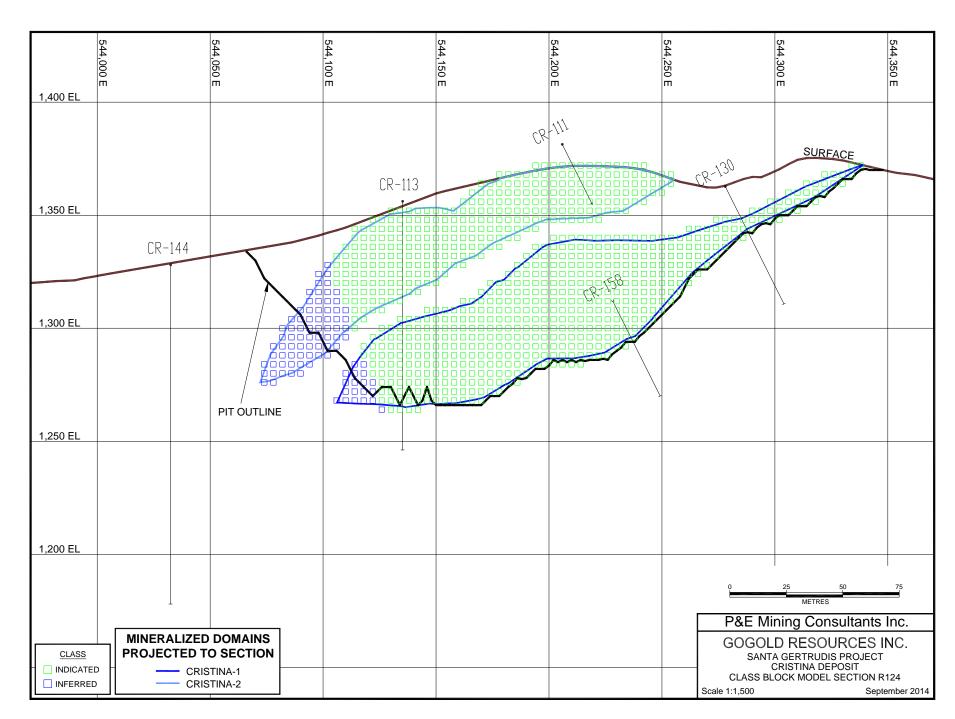


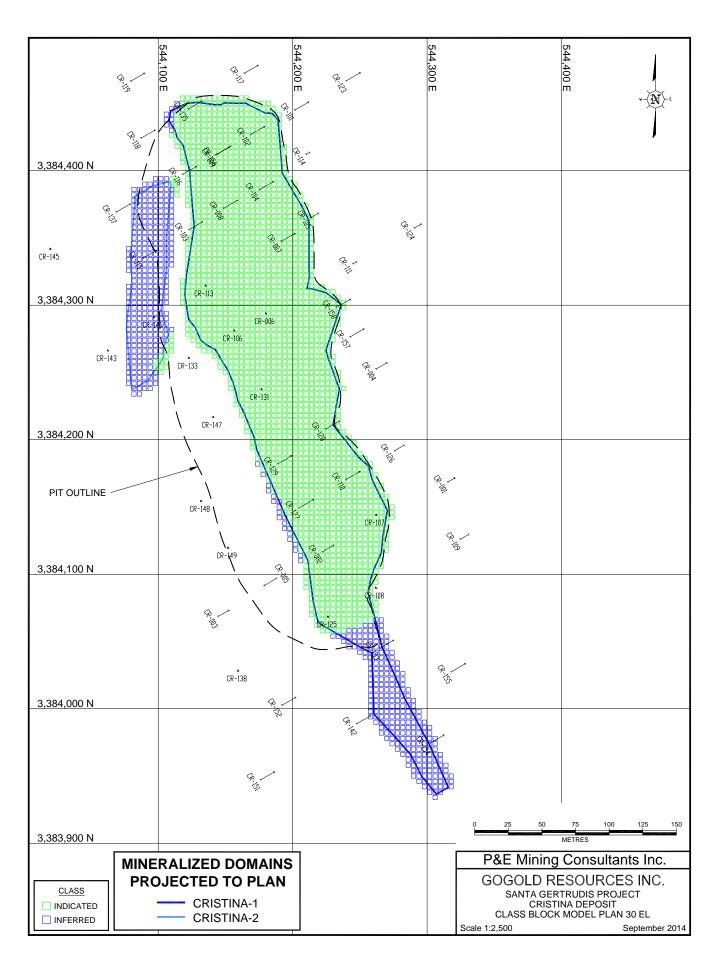


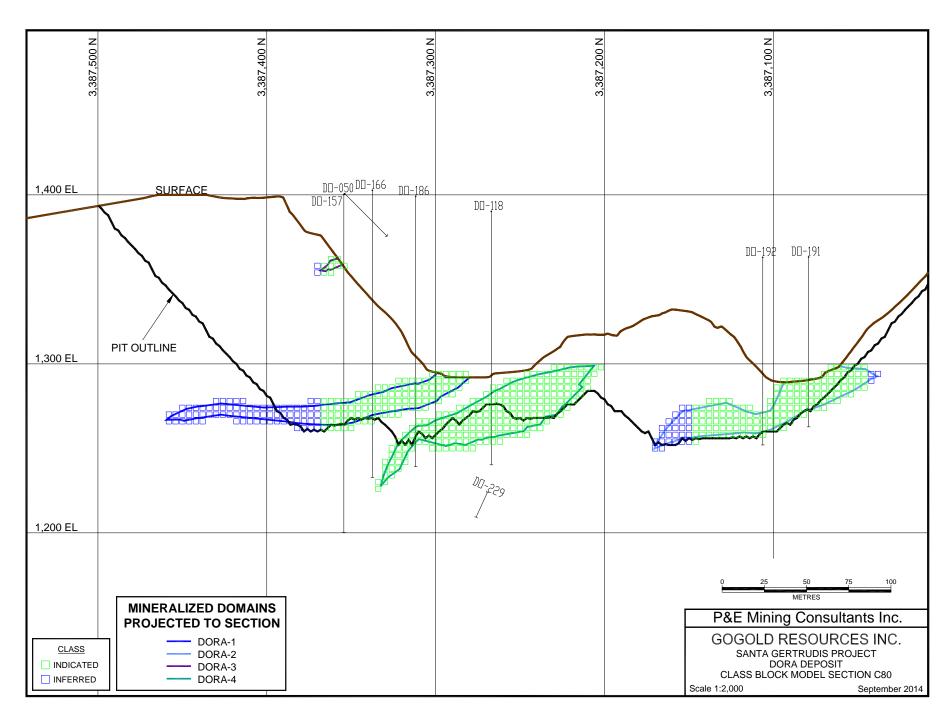


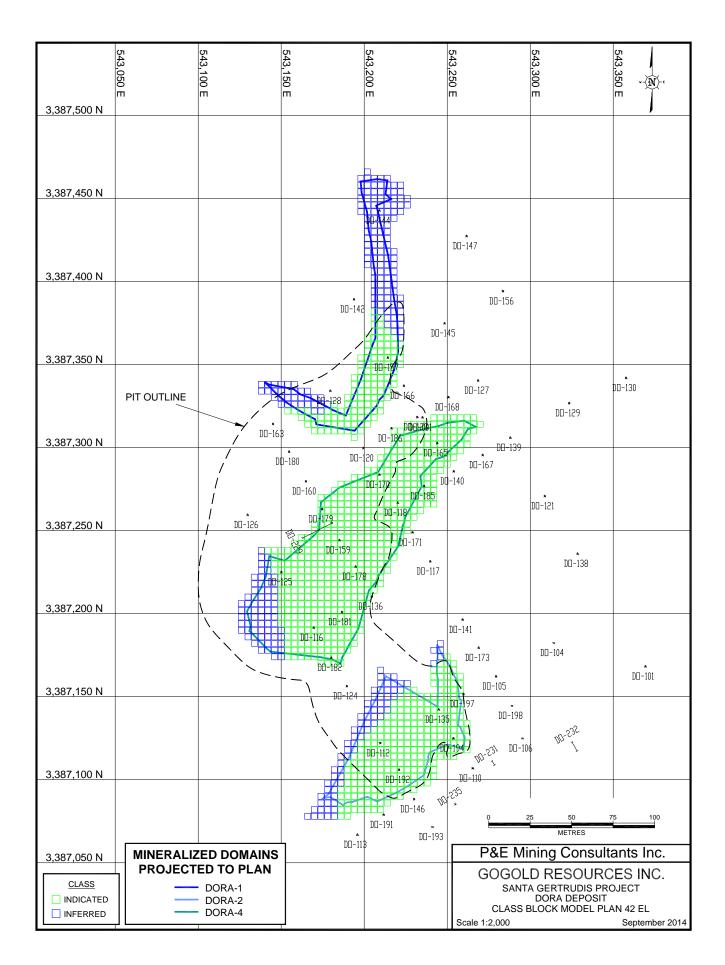


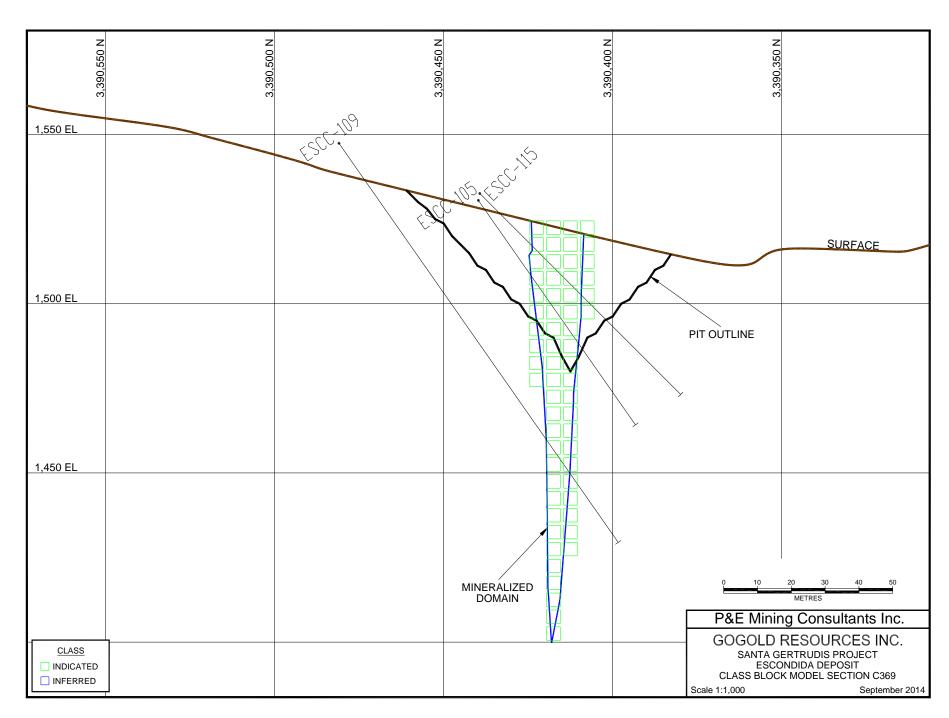


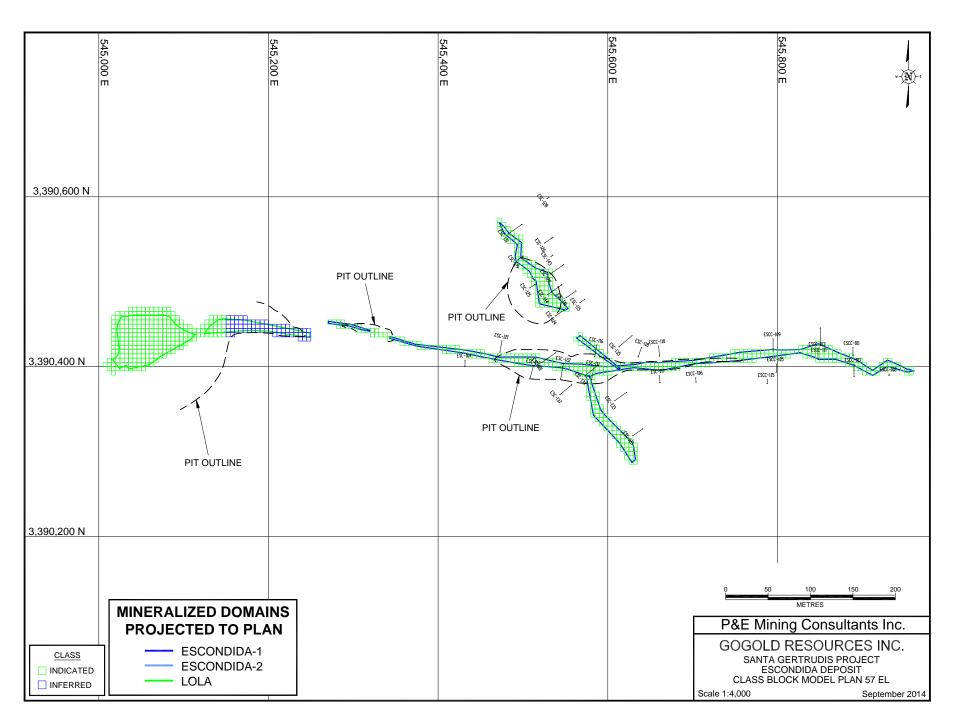


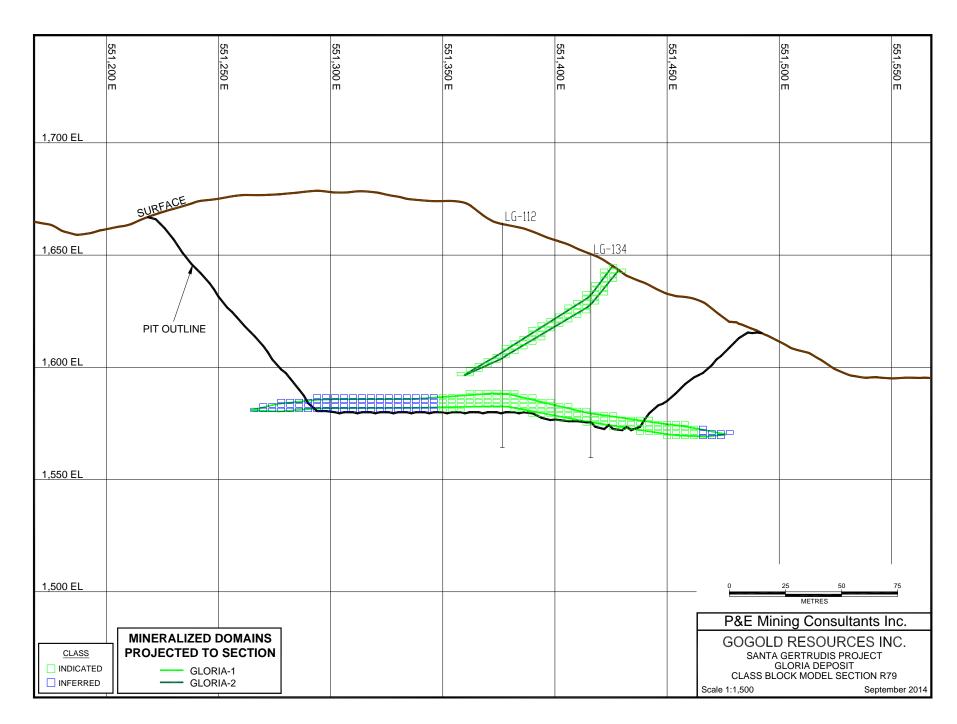


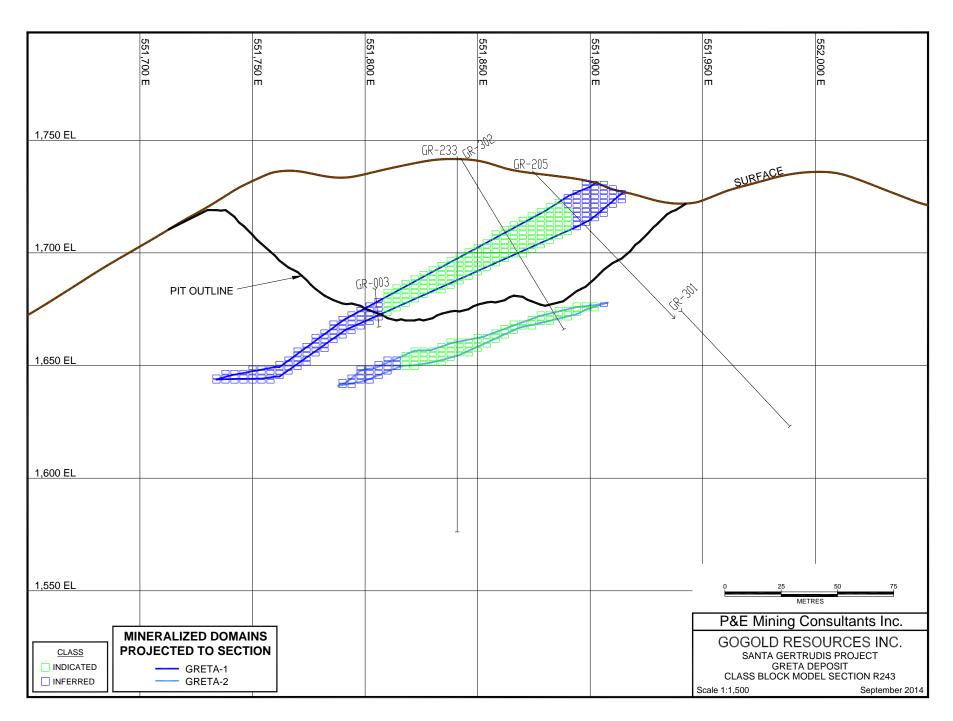


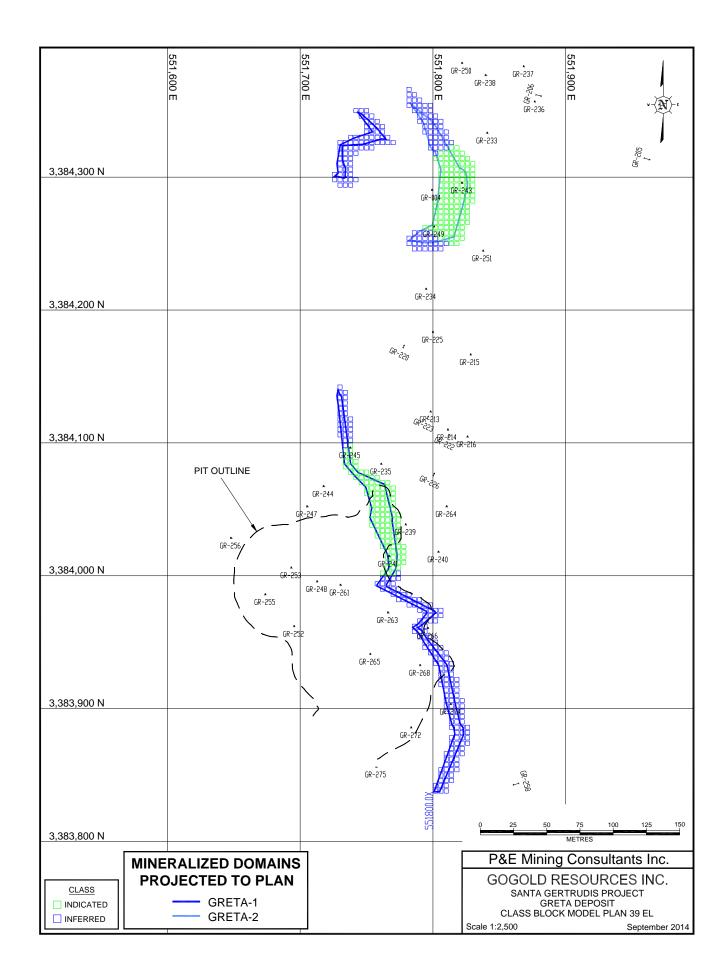


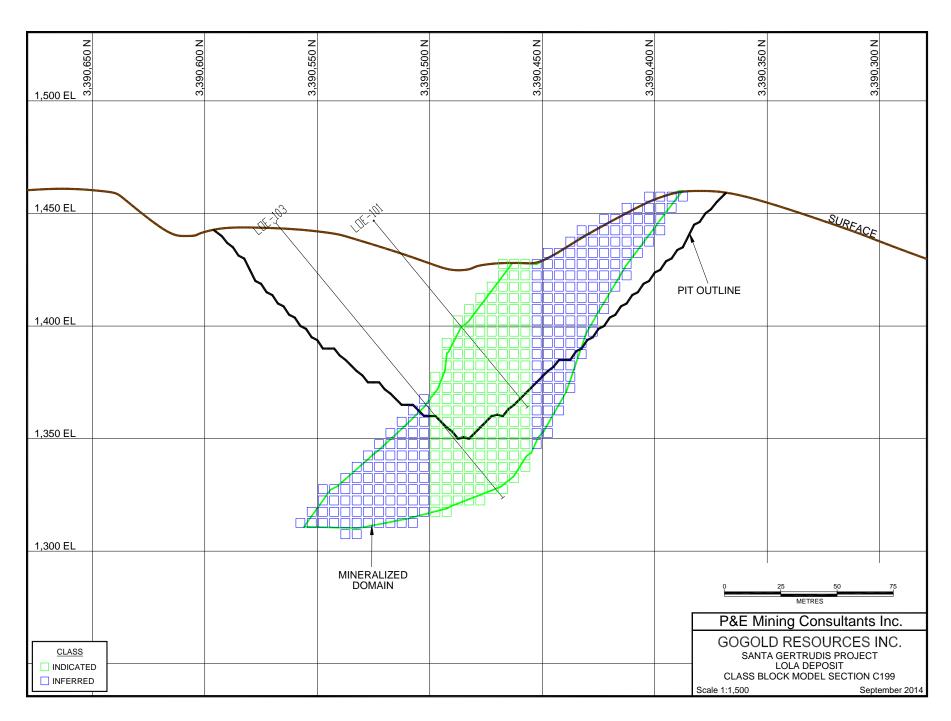


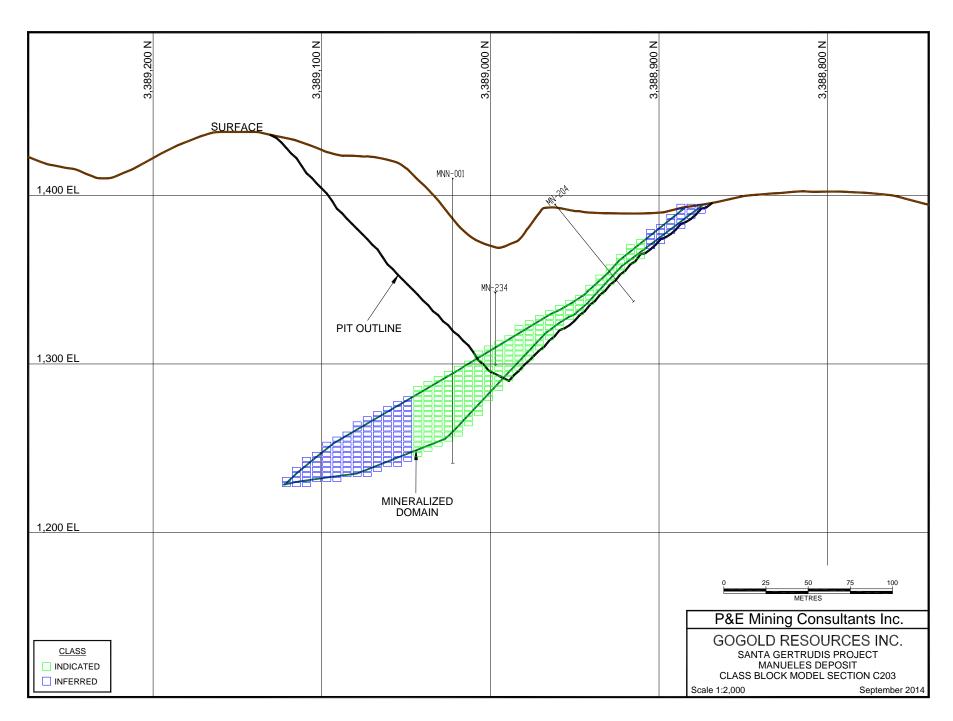


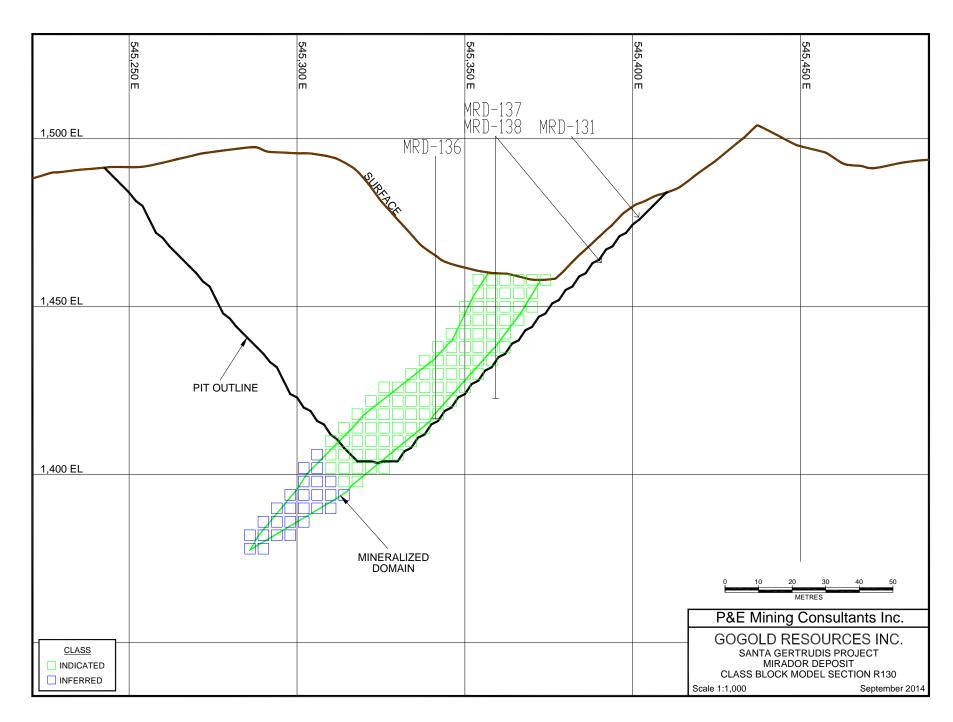


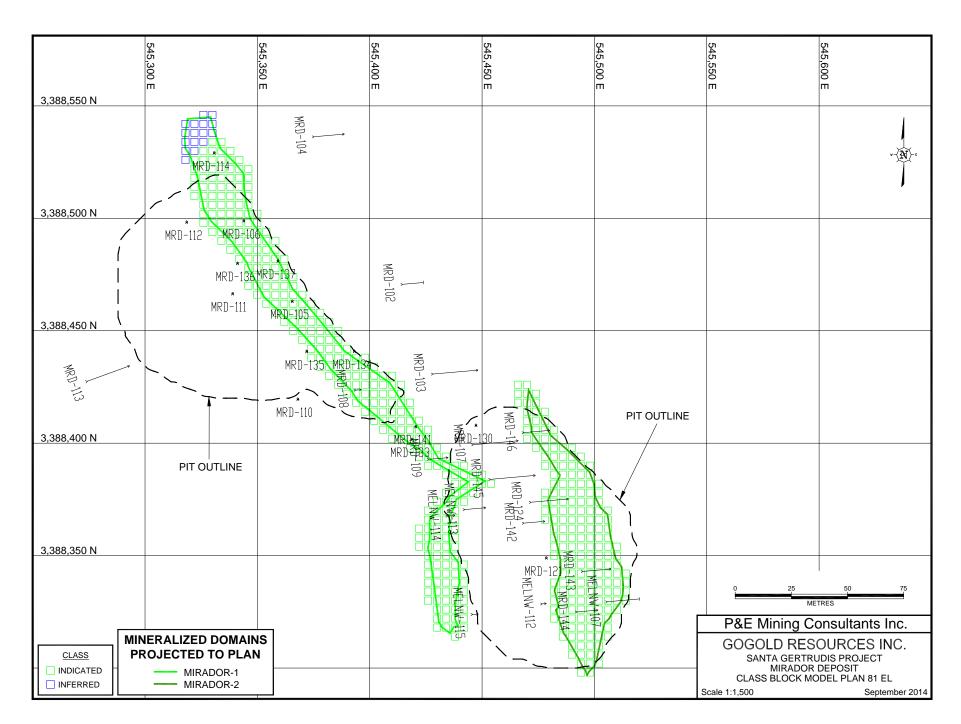


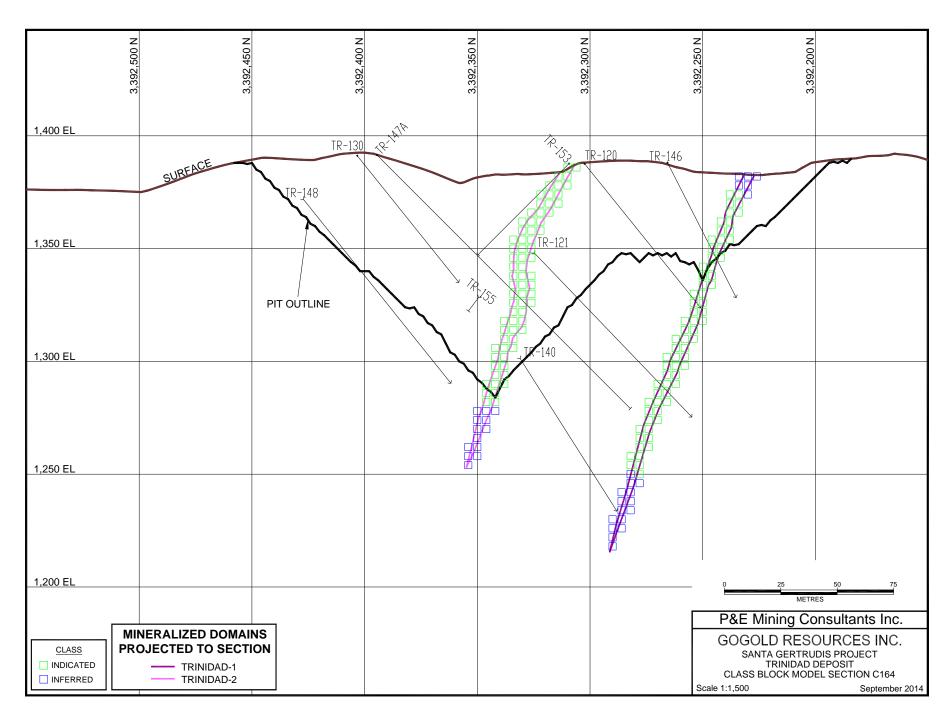


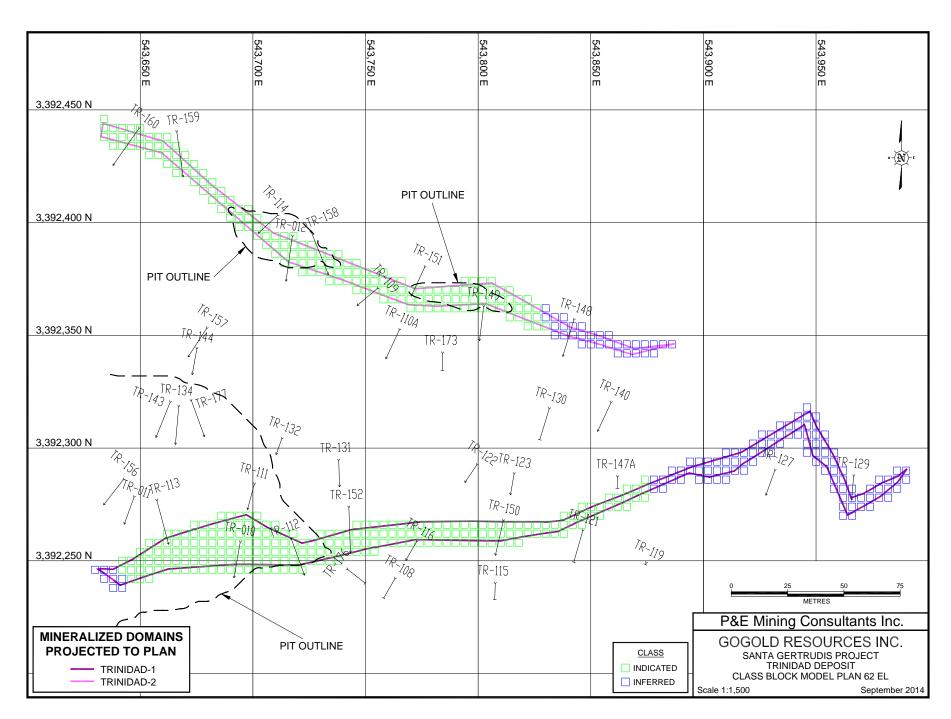






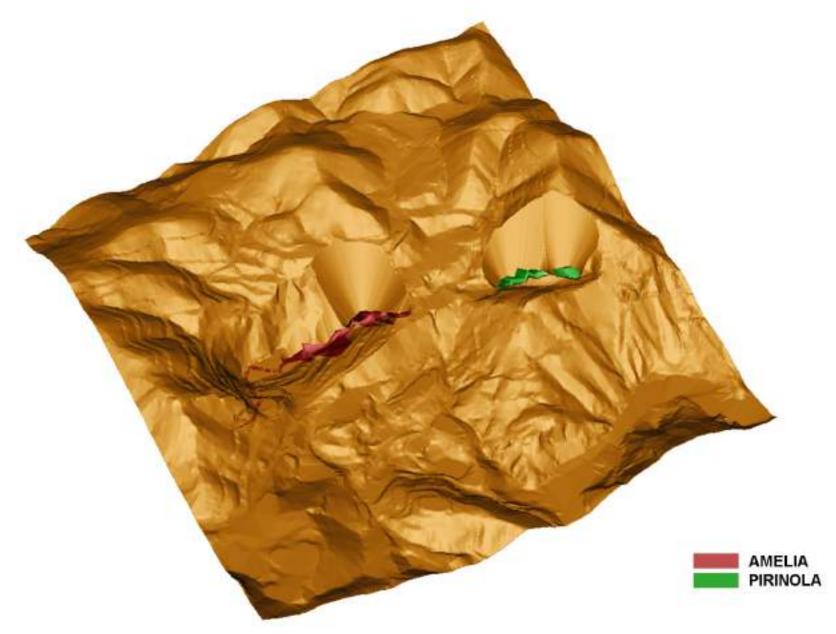




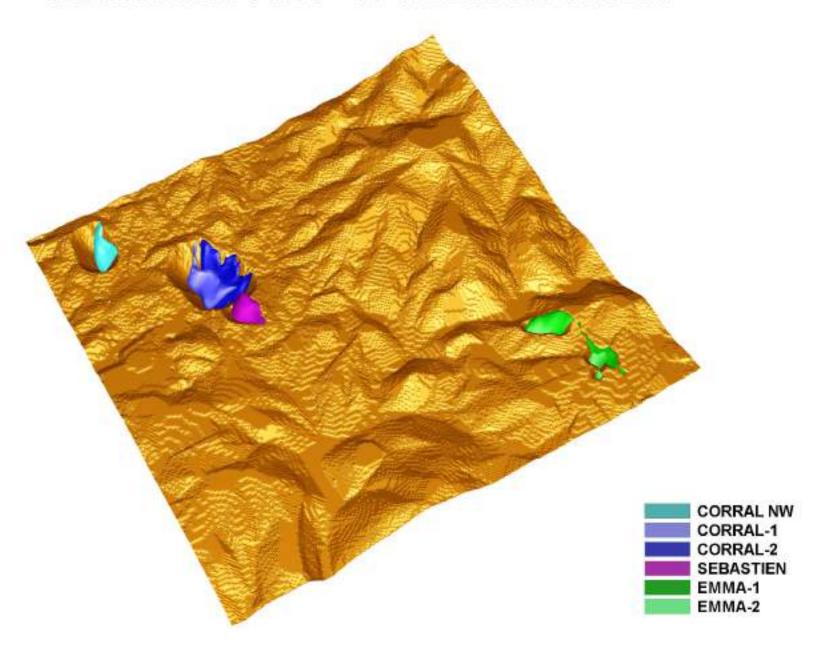


#### APPENDIX VII. OPTIMIZED PIT SHELLS

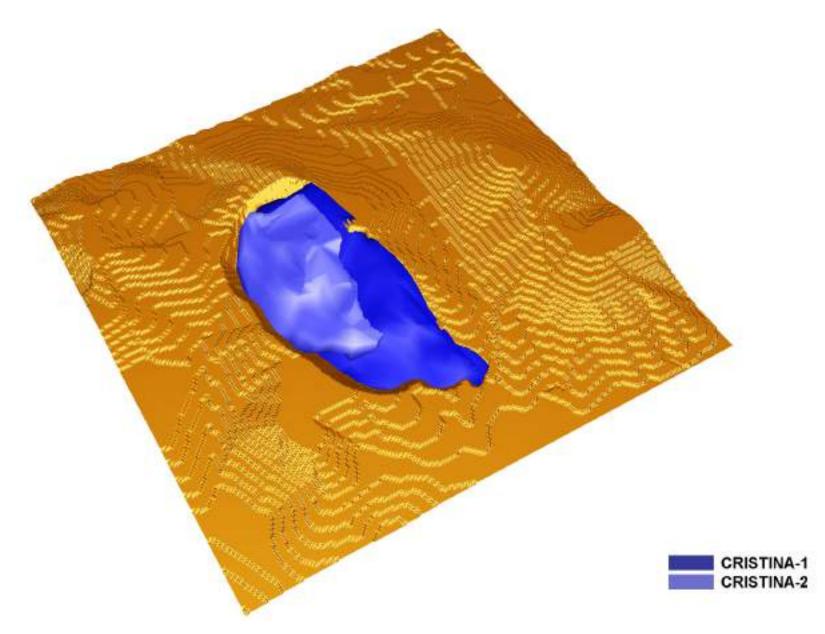
### **AMELIA DEPOSITS - OPTIMIZED PIT SHELLS**



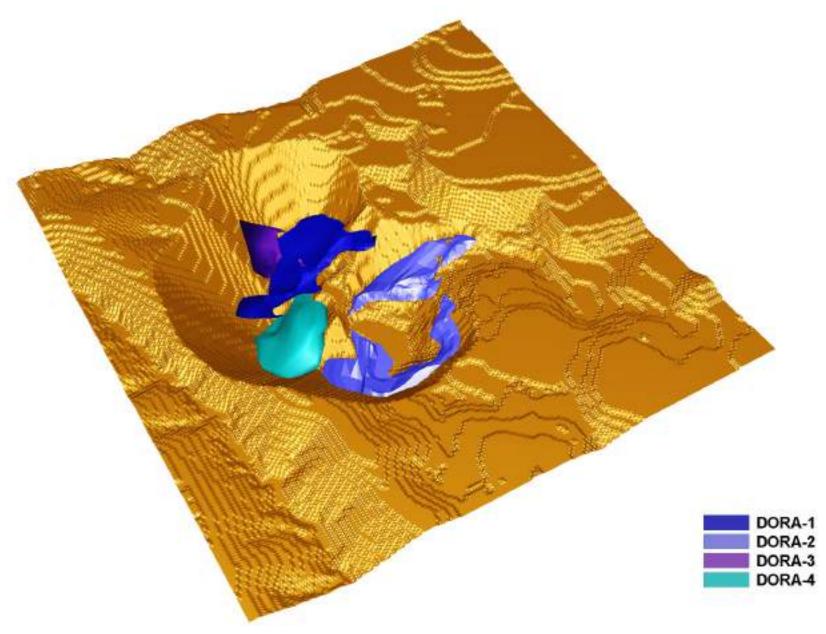
### **CENTRAL DEPOSITS - OPTIMIZED PIT SHELLS**



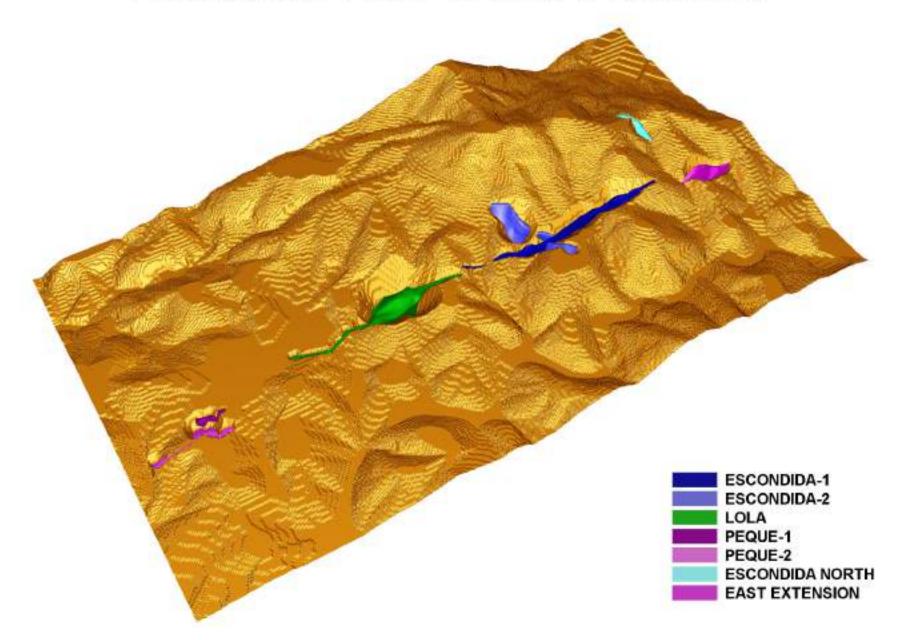
## **CRISTINA DEPOSIT - OPTIMIZED PIT SHELL**



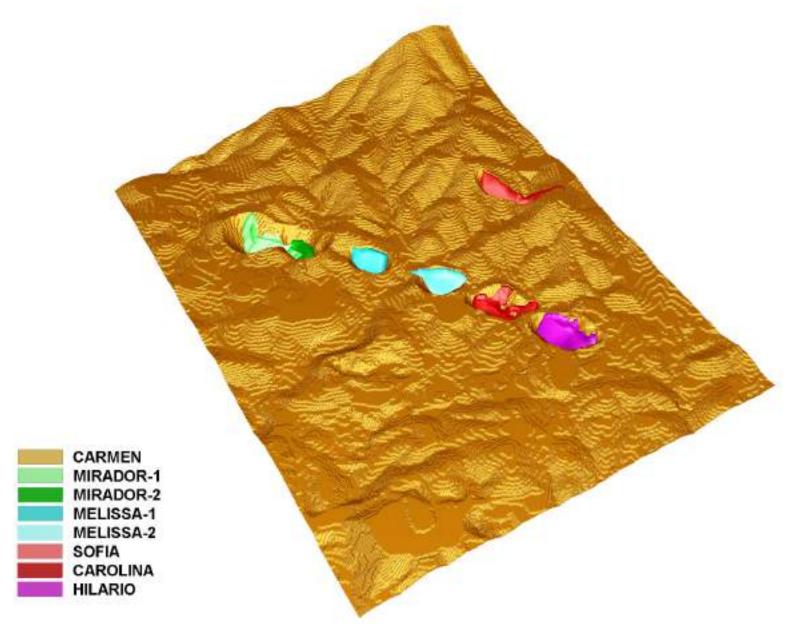
# DORA DEPOSIT - OPTIMIZED PIT SHELL



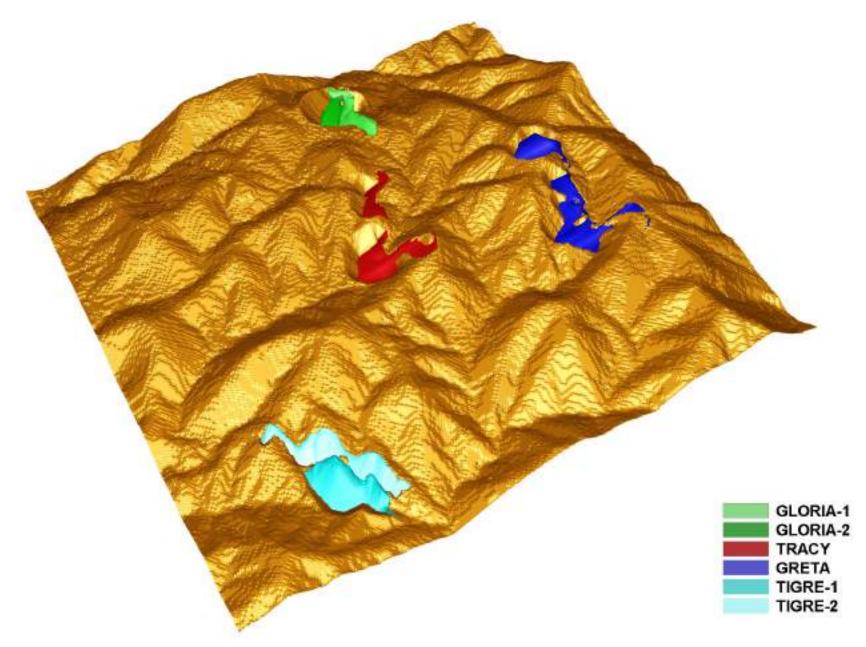
### **ESCONDIDA DEPOSIT - OPTIMIZED PIT SHELLS**



### **MIRADOR DEPOSITS - OPTIMIZED PIT SHELLS**



## **SOUTH DEPOSITS - OPTIMIZED PIT SHELLS**



## TRINIDAD DEPOSIT - OPTIMIZED PIT SHELL



#### **WEST DEPOSITS - OPTIMIZED PIT SHELLS**

