MINE DEVELOPMENT ASSOCIATES
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Amended 2018 Updated Technical Report on the Golden Arrow Project, Nye County, Nevada, U.S.A.

Prepared for

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Frontispiece: View looking southwest along the Page fault.

1.0 EXECUTIVE SUMMARY

This technical report for the Golden Arrow project was prepared by Mine Development Associates ("MDA") and consulting minerals geologist Odin D. Christensen, C. P. G. at the request of Emgold Mining Corporation ("Emgold"). In December of 2017, Emgold entered into a non-binding letter of intent with Nevada Sunrise Gold Corporation ("Nevada Sunrise") to purchase a 51% interest in the Golden Arrow property, together with a first option to acquire an additional 29% interest (the "First Option") followed by a second option to acquire the final 20% interest in the Golden Arrow property (the "Second Option"). In July of 2018, Emgold and Nevada Sunrise amended the letter of intent to allow Emgold to purchase a 51% interest in the property with an option to acquire a 100% interest. The Golden Arrow property is currently held by Intor Resource Corporation ("Intor"), a wholly-owned subsidiary of Nevada Sunrise, and is currently controlled by Nevada Sunrise. At various times in the project history, Intor carried out exploration work at Golden Arrow. The term Nevada Sunrise is used interchangeably to refer to Intor, except regarding land and legal matters.

This report has been prepared in support of Emgold's acquisition of the Golden Arrow property. The authors prepared the "Technical Report on Golden Arrow Project Nye County, Nevada, U.S.A.", which was the initial technical report on the Golden Arrow property for Nevada Sunrise in 2008 (Ristorcelli and Christensen, 2008), the "Updated Technical Report on Golden Arrow Project Nye County, Nevada, U.S.A." dated May 1, 2009 (Ristorcelli and Christensen, 2009) and the "Updated Technical Report on Golden Arrow Project Nye County, Nevada, U.S.A" dated June 9, 2010 (Ristorcelli and Christensen, 2010). In March 2018, the authors prepared another updated report titled "2018 Updated Technical Report on the Golden Arrow Project, Nye County, Nevada, U.S.A." (Ristorcelli et al., 2018) for Emgold's first disclosure of a mineral resource estimate at the Golden Arrow property. The authors are independent of both Emgold, the issuer, and Nevada Sunrise the vendor.

1.1 Introduction

The Golden Arrow property is located in south-central Nevada, approximately 40mi east of Tonopah on the western flank of the Kawich Range within the Golden Arrow mining district of central Nye County. Exploration and mining rights are owned or controlled by Nevada Sunrise. The property consists of 357 unpatented lode mining claims and 17 patented lode mining claims covering approximately 7,035 acres within Sections 15-17, 20-23, and 26-35, Township 2 North, Range 48 East, Mount Diablo Base and Meridian. The location and climate are favorable for exploration and mining year-round.

1.2 Geology and Mineralization

The Golden Arrow property is situated along the northeastern margin of the Walker Lane structural belt, a geologic terrane dominated by northwest-striking, right-lateral transcurrent faults. The district is also located near the western rim of the Kawich Range volcanic caldera. The property is underlain by a suite of Oligocene to Miocene-age andesitic to rhyolitic volcanic and volcaniclastic rocks erupted from the Kawich volcanic center. The oldest rocks exposed are andesite, andesite volcanic breccia, and andesite volcaniclastic sedimentary rocks. The andesite is overlain by a thick sequence of rhyolite ignimbrite, which is intruded by rhyolite and dacite. These rocks are overlain by rhyolitic maar volcaniclastic sedimentary rocks. All of these units are overlain by Quaternary alluvial deposits. Faults associated with caldera collapse, and later Walker Lane and Basin and Range deformation cut all rock units.

Gold-silver mineralization at Golden Arrow is typical of both volcanic-hosted low-sulfidation and hot-springs-type epithermal systems. Precious metal enrichments are associated with multi-episodic quartz-sulfide (±adularia ±ankerite ±sericite ±barite) veins, veinlets and stockwork zones within high-angle fault zones. Disseminated and stockwork mineralization also occurs within a section of rhyolitic volcaniclastic maar sedimentary rocks. The Golden Arrow mineralization is best described as consisting of low-sulfidation epithermal quartz and precious metal veins overprinted by hot-springs-style precious metal mineralization.

1.3 Exploration and Mining History

Gold was discovered in the Golden Arrow district in 1905, and within months a number of mines were in operation, exploiting high-grade gold/quartz veins to depths of up to around 400ft. Gold production continued until the 1930s, but then production declined until most mines were closed in 1942. Since 1981, 12 successive companies have conducted exploration programs at Golden Arrow. Their work included geochemical and geophysical testing, geologic mapping, and diamond and reverse-circulation percussion drilling. Limited metallurgical testing has also been conducted.

Two centers of mineralization were defined early in these modern exploration programs, and much of the work has been directed to delineating the near-surface bulk-tonnage potential of the Hidden Hill and Gold Coin zones. The Gold Coin zone measures approximately 2,000 by 900ft; Hidden Hill is generally circular in plan with a diameter of approximately 750ft. The southern edge of Hidden Hill is approximately 1,600ft from the northern edge of Gold Coin mineralization. These two centers are associated with the Confidence Mountain rhyolite block. Both the Gold Coin and Hidden Hill deposit areas were strongly affected by later steam-heated alteration, which may obscure earlier low-sulfidation veins.

Six of the prior operators at Golden Arrow have made mineral resource estimates. The historical estimates of mineral resources vary considerably, depending upon the date and method of calculation. The historical estimates presented in Section 6.5 should not be relied upon and the terms "resource" and "reserve" do not meet the standards of those terms as defined by NI 43-101. Section 14.7 of this report presents the Golden Arrow estimated resources for Emgold that meet NI 43-101 reporting criteria.

Nevada Sunrise acquired a considerable archive of exploration data, which the company has been compiling, integrating and reinterpreting, all of which is available to Emgold.

To date, Emgold has not conducted exploration at Golden Arrow.

1.4 Drilling and Sampling

Nevada Sunrise's data archives, now available to Emgold, include exploration drill information collected by seven companies over the past two decades. More than 400 hammer, air-track, reverse circulation ("RC"), and diamond drill holes have been drilled to explore for and evaluate gold-silver mineralization on the Golden Arrow property. The vast majority of this drilling has been focused on discovering and delineating the Gold Coin and Hidden Hill mineralized zones. Documentation for a large part of this drilling is available, specifically 361 drill holes for a total of 201,010ft. Of these holes, 19 are core holes and 342 are RC.

The drill results demonstrate that precious metals exist in both high-grade vein-hosted mineralization and in more widespread, disseminated mineralization within both the Gold Coin and Hidden Hill zones.

1.5 Metallurgical Testing

A total of four known metallurgical studies have been conducted on samples from Golden Arrow and were reviewed for this report. Kennecott completed scoping-level metallurgical testing by analyzing a large suite of core and cuttings samples for gold and silver, both by fire assay and cyanide-extraction atomic absorption. Dawson Metallurgical Laboratories, Inc. ("Dawson") conducted preliminary bottle-roll, cyanide-leach tests on seven drill-hole composite samples in 1987. METCON Research Inc. ("METCON") completed 13 bottle-roll tests on five drill-hole composite samples in 1994. McClelland Laboratories, Inc. ("McClelland") completed a more detailed metallurgical testing program initiated in 2008 on a total of 26 drill core composite samples. The McClelland testing included bottle-roll cyanidation tests on 23 samples, column-leach cyanidation tests (five total) on three "master" composite samples, milling/cyanidation and milling/flotation tests on four high grade samples, and gravity concentration tests on seven samples.

Results from cyanidation testing conducted at Dawson, METCON and McClelland indicate that the Golden Arrow oxide material is amenable to cyanidation treatment, and that the Golden Arrow sulfide material tends to be more refractory to cyanidation treatment. Results from column testing conducted at McClelland indicate that gold recoveries of 55% to 75% can be expected by heap leaching of the Golden Arrow oxide material at a minus ½in feed size. Reagent consumptions for heap leaching of the Golden Arrow oxide material are expected to be low to moderate. Gold recovery from heap leaching of the sulfide material is expected to be lower. Results from a single column test on 3/8in feed size indicate a 55% heap-leach recovery for the sulfide material. Additional test work will be required prior to reserve definition and production planning for heap leaching of the Golden Arrow mineralized material.

It should be noted that the calculated head grades for the samples subjected to column testing ranged from 0.039 to 0.077 oz Au/ton, which is significantly higher than the Golden Arrow resources discussed later in this report. Further metallurgical testing will be required to determine the effects of gold grade on heap leach recoveries.

A limited amount of milling/cyanidation, milling flotation and milling/gravity concentration testing was conducted at McClelland. Results showed that higher gold recoveries (82% to 89%) can be obtained from the high-grade oxide and sulfide materials by milling/agitated cyanidation treatment. Earlier testing at METCON on a smaller number of samples indicated lower milling/cyanidation gold recoveries (48% to 60%) for sulfide or mixed (oxide/sulfide) materials.

Testing at McClelland showed that higher gold recoveries (67% to 83%) can be obtained from the high-grade sulfide material by milling/flotation treatment, and that the higher-grade oxide material responded well (59% to 69% gold recovery) to milling/gravity concentration treatment. The reported flotation and gravity concentration recoveries do not account for losses of gold and silver that may occur during subsequent processing of the respective concentrate products for recovery of gold and silver. Further testing and economic trade-off studies would be required to determine the applicability of these higher-cost processing methods for treatment of the Golden Arrow ore.

1.6 Resources

The resource reported herein is that of Ristorcelli and Christensen (2009), which was an update to the first technical report in accordance with NI 43-101 completed for Nevada Sunrise in 2008 (Ristorcelli and Christensen, 2008). No further information on the 2009 resource estimate has been added for the current report, although the project drilling database has been updated with the results of drilling done in 2010 and 2012. The 2010 and 2012 drilling data were distant from the estimated resources and except for two holes, have no effect on the 2009 resource estimate. One of the post-2009 drill holes was drilled within and one adjacent to the 2009 resource block model, but neither were found to have a material impact on the 2009 estimated resources. Therefore, the estimate reported in Ristorcelli and Christensen (2009) is considered current for Emgold and is presented in this technical report. The project database has an effective date of November 28, 2017, and the effective date of the resource estimate is November 28, 2017.

The outcome of this work is a Measured, Indicated and Inferred resource (Table 1.1). The gold-equivalent calculation used for reporting cutoffs was based on a gold to silver price ratio of 55 to 1, respectively. Gold-equivalent calculations reflect gross metal content and have not been adjusted for metallurgical recoveries or relative processing and smelting costs. The gold-equivalent grades were used only for establishing cutoff grades. Like all resource estimates, additional work is warranted, such as sample integrity work.

Table 1.1 Golden Arrow Project Total Gold and Silver Resources

Classification	Total				
Cutoff		Au		Ag	
	Tons	oz/ton	Ounces	oz/ton	Ounces
Measured					
Variable	1,850,000	0.028	52,400	0.43	796,000
Indicated					
Variable	10,322,000	0.024	244,100	0.31	3,212,000
Measured and Indicated					
Variable	12,172,000	0.024	296,500	0.33	4,008,000
Inferred					
Variable	3,790,000	0.013	50,400	0.33	1,249,000

Note: cutoff grades are 0.01 oz AuEq/ton for oxide and 0.015 oz AuEq/ton for sulfide

1.7 Summary and Conclusions

For the first technical report prepared for Nevada Sunrise by Ristorcelli and Christensen in 2008, the authors reviewed reports and data from prior exploration efforts and provide a historical summary of prior work. During 2008, Nevada Sunrise, for the first time for this project area, compiled all available historical exploration information into a GIS database for integrated review and interpretation. Furthermore, additional drilling in 2008, 2010 and 2012 validated historical work and upgraded confidence. Geological mapping by Nevada Sunrise and others, soil geochemistry, and geophysical surveys highlight a number of exploration targets within the property, in addition to the known mineralized centers at Hidden Hill and Gold Coin, which have yet to be drill tested. These are considered by Emgold to have strong exploration potential.

1.8 Recommendations

The Golden Arrow gold-silver property is a property of merit that warrants continued exploration. The authors recommend that Emgold undertake continued systematic exploration to discover additional centers of mineralization within the Golden Arrow property.

It is recommended that Emgold undertake a phased approach to advance the Golden Arrow project, with the goal of completing a Preliminary Economic Assessment ("PEA") on the property by the end of Phase 2. It is recommended that Phase 1 include a comprehensive review of the present technical data to define potential drilling targets for discovery of new mineral centers and identify locations for drilling within the current resource areas to upgrade mineral resources from Inferred to Indicated classification. Following this review, preparation of a new geological map for the project area is recommended for clarification of district volcanic stratigraphy, and preparation of several geological cross sections based upon all mapping and drilling information. Rock-chip and soil geochemistry will complement the geological mapping. The proposed budget for Phase 1 recommended work is $150,000.

Following the completion of Phase 1, a decision would need to be made whether or how to proceed with Phase 2. Phase 2 would include drilling and metallurgical test work followed by a scoping study and potentially a PEA, depending on the scoping study results.. The budget for Phase 2 could potentially range from $1,000,000 to $3,000,000. Exploration drilling is presently warranted even without Phase 1, but Phase 1 will be used to design the drill program for Phase 2.

2.0 INTRODUCTION AND TERMS OF REFERENCE

Mine Development Associates ("MDA") and consulting minerals geologist Odin D. Christensen, C. P. G., have prepared this updated technical report for the Golden Arrow project, Nye County, Nevada, at the request of Emgold Mining Corporation ("Emgold"), a British Columbia corporation (TSX-V: EMR) and the issuer of this report. In December of 2017, Emgold entered into a non-binding letter of intent with Nevada Sunrise Gold Corporation ("Nevada Sunrise") to purchase a 51% interest in the Golden Arrow property, together with a first option to acquire an additional 29% interest (the "First Option") followed by a second option to acquire the final 20% interest in the Golden Arrow property (the "Second Option"). In July of 2018, Emgold and Nevada Sunrise amended the letter of intent to allow Emgold to purchase a 51% interest in the property with an option to acquire the remaining 49% interest. The authors prepared the initial technical report on the Golden Arrow property for Nevada Sunrise in 2008 (Ristorcelli and Christensen, 2008) and prepared updated technical reports dated May 1, 2009 (Ristorcelli and Christensen, 2009) and June 9, 2010 (Ristorcelli and Christensen, 2010). In March 2018, the authors prepared another updated report titled "2018 Updated Technical Report on the Golden Arrow Project, Nye County, Nevada, U.S.A." (Ristorcelli et al., 2018) for Emgold's first disclosure of a mineral resource estimate at the Golden Arrow property. This report has been prepared in support of Emgold's acquisition of the Golden Arrow property and incorporates the revised terms of the transaction and an updated approach to proposed Phase 1 and Phase 2 exploration.

The Golden Arrow property is currently held by Intor Resource Corporation ("Intor"), a wholly-owned subsidiary of Nevada Sunrise. At various times in the project history, Intor carried out exploration work at Golden Arrow. The term Nevada Sunrise is used interchangeably to refer to Intor, except regarding land and legal matters described in Section 4.2, Section 4.3 and Section 4.4.

2.1 Project Scope and Terms of Reference

The purpose of this report is to support the acquisition of the Golden Arrow property by Emgold. This report incorporates the revised acquisition terms between Emgold and Nevada Sunrise, and includes minor changes to recommended Phase 1 and Phase 2 exploration, but is otherwise taken from Ristorcelli et al. (2018).

This report has been prepared in accordance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101 *Standards of Disclosure for Mineral Properties* ("NI 43-101"), Companion Policy 43-101CP, and Form 43-101F1, as well as with the Canadian Institute of Mining, Metallurgy and Petroleum's CIM Definition Standards on Mineral Resources and Reserves ("CIM Standards") adopted by the Canadian Institute of Mining Council on May 10, 2014. The effective date of this technical report is August 28, 2018.

The mineral resources herein were estimated and classified by Mr. Steven J. Ristorcelli, C.P.G., Principal Geologist for MDA, according to the CIM Standards. Mr. Ristorcelli co-author of this report, is a Qualified Person under NI 43-101 and is independent of Emgold and Nevada Sunrise. Dr. Odin Christensen, also a Qualified Person and co-author, is independent of Emgold and Nevada Sunrise.

The scope of this study included a review of pertinent technical reports and data provided to MDA by Emgold and previous operators relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, interpretations, historical resources, and metallurgical testing. Almost all of the information reviewed by MDA in order to complete this report is the result of work by previous operators of the Golden Arrow project. Most of the conclusions made in this report are based on the authors' review of the work of these operators, or from personal experience of Ristorcelli or Christensen. The authors have fully relied on the data and information provided by Emgold and previous operators for the completion of this report.

Dr. Christensen visited the property numerous times during the years 2006 – 2010. During those visits, Dr. Christensen reviewed the geology, conducted geological mapping, and supervised drilling activities. On March 14, 2015, he traversed the entire property on foot and reviewed many of the known surface gold occurrences and their litho-structural settings. Dr. Christensen also verified that no drilling had been done since 2012, and there were no material changes to the project or the technical information. His most recent visit to the property was on April 29, 2018 and Dr. Christensen affirms no material work has been done on the property since 2015. Mr. Ristorcelli made a site visit on November 12, 2007. Mr. Ristorcelli reviewed the property geology, verified the locations of drill sites and reviewed project procedures.

The authors have reviewed much of the available data, conducted site visits, and have made judgments about the general reliability of the underlying data. Where deemed either inadequate or unreliable, the data were either eliminated from use or procedures were modified to account for lack of confidence in that specific information. The authors have made such independent investigations as deemed necessary in the professional judgment of the authors to be able to reasonably present the conclusions discussed herein.

2.2 Frequently Used Acronyms, Abbreviations, Definitions, and Units of Measure

The historical and technical records for past exploration of the Golden Arrow district were reported in a mixture of Imperial and international measures. All drill intervals, for example, were reported in feet, yet drill collar coordinates are in UTM meter-based coordinates. In this report, measurements are generally reported in Imperial units unless specified otherwise, such as in cases where laboratory information was originally reported in metric units. For other data MDA has made the conversions as shown below.

AA	atomic absorption spectrometry
Ag	silver
Au	gold
core	diamond drill drilling method
C^o	degrees Centigrade
F^o	degrees Fahrenheit
FA-AA	fire assay with an atomic absorption finish
ft	feet or foot
g	grams
g/t	grams per metric tonne

gal	gallon
gpm	gallons per minute
ha	hectares
in	inch
kg	kilogram
km	kilometers
L	liter
Ma	million years ago
m	meters
mi	miles
mil	0.001 inches; one one-thousandth of an inch
mm	millimeter
mt	metric tonne
μm	microns
NaCN	sodium cyanide
NSR	net smelter return
opt	troy ounces per short ton
oz/ton	troy ounces per short ton
ppb	parts per billion (parts per 10^{-9})
ppm	parts per million (parts per 10^{-6})
RC	reverse circulation drilling method
t	tonnes
ton	Imperial short ton (2,000 pounds)
UTM	Universal Transverse Mercator geographic coordinate system

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

3.0 RELIANCE ON OTHER EXPERTS

The authors are not experts in legal matters, such as the assessment of the legal validity of mining claims, private lands, mineral rights, and property agreements in the United States. The authors did not conduct any investigations of the environmental or permitting issues associated with the Golden Arrow project, and the authors are not experts with respect to these issues.

The authors have relied fully on Mr. David Watkinson, President of Emgold, to provide full information concerning the legal status of Emgold and related companies, as well as current legal title, material terms of all agreements, and material environmental and permitting information that pertain to the Golden Arrow project.

Land, legal and environmental portions of this report are based on information provided by Emgold. The authors, while responsible for Section 4, offer no professional opinions regarding the provided information. The authors are not qualified persons with respect to environmental issues and have relied fully upon Mr. Robert Pease, consultant for Nevada Sunrise and Emgold, who provided the Environmental and Permitting information summarized in Section 4.4

In two instances, Mr. William Henderson is mentioned as having taken samples and surveyed drill holes and staked claims. This is mentioned here because Mr. Henderson was President of Nevada Sunrise and was not independent. Ristorcelli and Christensen have no reason to discount any of the work completed by Mr. Henderson and have included data derived from Mr. Henderson in this study. In the case of the surveying, the authors checked some drill-hole locations and found those checked to be properly located.

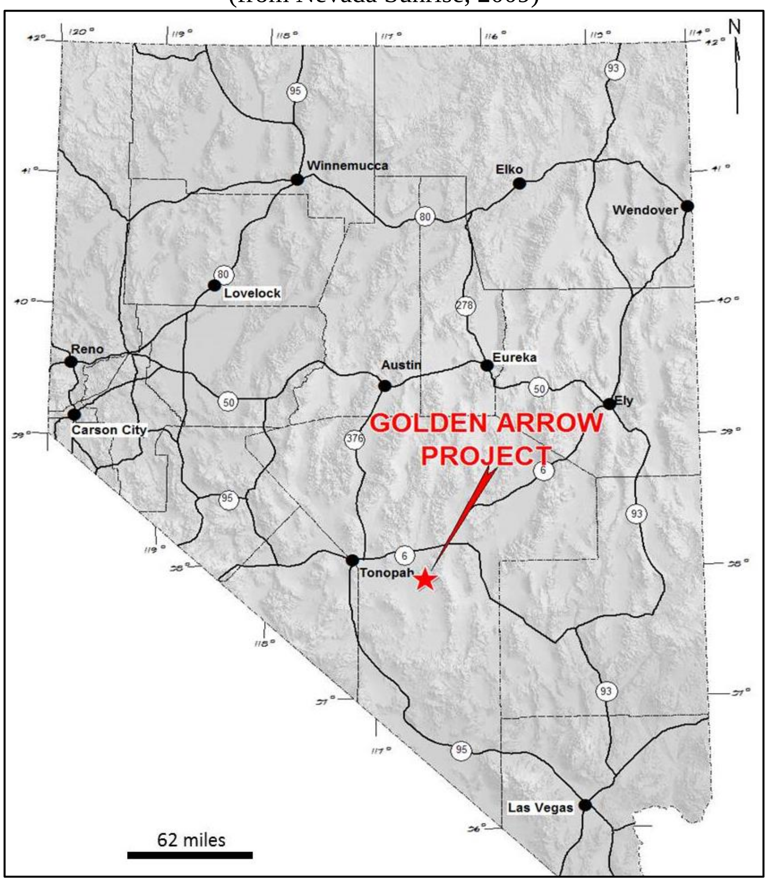
4.0 PROPERTY DESCRIPTION AND LOCATION

This section is based on information provided to MDA by Emgold. The authors present this information to fulfill reporting requirements of NI 43-101 and express no opinion regarding the legal or environmental status of the Golden Arrow project.

4.1 Location

The Golden Arrow project is located in south-central Nevada, within the Golden Arrow mining district, approximately 40mi east of Tonopah, the county seat of Nye County, Nevada (Figure 4.1). The property is situated on the western flank of the Kawich Range, along the eastern margin of Stone Cabin Valley, approximately six miles from the northern boundary of the Tonopah Test Range of the Nellis Air Force Bombing and Gunnery Range.

Figure 4.1 Location Map of the Golden Arrow Project
(from Nevada Sunrise, 2009)



The Golden Arrow property is situated in all or portions of Section 1, Township 1 North, Range 47 East; Sections 4-6, Township 1 North, Range 48 East; Section 36, Township 2 North, Range 47 East; and Sections 15-17, 20-23, and 26-35, Township 2 North, Range 48 East, Mount Diablo Base and Meridian. The property is generally centered on the topographic feature of Confidence Mountain at UTM coordinates 535,200 East; 4,205,500 North; North American Datum 1927, Zone 11, or 37° 59′ North latitude and 116° 37′ West longitude. The Stone Cabin Ranch SE, Stone Cabin Ranch SW, Stinking Spring, and Stinking Spring NW 7.5-minute topographic maps of the United States Geological Survey cover the project area.

4.2 Land Area

The Golden Arrow property consists of 357 unpatented lode mining claims and 17 patented lode mining claims totaling approximately 7,035 acres as summarized in Table 4.1 and shown in Figure 4.2 A listing of the individual claim names and their U.S Bureau of Land Management ("BLM") serial numbers is presented in Table 4.2, Table 4.3, Table 4.4, and Table 4.5. The claims are 100% owned or controlled by Intor, a wholly-owned subsidiary of Nevada Sunrise.

Table 4.1 Summary of Golden Arrow Claim Groups and Ownership

Claim Group	Number and Type	Ownership
Clogau Claims	17 Patented Claims	Owned by Intor
Pomroy Neighbors Claims	6 Unpatented Claims	Owned by Intor
Nevada Eagle (Newmont) Claims	185 Unpatented Claims	Leased
Intor Claims	166 Unpatented Claims	Owned by Intor
Total	**374 Claims**	

The BLM administers unpatented claims on Federal lands under the Mining Law of 1872. Annual BLM maintenance fees for claims, payable by noon on September 1 of each year, are $155 for each claim, or an estimated $55,335. There is no expiration date for the unpatented claims as long as the annual maintenance fees are paid by noon on September 1 of each year. Annual Nye County, Nevada Affidavit of Notice of Intent to Hold fees for claims, payable annually by October 31, are $12.00 for each claim, or $4,284. For the patented claims, which are real property and have no expiration date, annual property taxes are paid to Nye County. Emgold has represented that all of the claims are valid until August 31, 2019, after which the annual Maintenance and Affidavit of Notice of Intent to Hold fees will be due.

Under the Mining Law of 1872 the holder (locator) of mining claims on BLM-administered land has the right to explore, develop and mine minerals on their claims without payment of royalties to the Federal Government. Nevada taxes on mining are calculated both against royalties paid to property owners or claim holders, and also against the net proceeds of mining. Royalties paid to property owners or claim holders are taxed at 5% with no deductions. If net proceeds of a mine in the year exceed $4.0 million, the tax rate is 5% of the net proceeds. If it is less than $4.0 million the tax rate is as outlined in Table 4.6 below.

The patented mining claims were surveyed in 2010 by Kevin D. Haskew of Advanced Surveying and Professional Services. The unpatented claims have not been surveyed by a licensed Mineral Land Surveyor. However, the unpatented claims staked by Intor were laid out in a Geographical Information System ("GIS") program and were located in the field using high-precision Global Positioning System ("GPS") surveying equipment.

Figure 4.2 Map of the Golden Arrow Property, 2017
(from Emgold, 2017)

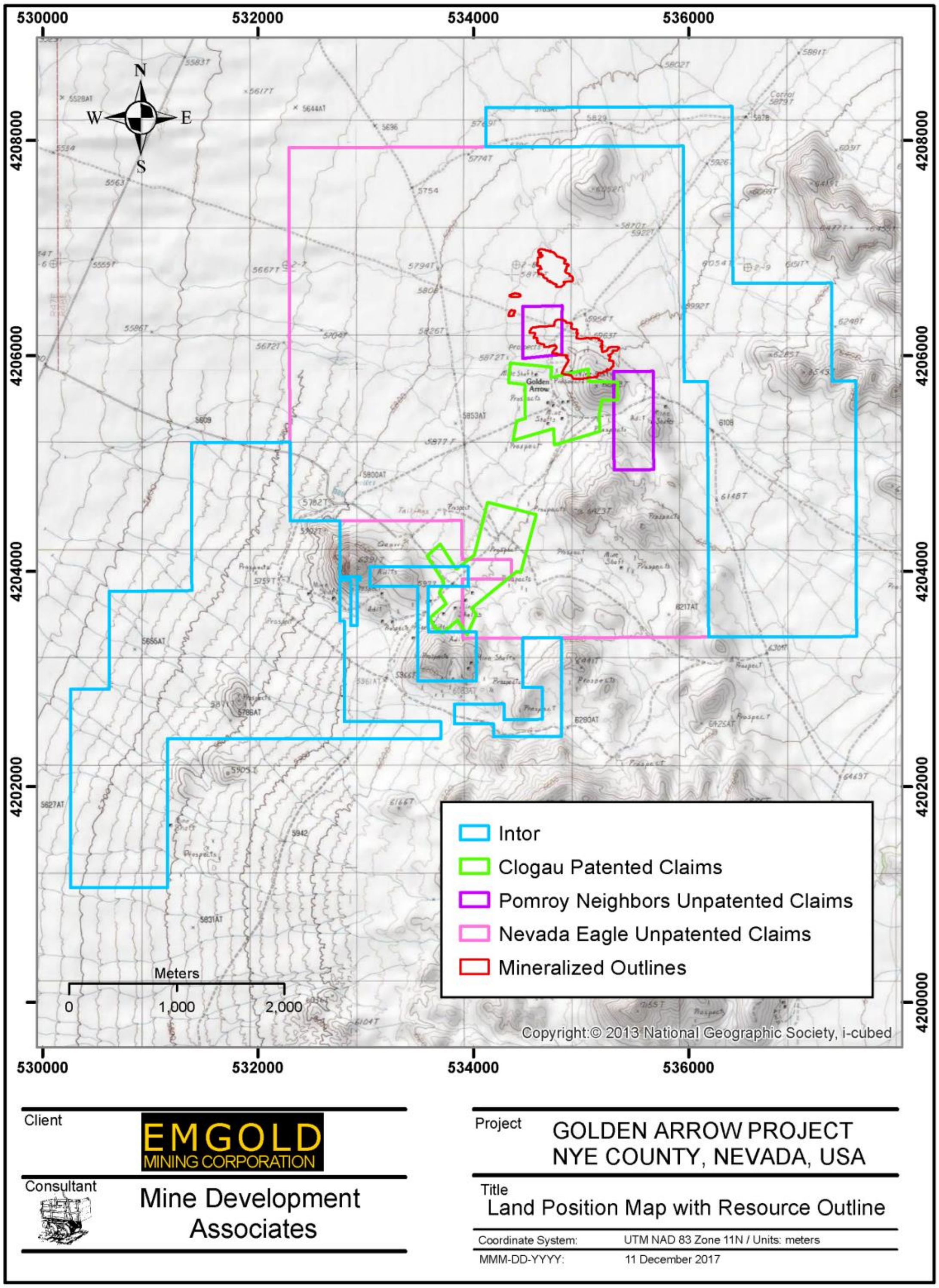


Table 4.2 Intor's Patented Lode Mining Claims Purchased from Clogau

Claim Name	Mineral Survey Number	Patent Number
Apache	4164	472971
Best of All	4164	472971
Big Hope	4164	472971
Fayette	4164	472971
King of All	4164	472971
Moki	4164	472971
Papoose	4164	472971
Washington	4164	472971
Waucoma	4164	472971
Confidence	4535	895516
Desert	4535	895516
Golden Bar	4535	895516
Golden Anchor	4535	895516
Fortunatus	4535	895516
Lucky Strike	4535	895516
Summit	4535	895516
Wedge	4535	895516

Table 4.3 Pomroy Unpatented Lode Mining Claims Purchased by Intor

Claim Name	BLM Number
GPP 156-157 and 165-168	NMC 882200-882205

Table 4.4 Unpatented Lode Mining Claims Leased from Nevada Eagle (Newmont)

Claim Name	BLM Numbers
Hidden Hill 34	825234
Sunrise 1-18	831053 - 831070
Sunrise 25-42	831071 - 831088
Sunrise 49-66	831089 - 831106
Sunrise 99	831108
Sunrise 108-111	831109 - 831112
Sunrise 128-133	831113 - 831118
GAW 1-48	848482 - 848529
Sunrise 19-24	848530 - 848535
Sunrise 43-48	848536 - 848541
Sunrise 67-96	848542 - 848571
Sunrise 98	848572
Sunrise 100-107	848573 - 848580
Sunrise 112-122	848581 - 848591
Sunrise 124-127	848592 - 848595
Sunrise 150-154	848596 - 848600

Table 4.5 Unpatented Lode Mining Claims Staked by Intor

Claim Name	BLM Number
GAN 2-3	1029058-1029059
GAN 14-17	1029060 - 1029063
GAN 28 - 31	1029064 - 1029067
SUNRISE 301	1029068
SUNRISE 313	1029069
GAS 1 - 28	1029070 - 1029097
GAS 36	1029098
GAS 38 - 44	1029099 - 1029105
GAS 55 - 64	1029106 - 1029115
GAS 79	1029116
GAS 81	1029117
GAS 83	1029118
GAS 85	1029119
GAS 87 - 92	1029120 - 1029125
F 1 - 10	1032504 - 1032513

Table 4.6 Schedule of Nevada Net Proceeds Tax

Net Proceeds as a % of Gross Proceeds	Net Proceeds Tax
Less than 10%	2%
10% or more but less than 18%	2.5%
18% or more but less than 26%	3%
26% or more but less than 34%	3.5%
34% or more but less than 42%	4%
42% or more but less than 50%	4.5%
50% or more	5%

Clogau Patented Claims

Intor purchased 17 patented lode mining claims in two noncontiguous blocks by way of various written agreements from Clogau (Nevada) Inc. ("Clogau"), a Nevada corporation. The claims are located in Sections 21, 27-28, and 33 of Township 2 North, Range 48 East. A quiet title action was filed by Clogau and Nevada Sunrise LLC on July 3, 2006 prior to the acquisition of these claims to ensure quiet title. At the end of the process, the Court declared Clogau to be the owner of the claims, subject only to two royalties described below in Section 4.3.1. This judgement was filed with the Nye County Recorder as Document No. 668119. The claims were conveyed to Intor by means of a "Quitclaim Deed" dated March 12, 2008 and recorded in Nye County, Nevada on June 19, 2008 as Document No. 710728. Intor made its final purchase payment to Clogau on January 15, 2009, and the Deed of Trust securing the payment obligation was released by way of a Substitution of Trustee and Deed of Reconveyance recorded in Nye County on May 12, 2009 as Document No. 726943.

Pomroy Neighbors Unpatented Claims

Six unpatented mining claims, listed in Table 4.3, were purchased by Intor from Pomroy Neighbors, et al. ("Pomroy Neighbors"), by way of various written agreements. The claims were transferred to Intor by means of a "Quitclaim Deed with Reserved Royalty" dated July 16, 2007. The Deed was recorded in Nye County on July 27, 2007 as Document No. 690939 and filed with the Nevada Bureau of Land Management on July 27, 2007. The Deed has been modified by an "Addendum to Quitclaim Deed with Reserved Royalty" (recorded in Nye County as Document No. 714392) and a "Correction to Addendum to Quitclaim Deed with Reserved Royalty" (recorded in Nye County as Document No. 715839).

Nevada Eagle (Newmont) Unpatented Claims

Several claim blocks totaling 185 unpatented lode mining claims listed in Table 4.4, are held through a lease between Intor and Nevada Eagle Resource LLC ("Nevada Eagle"), a wholly-owned subsidiary of Newmont USA Limited ("Newmont"). The claims were originally leased through a 10-year agreement with Gerald W. and Fabiola Baughman, dated May 22, 2002 with an effective date of January 1, 2002. This agreement was subsequently amended on May 1, 2003 and June 30, 2004, and assigned from Nevada Sunrise LLC to Intor on July 19, 2006. A further amendment to the lease was made March 1, 2010 extending the mining lease by five years from 2011 to 2016. The mining lease was re-negotiated and amended again in 2013, such that after 2016 the lease could be extended year to year.

The Baughman's transferred their rights to the Golden Arrow property, along with a variety of other properties, to Nevada Eagle, a private Nevada corporation owned by them at the time of the transfer. On July 6, 2007, Gryphon Gold Corporation announced by press release that it had acquired Nevada Eagle. On May 26 2010, Fronteer Development Group Inc. announced it had acquired Nevada Eagle from Gryphon Gold Corporation. Fronteer Development Group changed their name to Fronteer Gold Corporation and, on February 3, 2011, Newmont Mining Corporation announced it was acquiring Fronteer Gold. Hence, the original underlying rights under the Baughman lease agreement are currently controlled by Nevada Eagle.

On July 3, 2018, Maverix Metals Inc. announced by press release it has acquired a portfolio of 50 royalties, including the Nevada Eagle (Newmont) royalty on Golden Arrow. Nevada Sunrise, Newmont, and Maverix Metals are in the process of transferring or assigning the royalty rights to Maverix Metals.

There is an Area of Interest ("AOI") associated with the Nevada Eagle claims. It is defined as Section 7 through 36, inclusive, of Township 2 N, Range 48 E; and Sections 1 through 12, inclusive, of Township 1 N, Range 48, MDB&M. Any claims located by either Newmont or Intor within the AOI are subject to the terms of the lease.

Intor Unpatented Claims

Intor has staked 166 unpatented lode mining claims between 2007 and 2010 as listed in Table 4.5. These claims are 100% controlled by Intor, but are subject to the AOI provision related to the Nevada Eagle group of claims.

4.3 Agreements and Encumbrances

Intor controls 100% of the Golden Arrow property, subject to underlying encumbrances. On July 16, 2018, Emgold and Nevada Sunrise announced by press release an amended non-binding letter of intent to enter into a definitive purchase and option agreement giving Emgold the right to acquire up to a 100% interest in the Golden Arrow property. The terms of the letter of intent provided that, subject to certain conditions, including TSX Venture Exchange acceptance and entry into a definitive option agreement, Emgold would initially purchase a 51% interest in the Golden Arrow property by (i) making cash payments to Nevada Sunrise in the aggregate amount of C$100,000; and (ii) issuing to Nevada Sunrise 2,500,000 common shares in the capital of Emgold (each, an “Emgold Share”).

Emgold would have an option which would give Emgold the exclusive right and option to acquire the remaining 49% interest in the Golden Arrow property, which would be exercisable by Emgold for two year period (the “Option Period”) by Emgold (i) issuing to Nevada Sunrise an additional 2,500,000 Emgold Shares.

Emgold would be responsible for all exploration holding costs during the Option Period, including claims fees, core storage fees, and Emgold will be the operator of the property during the Option Period. If the Option is not exercised, the parties would form a Nevada joint venture (the "Joint Venture"). The Joint Venture would be established as a separate company or using an existing subsidiary of Emgold or Nevada Sunrise, with 51% of the shares owned by Emgold and 49% of the shares owned by Nevada Sunrise, and with Emgold as the Operator of the Joint Venture. After forming the Joint Venture, if either party elects not to contribute to the Joint Venture and its interest falls below 10% ownership at any time (the “Diluted Party”), the other party will have the Option of purchasing the Diluted Party’s remaining interest in in the Joint Venture for $1.0 million.

4.3.1 Clogau Royalty

The Clogau patented lode claims are subject to a 1.0% net smelter return (“NSR”) royalty. Eleven of the claims, Papoose, Waucoma, Moki, Apache, Big Hope, Fayette, Desert, Summit, Lucky Strike, Wedge, and Anchor claims have an underlying NSR royalty of 1.0% payable to the Nevada Agricultural Foundation. Six of the claims, Confidence, Fortunatas, King of All, Washington, Best of All, and Golden Bar claims have an underlying NSR royalty of 1.0% payable to Mary Kane et al. Note that the royalty to Mary Kane et al. allows for deduction of all production, processing, and mining costs, so while described in the Quit Claim Deed as a NSR royalty, it would be better described as a net profits royalty (“NPI”).

4.3.2 Pomroy Neighbors Royalty

The Pomroy Neighbors claims in Table 4.3 are subject to a 3.0% NSR production royalty, with Intor retaining the right to purchase up to two points (one point being equal to a one-percent royalty interest), with $100,000 payable for each point. Beginning June 1, 2008, Intor has been making annual advance royalty payments until production commences. An annual advance royalty payment of $10,000 was paid on June 1, 2009, with payments increasing to $25,000 per year beginning June 1, 2010 and continuing in all subsequent years. The advance royalty payments accumulate as a credit toward production royalty payments. The advance royalty payment can also be reduced by one third for each point if the royalty interest is purchased prior to production.

4.3.3 Nevada Eagle Royalty

On December 30, 2013, Nevada Sunrise announced it had signed an amendment to the mining lease for the Golden Arrow property with Nevada Eagle. The advance minimum royalty payment was reduced from $50,000 to $25,000 per year and the lease can be extended on a year to year basis at Nevada Sunrise's option by making the advance royalty payment. The NSR production royalty was increased from 2.0% to 3.0% (the "amended production royalty"). The amended production royalty can be reduced by 1.0%, to a total of 2.0%, at any time by payment of US$1.0 million to Nevada Eagle.

On July 3, 2018, Maverix Metals Inc. announced by press release it has acquired a portfolio of 50 royalties, including the Nevada Eagle (Newmont) royalty on Golden Arrow. Nevada Sunrise, Newmont, and Maverix Metals are in the process of transferring or assigning the royalty rights to Maverix Metals.

4.3.4 Annual Claim Holding Costs

The total annual estimated holding costs for 2018 are US$106,965, estimated as follows:

1. $25,000 advance royalty payment to Pomroy Neighbors;
2. $25,000 advance royalty payment to Nevada Eagle (Newmont);
3. BLM claim maintenance fees totaling US$55,335 (357 claims x US$155 per claim);
4. Nye County Notice of Intent to hold fees totaling US$4,284 (357 claims x US$12 per claim); and
5. Property taxes to Nye County of US$346 per year.

4.4 Environmental Permitting and Liabilities

The information in this section was provided by Mr. Robert Pease, consultant for Nevada Sunrise. The authors are not experts with regard to environmental and permitting matters, and offer no professional opinions regarding the provided information.

Mineral exploration on the unpatented lode mining claims is conducted under the jurisdiction of the BLM. In Nevada an exploration program that disturbs less than five acres of BLM land is permitted under a Notice of Intent ("NOI") that is approved internally by BLM. A financial guarantee is required for reclamation of the area to be disturbed and abandonment of any drill holes. An exploration program that will exceed five acres of disturbance requires the applicant to develop a Plan of Operations ("PoO") for the proposed activities, which includes a Nevada Reclamation Permit ("NRP") application ("PoO/NRP") and a financial guarantee to cover land reclamation. The permitting process for a PoO includes compliance with the National Environmental Policy Act ("NEPA"). Environmental baseline studies and surveys are conducted in support of the NEPA-compliant document. In most cases of mineral exploration drilling programs, an Environmental Assessment ("EA") is prepared. Once the EA has been preliminarily completed and accepted by the BLM, public comments are solicited, received and reviewed by the BLM. All pertinent comments are responded to and the EA is finalized. The PoO/NRP is then approved by the BLM and the Nevada Division of Environmental Protection ("NDEP") Bureau of Mining Regulation and Reclamation ("BMRR").

4.4.1 Notice of Intent Drilling Programs at Golden Arrow

Three exploration drilling programs have been conducted on public land of the Golden Arrow property under the jurisdiction of the BLM. Each of these was permitted under an NOI with a reclamation bond for the proposed activities (United States Department of the Interior, Bureau of Land Management, Tonopah Field Office, 2008a, 2010, 2012). Two of these were conducted by Nevada Sunrise through their subsidiary Intor in 2008 (BLM Notice NVN-081866) and 2012 (BLM Notice NVN-090701), and one was conducted by Animas Resources in 2010 (BLM Notice NVN-088961). The reclamation bonds were increased for each NOI, and the funds were posted. Following recontouring of drill pads, the bonds were reduced, but funds remain in place for revegetation of drill sites that have not yet been completed. These three NOIs have now expired.

4.4.2 Plan of Operations for Exploration Drilling:

A PoO was necessary to conduct larger scale exploration activities around the Gold Coin and Hidden Hill resource zones on the Golden Arrow property. Intor designed and submitted a PoO to allow drilling, trenching and other exploration activities in an area of approximately 1,480 acres, comprised of approximately 120 acres of private land and 1,360 acres of public land (Enviroscientists, Inc., 2015a). This plan was processed at the BLM Tonopah Field Office as case file N-93516. It was submitted to BLM originally in January, 2015 by Enviroscientists, Inc., of Reno, Nevada, a permitting and government affairs company and consultant to Intor. It was revised in March 2015, and finalized in May 2016. The first phase of that plan was designed for approximately 240,000 feet of drilling in 240 holes on 134 drill sites. Before drilling can begin under the PoO, a work plan will need to be prepared and approved by the BLM for the first drilling program, and the reclamation bond of $94,011 will need to be posted. It is anticipated that these tasks can be completed within three months. Additional work plans and phases of drilling will be added later.

Biological field surveys were conducted through the spring and summer of 2014, and summarized in an initial report dated January 21, 2015 (Enviroscientists, Inc., 2015b). Following review by government agencies, the final report was issued April 23, 2015. A cultural survey was also conducted.

Preparation of the EA for the 1,480 acre area of the PoO began in June 2015. The plan was developed, reviewed by government agencies, and revised accordingly as document DOI-BLM-NV-B020-2015-0060-EA. After a public review period, the EA and PoO were approved by the BLM in May of 2016 (United States Department of the Interior, Bureau of Land Management, Tonopah Field Office, 2016a). The BLM Decision was a finding of “No Significant Impact”, but includes environmental protection measures (conditions of approval) to prevent unnecessary or undue degradation of public lands (United States Department of the Interior, Bureau of Land Management, Tonopah Field Office, 2016b). The environmental protection measures of most significance to exploration drilling will include the use of buffer zones to avoid several biota habitats—particularly bats living in historic mine workings and sand cholla sites, plus one cultural site.

4.4.3 Golden Arrow Access Road Plan of Development Right-of-Way

Under a Public Land Order (“PLO”), the U. S. Department of Energy (“DOE”) withdrew public lands in Nevada within the Caliente Rail Corridor to assess the possibility of using those public lands for construction and operation of an underground railroad line that would be used to transport spent nuclear fuel and waste to the proposed Yucca Mountain Repository. Although the DOE PLO expired in December 2015, a right of way is still required to cross the proposed corridor. This process is administered by BLM. In July of 2015, Intor submitted a Plan of Development for a right-of-way to allow the use of two access roads to the Golden Arrow property (Enviroscientists, Inc., 2015c). The plan was finalized and approved by BLM in May of 2016.

4.4.4 Annual Waiver for Temporary Use of Ground Water for Mineral Exploration

An annual Waiver for Temporary Use of Ground Water for Mineral Exploration is required by the Nevada Department of Conservation and Natural Resources Division of Water Resources. This permit was originally received in 2015 by Intor and was renewed in August of 2018 (State of Nevada Department of Conservation and Natural Resources Division of Water Resources, 2018). Water for use in exploration activities will be purchased from the 5 Mile Ranch, located near the property. A contract was executed in 2015 between Colvin and Sons LLC 5 Mile Ranch and Intor Resources Corporation to purchase such water.

4.4.5 Nye County Road 665 Agreement

Access to the Golden Arrow property requires using Nye County Road 665, which is also known as the Silverbow/Golden Arrow Road. This is an unpaved county-maintained road in Stone Cabin Valley that terminates at U.S. Highway 6 north of the property. It is used as secondary access to the nearby ranches and the Tonopah Test Range. Maintenance includes grading and cleaning ditches.

An agreement was required by the Nye County Department of Public Works to assure that Intor would pay for repairs to Road 665 in case of possible damage caused by equipment use during exploration at Golden Arrow. This agreement, the Nye County, Nevada Roadway Use and Damage Remediation Agreement, was approved by Nye County on March 21, 2017 (Nye County, Nevada, 2017). A performance bond in the amount of $2,148.00, required by Nye County, was paid by Nevada Sunrise on April 4, 2017.

4.4.6 Environmental Liabilities

There are a number of excavations and open shafts on the property, some of which have been fenced. Unfenced historical workings may be required to be marked and fenced in accordance with State of Nevada statutes. Ristorcelli and Christensen (2009; 2010) reported that an abandoned, incompletely reclaimed heap-leach pad and solution ponds, constructed in 1980, may be situated within or adjacent to the Golden Arrow property. The incompletely reclaimed processing site is located in Sections 29 and 32, Township 48 N, more than 1.2mi southwest of the estimated resources discussed in Section 14.7. A report prepared in 2007 by Enviroscientists Inc. for Intor (Martini, 2007) documented the incompletely reclaimed processing site and included several photographs. The report by Martini (2007) was appended to the technical reports of Ristorcelli and Christensen (2009; 2010). Martini (2007) concluded that:

> *Based on the observation during the site visit, and except as discussed below, the Property does not have any fatal flaws with regard to identified environmental liability. Wastes generated from, and structures associated with historic mining and exploration activities will affect any future*

actions that require compliance with the National Environmental Policy Act (NEPA), or the National Historic Preservation Act. In addition, the existence of the heap leach facility in Sections 29 and 32, T2N, R48E, poses a potential and currently unqualified liability. The quantity of processing that occurred at this facility (i.e., quantity and concentration of solution,) and the housekeeping at the operations (i.e., spill and leaks) are unknown. There are no records of spills or leaks and no orders of non-compliance on file with the regulatory agencies; however, this does not mean that contamination of soils or groundwater from either heap leach solution or other processing chemicals did not occur. Enviroscientists recommends a detailed analytical survey of the soils and ground water in the vicinity of the heap leach operation be completed by IRC [Intor] *prior to any future actions in the immediate area of the heap leach.*

5.0 ACCESS, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

The Golden Arrow property is readily accessible year-round from the town of Tonopah, Nevada. The most direct route is by driving 35mi east from Tonopah on paved US Highway 6 to Nye County Road 665, the Silverbow/Golden Arrow road near the center of Stone Cabin Valley, then south on this graded gravel road for eight miles, and then approximately three miles east on unmaintained gravel roads to reach the property. Local access within the property is possible by four-wheel-drive vehicle. Except for occasional days of exceptional snow or rain, the property is accessible for exploration all year. Surface rights to the patented and unpatented claims are held by the claim owners and are sufficient for mining as regulated by applicable environmental laws.

5.2 Climate

The climate is of the arid high desert type. In all seasons, daily temperature ranges can be extreme. At the closest weather reporting station, which is 35mi to the east in Tonopah, the July average daily high is 92ºF, with an average daily low of 56ºF. The January daily high is 45ºF, with an average daily low of 20ºF. The extreme temperatures reported for Tonopah are 104ºF and -15ºF. Annual precipitation is about six inches. Although March is typically the wettest month, precipitation is received throughout the year. The location and climate are favorable for exploration and mining year-round, without particular weather difficulties.

5.3 Local Resources and Infrastructure

The Golden Arrow property is in an historic mining district with scattered remnants of old mine buildings and facilities, but no infrastructure except for a network of old tracks and trails. The town of Tonopah is the nearest population center and is the county seat of Nye County, Nevada. In the 2010 census, Tonopah’s estimated population was about 2,500. Fuel, groceries, hotels, restaurants, communications, schools, automotive parts and service, a clinic, and emergency services are available.

The major regional commercial, transportation, labor and service centers of Las Vegas, Reno, and Salt Lake City are located 210mi, 240mi and 400mi away, respectively, by excellent paved highways. Winnemucca and Elko, Nevada, major mining service centers, are located 300mi and 360mi away, respectively, also by excellent paved highways. Mining personnel are available in all of the population centers mentioned above.

Electrical power lines run parallel to US Highway 6 between Tonopah and Warm Springs, about 11mi north of the project. Multiphase power lines 10mi southwest of the property provide service to the Tonopah Test Range. Either of these could be extended to the property to provide electrical service if needed for the potential development of a mining operation at Golden Arrow.

The property is crossed by several generally dry, shallow *arroyos*, which can flood during spring run-off from the nearby Kawich Range and during infrequent storms, but there are no perennial streams or water bodies. Records from the historic mines suggest that the ground water at Golden Arrow occurs at a depth of about 400ft. Water rights would have to be acquired in order to develop this groundwater for use by a potential mining operation at Golden Arrow. Water for exploration drilling may be obtained from agricultural wells in the Stone Cabin alluvial valley west of the project.

5.4 Physiography

The Golden Arrow property is situated on a gentle, west-dipping alluvial plain and modest foothills along the west margin of the broadly north-south trending Kawich Range. Elevations at the property vary from about 5,900ft to 6,400ft. The topography within the property can be described as a gently sloping plain with rolling hills.

Vegetation is sparse. Various grasses, cacti, sage, Russian thistle, and rabbit brush are the dominant species. Animals seen during visits to the property include various lizards and snakes, rabbits, antelope, transient wild horses, and insects.

The property has a number of favorable attributes for exploration and development of mineral resources: gentle topography, mild climate, available ground water, and close proximity to highways and towns. There is adequate space with favorable topographic characteristics for siting potential waste dumps, leach pads, processing plant and other mining-related infrastructure.

6.0 HISTORY

Gold was discovered in what became the Golden Arrow mining district in June 1905, and by 1917 deposits were being explored at the Golden Arrow, Gold Bar, and Desert shafts (Ernst, 1990; Cornwall, 1972). Gold production continued until the 1940s from several shafts up to 500ft deep (Bonanza Exploration, 2001). Historic production was from veins and tabular breccias bodies with ore occurring in lenses and shoots. Roy Neighbors, a local property owner and miner, told Nevada Sunrise personnel that he mined in several of the shafts with his father during the Depression. The Neighbors also processed dump material through a homemade ball mill and concentrating table.

A report by Breckon (1949) discussed mines still open as of 1949. The Golden Arrow mine had a 400ft, 65^{o} decline with a two-compartment shaft. Workings were developed at 100ft levels, with the most extensive development – 1,000ft of lateral drifting – at the 300ft level. The Gold Bar mine had a 520ft, 45^{o} decline with drifts at 100ft interval levels. The most extensive development was a 1,000ft drift at the 500ft level. Ore at both mines was said to occur as lenses and shoots that averaged 4ft thick. Recorded ore shipments to the McGill, Nevada smelter had gold grades between 0.344 and 1.50 oz Au/ton.

Total historic gold production from the district is not known. Ferguson (1917) reported very little production of gold and silver during the early years of the district. Kral (1951) estimated gold production of 600 ounces from about 900 tons of rock during the 1940s.

Sometime during the early 1980s, a small open-pit mine was opened and cyanide heap-leach pads were constructed by Einar Erickson immediately to the north of Deadhorse Hill, on unpatented claims on and adjacent to the property now controlled by Intor. Geological review and sampling by Nevada Sunrise geologists indicated that the material mined apparently contained very little gold or silver; mineralized material present on the leach pads appears to have been moved from historic mine dumps not on the Erickson claims.

6.1 Historical Exploration 1980s through 2004

The Golden Arrow property has been explored by a succession of companies since 1981. This work has included geological mapping, geochemical and geophysical surveys, and drilling. The historical ownership and exploration work were summarized by Ernst (1990), Seedorff *et al.* (1991), Murray (1997), Bonanza (2001), and Blanchflower (2003).

B. M. Clem and Golden American Joint Venture explored the property from 1981 to 1984. They drilled 24 rotary holes totaling 4,130ft, mostly to a depth of 200ft. The joint venture conducted column-leach tests of waste-dump samples, minor geological mapping, and rock-chip sampling (254 samples). Drill results were mostly negative, but with a few anomalous intercepts ranging up to 0.04oz Au/ton over 40ft (Ernst, 1990). Emgold has no records of this exploration work.

From 1984 to 1985, the Vector Exploration, Inc. (also referred to by its successor's name of Vector International in some reports) – Hydromet, Ltd. Joint Venture reportedly completed backhoe trenching (4,200ft), dozer scrapes (1,500ft), and geochemical sampling (600 samples), and drilled 19 rotary (?) holes from 8 to 28ft in depth. Emgold has no records of this work, but Jennings (1988) reported that sampling of the new exposures indicated the presence of a large 0.01 to 0.03 oz Au/ton zone on the north and west flank of Confidence Mountain. Although Ernst (1990) and Seedorff *et al.* (1991) allude to two reports by R. J. Rongey on geology and development from this activity, Emgold, Christensen and MDA were unable to locate copies.

In 1986, Clogau Gold Mines (also described as Clogau, Ltd. and Clogau (Nevada) Inc. in old reports) acquired 100% interest in the property. From 1986 to 1987, Mining Transactions, Inc. was contracted by Clogau to conduct aerial photography, produce orthophoto and topographic maps, conduct district-scale geological mapping, and drill 89 air-track holes totaling 4,540ft to follow up on Vector's trenching results (Jennings, 1988). The holes were drilled at a 50ft spacing along seven widely spaced north-south lines. No record of this drilling was found by Emgold, MDA, or Christensen, although Jennings (1988) reported that "*numerous .01 to .03 oz./ton gold intercepts were cut in these holes.*" Although Ernst (1990) and Seedorff *et al*. (1991) refer to two reports by D. A. Pelham on mapping and drilling from this exploration, MDA was unable to locate copies.

Homestake Mining Company ("Homestake") leased the property from Clogau in 1987 and carried out exploration to 1988. Homestake conducted geological mapping (1:2,400 scale), rock-chip and trench sampling (151 samples), and drilled 38 reverse-circulation ("RC") holes totaling 16,580ft (Jennings, 1988). This work included the discovery of the Gold Coin zone. In August 1987, Homestake commissioned Dawson Metallurgical Laboratories, Inc. to conduct preliminary bottle-roll and cyanide-leach tests on seven samples (described in Section 13.0 of this report). Homestake completed a mineral resource estimate for this zone as discussed in Section 6.5.

From 1989 to 1990, Western Gold Exploration and Mining Company ("Westgold") formed a joint venture with Clogau and carried out geological mapping, rock-chip and trench geochemical sampling, an induced-polarization ("IP") electrical survey, gravity and magnetic surveys, and drilling (Ernst, 1990; Seedorff *et al.*, 1991). Westgold expanded the Gold Coin mineral resource on the north and east, and discovered the alluvium-covered Hidden Hill deposit as well as gold-silver mineralization in the vicinity of drill hole GA90-78 that is located about 1,000ft from Hidden Hill. Two holes subsequently drilled to offset GA90-78 did not contain gold.

Independence Mining Company ("Independence") acquired Westgold's interest in the property in 1990 and evaluated the property during 1991 and 1992. They completed a property-wide airborne magnetic and electromagnetic survey, and drilled 13 RC holes totaling 6,795ft. Murray (1997) reported 11 RC holes were drilled for a total of 5,595ft, but lithologic logs reviewed by MDA support the 6,795ft in 13 holes. Independence then returned the property to the owners. Emgold has maps, but no reports, from the Independence work.

Coeur Exploration ("Coeur") leased the property from Clogau from mid-1993 to 1994 and conducted a gradient-array resistivity and self-potential survey, and a property-scale structural analysis (Murray, 1994; 1997). Coeur apparently drilled 25 RC holes for about 17,050ft and four core holes totaling 3,007.5ft (Murray, 1994; 1997), although it has also been reported that Coeur's drilling total was 21,352ft in three core and 28 RC holes (Murray, 1997). The available records are not consistent, and the conflicting information cannot be resolved. The drill-hole database used for the present report indicates there were 25 RC and four core holes for a total of 20,160ft.

Drilling results were interpreted by Coeur to indicate the presence of higher-grade mineralized veins at depth along the northwestern side of Confidence Mountain. Coeur then discovered mineralization including shallow high-grade mineralization (0.6oz Au/ton) in drill hole GA94-172 along the northwest side of Confidence Mountain (Murray, 1997). In 1994, Coeur commissioned METCON Research Inc. to conduct preliminary cyanidation metallurgical test work on samples from Golden Arrow (Ortega, 1994; described in Section 13.3 of this report).

Kennecott Exploration Company ("Kennecott") leased the property from Clogau in 1995 and drilled eight exploration holes totaling 5,570ft in 1996 (Murray, 1997). Kennecott never produced a summary report of their exploration work according to Murray (1997).

Tombstone Exploration Co. Ltd. ("Tombstone") assumed the Kennecott lease in March 1997 and undertook geological mapping, rock-chip and soil geochemical sampling, and geophysical surveying. In addition, Tombstone drilled 86 RC holes totaling 39,910ft according to Murray (1997). However, MDA's database contains records for a total of 40,150ft, which is what is shown in Section 14.1. Tombstone stopped work on the property in October 1997.

Bonanza Explorations Inc. ("Bonanza") acquired the Golden Arrow property in late 1999. Through mid-2001, Bonanza conducted detailed geological mapping, surface geochemical sampling, compilation of available exploration data, and three-dimensional geological modeling. Bonanza did no drilling during their tenure with the property. Bonanza's target was specifically high-grade zones, not necessarily large-tonnage low-grade deposits. Bonanza focused on numerous narrow zones of structurally controlled mineralization with grades between one and three ounces gold per ton (34 and 103g Au/t) (Bonanza, 2001).

In 2002, Nevada Sunrise secured a lease to the unpatented lode mining claims owned by the Baughmans, followed by a lease in 2003 on additional unpatented claims owned by Pomroy Neighbors as described in Section 4.3. In 2004, a lease-purchase agreement was executed with the owners of the patented mining claims, consolidating control of the district. Nevada Sunrise's exploration work is summarized in Section 9.0

In 2003, Pacific Ridge Exploration Ltd. ("Pacific Ridge") optioned the unpatented claims from Nevada Sunrise and explored that portion of the property until 2004. Like Bonanza, Pacific Ridge was focused on higher-grade veins and vein stockworks that could support underground mining, rather than bulk-tonnage and lower-grade deposits (Blanchflower, 2003). Pacific Ridge conducted reconnaissance geological mapping and lithogeochemical sampling over the Gold Coin and Confidence Mountain areas, completed a soil geochemical survey, drilled 29 RC holes totaling 18,721ft in seven separate areas on the property, and completed a mineral resource model (Bowen, 2004). The database used by MDA contains 30 holes for a total of 19,041ft drilled.

6.2 2010 Animas Resources Exploration

In 2010, Animas Resources, Ltd. ("Animas") entered into a joint venture agreement with Nevada Sunrise to participate in exploration of the Golden Arrow property. No exploration had been conducted at Golden Arrow by Animas at the time they entered the joint venture, and there were no results to describe by Ristorcelli and Christensen (2010). Subsequently, the 2010 exploration program was designed to explore for new areas of gold mineralization outside of the defined resource zones. Dr. Odin Christensen, a co-author of this technical report, participated in that program. The goals of the program were to: a) test gravity anomalies that had similarities to the Gold Coin and Hidden Hill resources, b) test the eastern side of the property for "Round Mountain-style" low-sulfidation gold mineralization, and c) search for volcanic-hosted, disseminated, hot-springs style and caldera-margin gold-silver mineralization. The Animas work included 1) completion of two electrical geophysical surveys on the property to better define the subsurface geological framework, 2) integration and interpretation of technical data into a 3-dimensional GIS project to define exploration targets, and 3) drill tests of the geophysical anomalies with four diamond core holes (total of 3,785ft) and 12 RC holes (total of 10,400ft). Nine drill holes tested gravity anomalies and seven holes were drilled in the area of caldera-fill rhyolite tuff near the inferred caldera margin, which was considered favorable for Round Mountain-style mineralization (Christensen, 2010). The Animas drilling methods and procedures are discussed in Section 10.9.

Animas terminated their joint venture agreement in March of 2011 (Animas, 2011).

6.3 Geochemical Exploration Programs

Nearly all of the historical exploration programs have included collection and analysis of geochemical samples; records of only a small portion of this work remain. Nevada Sunrise compiled all available geochemical data within their exploration GIS database, and has made this data available to Emgold to guide future exploration.

All historical rock-chip geochemical sampling has been selective sampling. The Nevada Sunrise archive contains rock-chip data from Kennecott (29 samples), Newmont (43 samples), Tombstone (30 samples), and Nevada Sunrise (27 samples). The results of these rock-chip geochemical sampling programs are, as expected, highly variable. All of these were analyzed for multi-element suites. The samples are concentrated along the Page fault and in the vicinity of the Golden Arrow shaft. Not surprisingly, many of the highest values are reported for these two localities. There are also high-grade gold samples to the southeast of Confidence Mountain and to the east of Deadhorse Hill, areas that have received less exploration attention and little drilling.

Tombstone completed a limited soil geochemical exploration program covering approximately $3mi^2$ from Confidence Mountain south to the approximate southern end of the claim block, and west to the Page fault on the east side of Deadhorse Hill. The survey consisted of five north-south lines at approximately 1,640ft spacing with samples taken at 100ft intervals. Tombstone collected 619 samples that were analyzed by Chemex for gold, silver, and 31 other elements (Jeanne, 1997; Christensen, 2006c). Although preliminary results of this sampling yielded a number of single or paired anomalies and a number of longer runs of low-grade anomalies, Tombstone terminated their exploration program before analysis and follow-up could be completed (Jeanne, 1997).

In 2003, Pacific Ridge contracted Nevada Sunrise to collect a soil geochemical grid over the Golden Arrow property in 2003 (Nevada Sunrise, LLC & Pacific Ridge Ltd. Joint Venture, 2003; Bowen, 2004; Christensen, 2006c). A total of 1,671 soil samples were collected along 29 east-west oriented lines on a grid of 528 x 264ft. Lines were spaced 518ft apart and samples were taken at 260ft intervals. A total of 1,670 samples were analyzed at Activation Laboratories Ltd. for a suite of 60 elements by inductively-coupled plasma-mass spectrometry ("ICP-MS") with an aqua regia digestion. Unfortunately, the laboratory has acknowledged that there were problems with their sample preparation or analysis. The analytical data exhibit notable batch effects in certain batches, which the laboratory has acknowledged were probably introduced during sample preparation. The geochemical results, however, exhibit coherent patterns of multi-element concentrations that are reasonable and consistent with the observed geology. Nevada Sunrise reinterpreted this information, as discussed below.

Factor analysis of the Tombstone and Pacific Ridge soil sample data was undertaken by Nevada Sunrise. Three distinct geochemical associations were defined by Christensen (2006c):

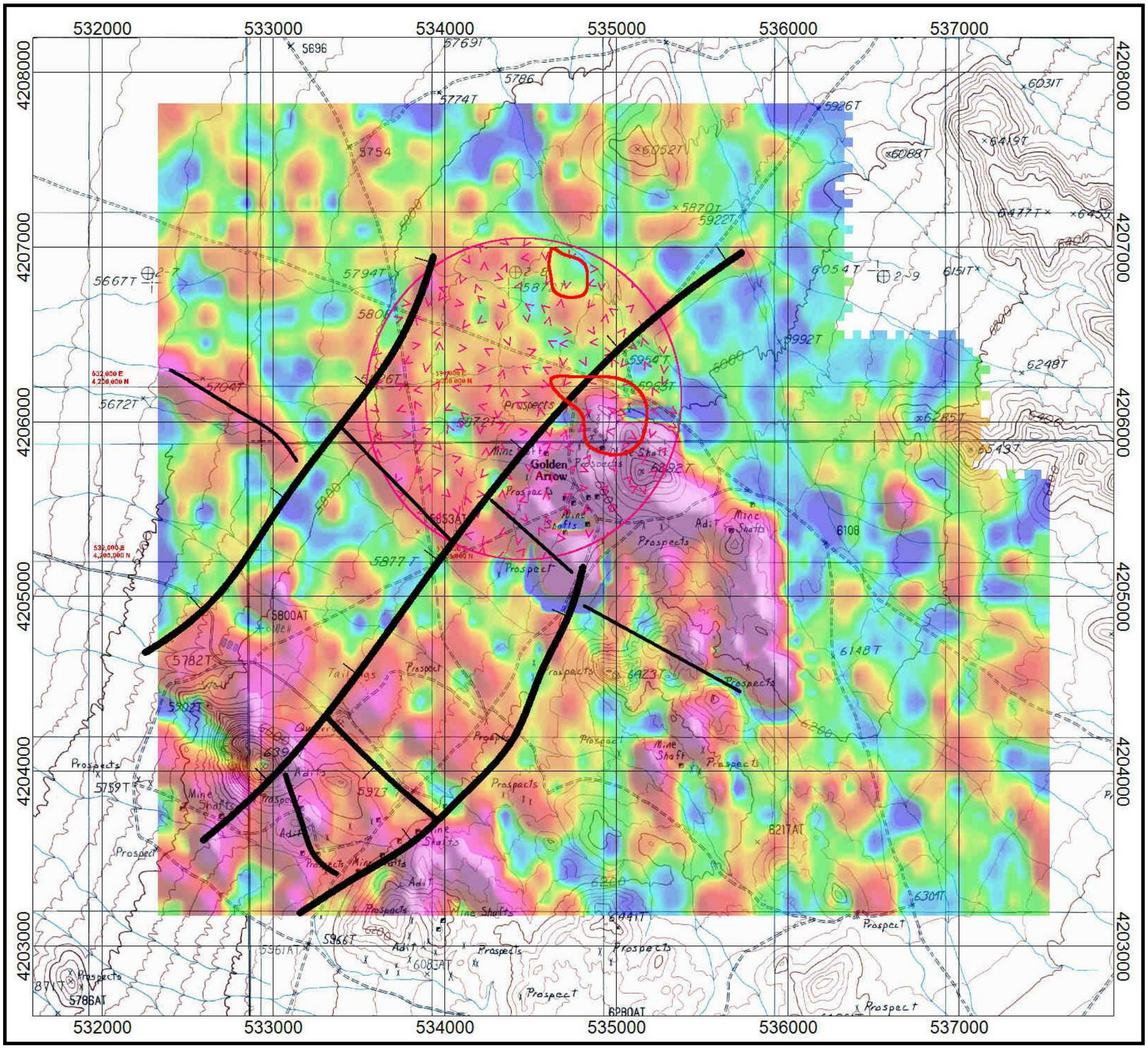
(1) ***Zn, Cu, Fe, Ni, K, Mg, Co, Cr, Bi and Sn***. This factor distinguishes the dominant primary lithologies of andesite and basalt, versus rhyolite and rhyolitic volcaniclastic rocks;

(2) ***As, Sb, Hg, Mo, Pb, Ag, and Au.*** This factor association is characteristic of epithermal mineral systems known to exist on the Golden Arrow property; and

(3) ***Ca, Mg, and Sr.*** This factor characterizes the association of elements formed by the presence of caliche in desert soil.

The distribution of gold and geochemical association (2), described above, was reviewed by Jaacks (2007a) and reveals features not previously recognized, some of which present attractive exploration targets. Figure 6.1 illustrates the distribution of gold, and Figure 6.2 shows the distribution of mercury. There is a strong gold enrichment associated with known gold mineralization at Confidence Mountain. The anomaly also extends to the southeast into an area that has had a few holes. There is strong gold enrichment around Deadhorse Hill, another area never drill tested. There is a circular mid-level gold enrichment pattern to the northwest of Confidence Mountain, which more or less coincides with the known limits of the volcaniclastic sediment-filled maar basin (see Section 7.3). Finally, disruption of the geochemical patterns by interpreted northeast- and northwest-trending faults, particularly the Page fault, is evident.

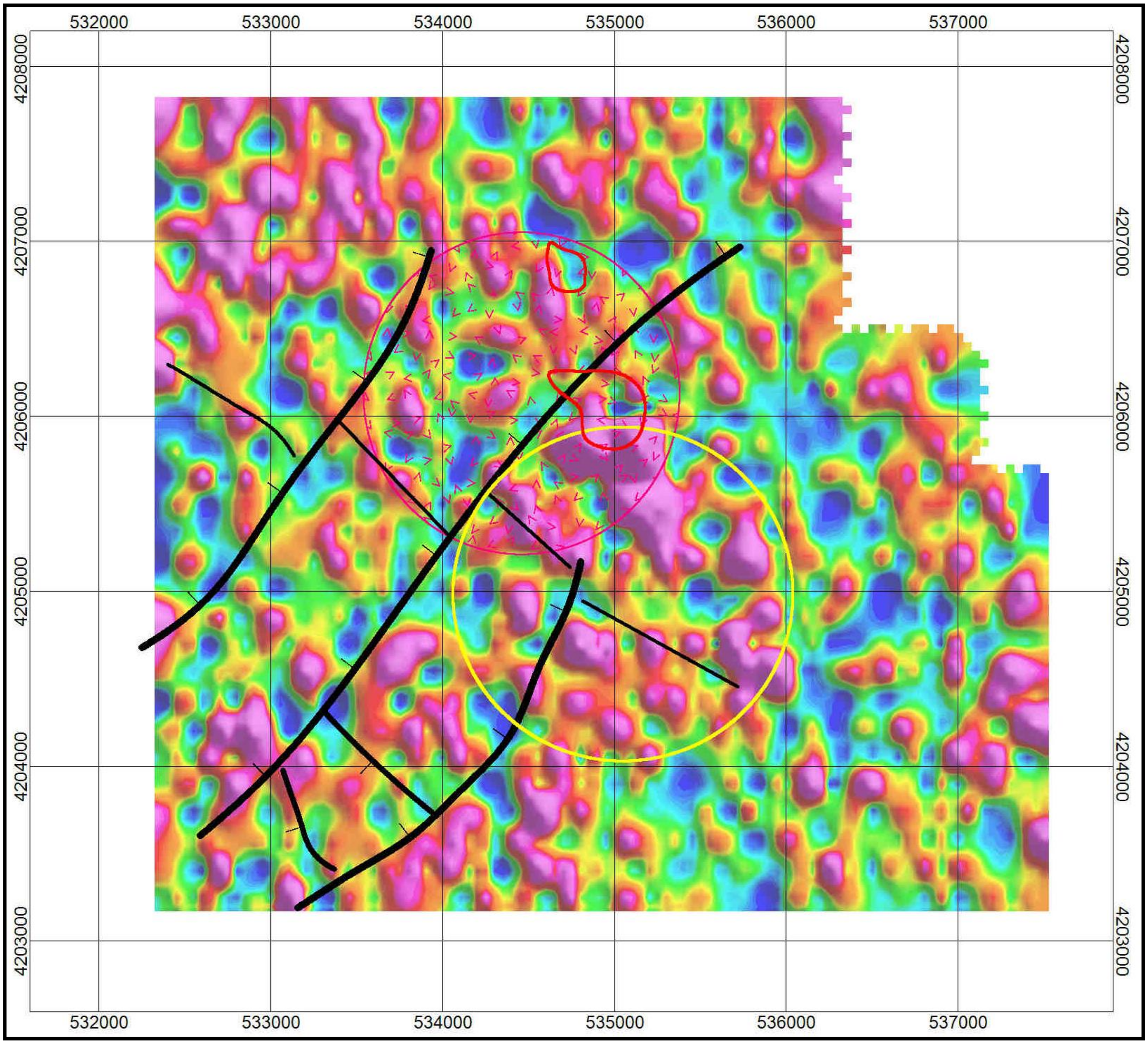
Figure 6.1 Distribution of Gold in Soils at Golden Arrow
(From Jaacks, 2007a; see Figure 4.2 for property outline)



Color shows contoured gold concentrations with higher gold values shown as warm red tones and lower values as cool blue tones. Red outlines are the Hidden Hill and Gold Coin are outlines of the resources. The patterned circle outlines a mid-level circular gold enrichment zone coincident with the maar sediments. Black lines are interpreted faults; the Page fault is the southeastern-most heavy black line trending northeast. UTM WGS84, Zone 11 grid in meters; north is up.

There is a diffuse circular anomaly evident in the mercury data, as highlighted by the yellow circle in Figure 6.2. The enrichment extends southeastward from Confidence Mountain over outcropping rhyolite welded tuff. It has been suggested that the tuff may represent a relatively impermeable lithology, in which mineralization developed in porous units at depth.

Figure 6.2 Distribution of Mercury in Soils at Golden Arrow
(From Jaacks, 2007a; see Figure 4.2 for property outline)



Color shows contoured mercury concentrations with higher mercury values shown as warm red tones and lower values as cool blue tones. The bold red outlines are the locations of the Hidden Hill and Gold Coin mineralized zones. The yellow circle outlines an area of irregular mercury enrichment to the southeast of Confidence Mountain. The patterned circle outlines a mid-level circular gold enrichment zone coincident with the maar sediments. Black lines are interpreted faults; the Page fault is the southeastern-most heavy black line trending northeast. UTM WGS84, Zone 11 grid in meters; north is up.

6.4 Geophysical Exploration Programs

Geophysical surveys have been completed as a component of several of the Golden Arrow exploration programs. There is limited interpretive documentation in the archives (Christensen, 2006d), the most significant being included in reports by Seedorff *et al*. (1991) and Murray (1997). It is fair to say that both of these geologists emphasized the application of geophysics for the detection of anomalies distinctly associated with mineralization. However, experience has demonstrated that Nevada gold deposits rarely have distinct associated geophysical anomalies. Rather, the greatest value of geophysics is for mapping subsurface geology, which can be applied to inferring where gold deposits may occur.

As an element of their 1989 exploration program, Westgold contracted with Great Basin Geophysical, Inc. ("Great Basin") to design a survey of 80 line-miles of ground magnetics and to conduct an orientation IP-resistivity survey using a dipole-dipole array with both 50ft and 200ft dipole lengths. Westgold staff conducted the survey using an OMNI IV magnetometer, while Great Basin plotted the data and interpreted the results of the magnetic survey. Great Basin conducted the IP-resistivity survey using a Zonge Engineering model TIP-16, six-channel receiver and Geotronics FT-20, 20kW transmitter. After evaluation of the orientation IP-resistivity survey results, MPH International, Inc. was contracted to run five line-miles of IP-resistivity surveys, which used a pole-dipole electrode array with 200ft dipole lengths. The purpose of these geophysical surveys was to determine the geophysical signature of the known mineralization at Gold Coin and to identify areas with similar geophysical characteristics. Westgold geologists noted that the Gold Coin mineralized area is characterized by a low magnetic response relative to the surrounding alluvium. The Gold Coin area also exhibits a resistivity high coincident with the known silicification and mineralization. The response, however, was not distinct or definitive. According to Lide (1989), electrode contact resistance was high, and the ground geophysical crews had difficulty with their chargeability readings; in many cases, the problem readings were not even plotted. It is inferred that there were not significant measurable chargeability responses. A subtle zone of low magnetic response, situated to the northwest of the Gold Coin zone, was later drilled with the resulting discovery of the Hidden Hill deposit. According to Ernst (1990), this magnetic low corresponds to the buried paleo-topographic high at Hidden Hill, and the magnetic signature here may be due to shallow alluvium.

During 1991, Independence contracted for an airborne magnetic and electromagnetic survey of the Golden Arrow district. The survey was conducted by Aerodat Limited over an area measuring approximately 5mi north-south by 4.7mi east-west. The survey was flown with 328ft-spaced east-west oriented lines. Available records of this work consist of the following data recorded in map layers:

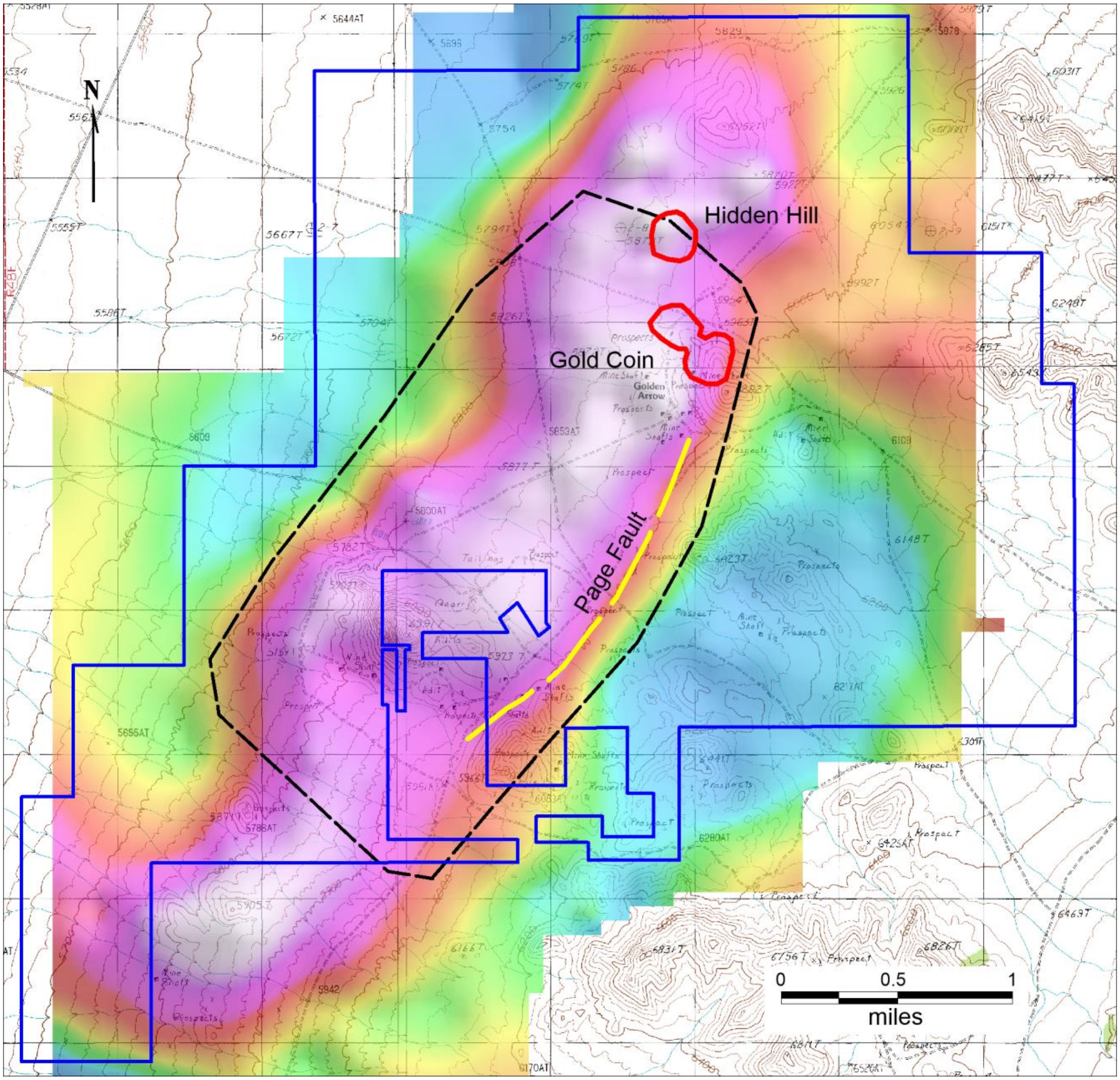
- VLF-EM total field contours;
- Apparent resistivity contours, 500 Hz;
- Apparent resistivity contours, 4,600 Hz;
- Geophysical interpretation map;
- Reduced-to-pole magnetic contours; and
- Calculated vertical magnetic gradient.

Together the surveys reveal considerable variation in the magnetic and electrical character of the rock lying beneath the Golden Arrow property.

Kennecott completed a gravity survey over the property in 1996. District-scale gravity readings were gathered along roads and traverses, and a smaller, more detailed, grid survey was completed over the Hidden Hill zone. The contoured Complete Bouguer gravity anomaly image is dominated by a northeast-oriented elliptical high measuring (here referred to as the Golden Arrow fault block) approximately 3.1mi by 1.25mi (black dashed line in Figure 6.3 and accompanying description). The eastern margin of the gravity high is in part coincident with the Page fault.

Coeur contracted with Practical Geophysics to complete a gradient-array resistivity and self-potential survey in 1993. Measurements were completed at stations spaced at 200ft intervals along north-south lines spaced at 400ft. The grid covered an area of 8,000ft north-south by 6,000ft east-west, centered on Confidence Mountain. Confidence Mountain and the Gold Coin mineralized zone occur on the end of a prominent northwest-oriented zone of elevated resistivity (here referred to as the Golden Arrow fault block). Confidence Mountain itself exhibits a ring-shaped resistivity pattern, with a less resistive central core surrounded by a ring of greater resistivity, interpreted as silicification. The correspondence between the mapped resistivity and the distribution of gold within the Gold Coin zone is striking. It is also observed that nearly all of the mapped prospects and shafts in the Confidence Mountain area are located within the ring of elevated resistivity. Hidden Hill did not reveal a strong characteristic resistivity signature. Although one test IP line was run, chargeability problems were encountered, which made the generated data suspect (Murray, 1997).

Figure 6.3 Complete Bouguer Gravity Map of the Golden Arrow Property
(from Ristorcelli and Christensen, 2010; property outline updated in 2017)



Note: Map displays residual gravity computed by applying 5-km wavelength high-pass filter to Complete Bouguer Anomaly data (2.20 g/cc reduction density). Warmer colors mark higher residual gravity values. Dashed black line shows Golden Arrow fault block.

Tombstone expanded the geophysical coverage in 1997. Quantech Consulting Inc. of Reno, Nevada, was contracted to conduct ground magnetic surveying of the DH claims south of Deadhorse Hill, and numerous magnetic features were identified (Jeanne, 1997). Emgold does not have the geophysical data collected by Tombstone.

In June 2010, Animas contracted with Durango Geophysical Operations to complete a Reconnaissance Induced Polarization ("RIP") survey over most of the Golden Arrow property, which was completed by June 15, 2010. The purpose of this survey was to: a) produce RIP coverage over the Gold Coin and Hidden Hill mineralized areas to establish Apparent Resistivity and Polarization baseline parameters; b) extend RIP coverage east and southeast of the resource zones into volcanic caldera terrains to investigate the potential for Round Mountain style targets; c) investigate mineral potential along the Page fault; and d) extend RIP coverage west over the alluvium (Reynolds, 2010). The setup consisted of four RIP transmitter arrays set in east-west orientation with each transmitter location having eight receiver stations.

Colored maps of Apparent Resistivity and Polarization results were produced that show areas of high and low resistivities. Resistivity high anomalies were found in the southern and southeastern sides of the property, and low resistivity anomalies were seen in the northwest part of the study area. The Polarization map also showed anomalous zones in the same northwest area. A Polarization anomaly also exists in the southeastern part of the study area, although the location is somewhat different than the resistivity anomaly. It should be noted that the southeastern quarter of the Golden Arrow claims have had very little exploration, and the results of these surveys support the need for further work there.

6.5 Historical Mineral Resource Estimates

Table 6.1 lists the historical resource estimates that have been made for the Golden Arrow deposits by previous operators. All but the 2008 estimate were prepared prior to the adoption of Canadian NI 43-101. Accordingly, these resource estimates are presented here only for historical completeness and are superseded by the current mineral resources discussed in Section 14.7 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon. The terms "resource, reserve, Inferred, Measured, and Indicated" as used in these historical estimates do not meet the standards of those terms as defined by the CIM Standards and therefore NI 43-101. The resource estimate completed by MDA in 2008 was updated in 2009, re-reported in 2010, and is made current by the current mineral resources presented in Section 14.0 of this report.

In 1988, Homestake estimated a "geologic diluted inventory" for what is now referred to as the Gold Coin zone (Jennings, 1988). Using a gold cutoff of 0.02 oz Au/ton, a tonnage factor of 12 ft^3/ton, and a projected cross-sectional method, the inventory was 1,248,916 tons with 0.052 oz Au/ton and 0.47 oz Ag/ton. According to Jennings (1988), "*The mineralization, with the exception of a small pod west of Confidence Mountain, does not occur in mineable configurations*." This estimate is not relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

Westgold expanded the Gold Coin zone by drilling more holes and discovered the Hidden Hill mineralization. In January 1991, they estimated a "geologic resource" at a cutoff grade of 0.015 oz Au/ton of 3,457,000 tons with an average grade of 0.033 oz Au/ton (1.131 g Au/t) for 114,081 oz Au at

Hidden Hill and 2,105,000 tons with an average grade of 0.035 oz Au/ton for 73,675 oz Au at Gold Coin for a total "geologic resource" of 187,756 oz of gold (Seedorff *et al.*, 1991). As described by Seedorff *et al.* (1991), the majority of the resource at Hidden Hill "*is contained in a block 350 x 250 x 400 feet centered on drill holes 81, 83 and 123. Gold mineralization is higher grade and more continuous within this block than outside of it. However, significant gold intercepts (>10 feet grading >0.010 opt Au) are present over an area 1000 feet by 700 feet and at depths below surface of 50 to 630 feet*." Westgold's resource was estimated using the inverse-distance-cubed method and Micromodel software (Seedorff *et al.*, 1991). This estimate is not relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

In 1994, Coeur estimated the Golden Arrow resources using the cross-sectional polygonal method with cross sections 100ft apart and an area of influence extending 50ft on either side of the section line. In addition to the Gold Coin and Hidden Hill mineralized zones, Murray (1994) estimated a resource for Confidence Mountain. At a cutoff of 0.01 oz Au/ton, Murray (1994) estimated that the total oxide and sulfide resource at Gold Coin, Hidden Hill, and Confidence Mountain was 12,357,110 tons with a grade of 0.039 oz Au/ton, for a total of 477,402 oz Au, and a grade of 0.51 oz Ag/ton for a total of 6,263,753 oz Ag. Murray reported both "6,263,753" and "6,273,753" oz Ag. Murray (1994) also noted that the known mineralization had not been completely drilled and suggested that further drilling would increase the resource. This estimate is not relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

Kennecott commissioned MDA to prepare a preliminary resource estimate for the Golden Arrow project in 1996 which was completed by an author of the current report (Ristorcelli, 1996). The author used Kennecott's database for the estimate. That resource, which included the Gold Coin and Hidden Hill areas, was classified as Inferred "…*because there is little supporting data other than drill information, the sample integrity is somewhat in question, and the geology is not well understood*" (Ristorcelli, 1996). Ristorcelli (1996) went on to comment, "*The sole purpose of this estimate is to provide an order of magnitude estimate of the gold and silver resources at Golden Arrow. Check assays, density data, alteration, structure, lithology, and metallurgy are all required for a more definitive estimate*." At a gold cutoff of 0.02 oz Au/ton, Ristorcelli (1996) estimated a resource of 5,608,092 tons with a grade of 0.037 oz Au/ton, for a total of 209,437 oz Au, and a grade of 0.46 oz Ag/ton for a total of 2,600,321 oz Ag. This estimate is not relevant has been superseded by the current resource estimates in Section 14.0 of this report. Readers are strongly cautioned to put no reliance on this estimate. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

Tombstone made resource estimates of the project in 1997 using a variety of methods (Murray, 1997). Initially they made polygonal resource estimates of the Hidden Hill zone, hand calculated using both the plan and cross-sectional methods. These 1997 results are not shown in Table 6.1. The plan method estimated the Hidden Hill resource at 4,446,209 tons averaging 0.026 oz Au/ton, for a total of 115,953 oz Au. The cross-sectional method estimated the resource at 3,522,017 tons averaging 0.034 oz Au/ton, for a total of 118,139 oz Au. Later in 1997, Tombstone constructed solid models of both the Hidden Hill and Gold Coin areas and calculated the resource using an inverse-distance-squared method and Surpac software. Resources were tabulated using two different cutoffs (Table 6.1). At a gold cutoff of 0.01 oz Au/ton, Murray (1997) estimated a combined resource for the Hidden Hill and Gold Coin zones of 7,549,063 tons averaging 0.03 oz Au/ton, for a total of 226,472 oz Au. Murray (1997) also estimated a global resource using just the block model constrained only by topography, which yielded a resource of 242,006,625 tons averaging 0.01 oz Au/ton. According to Murray (1997), the global block model probably overstated the tonnage by smearing the grade but does show "…*there is a very large low grade resource in just the Gold Coin/Confidence zones about half of which is oxide*." The authors must state that this procedure inflates the estimate to unrealistic levels considering only existing drilling. The 1997 global estimate cannot be used to make any assessment or judgment on the project; it is reported for complete disclosure, but is not included in Table 6.1. This estimate is not relevant and not reliable, and has been superseded by the current resource estimates in Section 14.0 of this report. Readers are strongly cautioned to put no reliance on this estimate.

Tombstone modeled silver for the Gold Coin and Hidden Hill resource areas, but Murray (1997) noted that a significant number of holes were not assayed for silver. Murray (1997) noted that the hand-calculated plan method more accurately reflected the tonnage than the cross-sectional method, which more accurately reflected grade, although the solids-constrained computer model greatly understates the tonnage, but the grade was very similar to that calculated using cross-sections.

Pacific Ridge commissioned geologic modeling and resource estimations for the Golden Arrow property in 2004 (Parent, 2004). Parent (2004) indicated that his estimates did not conform to NI 43-101 requirements and are not reproduced here. Readers are cautioned that the 2004 estimate substantially overstates the resource in the high grades, compared to the resource estimate presented in Section 14. It is neither relevant, nor reliable, and has been superseded by the resource estimates in Section 14 of this report.

Table 6.1 Summary of 1988 – 1997 Historical Resource Estimates for Golden Arrow

Company (Reference)	Deposit	Oxide/ Sulfide	Cutoff (oz Au/ton)	Tons Short tons	Grade (oz Au/ton)	Ounces of gold	Grade (oz Ag/ ton)	Ounces of silver
Homestake (Jennings, 1988)	**Gold Coin**	**Ox&Sulf**	**0.02**	**1,248,916**	**0.052**	**64,944**	**0.47**	**586,991**
Westgold (Seedorff *et al.*, 1991)	Gold Coin		0.015	2,105,000	0.035	73,675	Not calculated	
	Hidden Hill		0.015	3,457,000	0.033	114,081		
	Total	**Ox&Sulf**	**0.015**	**5,562,000**	**0.0338**	**187,756**		
Coeur d'Alene (Murray, 1994)	Hidden Hill	Ox	0.01	2,149,800	0.031	67,285	0.64	1,365,566
	Gold Coin	Ox	0.01	1,857,744	0.035	65,518	0.39	725,989
	Conf. Mtn.	Ox	0.01	3,698,867	0.035	130,860	0.35	1,303,580
	Total Ox.	**Ox**	**0.01**	**7,686,420**	**0.034**	**263,663**	**0.44**	**3,395,135**
	Hidden Hill	Sulf	0.01	2,474,365	0.034	84,232	0.71	1,767,566
	Gold Coin	Sulf	0.01	524,725	0.059	31,163	0.71	374,947
	Conf. Mtn.	Sulf	0.01	1,671,600	0.059	98,344	0.43	725,716
	Total Sulf.	**Sulf**	**0.01**	**4,670,690**	**0.046**	**213,739**	**0.61**	**2,868,618**
	Total	**Ox&Sulf**	**0.01**	**12,357,110**	**0.039**	**477,402**	**0.51**	**6,263,753**
Kennecott (Ristorcelli, 1996)	Gold Coin	Ox&Sulf	0.01	8,718,347	0.024	209,240	0.31	2,693,969
	Hidden Hill	Ox&Sulf	0.01	2,659,959	0.029	77,139	0.52	1,383,179
	Global	**Ox&Sulf**	**0.01**	**11,378,305**	**0.025**	**286,379**	**0.36**	**4,077,148**
	Global	**Ox&Sulf**	**0.02**	**5,608,092**	**0.037**	**209,437**	**0.46**	**2,600,321**
	Global	**Ox&Sulf**	**0.05**	**346,576**	**0.157**	**54,429**	**1.01**	**349,348**
	Global	**Ox&Sulf**	**0.10**	**119,883**	**0.339**	**40,699**	**1.85**	**221,379**
Tombstone Expl. (Murray, 1997)	Hidden Hill	Ox&Sulf	0.01	2,585,625	0.03	77,569	--	--
	GC/CM	Ox&Sulf	0.01	4,963,438	0.03	148,903	--	--
	Total	**Ox&Sulf**	**0.01**	**7,549,063**	**0.03**	**226,472**	**--**	**--**
	GC/CM	Ox&Sulf	0.0058	6,610,188	0.024	158,645	--	--
	GC/CM*	Ox&Sulf		6,610,188	--	--	0.31	2,049,158

Explanations: Conf. Mtn = Confidence Mountain, which is now part of Gold Coin; GC is Gold Coin, CM is Confidence Mountain.
**Using a cutoff of 0.3 oz Au/ton.*
Note: the authors have not done sufficient work to classify the historical resources and are not treating them as current mineral resources. As such, the historical resources should not be relied upon.

In 2008, MDA estimated and reported the first independent resource in accordance with NI 43-101 for Nevada Sunrise (Ristorcelli and Christensen, 2008). This historical resource is presented in Table 6.2

Table 6.2 Nevada Sunrise Historical 2008 Resource Estimate
(from Ristorcelli, and Christensen, 2008)

Golden Arrow Oxide Project-Total Indicated							
Cutoff	**Tons**	**Grade**	**Grade**	**Ounces**	**Grade**	**Ounces**	**Ounces**
oz AuEq/t		oz AuEq/t	oz Au/t	Gold	oz Ag/t	Silver	Gold Eq.
0.005	6,510,000	0.02	0.018	114,000	0.22	1,458,000	141,000
0.010	**5,232,000**	0.03	0.021	**107,000**	**0.25**	**1,313,000**	**131,000**
0.015	3,425,000	**0.03**	**0.027**	91,000	0.30	1,031,000	110,000
0.020	2,010,000	0.04	0.036	73,000	0.36	726,000	86,000
0.025	1,185,000	0.06	0.050	59,000	0.42	503,000	68,000
0.030	833,000	0.07	0.062	51,000	0.47	394,000	59,000
0.040	538,000	0.09	0.081	43,000	0.54	288,000	49,000
0.050	390,000	0.11	0.098	38,000	0.56	219,000	42,000
0.100	110,000	0.21	0.195	22,000	0.69	76,000	23,000
Golden Arrow Oxide Project-Total Inferred							
Cutoff	**Tons**	**Grade**	**Grade**	**Ounces**	**Grade**	**Ounces**	**Ounces**
oz AuEq/t		oz AuEq/t	oz Au/t	Gold	oz Ag/t	Silver	Gold Eq.
0.005	7,200,000	0.01	0.008	58,000	0.19	1,354,000	82,000
0.010	**3,699,000**	0.02	0.012	**43,000**	**0.23**	**836,000**	**58,000**
0.015	1,376,000	**0.02**	**0.018**	25,000	0.26	354,000	31,000
0.020	582,000	0.03	0.026	15,000	0.30	172,000	18,000
0.025	289,000	0.04	0.034	10,000	0.33	96,000	12,000
0.030	171,000	0.05	0.043	7,000	0.36	61,000	8,000
0.040	81,000	0.07	0.060	5,000	0.38	31,000	5,000
0.050	46,000	0.09	0.078	4,000	0.40	18,000	4,000
0.100	6,000	0.24	0.235	1,000	0.22	1,000	1,000
Golden Arrow Unoxidized Project-Total Indicated							
Cutoff	**Tons**	**Grade**	**Grade**	**Ounces**	**Grade**	**Ounces**	**Ounces**
oz AuEq/t		oz AuEq/t	oz Au/t	Gold	oz Ag/t	Silver	Gold Eq.
0.005	7,199,000	0.03	0.021	151,000	0.36	2,556,000	198,000
0.010	5,786,000	0.03	0.025	145,000	0.41	2,349,000	188,000

Note: oz AuEq/t, oz Au/t and oz Ag/t refer to ounces of gold equivalent, ounces of gold and ounces of silver per short ton, respectively.
This estimate is no longer relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

MDA's 2010 historical estimated mineral resources (Ristorcelli and Christensen, 2010) are reported in Table 6.3 and Table 6.4. These historical estimates are superseded by the current mineral resources presented in Section 14.

Table 6.3 2010 Historical Measured and Indicated Gold and Silver Resources for Golden Arrow

Measured and Indicated																		
Cutoff	**Un-Oxidized**						**Oxidized**						**Total**					
		AuEq	**Au**		**Ag**			**AuEq**	**Au**		**Ag**			**AuEq**	**Au**		**Ag**	
oz AuEq/t	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**
0.005	10,012,000	0.026	0.020	196,900	0.32	3,230,000	8,703,000	0.020	0.016	140,300	0.20	1,743,000	18,715,000	0.023	0.018	337,200	0.27	4,973,000
0.010	7,723,000	0.031	0.024	185,600	0.38	2,925,000	6,736,000	0.023	0.019	129,200	0.23	1,554,000	14,459,000	0.027	0.022	314,800	0.31	4,479,000
Variable	***5,436,000***	***0.039***	***0.031***	***167,300***	***0.45***	***2,454,000***	***6,736,000***	***0.023***	***0.019***	***129,200***	***0.23***	***1,554,000***	***12,172,000***	***0.030***	***0.024***	***296,500***	***0.33***	***4,008,000***
0.015	5,436,000	0.039	0.031	167,300	0.45	2,454,000	4,185,000	0.030	0.025	105,900	0.27	1,148,000	9,621,000	0.035	0.028	273,200	0.37	3,602,000
0.020	3,774,000	0.049	0.039	147,200	0.53	2,008,000	2,258,000	0.042	0.036	81,000	0.33	741,000	6,032,000	0.046	0.038	228,200	0.46	2,749,000
0.025	2,747,000	0.059	0.048	131,100	0.61	1,673,000	1,366,000	0.055	0.048	66,000	0.37	503,000	4,113,000	0.058	0.048	197,100	0.53	2,176,000
0.030	2,093,000	0.069	0.056	117,800	0.68	1,433,000	954,000	0.067	0.060	57,000	0.41	387,000	3,047,000	0.068	0.057	174,800	0.60	1,820,000
0.040	1,348,000	0.088	0.074	99,200	0.80	1,079,000	588,000	0.088	0.080	46,900	0.45	266,000	1,936,000	0.088	0.075	146,100	0.69	1,345,000
0.050	963,000	0.106	0.090	86,600	0.86	831,000	410,000	0.107	0.098	40,300	0.49	201,000	1,373,000	0.106	0.092	126,900	0.75	1,032,000
0.060	714,000	0.124	0.107	76,400	0.91	650,000	311,000	0.124	0.114	35,600	0.53	164,000	1,025,000	0.124	0.109	112,000	0.79	814,000
0.070	569,000	0.139	0.122	69,200	0.94	534,000	245,000	0.140	0.130	31,800	0.56	137,000	814,000	0.139	0.124	101,000	0.82	671,000
0.080	458,000	0.155	0.137	62,600	0.98	450,000	194,000	0.157	0.146	28,400	0.59	115,000	652,000	0.155	0.140	91,000	0.87	565,000
0.090	376,000	0.170	0.151	56,900	1.00	377,000	155,000	0.176	0.165	25,500	0.63	97,000	531,000	0.171	0.155	82,400	0.89	474,000
0.100	312,000	0.185	0.166	51,900	1.05	327,000	123,000	0.197	0.185	22,800	0.64	79,000	435,000	0.189	0.172	74,700	0.93	406,000
0.150	157,000	0.249	0.227	35,700	1.19	187,000	54,000	0.296	0.283	15,300	0.72	39,000	211,000	0.261	0.242	51,000	1.07	226,000
0.200	88,000	0.312	0.289	25,400	1.30	114,000	31,000	0.396	0.381	11,800	0.84	26,000	119,000	0.334	0.313	37,200	1.18	140,000
0.250	59,000	0.357	0.336	19,800	1.15	68,000	22,000	0.457	0.441	9,700	0.91	20,000	81,000	0.384	0.364	29,500	1.09	88,000
0.300	41,000	0.397	0.376	15,400	1.17	48,000	17,000	0.522	0.506	8,600	0.88	15,000	58,000	0.434	0.414	24,000	1.09	63,000
0.350	27,000	0.418	0.393	10,600	1.41	38,000	13,000	0.562	0.546	7,100	0.85	11,000	40,000	0.465	0.443	17,700	1.23	49,000
0.400	19,000	0.445	0.416	7,900	1.63	31,000	11,000	0.587	0.573	6,300	0.82	9,000	30,000	0.497	0.473	14,200	1.33	40,000

* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material

Note: oz/t refers to ounces per short ton.
This estimate is no longer relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

Table 6.4 2010 Historical Inferred Gold and Silver Resources for Golden Arrow

Inferred																		
Cutoff	Un-Oxidized						Oxidized						Total					
		AuEq	Au		Ag			AuEq	Au		Ag			AuEq	Au		Ag	
oz AuEq/t	Tons	oz/t	oz/t	Ozs	oz/t	Ozs	Tons	oz/t	oz/t	Ozs	oz/t	Ozs	Tons	oz/t	oz/t	Ozs	oz/t	Ozs
0.005	11,958,000	0.011	0.006	76,500	0.25	2,942,000	5,427,000	0.009	0.006	33,100	0.18	982,000	17,385,000	0.010	0.006	109,600	0.23	3,924,000
0.010	4,819,000	0.017	0.011	50,600	0.35	1,677,000	2,040,000	0.013	0.009	17,700	0.25	510,000	6,859,000	0.016	0.010	68,300	0.32	2,187,000
Variable	***1,750,000***	***0.026***	***0.019***	***32,700***	***0.42***	***739,000***	***2,040,000***	***0.013***	***0.009***	***17,700***	***0.25***	***510,000***	***3,790,000***	***0.019***	***0.013***	***50,400***	***0.33***	***1,249,000***
0.015	1,750,000	0.026	0.019	32,700	0.42	739,000	406,000	0.021	0.016	6,700	0.25	100,000	2,156,000	0.025	0.018	39,400	0.39	839,000
0.020	850,000	0.037	0.029	24,300	0.45	385,000	141,000	0.029	0.025	3,500	0.25	35,000	991,000	0.036	0.028	27,800	0.42	420,000
0.025	511,000	0.047	0.039	19,900	0.45	228,000	85,000	0.034	0.030	2,500	0.26	22,000	596,000	0.045	0.038	22,400	0.42	250,000
0.030	337,000	0.057	0.049	16,600	0.45	150,000	49,000	0.040	0.034	1,700	0.32	15,000	386,000	0.055	0.047	18,300	0.43	165,000
0.040	176,000	0.079	0.071	12,500	0.46	81,000	16,000	0.053	0.049	800	0.21	3,000	192,000	0.077	0.069	13,300	0.44	84,000
0.050	108,000	0.102	0.093	10,100	0.44	48,000	8,000	0.065	0.060	500	0.18	1,000	116,000	0.099	0.091	10,600	0.42	49,000
0.060	77,000	0.120	0.112	8,600	0.45	34,000	3,000	0.067	0.077	200	0.16	-	80,000	0.118	0.110	8,800	0.43	34,000
0.070	59,000	0.136	0.130	7,600	0.40	24,000	2,000	0.100	0.088	200	0.14	-	61,000	0.135	0.128	7,800	0.39	24,000
0.080	48,000	0.151	0.145	6,900	0.38	18,000	1,000	0.100	0.096	100	0.16	-	49,000	0.150	0.143	7,000	0.37	18,000
0.090	37,000	0.171	0.166	6,100	0.35	13,000	1,000	0.100	0.103	100	0.17	-	38,000	0.169	0.163	6,200	0.34	13,000
0.100	32,000	0.183	0.180	5,700	0.24	8,000	1,000	0.100	0.111	100	0.15	-	33,000	0.180	0.176	5,800	0.24	8,000
0.150	19,000	0.226	0.219	4,200	0.26	5,000	-	-	-	-	-	-	19,000	0.226	0.221	4,200	0.26	5,000
0.200	10,000	0.275	0.266	2,700	0.27	3,000	-	-	-	-	-	-	10,000	0.275	0.270	2,700	0.30	3,000
0.250	6,000	0.303	0.301	1,800	0.24	1,000	-	-	-	-	-	-	6,000	0.303	0.300	1,800	0.17	1,000
0.300	3,000	0.340	0.340	1,000	0.31	1,000	-	-	-	-	-	-	3,000	0.340	0.333	1,000	0.33	1,000
0.350	1,000	0.400	0.376	400	0.36	-	-	-	-	-	-	-	1,000	0.400	0.400	400	-	-
0.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material

Note: oz/t refers to ounces per short ton.
This estimate is no longer relevant and has been superseded by the current resource estimates in Section 14.0 of this report. The qualified persons have not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; the issuer is not treating the historical estimates as current mineral resources or mineral reserves, and the historical estimates should not be relied upon.

7.0 GEOLOGIC SETTING AND MINERALIZATION

Christensen has reviewed all of the reports of historical exploration within the Golden Arrow district, as well as numerous technical references relating to the regional geologic setting of the district. This review, combined with new interpretations in 2016 and 2017 gained from combining all available exploration data into one model has produced new and important interpretations.

7.1 Regional Geology

The Golden Arrow mining district is situated along the northeastern margin of the Walker Lane structural zone and adjacent to the western structural margin of the Kawich volcanic caldera. There is clear evidence that both of these regional-scale geological features influenced the development of the structural setting for mineral deposits of the Golden Arrow district.

The Walker Lane is a geologic province stretching in a northwest-southeast direction along the Nevada-California border (Stewart, 1980), measuring about 450mi long by 60-190mi wide (Figure 7.1). It is a zone of complex and active faulting, including northwest-trending, right-lateral transcurrent faults, and igneous intrusions resulting from the inboard deformation of the North American continent by interaction with the Pacific tectonic plate. The Walker Lane, along which there has been, and continue to be, tectonic motion and deformation, is a structural zone parallel to the San Andreas fault system.

In total, mines within and near the Walker Lane have past production and current resources of more than 30 million ounces of gold and 400 million ounces of silver. Notable districts include the Comstock Lode, Paradise Peak, Rawhide, Aurora, Borealis, Bullfrog, Tonopah and Goldfield districts. More recent discoveries include the Gemfield and Midway deposits. Round Mountain, while not in the Walker Lane, is 55mi north-northwest of Golden Arrow and accounts for the largest share of gold production in the region.

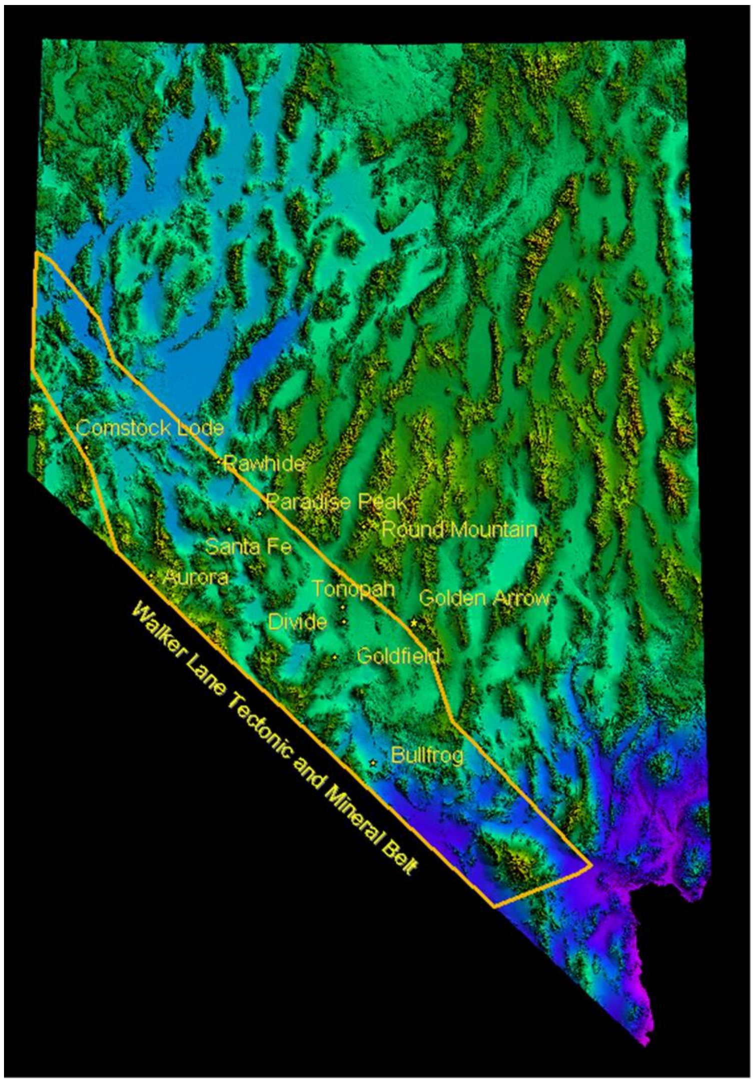
The Golden Arrow mining district is located along the western margin of the Kawich Range (Figure 7.2) which has been described by Gardner *et al*. (1980) and Best *et al.* (1995). The oldest rocks in the area are Paleozoic shale, carbonate, and quartzite that are exposed in the south end of the Hot Creek Range, west of Warm Springs, and in the Ellendale district, north of Golden Arrow. However, most of the Kawich Range is consists of intracaldera ash-flow tuff that unconformably overlie the Paleozoic sedimentary rocks.

The Kawich Range was part of the Central Nevada volcanic field ("CCVF") (Henry and John, 2013), which was active between 36 to 18.4 Ma. The CCVF consisted of numerous volcanic calderas and thick accumulations of volcanic rocks, and included the Kawich caldera located east of Golden Arrow.

The Kawich Range contains part of a 22.64 Ma caldera that was the source for the Pahranagat Formation and most of the tuff exposed in the northern portion of the range (Best *et al.*, 1995). The Kawich caldera has been subdivided into five smaller, nested calderas delimited by intracauldron breccias, ash-flow tuffs and rhyolite intrusive bodies related to five major ash-flow units erupted at 23.7 to 22.8Ma (Honn, 2005). Age determinations on intracaldera units presented by Honn (2005) overlap within the limits of the analytical uncertainty with those of the Pahranagat Formation of Best *et al*. (1995). Near

Golden Arrow, the caldera margins are poorly preserved because of extreme dissection along younger range-front faults, and are offset along a series of northwest-trending faults. Two to three compound cooling units of ash-flow tuff are exposed outside the caldera margins as thick sheets, particularly on the west flank of the range. Basin-fill sediments and alluvial fan deposits of Quaternary age are the youngest deposits in the immediate area.

Figure 7.1 Walker Lane Structural Zone
(Map provided by Nevada Sunrise, 2007)

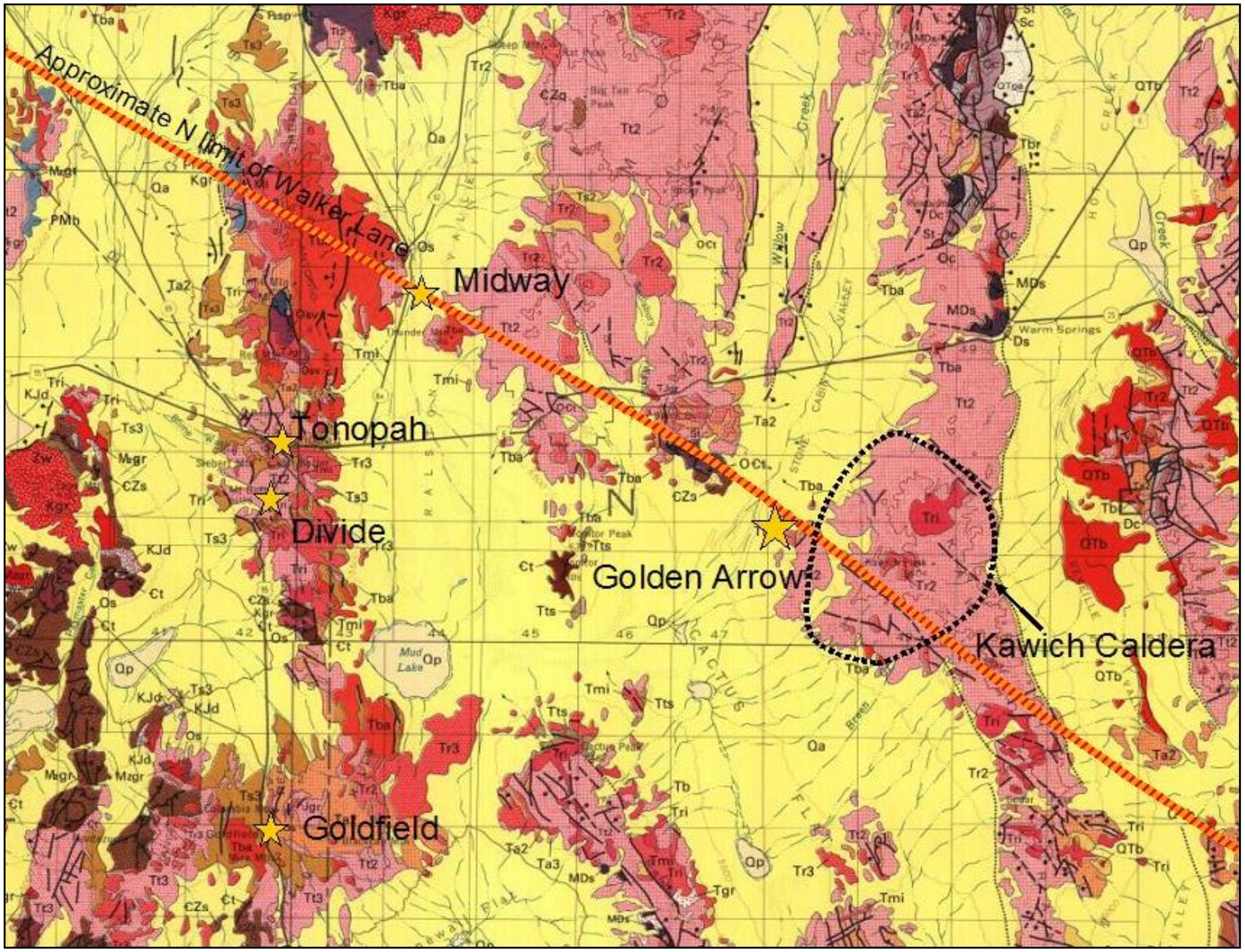


Note: Shade relief map of the State of Nevada; north is up.

Large volumes of hydrothermally altered rocks are common along caldera-bounding and other faults of the Kawich volcanic center. Several historical gold and silver mining districts with minor production are located along the margin of the Kawich caldera, including Golden Arrow, Silverbow, and Eden. The Bellehelen district is located along a fault zone crossing the Kawich caldera. Mineralization in these districts is commonly associated with rhyolite to andesite intrusive rocks.

Figure 7.2 Regional Geologic Setting of the Golden Arrow Mining District

(from Ristorcelli and Christensen, 2008; modified from Stewart and Carlson, 1978)



(squares are 6mi on a side; north is up)

7.2 Regional Mineralization and Mining Districts

Silverbow is the closest gold exploration property, located approximately six miles southeast of Golden Arrow. The district was discovered at the same time as Golden Arrow, with intermittent production through 1941. Silver production was about 100 times greater than that of gold based on ounce production. Gold production is estimated at between 1,000 and 10,000 ounces (Cornwall, 1972). Deposits occur in and near quartz-adularia veins, and in fractures in altered rhyolite ash-flow tuffs further away from the center of the system.

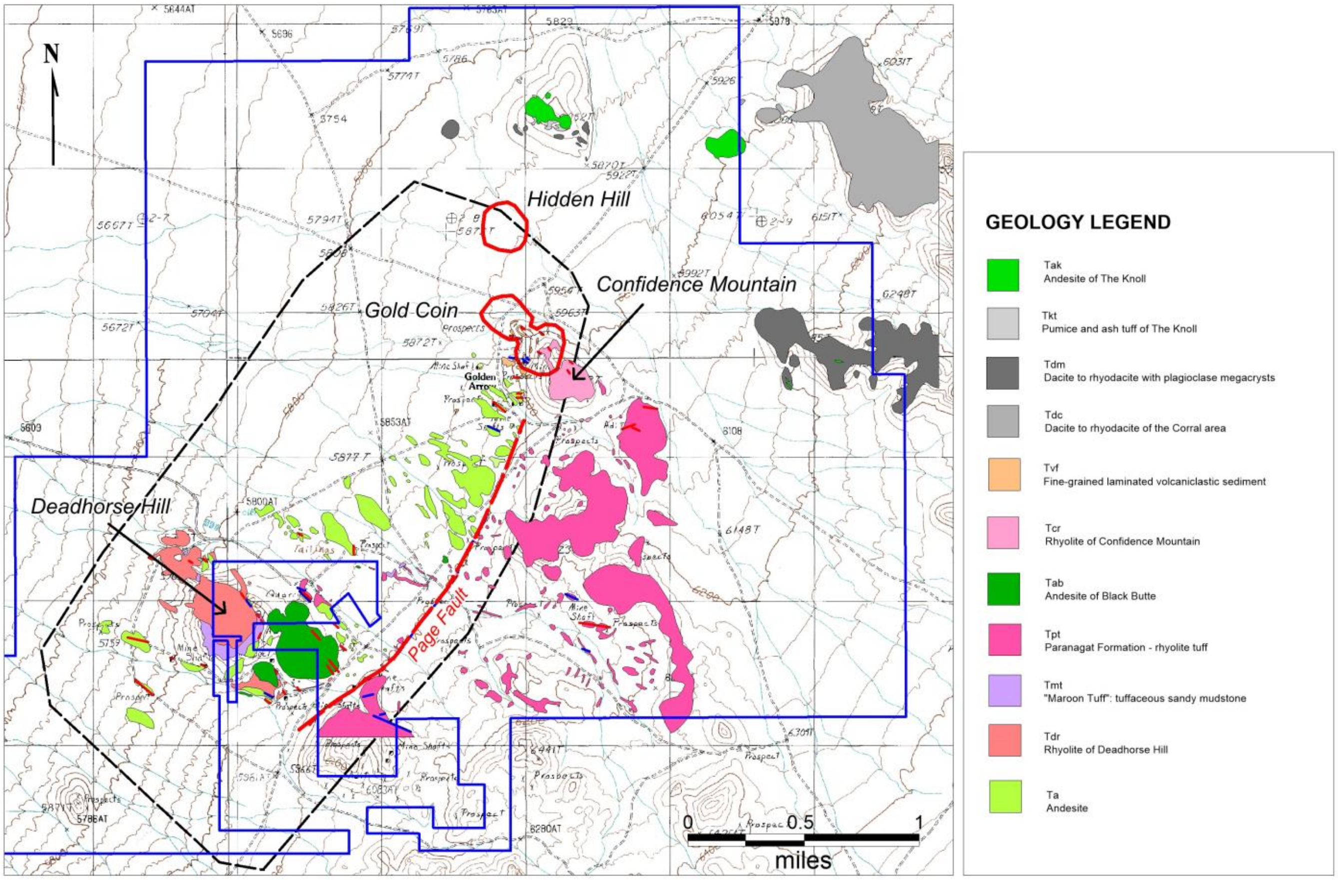
The Midway deposit, located approximately 30mi west-northwest of Golden Arrow, is a low-sulfidation epithermal gold system. Gold occurs in near-vertical quartz-adularia veins hosted by Tertiary-age volcanic rock and sedimentary rock, and the underlying, Ordovician-age Palmetto Formation. The deposit is hidden beneath up to 100ft of unconsolidated cover and contains more than 12 high-grade gold veins. The Midway vein has a weighted average grade of 4.38oz Au/ton (150g Au/t) over an average true width of 5.9ft, and the Rochefort vein has a weighted average grade of 1.3oz Au/ton (45g Au/t) over an average true width of 4.0ft, as reported by Gustin and Ristorcelli (2005). In 2005, an Inferred resource of 5.526 million tons with a grade of 0.039oz Au/ton (1.33 g Au/t) was reported for a total of 215,500 ounces gold at a cut-off grade of 0.01oz Au/ton (0.34g Au/t) by Gustin and Ristorcelli (2005).

The Tonopah Divide gold and silver project is located approximately 35mi (58km) west of Golden Arrow, six miles (ten kilometers) south of Tonopah. Gold and silver mineralization, both as high-grade veins and disseminated mineralization, is hosted within tuffaceous and andesitic volcanic rock and is spatially and genetically related to intrusive rhyolite domes.

7.3 Property Geology

The geology of the Golden Arrow property is defined by a variety of volcanic and intrusive rocks associated with the Kawich caldera, and by structures formed during evolution of the caldera and later deformation within the Walker Lane structural corridor. However, the western margin of the Kawich caldera at Golden Arrow is complex and the chronology of the mapped units is not certain. Figure 7.3 shows the geology of the Golden Arrow property as presently understood. The Gold Coin mineralized zone lies on the northwestern edge of Confidence Mountain, with most of it lying under shallow alluvial cover. The Hidden Hill zone lies north of Confidence Mountain, completely hidden by alluvium.

Figure 7.3 Geology of the Golden Arrow Property



Solid blue lines are outline of Golden Arrow property. Dashed black line shows Golden Arrow fault block.

7.3.1 Lithologies

The following descriptions of the most prominent lithologic units have been developed through surface mapping and logging of drill core and cuttings. They are discussed more or less from older to younger.

Older Rhyolite. Rhyolite welded ash-flow tuff was encountered at depth beneath andesite in the 2010 drilling program. This unit contains crystals of sanidine, plagioclase, quartz, biotite and hornblende. In drill chips, the lithology appeared similar to rhyolite tuff of the Paranagat Formation, and indeed this may be so. The stratigraphy and structure of the district are not yet fully understood.

Ta - Andesite, undivided. Andesitic flows, volcanic breccia, pyroclastic rocks, and andesite-derived epiclastic sedimentary rocks. The andesite unit crops out to the south of Confidence Mountain from the Gold Bar and Desert shafts to Deadhorse Hill. Andesite has been intersected in drilling at depth at both the Gold Coin and Hidden Hill deposits, underlying felsic volcaniclastic rocks and rhyolite. The andesite has been interpreted to rest upon Paleozoic slate, limestone and quartzite, as exposed elsewhere in the Kawich Range, but these basement units are nowhere exposed on this property. In some holes the andesite overlies the older rhyolite ash-flow unit described above. Alteration of the andesite ranges from insignificant, to common regional background propylitic alteration, to extreme argillic alteration within the two deposits.

Tdr - Rhyolite of Deadhorse Hill. Deadhorse Hill is comprised of a coarse-grained rhyolite intrusion with abundant coarse phenocrysts of K-feldspar, plagioclase, quartz and minor biotite. The unit occurs as the intrusive neck of Deadhorse Hill, as well as in several radiating dikes cross-cutting andesite. A tuff ring partially wraps the Deadhorse intrusive neck. This lithology has been variously called alaskite, rhyolite, and granite; the term rhyolite is preferred to better describe the composition and geometry of this volcanic neck.

Tmt - Maroon tuff. Volcanic tuff surrounding the Rhyolite of Deadhorse Hill. Maroon-colored, unsorted, silt- to sand-size angular volcanic ash. Interpreted as a tuff ring surrounding the Tdr.

Tpt – Pahranagat ash-flow tuff. The higher hills on the property, to the east of the Page fault, are made up of variably welded rhyolite ash-flow tuff assigned to the Pahranagat Formation, which is a large-volume crystal-rich rhyolite ash-flow tuff sourced from the Kawich volcanic center. At Golden Arrow the unit is moderately to densely welded. The welded tuff, or ignimbrite, contains crystals of sanidine, plagioclase, quartz, biotite, hornblende, and titanomagnetite. Clasts of rhyolite as well as basement andesite and Paleozoic lithologies, and deformed pumice clasts are present. The unit appears to lap over the andesite west of the Page fault. The Pahranagat Formation has been dated at 22.639 $\pm$0.009 Ma (Best *et al*., 1995).

Tab – Andesite of Black Butte. Dominantly a coherent andesite with 2-5mm plagioclase phenocrysts (20-30% of the rock) in an unaltered black aphanitic matrix.

Tcr - Rhyolite of Confidence Mountain. Confidence Mountain is a block mass of densely-welded rhyolite ash-flow tuff, or ignimbrite. The rhyolite is a light-colored, laminated rock with prominent sanidine and quartz crystals in a eutaxitic foliated aphanitic matrix.

Tvf - volcaniclastic sedimentary rocks. Closely associated with the Confidence Mountain rhyolite is a thick section of volcaniclastic sedimentary rocks. The volcaniclastic sedimentary rocks are of rhyolite parentage and vary from fine mudstone to coarse angular sedimentary breccias; the unit varies from well-sorted to unsorted. The presence of clear dipyramidal quartz grains, locally constituting more than half of the rock volume, is distinctive. The unit is typically well bedded, and sedimentary features such as cross-bedding and soft-sediment deformation are common. The unit is frequently densely cemented by chalcedonic quartz.

The volcaniclastic sedimentary unit both underlies and unconformably laps over the Confidence Mountain rhyolite. Lithic clasts in the sedimentary breccia are of the Confidence Mountain rhyolite. In drilling, the unit is seen to occupy a deep trough within the andesite basement extending in a northwest trend from beneath Confidence Mountain to Hidden Hill.

The volcaniclastic unit is interpreted as a maar deposit, formed within a water-filled volcanic depression, with sediment derived from the adjacent Confidence Mountain rhyolite block. There is abundant, frequently stratabound, chalcedonic cement within the maar setting. In addition, the unit is cut by phreatic breccia, evidence of a dynamic environment of deposition.

Latite dikes. A number of latite dikes or small intrusive bodies were encountered in drilling at both the Hidden Hill and Gold Coin zones. This is light-colored igneous rock with phenocrysts of biotite and sanidine in a flow-banded vitric matrix. The unit intrudes both andesite and volcaniclastic sediments. Peperite breccia, commonly pyrite-rich, is common at intrusive contacts between latite and the volcaniclastic sediments, suggesting that the latite intruded wet maar sediment.

Tdc - Dacite units. The small hills to the north and northeast of Confidence Mountain and the Hidden Hill deposit are capped by dark-colored, dense, unaltered dacite to andesite volcanic flows. These are underlain by a thick section of unwelded pumice-lithic-crystal tuff, characterized by crystals of plagioclase, biotite and hornblende. The dacite unit is strongly magnetic; an extreme low observed in the aeromagnetic survey over the unit suggests that it has reverse remnant magnetism. The unit is nowhere hydrothermally altered, even where overlying the altered and mineralized volcaniclastic sedimentary unit, and is interpreted to be post-mineralization in age.

Tdm – Dacite with megacrysts. Dacite to rhyodacite lavas with prominent plagioclase megacrysts (>1cm) and smaller phenocrysts of biotite and hornblende.

Tkt - Tuff of the Knoll. The small hill located to the north of the Hidden Hill deposit is known informally as The Knoll. Much of the Knoll is underlain by a non-welded rhyolite air-fall tuff. The tuff contains fine-grained broken crystals of plagioclase, biotite and hornblende as well as pumice and glass shards. In drill holes, unaltered and unmineralized Tuff of the Knoll is observed to unconformably overlie eroded mineralized rock at Hidden Hill.

Tak – Andesite of the Knoll. Dense, black aphanitic volcanic rock with small plagioclase phenocrysts and oxidized mafic sites.

Qc - alluvium. Much of the property is covered by unconsolidated Quaternary alluvium, colluvium and eolian material. The alluvial material consists of clay to boulder-sized clasts of all volcanic lithologies within the nearby Kawich Range. In the broad flat area between Confidence Mountain and Deadhorse Hill, the alluvial cover is relatively thin, as evidenced by bedrock units that crop out in most of the shallow arroyos.

The alluvium becomes more than 600ft thick west of Hidden Hill, toward the center of Stone Cabin Valley. East of Hidden Hill, the pediment alluvium is about 50ft thick and gradually becomes thinner towards the source. It is important to note that placer gold occurs in several drill holes in the middle and near the base of the alluvium, indicating that a possible exploration target for the source exists up-gradient to the east. The Hidden Hill zone is covered by about 110ft of alluvium and is situated on the end of a narrow, east-northeast-trending paleoridge (Seedorff *et al.*, 1991). At times during the Quaternary, Stone Cabin Valley was filled with a shallow lakes. Old shoreline features and clay-rich lake sediments are present in the alluvial fill along the west side of the property.

7.3.2 Structure

Within the property, the most prominent structure visible in the surface geology is the Page fault zone, extending in a broad arc across the property from a northeast to north trend, terminating at the Confidence Mountain rhyolite ash-flow tuff. Numerous historic prospects and shafts exploited veins and mineralized breccia lenses along the Page fault zone (Figure 7.4). The fault zone frequently places andesite to the west against rhyolite ash-flow tuffs to the east. All kinematic indicators suggest that this is a normal fault, probably related to collapse of the Kawich caldera.

Figure 7.4 Historic Workings Along the Page Fault (Looking Southwest)

Hudson (1989) interpreted the relative ages of the various structural features. He postulated that the oldest fault is probably a north-south fault hidden beneath alluvial cover on the east side of the property. This fault is interpreted to be an element of the ring-fracture system of the Kawich caldera. Next, northeast-trending faults, including the Page fault, and northwest-trending (330^o) faults were active prior to the main mineralizing event.

Murray (1997) devoted considerable attention to structural controls on mineralization. His studies show that the majority of the mineralized veins in the Gold Coin area strike 320^o and dip variably from southwest to northeast. He interpreted this as evidence for the involvement of Walker Lane deformation in structural preparation for mineralization.

7.3.3 Alteration

Rock units within the Golden Arrow district exhibit a variety of alteration styles. The later post-mineralization rocks – the dacite flows and tuffs – are mainly fresh and unaltered. The welded rhyolite Pahranagat Formation and the rhyolite of Deadhorse Hill similarly exhibit little alteration. There remains a question as to whether these units post-dated mineralization, or simply are not altered as currently exposed. The basement andesite was affected by propylitic alteration (epidote±chlorite ±albite±calcite) everywhere it has been encountered within the property.

The volcaniclastic sedimentary rocks exhibit variable to extreme alteration, as might be expected from deposition and alteration in an active maar setting. Intense chalcedonic silicification of hot-springs character is particularly striking in outcrops on the western flank of Confidence Mountain. In drill holes, fine-grained silicification is locally so intense as to create a rock described in logging as porcellanite – a dense, extremely hard aggregate of fine crystalline quartz. Yet elsewhere this same unit is altered to a bleached white clay (kaolinite?) residue. The overall aspect is that of pervasive, steam-heated alteration that is intense in the Hidden Hill and Gold Coin areas.

Gold-bearing quartz veins along the Page fault and surrounding Deadhorse Hill are characterized by crystalline quartz and adularia with very limited selvages of silicification and sericite. Gold mineralization within the Hidden Hill zone is typically associated with intense clay-pyrite alteration.

Supergene oxidation may extend to depths of more than 600ft along fault and fracture zones, but more generally extends to depths of 100-200ft in the Hidden Hill and Gold Coin zones.

7.3.4 Geologic Summary

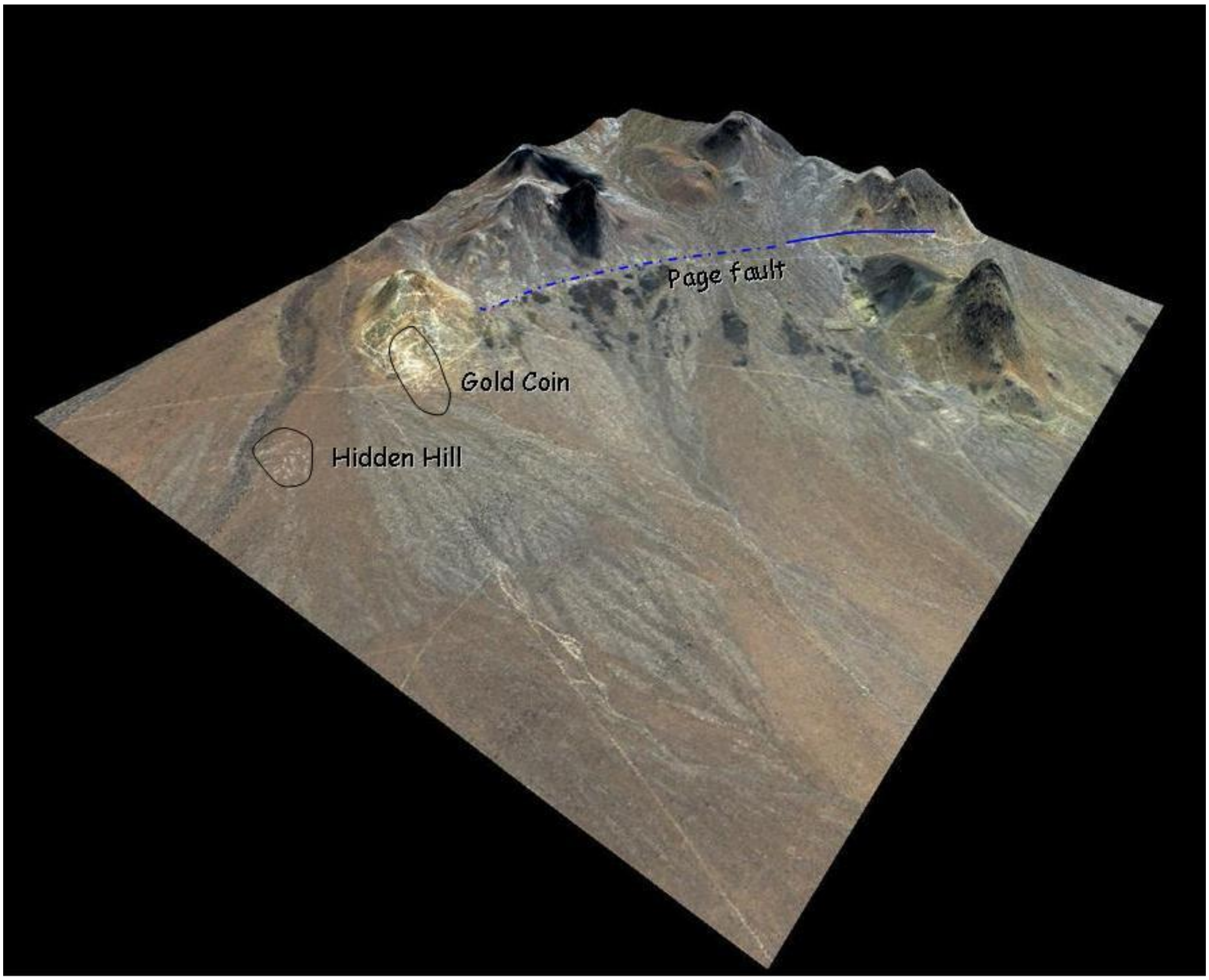
Acknowledging that there is great complexity in the details, the geology of the Golden Arrow property can be summarized as follows. Basement rocks in the district include metamorphic rocks – quartzite, slate, phyllite and marble – of Paleozoic age; these do not crop out anywhere in the district. Paleozoic basement metamorphic rocks are overlain by a thick and heterogeneous sequence of Tertiary volcanic rocks associated with the evolving Kawich Range volcanic center. The earliest volcanic basement consists of andesite flows, volcanic breccia, and epiclastic sedimentary rocks. The andesite basement is overlain by tremendous thicknesses of rhyolite (lithic-crystal-pumice) welded ash-flow tuff or ignimbrite representing the main stage of volcanic activity – eruption and caldera collapse. Intrusion and extrusion of rhyolite flow domes along the caldera margin fault zones closely followed eruption of the great ash-flow sheets. Hydrothermal alteration and mineralization were intimately involved with this episode of structural collapse and felsic intrusion. As volcanic activity waned, the system became once again more mafic, with eruption of post-mineral dacite to andesite tuffs and volcanic flows. Near-surface weathering and erosion have reduced the volcanic surface and covered much of the rock with colluvium and alluvium. Supergene alteration and oxidation of the mineral deposits continue to the present.

7.4 Mineralization

Most of the data and information presented in this section is from direct observation and experience of Christensen unless otherwise cited.

Mineralization at Golden Arrow occurs primarily in three areas. The Gold Coin zone crops out on and northwest of Confidence Mountain. Additional mineralization occurs on the northwest slope of Confidence Mountain in the Confidence Mountain zone, which is often combined with the Gold Coin zone for discussion in older reports. The Hidden Hill zone, entirely covered by Quaternary alluvium, is about 1,800ft north of the Gold Coin zone (Figure 7.5).

Figure 7.5 Perspective View Looking Southeast with the Gold Coin and Hidden Hill Zones
(from Nevada Sunrise, 2007)



The gold and silver mineralization at Golden Arrow has characteristics of both low-sulfidation, high-grade, vein-style epithermal mineralization and disseminated, hot-springs style, epithermal mineralization.

In the low-sulfidation style at Golden Arrow, precious metal concentrations occur within multi-episodic quartz + sulfide (± adularia ± carbonate ± sericite ± barite) veins, veinlets and stockwork zones localized in open faults and fractures. Some of the veins are within and parallel to the Page fault; others strike northwest at about 320°. Pyrite and marcasite are the presently recognized sulfide minerals. Alteration selvages are of limited intensity and dimension and include quartz ± adularia ± sericite. Host rocks include both the Confidence Mountain rhyolite and the andesite.

In the hot-springs style of mineralization, gold and silver concentrations are more broadly disseminated within porous lithologies including volcaniclastic sedimentary rocks, rhyolite and andesite. Host rocks within zones of mineralization are frequently highly altered to quartz ± clay ± pyrite. Gold is broadly distributed in host volcaniclastic sedimentary rocks and in andesite, but is quite restricted to discrete brittle fracture zones in rhyolite. In the Hidden Hill zone, there is a distinct spatial association and an inferred genetic association between alteration, mineralization and latite dikes. The margins of the latite dikes are commonly peperite breccia, indicating intrusion into wet sediments, and are typically gold-mineralized. Pipes of hydrothermal breccia or tuffisite within both the Hidden Hill and Gold Coin zones are evidence of a very dynamic environment of formation closely associated with igneous activity (Figure 7.6).

Quartz is the most common silicate mineral in these deposits. Quartz occurs within the deeper higher-grade veins, as veins within the near-surface hot-springs-style mineralization, and as pervasive silicification within some of the near-surface hot-springs-style mineralized rock. Vein quartz occurs as milky, crystalline, chalcedonic and opaline varieties. Within the low-sulfidation veins, quartz textures can be massive, banded, drusy, or sucrosic. Comb and drusy quartz textures are common in open fractures (Figure 7.7). The volcaniclastic sedimentary rocks contain laminated beds of chalcedonic quartz as well as thicknesses of stratabound chalcedonic cementation.

Pyrite is the most common sulfide mineral. Coarse pyrite occurs disseminated within the quartz veins and immediate vein selvages. In the Hidden Hill mineralization, zones of clay-pyrite alteration contain from <1% to 50% fine-grained, brassy-colored disseminated pyrite.

The metallurgical deportment of gold and silver is not well known. Fine visible gold can be seen occasionally in the quartz-adularia-gold veins; early miners recovered gold by gravity separation, suggesting that at least some, if not much of the gold in the near-surface oxidized portions of these veins, occurs as the native metal. It is not known where the gold and silver occur in the hot-springs style of mineralization.

Murray (1997) reported that silver occurs as argentite in quartz veins away from Confidence Mountain.

Figure 7.6 Volcaniclastic Breccia Showing Dynamic Brecciation of the Maar Sediment

Figure 7.7 Bladed Epithermal Vein Quartz Texture

Several deep holes were drilled in 1994 in the Confidence Mountain and Hidden Hill areas, and every fifth sample (*i.e.*, 25ft intervals) was analyzed for lead, zinc, copper, tellurium, bismuth, arsenic, and potassium. Only potassium values showed much variation; concentrations potassium were lower in the quartz veins than in the surrounding rock. The other elements were very low or below detection (Murray, 1994; 1997). The results of later lithogeochemical analyses by Tombstone indicated a strong correlation between gold, mercury, and molybdenum, which Murray (1997) interpreted to indicate a possible deep-seated molybdenum porphyry origin for the hydrothermal fluids.

Figure 7.8 is a schematic cross section of the Gold Coin mineralized zone, and Figure 7.9 is a schematic cross section of the mineralization at Hidden Hill.

The mineralizing events at Golden Arrow took place after 22.6 Ma, probably in mid-Miocene in conjunction with east-west extension faulting. Dickinson (2006) estimated that Cenozoic Basin and Range extension faulting began at about 17.5 Ma.

Figure 7.8 Schematic Cross Section of the Gold Coin Zone
(Nevada Sunrise, 2007; red bars parallel to the drill hole traces indicate the intervals with significant gold mineralization indicated in ounces Au per short ton/interval in feet)

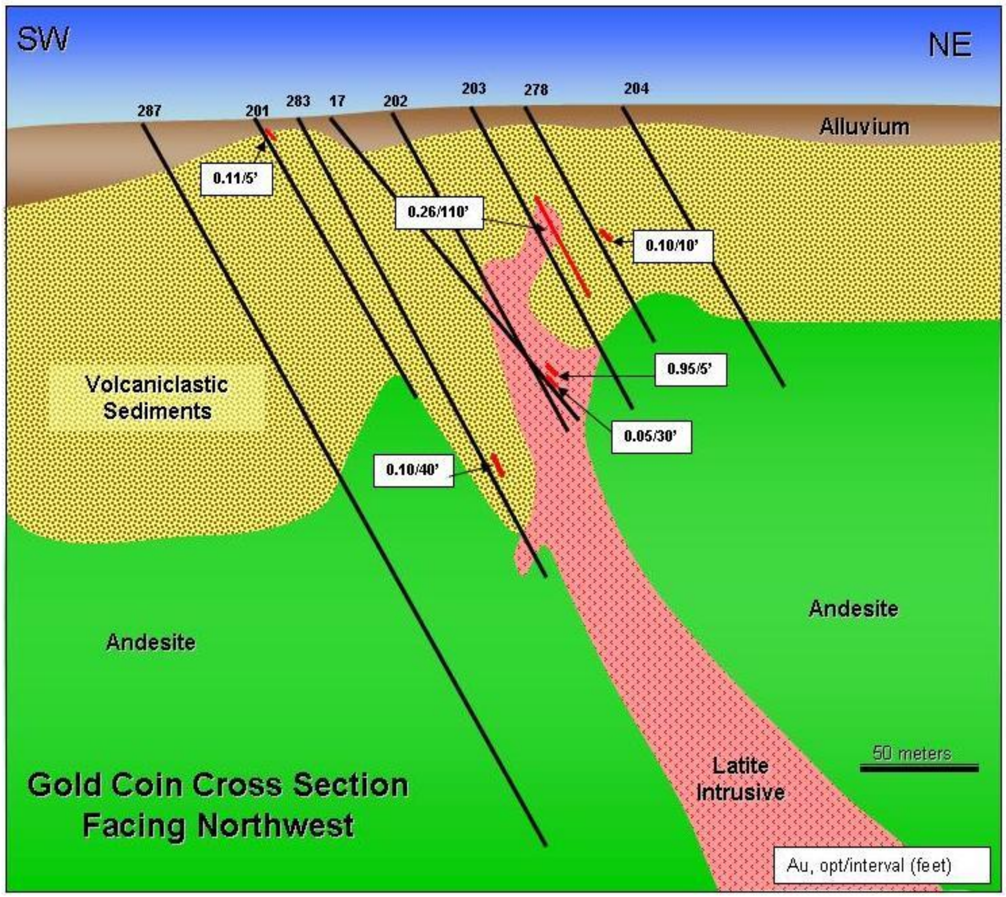
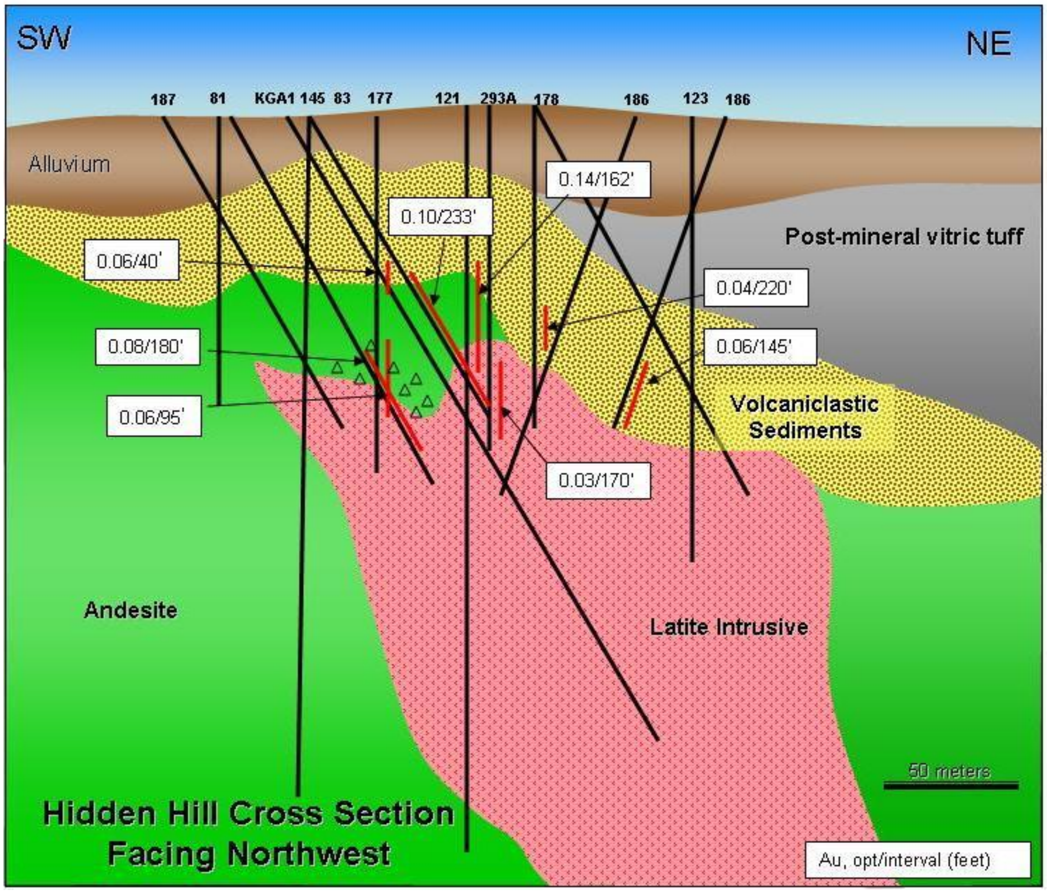


Figure 7.9 Schematic Cross Section of the Hidden Hill Mineralized Zone

(Nevada Sunrise, 2007; red bars parallel to the drill hole traces indicate the intervals with significant gold mineralization indicated in ounces Au per short ton/interval in feet)



8.0 DEPOSIT TYPES

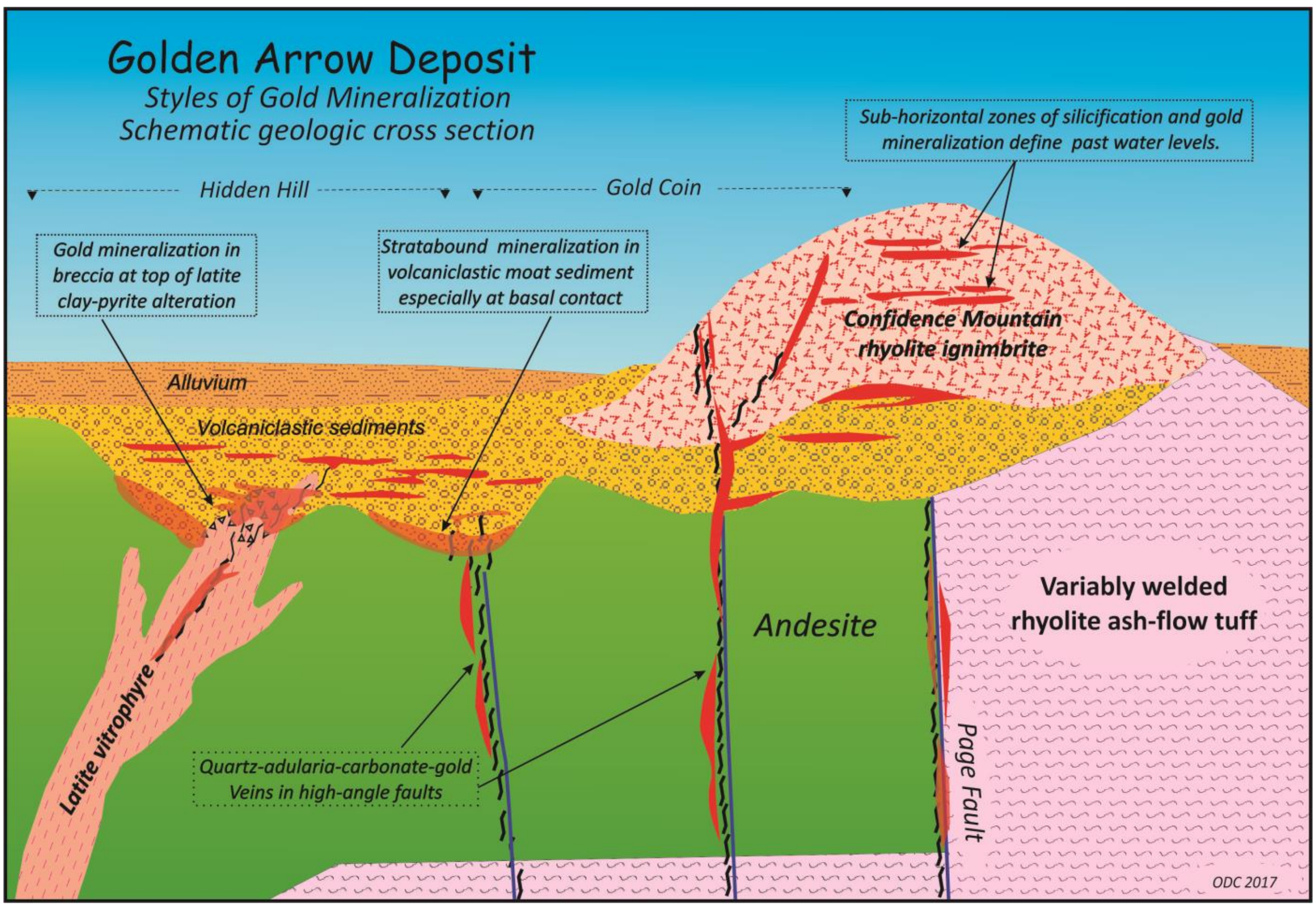
Unless specifically referenced, the information in this section is based on Christensen's observations and experience.

Mineral deposit types considered as potential targets within the Golden Arrow district include:

- High-grade low-sulfidation quartz-adularia veins, such as those mined in the early 1900's;
- Volcanic-rock hosted, disseminated hot-springs-style gold-silver mineralization, such as that present in the Gold Coin and Hidden Hill resource zones; and
- Caldera-margin low-sulfidation gold mineralization disseminated within porous confined ash-flow tuff, such as the gold deposits at Round Mountain Nevada

Gold deposits of the Golden Arrow mining district have been classified as low-sulfidation epithermal deposits, based upon the style of mineralization observed in the gold-bearing quartz-adularia veins in the historic underground mines (Ernst, 1990; Murray, 1997; Bonanza, 2001). More recent work, however, highlights a second, broader style of hydrothermal alteration and mineralization (Figure 8.1).

Figure 8.1 Schematic Golden Arrow Deposit Styles of Gold Mineralization



View is looking north; modified in 2017 from Ristorcelli and Christensen (2010); schematic—not to scale.

Gold-bearing quartz veins exploited by numerous underground workings at Golden Arrow are hosted in both rhyolite and andesite lithologies. The veins fill brittle open fractures. Narrow zones of quartz ± adularia ± sericite ± carbonate alteration surround quartz ± carbonate ± adularia ± barite veins. The veins have rhythmic banded textures, comb textures, and evidence of repeated brecciation and healing. Gold is confined to the veins and their immediate wallrock selvages. Grades of several ounces of gold per ton from hand-selected ore were reported from historic mining operations. The veins vary considerably in thickness both along strike and dip; thicker veins and greater gold values were reported to occur in tabular ore shoots. These veins are clearly of low-sulfidation character.

In contrast, more broadly disseminated and generally lower-grade gold mineralization in both the Hidden Hill and Gold Coin deposits exhibits a variety of mineralization styles: (1) in Hidden Hill, gold mineralization is disseminated in brecciated zones with intense clay-pyrite alteration surrounding intrusive latite dikes; (2) also in Hidden Hill, gold is concentrated in nearly horizontal “hot-springs style” stratabound lenses within the volcaniclastic maar sediment, especially along the lower contact of the volcaniclastic sediment with underlying andesite; (3) in Gold Coin, this stratabound style of mineralization within the volcaniclastic sediment can be ponded beneath the overlying rhyolite of Confidence Mountain; and (4) in Gold Coin, subhorizontal zones of gold enrichment occur within more permeable layers in the rhyolite ignimbrite. There is evidence in drill core that the hot-springs mineralization and alteration overprint earlier low-sulfidation vein-style gold mineralization.

The Golden Arrow deposit is best described as consisting of low-sulfidation epithermal quartz-adularia gold-silver veins overprinted and surrounded by hot-springs style, near-surface steam-heated alteration and broader lower-grade precious metal mineralization. Both styles of mineralization represent exploration targets for Emgold. The low-sulfidation, epithermal, quartz-adularia gold-silver vein and hot-springs geological models, are the principal geological models and concepts applied in the exploration and evaluation of the Golden Arrow property.

9.0 EXPLORATION

9.1 2006 – 2010 Nevada Sunrise Exploration

Nevada Sunrise initiated preliminary exploration activities on the Golden Arrow property in 2006. Nevada Sunrise had assembled a substantial archive of historical exploration data and compiled these records within a Geographic Information System ("GIS") database. Exploration activities conducted by Nevada Sunrise from 2006 until 2008 and the initial technical report by Ristorcelli and Christensen (2008) consisted of:

- Compilation, review, and reinterpretation of existing exploration data;
- Field geologic review and limited geologic mapping;
- Location and re-surveying of many of the historical drill sites to verify and improve the precision of the drill collar-location database;
- Re-logging of all available drill core and chips, and reinterpreting geological cross sections;
- Acquisition and interpretation of new high-resolution satellite imagery and ASTER spectral data;
- Compilation, remodeling and reinterpretation of the geophysical database;
- Compilation and reinterpretation of the historical soil geochemical database; and
- Completion of a soil geochemical orientation survey.

Since release of the technical report by Ristorcelli and Christensen (2008), Intor conducted the following activities to better define the estimated mineral resources and advance the technical understanding of the property:

- Completed a program of exploration drilling including both diamond-core and RC drilling;
- Completed a new outcrop geologic map of the property;
- Completed a soil geochemical survey over a portion of the property;
- Completed a revised mineral resource estimate, based on the results of the 2008 drilling; and
- Initiated a program of metallurgical test work.

Nevada Sunrise's drilling in 2008 included five core holes and 28 RC holes. All but six of these holes were drilled in the Gold Coin and Hidden Hill mineralized zones.

Nevada Sunrise geologists completed a new outcrop geological map of the Golden Arrow property in 2009. Mapping was done at a scale of 1:5,000 on air-photo imagery of the property. The resulting map provides a base for interpretation of geochemical, geophysical and drilling information.

9.1.1 Nevada Sunrise Geochemical Studies

Following the recommendation of Jaacks (2007b), Nevada Sunrise completed an orientation soil geochemical survey at Golden Arrow during 2007. Samples were collected on two grids: one extending over the Hidden Hill zone and the second crossing the Page fault in the vicinity of the Golden Arrow shaft. Samples were analyzed for multiple elements both by conventional aqua regia extraction and by enzyme-leach extraction. These samples were also analyzed for soil-gas hydrocarbons. Multi-element geochemical results from this orientation yielded results similar to those from the 2003 Pacific Ridge soil samples discussed previously. No useful information could be derived from the soil-gas hydrocarbon geochemistry.

Nevada Sunrise contracted a soil geochemical survey over a portion of the Golden Arrow property during the 2008 exploration season. Soil geochemical samples were collected by the Blue Eagle Sampling Team of Helena, Montana. Samples were collected at 164ft intervals on east-west oriented lines spaced at 328ft. A total of 1,012 samples were collected, covering an area of about 1.7mi^2. Sample locations were determined by hand-held GPS units. At each site, a soil sample was collected from 10 to 12in depths and screened on site. ALS Chemex Laboratories ("ALS") in Sparks, Nevada determined Au by *aqua regia* extraction from a 25-gram aliquot using graphite furnace AAS. A multi-element suite was determined by combination of ICP-MS and ICP-AES methods on a 5-gram aliquot.

Statistical evaluation of the 2008 soil geochemical data defined a distinct suite of elements (Au-Ag-As-Sb-Mo-Hg-Pb-Te) that are correlated with each other. This is a typical "epithermal suite" of pathfinder elements for gold exploration. Element maps of soil geochemistry were prepared on a photo base outlining alluvial and soil domains. These maps demonstrated that the dominant control on soil trace-element geochemistry is the character of surficial material. Gold and pathfinder elements are most concentrated over outcrop and alluvial trails from the rhyolite on Confidence Mountain. Areas highlighted by this survey for further exploration are an area immediately to the southeast of Confidence Mountain, which has had little exploration or drilling, and the alluvium-covered pediment extending west from Confidence Mountain.

9.1.2 Nevada Sunrise Geophysical Studies

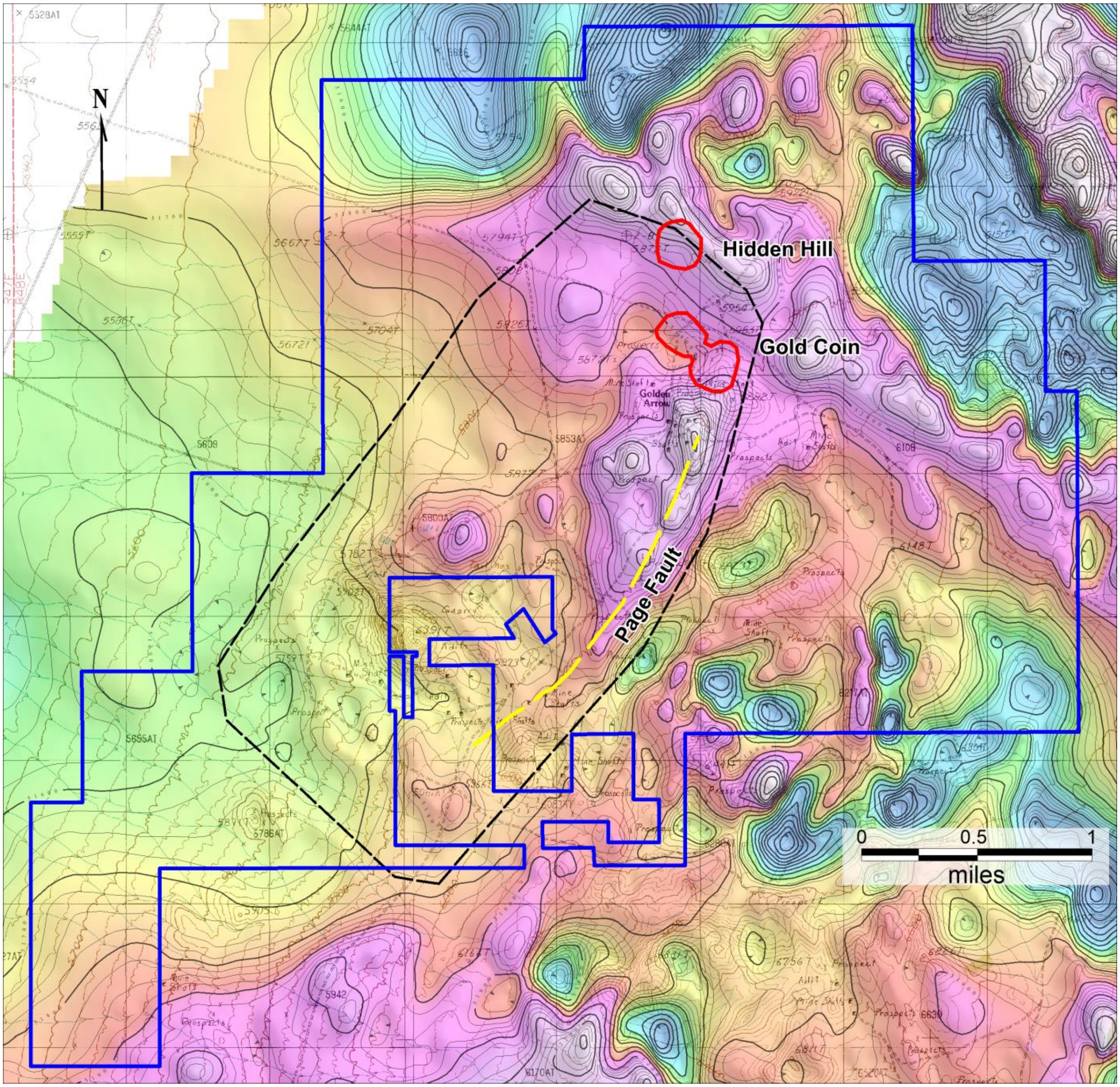
Although it has been acknowledged that geophysical surveys – magnetic and gravity data – led to the discovery of the Hidden Hill mineralization, and numerous geophysical surveys were carried out over the Golden Arrow property, surprising little effort was made to critically integrate, interpret, and utilize the available geophysical information. Nevada Sunrise recognized this and, during 2007, commissioned Wave Geophysics ("Wave") of Evergreen, Colorado to reprocess all the available data utilizing three-dimensional interpretation algorithms and imaging software that had only recently been developed.

As reprocessed by Wave, several features in the geophysical data warrant note and are here illustrated. Gravity surveys detect differences in the mass of the underlying rock and are particularly useful for mapping (1) the depth of overburden cover, (2) faults that juxtapose rock units of different density, and (3) bedrock geologic units with distinct rock densities. Figure 6.3 is a Complete Bouguer Gravity image of the Golden Arrow property. The gravity data were collected by Kennecott in 1996 and were reprocessed by Wave in 2007. The residual gravity data were computed by applying a 3.1mi wavelength, high-pass filter to Complete Bouguer Anomaly data. The image shows a distinct and prominent, northeast-oriented high measuring approximately 3.1mi by 1.2mi. A portion of the eastern margin of this gravity high is coincident with the Page fault. The northern portion of the gravity anomaly appears to be displaced along a northwest fault passing directly through the Gold Coin zone.

In 2007, Wave also reprocessed and interpreted the available magnetic data using analytical modeling programs unavailable at the time of the original surveys. Magnetic surveys map the magnetic susceptibility of the underlying rock units and can be particularly valuable for mapping bedrock geology beneath cover. Figure 9.1 shows color-contoured airborne magnetics on the topographic base. This is reduced-to-the-pole data with 3.1mi high-pass filter processing and the image shows a great variety of features at all scales. Page fault is clearly evident as a break between magnetic andesite to the west and less magnetic rhyolite ash-flow tuff to the east. Just to the south of Confidence Mountain, there appears to be a north-trending splay extending from the main north-northeast-trending fault, which passes through the Desert shaft. Finally, there is a prominent magnetic high located immediately south of Confidence Mountain, perhaps another concealed intrusion.

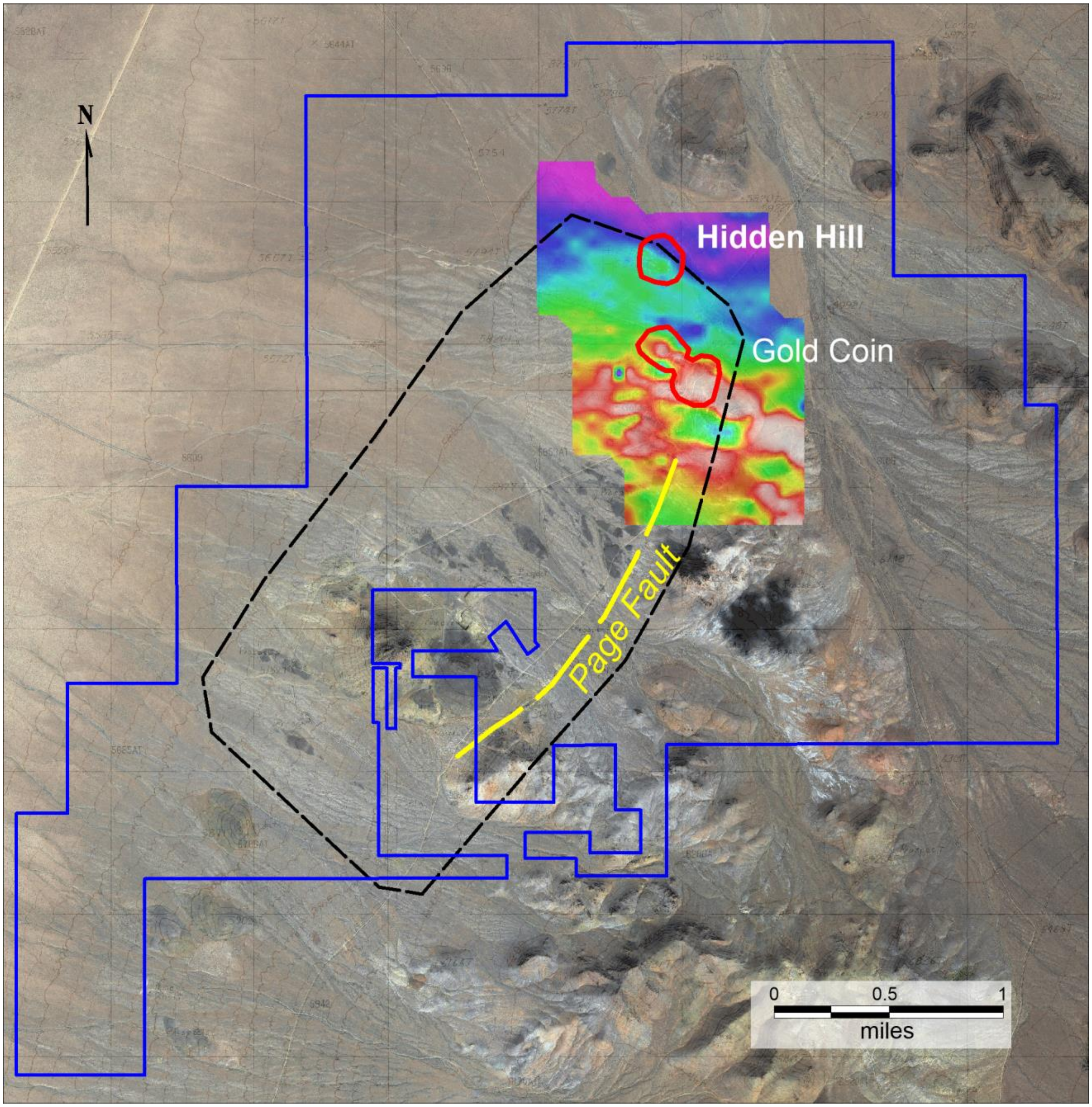
Gradient-array resistivity data over the Confidence Mountain area, collected by Practical Geophysics for Coeur in 1993, were digitized, gridded and imaged by Dr. Christensen for Nevada Sunrise in 2007. The 2007 image shown in Figure 9.2 paints a revealing image of the underlying geology and alteration. Confidence Mountain appears as a ring-shaped resistivity high, with a less resistive core surrounded by a more resistive ring. It is also notable that all of the mapped historic prospects and mines occur within the broad resistive ring.

Figure 9.1 Filtered Reduced to Pole Aeromagnetic Image of the Golden Arrow Property
(from Ristorcelli and Christensen, 2010; property outline updated in 2017)



Note: map displays magnetic response computed by applying a 5-km wavelength high-pass filter to reduced-to-pole magnetic data. Warmer colors indicate stronger magnetic response. Bold red outlines are the locations of the Hidden Hill and Gold Coin mineralized zones. Dashed black line shows Golden Arrow fault block.

Figure 9.2 Gradient Array Resistivity
(Resistivity data from Nevada Sunrise, 2007)



Note: bold red outlines are the locations of the Hidden Hill and Gold Coin mineralized zones; warmer colors indicate higher resistivity. Dashed black line shows Golden Arrow fault block.

In April and May of 2010, Zonge Geosciences of Sparks, Nevada carried out a Gradient Array IP/Resistivity survey over much of the Golden Arrow property for Animas. The survey consisted of six array blocks with approximately 39.8mi of data acquisition. Survey data was acquired with transmitter dipoles of approximately 13,120ft oriented parallel to survey lines; and 164ft receiver dipoles and 164ft spacing. Survey lines were spaced at 328 and 656ft, oriented to cross anticipated geological fabric. The survey included the Hidden Hill and Gold Coin zones, and was oriented to the southwest (Zonge, 2010).

The data was contoured and interpreted using Geosoft Montaj and MapInfo Discover software, and color contour maps were produced. Christensen (2010) stated that the results imaged the subsurface volcanic rocks and alteration, but the gold resources did not have a unique response, although there was a resistivity high associated with the Gold Coin mineralization.

9.2 2011 – 2016 Nevada Sunrise Exploration

Nevada Sunrise conducted exploration from 2011 to 2016. Field work was done between 2011 and 2013, including completing an electrical geophysical survey, RC drilling, and a spectral alteration mineralogy study of drill samples. Design of the Plan of Operations for further exploration drilling and associated permitting occurred between 2014 and 2016.

In 2011, Nevada Sunrise contracted Quantec Geoscience Ltd. ("Quantec") of Toronto, Canada to conduct an Orion 3D Survey, which is a three-dimensional proprietary geophysical method developed by Quantec. According to Gharibi *et al.* (2012), an advantage of the Quantec 3D system is the capability to reach subsurface depths of up to 4,500 feet for magnetotelluric data and 2,300 feet for direct-current resistivity and induced polarization data, under favorable conditions. At Golden Arrow, the Orion 3D system collected magnetotelluric, direct-current resistivity and induced polarization data to depths of 3,200 feet (Killin and McGill, 2012).

The objective of the Orion 3D Survey was to detect new zones of mineralization and alteration, and to fully delineate known mineralized areas. The area covered was a rectangular grid, 1.9mi by 1.3mi, resulting in more than 280,000 measurements over the survey area. Orthogonal receiver dipole orientations were 45° and 135°, and dipoles were 328ft in length. Rows of receivers were spaced 984ft apart. Following the survey, Quantec completed an initial interpretation and Nevada Sunrise conducted a drilling program to test areas of interest identified from the Orion 3D models.

Quantec submitted a report to Nevada Sunrise summarizing the results of the geophysical survey in relation to the results of the drilling program (Killin and McGill, 2012). A supplemental report was prepared by Quantec in 2014 that included additional analyses (Killin, 2014) of all drilling results and reprocessing of some of the geophysical data. Several useful interpretations and observations were made in the two reports.

The Hidden Hill and Gold Coin resource zones occur along a major northwest-southeast trending magnetic feature (Killin and McGill, 2012). It was noted that mineralization occurs south of this magnetic feature, but not north of it, according to Killin (2014), which may be of interest for future exploration.

Maps of the magnetotelluric resistivity model showed the presence of a large, 0.9mi diameter, somewhat circular resistive feature, with several deep chargeable zones situated around the periphery of the resistive body at depths of approximately 1,300ft, according to Killin and McGill (2012). This deep resistive body strikes northeastward through the survey area. The top of this resistive unit is approximately 2,300ft below the surface, and it continues to a depth of 3,200ft. It trends through the Hidden Hill and Gold Coin deposits. Killin (2014) stated that this geophysical information and drill data indicated that the andesites on the property are not always the basement rocks, because in some places there are underlying rhyolites or silicic intrusive rocks.

Killin (2014) noted that the Gold Coin zone has two different geophysical signatures. The northern portion of the Gold Coin deposit was considered similar to Hidden Hill, having a resistive unit with associated chargeability, while the southern part of the deposit showed mineralization in a moderately conductive zone, which might be associated with the northern end of the Page fault. The location of the Page fault was inferred from an aeromagnetic feature.

The two Quantec reports prioritized five “areas of interest” for further investigation. Drilling depths of 1,600ft might be required to reach these targets:

Hidden Hill and Zone A Area: The highest priorities were three targets west of and immediately south of Hidden Hill, where the known mineralization corresponds to a deeper resistive body and is surrounded by high chargeability anomalies (Killin and McGill, 2012). The targets would be deeper than the known deposit. One of these, Zone A, was located 1,000ft west of the Hidden Hill deposit, where a resistive feature with associated chargeability corresponded to elevated gold values in surface geochemical data. This zone is greater than 600ft deep and apparently was not penetrated by the 2012 drilling. It was also suggested that future exploration should test chargeable zones east of Hidden Hill.

Zone B: According to Killin (2014), the second priority was situated northwest of Hidden Hill, where a chargeable zone and resistive body occur at depths of about 1,200ft. Drilling was apparently not conducted in that area.

Zone C: The third priority was a vertically oriented resistive body with associated chargeable zones in the central part of the survey area, west of the Gold Coin zone (Killin, 2014). A zone of elevated gold assays in 2008 drilling data was associated with this area of interest.

Zone D: This target is immediately west of the Gold Coin zone and is defined by a resistive zone associated with chargeable anomalies at depths in excess of 1,000ft. Drilling indicated the presence of a deep, mineralized or altered zone (Killin, 2014) that corresponds to this chargeable feature.

A conclusion from Gharibi *et al.* (2012) was that the high-grade gold zones at Hidden Hill correlated well with a high chargeability zone, along with a resistivity anomaly, that was related to latite intrusive dikes. It was suggested that other locations with similar geophysical signatures be considered as potential exploration targets.

9.2.1 2013 Spectral Mineralogy and Alteration

In January 2013, Nevada Sunrise commissioned Spectral International Inc. to conduct a short wave infra-red ("SWIR") spectral analysis of chip tray samples from 21 drill holes from the 2012 drilling, plus one hole drilled in 2008. Over 3,600 RC samples were tested from holes GA12-354 through GA12-374, and GA 08-332 (Hauff *et al*, 2013). The purpose was to help identify and understand the alteration mineralogy of the deposit as a guide to exploration. All holes were located distal to the Hidden Hill resource except one, which was drilled into the resource. The SWIR analysis was focused mainly on the andesite unit and effectively identified the main types of alteration in the drill samples, including some that may be associated with gold mineralization.

The results of the study indicated that illite was the most common clay mineral from most of the Golden Arrow drill holes. The four main types of alteration identified were illite + silica (which was felt to be associated with mineralization), intermediate argillic, propylitic and oxidized. These alteration assemblages were considered consistent with the characteristics of an intermediate argillic hydrothermal systems. Also, the presence of jarosite, gypsum, silica and high aluminum illite were considered the main pathfinders to mineralization (Hauff *et al*, 2013).

Mapping of alteration zoning was attempted based on the overall results of the study. The alteration minerals can be grouped into several alteration assemblages, which appear to be zoned away from the Hidden Hill deposit. Furthest from the deposit, smectite is the dominant alteration mineral in valley soils and volcanic rocks exhibiting only deuteric alteration. Closer to the deposit, chlorite is recognized. The next assemblage toward the deposit is characterized by the addition of illite with low to medium aluminum content. Chlorite remains associated with this assemblage. Over and immediately surrounding the Hidden Hill deposit, illite of high aluminum content dominates that alteration assemblage (Kehmeier, 2013). Since the zonation is based on drillholes located north and northwest of Gold Coin, SWIR analyses of additional drillholes might result in a more accurate delineation of these alteration zones.

9.2.2 Remote Sensing – Multi-Spectral Satellite Image Analysis

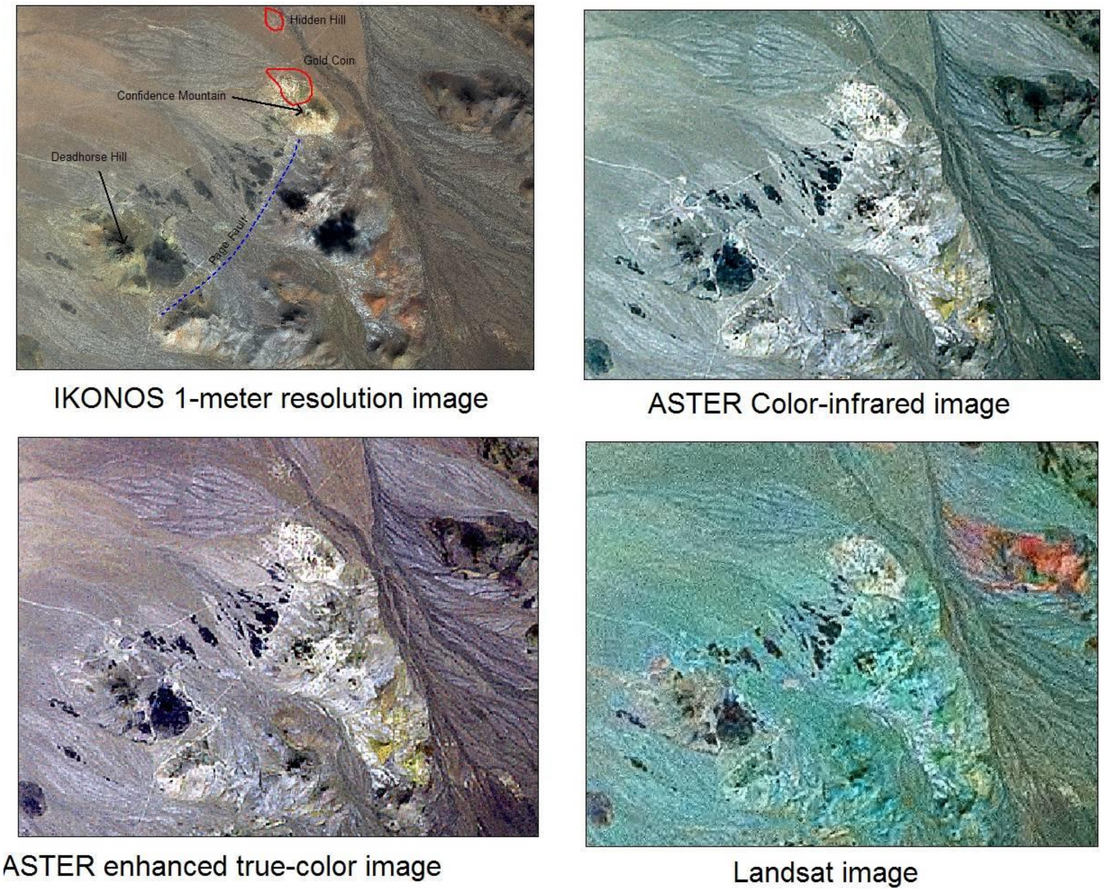
Nevada Sunrise contracted Perry Remote Sensing ("Perry") to acquire multi-spectral satellite imagery for the greater Golden Arrow project area and to prepare an interpretive alteration mineral distribution map (Perry, 2006). Digital Advanced Spaceborne Thermal Emission Reflection Radiometer ("ASTER") data, including visible, near infrared, shortwave infrared, and thermal infrared bands were obtained from the U.S. Geological Survey EROS data center. In addition, digital Landsat Thematic Mapper ("Landsat") imagery was acquired from the archives of Perry, and IKONOS imagery for Golden Arrow, with 3.281ft resolution, was collected for the Golden Arrow area by GeoEye in 2006.

Multi-spectral satellite data have been shown to be useful for detecting subtle patterns of alteration mineralogy often not easily recognizable on the ground. Combining the complementary spectral data from Landsat and ASTER provides a useful approach to recognizing the spatial distribution of alteration suites. A suite of altered rocks from the Golden Arrow property was used for spectral calibration.

Nevada Sunrise received maps highlighting the distributions of a variety of clay, sulfate, and carbonate minerals within and surrounding the Golden Arrow property. The high-resolution images have already proven their value as a base for detailed geologic mapping and for identifying the location of historical drill collars. Figure 9.3 shows examples of some of the spectral images and illustrates how spectral reflectance data may vary with lithology and alteration, which may be useful for mapping.

Figure 9.3 Remote Sensing Imagery

(from Ristorcelli and Christensen, 2010; images are at the same scale and of the same area)



9.2.3 Drill Hole Re-Logging

Nevada Sunrise geologists re-logged about 310 RC drill holes since 2006, which resulted in a re-interpretation of the geology and mineralization (Dixon, 2007). RC drill cuttings were all re-logged using a binocular microscope, permitting identification of features not evident with the naked eye or loupe. This work resulted in identification of an intrusive latite that probably played a key role in the genesis of the mineralization at Hidden Hill. The latite appears to intrude andesite and andesitic lithic breccia and may have been the "heat engine" for at least one episode of mineralization (Dixon, 2007).

Hydrothermal breccias were commonly observed within the zones of mineralization. In core, these breccias are observed to cross-cut all lithologies and, frequently, to be multiphase, that is the breccias contain fragments of earlier-formed breccia. Breccia clasts vary from angular and little displaced – jigsaw breccia – to highly rounded and milled tuffisite. The matrix is fine rock flour. Silicification and pyritization are common. These breccias are sufficiently distinct to be readily recognized in RC drill chips using the microscope.

9.3 Discussion

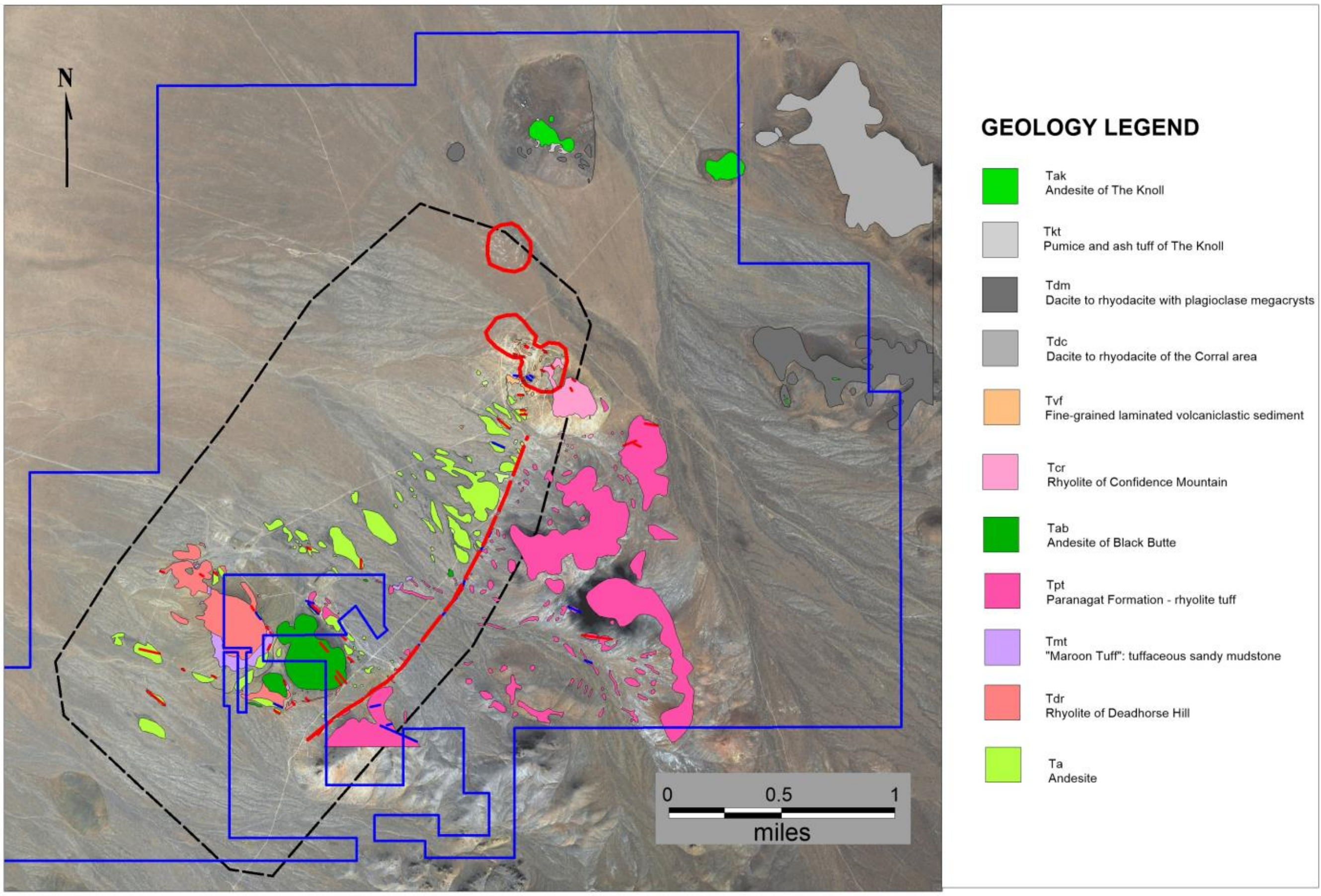
Emgold has not conducted exploration work at Golden Arrow, but Emgold is building on Nevada Sunrise's compilation and interpretation of all historical exploration data. The historical data and interpretations have yielded extensive insight by Emgold into controls of mineralization, hidden structural lineaments, and some as-yet unexplained, but intriguing, geological and geophysical features. The following paragraphs outline the interpretations made by the authors on behalf of Nevada Sunrise that are being evaluated by Emgold.

The resource modeling completed by MDA in 2009 for Nevada Sunrise showed that the mineralization at both Gold Coin and Hidden Hill exists above or within "holes" in the andesite taken up by intrusive rocks. The emphasis on "holes" is given because there are significant contrasts between andesite and more felsic intrusive rocks. Furthermore, a trough in the andesite lines up and is related to the west-northwest-trending Gold Coin mineralization.

Each of the geologic map, magnetic, electrical and gravity surveys corroborate the interpretations that Gold Coin and Hidden Hill lie within or along the margin of a north-northeast trending fault block with clearly different geologic and geophysical features (outlined in dashed black line in Figure 9.4). The kinematic indicators on the Page fault at the Golden Arrow mine suggest down to the west displacement has occurred, although they are far from definitive. The andesite has been shown by drilling to overlie a rhyolite tuff, but the age of the andesite is not known. If the andesite is younger than the Pahranagat Formation, down to the west displacement would be consistent with Basin and Range extension and development of the Stone Cabin Valley graben. Down to the east displacement would be reasonable if the andesite is older. Because of these uncertainties, the geologic domain will be referred to as the Golden Arrow fault block.

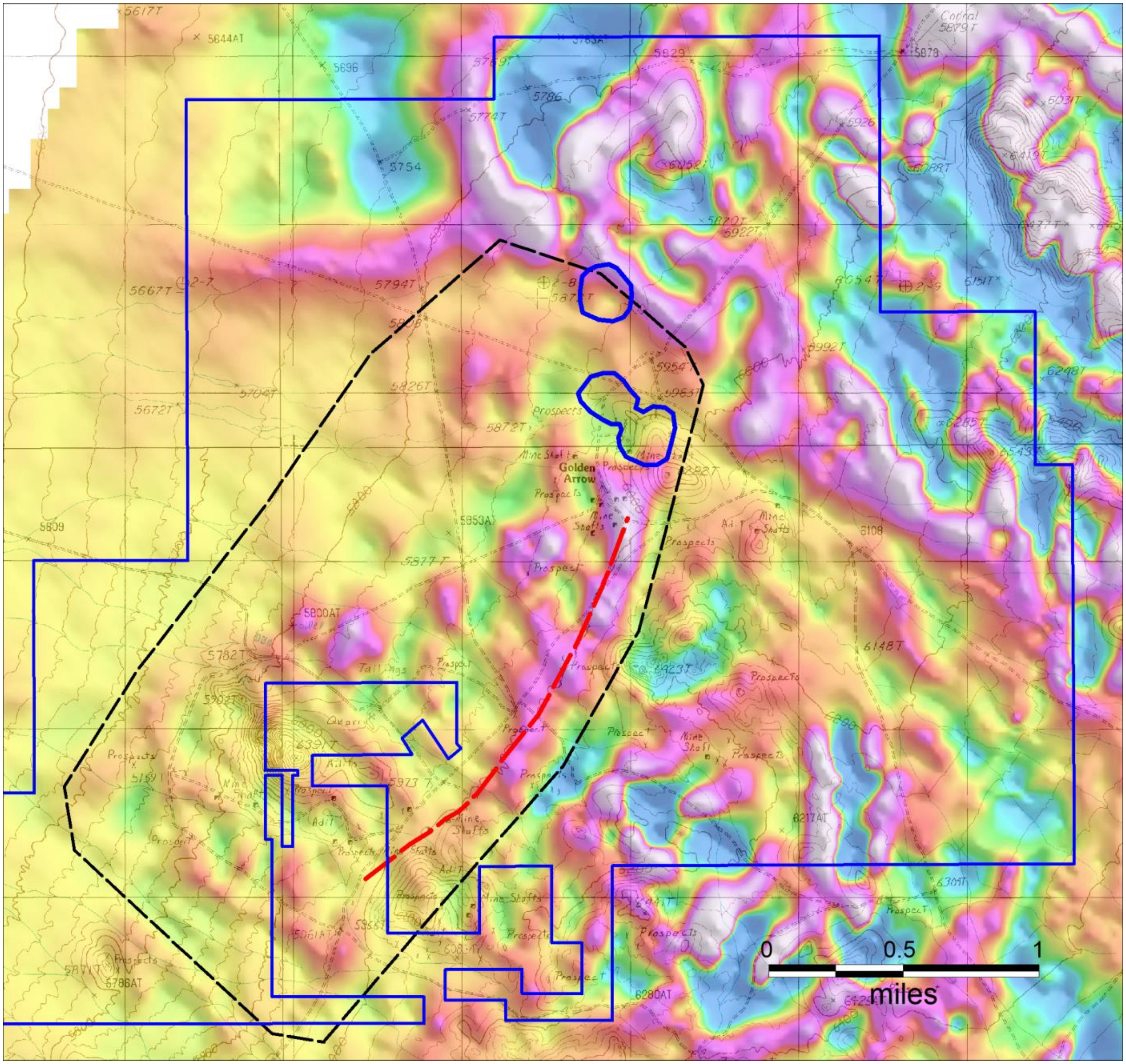
In 2016, Nevada Sunrise engaged the authors to compile all available geological, geochemical, and geophysical data in a GIS format, to integrate the various datasets and develop potential exploration targets. Many of the following figures are the result of this review. In particular, the various data sets all highlight the fundamental importance of the Golden Arrow fault block in district geology, and to the importance of northeast and northwest-oriented structures to precious-metal enrichment as shown in Figure 9.4 through Figure 9.7. MDA has not analyzed the sampling methods, quality, and representativity of surface sampling at the Red Hill property because drilling results form the basis for the mineral resource estimate described in Section 14.0. Drilling is described in Section 10.0.

Figure 9.4 Air Photo and Geologic Map of the Golden Arrow Area



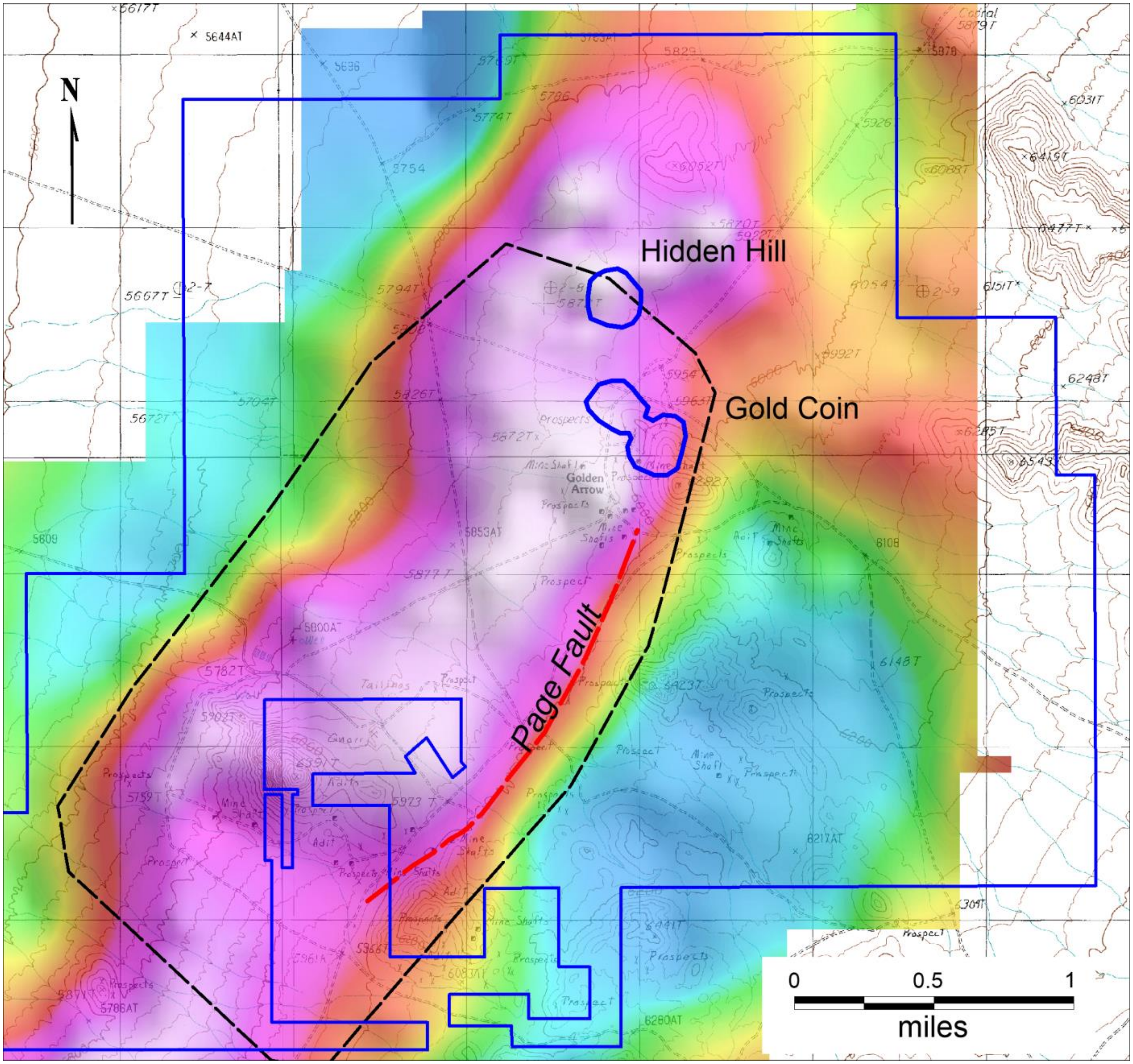
Note: Red dashed line is the Page fault; black dashed outline is the Golden Arrow fault block; red lines define the location of the Hidden Hill and Gold Coin gold and silver resource areas. From Christensen and Ristorcelli's 2016 unpublished analysis for Nevada Sunrise.

Figure 9.5 Vertical Derivative, Reduced to Pole Airborne Magnetic Map



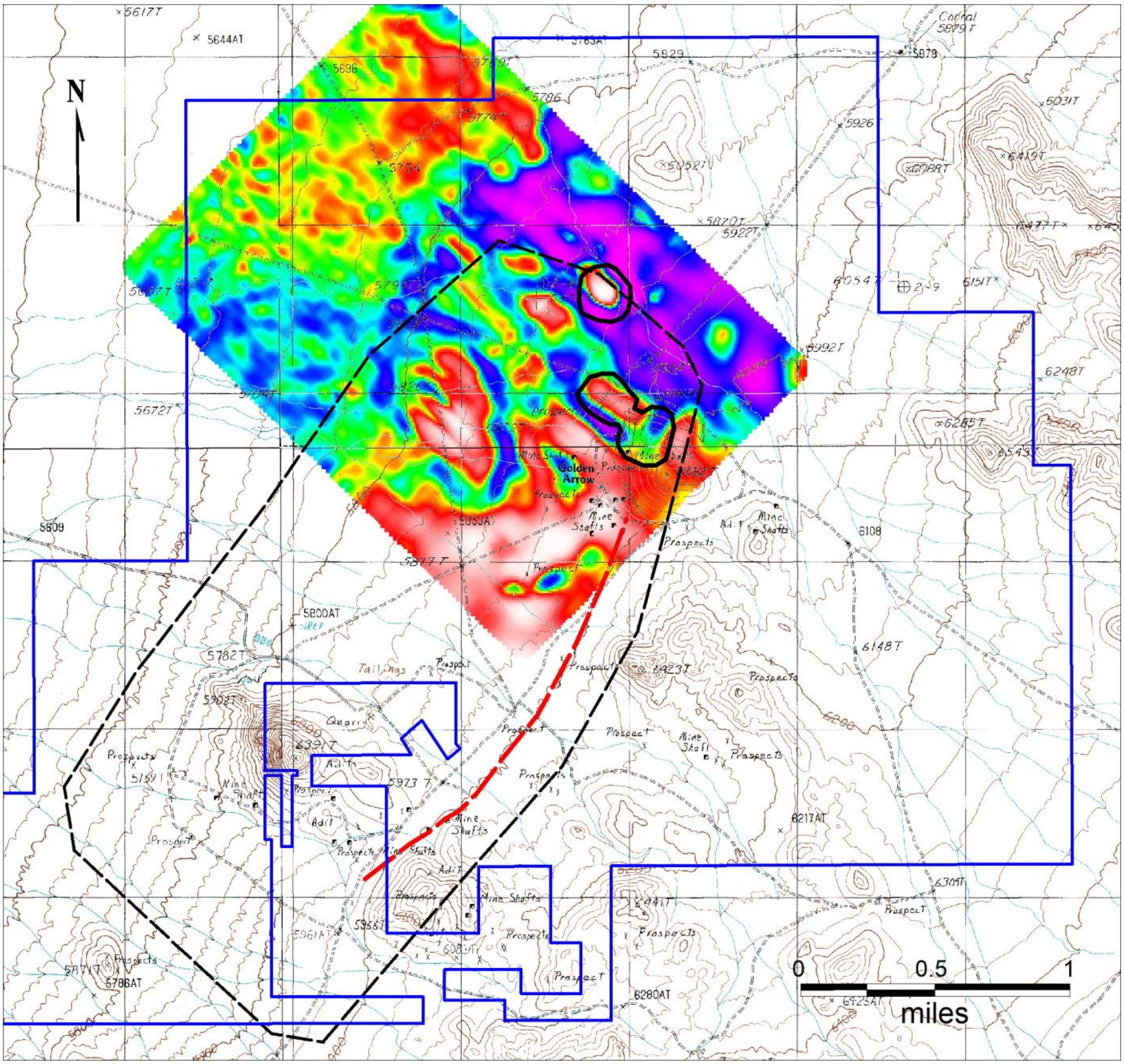
Note: Red dashed line is the Page fault; dashed black line is the Golden Arrow fault block; heavy blue lines show the location of the Hidden Hill and Gold Coin gold and silver resource areas. From Christensen and Ristorcelli's 2016 unpublished analysis for Nevada Sunrise. North is up.

Figure 9.6 Filtered Complete Bouguer Gravity Map of the Golden Arrow Block



Note: Map displays residual gravity computed by applying 5-km wavelength high-pass filter to Complete Bouguer Anomaly data (2.20 g/cc reduction density). Red dashed line is the Page fault; dashed black line is the Golden Arrow fault block; heavy blue lines show the location of the Hidden Hill and Gold Coin gold and silver resource areas. From Christensen and Ristorcelli's 2016 unpublished analysis for Nevada Sunrise.

Figure 9.7 DC Resistivity at 5,500ft Elevation



Note: Red dashed line is the Page fault; black dashed line is the Golden Arrow fault block; heavy black lines show the location of the Hidden Hill and Gold Coin gold and silver resource areas. From Christensen and Ristorcelli's 2016 unpublished analysis for Nevada Sunrise.

10.0 DRILLING

Emgold archives include drilling information collected by nine companies since 1981 as summarized in Section 6 of this report. There is no data available for the drilling done from 1981 through 1986.

Beginning in 1987, drill holes were numbered GAXX-01 through GAXX304, where XX is the year drilled, plus eight holes drilled by Kennecott that were numbered KGA-001 through KGA-008. This is a total of 312 hole numbers. However, Tombstone pre-numbered drill sites, and holes 225, 226, 236, 237, 238, 239, 240, 242, 147, 256, 257, 258, 271, 272, 273, 274, and 275 (17 holes) were not drilled. Finally, four holes have twins: 26 and 26A, 29 and 29A, 288 and 288A, and 293 and 293A. Including the 2010 and 2012 drilling programs, there are now a total of 361 holes for 201,010ft drilled in the database (Table 10.1 and Table 10.2). Figure 10.1 shows the location of these drill holes.

Table 10.1 Drilling in the Golden Arrow Database

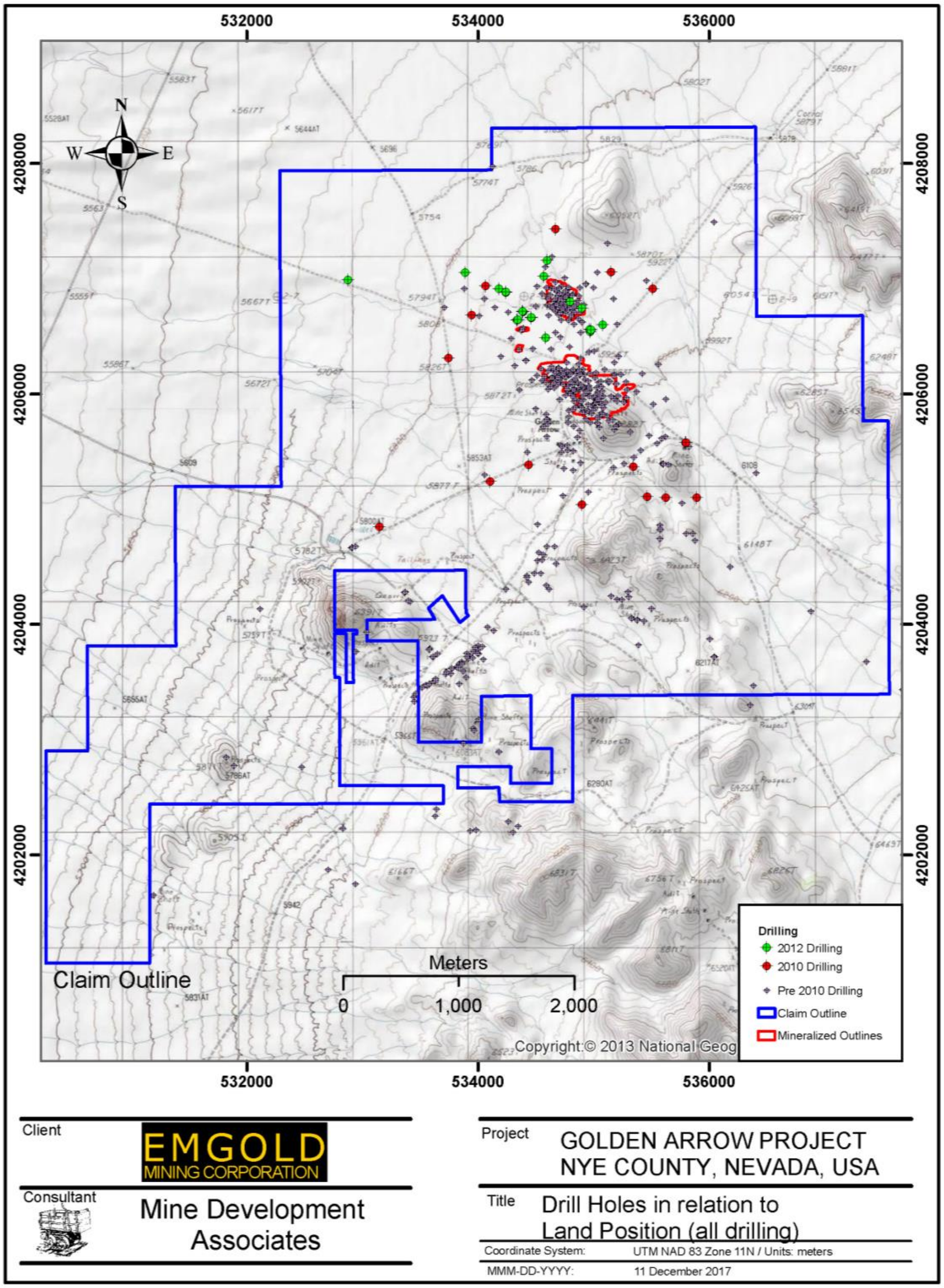
Total Number of Holes	361	Total footage	201,010 feet
Total Number of core holes	19	Total footage	13,974 feet
Total Number of RC holes	342	Total footage	187,041 feet

Table 10.2 Drilling at Golden Arrow by Operator as Represented in Database

Company	Years	Holes	Type	Footage (ft)
Homestake	1987-88	38	RC	16,580
Westgold	1989-90	87	81 RC; 6 core	39,805 total, of which 3,598 were core
Independence	1992	13	RC	6,795
Coeur d'Alene	1993-94	29	25 RC; 4 core	20,160 total, of which 3,007 were core
Kennecott	1996	8	RC	5,570
Tombstone	1997	86	RC	40,150
Pacific Ridge	2003-04	30	RC	19,041
Nevada Sunrise	2008	33	28 RC; 5 core	20,464 total, of which 3,584 were core
Animas	2010	16	12 RC; 4 core	14,185 total, of which 3,785 were core
Nevada Sunrise	2012	21	RC	18,265

It is estimated that more than 400 hammer, air-track, RC, and diamond drill holes exceeding 200,000ft have been drilled at the Golden Arrow property, including the 361 holes in the database. The vast majority of this drilling has been focused on discovering and delineating the Gold Coin and Hidden Hill mineralized zones. Because of some inconsistencies between the database and some of the reports reviewed by MDA, and among the reports themselves, the numbers of holes and footages may not agree exactly with information in Section 6.0.

Figure 10.1 Golden Arrow Drill Hole Location Map



Note: red outlines show the estimated resource footprints, projected to surface. Source is MDA, this report.

In the early years of the 20th century, miners sought only high-grade vein mineralization, which could be mined after limited capital investment and recovered by gravity or flotation methods. Later, during the

1980s and early 1990s, drilling was focused upon discovery of large-tonnage gold-silver mineralization suitable for large-scale, bulk-mineable production, preferably oxide material amenable to cyanide processing. The large exploration companies, in particular, sought very large deposits. As metal prices declined at the end of the century, Bonanza and Pacific Ridge again focused their exploration programs toward higher-grade, vein-hosted gold-silver mineralization.

While most of the exploration drilling programs returned drill intercepts containing significant concentrations of gold and silver, none of the programs defined gold-silver mineralization of sufficient grade or tonnage to meet company objectives. The drill results demonstrate that precious-metal grades can be erratic within this mineral system, and that indeed both high-grade vein-hosted mineralization and more widespread, disseminated mineralization are present within the Gold Coin and Hidden Hill deposit zones.

10.1 Homestake Mining Company

Homestake drilled 38 RC holes for a total of 16,580ft. According to Jennings (1988), Drilling Services was the contractor for 20 of the first 21 Homestake holes drilled in 1987, with Tonto Drilling as the contractor for the other hole. The remaining 17 holes were drilled by Davis Brothers in 1988. All but two holes were drilled on a -50° angle. MDA has no information on the type of drill rig used by these contractors.

10.2 Westgold

From 1989 to 1990, Westgold drilled 87 holes for a total of 39,805ft (Seedorff *et al.*, 1991, reported 39,804ft). Six of the 87 holes were core, of which the deepest was drilled to 1,000ft; core drilling totaled 3,598ft.

According to Ernst (1990), Westgold used three different contractors for their 1989 RC drilling. Saga Exploration drilled the first five holes using a buggy-mounted Canterra 312 rig. Alwest Drilling, Inc. of Sparks, Nevada subcontracted Diversified Drilling of Round Mountain, Nevada to drill the next 11 holes using a Chicago Pneumatic 700 rig. Stevens Drilling of Hinckley, Utah, drilled the remaining 17 holes in 1989 and the first 11 holes in 1990 using a Schramm Rotadrill. MDA notes that the drill database indicates that Saga drilled the first 27 holes in 1989 and that Stevens drilled the remaining six holes in 1989, but MDA could find no drill records to resolve this discrepancy.

For the remaining 37 of the 48 RC holes drilled in 1990, the drilling contractor was Stevens Drilling, who used a Schramm T660 rig. Holes were drilled with a 5½in. hammer bit. Water injection was needed to stabilize the alluvium (Seedorff *et al.*, 1991). Depth of the water table ranged from about 565 to 600ft.

For their core drilling, done in 1990, Westgold used SDS Drilling Company of Sparks, Nevada, who used a Longyear 44 rig. Holes were drilled HQ size. Although there were few problems with holes 81 through 84, holes 121 and 122 had problems with lost circulation and caving alluvium; hole 122 had to be abandoned at a depth of 601ft when alluvium caved while the rods were pulled for a bit change

(Seedorff *et al.*, 1991). Based on this experience, Seedorff *et al.* (1991) recommended that for future core drilling, four-inch casing be set to bedrock.

10.3 Independence

MDA reviewed no reports on Independence's work. The drill database shows 13 RC holes for which the drilling contractor was Stevens Drilling. The database shows a total of 6,795ft drilled in 13 holes, which MDA has verified from lithologic logs. However, Murray (1997) reported 11 holes were drilled by Independence for a total of 5,595ft.

10.4 Coeur

Coeur drilled at Golden Arrow from 1993 to 1994. MDA has no information on the drill contractor or type of drill used. As noted previously in Section 6.1, there is some inconsistency in the reported number of holes and footage of Coeur's drilling that MDA has been unable to resolve. According to Murray (1994, 1997), Coeur drilled 25 RC holes for about 17,050ft, and four core holes totaling 3,007.5ft, which is the same number of holes but slightly different footage than that in the database and shown in Table 10.2. However, Murray (1997) also reported that Coeur drilled 21,352ft in three core and 28 RC holes.

10.5 Kennecott

MDA has no details on Kennecott's drilling program. Murray (1997) reported that Kennecott drilled eight exploration holes totaling 5,570ft in 1996. According to the database received by MDA, the eight holes were RC holes, drilled by Five O Drilling Company of Las Vegas, Nevada.

10.6 Tombstone

Tombstone drilled a total of 86 RC holes for 39,910ft in 1997; this drilling was predominantly designed to infill areas of known mineralization (Murray, 1997). MDA notes that in the drill database provided, Tombstone's total footage was 40,150ft, which is what is reported in Table 10.2.

After having drilled 23 holes, Tombstone contracted with Pincock, Allen and Holt to audit their procedures (Barker and Rozelle, 1997). Barker and Rozelle (1997) observed that "*Practices related to drilling standards, sampling standards and chip logging are excellent*." The drill contractor for Tombstone's holes was Elsing Drilling Ltd. ("Elsing") of Twin Falls, ID.

10.7 Pacific Ridge

According to Bowen (2004), Pacific Ridge drilled 29 RC holes totaling 18,721ft from July 2003 to January 2004. However, the database given to MDA contained 30 holes totaling 19,041ft. The holes were drilled in seven target areas with the majority of the holes testing strike and down-dip extensions of higher-grade mineralized intercepts identified in earlier drilling. Pacific Ridge's drilling found numerous high-grade intercepts in the Confidence Mountain area, including five feet at an average of 2.36oz Au/ton in drill hole GA04-301.

The first phase of this drilling included 10 holes totaling 5,120ft that were drilled in July and August, 2003. Nine of these holes were drilled in the Gold Coin zone, and one was drilled on the Grey Eagle mineralized structure. Harris Drilling Ltd. was the drill contractor for these holes.

The second phase of drilling, from November 2003 to January 2004, included 19 holes for a total of 13,601ft. Of these, 14 holes tested for higher-grade mineralization in the Gold Coin, Hidden Hill, and “186” zones, and five tested targets generated by Pacific Ridge’s soil geochemical survey. The drill contractor for the second phase was Diversified Drilling Inc.

Although the intent was to drill dry, two holes had to be abandoned due to drilling problems in clay-altered zones and the remaining holes were drilled with water injection. Chip logs were prepared as each drill hole progressed.

10.8 Nevada Sunrise 2008 Drilling

In April through August of 2008, Nevada Sunrise completed a program of resource definition and exploration drilling as summarized below in Table 10.3. The company drilled 33 holes – five core holes (3,584ft) and 28 RC holes (16,880ft), for a total of 20,464ft of drilling. Sixteen holes were inclined, and 17 were vertical holes. Depths were between 400 and 1,000ft.

Table 10.3 Summary of 2008 Exploration Drilling Program

2008 Nevada Sunrise drilling	Core holes	Core footage	RC holes	RC footage
Total completed	5	3,584	28	16,880
Gold Coin zone	3	1,898	16	8,815
Hidden Hill zone	2	1,686	6	3,810
Exploration	0	0	6	4,255

The RC drilling was performed by Drift Exploration Drilling of High Prairie, Alberta, using a track-mounted Drill Systems machine. Holes were drilled dry whenever possible; however most holes became wet, either because groundwater was encountered or because drilling conditions required the injection of water. Several holes were terminated before reaching their planned depths due to drilling difficulties or equipment limitations.

Core drilling was performed by Ruen Drilling of Clark Fork, Idaho using a truck-mounted LF-100 core machine. Mud sumps were dug adjacent to all drill sites for fluid management. Water for drilling, purchased from a local ranch, came both from a nearby spring and from deep wells in Stone Cabin Valley.

The holes were about equally divided between in-fill and deposit extension and exploration. A piezometer for monitoring water levels within the Gold Coin zone was installed in one RC drill hole by Nevada Sunrise. Depth to water, originally 710ft below the collar, rose steadily over about a month to stabilize at 565ft below the collar.

All other drill holes were abandoned in compliance with state regulations. Dry holes were capped with a 20ft cement plug clearly marked with the drill-hole identification. Wet holes were grout injected and capped with a 20ft cement plug with drill-hole identification. All drill sites were reclaimed and reseeded at the conclusion of the program.

10.9 2010 Animas Drilling

In 2010, Animas carried out drilling to: a) test geophysical anomalies that had similarities to the Gold Coin and Hidden Hill resource zones, b) test the eastern side of the property for "Round Mountain-style" low-sulfidation gold mineralization, and c) search for volcanic-hosted disseminated hot-springs style and caldera-margin gold-silver mineralization (Christensen, 2010). Drilling was conducted outside of the Gold Coin and Hidden Hill resource zones, over an area of approximately 2.3 square miles, with holes located at distances of up to one mile from Confidence Mountain.

Four core holes totaling 3,785ft, and 12 RC holes totaling 10,400ft were drilled. The locations of the 2010 drill holes are shown in Figure 10.2. Nine holes tested gravity anomalies and seven holes were drilled southeast of Confidence Mountain in the area of caldera-fill rhyolite tuff near the inferred caldera margin, which was considered favorable for Round Mountain-style mineralization (Christensen, 2010). Selected intervals from the Animas drilling program are shown in Table 10.4.

Table 10.4 Selected Drill Intersections from the 2010 Animas Drilling
(calculated and tabulated by R. Pease 2017; these do not necessarily represent true thicknesses)

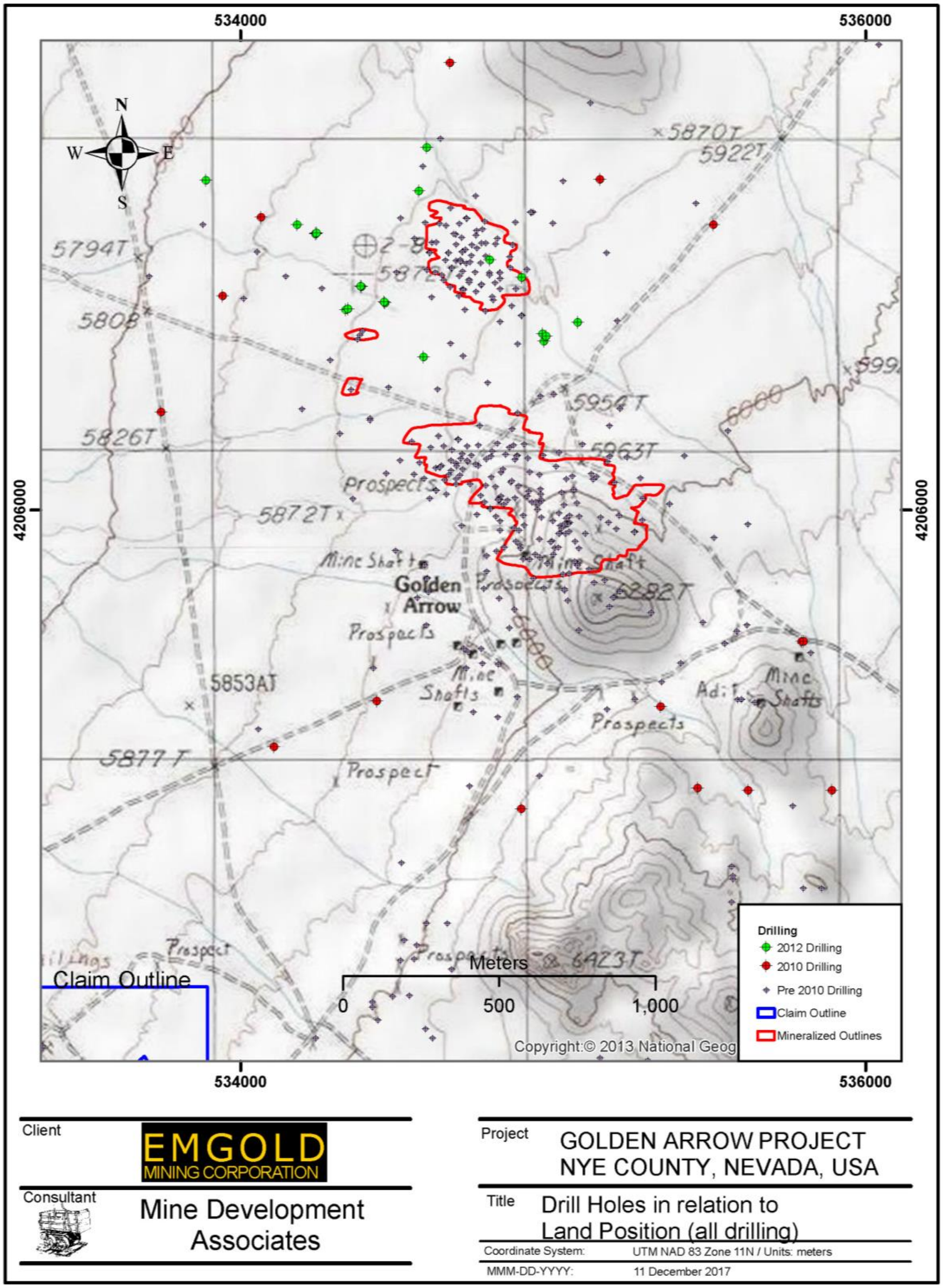
Hole_Id	From (ft)	To (ft)	Interval (ft)	Au oz/ton	Ag oz/ton	Type
10-338	335	368	33	0.060	0.059	core
10-343	565	580	15	0.020	0.219	RC
10-344	410	425	15	0.038	0.110	core
10-349	335	380	45	0.005	0.062	RC

Major Drilling performed the core drilling during September and October, 2010. Major used a truck-mounted LF-90 drill rig. Envirotech Drilling was contracted for the RC drilling, which was completed in October-November of the same year. RC drilling was done with a truck-mounted, 2008 T3W-DH drill rig. RC holes were drilled wet per State regulations. Twelve of the holes were vertical and four were angled. Depths ranged from 775ft to 1,005ft. Water for the drilling was purchased from a nearby ranch.

Drill rigs were positioned by site geologists using a Brunton compass and inclinometer. During the drilling program, two geologists were usually on site to manage activities, log and secure samples.

The 2010 holes were abandoned with a bentonite slurry followed by placing a cement plug from the ground surface to a depth of 20ft, and hole collars were marked with a metal washer on a spike embedded in the cement. Preparation of drill pads and sumps, and later reclamation, were conducted by a local contractor, and final site closure occurred in November 2010 (Christensen, 2010).

Figure 10.2 Resource Area Drill Hole Map with 2010 and 2012 Drilling



Source is MDA, this report.

10.10 2012 Nevada Sunrise Drilling

In 2012, Nevada Sunrise conducted drilling around the Hidden Hill zone (Figure 10.2) to test the geophysical anomalies from the Orion 3D survey. Twenty-one reverse circulation holes were drilled, for a total of 18,260ft. Drill holes were generally located at distances of approximately one-half mile from Hidden Hill. Nine holes were vertical and 12 were angled. Drill-hole depths ranged from 600ft to 1,095ft.

Drift Exploration was the drilling contractor, which was conducted from March to June, 2012. All holes were drilled with a Foremost 1000 track-mounted RC rig equipped with an auxiliary booster compressor to facilitate removal of cuttings in holes with high groundwater flows. Hole locations were established using hand-held GPS units. Following drilling, the actual collar locations were surveyed with a high precision GPS system (Kehmeier, 2013). During the drilling program, a Nevada Sunrise geologist was on site to manage activities. The holes were drilled wet and were abandoned using bentonite slurry and cement per State regulations. Water for the drilling program was purchased from a nearby ranch. Three holes, drilled through deep alluvium, encountered high groundwater inflows and were terminated before reaching the planned depth. One of those, GA12-358, located 1.1mi west of Hidden Hill, was abandoned at a depth of 625ft while still in alluvium. Pad and sump recontouring was generally completed as soon as the drill rig was moved off the hole.

10.11 Collar Surveys

10.11.1 Conversion of Drill Collars from Local Grid Coordinates to UTM

A major issue of concern at the Golden Arrow property since it was acquired by Nevada Sunrise has been the quality of the historical database of drill collar locations. Many of the earlier exploration programs used a local footage coordinate grid based on field control points.

Nevada Sunrise was able to locate a report by McDowell (1996) and another by Petray (1995), which confirmed that the control points used to establish the local grid at Golden Arrow were surveyed by qualified cadastral surveyors using professional equipment. Henderson (2006) relocated the field control points using professional standard GPS equipment with real-time differential correction to determine real-earth coordinates – reported as UTM coordinates, WGS84 datum, Zone 11.

Historical drill-hole collar locations were located with variable accuracy. Some companies had collar locations properly surveyed; others set drill sites by tape and compass and recorded planned, rather than actual, locations. Henderson (2006) was able to accurately survey the location of 84 drill collar locations in the field. Since most drill holes within any single program were reasonably well located with respect to each other, it was then possible to adjust the locations of all holes to a "best fit" location, using Blue Marble Geographic Calculator software. Back comparison of the adjusted locations of holes not located in 2006, to collar locations reported by Petray, shows accuracy generally within three meters.

Plotting the collar locations on current and historic air photos shows good correspondence between collar location and evidence of drilling disturbance. The current Golden Arrow drill-hole collar location database is considered to be sufficiently accurate to be used for geological resource modeling.

10.11.2 2008 – 2012 Collar Surveys

The 2008 as-drilled collar locations were surveyed by Nevada Sunrise personnel using a high-precision GPS with sub-meter accuracy.

For the 2010 Animas drilling, drill hole locations were staked in the field by Animas geologists using hand-held GPS units. Following drilling, the actual hole locations were confirmed by Animas geologists using hand-held GPS units.

In 2012, collar locations were established using a handheld GPS and the final collar coordinates were surveyed with a high precision GPS system by Nevada Sunrise geologists.

10.12 Author's Summary Statement

The authors are unaware of any drilling, sampling or recovery factors that could materially impact the accuracy and reliability of the drilling results. The significant results of the various drilling campaigns at Golden Arrow are summarized together, rather than individually, in Section 14, where representative cross-sections shown in Figure 14.5 through Figure 14.12 show the thickness, lateral extent and tenor of mineralization as currently defined by the drilling.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Westgold and Tombstone Historical Sampling Methods and Procedures

MDA has no information on drilling and sampling methods used by Homestake, Independence, Coeur, or Kennecott. This lack of information adds uncertainty and reduces confidence in the drilling data from these operators, but is at least partly mitigated by subsequent, more thoroughly documented drilling by later operators.

The following information on Westgold's sampling procedures for their RC drilling is taken from Seedorff *et al.* (1991):

> *"Rotary drilling required water injection to maintain hole stability in alluvium. The amount of water injected was approximately 20-30 gallons per 5-foot sample. Below the water table, water flow increased to 200-300 gallons per sample. Discharge from the hole passed through a rotating wet-splitter and the sample split was collected in 12" x 18" poly bags or 10" x 17" Olefin bags. To minimize overflow of bags, the splitter was modified to collect smaller samples (after GA-90-85) and bag size was increased to 15" x 18" (after GA-90-120)."*

For their HQ core holes, Westgold used a five-foot core barrel for holes GA-90-81 through GA-90-84, and a 10ft core barrel for holes GA-90-121 and GA-90-122 (Seedorff *et al.*, 1991). Core was split and sampled by drill run for the five-foot runs; for the 10ft runs, the core was divided into two five-foot samples.

During Tombstone's early drilling, the cyclone was connected to a rotary wet splitter. Overflow from the wet splitter was partially channeled to a sieve collector; coarse chips collected in the sieve were used to make chip-trays for logging. Samples were dried in the sun and then collected in security boxes at the end of the day; the boxes were not unlocked until a representative of the assayer arrived for pickup. After having drilled 23 holes, Tombstone contracted with Pincock, Allen and Holt to audit their procedures (Barker and Rozelle, 1997). Barker and Rozelle (1997) observed that "*Care of bagged samples and the security of those samples is excellent*" and that "*It is PAH's opinion that the drilling, sampling, organization of samples and chip trays, and security is of high quality and meets industry accepted practices and standards*."

According to Bowen (2004), Pacific Ridge collected samples continuously throughout their holes at five-foot (1.5-meter) intervals and collected both an assay and a field duplicate sample for each interval. Field duplicates were stored on an old drill access road near the summit of Confidence Mountain.

11.2 Geochemical Sampling by Nevada Sunrise

An orientation soil geochemical program was completed in 2007 over the Hidden Hill and Page fault sectors of the property. Soil samples were collected at a depth of approximately 20cm of moist soil. Samples were field sieved, placed in zip-lock plastic bags, and retained in an ice chest prior to shipping to Actlabs in Ancaster, Ontario for analysis. The samples remained under the supervision of Christensen from collection until shipment by UPS to Actlabs. Actlabs is a commercial analytical laboratory that is independent of Emgold and Nevada Sunrise. Details of Actlabs certifications in 2007 are not known to the authors.

Soil samples submitted to Actlabs were sieved to -80 mesh. The -80 mesh portion was divided into three splits. One sample split was extracted by *aqua regia* and analyzed for multi-element geochemistry by combined ICP-AES and ICP-MS (Actlabs procedure Ultratrace-1). A second sample split was extracted by enzyme leach and analyzed for multi-element geochemistry by combined ICP-AES and ICP-MS (Actlabs procedure 7 Enzyme). The third sample split was analyzed for soil gas hydrocarbons by gas chromatography/mass spectrometer ("GC/MS").

Nevada Sunrise completed a soil geochemical sampling program in 2008 over a portion of the Golden Arrow property. Following collection, samples were retained in a secure storage facility in Tonopah, Nevada. Samples were transported to ALS in Sparks, Nevada, by Christensen. ALS is a commercial analytical laboratory that is independent of Emgold and Nevada Sunrise. The details of ALS' certifications in 2008, if any, are not known to the authors. The dry soils were sieved to -80 mesh and the fine fraction was used for analysis. Gold was extracted from a 25g aliquot with *aqua regia* and determined by graphite furnace atomic absorption ("AA"). A suite of elements was determined using a combination of ICP-MS and ICP-AES methods on a 5-gram sample aliquot. The *aqua regia* digestion was selected to highlight mineral crusts and adsorbed elements and decrease the influence of primary soil silicate mineralogy. Standards and blanks were inserted with sample batches. The results of these standards were reviewed by the authors and found to be within expected ranges.

A grid geochemical sampling program was completed in 2009 over a northern portion of the property. Samples were collected by the Blue Eagle Sampling Team of Helena Montana. Sample sites were located in the field by hand-held GPS units. Samples were collected at 164ft intervals on east-west-oriented lines spaced at 328ft. At each site, a hole was dug to approximately 10-12 inches depth, moist sample material collected, field-sieved with plastic screen to -3/8in and placed in a cloth bag. These bags were in turn secured in woven polypropylene rice bags and secured in the Nevada Sunrise field office in Tonopah. Samples were delivered to ALS in Sparks, Nevada, for analysis. Five blank and 12 standard samples were embedded within the sample sequence submitted for analysis; the results of these quality control samples verified the integrity of the analysis procedure.

The soil sample data from sampling conducted by Nevada Sunrise has not been used in the estimation of the mineral resources summarized in Section 14, and no conclusions have been drawn from the soil sample data. Therefore the authors have not evaluated the adequacy of the soil sample preparation, security and analytical procedures.

11.3 2008 Nevada Sunrise Drill Sampling

RC drill samples were collected by a member of the Drift Exploration Drilling ("Drift") crew, under the regular guidance and observation of Intor geologists. Dry discharge from the sampling cyclone passed through a three-tier Jones splitter. Wet discharge from the cyclone was cut with a rotating wet splitter. Sampling ports on the rotating splitter were opened or closed to permit collection of a proper sample volume. A single assay sample was bagged; most samples weighed 6.6 to 11lbs. A representative portion of the cyclone discard stream was caught in a strainer and placed in a 20-compartment plastic chip tray as a lithology sample.

Dry RC drill samples were collected in 12in x 24in, 8-mil plastic sample bags, secured with plastic cable ties. Wet samples were collected in 12in x 24in polyspun fabric bags. Sample bags were pre-numbered by Nevada Sunrise geologists.

The Drift drill sampler collected a field duplicate assay sample each 100ft. For dry samples, the duplicate sample was collected from the final reject side of the tiered Jones splitter. For wet samples, the sample was collected from a “Y-splitter” on the reject discharge of the rotating wet splitter. The Nevada Sunrise geologist introduced a blank sample as the first and last sample in each drill hole.
Assay samples were laid out at the drill site to sun-dry for a few days as required, then combined in woven polypropylene bags, secured with cable ties, transported to an on-site central staging area, and placed in sample bins provided by American Assay Laboratories (“AAL”). Arrangements were made with AAL to pick up drill samples on site when 5 or 6 bins were full. AAL is a commercial analytical laboratory that is independent of Emgold and Nevada Sunrise. The details of AAL’s certifications in 2008, if any, are not known to the authors.

RC drill chip trays were stored in a secure facility in Tonopah during the period of the drilling program. They were transported to Colorado for logging lithology, oxidation and alteration utilizing a binocular microscope. They are currently in secure storage in Reno, Nevada.

Procedures for diamond drill core were different. The Ruen drill crew prepared core boxes at the drill, placed core and footage blocks in the boxes, and brought filled boxes to the on-site central staging area. Nevada Sunrise geologists photographed the core each day, logged the core for RQD, and logged the core for geology. Completed core boxes were transported daily to a locked storage facility in Tonopah.

At the conclusion of the program, Christensen again reviewed the core and marked intervals for sampling. Nevada Sunrise contracted M2 Technical Services of Spokane to saw-split the core. M2 took custody of the core in Tonopah and transported it to Spokane for photo-documentation and sawing. One-half of the core was returned to the original core boxes; the second half was placed in plastic bags for analysis. M2 returned the core to Reno, Nevada; the half-core was secured in a Nevada Sunrise warehouse, and the bagged core was delivered to McClelland for analysis and metallurgical testing.

At AAL the RC drill cuttings were dried and crushed to -10 mesh. A 0.77lb split was pulverized to -150 mesh. Gold was determined on a 30g aliquot by fire assay with AA finish. When gold concentrations exceeded 10g Au/t, the analysis was repeated on a second 30g aliquot by fire assay with a gravimetric finish. Silver was determined using a 2-acid (HCl + HNO_3) extraction and AA finish. When silver concentrations exceeded 100g Ag/t, the analysis was repeated on a second 30g aliquot by fire assay with a gravimetric finish.

AAL grouped the RC samples into analytical lots of 50 samples. Field duplicates and blanks were included by Nevada Sunrise with the RC sample lots, as previously described. The results of this quality control are discussed in 12.2.

M2 delivered the cut half-core samples to McClelland of Sparks, Nevada. McClelland is an independent commercial metallurgical laboratory that is independent of Emgold and Nevada Sunrise. The details of McClelland's certifications in 2008, if any, are not known to the authors. Nevada Sunrise retained McClelland to complete initial sample preparation in order that samples would be properly handled for subsequent metallurgical testing. The core samples were jaw-crushed to -1.25in. The crushed rock was split to quarters; three-quarters were retained for metallurgical testing. The one-quarter split was crushed to 100% -3/8in and that was then half-split. One half of the -3/in material was retained by McClelland and the second half was delivered to ALS.

ALS split off 0.55lb of the -3/8in material and pulverized this to +85% at -200 mesh. Gold was determined on a 30g aliquot by fire assay with ICP finish. For samples with gold concentration greater than 10g Au/t, a second determination was made by 30g fire assay with a gravimetric finish. For samples with gold concentration greater than 20g Au/t, a third determination was made by metallic screen fire assay using a 1,000g sample. In addition, all samples with gold concentrations greater than 200ppb underwent a cyanide-soluble gold determination. Silver was determined by $HF-HNO_3-HClO_4$ digestion with HCl leach and AA finish. For samples with silver concentration greater than 100g Ag/t, a second determination was made by 30g fire assay with a gravimetric finish.

All core samples were also analyzed for a suite of 49 elements using a four-acid "near-total" digestion and combined ICP-AES and ICP-MS determination.

At the conclusion of the drill program, Nevada Sunrise submitted 339 AAL pulps to ALS for inter-lab comparison. These sample pulps had been prepared using the AAL procedures and were analyzed using the ALS procedures.

Analytical results from both AAL and ALS were transmitted electronically to Nevada Sunrise, McClelland, and MDA. It is the authors' opinion that the sample preparation, security and analytical procedures for the Nevada Sunrise drilling samples were adequate and the resulting data are suitable for use.

11.4 2010 Animas Drill Sampling and Analyses

Diamond drill core was placed in boxes by the drill crew (Major Drilling) and retrieved daily by the geologists. Drill core was taken to a locked garage in Tonopah. There it was logged, photographed, and marked for saw cutting. The core was then moved to a locked warehouse in Tonopah where it was picked up by AAL, and transported by truck to their assay laboratory in Sparks, Nevada. The core was sawed into halves by AAL personnel. One half of the sawed core was prepared for assay at AAL. The remaining portion was returned to Animas and stored in Reno at what later became the Nevada Sunrise storage unit. This process was designed to maintain security of the core from the drill to the laboratory.

The RC samples were split through a rotating wet splitter, with a sample collected every 5.0ft by the Envirotech Drilling crew. For each sample interval, a small washed lithologic sample was placed in a poly chip tray. Sample splits of approximately 3-5 kg were captured in spunbond polyethylene bags, air dried on site for several days, and transported to a central staging area at the property. The samples were then placed in sample bins provided by AAL. The bins were picked up at the field staging area by AAL and transported to the AAL laboratory in Sparks, Nevada.

Both the RC samples and the sawed core were prepared at AAL. The RC samples were oven-dried at 105°C, then crushed in their entirety to 70% at less than 0.08in. The crushed material was passed through a Jones-type splitter and a 300g split was removed and pulverized to 85% at less than 150 mesh. The core samples were prepared with the same procedures. A 30g aliquot of the 300g pulp was used to determine gold by fire-assay fusion with an ICP finish. A 0.5g aliquot was analyzed by ICP for a suite of 36 major, minor and trace elements, including silver (AAL code ICP-2D).

According to Christensen (2010), various procedures were implemented in the QA/QC program. At the drill these included collecting a field duplicate RC drill sample every 100ft, inserting a Certified Reference Material ("CRM") sample into the sample stream every 100ft, and placing a blank sample at the beginning and end of each drill hole series of samples. Multiple CRMs with different gold contents were used. Blanks were also inserted following intervals that appeared to be mineralized. AAL prepared and analyzed duplicate splits at random intervals to achieve one duplicate per ten samples as part of the laboratory's internal QA/QC program.

It is the authors' opinion that the sample preparation, security and analytical procedures for the Nevada Sunrise drilling samples were adequate and the resulting data are suitable for use.

11.5 2012 Nevada Sunrise Drill Sampling and Analyses

Sample handling and security procedures for the 2012 Nevada Sunrise RC drill program were summarized in a report by Kehmeier (2013). All holes were drilled wet and samples were collected through a rotary wet splitter. Samples were collected by the Drift Exploration drill crew and placed in pre-marked plastic bags under the supervision of the Nevada Sunrise site geologist. Excess water, if present, was drained off after the sample was obtained. Small geologic samples were placed in 20-compartment plastic chip trays. Initial geologic logging was done in the field using a hand lens and later detailed logging was completed using a binocular microscope. When a drillhole was completed, the sample bags were laid out at the drill site for up to two days to dry out, and then moved to a central storage area on the property and placed in locked bins. Due to the remoteness of the site, it was felt that this sample handling process was safe and secure. After four to six bins were filled, AAL picked up the bins and transported the samples to their assay laboratory in Sparks, Nevada. This required about two or three trips per week. The RC samples were oven-dried at 105°C, then crushed in their entirety to 70% at less than 0.08in. The crushed material was passed through a Jones-type splitter and a 300g split was removed and pulverized to 85% at less than 150 mesh.

Gold was determined on a 30g aliquot of the pulp by fire assay with an AA finish. Samples that assayed greater than 5 ppm Au were re-assayed by fire assay with a gravimetric finish. Aliquots of 0.5g were analyzed for silver and 35 major, minor and trace elements by ICP using a two acid digestion (AAL code ICP 2D). The analytical method was slightly different for samples from 500ft to 1,095ft in hole GA12-361, and for all samples from hole GA12-362. These were analyzed for silver and 68 major, minor, trace and rare-earth elements by ICP using a four-acid digestion (AAL code ICP-4D).

The 2012 QA/QC program involved inserting blanks at the beginning and end of each drillhole (Kehmeier, 2013), with the blank samples being crushed white landscaping quartz. CRMs and field duplicate samples were inserted every 20 samples. Field duplicates were collected every 100ft. Check samples were sent to a second laboratory, ALS in Reno, Nevada. In addition, AAL inserted their own pulp duplicates, standards, and blanks into the sample stream for each hole as part of the laboratory's internal QA/QC program.

During the 2012 RC drilling, Nevada Sunrise encountered groundwater flows of up to an estimated 50 gpm in drillholes GA12-355, GA12-356 and GA12-358.

It is the authors' opinion that the sample preparation, security and analytical procedures for the Nevada Sunrise drilling samples were adequate and the resulting data are suitable for use.

11.6 2015 Nevada Sunrise Duplicate Assays

Nevada Sunrise re-assayed pulps from RC drill holes 55, 56, 61 and 67 from the Westgold 1989 series, located west of the Gold Coin resource (Table 11.1). Pulp samples from these holes were originally prepared and assayed at AAL and were securely stored by Nevada Sunrise in Sparks, Nevada. In 2015, a total of 208 assay pulps in their original envelopes were collected and sent to AAL in Sparks, Nevada. The main purpose was to obtain silver assays for holes west of Gold Coin that had not been previously assayed for silver. Gold was re-assayed to provide pulp duplicate data. A 30g aliquot of each pulp was analyzed for gold by fire assay with an optical emission spectrographic ("OES") finish and a 3ppb lower limit of detection. Silver was determined by ICP analysis of a 0.5g aliquot using two and four acid digestions. Samples subjected to the two-acid digestion (AAL code ICP-2D) were assayed for silver and 35 major, minor and trace elements. Samples subjected to the four-acid digestion (AAL code ICP-4D) were assayed for silver and 68 major, minor, trace and rare-earth elements.

Table 11.1 2015 Re-Assay Intervals

Drillhole Number	Depths Analyzed (feet)	Number of Samples Assayed
GA89-55	150-500	69
GA89-56	50-350	59
GA89-61	195-425	46
GA89-67	230-400	34

11.7 Pre-2008 Historical Drilling Assays

11.7.1 Homestake

Homestake used Shasta for assaying. MDA has no further information on sample preparation and analysis for Homestake's program.

11.7.2 Westgold

Westgold used AAL and Barringer Laboratories, Inc. ("Barringer") for assaying. Both of these were commercial laboratories independent of Emgold and Nevada Sunrise. For the 1989 drilling, AAL analyzed for gold using two-assay-ton fire assay; holes GA89-37 through GA89-45 were also analyzed for silver using two-assay-ton fire assay (Ernst, 1990). Barringer ran check assays for gold in selected intervals using one-assay-ton fire assay. For the 1990 drilling, all drill samples were sent to AAL for either one- or two-assay-ton fire assay with an AA finish. For intervals with assays greater than 0.01 oz Au/ton, pulps were then sent to Barringer for hot cyanide-extractable gold assay, and every fourth pulp was re-assayed by one-assay-ton fire assay with gravimetric finish (Seedorff *et al.*, 1991).

According to Seedorff *et al.* (1991), drill samples were analyzed for silver only where there was significant gold mineralization (≥10ft grading ≥0.01 oz Au/ton, and silver was analyzed by a wet chemical AA method, with a detection limit of 0.02 oz Ag/ton.

Westgold undertook limited duplicate-sample and check-assay programs for quality control (Seedorff *et al.*, 1991). For a 100ft mineralized interval in hole GA99-085, they used and compared the results from two different sampling methods – using the rotating wet splitter as described in Section 10.2, and collecting duplicate samples by catching 100% of the discharge from the outflow of the rotary splitter. It was noted that using the rotating wet splitter, there was excessive overflow of fines from the sample bags. Using the alternate method of catching the discharge from the outflow of the splitter, the 20 to 30gal sample of water and cuttings was split with a Gilson-type riffle splitter until the split fit into a 20in x 30in poly bag. Although very labor intensive, this method resulted in minimal loss of fines. Assays from the alternate method of catching the discharge from the outflow of the splitter were 15% to 20% lower than assays of samples from the rotating wet splitter. According to Seedorff *et al.* (1991), "*This raised a concern that the "original" samples were being upgraded by loss of the clay fraction and concentration of the vein quartz. Due to this concern, the rotary splitter was modified to allow better adjustment of the sample size. For holes after GA-90-85, the size of the split was adjusted to eliminate or minimize overflow of bags*."

Although Westgold did not twin RC holes with core holes, RC hole GA90-118, drilled at -60°, was drilled within a few feet by vertical core hole GA90-122. The vertical core hole encountered a 147ft intercept that averaged 0.018 oz Au/ton, whereas the same mineralized intercept in the angled RC hole was 150ft at an average of 0.026 oz Au/ton. According to Seedorff *et al.* (1991), "*The location and thickness of the mineralized intercept correlate quite well, but there is a significant variation in grade. The rotary hole is approximately 40% higher grade than the core hole. This discrepancy may be due to hole location or the angle at which the holes intersect the quartz veining, but the comparison does raise questions that must be answered prior to additional drilling.*"

Westgold compared fire assays of the same pulp for RC samples by AAL and Barringer, and found little scatter of the data. Coarse rejects from mineralized intervals in three of the core holes were sent to Barringer, who prepared and assayed new pulps. Comparing the Barringer and AAL assays, there was only moderate scatter of the data. According to Seedorff *et al.* (1991), "*Results of these comparisons suggest that there is no 'nugget' problem at Hidden Hill. The reported assay values are representative of the sample collected at the drill site. However, more test work is needed to confirm that the sample collected at the drill site is always representative of the mineralization being drilled."*

11.7.3 Independence Mining Company

MDA and Christensen have no information on the sample preparation or analysis used by Independence for their drill program.

11.7.4 Coeur Explorations, Inc.

Coeur used Cone Geochemical Inc. for their assaying according to notations in the drill database. Cone Geochemical Inc. was a commercial laboratory independent of Emgold and Nevada Sunrise. MDA and Christensen have no further information on sample preparation, analysis, or security.

11.7.5 Kennecott Exploration Company

Except for notations in the drill database that Kennecott used Shasta for their assaying, MDA and Christensen have no information on sample preparation, analysis, or security.

11.7.6 Tombstone Exploration Company, Ltd.

Tombstone used Chemex in Reno, Nevada for all of their gold and silver assaying. Gold was analyzed by fire assay with an AA finish. According to Murray (1997), a series of standards produced by Smee and Associates of Vancouver, B.C. was inserted by Chemex into the sample stream of most holes at about every 10^{th} to 15^{th} sample. Checks of the standards indicated that there were no problems with the assays (Murray, 1997). Chemex was a commercial laboratory independent of Emgold and Nevada Sunrise. The authors have no information on the certifications, if any, of Chemex.

After having completed 23 RC holes, Tombstone contracted with Pincock, Allen and Holt for a data audit that included checking 37 random samples from holes TGA97-193 and TGA97-194, which were prepped and analyzed by Bondar Clegg (Intertek Testing Services) (Barker and Rozelle, 1997). Barker and Rozelle (1997) indicated there was "reasonable consistency between Chemex Labs and Bondar Clegg." Overall Barker and Rozelle (1997) noted that "*Observed assay procedures are of high quality*."

11.7.7 Pacific Ridge

According to Bowen (2004), Pacific Ridge sent their samples to American Assay Labs in Sparks, Nevada, for analysis of gold and silver.

11.7.8 Sample Material Available

Diamond drill core is available for all of the core holes, although the core from holes GA89-37 through GA89-46 appears to be skeletonized. Rock chip samples are available for 250 of the RC drill holes. In addition, assay pulps from five of the drilling campaigns are available. No sample material remains from Homestake holes 1-38. In 2015, fifteen pallets of coarse rejects for holes drilled by Pacific Ridge were found secured in a storage locker in Sparks, Nevada. These have been inspected, but have not been counted or inventoried in detail. It was estimated that 3,300 sample bags exist (Nevada Sunrise 2015, internal documents). In addition, Pacific Ridge sample rejects were discovered on a drill road near the top of Confidence Mountain, on the Golden Arrow property. Some samples had to be re-bagged for transport. A total of 137 samples were retrieved June 8-10, 2015. All of the Pacific Ridge drill samples would be suitable for internal uses such as geochemistry and most should be suitable for assay checks.

Historical core from drill programs prior to 2008 was washed and re-logged by Nevada Sunrise consultant Richard Dixon (Dixon, 2007), with support from Christensen. As well, historical RC drill chips were re-logged by Christensen using a binocular microscope. It was observed that much of the core had never been washed, and many of the chip boxes had not been opened since the boxes were closed at the drill. The information gathered by this re-logging is contained within the drill database in the possession of Emgold.

11.8 Author's Summary Statement

Documentation of the methods and procedures used for historical sample preparation, analyses, and sample security, as well as for quality assurance/quality control procedures and results, is incomplete and in many cases not available. While working with the data, including modeling on section, MDA did not find any particular campaign's drilling that contradicted other drilling campaign data. It is Ristorcelli's opinion that the known sample preparation, security, analytical procedures, and QA/QC are adequate, and that the drilling results are acceptable for use in resource estimation.

12.0 DATA VERIFICATION

The author of this section verified the project data in this report through a combination of data audits, where drilling data compiled in the project database was compared to paper logs, maps, assay certificates and other records, and independent verification sampling. There have been no limitations on, or failure to conduct the verification. It is the author's opinion that the data are adequate for the purposes used in this technical report.

12.1 Historical Drilling

Nevada Sunrise took considerable effort to assure the integrity of the historical drill-hole database, which has been transferred to Emgold. This database has been made available to MDA, as have all drilling-related data.

An issue of concern was the accuracy of the drill collar location data, since many of the older drill hole collar locations were recorded in a local grid, for which there was no primary documentation. As discussed earlier in this report, Nevada Sunrise was able to secure field notes from land surveyors who had worked at Golden Arrow and then to locate survey monuments in the field. Nevada Sunrise was able to relocate these known grid locations. Also, many drill collar locations from across the project area were located in the field by Nevada Sunrise and accurate UTM positions were determined. Then, using cadastral software, other collar locations could be approximated. The great majority of collar locations are known to within 10ft of their true position.

As discussed previously, all available drill core and cuttings were re-logged by two individuals, using binocular microscopes, to assure consistency. Many of the logged lithologies were changed substantially from earlier compilations. Emgold has both digital summaries and original paper re-logs for all of the core and cuttings that were re-logged.

Emgold has copies of original assay reports for approximately half (55%) of the historical drilling. Those assays for which the original certificates are not available appear to have been taken from handwritten assay data on lithology logs and compiled from final reports (not original assay certificates) from AAL. Spot comparisons of drill-hole assays appearing in the assay compilation were made against these original assay sheets.

In 1996, Ristorcelli completed a Decay study for Kennecott Exploration Company to identify the existence of down-hole contamination in RC drill holes. This work identified a number of RC holes that have evidence of possible down-hole contamination, a common problem with this type of drill sampling when drilling was done wet. Furthermore, Ristorcelli also found that core drilling encountered higher-grade mineralized material for longer intercepts than adjacent RC holes he interpreted to be uncontaminated. He concluded that there was some question about RC drill sample integrity.

In 1997, Barker and Rozelle prepared a report for Tombstone documenting an exploration data audit by Pincock, Allen & Holt. The data audit included a review of drilling and sampling procedures, sample handling, assaying methods, and sample verification. The audit reported that (1) practices related to drilling standards, sampling standards and chip logging were excellent; (2) the practice of having a geologist at the drill at all times should be encouraged; (3) care of bagged samples and the security of those samples were excellent; (4) observed assay procedures were of high-quality; (5) the check of 37 random samples indicated reasonable consistency between Chemex and Bondar Clegg; and (6) a random check of the higher-grade portion of the raw assay database indicated that some form of grade capping (high-grade outlier capping) would be required for mineral resource estimation.

Bowen (2004) completed a final report for Pacific Ridge in which data acquisition procedures were discussed, but this report is not consistent with the form required for NI 43-101 project documentation.

It is evident from past data verification work that some of the pre-1997 RC drill results may be questionable and that current industry-standard quality control and quality assurance ("QA/QC") procedures were not reported. However, the companies and individuals who completed this work are known to the authors, and critical reading of the exploration reports available reveals no suggestion that less than prudent practices were followed.

Nevada Sunrise has tons of RC drill rejects, duplicates, and assay pulps from historical drilling programs in storage. These are available to Emgold for check analysis programs.

While MDA has taken no independent samples to verify mineralization, the authors believe that the multiple well-known previous operators and the historic mining in the area are sufficient evidence to verify the existence of mineralization.

12.1.1 Audit of 2008 Drilling Data

Under the supervision of Ristorcelli, MDA audited the database in 2008 using existing assay certificates which comprised 53% of the entire database at that time. The digital drill-hole database received from Nevada Sunrise had an error percentage deemed too high for use in resource estimation (with respect to Au) when compared to existing assay certificates. As a consequence, MDA edited the database by checking all available Au data against original assay certificates, handwritten assay data on lithologic logs, and final assay reports, and correcting existing errors. Overall, the database was considered very "clean" with the exception of one set of data where the check assays were mis-entered. The author concluded the database was acceptable for use in resource estimation within the CIM Standards.

During the compilation of historical information for this report, MDA noted discrepancies in the number of drill holes and total footages of various drilling campaigns, both within and between historical reports and between the reports and the database received from Nevada Sunrise. Both historically reported and new database totals of number of holes and total footage drilled are described in Section 14.1.

12.2 Quality Control/Quality Assurance (QA/QC) Analysis, 2008 Nevada Sunrise Drilling

MDA received all assay data directly from the laboratory and constructed an independent assay and QA/QC database. Using this and the received collar survey data from Nevada Sunrise, the 2008 drilling database was constructed. Nevada Sunrise performed QA/QC for their 2008 drilling and surface sampling. MDA received the data and performed an evaluation of the drilling assay data. Ristorcelli finds that their QA/QC work adequately demonstrates the usability of the data for resource estimation.

12.2.1 Field Duplicates

Nevada Sunrise took 123 field duplicate samples at the RC rig during drilling. The duplicate samples returned, on average, 10% higher gold grades. The silver grades in the duplicate samples were 2% higher than the original samples (Table 12.1).

Table 12.1 Field Duplicate Statistics

Field Duplicates – Gold						
	Average (ppb Au)	Original (ppb Au)	Diff %	Duplicate (ppb Au)	Rel Diff %	AV Rel Diff %
Count	123	123		123		
Mean	320	305	10%	335	7%	106%
Std. Dev.	1624	1476	20%	1777	306%	287%
CV	5.08	4.84		5.31		
Minimum	2	2	0%	2		
Maximum	17598	15798	23%	19398		
Field Duplicates – Silver						
	Average (ppm Ag)	Original (ppm Ag)	Diff %	Duplicate (ppm Ag)	Rel Diff %	AV Rel Diff %
Count	123	123		123		
Mean	6	6	2%	6	-11%	38%
Std. Dev.	14	14	1%	14	81%	72%
CV	2.32	2.35		2.34		
Minimum	0	0	0%	0		
Maximum	123	127	-6%	119		

12.2.2 Laboratory Internal Duplicates

AAL ran four duplicate determinations within each lot of 50 samples. Nevada Sunrise obtained all the original laboratory duplicate sample data. As expected, the comparisons were good (Table 12.2).

Table 12.2 Lab Internal Duplicate Statistics

Laboratory Duplicates – Gold						
	Average (ppb Au)	Original (ppb Au)	Diff %	Duplicate (ppb Au)	Rel Diff %	AV Rel Diff %
Count	326	326		326		
Mean	193	195	-2%	191	-2%	34%
Std. Dev.	503	509	-2%	499	83%	75%
CV	2.61	2.61		2.61		
Minimum	2	2	0%	2		
Maximum	3892	3995	-4%	3829		
Laboratory Duplicates – Silver						
	Average (ppm Ag)	Original (ppm Ag)	Diff %	Duplicate (ppm Ag)	Rel Diff %	AV Rel Diff %
Count	326	326		326		
Mean	6	6	0%	6	-5%	23%
Std. Dev.	18	18	0%	18	97%	94%
CV	3.14	3.13		3.16		
Minimum	0	0	0%	0		
Maximum	198	197	1%	198		

12.2.3 Pulp Duplicates 2008

Nevada Sunrise sent out 339 pulps prepared by AAL to a second laboratory for analysis. The second laboratory was ALS in Sparks, Nevada. Table 12.3 clearly shows the check laboratory returned significantly higher grades for the entire data set, and for the data set whose paired samples were equal to or exceeded 100ppb Au. Interestingly, the absolute value of the relative difference in grades shows a moderately high difference ranging between 25% and 50% and averaging 39%. This is high for duplicate assays on the same pulp, but not unexpected for samples from a volcanic-hosted epithermal precious metal deposit.

Table 12.3 Pulp Duplicate Assay Statistics - Gold

External Check Assays – Gold						
	Average (ppb Au)	Original (ppb Au)	Diff %	Duplicate (ppb Au)	Rel Diff %	AV Rel Diff %
Count	339	339		339		
Mean	216	197	19%	234	-7%	82%
Std. Dev.	686	607	29%	786	252%	239%
CV	3.18	3.08		3.36		
Minimum	2	2	0%	2		
Maximum	8460	7280	32%	9640		
External Check Assays – Gold Above 100 ppb Au						
	Average (ppb Au)	Original (ppb Au)	Diff %	Duplicate (ppb Au)	Rel Diff %	AV Rel Diff %
Count	125	125		125		
Mean	543	495	19%	591	11%	39%
Std. Dev.	1054	928	31%	1215	101%	94%
CV	1.94	1.88		2.06		
Minimum	100	61	-20%	49		
Maximum	8460	7280	32%	9640		

Table 12.4 Pulp Duplicate Assay Statistics – Silver

External Check Assays – Silver						
	Average (ppm Ag)	Original (ppm Ag)	Diff %	Duplicate (ppm Ag)	Rel Diff %	AV Rel Diff %
Count	339	339		339		
Mean	4	4	-5%	4	4%	40%
Std. Dev.	8	9	-8%	8	97%	89%
CV	2.04	2.08		2.02		
Minimum	0	0	0%	0		
Maximum	74	79	-14%	68		
External Check Assays – Silver Above 5 ppm Ag						
	Average (ppm Ag)	Original (ppm Ag)	Diff %	Duplicate (ppm Ag)	Rel Diff %	AV Rel Diff %
Count	86	86		86		
Mean	14	14	-6%	13	-17%	45%
Std. Dev.	12	13	-9%	12	137%	130%
CV	0.90	0.92		0.90		
Minimum	5	2	-50%	1		
Maximum	74	79	-14%	68		

The external checks on duplicate pulps for silver returned lower values by 5% and 6% for all samples (Table 12.4) and also for those samples whose mean of the pairs were greater than 5g Ag/t.

12.2.4 2008 Blanks

Nevada Sunrise inserted field blanks made up of commercial sand into the sample sequence. There was minor cross contamination early in the program as shown by the elevated gold (Figure 12.1) and silver (Figure 12.2) were found in the blanks. The amount of contamination is not so high to render the results unusable.

Figure 12.1 Graphical Display of Gold Grades in Blank Samples

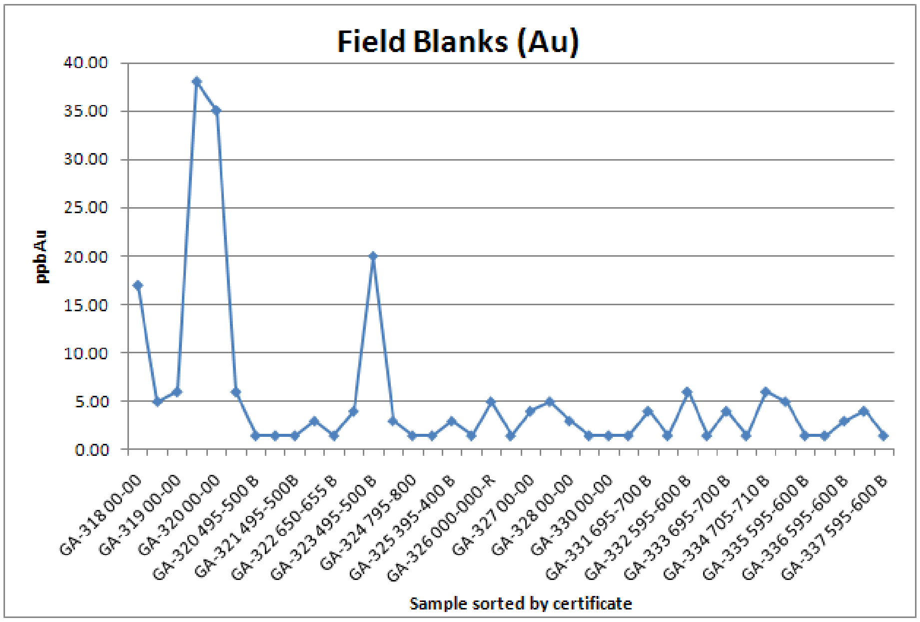
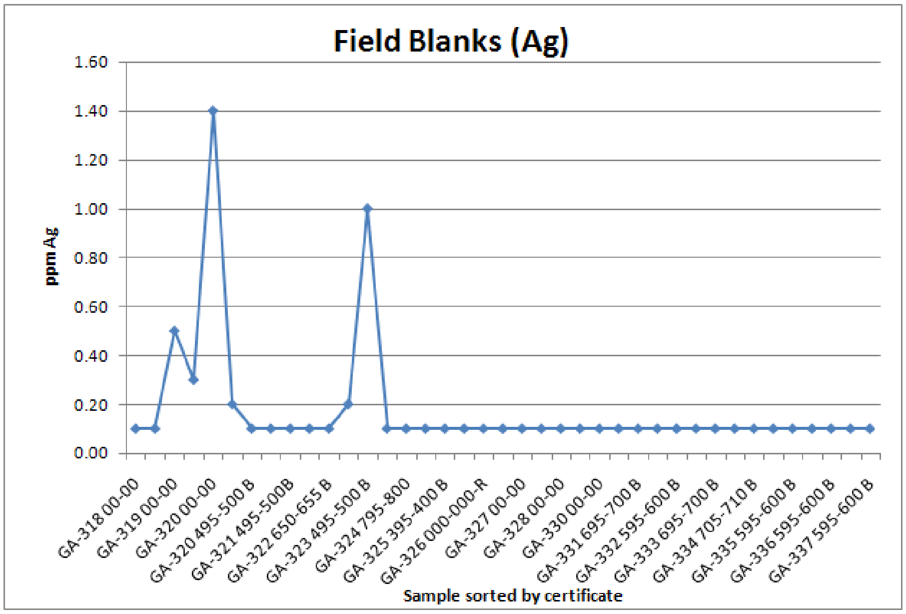


Figure 12.2 Graphical Display of Silver Grades in Blank Samples



12.2.5 2008 Standards

Nevada Sunrise inserted two different gold standards into the RC drill sample sequence. While there was an academically interesting minor high-bias in gold grades for the OXA45 standard (Figure 12.3), and a minor downward drift over time in grades of the SK33 standard (Figure 12.4), analytical accuracy is demonstrated to be sufficient to allow for the use of the 2008 assay data in resource estimation. There were no certified averages for silver for these two standards, but a graphical display showed the values to fall within a well-defined range, with little to no drift.

Figure 12.3 Graphical Display of the Gold Standard OXA45

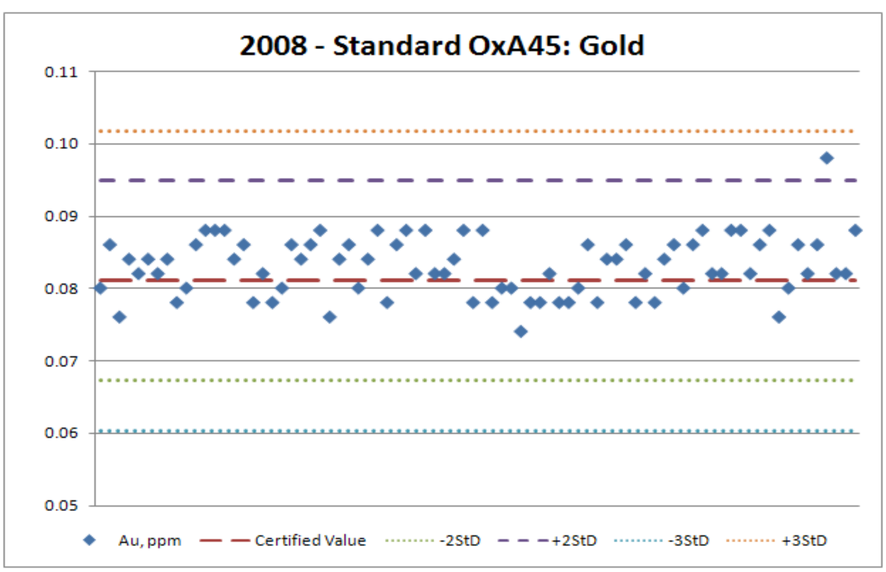
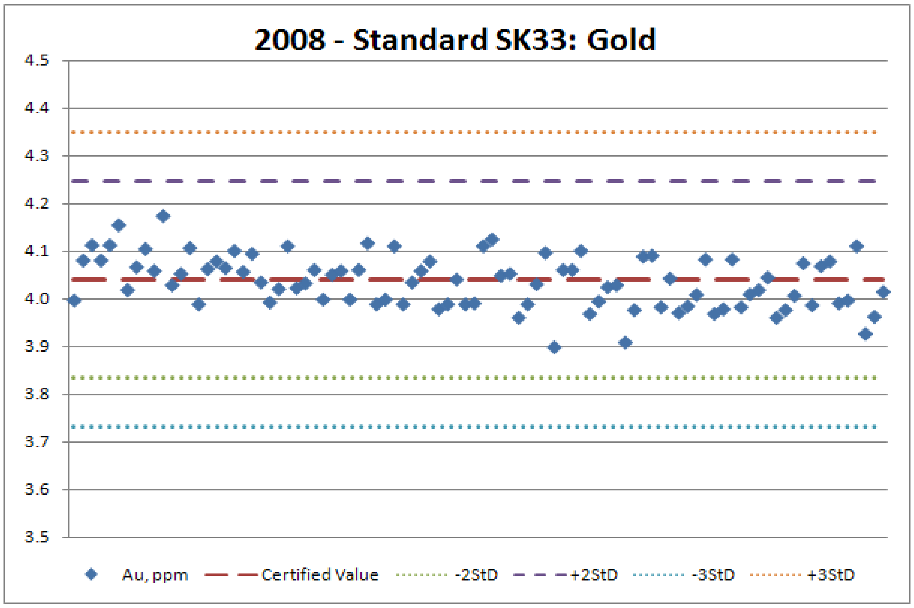


Figure 12.4 Graphical Display of the Gold Standard SK33



12.2.6 MDA Check Samples of 2008 Core Drilling

MDA independently selected and obtained seven core samples from the 2008 drilling. Those core samples were sawn and assayed by AAL in Sparks, Nevada. The results were highly, but not unexpectedly variable, and in spite of being generally lower grade, can and do support the existence of mineralization at Golden Arrow (Table 12.5).

Table 12.5 MDA Check Samples on 2008 Drilling

ID	From (ft)	To (ft)	Original (oz Au/ton)	Diff	Check (oz Au/ton)	Original (oz Ag/ton)	Diff	Check (oz Ag/ton)
GA08-311	165.50	170.00	0.069	83%	0.127	0.41	-26%	0.30
GA08-312	106.50	111.00	0.008	214%	0.025	0.03	500%	0.18
GA08-312	611.00	616.00	0.042	-66%	0.014	3.44	-77%	0.79
GA08-313	142.50	148.00	0.035	-23%	0.027	1.02	22%	1.25
GA08-314	285.00	289.00	0.228	-45%	0.125	0.50	-50%	0.25
GA08-314	577.50	582.90	0.004	-59%	0.002	0.12	125%	0.26
GA08-315	274.00	278.20	0.008	-81%	0.002	0.20	41%	0.29
Average			**0.056**	**-18%**	**0.046**	**0.82**	**-42%**	**0.47**

12.2.7 2008 QA/QC Program Conclusions

The second laboratory returned grades from the same pulps materially higher than those from the original laboratory. The original pulp grades were used in the database and estimation, the standards showed the original lab to be correct. In either case, the grades used in the database are the lower of the two sets, which are deemed to be more correct.

It is also interesting to note the high variability of duplicate grades received on pulps. While this phenomenon may not be particularly critical for estimating a global resource because there was not bias noted in that test, this will present problems during production if the issue is not addressed in advance.

Finally and inexplicably, the bias between the original field sample and the field duplicate in RC drilling contributes some uncertainty. Any risk caused by this phenomenon is mollified by the fact that the data entered in the database is the primary, and on average, lower grade value.

12.3 2010 – 2012 QA/QC Procedures, Results and Conclusions

12.3.1 2010 Animas Procedures

Quality assurance and quality control procedures for the Animas 2010 drilling program were originally summarized in a report for Animas Resources by Odin Christensen (2010), who was also one of the site geologists during the drilling program. Animas geologists managed the drilling operation directly and visited the site on a regular schedule.

Animas used three different reference materials as standards for gold assays. These contained nominally 0.614ppm, 1.007ppm, and 1.844ppm Au. AAL inserted Rocklabs certified reference materials containing 0.085ppm and 4.107ppm Au at random intervals of one standard per 20 samples. The 2010 QA/QC assay data was statistically analyzed and plotted by Animas. It was stated that the instrumental baseline was very good, and that there must be minimal sample preparation contamination because no values over the detection limit were reported for Ag, As, Cu, Mo, Sb or Zn in the blanks, although the average Pb value in blanks was 3 ppm. Also, average values in the standards for all elements were less than 5% relative difference from the accepted standard values. Christensen (2010) concluded that this demonstrated that the assay results were adequate for the intended use.

12.3.2 2012 Nevada Sunrise Procedures

During the 2012 drilling, Nevada Sunrise inserted CRM's known as MED-Au-09.03, MED-Au-11.13, S105004X, S107005X and S107007X. CRM's and field duplicates were statistically analyzed and reported by Kehmeier (2013). Twenty percent of the CRM's were above one standard deviation of the reference value and 16% were below one standard deviation of the reference value. The variation was interpreted to be random -- no obvious bias could be found. Field duplicate results were compared to the primary sample. Samples returning values of less than 100 ppb had significant variation in the assays. For both the CRM's and field duplicates, it was concluded that this variation did not materially affect the results or the final interpretation.

AAL analyzed pulp duplicates as part of their internal procedures, and those results indicated that there were no issues with assay quality. Also, 20 sample pulps were sent to ALS as check assays. The AAL assays were higher by an average of less than 2%, and Kehmeier (2013) concluded that these differences would not materially affect the sampling results.

12.4 MDA Review of 2010 – 2012 QA/QC Data

MDA received the Animas 2010 and Nevada Sunrise 2012 drilling assays, including results for blanks, standards and duplicates, from Emgold. The assays were compiled by MDA in a GeoSequel® Database Manager database. Review of the QA/QC data showed that those data are sufficiently reliable to evaluate the drilling's impact on the estimated resources.

12.5 Adequacy of QA/QC Programs and Results

It is the author's opinion that the data are adequate for the purposes used in this technical report.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

This section on mineral processing and metallurgical testing was prepared by Mr. Jack McPartland, a Qualified Professional certified by the Mining and Metallurgical Society of America, and an independent consultant with McClelland Laboratories Inc., in Reno, Nevada. This section is in large part the same as Section 16 from the 2010 technical report, as no significant additional metallurgical testing has been conducted on the project since the effective date of the Ristorcelli and Christensen (2010) technical report. The word "ore" as used in this section refers to mineralized material tested and potentially to be used for plant feed, but has no economic significance.

A total of four metallurgical studies are known to have been conducted on samples from Golden Arrow and were reviewed for this report. Kennecott completed scoping-level metallurgical testing by analyzing a large suite of core and cutting samples for gold and silver, both by fire assay and cyanide-extraction atomic absorption. Dawson Metallurgical Laboratories, Inc. ("Dawson") and METCON Research Inc. ("METCON") conducted preliminary bottle-roll cyanidation testing programs, in 1987 and 1994, respectively. McClelland completed a more detailed metallurgical testing program initiated in 2008, which included bottle-roll cyanidation testing, column-leach cyanidation testing, milling/cyanidation, milling/flotation and milling/gravity concentration testing on a total of 26 drill core composites.

Overall, metallurgical testing indicates significant potential for heap leaching of the Hidden Hill and Gold Coin oxide materials. Simulated heap-leach recoveries obtained from the sulfide material are significantly lower than from the oxides. This is based primarily on results from column-leach cyanidation testing conducted at McClelland and supported by results from bottle-roll testing conducted at both METCON and McClelland.

A limited amount of testing indicates that the material is sensitive to grind size, and milling/cyanidation treatment can be expected to significantly improve gold and silver recoveries, compared to those obtained by heap leaching. A limited amount of gravity concentration testing showed that the higher-grade oxide material contains significant quantities of "free-milling" particulate gold, and that these high-grade oxide materials generally responded well to processing using conventional milling/gravity concentration methods. A limited amount of flotation testing showed that select high-grade sulfide materials responded moderately well to upgrading by conventional milling/bulk sulfide flotation treatment methods. The gravity and flotation concentration testing conducted was very limited in scope. Economic trade-off studies, based in part on significant additional metallurgical testing, would be required to evaluate the potential for heap leaching, milling/cyanidation, milling/gravity concentration or milling/flotation treatment of the Golden Arrow mineralized material.

13.2 Dawson 1987

Dawson conducted preliminary bottle-roll, cyanide-leach tests on seven drill-hole composite samples in 1987 for Homestake (Thompson, 1987; Jennings, 1988, citing a report of W. R. Stanley dated

September 1987, which MDA, Christensen and McPartland have not seen). A summary of results from those tests are provided in Table 13.1.

Bottle-roll test gold recovery obtained from nominal 75µm (200 mesh) feed in 48 hours of leaching ranged from 71.7% to 93.7% for oxide material (five samples), was 60.1% for mixed oxide/sulfide material (one sample) and was 47.5% for sulfide material (one sample). It was noted that significant pyrite was detected only in the sulfide sample and speculated that encapsulation of gold in sulfides might help to explain the lower gold recovery obtained from that material. Silver extraction ranged from 48.4% to 83.1% in the oxide material, was 48.0% for the mixed material and was 71.4% for the sulfide material. Cyanide consumption averaged 0.3 kg NaCN/mt of feed for the oxide material and was 1.2 and 2.8 kg NaCN/mt of feed for the mixed and sulfide material, respectively. Cyanide concentration used for these bottle-roll tests was relatively high (5.0 g NaCN/L solution), which likely contributed to the high consumption observed with the sulfide material. Lime consumption ranged from 0.7 to 2.9 kg/mt of feed for the oxide and mixed oxide/sulfide material and was 4.8 kg/mt of feed for the sulfide material.

Table 13.1 Summary Results, Milling/Cyanidation (Bottle-Roll) Tests
Golden Arrow Drill-Hole Composite Samples, Nominal 75µm Feeds, Dawson Metallurgical

					Calc'd.		Calc'd.	Reagents Required	
	Drill		Sample	Au Rec.	Head	Ag Rec.	Head	kg/mt ore	
Sample	Hole	Interval	Type	%	gAu/mt	%	gAg/mt	NaCN Cons.	Lime Added
6943AL	GA1	160-185'	Oxide	77.6	0.93	N/A	N/A	<0.05	1.1
6944AL	GA1	255-275'	Oxide	89.7	1.99	N/A	N/A	0.65	2.9
6945AL	GA1	275-295'	Oxide	93.7	3.84	48.4	27	0.55	0.7
6946AL	GA2	55-70'	Oxide	71.7	0.72	83.1	31	0.05	1.9
6947AL	GA2	125-140'	Oxide	91.8	1.68	61.6	5	0.25	2.4
6948AL	GA6	120-155'	Mixed	60.1	1.37	48.0	21	1.15	2.9
6949AL	GA6	250-285'	Sulfide	47.5	0.86	71.4	11	2.75	4.8

13.3 METCON 1994

METCON completed a suite of 13 bottle-roll tests for various materials at different grinds and retention times for five drill-hole composite samples from Coeur in 1994 (Ortega, 1994; Wilder, 1994). A letter from Steven Murray (consulting geologist) dated September 13, 1994 described these samples. Drill hole GA-121C was described as being a core hole from the Hidden Hill area, while GA-166 was described as being a reverse circulation drill hole from the greater Gold Coin area. Summary results from the bottle-roll tests are presented in Table 13.2. As noted in Table 13.2, there were some minor discrepancies between sample descriptions noted in the METCON report and noted in the Steven Murray letter.

Gold recovery obtained in 72 hours of leaching at a -1.7mm (10 mesh) feed size ranged from 77.6% to 86.5% for oxide material (two samples), was 86.4% for mixed oxide/sulfide material (one sample) and ranged from 55.3% to 72.0% for sulfide material (two samples). Fine grinding to 80% at -75µm (200 mesh) in size improved gold recovery from the high-grade oxide material (1 sample) and high grade sulfide material (1 sample) by approximately 10%. Roasting of the high-grade sulfide material resulted in a small increase in gold extraction (from 82.3% to 84.9%) and a 35% decrease in silver extraction, compared to that of the sample not roasted. It should be noted that the high-grade sulfide sample evaluated for roasting was not particularly refractory to conventional cyanidation treatment, which limited the usefulness of the roasting test. Cyanide consumption did not exceed 0.50 kg NaCN/mt feed for any of the direct cyanidation tests. Lime requirements for direct cyanidation ranged from 1.2 to 2.7 kg/mt feed. Ortega (1994) noted that "*The reagent consumptions are considered preliminary and actual reagent consumptions obtained under actual leaching conditions may vary*."

Table 13.2 Summary Results, Agitated Cyanidation (Bottle-Roll) Tests Golden Arrow Drill Hole Composite Samples, METCON Research

Drill Hole[1)]	Interval	Sample Type	Feed Size	Leach Time, hours	Au Rec. %	Calc'd. Head gAu/mt	Ag Rec. %	Calc'd. Head gAg/mt	Reagents Required kg/mt feed NaCN Cons.	Lime Added
GA-121C	253-382[2)]	Oxide	-1.7mm	24	74.5	6.45	32.2	30	0.33	1.2
GA-121C	253-382[2)]	Oxide	-1.7mm	72	86.5	6.07	39.1	28	0.40	1.3
GA-121C	253-382[2)]	Oxide	80%-75µm	48	96.0	6.79	59.3	34	0.40	1.5
GA-166	125-180[3)]	Oxide	-1.7mm	24	69.5	0.89	52.4	13	0.41	1.4
GA-166	125-180[3)]	Oxide	-1.7mm	72	77.6	0.93	60.9	12	0.31	1.5
GA-166	225-280[4)]	Mixed[6)]	-1.7mm	24	65.9	0.58	66.3	21	0.43	2.4
GA-166	225-280[4)]	Mixed[6)]	-1.7mm	72	86.4	0.51	67.8	23	0.47	2.7
GA-166	325-410[5)]	Sulfide	-1.7mm	24	43.7	2.91	56.6	6	0.43	2.0
GA-166	325-410[5)]	Sulfide	-1.7mm	72	72.0	1.47	77.3	6	0.46	2.0
GA-166	325-410[5)]	Sulfide	80%-75µm	48	82.3	1.92	61.4	6	0.19	2.5
GA-166	325-410[5)]	Sulfide	80%-75µm[7)]	48	84.9	1.82	26.6	6	0.54	5.6
GA-121C	382-463	Sulfide	-1.7mm	24	34.4	0.62	42.5	8	0.25	1.8
GA-121C	382-463	Sulfide	-1.7mm	72	55.3	0.45	63.2	6	0.30	2.0

1) Steven R. Murray (Consulting Geologist) letter to Glen Atwood & Al Wilder, dated Sept. 13, 1997.
2) Steven R. Murry letter refers to interval as 253-302; 366-382.
3) Steven R. Murry letter refers to interval as 125-150.
4) Steven R. Murry letter refers to interval as 225-250.
5) Steven R. Murry letter refers to interval as 325-400.
6) Steven R. Murry letter refers to interval as being oxide material.
7) Milled sample was roasted before cyanidation.

13.4 Discussion of Pre-2008 Historical Testwork

During their tenure on the property, Kennecott completed scoping-level metallurgical testing by analyzing a large suite of core samples for gold and silver, both by fire assay and cyanide-extraction atomic absorption. Christensen (2006a) evaluated Kennecott's data. A total of 447 mineralized drill samples had a mean average grade of 0.040 oz Au/ton (1.4 g Au/t) and 0.492 oz Ag/ton (16.6 g Ag/t). The mean AuCN/AuFA ratio was 0.815, and the mean AgCN/AgFA ratio was 0.769. A linear regression of AuCN to AuFA yields a line with a slope of 0.70, suggesting that higher-grade samples have a somewhat lower cyanide recovery. The average Ag/Au ratio in samples was 12:1. There is a suggestion that gold recovery decreases slightly with depth and that there is a secondary enrichment of silver at a depth of about 400ft (Christensen, 2006a).

B. M. Clem and the Golden American Joint Venture reportedly conducted column-leach tests of waste-dump samples during their work on the property from 1981 to 1984, but documentation is not available.

13.5 McClelland Laboratories

Nevada Sunrise engaged McClelland to complete a suite of metallurgical tests on drill core from the 2008 drilling at Golden Arrow. That testing program completed and reported in 2010 (McPartland 2010). The testing was designed to determine amenability to heap leach cyanidation, milling/cyanidation, gravity concentration and bulk sulfide flotation treatment, and to obtain information concerning variability of the samples. Testing was also conducted to characterize mineralized material and waste for environmental planning. The test program included a complete multi-element chemical analysis of all drill core material, bottle-roll cyanide recovery testing, cyanide column-leach recovery testing, gravity-recoverable gold tests, bulk sulfide flotation tests, meteoric water mobility testing, and acid-base accounting.

Amenability/variability testing was conducted by McClelland on 20 drill core composite samples from five drill holes (McPartland, 2009; 2010). Bottle-roll tests were run on each composite at an 80% -10 mesh feed size to obtain information concerning heap leach amenability and to evaluate ore variability. On four higher-grade composites, testing also included a milling/cyanidation test at 80% - 200 mesh, a gravity concentration test at 80% - 100 mesh, and bulk sulfide flotation testing at 80% - 200 mesh. Gravity concentration tests were also conducted on three other drill core interval samples. Summary (average) results from the cyanidation bottle-roll tests are presented in Table 13.3. Summary results from the process selection testing conducted on four high-grade composites are presented in Table 13.4.

Cyanidation test results generally show that the oxide samples were amenable to cyanidation treatment at the 10 mesh feed size. Average gold and silver recoveries from oxide samples were 68.5% and 29.7%, respectively, in 96hrs of leaching. Sulfide samples were, as expected, less amenable to cyanidation treatment, with average gold and silver recoveries of 43.1% and 40.0%, respectively. Cyanide consumptions were low, and lime requirements were moderate for all of the 10 mesh bottle-roll tests.

Milling/cyanidation tests were conducted for four higher-grade composites, including two oxide composites (#2 and #4) and two sulfide composites (#15 and #19). All four samples (oxide and sulfide type material) were amenable to milling/cyanidation treatment at an 80% -200 mesh feed size. Gold recoveries ranged from 81.0% to 89.4% in 72 hours of leaching. Corresponding silver recoveries ranged from 53.1% to 77.6%. Gold recovery rates were slow for oxide samples, suggesting the need for a longer leach cycle. Reagent requirements were low to moderate, and incrementally higher than for the corresponding -10 mesh tests.

Table 13.3 Average Results, Agitated Cyanidation (Bottle-Roll) Tests, Golden Arrow Drill-Hole Composite Samples, McClelland Laboratories, Inc.

Sample Type	No. of Samples	Feed Size	Leach Time, hours	Au Rec. %	Calc'd. Head gAu/mt	Ag Rec. %	Calc'd. Head gAg/mt	Reagents Required kg/mt feed NaCN Cons.	Reagents Required kg/mt feed Lime Added
All	23	80%-1.7mm	96	57.5	1.69	34.2	28.8	0.20	2.7
Oxide	13	80%-1.7mm	96	68.5	1.56	29.7	19.4	0.12	2.1
Sulfide	10	80%-1.7mm	96	43.1	1.55	40.0	40.9	0.28	3.4
HG	4	80%-1.7mm	96	53.7	3.62	48.4	52.9	0.14	2.2
HG	4	80%-75µm	96	86.0	3.84	70.2	53.1	0.25	3.7

Table 13.4 Summary Results, Process Selection Tests, Golden Arrow Drill-Hole Composite Samples, McClelland Laboratories, Inc.

Comp.	Drill Hole	Interval	Test Type	Feed Size	Weight to Cl. Conc., % of total	Cl. Conc. Grade gAu/mt	Cl. Conc. Grade gAg/mt	Head Grade gAu/mt	Head Grade gAg/mt	Recovery[1)] % Au	Recovery[1)] % Ag
#2	GA-311	108-174'	Gravity	80%-150µm	0.25	1255	5100	4.63	33.8	69.1	39.1
#2	GA-311	108-174'	Flotation	80%-75µm	3.18	30.60	431	1.61	25.0	80.3	65.7
#2	GA-311	108-174'	Cyanidation	80%-1.7mm	N/A	N/A	N/A	4.75	34.5	50.7	54.5
#2	GA-311	108-174'	Cyanidation	80%-75µm	N/A	N/A	N/A	5.86	37.1	84.8	77.6
#4	GA-311	272-312'	Gravity	80%-150µm	0.45	408	1665	3.24	45.1	59.4	59.4
#4	GA-311	272-312'	Flotation	80%-75µm	16.12	7.63	148	3.11	42.7	47.0	65.7
#4	GA-311	272-312'	Cyanidation	80%-1.7mm	N/A	N/A	N/A	2.93	45.5	62.5	54.5
#4	GA-311	272-312'	Cyanidation	80%-75µm	N/A	N/A	N/A	3.30	49.8	89.4	77.3
#15	GA-313	504-559'	Gravity	80%-150µm	0.34	194.5	1520	2.04	91.2	66.9	26.6
#15	GA-313	504-559'	Flotation	80%-75µm	7.95	17.15	832	1.98	88.3	70.6	78.1
#15	GA-313	504-559'	Cyanidation	80%-1.7mm	N/A	N/A	N/A	1.84	95.0	48.5	31.9
#15	GA-313	504-559'	Cyanidation	80%-75µm	N/A	N/A	N/A	2.41	88.9	81.0	53.1
#19	GA-314	500-555'	Gravity	80%-150µm	0.33	348	1380	4.08	34.5	39.1	19.1
#19	GA-314	500-555'	Flotation	80%-75µm	3.19	106.50	691	4.11	31.6	90.0	85.8
#19	GA-314	500-555'	Cyanidation	80%-1.7mm	N/A	N/A	N/A	4.38	36.4	53.2	52.5
#19	GA-314	500-555'	Cyanidation	80%-75µm	N/A	N/A	N/A	4.37	36.5	88.6	72.6

1) Reported recoveries for gravity concentration and flotation concentrate testing are values reporting to the rougher concentrate.
These recoveries do not include any discount for values lost during subsequent processing of the concentrate products for metals recovery.

A total of 7 samples (including the four high-grade composites shown in Table 13.4) were presented to McClelland for gravity concentration testing, with calculated head grades between 0.98 and 44.63 g Au/t. Gravity gold recovery (to cleaner concentrate) for the five oxide samples was highly variable between 4.7% and 67.8%; gravity gold recovery for the two sulfide samples was 28.2% and 32.4%. There is a suggestion that gravity gold recovery correlates with sample grade; higher-grade samples had higher gold recovery, generally. Microscopic examination of the gravity cleaner concentrates revealed the presence of particulate gold values in concentrates produced from all but the lowest grade oxide samples. No free gold was observed in concentrates produced from the sulfide samples.

Flotation tests on four higher-grade composite samples returned recoveries of 80.3% and 47.0% for oxide composites and 70.6% and 90.0% for sulfide composites. Silver recoveries were 65.7% for the oxide composites and 78.1% and 85.8% for the sulfide composites. Weight reporting to the flotation rougher concentrate was equivalent to between 8.2% and 17.4% of the feed weight.

The gravity concentration and flotation concentration recoveries discussed in this report do not include any discount for losses of precious metals that may occur during subsequent processing of the concentrate products for recovery of gold and silver. Additional metallurgical testing would be required to quantify those gold and silver losses.

Column percolation leach tests were conducted at McClelland on three drill-core "master" composite samples, comprised of the same drill core intervals as used for the amenability/variability testing described in the preceding paragraphs. The composites were described as Hidden Hill oxide master composite, Gold Coin oxide master composite and sulfide zone master composite. The tests were conducted to determine gold and silver recovery, recovery rate and reagent requirements under simulated heap-leaching conditions. Tests on the Hidden Hill oxide and sulfide zone master composites were each conducted at nominal (55% to 66% passing) 1.26in and 80% -0.37in feed sizes to determine crush size sensitivity of the ore. Summary results from the column leach tests, with comparative bottle-roll test results on the same samples are presented in Table 13.5.

Table 13.5 Summary Results, Cyanidation Tests, Golden Arrow Drill-Hole Master Composite Samples, McClelland Laboratories, Inc.

Master Comp.	Test Type	Feed Size	Leach Time, days	Au Rec. %	Calc'd. Head gAu/mt	Ag Rec. %	Calc'd. Head gAg/mt	Reagents Required kg/mt feed NaCN Cons.	Reagents Required kg/mt feed Lime Added
Hidden Hill Oxide (#21)	Column	55%-32mm	163	59.3	1.35	35.3	17.0	2.33	1.8
Hidden Hill Oxide (#21)	Column	80%-9.5mm	163	54.9	2.64	45.5	25.7	2.78	1.8
Hidden Hill Oxide (#21)	BRT	80%-1.7mm	4	59.1	5.28	56.9	23.9	<0.07	2.2
Golden Coin Oxide (#22)	Column	80%-9.5mm	163	77.6	1.83	13.0	23.0	2.73	1.6
Golden Coin Oxide (#22)	BRT	80%-1.7mm	4	73.1	1.56	19.4	23.2	<0.07	2.0
Sulfide Zone Master (#23)	Column	66%-32mm	163	44.8	1.45	43.2	31.7	2.14	3.0
Sulfide Zone Master (#23)	Column	80%-9.5mm	163	55.4	1.48	50.1	36.1	2.55	3.0
Sulfide Zone Master (#23)	BRT	80%-1.7mm	4	65.4	1.62	49.0	39.2	0.29	3.8

Gold recoveries obtained from the Hidden Hill oxide master composite were 59.3% (1.26in) and 54.9% (3/8in). Gold recovery obtained from the Gold Coin oxide master composite at the 3/8in feed size was 77.6%. Gold recoveries obtained from the sulfide zone master composite were 44.8% (1.26in) and 55.4% (3/8in) feed sizes.

Gold head grades were erratic, particularly for the Hidden Hill oxide master composite, indicating the presence of free milling, particulate gold values. This observation is supported by gravity concentration testing conducted on other composites from the project (discussed in preceding paragraphs). Abnormally high assay variability was encountered during assaying of the Hidden Hill oxide master composite column-leached residues, indicating that some of the contained particulate gold may not have been completely recovered during leaching. The indicated feed size sensitivity for the

Hidden Hill oxide master composite was believed to result from assay variability, and gold recoveries obtained from that composite at the two feed sizes were considered to be essentially the same. Gold recovery rates were fairly slow, again in particular for the Hidden Hill oxide master composite, and gold extraction was progressing at a slow rate from all of the feeds when leaching was terminated after about 165 days. Longer leaching cycles would improve gold recoveries, and very long commercial heap leach cycles may be required to maximize gold recovery from material represented by these composites.

Calculated head grades for the samples subjected to column testing ranged from 0.039 to 0.077 oz Au/ton, which is significantly higher than the Golden Arrow resources discussed elsewhere in this report. Further metallurgical testing will be required to determine the effects of gold grade on heap leach recoveries.

Comparison between column-leach test results and short-term bottle-roll test results from the same composites tested at McClelland indicate that bottle-roll test gold recoveries (4 day leach cycle at 10 mesh feed size) fairly accurately predicted (± 5%) long-term column-leach test gold recoveries from the oxide material at a coarser (0.37in) feed size. Bottle-roll test gold recovery from the sulfide material (10 mesh feed size) was 10% higher than obtained during column testing at the 0.37in feed size. This comparison supports the use of 10 mesh bottle-roll test gold recoveries to help in developing a heap-leach recovery model for the oxide material, but indicates that the sulfide material is more sensitive to feed size and will require more caution when considering fine feed size bottle-roll test data.

Column test silver recoveries from the Hidden Hill oxide master composite and the sulfide master composite at both feed sizes evaluated ranged from 35.3% to 50.1%. Silver recovery from the Gold Coin oxide master composite was 13.0%

Column test cyanide consumptions were high, and ranged from 2.1 to 2.8 kg NaCN/mt feed. The high cyanide consumptions are believed to result in part from the unusually long (163 day) column leach cycles employed. Bottle test cyanide consumptions (10 mesh feed size) for the same composites were low (0.3 kg NaCN/mt feed for the sulfide zone master composite and <0.07 kg NaCN/mt feed for the oxide composites). The 1.6 to 3.0 kg lime/mt feed added before leaching was sufficient for maintaining protective alkalinity during leaching. Moderately higher initial lime additions for material represented by the sulfide zone master composite may be effective in decreasing cyanide consumption.

Load/permeability ("Load vs Hydraulic Conductivity") tests were conducted by AMEC Earth and Environmental, Inc. on the two McClelland oxide material composite column leached residues (3/8in feed size) to determine permeability under simulated heap stack height compressive loadings. Results from those two tests showed that hydraulic conductivity was greater than 6.0×10^{-2} cm/sec at simulated heap stack heights of as high as 100ft. These hydraulic conductivities are considered to be within normally accepted limits for conventional, multi-lift heap leaching (up to a 100ft simulated heap stack height).

Evaluation of coarser crushing or ROM heap leaching is recommended for the ores represented by the Hidden Hill and Gold Coin oxide master composites. Evaluation of finer crushing, including possibly HPGR (high pressure grinding roll) grinding is recommended for the ore represented by the sulfide zone ore type, if sufficient ore of this type exists to warrant the expected higher capital and operating costs associated with finer crushing. Further heap-leach ore variability testing will also be required.

Available column test results support a heap leach recovery ranging from 55% to 75% for the oxide material at a 3/8in feed size. Results from a single column test indicate a 55% heap-leach recovery for the sulfide material at the 3/8in feed size. Based on these results, along with results from other metallurgical testing on both types of material, it is expected that heap-leach recovery for the sulfide material will be somewhat lower than for the oxide material. Additional metallurgical test work will be required to optimize recovery for both oxide and sulfide material types. That work should include optimization of crushing, agglomeration and leaching conditions (reagent concentrations, leach times, etc.). Variability testing will also be required to determine variations in metallurgical response within the various material types.

14.0 MINERAL RESOURCE ESTIMATE

The resource reported herein is that of Ristorcelli and Christensen (2009), which was an update to the first technical report in accordance with NI 43-101 completed for Nevada Sunrise in 2008 (Ristorcelli and Christensen, 2008). No further information on the 2009 resource estimate has been added for the current report, although the project drilling database has been updated with the results of drilling done in 2010 and 2012 (see below). The 2010 and 2012 drilling data have been plotted spatially by Mr. Ristorcelli and compared to the 2009 resource block model. All but two of the 37 holes drilled since completion of the 2009 resource estimate were distant from the estimated resources and have no effect on the 2009 resource estimate. Two of the post-2009 drill holes were within and adjacent to the 2009 resource block model, but were found to have no material impact on the 2009 estimated resources. Therefore, the estimate reported in Ristorcelli and Christensen (2009) has been updated with an effective date of November 28, 2017 and is considered current for Emgold as presented in this technical report. The project database has an effective date of November 28, 2017.

14.1 Database

The Golden Arrow database was modified with drill data from the Golden Arrow 2008 exploration program. Those data were audited and then used in modeling in 2009. Auditing the database and general database discussion were described in Section 12.0 Data Verification of this report. There are a total of 28,864 gold assays and 24,297 silver assays in the entire Golden Arrow resource database. Cyanide soluble gold assays are few, amounting to 921 for gold and 261 for silver. The average drill spacing at Gold Coin is 130ft (39m), and at Hidden Hill it is 100ft (30m). Details of the database are given in Table 14.1.

Table 14.1 Descriptive Statistics of the Golden Arrow Database

All Data				**AuCap**	**1.5**		**AgCap**	**13.0**
	Valid N	**Median**	**Mean**	**Std.Dev.**	**CV**	**Minimum**	**Maximum**	**Units**
Au	28,864	0.002	0.007	0.042	5.914	0.000	3.770	oz/ton
Au Capped	26,397	0.002	0.008	0.035	4.625	0.000	1.500	oz/ton
Ag	24,297	0.03	0.14	0.49	3.49	0.00	17.85	oz/ton
Ag Capped	22,650	0.03	0.15	0.44	2.99	0.00	13.00	oz/ton
Au CN	921	0.01	0.03	0.06	2.35	0.00	1.17	oz/ton
Ag CN	261	0.17	0.39	0.97	2.50	0.01	14.60	oz/ton

Note: The differences in number of uncapped and capped grades is that the uncapped is for the entire database and capped is for the database samples lying within the limits of the model.

14.2 Modeling

The geologic sections were updated in 2009 with the post-2008 drill data, and in so doing, it became clear that the lithologic model needed no fundamental changes for either Gold Coin or Hidden Hill (Figure 14.1, Figure 14.2, Figure 14.3, and Figure 14.4, all of which are derived from the pre-2009 database). Nevertheless, the lithologic model was modified to reflect the changes imparted by the 2008 drilling. Using the geology as a guide along with the color-coded assays representing natural distributions, mineral domains were modified using the new drill data. As with the lithology but even more so, the post-2008 model drilling verified the 2008 model in that the domains needed few changes and none were fundamental.

Essentially two styles of gold mineralization were modeled: a disseminated or permeability controlled flooding type of mineralization, and a more structurally controlled style of mineralization in each of Gold Coin and Hidden Hill. Confidence is high in the sub-horizontal flooding type of mineralization but less so in the steeper-dipping zones, especially at Hidden Hill. This steeper-dipping mineralization is not without precedent as the historic mining took place on moderately dipping mineralized structures. Consequently, the author allowed for Measured resources only in the sub-horizontal flooding type of mineralization.

Figure 14.1 Quantile Plot of Gold Grades at Gold Coin

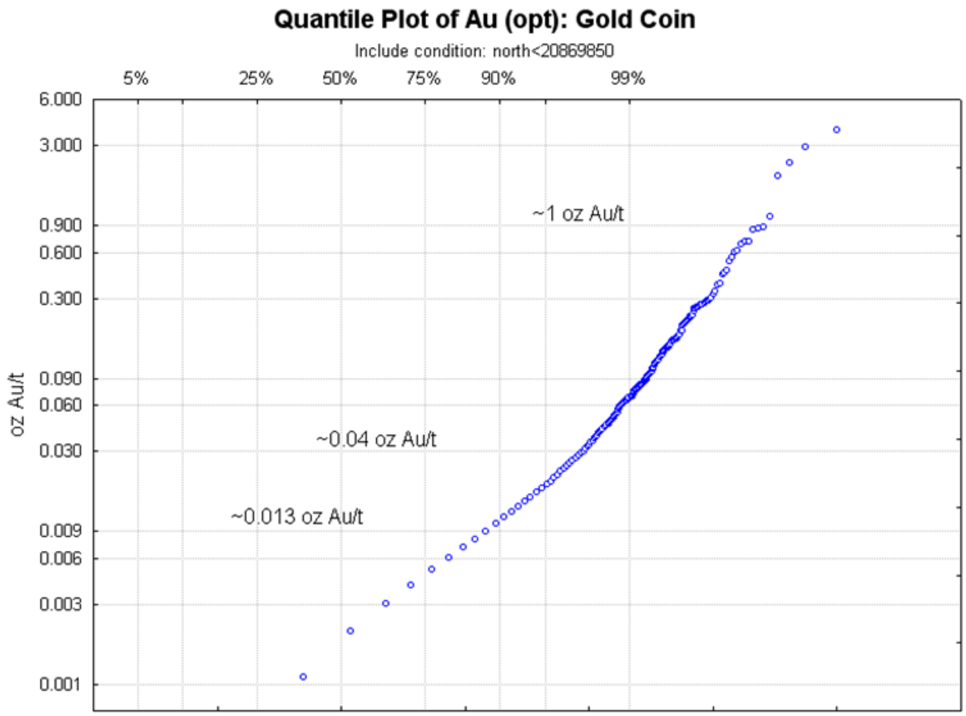


Figure 14.2 Quantile Plot of Silver Grades at Gold Coin

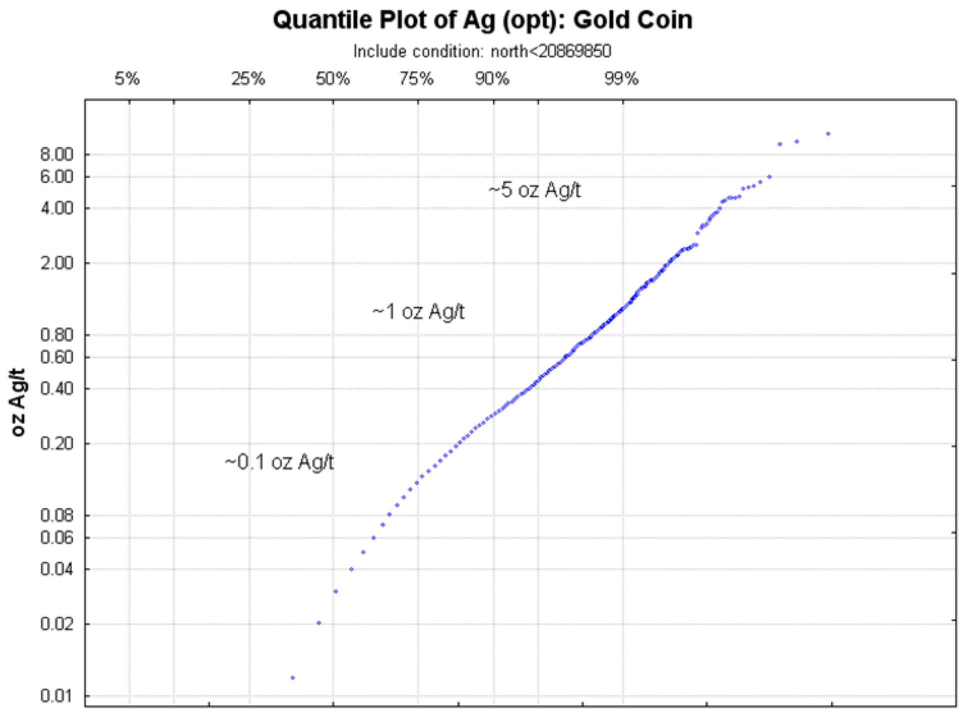


Figure 14.3 Quantile Plot of Gold Grades at Hidden Hill

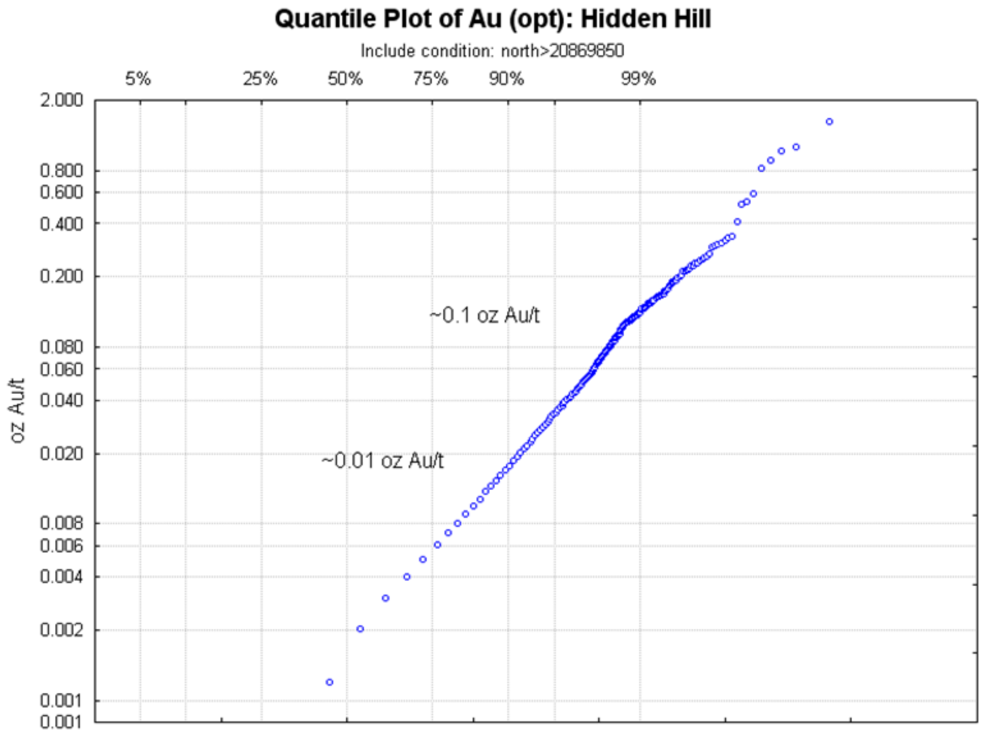
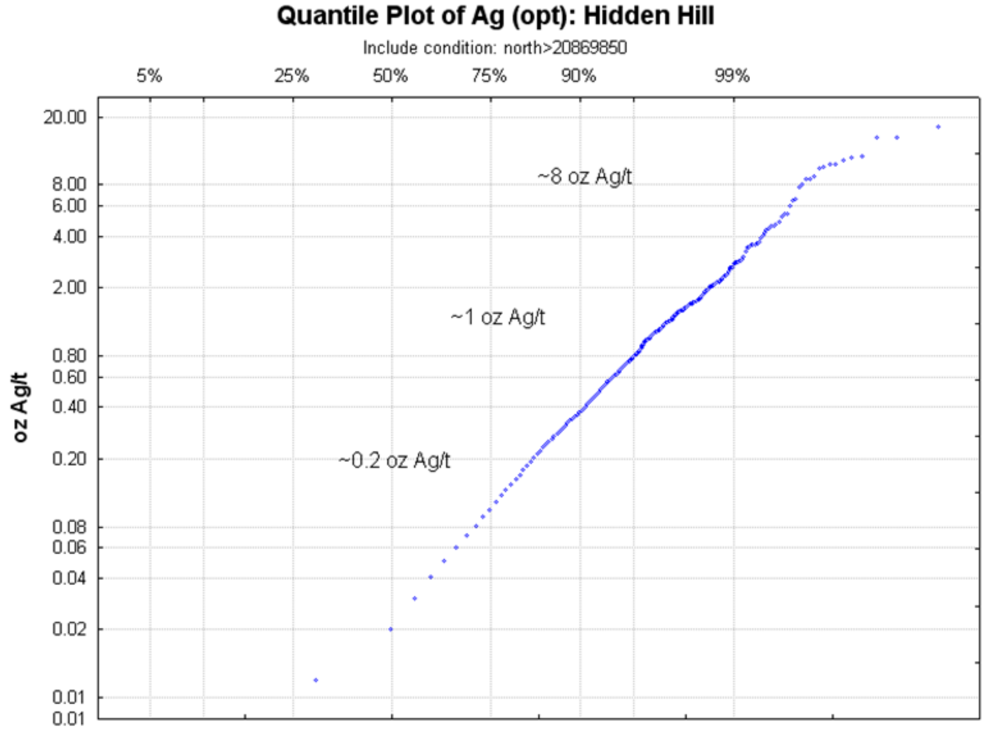


Figure 14.4 Quantile Plot of Silver Grades at Hidden Hill



The horizontal to sub-horizontal disseminated mineralization lies mostly within the volcaniclastic rocks near the top of the andesite and sub-parallel to that contact. These sub-horizontal deposits can dip up to 10^{o} and seem to occur over or near depressions in the top of the andesite.

The orientation of the steeper-dipping mineralized bodies strikes northwest at an azimuth of ~300^{o} and dips southwest at about 50^{o}. Descriptive statistics of the gold data used in mineral domain modeling are given Table 14.2 and Table 14.3.

Silver domain modeling was done in a similar fashion and with similar results, namely two dominant orientations, sub-horizontal and moderately dipping. However, silver also has an overprint of supergene enrichment, which complicates the modeling. Relatively large bodies of silver mineralization lie sub-parallel to the oxide/unoxidized interface. Statistics of the silver data set are given in Table 14.2 and Table 14.3.

The original interpretation was made on irregularly spaced (average about 125ft) sections looking north-northwest. These sections' geology and mineral domains were digitized, loaded into MineSight® mining software, and cleaned. Attempts were made to build three-dimensional solids of both silver and gold zones, but these solids were found to be too complicated for efficient and accurate modeling. As a consequence, the non-orthogonal sections were sliced to east-west-oriented sections spaced 20ft apart along block centers. The mineral domains were re-interpreted on these sections, which were used to code samples and the block model. Solids were made for the andesite and unoxidized material. A surface was made at the bottom of the alluvium. Figure 14.5, Figure 14.6, Figure 14.7, and Figure 14.8

show typical gold and silver models for Gold Coin and Hidden Hill, respectively. Statistics (Table 14.2 and Table 14.3) and quantile plots of the metals were completed by domain. Capping levels were chosen based on quantile plots of the zone-grade distributions, coefficients of variation, and a review of the locations of samples. Each zone has a different capping level.

Table 14.2 Descriptive Statistics of the Gold Coin Database Used for Resource Estimation

Gold Coin	**Zone**	**Low grade Au**		**AuCap**	**0.12**			
	Valid N	**Median**	**Mean**	**Std.Dev.**	**CV**	**Minimum**	**Maximum**	**Units**
Au	1,982	0.012	0.015	0.013	0.831	0.000	0.127	oz/ton
Difference			0%					
Au Capped	1,982	0.012	0.015	0.012	0.828	0.000	0.120	oz/ton
Ag	1,970	0.20	0.30	0.39	1.30	0.00	9.01	oz/ton
Ag Capped	1,970	0.20	0.29	0.32	1.10	0.00	2.92	oz/ton
AuCN	114	0.01	0.01	0.01	0.68	0.00	0.07	oz/ton
AgCN	-	0.00	0.00	0.00	NA	0.00	0.00	oz/ton

Gold Coin	**Zone**	**High grade Au**		**AuCap**	**1.5**			
	Valid N	**Median**	**Mean**	**Std.Dev.**	**CV**	**Minimum**	**Maximum**	**Units**
Au	278	0.079	0.172	0.326	1.895	0.003	3.770	oz/ton
Difference			-7%					
Au Capped	278	0.079	0.160	0.228	1.427	0.003	1.500	oz/ton
Ag	274	0.61	1.20	1.87	1.56	0.00	17.85	oz/ton
Ag Capped	274	0.61	1.09	1.34	1.23	0.00	7.00	oz/ton
AuCN	28	0.06	0.09	0.09	1.00	0.01	0.31	oz/ton
AgCN	-	0.00	0.00	0.00	NA	0.00	0.00	oz/ton

Gold Coin	**Zone**	**Low grade Ag**					**AgCap**	**2.5**
	Valid N	**Median**	**Mean**	**Std.Dev.**	**CV**	**Minimum**	**Maximum**	**Units**
Au	4,883	0.006	0.014	0.076	5.466	0.000	3.770	oz/ton
Au Capped	4,883	0.006	0.013	0.050	3.802	0.000	1.500	oz/ton
Ag	4,855	0.21	0.29	0.35	1.18	0.00	9.01	oz/ton
Difference			-2%					
Ag Capped	4,855	0.21	0.29	0.28	0.95	0.00	2.50	oz/ton
AuCN	192	0.01	0.02	0.03	1.98	0.00	0.31	oz/ton
AgCN	-	0.00	0.00	0.00	NA	0.00	0.00	oz/ton

Gold Coin	**Zone**	**High grade Ag**					**AgCap**	**7.0**
	Valid N	**Median**	**Mean**	**Std.Dev.**	**CV**	**Minimum**	**Maximum**	**Units**
Au	178	0.039	0.112	0.187	1.668	0.001	1.022	oz/ton
Au Capped	178	0.039	0.112	0.187	1.669	0.001	1.022	oz/ton
Ag	176	1.35	1.93	2.17	1.12	0.00	17.85	oz/ton
Difference			-7%					
Ag Capped	176	1.35	1.80	1.56	0.87	0.00	7.00	oz/ton
AuCN	14	0.05	0.09	0.10	1.12	0.00	0.30	oz/ton
AgCN	-	0.00	0.00	0.00	NA	0.00	0.00	oz/ton

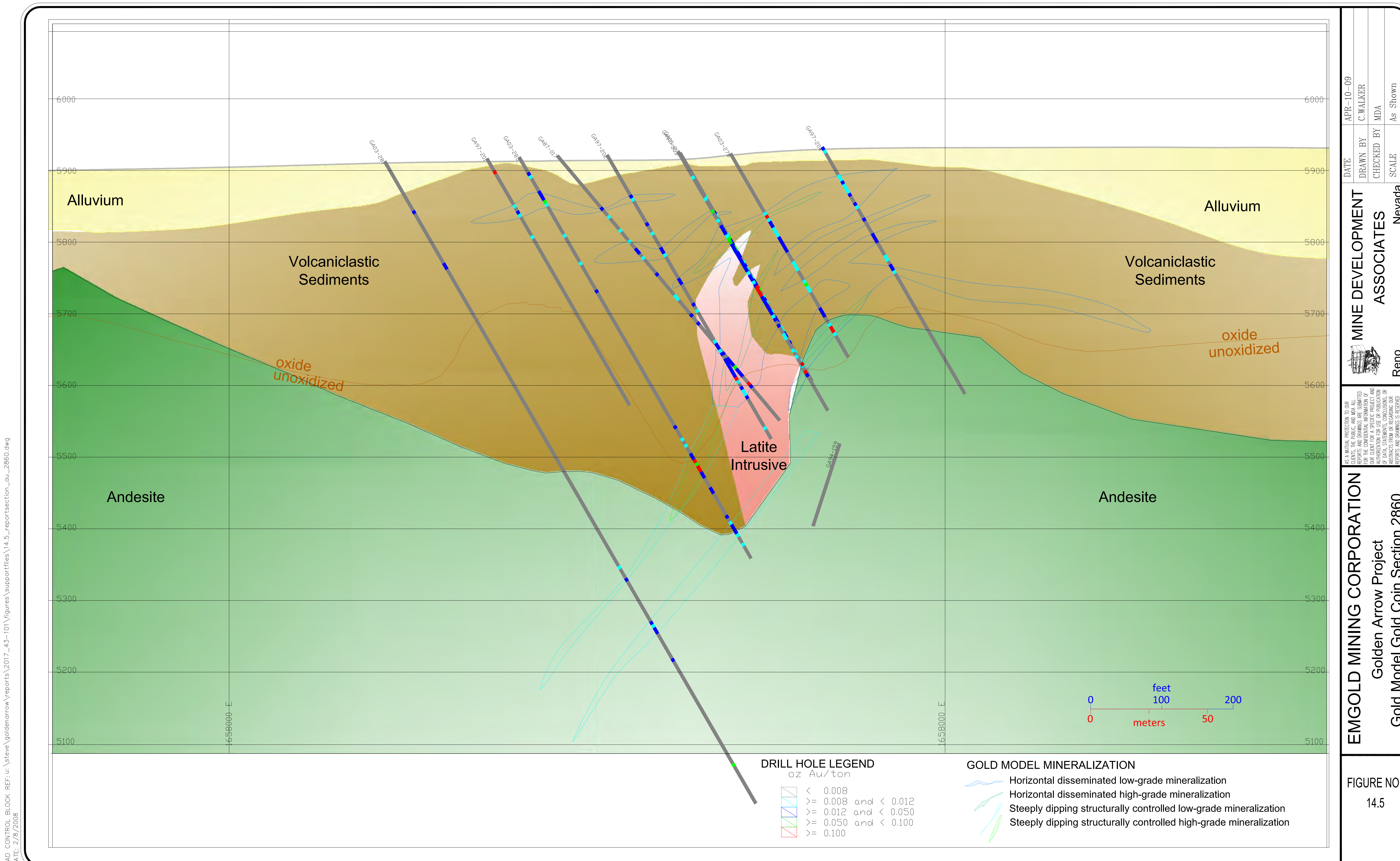
Table 14.3 Descriptive Statistics of the Hidden Hill Database Used for Resource Estimation

Hidden Hill	Zone	Low grade Au		AuCap	None			
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	1,455	0.015	0.021	0.024	1.117	0.000	0.451	oz/ton
Difference			0%					
Au Capped	1,455	0.015	0.021	0.024	1.117	0.000	0.451	oz/ton
Ag	1,081	0.25	0.51	0.91	1.80	0.01	15.00	oz/ton
Ag Capped	1,081	0.25	0.49	0.77	1.59	0.01	11.00	oz/ton
AuCN	431	0.01	0.02	0.02	1.18	0.00	0.24	oz/ton
AgCN	191	0.18	0.35	0.39	1.13	0.01	2.45	oz/ton

Hidden Hill	Zone	High grade Au		AuCap	0.9			
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	228	0.114	0.149	0.172	1.158	0.008	1.490	oz/ton
Difference			-3%					
Au Capped	228	0.114	0.144	0.143	0.991	0.008	0.900	oz/ton
Ag	189	1.05	2.03	2.84	1.40	0.03	17.44	oz/ton
Ag Capped	189	1.05	1.94	2.56	1.31	0.03	13.00	oz/ton
AuCN	81	0.07	0.12	0.16	1.41	0.00	1.17	oz/ton
AgCN	23	0.45	1.23	2.91	2.36	0.03	14.60	oz/ton

Hidden Hill	Zone	Low grade Ag					AgCap	4.0
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	1,326	0.010	0.023	0.052	2.203	0.000	1.020	oz/ton
Au Capped	1,326	0.010	0.023	0.051	2.160	0.000	0.900	oz/ton
Ag	1,101	0.28	0.41	0.62	1.51	0.01	14.94	oz/ton
Difference			-3%					
Ag Capped	1,101	0.28	0.40	0.43	1.09	0.01	4.00	oz/ton
AuCN	309	0.02	0.03	0.04	1.33	0.00	0.25	oz/ton
AgCN	141	0.24	0.42	1.23	2.90	0.01	14.60	oz/ton

Hidden Hill	Zone	High grade Ag					AgCap	13.0
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	293	0.036	0.078	0.141	1.808	0.000	1.490	oz/ton
Au Capped	293	0.036	0.074	0.112	1.505	0.000	0.900	oz/ton
Ag	267	1.49	2.17	2.35	1.08	0.04	17.44	oz/ton
Difference			-1%					
Ag Capped	267	1.49	2.16	2.26	1.05	0.04	13.00	oz/ton
AuCN	68	0.04	0.10	0.18	1.93	0.00	1.17	oz/ton
AgCN	21	1.17	1.21	0.50	0.41	0.07	2.45	oz/ton


Alluvium
Volcaniclastic Sediments
oxide
unoxidized
Latite Intrusive
Andesite
Alluvium
Volcaniclastic Sediments
oxide
unoxidized
Andesite
6000
5900
5800
5700
5600
5500
5400
5300
5200
5100
1658000 E
1658000 E
feet
0 100 200
0 meters 50
DRILL HOLE LEGEND
oz Au/ton
< 0.008
>= 0.008 and < 0.012
>= 0.012 and < 0.050
>= 0.050 and < 0.100
>= 0.100
GOLD MODEL MINERALIZATION
Horizontal disseminated low-grade mineralization
Horizontal disseminated high-grade mineralization
Steeply dipping structurally controlled low-grade mineralization
Steeply dipping structurally controlled high-grade mineralization
DATE APR-10-09
DRAWN BY C.WALKER
CHECKED BY MDA
SCALE As Shown
MINE DEVELOPMENT ASSOCIATES
Reno Nevada
AS A MUTUAL PROTECTION TO OUR CLIENTS, THE PUBLIC, AND MDA ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE OR PUBLICATION OF DATA, STATEMENTS, CONCLUSIONS, OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.
EMGOLD MINING CORPORATION
Golden Arrow Project
Gold Model Gold Coin Section 2860
FIGURE NO.
14.5
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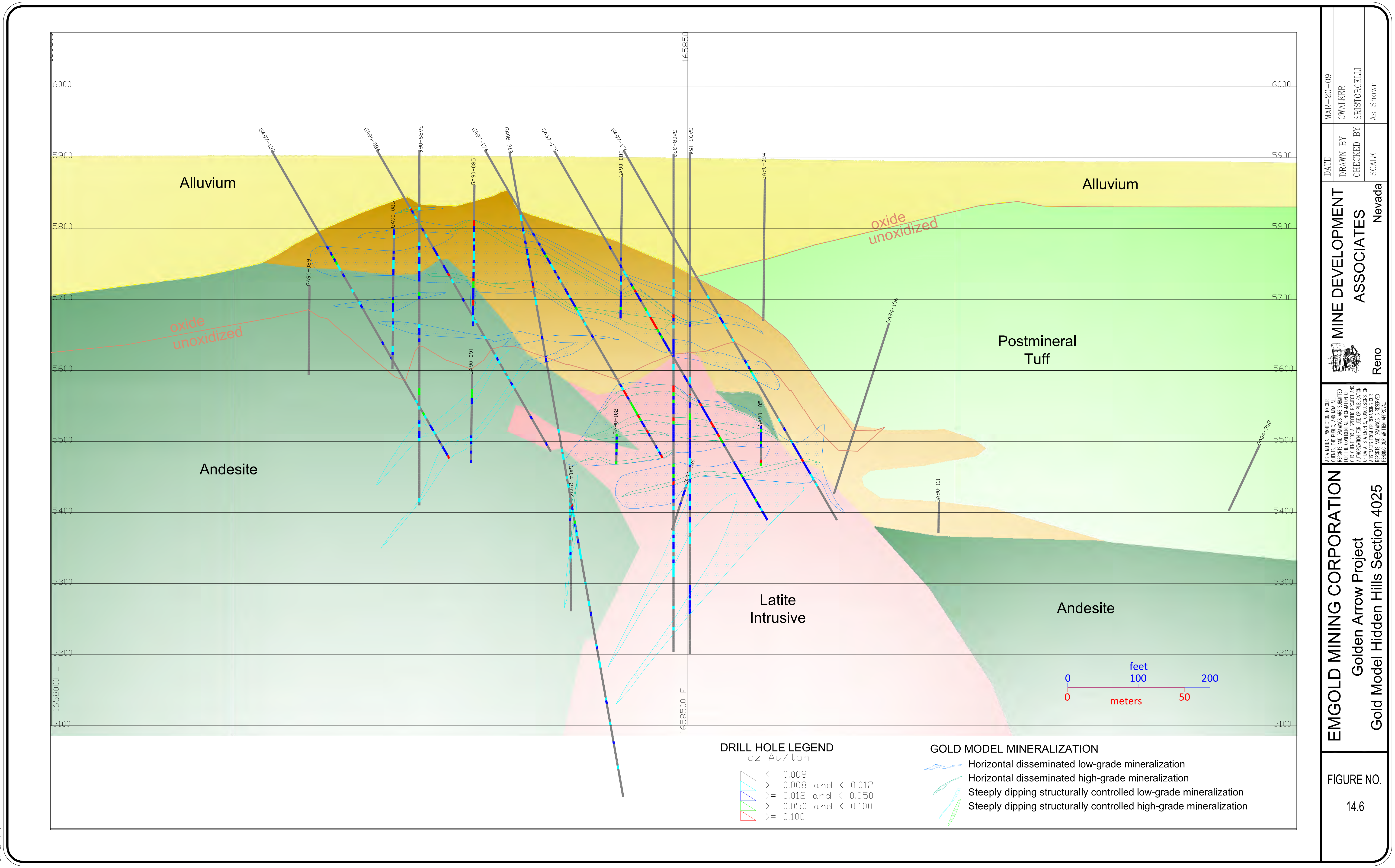
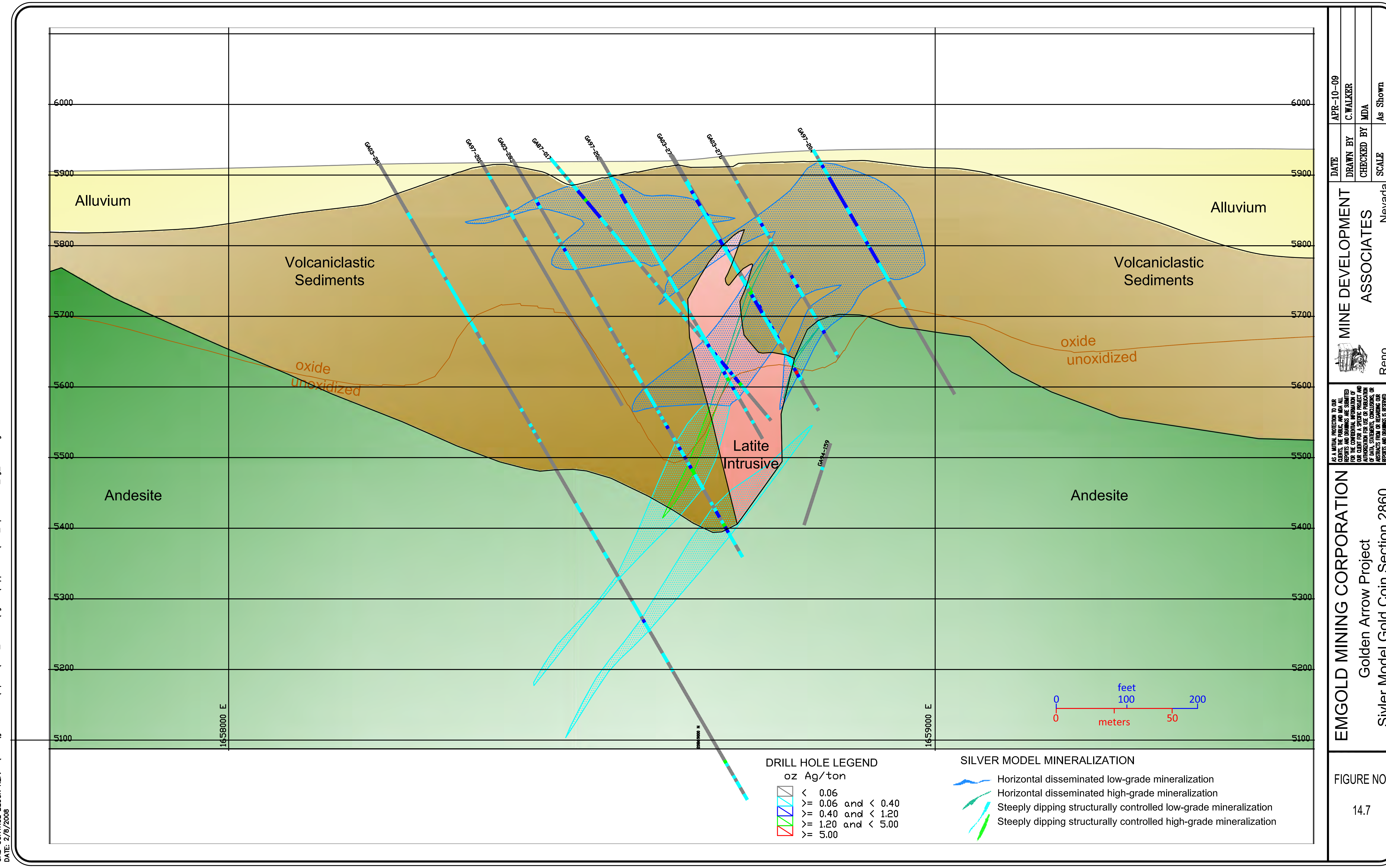
DATE: 2/8/2008



6000
5900
5800
5700
5600
5500
5400
5300
5200
5100
1658000 E
1658500 E
Alluvium
Alluvium
oxide
unoxidized
oxide
unoxidized
Andesite
Andesite
Postmineral Tuff
Latite Intrusive
feet
0
100
200
0
meters
50
DRILL HOLE LEGEND
oz Au/ton
< 0.008
>= 0.008 and < 0.012
>= 0.012 and < 0.050
>= 0.050 and < 0.100
>= 0.100
GOLD MODEL MINERALIZATION
Horizontal disseminated low-grade mineralization
Horizontal disseminated high-grade mineralization
Steeply dipping structurally controlled low-grade mineralization
Steeply dipping structurally controlled high-grade mineralization
DATE MAR-20-09
DRAWN BY CWALKER
CHECKED BY SRISTORCELLI
SCALE As Shown
MINE DEVELOPMENT ASSOCIATES
Reno Nevada
EMGOLD MINING CORPORATION
Golden Arrow Project
Gold Model Hidden Hills Section 4025
FIGURE NO.
14.6



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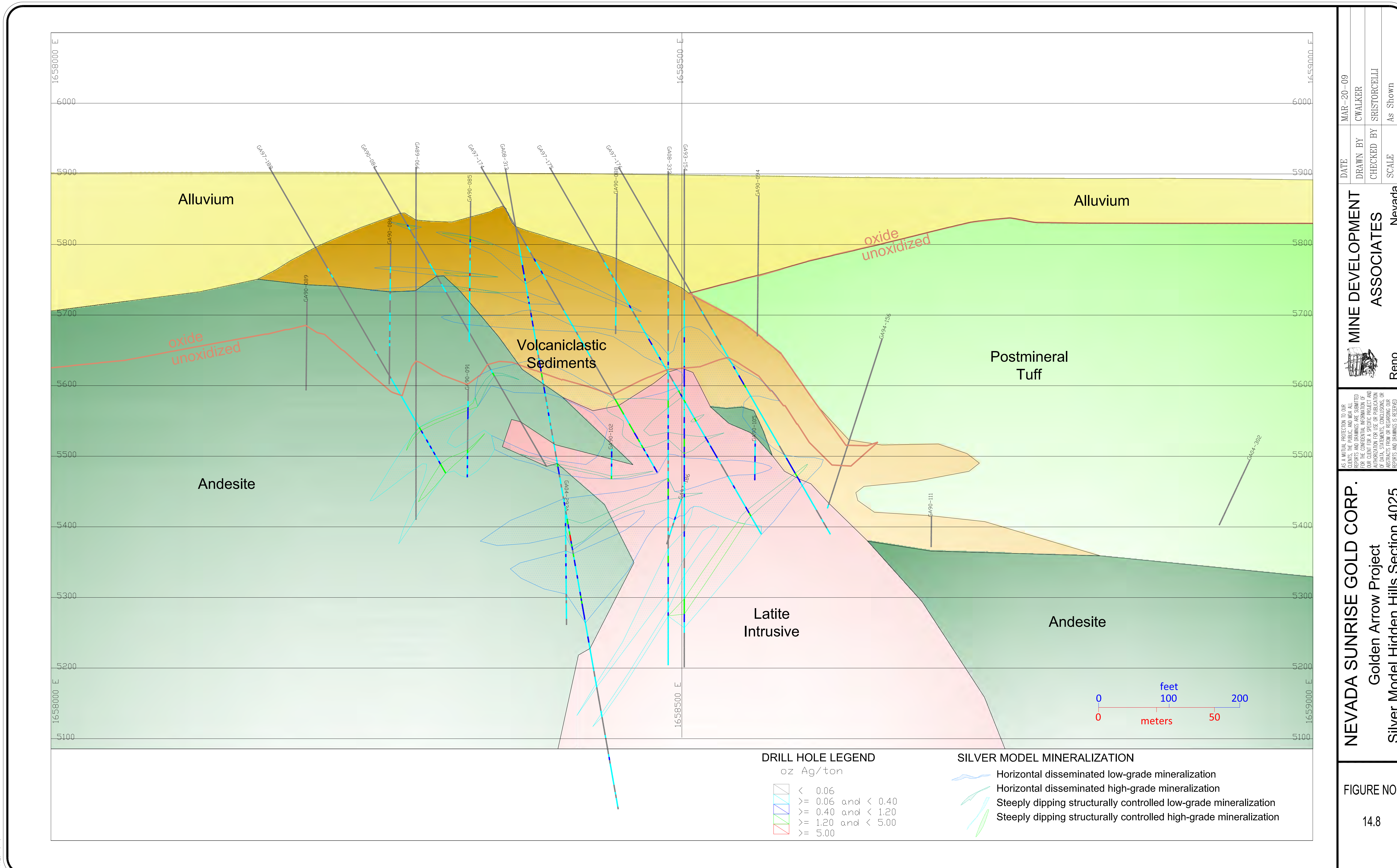


Alluvium
Alluvium
oxide
unoxidized
oxide
unoxidized
Volcaniclastic Sediments
Postmineral Tuff
Andesite
Andesite
Latite Intrusive
1658000 E
1658500 E
1659000 E
6000
5900
5800
5700
5600
5500
5400
5300
5200
5100
feet
0
100
200
0
meters
50
DRILL HOLE LEGEND
oz Ag/ton
< 0.06
>= 0.06 and < 0.40
>= 0.40 and < 1.20
>= 1.20 and < 5.00
>= 5.00
SILVER MODEL MINERALIZATION
Horizontal disseminated low-grade mineralization
Horizontal disseminated high-grade mineralization
Steeply dipping structurally controlled low-grade mineralization
Steeply dipping structurally controlled high-grade mineralization
DATE MAR-20-09
DRAWN BY CWALKER
CHECKED BY SRISTORCELLI
SCALE As Shown
MINE DEVELOPMENT ASSOCIATES
Reno Nevada
NEVADA SUNRISE GOLD CORP.
Golden Arrow Project
Silver Model Hidden Hills Section 4025
FIGURE NO.
14.8

14.3 Density

A suite of surface lithologic samples that represents the type lithologies on the property was collected in 2006, and specific gravity determinations were completed on them by the co-author (Christensen, 2006e). These determinations are considered dry specific gravity determinations. The average of all determinations was 2.38, with a range of 1.68 to 2.76. Christensen also made density determinations on 104 samples of core from 52 separate intervals. Clay-altered lithologies are the least dense; latite, particularly latite with quartz veining and pyrite, is the most dense. In addition, MDA selected 16 samples from the Gold Coin deposit area for density testing. These samples were taken from core storage in Reno and sent to McClelland in Reno, Nevada.

The Golden Arrow down-hole sample specific gravity database now consists of 84 samples. All samples were taken from core. Descriptive statistics of samples from Golden Arrow from 2008 are described in Table 14.4 and for the entire resource database, including the 2009 samples, are given in Table 14.5. It is noteworthy that differences between rock types are minimal, but differences are apparently significant between oxidized and unoxidized rocks. Clearly the oxidation has a greater effect on rock density than rock type. Consequently, the oxide surface was used to differentiate between varying density rocks. The density measurements were reported in metric units of measure and those are retained here for precision.

Table 14.4 Descriptive Statistics of the Historical Density Samples

Oxide State	Rock	Mean (g/cm^3)	No. of Samples
By rock type			
	QA	2.29	1
	TVC	2.13	10
	TR	2.21	4
	TA	2.21	28
	TLD	2.28	24
	TPT	2.33	1
All Groups		2.23	68
By oxidation state			
Ox		2.15	22
Unox		2.26	46
All Groups		2.23	68
By rock type and oxidation state			
Ox	QA	2.29	1
Ox	TA	2.14	11
Ox	TLD	2.03	2
Ox	TVC	2.17	8
Unox	TA	2.25	17
Unox	TLD	2.30	22
Unox	TPT	2.33	1
Unox	TR	2.21	4
All Groups		2.23	68

* 3 is oxidized; 1 is unoxidized

Table 14.5 Descriptive Statistics of the Historical and 2009 Density Samples

Combined Analysis - 2008 and 2009 data

Oxide State	Rock	Mean (g/cm3)	No. of Samples
By Rock Type			
	QA	2.29	1
	TVC	2.18	17
	TR	2.33	7
	TA	2.19	32
	TLD	2.28	25
	TPT	2.33	1
	BXH	2.30	1
	TRD	2.29	2
	Total	**2.23**	**86**
By Oxidation State			
Ox		2.19	31
Unox		2.26	55
	Total	**2.23**	**86**
By Rock Type and Oxidation State			
Ox	QA	2.29	1
Ox	TA	2.13	12
Ox	TLD	2.03	2
Ox	TVC	2.19	12
Ox	TR	2.49	3
Ox	TRD	2.10	1
	Total Ox	**2.19**	**31**
Unox	TA	2.24	20
Unox	TLD	2.31	23
Unox	TPT	2.33	1
Unox	TR	2.21	4
Unox	TVC	2.25	3
Unox	BXH	2.30	1
Unox	TRD	2.48	1
	Total Unox	2.27	53
	Total - All	**2.24**	**84**

MDA assigned a density of 2.25 g/cm^3 for unoxidized bedrock and 2.15 g/cm^3 for oxidized bedrock in the 2008 model and, since there were no compelling data to change these, the assigned values were kept the same in the 2009 model. For alluvium, MDA used a density of 1.6 g/cm^3.

14.4 Oxidation and Cyanide Recoveries

As a consequence of modeling the visual oxidation state, cyanide ("CN") recoveries for gold and silver were able to be evaluated in the context of visual oxidation state. There is a difference in cyanide recoveries in the oxidized material as compared to the unoxidized material (Table 14.6). It is noted that this does not reflect expected recoveries in a commercial mining operation but rather demonstrates a difference in cyanide recoverability relative to the oxidation state.

Table 14.6 Cyanide Recoveries by Visual Oxidation State

	AuCn/Au	Valid N	AgCn/Ag	Valid N
Unoxidized	64%	299	72%	90
Oxidized	80%	281	86%	110
All	72%	580	80%	200

The Golden Arrow oxidation data logged by Nevada Sunrise consultants came from two different sources. The demarcation between oxide and reduced (also referred to as unoxidized) was based upon oxidation or potential for oxidation of pyrite. Oxide material is characterized by the presence of ferric iron oxides (*i.e.*, limonite, goethite, jarosite) and absence of pyrite. Reduced material lacks ferric iron oxide and may or may not contain pyrite. For most holes the demarcation between oxide and reduced or unoxidized material is quite distinct and occurs over five or ten feet. Rock which contains both pyrite and iron oxide was logged as unoxidized.

For the first 38 holes, no cuttings remain. The values of reduced and oxidized were taken from compilations of Tombstone work, which were summarized from the Homestake logs. Similarly, for holes 277-286, no cuttings are available. Calls on the location of the oxide/sulfide boundary were extracted from the logs of Pacific Ridge.

This scheme worked well for the pre-mineral bedrock units, but was inconsistently applied to post-mineral units. For example, alluvial cover consists of a mixture of unaltered and unoxidized volcanic cobbles to boulders in a matrix of oxidized, more fine-grained material. Alluvial material was always classified as oxide.

There was inconsistency in logging material interpreted to be post-mineral volcanic cover. They contain no ferric iron oxides, but these units occasionally contain minor disseminated pyrite. For consistency with the simple criteria stated above, however, all of the material logged as andesite or tuff of the Knoll was classified as unoxidized.

14.5 Compositing

Once the samples were capped, they were composited into 10ft down-hole composites. Compositing was done down-hole honoring the domains. Table 17.7 and Table 14.8 present the descriptive statistics of the composite database used for gold and silver domains, respectively. Quantile plots of the zones are presented in Appendix A.

Table 14.7 Descriptive Statistics by Gold Domain - Composites

Hidden Hill **Low grade Au**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	**844**	**0.016**	**0.022**	**0.021**	**0.971**	**0.000**	**0.368**	**oz/ton**
AuOPT_Capped	**844**	**0.016**	**0.022**	**0.021**	**0.971**	**0.000**	**0.368**	**oz/ton**
AgOPT	629	0.27	0.51	0.76	1.49	0.01	7.91	oz/ton
AgOPT_Capped	629	0.27	0.51	0.76	1.49	0.01	7.91	oz/ton

Hidden Hill **High grade Au**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	**154**	**0.115**	**0.149**	**0.142**	**0.952**	**0.011**	**1.280**	**oz/ton**
AuOPT_Capped	**154**	**0.115**	**0.144**	**0.118**	**0.820**	**0.011**	**0.900**	**oz/ton**
AgOPT	127	1.06	2.03	2.69	1.32	0.07	14.94	oz/ton
AgOPT_Capped	127	1.06	2.03	2.69	1.32	0.07	14.94	oz/ton

Gold Coin **Low grade Au**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	**1,116**	**0.013**	**0.015**	**0.010**	**0.655**	**0.000**	**0.079**	**oz/ton**
AuOPT_Capped	**1,116**	**0.013**	**0.015**	**0.010**	**0.653**	**0.000**	**0.078**	**oz/ton**
AgOPT	1,108	0.21	0.30	0.33	1.10	0.00	5.51	oz/ton
AgOPT_Capped	1,108	0.21	0.30	0.33	1.10	0.00	5.51	oz/ton

Gold Coin **High grade Au**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	**187**	**0.086**	**0.172**	**0.279**	**1.623**	**0.003**	**2.396**	**oz/ton**
AuOPT_Capped	**187**	**0.086**	**0.160**	**0.198**	**1.239**	**0.003**	**1.500**	**oz/ton**
AgOPT	185	0.67	1.21	1.72	1.42	0.00	13.79	oz/ton
AgOPT_Capped	185	0.67	1.21	1.72	1.42	0.00	13.79	oz/ton

Outside All Mineralized Zones

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	**11,641**	**0.002**	**0.003**	**0.005**	**1.610**	**0.000**	**0.091**	**oz/ton**
AuOPT_Capped	**11,641**	**0.002**	**0.003**	**0.005**	**1.569**	**0.000**	**0.091**	**oz/ton**
AgOPT	9,875	0.03	0.08	0.20	2.34	0.00	8.61	oz/ton
AgOPT_Capped	9,875	0.03	0.08	0.20	2.34	0.00	8.61	oz/ton

Table 14.8 Descriptive Statistics by Silver Domain - Composites

Hidden Hill **Low grade Ag**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	757	0.011	0.022	0.036	1.592	0.000	0.848	oz/ton
AuOPT_Capped	757	0.011	0.022	0.036	1.592	0.000	0.801	oz/ton
AgOPT	**631**	**0.31**	**0.41**	**0.48**	**1.17**	**0.01**	**7.78**	**oz/ton**
AgOPT_Capped	**631**	**0.31**	**0.40**	**0.36**	**0.91**	**0.01**	**3.12**	**oz/ton**

Hidden Hill **High grade Ag**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	183	0.041	0.080	0.136	1.693	0.001	1.490	oz/ton
AuOPT_Capped	183	0.041	0.077	0.105	1.377	0.001	0.900	oz/ton
AgOPT	**165**	**1.48**	**2.18**	**2.12**	**0.98**	**0.05**	**13.13**	**oz/ton**
AgOPT_Capped	**165**	**1.48**	**2.16**	**2.04**	**0.95**	**0.05**	**11.00**	**oz/ton**

Gold Coin **Low grade Ag**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	2,549	0.007	0.014	0.050	3.615	0.000	1.892	oz/ton
AuOPT_Capped	2,549	0.007	0.013	0.037	2.822	0.000	0.884	oz/ton
AgOPT	**2,535**	**0.23**	**0.30**	**0.29**	**0.98**	**0.00**	**5.51**	**oz/ton**
AgOPT_Capped	**2,535**	**0.23**	**0.29**	**0.24**	**0.81**	**0.00**	**2.50**	**oz/ton**

Gold Coin **High grade Ag**

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	117	0.042	0.113	0.170	1.510	0.002	1.022	oz/ton
AuOPT_Capped	117	0.042	0.113	0.170	1.511	0.002	1.022	oz/ton
AgOPT	**117**	**1.44**	**1.94**	**2.01**	**1.04**	**0.08**	**13.79**	**oz/ton**
AgOPT_Capped	**117**	**1.44**	**1.80**	**1.44**	**0.80**	**0.08**	**7.00**	**oz/ton**

Outside Mineralized Zones

	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
AuOPT	10,247	0.001	0.003	0.008	2.516	0.000	0.412	oz/ton
AuOPT_Capped	10,247	0.001	0.003	0.008	2.513	0.000	0.412	oz/ton
AgOPT	**8,434**	**0.01**	**0.04**	**0.17**	**4.26**	**0.00**	**15.00**	**oz/ton**
AgOPT_Capped	**8,434**	**0.01**	**0.04**	**0.06**	**1.69**	**0.00**	**1.00**	**oz/ton**

14.6 Estimation

Following compositing and the previously described statistical analyses of those composites, correlograms were constructed in multiple directions on various combinations of mineral zones and for each deposit independently.

At Gold Coin, some poorly defined anisotropy of gold mineralization was noted with the long dimension in the northwest direction at about 2:1 compared to the northeast direction. The nugget was almost the entire sill. As a consequence, inverse distance cubed modeling was chosen for grade estimation. At Hidden Hill, good gold correlograms were constructed, but the modeled nuggets were very high at

~70% of the sill. Again, some poorly developed anisotropy was noted, but it was less strong when compared to Gold Coin. Silver grades produced good correlograms structures with ranges generally between 80 and 150ft.

The estimation criteria were, in part, defined by these correlograms and, in part, attempting to honor understood geologic controls and distributions. Those estimation parameters are given in Appendix B for both Gold Coin and Hidden Hill. In all cases, length weighting was used on composites during estimation.

Inverse distance estimation was chosen as the base case, while an estimate was also made by nearest neighbor. A long pass was used to fill in all blocks in the zones for Inferred, and a shorter pass over-wrote the long pass for the Indicated material. A Kriged estimate was not done as the gold correlograms were not sufficiently well developed for Gold Coin.

14.7 Resource

The drilling analyses, database verification, and resource modeling were completed according to the guidelines specified by NI 43-101 as updated in May, 2016. The author classifies resources in order of increasing geological and quantitative confidence into Inferred, Indicated, and Measured categories to be in accordance with the CIM Definition Standards and therefore in accordance with NI 43-101. The CIM mineral resource definitions are reproduced below, with CIM's explanatory material shown in italics:

Mineral Resource

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.

The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of *economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cutoff grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is based on any direct evidence and testing.*

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.

Inferred Mineral Resource

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource.

Indicated Mineral Resource

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.

Measured Mineral Resource

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

Modifying Factors

Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

The author reports resources at cutoffs that are reasonable for deposits of this nature given anticipated mining methods and plant processing costs, while also considering economic conditions, because of the regulatory requirements that a resource exists "*in such form and quantity and of such a grade or quality that it has reasonable prospects for eventual economic extraction*." Although MDA is not an expert with respect to any of the following aspects of the project, MDA is not aware of any unusual environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that may materially affect the Golden Arrow mineral resources as of the date of this report.

Presently, the author believes that all exploitation at Golden Arrow would be by open pit methods. Considering cyanide-extraction recoveries described in Section 13.0, Ristorcelli believes that the resource reporting cutoff for heap leachable open pit material would be approximately 0.01 oz Au/ton (0.34 g Au/t) for oxidized material and 0.015 oz Au/ton (0.514 g Au/t) for unoxidized material. MDA derived these cutoff grades using mining costs of US$2/ton, heap-leach costs of US$4/ton, milling costs of US$12/ton, and G&A costs of US$3.5/ton. Metallurgical recoveries were assumed to range from 70% to 95%, depending upon the oxidation state and sulfide content of the material, and heap-leach or milling scenarios envisioned. Multiple economic evaluations were done including pit optimizations that further demonstrated economic viability.

In the current resource estimate, there are Measured resources at Golden Arrow. The reason there are Measured resources in this estimate, as opposed to previous estimates, is because of the successful demonstration by the post-2008 drilling of the model's ability to predict mineralization. MDA compared the 2008 domains with the 2008 post-model drilling results and found that only minor changes to the gold and silver zones were needed. In addition, the effect on the total resource from the infill drilling changed little. These demonstrations of reliability of the model compensate for the lack of sample integrity work; the reader should be aware that MDA has excluded from Measured and Indicated those intervals deemed potentially contaminated. MDA has also eliminated the steeply dipping mineralization from Measured resources because of the lower level of confidence in those zones. The limited quality control and check assaying on historical data, especially on the silver, is compensated for by the numerous drilling campaigns and operators whose individual biases and errors could very well be self-correcting.

The author classified the Golden Arrow resources by a combination of distance to the nearest sample, number of samples, the confidence in certain drill geologic interpretations, particular domains and areas inside the mineral domains. The criteria for resource classification are given in Table 14.9. Measured resources are summarized by oxidation type in Table 14.10. Indicated resources are summarized by oxidation type in Table 14.11, and Table 14.12 presents the total combined Measured and Indicated resources by oxidation type. Table 14.13 presents the total Inferred Golden Arrow resources.

Table 14.9 Classification Criteria

Measured	
Indicated - sub-horizontal disseminated mineralization	
No. of samples / distance	>=1 / <=10ft inside zones for Au
or	
No. of samples / distance	>=4 / <=25ft inside zones for Au
Indicated – structurally controlled steeply dipping mineralization	
None	
Indicated - sub-horizontal disseminated mineralization	
No. of samples / distance	>=1 / <=50ft inside zones for Au
or	
No. of samples / distance	>=2 / <=100ft inside zones for Au
or	
No. of samples / distance	>=2 / <=30ft inside zones for Ag
Indicated – structurally controlled steeply dipping mineralization	
No. of samples / distance	>=1 / <=25ft inside zones for Au
or	
No. of samples / distance	>=2 / <=20ft inside zones for Ag
Outside Mineralized Zones – Indicated	
None	
Outside Mineralized Zones – Inferred	
No. of samples / distance	>=1 / <25ft inside zones for Au
or	
No. of samples / distance	>=1 / <25ft inside zones for Ag

Gold equivalent was calculated based a gold to silver price ratio of 55 to 1, respectively. Gold equivalent calculations reflect gross metal content and have not been adjusted for metallurgical recoveries or related processing and smelting costs. The gold equivalent grades were used only for establishing cutoff grades. Tabulating the material in this manner produces a more accurate presentation of the spatial association of gold and silver, while at the same time giving full credit to both elements. Figure 14.9 through Figure 14.12 present the same cross sections as earlier in the report, but with block model grades included. The model blocks are 20ft north by 20ft east by 10ft deep. The 10ft dimensions were chosen as a possible, though somewhat small, size for open pit mining of this small, dominantly horizontal deposit.

Table 14.10 Measured Gold and Silver Resources for Golden Arrow

(oz/t = ounces per short ton)

Measured																		
Cutoff	**Un-Oxidized**						**Oxidized**						**Total**					
		AuEq	**Au**		**Ag**			**AuEq**	**Au**		**Ag**			**AuEq**	**Au**		**Ag**	
oz AuEq/t	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**
0.005	1,021,000	0.037	0.027	27,900	0.54	551,000	1,304,000	0.026	0.021	27,800	0.24	308,000	2,325,000	0.031	0.024	55,700	0.37	859,000
0.010	933,000	0.040	0.029	27,400	0.58	542,000	1,099,000	0.029	0.024	26,600	0.27	291,000	2,032,000	0.034	0.027	54,000	0.41	833,000
Variable	***751,000***	***0.047***	***0.034***	***25,800***	***0.67***	***505,000***	***1,099,000***	***0.029***	***0.024***	***26,600***	***0.26***	***291,000***	***1,850,000***	***0.036***	***0.028***	***52,400***	***0.43***	***796,000***
0.015	751,000	0.047	0.034	25,800	0.67	505,000	757,000	0.037	0.031	23,300	0.32	243,000	1,508,000	0.042	0.033	49,100	0.50	748,000
0.020	576,000	0.056	0.041	23,800	0.79	454,000	449,000	0.050	0.043	19,300	0.39	177,000	1,025,000	0.053	0.042	43,100	0.62	631,000
0.025	449,000	0.065	0.049	21,900	0.91	407,000	293,000	0.065	0.057	16,700	0.45	131,000	742,000	0.065	0.052	38,600	0.73	538,000
0.030	354,000	0.076	0.057	20,100	1.04	367,000	216,000	0.079	0.070	15,100	0.49	106,000	570,000	0.077	0.062	35,200	0.83	473,000
0.040	246,000	0.094	0.071	17,600	1.24	305,000	146,000	0.100	0.091	13,200	0.54	79,000	392,000	0.096	0.079	30,800	0.98	384,000
0.050	191,000	0.108	0.083	15,900	1.39	264,000	103,000	0.124	0.113	11,600	0.61	63,000	294,000	0.114	0.094	27,500	1.11	327,000
0.060	146,000	0.125	0.098	14,300	1.49	218,000	84,000	0.139	0.128	10,700	0.65	55,000	230,000	0.130	0.109	25,000	1.19	273,000
0.070	118,000	0.139	0.111	13,000	1.58	185,000	68,000	0.157	0.145	9,800	0.70	47,000	186,000	0.145	0.123	22,800	1.25	232,000
0.080	96,000	0.155	0.123	11,900	1.70	163,000	54,000	0.178	0.166	8,900	0.75	40,000	150,000	0.163	0.139	20,800	1.35	203,000
0.090	76,000	0.173	0.139	10,600	1.85	141,000	44,000	0.201	0.185	8,200	0.80	35,000	120,000	0.183	0.157	18,800	1.47	176,000
0.100	65,000	0.187	0.149	9,800	1.96	128,000	38,000	0.218	0.202	7,700	0.85	32,000	103,000	0.198	0.170	17,500	1.55	160,000
0.150	31,000	0.258	0.212	6,500	2.68	82,000	20,000	0.302	0.291	5,700	0.94	18,000	51,000	0.275	0.239	12,200	1.96	100,000
0.200	18,000	0.326	0.264	4,800	3.27	59,000	13,000	0.380	0.353	4,700	0.98	13,000	31,000	0.349	0.306	9,500	2.32	72,000
0.250	11,000	0.386	0.339	3,700	2.75	30,000	9,000	0.442	0.419	3,800	1.09	10,000	20,000	0.412	0.375	7,500	2.00	40,000
0.300	7,000	0.470	0.408	3,000	2.13	16,000	7,000	0.490	0.469	3,300	1.01	7,000	14,000	0.480	0.450	6,300	1.64	23,000
0.350	6,000	0.450	0.445	2,500	1.88	11,000	5,000	0.518	0.554	2,500	1.04	5,000	11,000	0.481	0.455	5,000	1.45	16,000
0.400	5,000	0.476	0.461	2,200	2.10	10,000	4,000	0.568	0.596	2,200	1.04	4,000	9,000	0.517	0.489	4,400	1.56	14,000

* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material

Table 14.11 Indicated Gold and Silver Resources for Golden Arrow

(oz/t = ounces per short ton)

Indicated																		
Cutoff	**Un-Oxidized**						**Oxidized**						**Total**					
		AuEq	**Au**		**Ag**			**AuEq**	**Au**		**Ag**			**AuEq**	**Au**		**Ag**	
oz AuEq/t	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**
0.005	8,991,000	0.024	0.019	169,000	0.30	2,679,000	7,399,000	0.019	0.015	112,500	0.19	1,435,000	16,390,000	0.022	0.017	281,500	0.25	4,114,000
0.010	6,790,000	0.030	0.023	158,200	0.35	2,383,000	5,637,000	0.022	0.018	102,600	0.22	1,263,000	12,427,000	0.026	0.021	260,800	0.29	3,646,000
Variable	***4,685,000***	***0.038***	***0.030***	***141,500***	***0.42***	***1,949,000***	***5,637,000***	***0.022***	***0.018***	***102,600***	***0.22***	***1,263,000***	***10,322,000***	***0.029***	***0.024***	***244,100***	***0.31***	***3,212,000***
0.015	4,685,000	0.038	0.030	141,500	0.42	1,949,000	3,428,000	0.029	0.024	82,600	0.26	905,000	8,113,000	0.034	0.028	224,100	0.35	2,854,000
0.020	3,198,000	0.047	0.039	123,400	0.49	1,554,000	1,809,000	0.040	0.034	61,700	0.31	564,000	5,007,000	0.045	0.037	185,100	0.42	2,118,000
0.025	2,298,000	0.058	0.048	109,200	0.55	1,266,000	1,073,000	0.052	0.046	49,300	0.35	372,000	3,371,000	0.056	0.047	158,500	0.49	1,638,000
0.030	1,739,000	0.067	0.056	97,700	0.61	1,066,000	738,000	0.064	0.057	41,900	0.38	281,000	2,477,000	0.066	0.056	139,600	0.54	1,347,000
0.040	1,102,000	0.087	0.074	81,600	0.70	774,000	442,000	0.084	0.076	33,700	0.42	187,000	1,544,000	0.086	0.075	115,300	0.62	961,000
0.050	772,000	0.105	0.092	70,700	0.74	567,000	307,000	0.102	0.094	28,700	0.45	138,000	1,079,000	0.104	0.092	99,400	0.65	705,000
0.060	568,000	0.123	0.109	62,100	0.76	432,000	227,000	0.118	0.110	24,900	0.48	109,000	795,000	0.122	0.109	87,000	0.68	541,000
0.070	451,000	0.139	0.125	56,200	0.77	349,000	177,000	0.134	0.124	22,000	0.51	90,000	628,000	0.137	0.125	78,200	0.70	439,000
0.080	362,000	0.154	0.140	50,700	0.79	287,000	140,000	0.149	0.139	19,500	0.53	75,000	502,000	0.153	0.140	70,200	0.72	362,000
0.090	300,000	0.169	0.155	46,300	0.79	236,000	111,000	0.166	0.156	17,300	0.56	62,000	411,000	0.168	0.155	63,600	0.73	298,000
0.100	247,000	0.185	0.170	42,100	0.81	199,000	85,000	0.188	0.178	15,100	0.56	47,000	332,000	0.186	0.172	57,200	0.74	246,000
0.150	126,000	0.248	0.233	29,200	0.84	105,000	34,000	0.295	0.283	9,600	0.63	21,000	160,000	0.258	0.243	38,800	0.79	126,000
0.200	70,000	0.310	0.295	20,600	0.80	55,000	18,000	0.401	0.388	7,100	0.71	13,000	88,000	0.328	0.315	27,700	0.77	68,000
0.250	48,000	0.350	0.336	16,100	0.78	38,000	13,000	0.476	0.462	5,900	0.74	10,000	61,000	0.377	0.361	22,000	0.79	48,000
0.300	34,000	0.380	0.363	12,400	0.93	32,000	10,000	0.522	0.508	5,300	0.73	8,000	44,000	0.412	0.402	17,700	0.91	40,000
0.350	21,000	0.418	0.394	8,100	1.31	27,000	8,000	0.582	0.569	4,600	0.73	6,000	29,000	0.463	0.438	12,700	1.14	33,000
0.400	14,000	0.443	0.415	5,700	1.53	21,000	7,000	0.624	0.611	4,100	0.70	5,000	21,000	0.503	0.467	9,800	1.24	26,000

* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material

Table 14.12 Total Measured and Indicated Gold and Silver Resources for Golden Arrow

(oz/t = ounces per short ton)

Measured and Indicated

Cutoff	Un-Oxidized						Oxidized						Total					
		AuEq	Au		Ag			AuEq	Au		Ag			AuEq	Au		Ag	
oz AuEq/t	Tons	oz/t	oz/t	Ozs	oz/t	Ozs	Tons	oz/t	oz/t	Ozs	oz/t	Ozs	Tons	oz/t	oz/t	Ozs	oz/t	Ozs
0.005	10,012,000	0.026	0.020	196,900	0.32	3,230,000	8,703,000	0.020	0.016	140,300	0.20	1,743,000	18,715,000	0.023	0.018	337,200	0.27	4,973,000
0.010	7,723,000	0.031	0.024	185,600	0.38	2,925,000	6,736,000	0.023	0.019	129,200	0.23	1,554,000	14,459,000	0.027	0.022	314,800	0.31	4,479,000
Variable	***5,436,000***	***0.039***	***0.031***	***167,300***	***0.45***	***2,454,000***	***6,736,000***	***0.023***	***0.019***	***129,200***	***0.23***	***1,554,000***	***12,172,000***	***0.030***	***0.024***	***296,500***	***0.33***	***4,008,000***
0.015	5,436,000	0.039	0.031	167,300	0.45	2,454,000	4,185,000	0.030	0.025	105,900	0.27	1,148,000	9,621,000	0.035	0.028	273,200	0.37	3,602,000
0.020	3,774,000	0.049	0.039	147,200	0.53	2,008,000	2,258,000	0.042	0.036	81,000	0.33	741,000	6,032,000	0.046	0.038	228,200	0.46	2,749,000
0.025	2,747,000	0.059	0.048	131,100	0.61	1,673,000	1,366,000	0.055	0.048	66,000	0.37	503,000	4,113,000	0.058	0.048	197,100	0.53	2,176,000
0.030	2,093,000	0.069	0.056	117,800	0.68	1,433,000	954,000	0.067	0.060	57,000	0.41	387,000	3,047,000	0.068	0.057	174,800	0.60	1,820,000
0.040	1,348,000	0.088	0.074	99,200	0.80	1,079,000	588,000	0.088	0.080	46,900	0.45	266,000	1,936,000	0.088	0.075	146,100	0.69	1,345,000
0.050	963,000	0.106	0.090	86,600	0.86	831,000	410,000	0.107	0.098	40,300	0.49	201,000	1,373,000	0.106	0.092	126,900	0.75	1,032,000
0.060	714,000	0.124	0.107	76,400	0.91	650,000	311,000	0.124	0.114	35,600	0.53	164,000	1,025,000	0.124	0.109	112,000	0.79	814,000
0.070	569,000	0.139	0.122	69,200	0.94	534,000	245,000	0.140	0.130	31,800	0.56	137,000	814,000	0.139	0.124	101,000	0.82	671,000
0.080	458,000	0.155	0.137	62,600	0.98	450,000	194,000	0.157	0.146	28,400	0.59	115,000	652,000	0.155	0.140	91,000	0.87	565,000
0.090	376,000	0.170	0.151	56,900	1.00	377,000	155,000	0.176	0.165	25,500	0.63	97,000	531,000	0.171	0.155	82,400	0.89	474,000
0.100	312,000	0.185	0.166	51,900	1.05	327,000	123,000	0.197	0.185	22,800	0.64	79,000	435,000	0.189	0.172	74,700	0.93	406,000
0.150	157,000	0.249	0.227	35,700	1.19	187,000	54,000	0.296	0.283	15,300	0.72	39,000	211,000	0.261	0.242	51,000	1.07	226,000
0.200	88,000	0.312	0.289	25,400	1.30	114,000	31,000	0.396	0.381	11,800	0.84	26,000	119,000	0.334	0.313	37,200	1.18	140,000
0.250	59,000	0.357	0.336	19,800	1.15	68,000	22,000	0.457	0.441	9,700	0.91	20,000	81,000	0.384	0.364	29,500	1.09	88,000
0.300	41,000	0.397	0.376	15,400	1.17	48,000	17,000	0.522	0.506	8,600	0.88	15,000	58,000	0.434	0.414	24,000	1.09	63,000
0.350	27,000	0.418	0.393	10,600	1.41	38,000	13,000	0.562	0.546	7,100	0.85	11,000	40,000	0.465	0.443	17,700	1.23	49,000
0.400	19,000	0.445	0.416	7,900	1.63	31,000	11,000	0.587	0.573	6,300	0.82	9,000	30,000	0.497	0.473	14,200	1.33	40,000

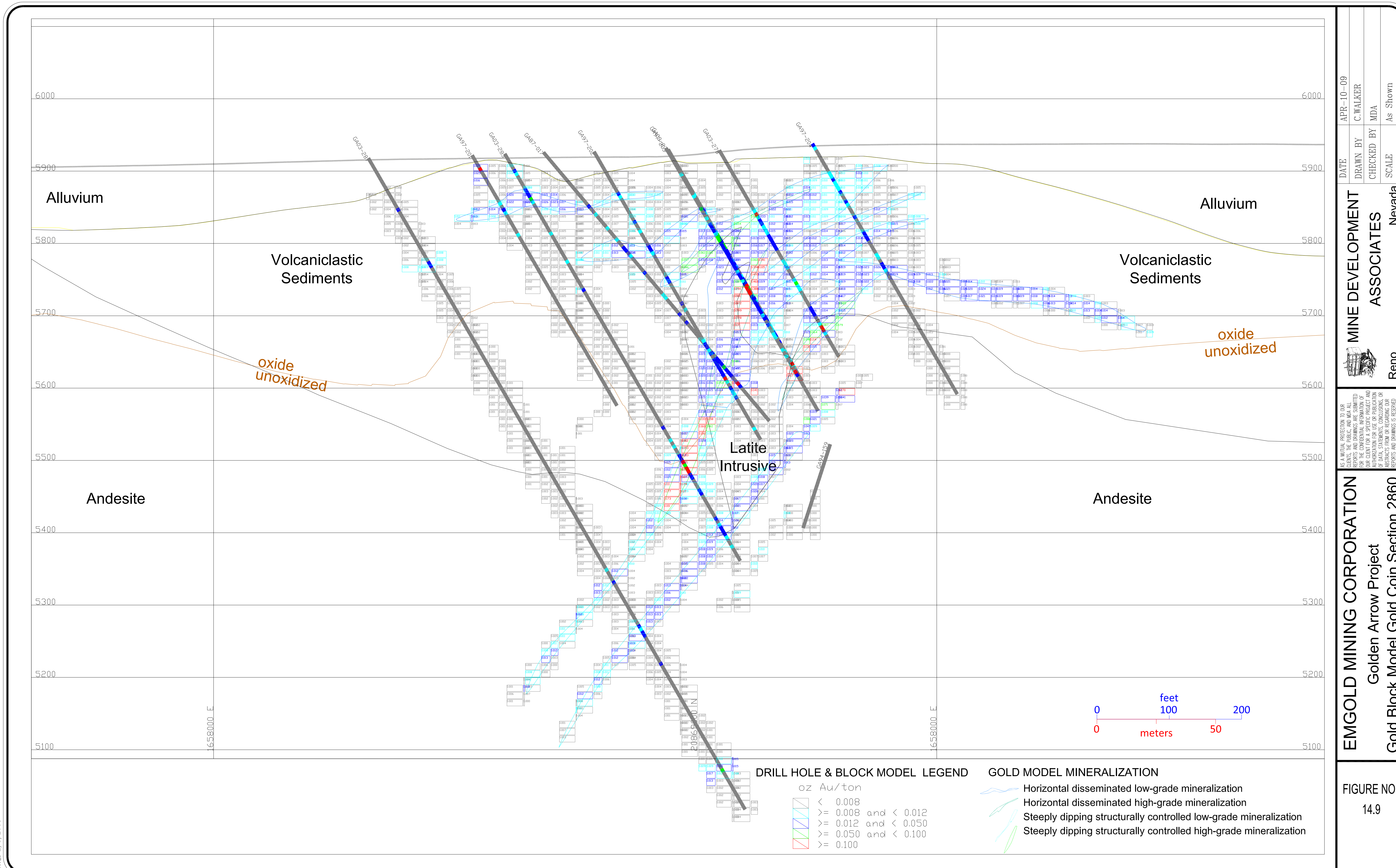
* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material

Table 14.13 Inferred Gold and Silver Resources for Golden Arrow

(oz/t = ounces per short ton)

Inferred																		
Cutoff	**Un-Oxidized**						**Oxidized**						**Total**					
		AuEq	**Au**		**Ag**			**AuEq**	**Au**		**Ag**			**AuEq**	**Au**		**Ag**	
oz AuEq/t	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**	**Tons**	**oz/t**	**oz/t**	**Ozs**	**oz/t**	**Ozs**
0.005	11,958,000	0.011	0.006	76,500	0.25	2,942,000	5,427,000	0.009	0.006	33,100	0.18	982,000	17,385,000	0.010	0.006	109,600	0.23	3,924,000
0.010	4,819,000	0.017	0.011	50,600	0.35	1,677,000	2,040,000	0.013	0.009	17,700	0.25	510,000	6,859,000	0.016	0.010	68,300	0.32	2,187,000
Variable	***1,750,000***	***0.026***	***0.019***	***32,700***	***0.42***	***739,000***	***2,040,000***	***0.013***	***0.009***	***17,700***	***0.25***	***510,000***	***3,790,000***	***0.019***	***0.013***	***50,400***	***0.33***	***1,249,000***
0.015	1,750,000	0.026	0.019	32,700	0.42	739,000	406,000	0.021	0.016	6,700	0.25	100,000	2,156,000	0.025	0.018	39,400	0.39	839,000
0.020	850,000	0.037	0.029	24,300	0.45	385,000	141,000	0.029	0.025	3,500	0.25	35,000	991,000	0.036	0.028	27,800	0.42	420,000
0.025	511,000	0.047	0.039	19,900	0.45	228,000	85,000	0.034	0.030	2,500	0.26	22,000	596,000	0.045	0.038	22,400	0.42	250,000
0.030	337,000	0.057	0.049	16,600	0.45	150,000	49,000	0.040	0.034	1,700	0.32	15,000	386,000	0.055	0.047	18,300	0.43	165,000
0.040	176,000	0.079	0.071	12,500	0.46	81,000	16,000	0.053	0.049	800	0.21	3,000	192,000	0.077	0.069	13,300	0.44	84,000
0.050	108,000	0.102	0.093	10,100	0.44	48,000	8,000	0.065	0.060	500	0.18	1,000	116,000	0.099	0.091	10,600	0.42	49,000
0.060	77,000	0.120	0.112	8,600	0.45	34,000	3,000	0.067	0.077	200	0.16	-	80,000	0.118	0.110	8,800	0.43	34,000
0.070	59,000	0.136	0.130	7,600	0.40	24,000	2,000	0.100	0.088	200	0.14	-	61,000	0.135	0.128	7,800	0.39	24,000
0.080	48,000	0.151	0.145	6,900	0.38	18,000	1,000	0.100	0.096	100	0.16	-	49,000	0.150	0.143	7,000	0.37	18,000
0.090	37,000	0.171	0.166	6,100	0.35	13,000	1,000	0.100	0.103	100	0.17	-	38,000	0.169	0.163	6,200	0.34	13,000
0.100	32,000	0.183	0.180	5,700	0.24	8,000	1,000	0.100	0.111	100	0.15	-	33,000	0.180	0.176	5,800	0.24	8,000
0.150	19,000	0.226	0.219	4,200	0.26	5,000	-	-	-	-	-	-	19,000	0.226	0.221	4,200	0.26	5,000
0.200	10,000	0.275	0.266	2,700	0.27	3,000	-	-	-	-	-	-	10,000	0.275	0.270	2,700	0.30	3,000
0.250	6,000	0.303	0.301	1,800	0.24	1,000	-	-	-	-	-	-	6,000	0.303	0.300	1,800	0.17	1,000
0.300	3,000	0.340	0.340	1,000	0.31	1,000	-	-	-	-	-	-	3,000	0.340	0.333	1,000	0.33	1,000
0.350	1,000	0.400	0.376	400	0.36	-	-	-	-	-	-	-	1,000	0.400	0.400	400	-	-
0.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* reported cutoff varies by oxidation state (0.01 oz Au/t for oxide and 0.015 oz Au/t for unoxidized material



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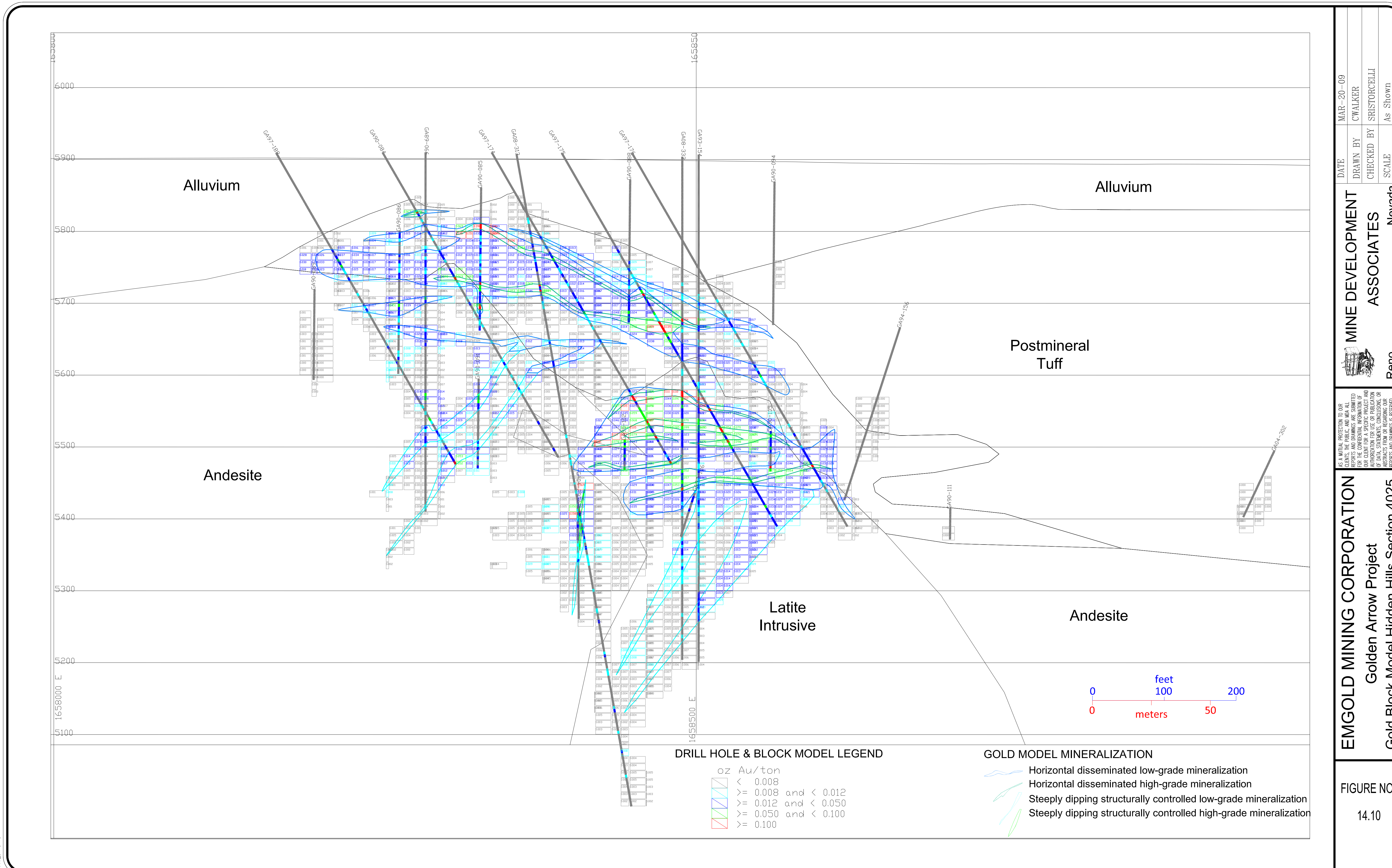
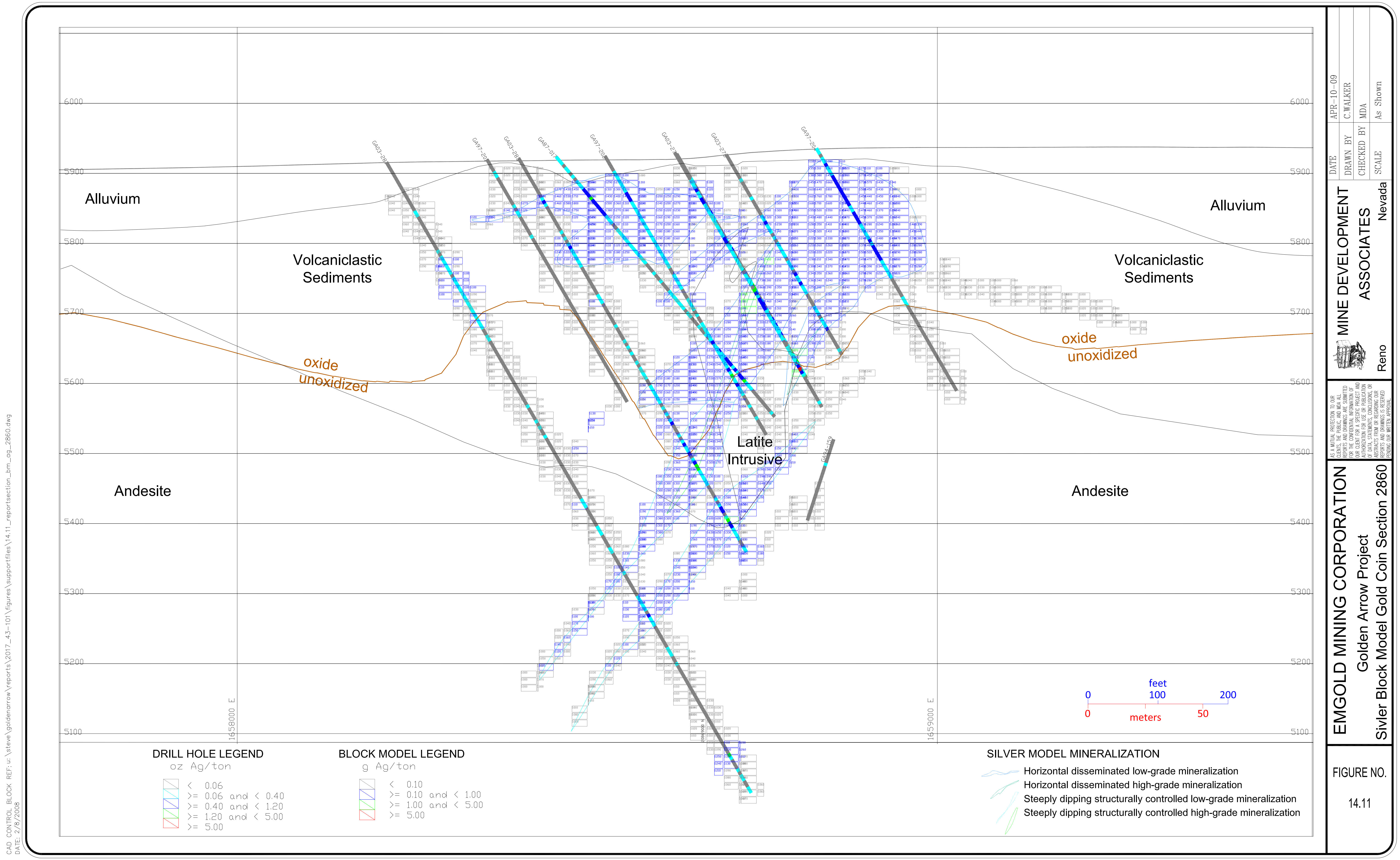


Alluvium
Alluvium
Andesite
Postmineral
Tuff
Latite
Intrusive
Andesite
6000
5900
5800
5700
5600
5500
5400
5300
5200
5100
1658000 E
1658500 E
feet
0
100
200
0
meters
50
DRILL HOLE & BLOCK MODEL LEGEND
oz Au/ton
< 0.008
>= 0.008 and < 0.012
>= 0.012 and < 0.050
>= 0.050 and < 0.100
>= 0.100
GOLD MODEL MINERALIZATION
Horizontal disseminated low-grade mineralization
Horizontal disseminated high-grade mineralization
Steeply dipping structurally controlled low-grade mineralization
Steeply dipping structurally controlled high-grade mineralization
DATE MAR-20-09
DRAWN BY CWALKER
CHECKED BY SRISTORCELLI
SCALE As Shown
MINE DEVELOPMENT ASSOCIATES
Reno
Nevada
EMGOLD MINING CORPORATION
Golden Arrow Project
Gold Block Model Hidden Hills Section 4025
FIGURE NO.
14.10


Alluvium
Volcaniclastic Sediments
oxide
unoxidized
Andesite
Latite Intrusive
Alluvium
Volcaniclastic Sediments
oxide
unoxidized
Andesite
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5800
5700
5600
5500
5400
5300
5200
5100
1658000 E
1659000 E
feet
0
100
200
0
meters
50
DRILL HOLE LEGEND
oz Ag/ton
< 0.06
>= 0.06 and < 0.40
>= 0.40 and < 1.20
>= 1.20 and < 5.00
>= 5.00
BLOCK MODEL LEGEND
g Ag/ton
< 0.10
>= 0.10 and < 1.00
>= 1.00 and < 5.00
>= 5.00
SILVER MODEL MINERALIZATION
Horizontal disseminated low-grade mineralization
Horizontal disseminated high-grade mineralization
Steeply dipping structurally controlled low-grade mineralization
Steeply dipping structurally controlled high-grade mineralization
DATE APR-10-09
DRAWN BY C.WALKER
CHECKED BY MDA
SCALE As Shown
MINE DEVELOPMENT ASSOCIATES
Reno Nevada
EMGOLD MINING CORPORATION
Golden Arrow Project
Sivler Block Model Gold Coin Section 2860
FIGURE NO.
14.11
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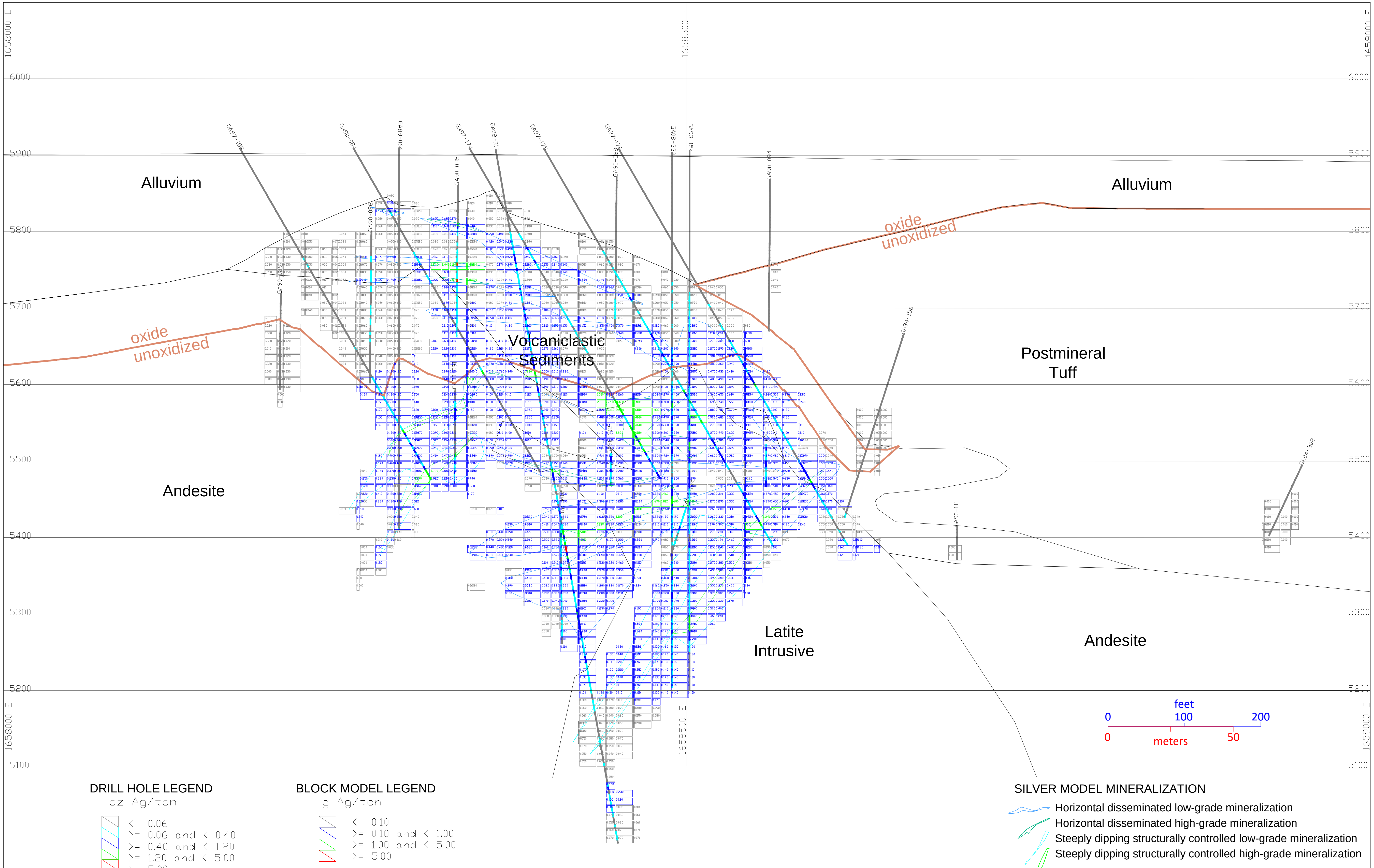
DATE: 2/8/2008



DATE MAR-20-09
DRAWN BY CWALKER
CHECKED BY SRISTORCELLI
SCALE As Shown

MINE DEVELOPMENT ASSOCIATES
Reno Nevada

AS A MUTUAL PROTECTION TO OUR CLIENTS, THE PUBLIC, AND MDA ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE OR PUBLICATION OF DATA, STATEMENTS, CONCLUSIONS, OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

EMGOLD MINING CORPORATION
Golden Arrow Project
Silver Model Block Hidden Hills Section 4025

FIGURE NO.
14.12

14.8 Resource Validation and Checking

In 2008, MDA made volume checks, comparisons of different estimation methods, and assay-composite-model checks. A check was made by comparing a nearest neighbor to the inverse distance model, as well as a comparison of bench-composite grades to the coincident block model grade. The author felt that the results of these checks were reasonable and so used the same estimation procedures, algorithms and parameters in 2009.

14.9 Discussion, Qualifications, and Recommendations

The 2009 updated resource estimate for Golden Arrow represented a significant increase in knowledge and understanding of the deposits, which formed the basis for a logical program for exploration. The 2008 resource model and estimate were demonstrated to be reliable and predictable by post-2008 model infill drilling. In 2010 and 2012, drilling was done within about 3,000ft of the two defined resources. One hole was drilled within the limits of the Hidden Hill resource. This hole substantially supported the 2009 resource model, albeit having encountered slightly thinner mineralization than three adjacent, older holes. Another hole was drilled at the margin of the Hidden Hill resource. This hole verified that the Hidden Hill resource did not continue to the southeast, just as it had been modeled in 2009. In aggregate, the historical drilling at Gold Coin shows there is little potential to expand the sub-horizontal, hot-springs style portion of the resources laterally. The more steeply-dipping portion of the resources at Gold Coin remain open along strike to the northwest and southeast. The Hidden Hill resources remain open along strike to the northwest.

Like all estimates, there are weak points, none of which are serious flaws, but all of which reduce some confidence. While the overwhelming relationship of geologic features to mineralization is for the most part strong, the certainty of the steeper dipping mineralization at Gold Coin is not high, but there are sufficient holes whose mineralization "lines up" suggesting a steepening of the mineralization and some supporting geology. At Hidden Hill, confidence is lower for these more steeply dipping zones.

Some sample integrity work and QA/QC evaluations to assess sample quality of the RC drill holes and the core holes are recommended prior to feasibility work, if the project progresses that far. This would entail inexpensive data gathering, compilation and analysis of core recovery, RQD, RC sample weights, and wet drilling, for example. Core drilling totals only 7% of all the drilling. The limited quality control and check assaying on historical samples, especially on the silver, is compensated by the fact that there have been multiple companies working on the project, all obtaining similar results.

More effort should be put into added precision of the metallurgical material-type definition, and in particular a more clear density model. This would require more sample measurements and more detailed geology, especially alteration.

While most dilution has been built into the block model, there is likely some additional minor dilution that would occur during mining. The dilution in this reported resource is based on 10ft blocks. If mining were to take place on 20ft benches, dilution would certainly be greater. Bench-height studies could assess the impact of dilution based on varying heights.

15.0 ADJACENT PROPERTIES

The authors have nothing to report concerning adjacent properties.

16.0 OTHER RELEVANT DATA AND INFORMATION

To the authors' knowledge, there is no information or data outside of that presented in this report and contained within the referenced documents relevant to making this report complete, understandable, and not misleading.

17.0 INTERPRETATIONS AND CONCLUSIONS

The Golden Arrow mining district is located near the intersection of the northeastern margin of the northwest-trending Walker Lane structural zone and the western structural margin of the Kawich volcanic center. The property is underlain by Oligocene andesite to rhyolite extrusive volcanic rocks and is intruded by a caldera-margin rhyolite body. Historic mining exploited high-grade quartz-adularia gold-silver veins hosted within the north-northeast-striking Page fault, and also veins within an array of northwest-striking faults near Confidence Mountain. The two known centers of more broadly disseminated gold-silver mineralization – Hidden Hill and Gold Coin – are intimately associated with the Confidence Mountain rhyolite ignimbrite block and its detrital apron. Numerous prospect pits and anomalous geochemistry are spatially associated with the Deadhorse Hill rhyolite neck. Thick post-mineralization alluvium and a younger dacite unit cover the host-rock units to the north, and alluvium covers the host rocks to the west.

The district has been intensively explored during the past nearly 40 years. Exploration has included geological mapping, rock and soil geochemistry, numerous varied geophysical surveys, and drilling. Emgold has records, and most drill cuttings or core for the historical drill holes. The historical exploration has been conducted by a number of capable mineral exploration companies over the past two decades, during which time a substantial and valuable archive of geological, geophysical, geochemical and drilling data has been acquired. The historical exploration archive represents an exceptional asset upon which to base future exploration. This archive has been compiled and used to build an interpretation providing additional insight into the geology and identifying new exploration targets.

Low-sulfidation, epithermal, quartz-adularia gold-silver veins with limited alteration selvages of silica ± adularia ± carbonate ± sericite, occupy open fault and fracture zones. These are the high-grade veins exploited early in the last century. Vein textures are those typical of low-sulfidation bonanza veins: multiphase, banded quartz-sulfide and open-space, cocks-comb quartz. This style of mineralization is inferred to be early because it is overprinted by hot-springs style, laminated-chalcedony flooding of porous volcaniclastic sedimentary rocks, disseminated clay-pyrite-gold mineralization, and intense, pervasive, steam-heated alteration. Both the Gold Coin and Hidden Hill deposit areas were strongly affected by this later alteration style.

Drilling in 2010 and 2012 was largely located within about 3,000ft of the Gold Coin and Hidden Hill mineral resources. One hole in 2012 was drilled within the limits of the Hidden Hill resource which substantially supported the block model, albeit having encountered slightly thinner mineralization than three adjacent older holes. Another 2012 drill hole was drilled at the margin of the Hidden Hill resource. This hole verified that the resource did not continue farther, just as the resource was modeled. All of the historical drilling together now indicates that the sub-horizontal, hot-springs style upper portion of the Gold Coin resources is drilled off, and is unlikely to be expanded by further drilling. The steeper dipping, deeper, structurally confined higher grade mineralization remains open along strike to the northwest and southeast, and at depth. The Hidden Hill resources remain open to the northwest and at depth. Potential for higher grade feeder systems for both these deposits at depth should be evaluated.

Most drilling to date at Golden Arrow has been focused upon the two known centers of mineralization. The Golden Arrow district continues to have potential to contain additional undiscovered mineralization. A number of exploration targets have been identified for further evaluation (Figure 17.1):

(1) The northeast-trending Page fault is a good-quality exploration target defined by historical workings, gold and silver mineralization, surface mapping and offset rock types, a clear break on gravity, magnetic, and electrical signatures, and little historical drilling. Some of the drill holes intersected the fault but the accuracy of the data does not allow for a definitive interpretation on the dip of the fault;

(2) The northeast-trending structural feature along the northwest edge of the Golden Arrow fault block, parallel to the Page fault, is a well-defined magnetic and gravity lineament that may be an additional control of mineralization. It has never been drill tested or recognized in the manner it presently is;

(3) Potential for discovery remains along the northwest-trending veins. Additional geologic mapping with some rock sampling would help identify these structures;

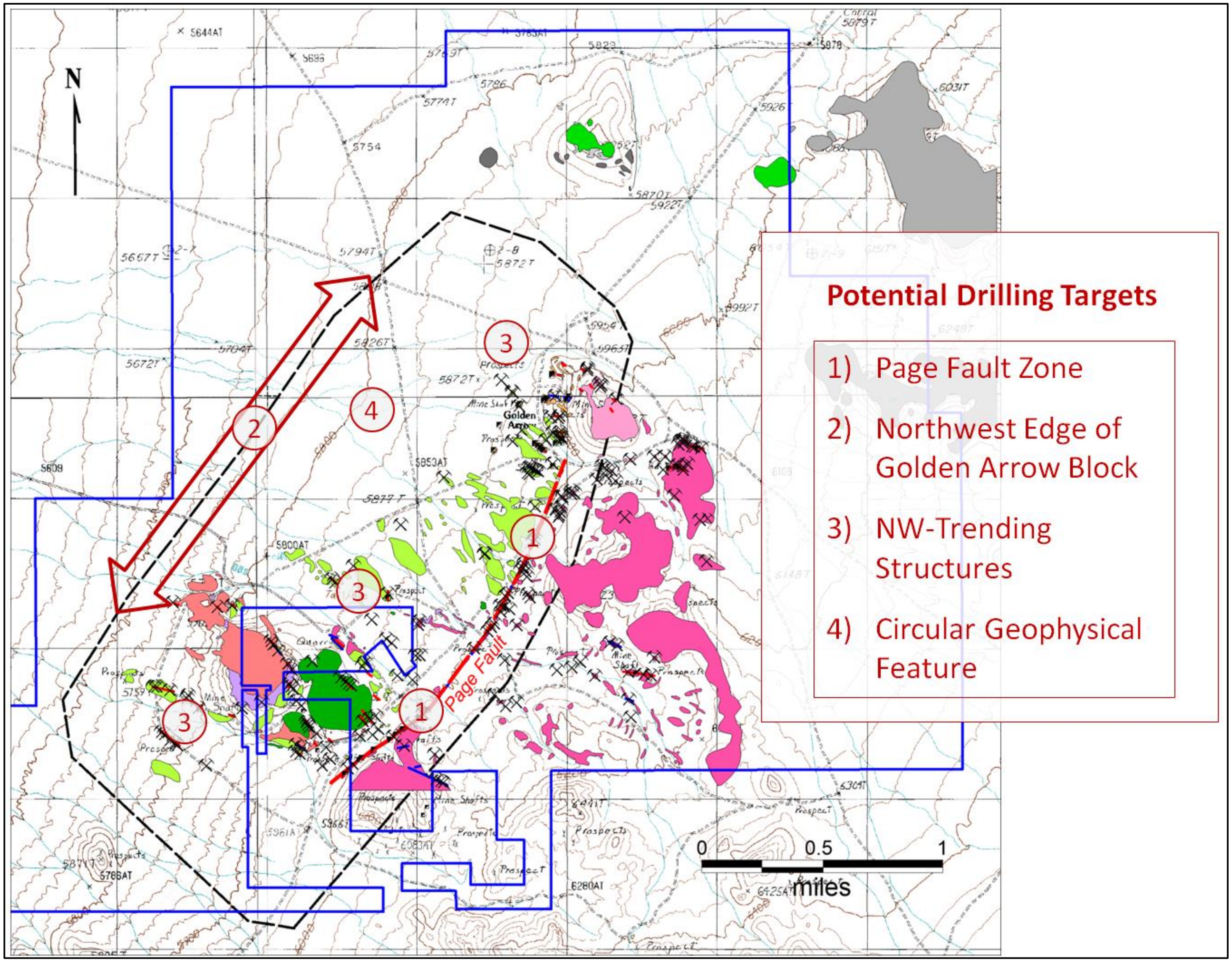
(4) The circular feature (black circle in Figure 17.1) appears in multiple geophysical data sets, but has not been recognized by any feature on the ground nor tested by drilling. Additional geological work, and perhaps drilling, should be considered to understand and test this feature; and

(5) Several studies have recently been completed on caldera systems in Nevada and include information specific to the Kawich caldera. Regional exploration specific to the relationship of hot springs mineralization in the vicinity of the Kawich caldera should be undertaken to identify additional potential mineralization in and near the Golden Arrow property.

Existing economic studies date to as recently as 2009 and are considered outdated. Golden Arrow's resources deserve additional economic studies with updated costs and prices.

The authors do not believe there are any risks unique to Golden Arrow that would be any different from any other exploration project that contains a resource estimate. In fact, the jurisdiction, shallow occurrence of resources, and a history of multiple operating companies would make this a relatively lower risk of having negative impacts.

Figure 17.1 Golden Arrow Project Exploration Target Areas



18.0 RECOMMENDATIONS

The Golden Arrow gold-silver property is a property of merit that warrants continued exploration. Historical exploration and drilling programs discovered and largely defined the dimensions of the Hidden Hill and Gold Coin deposits. Drilling by Nevada Sunrise in 2008, Animas in 2010 and Nevada Sunrise in 2012 substantially confirmed the geological model for the deposits and solidified the confidence of the mineral resource.

It is recommended that Emgold undertake a staged approach to advance the Golden Arrow project, with information developed in early work phases used to guide subsequent work phases.

Phase 1 should include four elements designed to fully understand the existing technical database, assess the current and potential exploration targets, and thoughtfully design future work programs. Phase 1 would include:

1. **Comprehensive review of the present technical database.** This review will define potential exploration drill targets for discovery of new mineral centers and identify locations for drilling within the current resource areas to upgrade the definition of mineral resources from inferred to indicated.
2. **Geological field work.** Additional field work is recommended to improve the understanding of the geological framework of the Golden Arrow property with an emphasis upon the structural framework. This should include preparation of a new geological map for the project area, clarification of district volcanic stratigraphy, and preparation of several geological cross sections based upon new mapping and drilling information. Rock-chip and soil geochemistry will complement the geological mapping.
3. **Permitting.** As drill targets are identified in Phase 1 work, permitting should begin to allow drilling to commence as early as possible in Phase 2.
4. **Planning and budgeting.** The primary objective of the technical database review, and geological field work is to identify potential development options and/or exploration drilling targets. Planning and budgeting for future activities should be a continuing process during Phase 1 activities.

Phase 1 would total $150,000 as shown in Table 18.1.

Table 18.1 Estimated Costs for Phase I Recommended Work

Recommended Phase 1	US$
Review of technical database	$10,000
Geological mapping and fieldwork	$20,000
Soil and rock geochemistry	$60,000
Permitting for drilling	$20,000
Compilation, interpretation and reporting	$30,000
Contingency	$10,000
Total	**$150,000**

Following the completion of Phase 1, a decision would need to be made whether and how to proceed with Phase 2. Phase 2 would consist of drilling (potentially to expand existing resources and to drill new exploration targets), metallurgical test work, and a scoping study. Based on the results of the scoping study, a decision would be made as to whether more exploration is required to define additional resources or potentially move forward with completion of a PEA on the property. The budget for Phase 2 could vary between $1 million and $3 million, depending on the amount of drilling done.

Much of the historical exploration information lacks documentation of methodology and quality control. Emgold must ensure that future exploration information is properly acquired and documented, as was done in the Nevada Sunrise 2008 and 2010 exploration programs.

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20.0 DATE AND SIGNATURE PAGE

Effective Date of report: August 28, 2018

The data on which the contained resource estimates are based was current as of the Effective Date.

Completion Date of report: September 24, 2018

"Steven Ristorcelli" September 24, 2018

______________________________ Date Signed:

Steven Ristorcelli, C. P. G.

"Odin Christensen" September 24, 2018

___________________________ Date Signed:

Odin Christensen, C. P. G.

"Jack McPartland" September 24, 2018

___________________________ Date Signed:

Jack McPartland, M.M.S.A., Q. P.

21.0 AUTHORS' CERTIFICATES

STEVEN RISTORCELLI, C. P. G.

I, Steven Ristorcelli, C. P. G., do hereby certify that I am currently employed as Principal Geologist by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502.

1. I graduated with a Bachelor of Science degree in Geology from Colorado State University in 1977 and a Master of Science degree in Geology from the University of New Mexico in 1980. I have worked as a geologist in the mining industry for more than 38 years. I am a Registered Professional Geologist in the states of California (#3964) and a Certified Professional Geologist (#10257) with the American Institute of Professional Geologists.
2. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I have previously explored, drilled, evaluated and modeled similar volcanic-hosted epithermal gold-silver deposits in the western US and Latin America. I certify that by reason of my education, affiliation with certified professional associations, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
3. The latest site visit was for one day on November 12, 2007.
4. I am responsible for certain Sections of this report titled, "*Amended 2018 Updated Technical Report on Golden Arrow Project, Nye County, Nevada, U.S.A.*", with an effective date of August 28, 2018 (the "Technical Report"). I take co-responsibility for Sections 1.0, 2.0, 3.0, 5.0, 6.0, 10.0, 11.0, 12.0, 15.0, 16.0, 17.0, 18.0, and 19.0 and full responsibility for Section 14.0 of the Technical Report. I take co-responsibility for 4.0, which was written and compiled by other experts and for which I am not an expert.
5. I have had prior involvement with the property and project having visited it and having worked on prior resource estimates. I am independent of Emgold Mining Corporation and Nevada Sunrise Gold Corporation, all of their subsidiaries and related companies, and the property, as defined in Section 1.5 of NI 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
6. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, this Technical Report contains all the scientific and technical information that is required to be disclosed to make those parts of this Technical Report for which I am responsible for not misleading.
7. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 24th day of September, 2018.

"Steven Ristorcelli"

Signature of Qualified Person
Steven Ristorcelli

ODIN D. CHRISTENSEN, PHD, CPG

I, Odin D. Christensen, PhD, CPG, do hereby certify that I am currently a self-employed Consulting Minerals Geologist, doing business as Hardrock Mineral Exploration, 2192 N. Fremont Blvd., Flagstaff, Arizona, 86001, and:

1. I graduated from the University of Minnesota, Duluth, with a Bachelor of Arts degree (BA) in Geology in 1970, and from Stanford University with a Doctor of Philosophy (PhD) in Geology in 1975. I have worked as a professional geologist for 42 years since graduation, including 36 years in metallic minerals exploration and mining. I am a Fellow of the Geological Society of America, a Fellow of the Society of Economic Geologists, a Certified Professional Geologist of the American Institute of Professional Geologists (CPG #8676) and a Registered Member of the Society for Mining, Metallurgy and Exploration (#555470).
2. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101"). I have previously explored, drilled, and evaluated similar volcanic rock-hosted epithermal gold-silver deposits in the Western United States and South America. I certify that by reason of my education, relevant past work experience, and affiliation with professional associations, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
3. I have had prior involvement with the Golden Arrow property. I personally worked as a geologist on the Golden Arrow property during the period 2006-2010. My last visit to, and personal inspection of the property was for one day on April 29, 2018.
4. I am responsible for Sections 5, 6, 7, 8, 9, 10, 11, 12, 16, and 17 of this report titled, "*Amended 2018 Updated Technical Report on the Golden Arrow Project, Nye County, Nevada, U.S.A.*" with an effective date of August 28, 2018 (the "Technical Report").
5. I am independent of Emgold Mining Corporation and Nevada Sunrise Gold Corporation, all of their subsidiaries and related companies, and the property, as defined in Section 1.5 of NI 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
6. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all the scientific and technical information that is required to be disclosed to make those parts of this Technical Report for which I am responsible not misleading.
7. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated September 24th, 2018.

"Odin D. Christensen"
Odin D. Christensen

CERTIFICATE of AUTHOR - Jack S. McPartland

I, Jack McPartland, do hereby certify that:

1. I am currently employed as Metallurgist/Vice President Operations, McClelland Laboratories, Inc., 1016 Greg Street, Sparks, NV 89431, U.S.A.
2. I graduated with an MS, Metallurgical Engineering (1989) and BS, Chemical Engineering (1986), University of Nevada, Reno.
3. I am a member of SME and TMS, and certified as a Qualified Professional (QP) Member of MMSA, with special expertise in Metallurgy/Processing (Member Number 01350QP).
4. I have worked as a metallurgist continuously for a total of 30 years since my graduation from University. My relevant experience includes being employed as a metallurgist and V.P. Operations at a metallurgical testing and research company since 1987. During this time, my professional duties have included the design, implementation, reporting and interpretation of metallurgical testing programs, as well as consulting for the gold and silver mining industry.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am one of the authors of the report entitled *Amended 2018 Updated Technical Report on Golden Arrow Project, Nye County, Nevada, U.S.A.* dated September 10th, 2018 (the "Technical Report") prepared for Emgold Mining Corp and Nevada Sunrise Gold Corporation. I take full responsibility for Section 1.5 and Section 13 of the Technical Report.
7. I have had prior involvement with the property having reviewed portions of an earlier technical report and managed metallurgical testing on samples from the project. I have never visited the property.
8. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all the scientific and technical information that is required to be disclosed to make those parts of this Technical Report for which I am responsible not misleading.
9. I am independent of Emgold Mining Corp. and Nevada Sunrise Gold Corporation applying all of the tests in section 1.5 of National Instrument 43-101 and in Section 1.5 of the Companion Policy to NI 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 24th of September, 2018

"Jack S. McPartland"

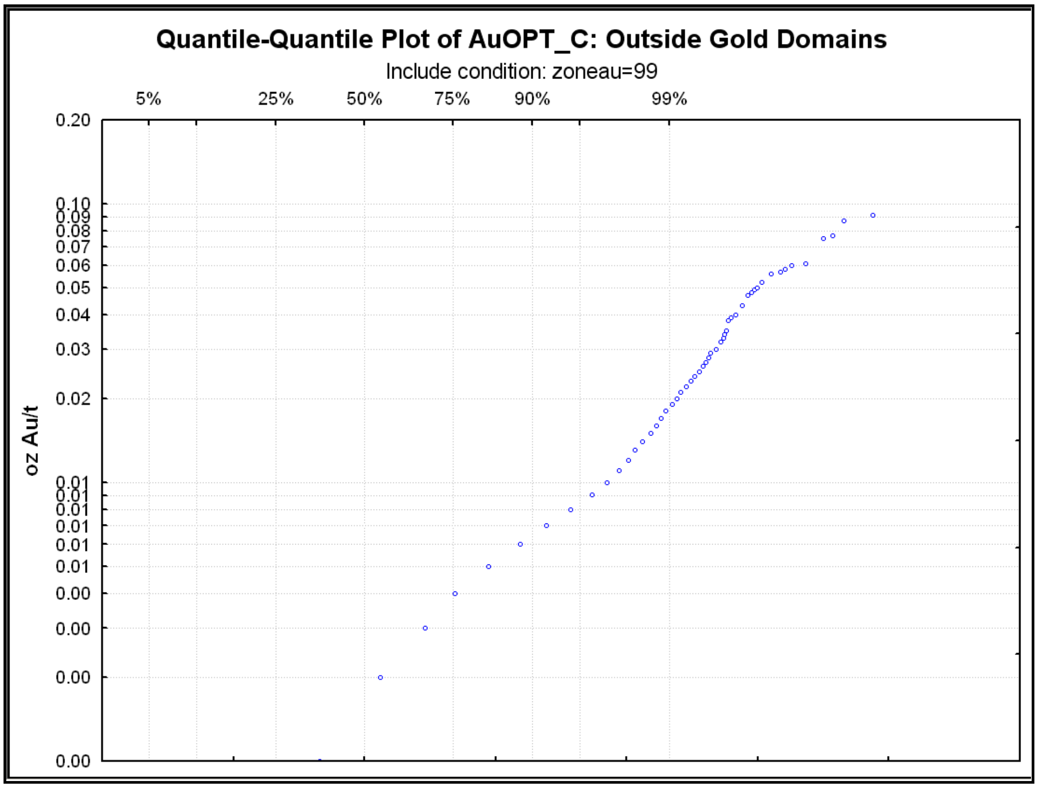
(Signed and sealed)

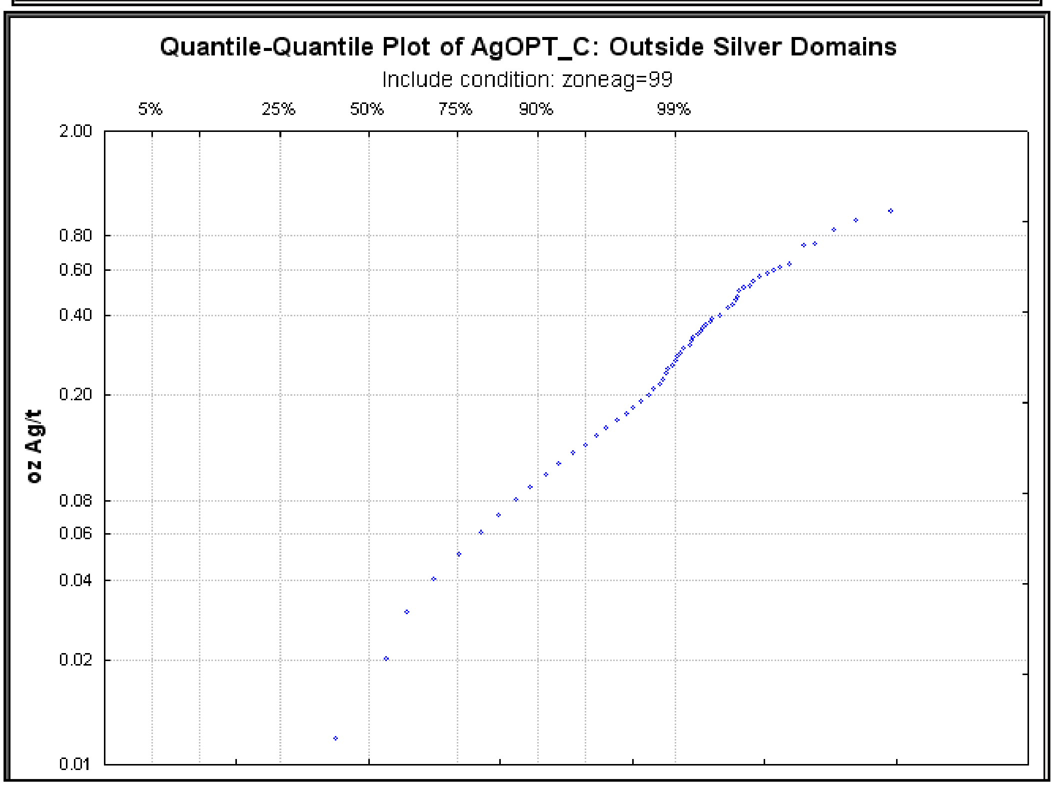
Jack S. McPartland
McClelland Laboratories, Inc.
1016 Greg Street
Sparks, NV 89431USA
Telephone: 775-356-1300
Fax 775-356-8917

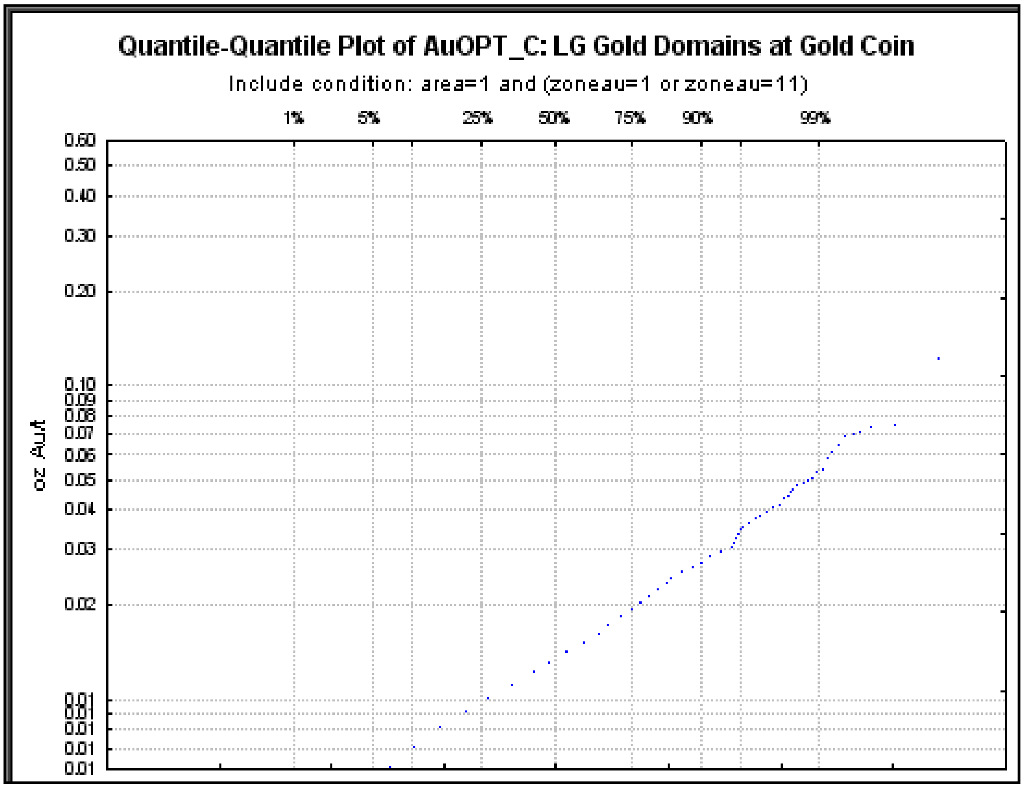
APPENDIX A

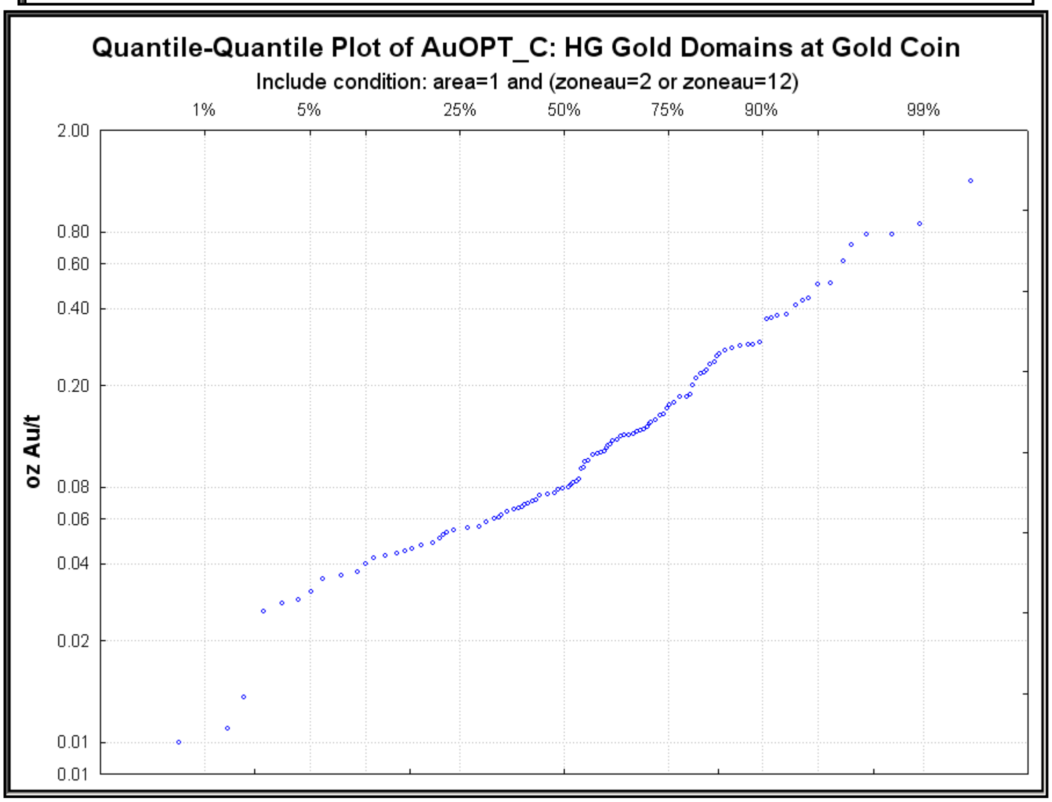
Quantile Plots of Gold and Silver Grades by Domain

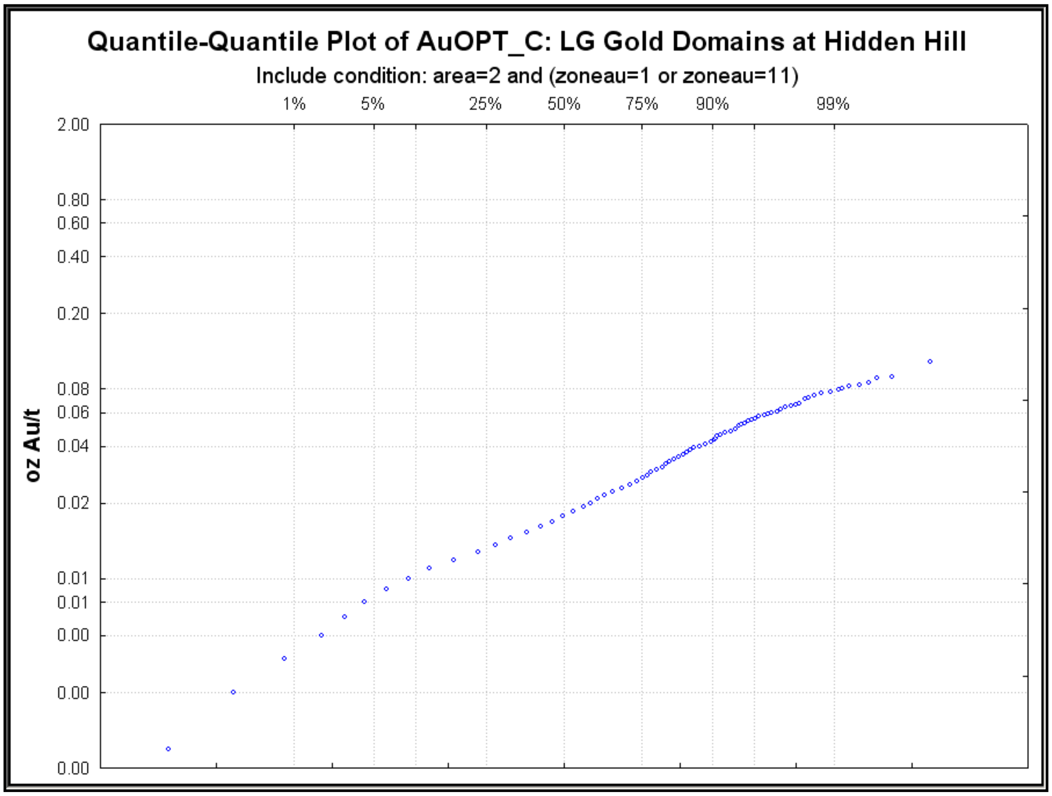
(from 2008 database)

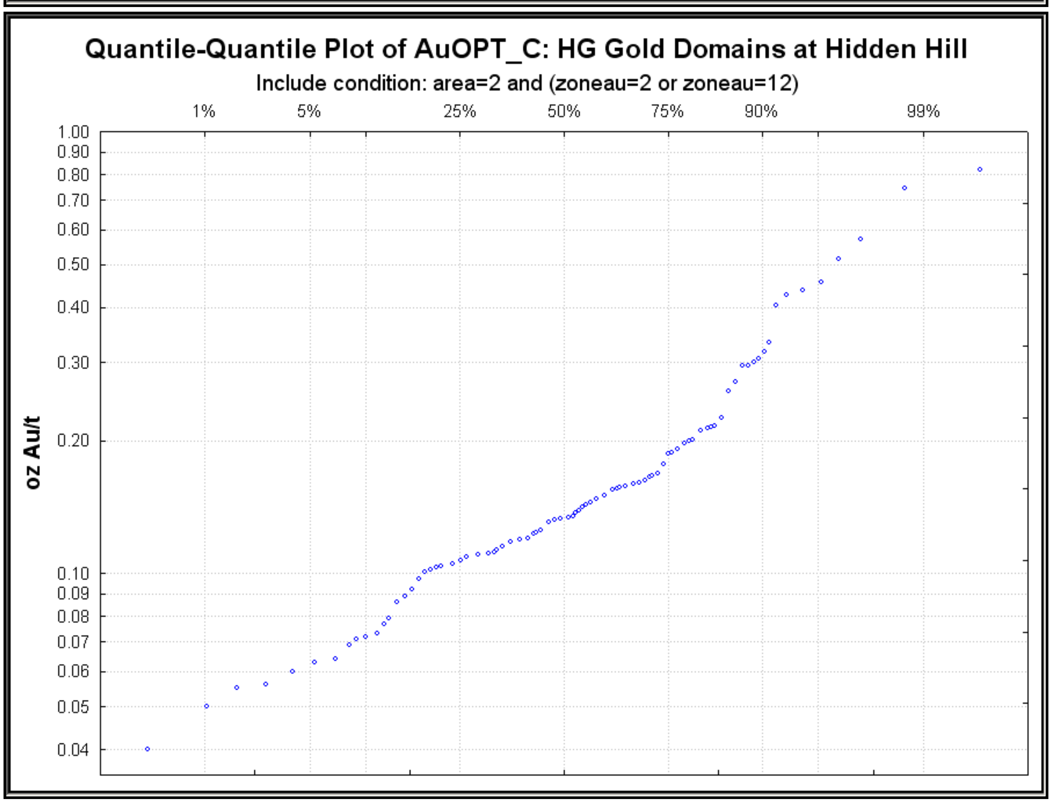

Quantile-Quantile Plot of AuOPT_C: Outside Gold Domains
Include condition: zoneau=99
5%
25%
50%
75%
90%
99%
0.20
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
oz Au/t

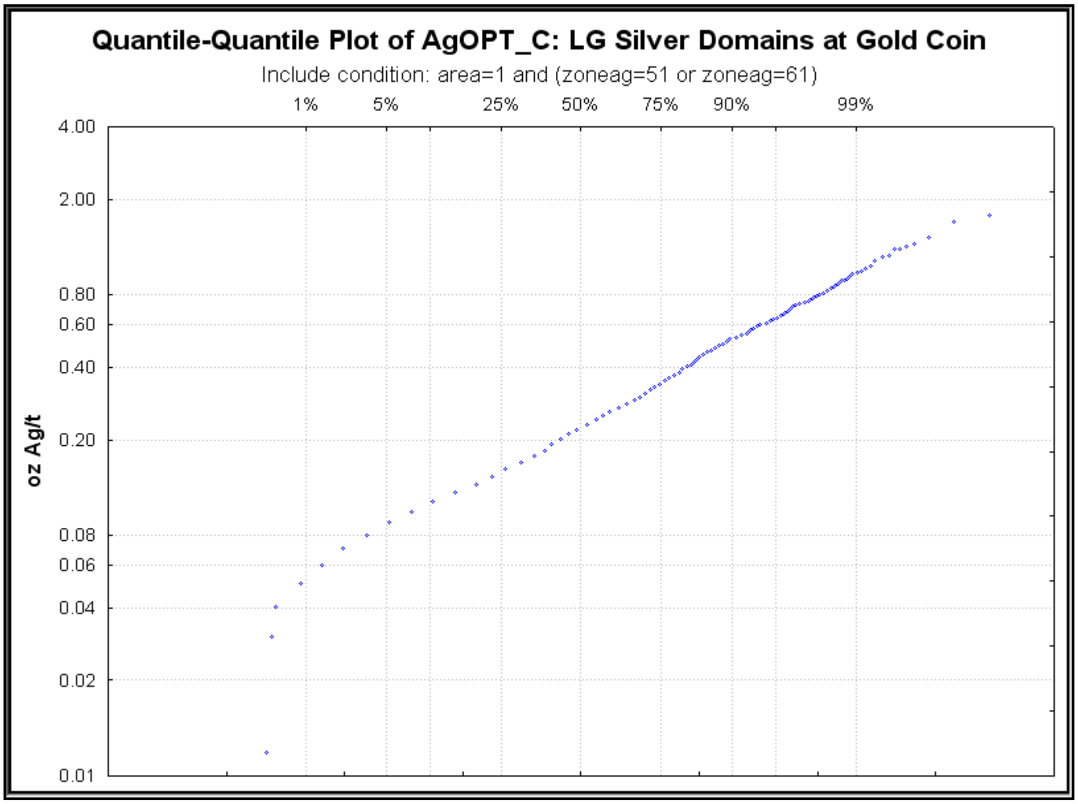

Quantile-Quantile Plot of AgOPT_C: Outside Silver Domains
Include condition: zoneag=99
5%
25%
50%
75%
90%
99%
2.00
0.80
0.60
0.40
0.20
0.08
0.06
0.04
0.02
0.01
oz Ag/t

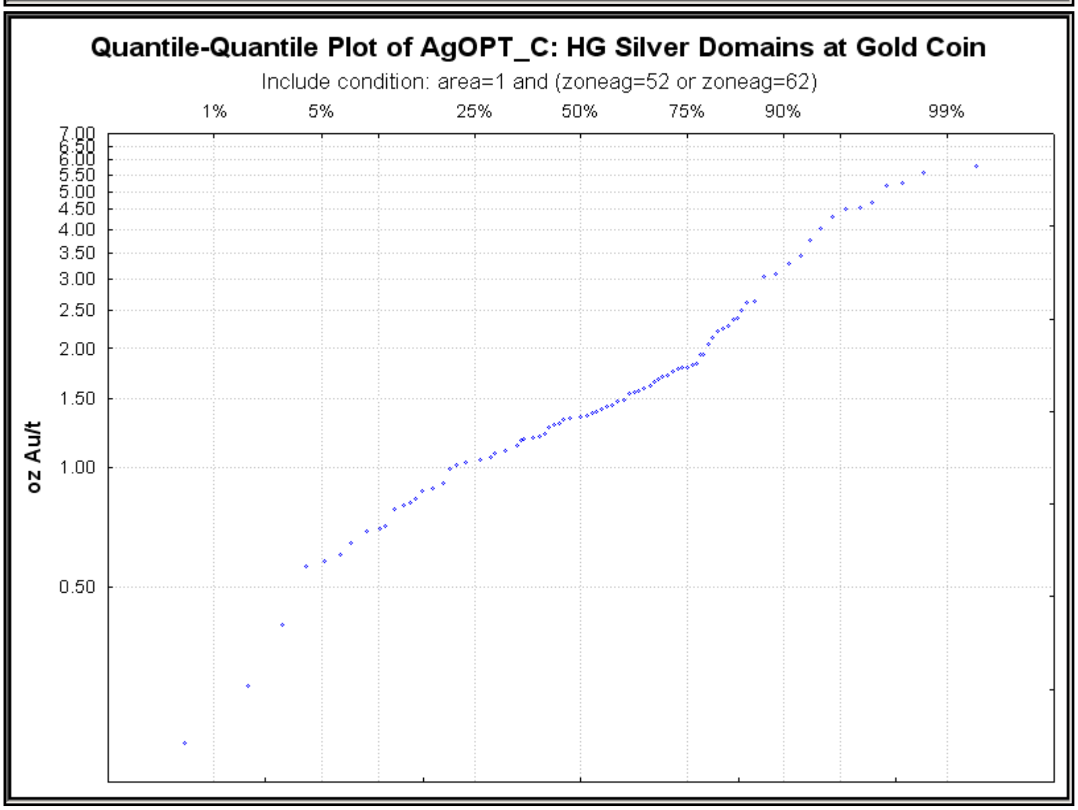

Quantile-Quantile Plot of AuOPT_C: LG Gold Domains at Gold Coin
Include condition: area=1 and (zoneau=1 or zoneau=11)
1%
5%
25%
50%
75%
90%
99%
0.60
0.50
0.40
0.30
0.20
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
oz Au/t

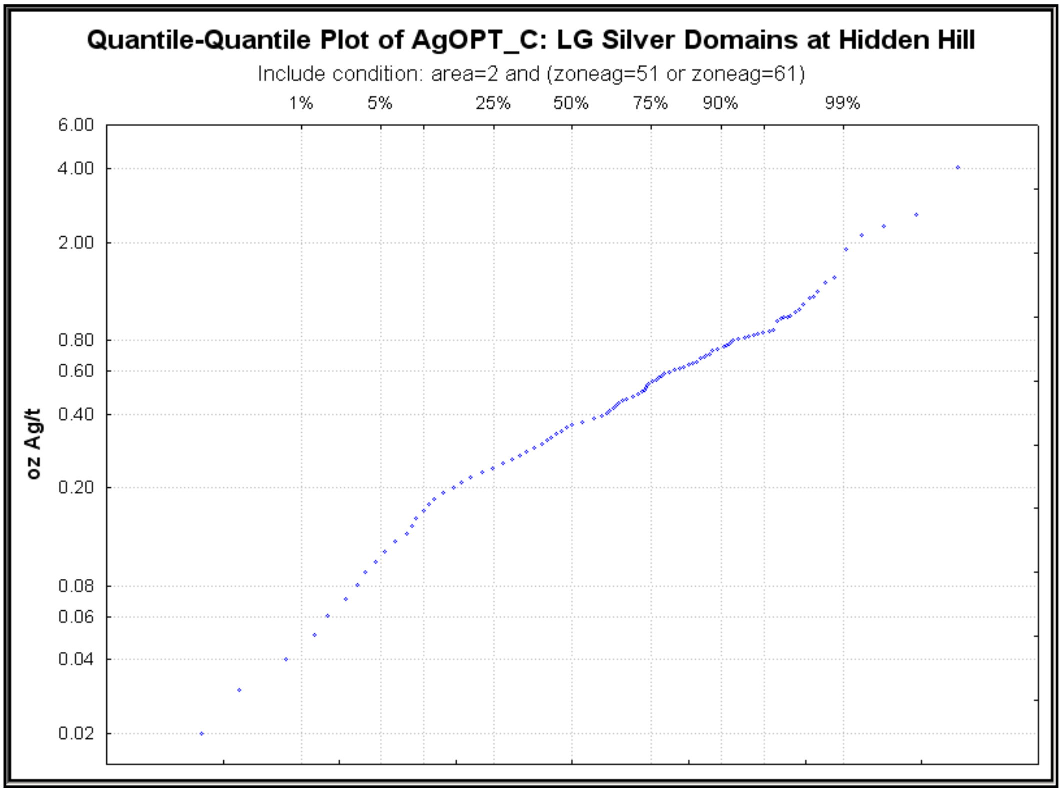

Quantile-Quantile Plot of AuOPT_C: HG Gold Domains at Gold Coin
Include condition: area=1 and (zoneau=2 or zoneau=12)
1%
5%
25%
50%
75%
90%
99%
2.00
0.80
0.60
0.40
0.20
0.08
0.06
0.04
0.02
0.01
oz Au/t


Quantile-Quantile Plot of AuOPT_C: LG Gold Domains at Hidden Hill
Include condition: area=2 and (zoneau=1 or zoneau=11)
1%
5%
25%
50%
75%
90%
99%
2.00
0.80
0.60
0.40
0.20
0.08
0.06
0.04
0.02
0.01
0.01
0.00
0.00
0.00
oz Au/t

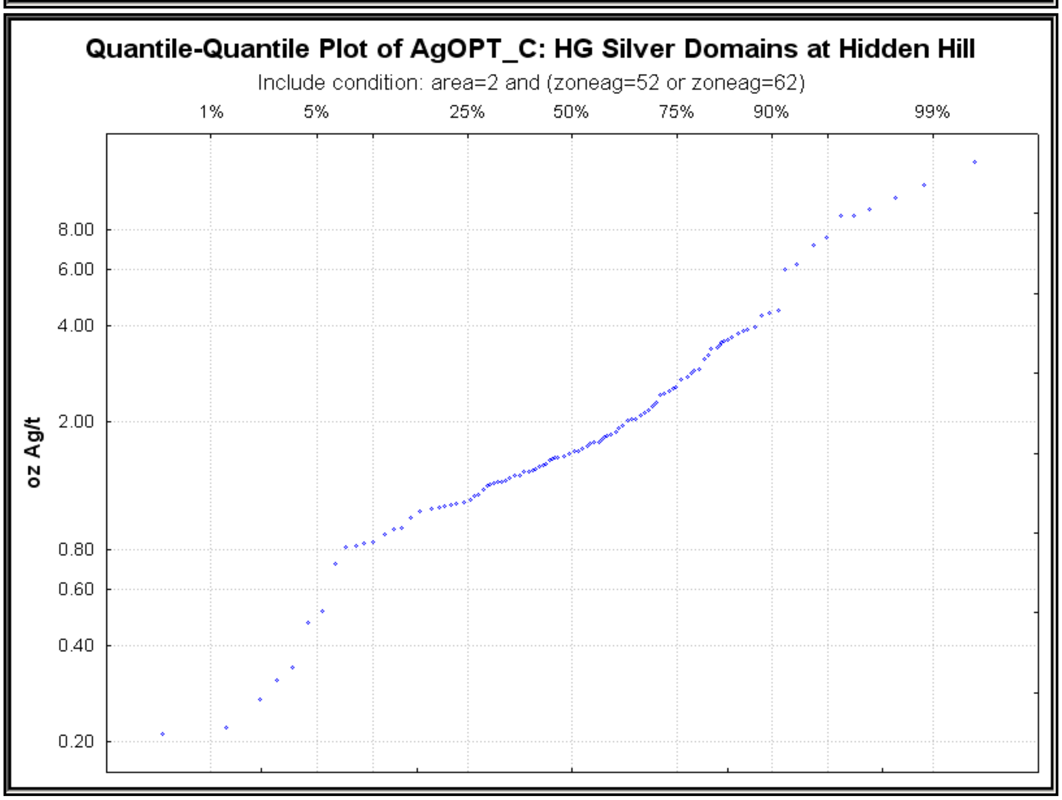

Quantile-Quantile Plot of AuOPT_C: HG Gold Domains at Hidden Hill
Include condition: area=2 and (zoneau=2 or zoneau=12)
1%
5%
25%
50%
75%
90%
99%
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.09
0.08
0.07
0.06
0.05
0.04
oz Au/t


Quantile-Quantile Plot of AgOPT_C: LG Silver Domains at Gold Coin
Include condition: area=1 and (zoneag=51 or zoneag=61)
1%
5%
25%
50%
75%
90%
99%
4.00
2.00
0.80
0.60
0.40
0.20
0.08
0.06
0.04
0.02
0.01
oz Ag/t


Quantile-Quantile Plot of AgOPT_C: HG Silver Domains at Gold Coin
Include condition: area=1 and (zoneag=52 or zoneag=62)
1%
5%
25%
50%
75%
90%
99%
7.00
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
oz Au/t



Quantile-Quantile Plot of AgOPT_C: LG Silver Domains at Hidden Hill
Include condition: area=2 and (zoneag=51 or zoneag=61)
1% 5% 25% 50% 75% 90% 99%
6.00
4.00
2.00
0.80
0.60
0.40
0.20
0.08
0.06
0.04
0.02
oz Ag/t



Quantile-Quantile Plot of AgOPT_C: HG Silver Domains at Hidden Hill
Include condition: area=2 and (zoneag=52 or zoneag=62)
1% 5% 25% 50% 75% 90% 99%
8.00
6.00
4.00
2.00
0.80
0.60
0.40
0.20
oz Ag/t

APPENDIX B

Gold and Silver Estimation Parameters

Estimation Parameters for Gold at Gold Coin: Sub-horizontal disseminated mineralization

Description	**Parameter**
Low-grade disseminated sub-horizontal (1) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	500 / 500 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade disseminated sub-horizontal (1) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.03 / 100
High-grade disseminated sub-horizontal (2) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	250 / 250 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High -grade disseminated sub-horizontal (2) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.08 / 100

Estimation Parameters for Gold at Gold Coin: Structurally controlled steeply dipping mineralization

Description	**Parameter**
Low-grade structurally controlled steeply dipping (11) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	500 / 500 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade structurally controlled steeply dipping (11) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.03 / 100
High-grade structurally controlled steeply dipping (12) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	250 / 250 / 125
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High -grade structurally controlled steeply dipping (12) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.08 / 80

Estimation Parameters for Silver at Gold Coin: Sub-horizontal disseminated mineralization

Description	Parameter
Low-grade disseminated sub-horizontal (1) Silver - Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	500 / 500 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade disseminated sub-horizontal (1) Silver – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade disseminated sub-horizontal (2) Silver – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	250 / 250 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 / 150
High -grade disseminated sub-horizontal (2) Silver – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 / 100

Estimation Parameters for Silver at Gold Coin: Structurally controlled steeply dipping mineralization

Description	**Parameter**
Low-grade structurally controlled steeply dipping (11) Silver – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	400 / 400 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade structurally controlled steeply dipping (11) Silver – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade structurally controlled steeply dipping (12) Silver – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	250 / 250 / 125
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 / 150
High -grade structurally controlled steeply dipping (12) Silver – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	30º / 50º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 80
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0/ 70

Estimation Parameters for Gold at Hidden Hill: Sub-horizontal disseminated mineralization

Description	**Parameter**
Low-grade disseminated sub-horizontal (1) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	400 / 400 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade disseminated sub-horizontal (1) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade disseminated sub-horizontal (2) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	200 / 200 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High -grade disseminated sub-horizontal (2) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None

Estimation Parameters for Gold at Hidden Hill: Structurally controlled steeply dipping mineralization

Description	**Parameter**
Low-grade structurally controlled steeply dipping (11) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	400 / 400 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade structurally controlled steeply dipping (11) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade structurally controlled steeply dipping (12) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	200 / 200 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High -grade structurally controlled steeply dipping (12) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None

Estimation Parameters for Silver at Hidden Hill: Sub-horizontal disseminated mineralization

Description	**Parameter**
Low-grade disseminated sub-horizontal (1) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	400 / 400 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade disseminated sub-horizontal (1) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade disseminated sub-horizontal (2) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	200 / 200 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 /100
High -grade disseminated sub-horizontal (2) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 /80

Estimation Parameters for Silver at Hidden Hill: Structurally controlled steeply dipping mineralization

Description	**Parameter**
Low-grade structurally controlled steeply dipping (11) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	400 / 400 / 200
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
Low-grade structurally controlled steeply dipping (11) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	None
High-grade structurally controlled steeply dipping (12) Gold – Pass 1	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	200 / 200 / 100
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 /100
High -grade structurally controlled steeply dipping (12) Gold – Pass 2	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	60º / 55º / 0º
Search (m): major/semimajor/minor (vertical)	150 / 150 / 75
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	2.0 /100

Estimation Parameters for Gold and Silver outside the defined mineral gold domains

Description	Parameter
Outside Mineralized Zones (99) Gold – One pass only	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	100 / 100 / 50
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.01 / 30

Estimation Parameters for Silver outside the defined mineral silver domains

Description	Parameter
Outside Mineralized Zones (99) Silver – One pass only	
Samples: minimum/maximum/maximum per hole	1 / 9 / 3
Rotation/Dip/Tilt (variogram and searches)	300º / 0º / 0º
Search (m): major/semimajor/minor (vertical)	100 / 100 / 50
Inverse distance power	3
High-grade restrictions (grade in oz Au/t and distance in ft)	0.1 / 30