Preliminary Economic Assessment Update
Gold Springs Property
Utah/Nevada, USA

Prepared for:

TriMetals Mining Inc.

Effective Date: August 12, 2015

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LIST OF ACRONYMS AND ABBREVIATIONS

2-D	two-dimensional
3-D	three-dimensional
A.A.	atomic adsorption
Ag	silver
Amanda Resources	Amanda Resources Corporation
ANFO	ammonium nitrate fuel oil
asl	above sea level
Astral	Astral Mining Corporation
Au	gold
AuEq	gold equivalent
BLM	Bureau of Land Management
BV	Bureau Veritas
Cambior	Cambior, Inc.
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CSA	Canadian Securities Administrators
CSAMT	Controlled Source Audio Magneto Tellurics
DEM	Digital Elevation Model
DT	Total Divergence
E	east
EA	Environmental Assessment
EIS	Environmental Impact Statement
Energex	Energex Minerals Ltd.
FONSI	Finding of No Significant Impact
ft	feet
G&A	General and Administrative
g/t	grams per tonne
gpm	gallons per minute
GPS	global positioning system
GRE	Global Resource Engineering Ltd.
GSLLC	Gold Springs, LLC
ha	hectares
HDG	High Desert Gold Corporation
hr	hour
Hz	hertz
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectrometry
IDS	International Directional Services, LLC
IRR	Internal Rate of Return
ISO	International Organization for Standardization
JV	Joint Venture
KCA	Kappes Cassiday and Associates
km	kilometre

kW	kilowatt
LOM	Life of Mine
m	metre
Ma	million years ago
MEG	Minerals Exploration and Environmental Geochemistry
min	minute
mm	millimetres
N	north
NAD	North American Datum
NI	National Instrument
NPV_{10}	Net Present Value at a discount rate of 10%
NPV_5	Net Present Value at a discount rate of 5%
NSR	Net Smelter Royalty
OTCQX	Over the Counter
oz	ounce (troy ounce)
PEA	Preliminary Economic Assessment
PFS	Pre-Feasibility Study
PG	Pilot Gold Inc.
Phelps Dodge	Phelps Dodge Exploration, Inc.
PoO	Plan of Operations
ppm	parts per million
QA/QC	quality assurance/quality control
Qal	alluvial deposits
Qc	talus, colluvial deposits
QSP	quartz-sericite/illite –pyrite
RC	reverse circulation
RDi	Resource Development Inc.
ROD	Record of Decision
RPT	Reduced to Pole
RQD	rock quality designation
RSD	Relative Standard Deviation
SITLA	School and Institutional Trust Land Administration (Utah)
SME	Society for Mining, Metallurgy, and Exploration
SRM	standard reference materials
Tal	silt and fine sand sediments
Tbb	breccia
Tbg	rhyolite tuffs
Tbi	rhyolite intrusions
Tlf	andesite to latite lava flows and tuffs
TMI	Total Magnetic Intensity
TMI	TriMetals Mining Inc.
tpd	tonnes per day
tpy	tonnes per year

Trdo	older rhyolite member
Ts	sediments
Tscl	Youger latite lava flows and tuffs
Tsr	rhyolite lava flows
TSX	Toronto Stock Exchange
Tt	epiclastic deposits
Tt	Pliocene-Miocene clastics rock units
U.S.	United States
USGS	United States Geological Survey
UTM	universal transverse mercator
VLF	very low frequency
yr	year

1.0 SUMMARY

Global Resource Engineering Ltd. (GRE) and Kurt Katsura were retained by TriMetals Mining Inc. ("TMI" or "TriMetals") to complete a National Instrument 43-101 (NI 43-101) Technical Report on the Gold Springs Gold Project ("Gold Springs" or "the Property") located in the Gold Springs and Deer Lodge Mining Districts, Iron County, Utah, and Lincoln County, Nevada. This report has been prepared in accordance with the Canadian Securities Administrators (CSA) NI 43-101, and the Resources have been classified in accordance with standards as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "CIM Definition Standards – For Mineral Resources and Mineral Reserves," prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on December 17, 2010, as amended May 10, 2014.

1.1 Property Description and Ownership

The Gold Springs gold project is an advanced exploration stage gold project located along the Nevada-Utah border in the U.S. in western Iron County, Utah, and eastern Lincoln County, Nevada, and consists of 961 unpatented lode claims, 13 patented lode claims, four State of Utah leases, and one surface real estate deed parcel and right-of-way covering a total of approximately 7,721 hectares (ha). The Gold Springs property is held by TriMetals through Gold Springs LLC, a wholly owned subsidiary of High Desert Gold Corporation ("HDG"). Prior to March 17, 2014, TMI was known as South American Silver Corp., which acquired 100% ownership of HDG on December 20, 2013. HDG is now a wholly owned subsidiary of TMI.

1.2 Geology and Mineralization

Gold mineralization at Gold Springs is hosted by complex sheeted veins, breccias, and stockwork vein systems that are laterally extensive and locally form resistant ledges and ribs that protrude up to 10 metres above the surrounding ground surface and surrounding areas of mineralized wallrock. The veins contain quartz, adularia, and bladed calcite with minor sulfides (<2%) and represent a low sulfidation, epithermal gold-silver vein system. Trace element geochemistry for arsenic and antimony show relatively low values similar to other quartz-adularia epithermal vein systems, such as the K-2 deposit in Washington and the Midas deposit in northern Nevada. Gold and silver mineralization are hosted in quartz and quartz-calcite veins, breccias, and stockwork/sheeted vein zones surrounding the main vein systems. Mineralization is also seen in the footwall zones of the Jumbo resource in pervasive altered latite that exhibits limited amounts of veining. True thickness of the mineralized zones reaches up to 150 metres wide, with the strike length of the vein systems extending up to several kilometres.

During 2014, TriMetals completed 31 Reverse Circulation (RC) drill holes totaling 4,956 metres within the Jumbo and Grey Eagle resource areas (22 at Jumbo and 9 at Grey Eagle). An additional six RC holes were completed at the Etna target area totaling 810 metres. Two core holes were drilled at each of the Jumbo and Grey Eagle resource areas totaling 381 metres; these holes were primarily designed to obtain material for metallurgical test work and to gain additional geological and structural information about the vein systems.

TMI began working on the Gold Springs project in 2010 as High Desert Gold Corporation, and to date has completed 85 drill holes within the Grey Eagle resource area totaling 12,275 metres and 61 drill holes in

the Jumbo resource for 8,742 metres of drilling. In addition, 16 drill holes totaling 2,139 metres have been drilled at Jumbo by previous operators.

TMI has identified a number of additional targets containing gold mineralization on the property, ten of these target areas have limited exploration drilling, and an additional sixteen targets with outcropping gold mineralization remain to be drill tested. The primary focus of TMI drilling on the property during the past two years has been to define and expand the Grey Eagle and Jumbo resource areas.

1.3 Mineral Processing and Metallurgical Testing

TMI has completed a series of preliminary metallurgical test work programs. Additional testing is currently underway to better understand methods of optimizing gold recovery. The work to date consists of:

- Gravity concentration followed by bottle roll cyanidation of the gravity tailing of 74-micron (200-mesh) material from drill cuttings (Inspectorate, October 2010)
- Cyanide extraction from bottle roll tests on drill cuttings ground to 74 microns (Inspectorate, 2012)
- Cyanide extraction from bottle roll tests of RC cuttings which varied in size from a P_{80} of 0.762 to 8.636 millimeters (mm) (Kappes Cassiday Associates (KCA), December 2013)
- Small column tests of trenched Grey Eagle material and Jumbo drill core crushed to 9.5 mm, (KCA, May 2015)
- Bucket static leach tests on Grey Eagle and Jumbo drill core crushed to 25 mm, 18 mm, 9 mm, and 3 mm (Resource Development Inc (RDi), 2015)

The gravity/cyanide tests produced a range of gold cyanide recoveries from 35% to 95%, with an average recovery of 76%. The combined cyanide and gravity recoveries were all greater than 91% and averaged 97%. Overall gold grades back-calculated from the cyanide recoveries increased by an average of 15% over the original fire assays for samples with values >0.2 grams per tonne (g/t) gold (cutoff grade for economic model). Of the total gold recovered from the samples during these tests, between 2% and 57% was recovered from the gravity circuit.

During the second round of testing at Inspectorate, bottle roll cyanide gold and silver extractions were performed on drill cuttings ground to 74 microns. These tests produced consistently high recoveries for gold, though silver showed variability, with lower recoveries seen from the Grey Eagle resource. The average gold recoveries at Jumbo and Grey Eagle were 85% and 93%, respectively, while silver extractions were 78% and 53%, respectively.

The next set of bottle roll cyanide tests were completed on RC cuttings (KCA, 2013) done at coarser size fractions and produced an average gold extraction from the Grey Eagle target of 71% (range: 38% to 83%) for fine to medium grained material (P_{80}: 0.07 to 0.34 inches) and 88.5% (range: 88% to 89%) from the Jumbo target (P_{80}: 0.03 to 0.14 inches). Silver extractions for the same samples were much more variable and lower, as was expected from previous work completed in the initial bottle roll tests of the RC cuttings noted above. There is an apparent difference in the silver recoveries between Grey Eagle and Jumbo, with much higher recoveries coming from Jumbo, where the resource contains higher silver grades. The average total silver recovery from Grey Eagle was 21% and from Jumbo was 54% from these test results.

A total of six small column tests were initiated in 2014 by KCA in Reno, Nevada, using 9.5-mm crushed material from the Grey Eagle trench (3 samples) and core from Jumbo drill hole J-11-001C (3 samples). Material was subjected to cyanide leach tests and sampled at approximately 7-day intervals for 129 days. These tests showed a variation in recoveries from 63% to 87% gold and 9% to 23% silver at Grey Eagle, and 56% to 92% gold and 37% to 58% silver at Jumbo.

TMI has reviewed the drilling results since 2010 in an effort to characterize how different types of material respond to cyanide leach tests. This has resulted in the working definition of "mineralization types" for each of the resource areas that are described in Table 1-1.

Table 1-1: Gold Springs Mineralization Types

Mineralization Type	Description
Jumbo	
J-0	Unmineralized Post Mineral
J-1	Oxidized Quartz Sericite Pyrite Alteration
J-2	Unoxidized Quartz Sericite Pyrite Alteration
J-3	Quartz Vein +40% Quartz
J-4	Stockwork/Breccia 10-39% Quartz
J-5	Oxidized Footwall
J-6	Unoxidized Footwall
Grey Eagle	
GE-0	Unmineralized Post Mineral
GE-1	Quartz Calcite Vein +40% vein
GE-2	Stockwork/Breccia 10-39% Quartz
GE-3	Quartz Vein +40% Vein
GE-4	Andesite

The results of the column tests by mineralization type are as shown in Table 1-2.

Table 1-2: Column Test Results by Mineralization Type

Mineralization Type	Gold Recovery %	Silver Recovery %
GE-1	82%	23%
GE-2	87%	15%
GE-3	63%	9%
J-1	92%	37%
J-5	56%	45%
J-6	57%	58%

The metallurgical testing completed thus far shows a distinct variation in recoveries across mineralization types. Mineralization type distribution will be important in determining the overall recoveries from each of the resource areas. At Jumbo, mineralization types 1, 3, and 4 are the most important, and at Grey Eagle, mineralization types 1 and 2 are the most important. The testing to date has not been completed on all mineralization types, but this work has been initiated using the drill core samples from the 2014 drill program. This work is being conducted by RDi through a series of bucket tests using various size fractions ranging from a P_{80} of 3-mm to a P_{80} of 25-mm. Once bucket tests are completed, column tests will be initiated on the same test material. Metallurgical tests are ongoing and, only when large-scale column tests are completed, will the detailed processing requirements be fully understood.

In an effort to better understand potential recoveries for the deposits, the mineralization types have been populated across the block model for both the Grey Eagle and Jumbo resources to provide an idea as to what percentage of the resources is made up of each mineralization type. Estimated recoveries were weighted based on currently understood distribution by mineralization types.

The main zone within Jumbo contains mineralization types 1, 3, and 4, representing 73% of the gold ounces within the deposit. Mineralization type 5 and 6 represent the remainder. Estimated extractions were reduced by 5% for lab-to-field scale-up and uncertainty. Table 1-3 summarizes the extractions for Jumbo.

Table 1-3: Jumbo Estimated Gold Extractions

Jumbo	Estimated Extraction	Mineralization Types	Proportion Of Gold Ounces
Main Zone	86%	1, 3, 4	73%
Hanging & Footwall Zone	57%	5, 6	27%
Weighted Extraction	78%		
Reduction	5%		
Estimated Extraction	**73%**		

Grey Eagle contains 99% of the gold ounces within the main zone represented by mineralization types 1, 2, and 3. Columns of 9.5-mm crush size were available representing each of the three mineralization types within the main zone. A very small portion of the ounces are located within the footwall zone. Table 1-4 presents the estimated gold extractions for Grey Eagle.

Table 1-4: Grey Eagle Estimated Gold Extractions

Grey Eagle	Estimated Extraction	Mineralization Types	Proportion Of Gold Ounces
Main Zone	77%	1, 2, 3	99%
Footwall Zone	66%	4	1%
Weighted Extraction	77%		
Reduction	5%		
Estimated Extraction	**72%**		

A similar process as outlined above was followed for estimated silver extraction for Jumbo. This resulted in an estimated silver extraction of 40%. Grey Eagle test work gave mixed results on silver. An extraction of 20% for silver was applied to the Grey Eagle deposit. Total silver contribution to project revenue is approximately 15%, with the Grey Eagle deposit contributing slightly greater than 1% of total project revenue.

1.4 Previous Resource Estimates and Economic Models

In 2012, HDG completed an initial Inferred resource on the Jumbo target area that estimated an Inferred 9,392,155 tonnes @ 0.57 g/t gold (Au) and 12.9 g/t silver (Ag) for a total of 173,115 troy ounces of Au and 3,880,745 troy ounces of Ag for a total of 233,344 troy ounces gold equivalent (AuEq) at a grade of 0.77 g/t (AuEq calculations reflected gross metal content using metal prices of $1,020/ounce[1] (oz) Au and $15.80/oz Ag and were not adjusted for metallurgical recoveries) (Armitage, 2012).

[1] Note: use of the word “ounce” within this report is synonymous with “troy ounces.”

In 2013, the estimate was updated to an Inferred resource within the Jumbo and Grey Eagle areas of 19,373,085 tonnes @ 0.48 g/t Au and 10.4 g/t Ag for a total of 301,756 troy ounces of Au and 6,476,149 troy ounces of Ag. This equated to a AuEq grade of 0.67 g/t and a total of 415,254 AuEq ounces (AuEq calculations reflected gross metal content using metal prices of $1,600/oz Au and $28/oz Ag and were not adjusted for metallurgical recoveries) (Armitage, Allan, and Studd, Duncan, 2013).

In 2014, the resource was again updated by Kurt Katsura and Lane and Associates (L&A), leading to an Indicated resource of 21,289,000 tonnes @ 0.5 g/t Au and 9.8 g/t Ag for a contained 339,000 troy ounces Au and 6,687,000 troy ounces Ag plus an Inferred resource of 16,674,000 tonnes @ 0.4 g/t Au and 9.1 g/t Ag for an additional 214,000 troy ounces Au and 4,857,000 troy ounces Ag using a 0.2 g/t Au cutoff. This equated to an Indicated resource of 456,000 ounces AuEq averaging 0.67 g/t AuEq and an additional 299,000 ounces AuEq @0.56 g/t AuEq in the Inferred category (AuEq calculations reflected gross metal content using the Au/Ag price ratio of 57.14 and were not adjusted for metallurgical recoveries).

In 2014, L&A completed a Preliminary Economic Assessment (PEA) using the March 2014 updated Mineral Resource. To create the economic model for the PEA, L&A first developed a series of pit shells within the mineral resource block model using a range of Au and Ag prices and associated cutoff grades for Ag and Au, in order to establish the most profitable and robust mine plan. Mine schedules were developed for each of the resulting pit shells, using production rates appropriate to support an 8- to 10-year time frame for the project. These results became the basis for estimating capital and operating costs and developing an economic model for the project. Mining and process equipment were sized for each individual case. The analysis assumed a heap leach process with a Merrill-Crowe plant to recover gold and silver. The subsequent economic model used a base Au price of $1300/oz and Ag price of $21.00/oz. Pit shell 4, which was a $1,000 floating cone pit, with a cutoff grade of 0.222 ppm, was chosen for that study because it had the most robust economics over a range of gold prices. Two scenarios were considered, owner-operated mining and contractor mining. Under an owner-operated scenario, the capital costs were $85.6 million, with operating costs of $7.58 per tonne of leachable material. A pre-tax Net Present Value at a 5% discount rate (NPV_5) was $150.2 million with a pre-tax Internal Rate of Return (IRR) of 39.66%. The Contractor Mining scenario showed improved economics for the project. Capital costs decreased by about 30% to $57.5 million because the contractor would supply the fleet of mining equipment. Total operating costs per tonne of leachable material were about 7.5% higher for contractor mining at $8.16/tonne. Pre-tax NPV_5 for contractor mining was $162 million with an IRR of 57.5%. Utah Corporate Income tax and Nevada Net Proceeds of Minerals tax, both 5%, and Federal Income tax of 25% were factored into the economic analysis. Straight line depreciation of Capital Costs was also used in the economic analysis tax calculation. The after tax NPV_5 and IRR for owner operated mining was $98 million and 29%. The after tax NPV_5 and IRR with contractor mining was $109 million and 42%.

1.5 Updated Mineral Resource Estimate

In December 2014, GRE was contracted to complete an updated Mineral Resource and PEA incorporating the 2014 drilling. In 2014, TriMetals reviewed all drill hole logs and assigned lithologies and mineralization types to each sample interval. GRE incorporated the lithologies and “mineralization types” into the block models, generated a mineralization zone interval for each block model by creating a solid model in LeapFrog™, and developed an updated resource estimate incorporating those variables.

The 2015 Gold Springs Measured plus Indicated geologic model Mineral Resource is 30,046,000 tonnes @ 0.45 g/t Au and 9.6 g/t Ag for a contained 434,000 troy ounces Au and 9,296,000 troy ounces Ag plus an Inferred Mineral Resource of 20,887,000 tonnes @ 0.34 g/t Au and 6.9 g/t Ag for an additional 225,000 troy ounces Au and 4,613,000 troy ounces Ag using a 0.2 g/t Au cutoff. This equates to a Measured plus Indicated Mineral Resource of 597,000 ounces AuEq averaging 0.62 g/t AuEq and an additional Inferred resource of 306,000 ounces AuEq @0.46 g/t AuEq. AuEq calculations reflect gross metal content using the Au/Ag price ratio of 57.14 and have not been adjusted for metallurgical recoveries. Table 1-5 shows the updated Mineral Resource.

Table 1-5 Updated Mineral Resource

Estimate Method	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)
Grey Eagle							
Measured	3,368	63,000	0.582	736,000	6.797	76,000	0.702
Indicated	5,751	96,000	0.519	1,165,000	6.301	116,000	0.627
Measured Plus Indicated	9,119	159,000	0.542	1,901,000	6.484	192,000	0.655
Inferred	2,193	25,000	0.355	339,000	4.807	31,000	0.440
Jumbo							
Measured	6,209	90,000	0.451	2,468,000	12.36	133,000	0.666
Indicated	14,718	185,000	0.391	4,927,000	10.41	271,000	0.573
Measured Plus Indicated	20,297	275,000	0.409	7,395,000	10.99	404,000	0.600
Inferred	18,694	200,000	0.333	4,274,000	7.11	275,000	0.458
Grey Eagle Plus Jumbo							
Measured	9,577	153,000	0.497	3,204,000	10.41	209,000	0.679
Indicated	20,469	281,000	0.427	6,092,000	9.26	388,000	0.590
Measured Plus Indicated	30,046	434,000	0.449	9,296,000	9.62	597,000	0.618
Inferred	20,887	225,000	0.335	4,613,000	6.87	306,000	0.456

g – grams oz – ounces Note: due to rounding, some numbers may not added correctly.

1.6 Economic Model

To create the economic model for the updated PEA, GRE first developed a series of four sets of pit shells, one for Grey Eagle and one for Jumbo comprising each set, within the mineral resource block model using a range of Au and Ag prices in order to establish the most profitable and robust mine plan. Mine schedules were developed for each of the resulting sets of pit shells, using production rates of 10,000 tonnes per day (tpd) for the two smaller pits and 15,000 tpd for the two larger pits. A total of thirty-two cases were identified and evaluated. The variables comprising the cases were: pit shell sets (1 through 4), cut-off grade (0.15 g/t, 0.20 g/t, 0.25 g/t, and 0.30 g/t), and owner or contractor operation. Capital and operating costs were developed for each case, along with sizing of mining and process equipment. The capital costs are based on quotations from equipment suppliers for the process and crushing plant, and from Infomine for other equipment. Operating costs are based on first principal calculations, Infomine data, and GRE experience. The analysis assumed a heap leach process with a Merrill-Crowe plant to recover Au and Ag.

The pit shell that was mined at Au and Ag prices of $1,200/oz and $21/oz, respectively, at a cut-off grade of 0.15 g/t and with contractor operation was selected as the base case for the economic model. The economic model used a base Au price of $1,300/oz (this is the Au price used to calculate project economics and should not be confused with the Au price used to generate the pit shell) and a Ag price of $21/oz, which are both commensurate with the 3-year trailing averages through May, 2015 of $1,386/oz and $22.61/oz, respectively, and results in total revenue for both gold and silver of $660 million. Table 1-6 shows the Mineral Resource for the $1200 pit at a 0.15 g/t Au cutoff.

Table 1-6: Mineral Resource for the $1200 Pit at 0.15 grams/tonne Au Cutoff

	Leach Tonnes	Waste Tonnes	Tuff Tonnes	Total Tonnes	Gold Ounces	Silver Ounces	Gold Grade (g/t)	Silver Grade (g/t)	Stripping Ratio
Jumbo	39,002	67,238	10,716	116,956	423	11,239	0.34	8.96	2.00
Grey Eagle	10,178	7,711	12,480	30,369	166	2,098	0.51	6.41	1.98
Grey Eagle Plus Jumbo	49,180	74,949	23,195	147,324	589	13,338	0.37	8.44	2.00

g/t – grams per tonne

The capital costs were $79.9 million, with initial capital costs of $55.0 million. Operating costs were $7.92 per tonne of leachable material. The project has direct mining costs of $4.22, processing costs of $3.07, G&A costs of $0.26, and operating contingency of $0.38/tonne of leachable material. Cash operating costs are $669/oz Au net of silver credit, and standalone project all-in sustaining cash costs are $863/oz Au net of the silver credit.

The before-tax NPV_5 was $137.4 million, with a before-tax IRR of 49.9%.

Depreciation of capital costs and depletion allowance were deducted from the income before taxes, depreciation, and depletion to determine taxable income. Federal Income tax of 35%, Nevada severance tax of 7%, and average state sales taxes of 6.2% were applied to the taxable income, generating income after tax. The depreciation and depletion allowance were then added back from taxable income to determine the final net cash flow after taxes. The after-tax NPV_5 and IRR were $92 million and 35.8%, respectively.

Additional analyses included a determination of after-tax NPV_5 sensitivity to changes in Au price, operating costs, and capital costs and a break even analysis. The sensitivity analysis indicated that the NPV_5 was most sensitive to changes in Au price, with the NPV_5 going negative at a Au price of approximately $943. The break-even analysis showed a project break even Au/Ag price (defined as 0% before-tax IRR) of $925/$14.94 (keeping the gold/silver price ratio at $1,300/$21 or 61.9).

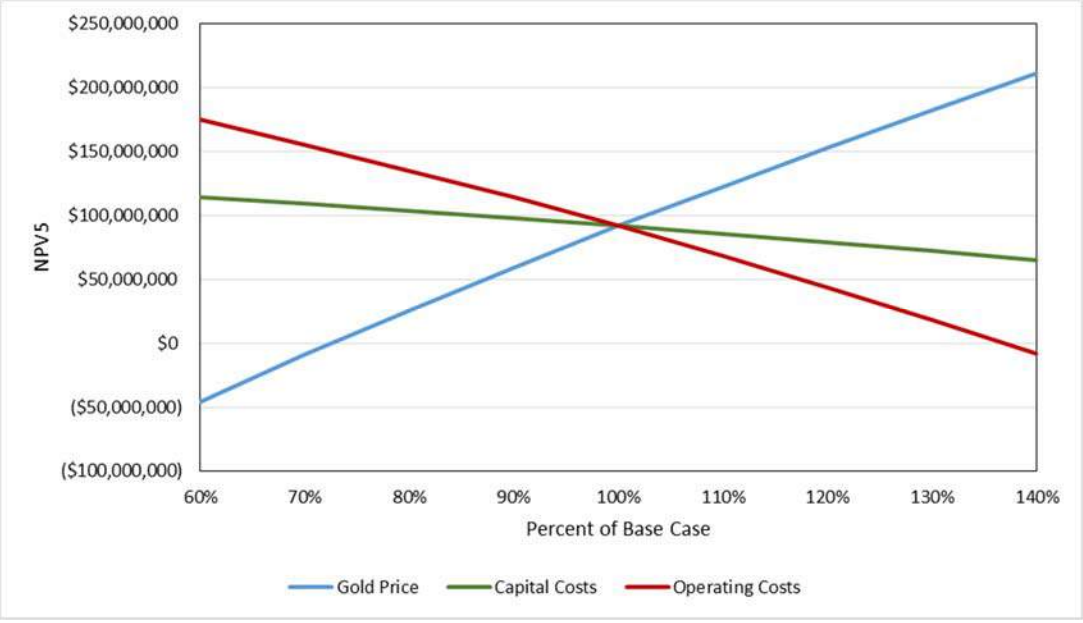
Highlights of the base case based on $1,300/oz Au price and $21/oz Ag price include:

- $4.22/t leachable material for mining costs (or $1.41/t mined)
- $3.07/t leachable material for processing costs
- $0.26/t leachable material for G&A costs
- $0.38/t leachable material for operating cost contingency
- Average annual production of 48,000 oz AuEq (Includes mining, processing, G&A, and operating cost contingency)

- Strip Ratio: 2.00:1
- Contractor mining
- Gold Recovery: 73% at Jumbo and 72% at Grey Eagle
- Silver recovery: 40% at Jumbo and 20% at Grey Eagle
- about 155 full time personnel
- Power requirements approximately 5 megawatts
- Power line construction approximately 14 km
- Water requirement approximately 1,000 gallons/min
- 9 year, 15,000 tpd “heap-leach” project
- pre-tax NPV_5 of $137.4 million ($92.1 million after-tax)
- pre-tax IRR of 49.9% (35.8% after-tax)
- initial capex of $55 million plus an additional $24.8 million in sustaining capital
- payback of 3.1 years
- $133 million after-tax cumulative cash flow
- 35% Federal tax rate
- 7% Nevada severance, Utah state tax and local tax
- 6.2% sales tax
- cash operating cost net silver credit of $669/oz Au (Includes mining, processing, G&A, and operating cost contingency)
- fully-loaded cost net silver credit of $863/oz Au (Includes mining, processing, G&A, operating cost contingency, sustaining capital, federal, state and local taxes)

Figure 1-1 shows the base case project sensitivity to capital and operating costs and gold price.

Figure 1-1: Base Case Sensitivity to Capital and Operating Costs and Gold Price



This PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves under National Instrument 43-101. Readers are advised that there is no certainty that the results projected in this preliminary economic assessment will be realized.

2.0 INTRODUCTION

2.1 Terms of Reference

The Gold Springs gold project ("Gold Springs" or "the Property") is an advanced gold exploration property located along the Nevada-Utah border in the U.S. The property is located in western Iron County, Utah, and eastern Lincoln County, Nevada, and consists of 961 unpatented lode claims, 13 patented lode claims, four State of Utah leases, and one surface real estate deed parcel and right-of-way covering a total of approximately 7,721 ha. The Gold Springs property is held by TriMetals Mining Inc. ("TMI" or "TriMetals") through Gold Springs LLC, a wholly-owned subsidiary of High Desert Gold Corporation ("HDG"), a wholly-owned subsidiary of TMI. All work completed on the property has been done by Gold Springs, LLC. ("GSLLC") unless otherwise noted.

TMI is a British Columbia (Canada) company trading on the Toronto Stock Exchange (TSX) as TMI and TMI.B, and on the U.S. Over the Counter Market Group (OTCQX) as TMIAF and TMIBF. This Mineral Resource update and PEA were commissioned following the 2014 drill program that was designed to expand the resource in areas of higher-grade Au mineralization and to elevate some of the previous resource from the Inferred category to the Measured and Indicated categories.

GRE and Kurt Katsura were retained by TMI to prepare a PEA Technical Report Update on the Project. Practices consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) (2005) were applied to the generation of this PEA. Ms. Terre Lane, Principal Mining Engineer for GRE and an independent Qualified Person as defined by NI 43-101, is responsible for Sections 14, 15, and 16, and parts of Sections 1, 18 to 22, 24, 25, and 27. Rick Moritz, Principal Process and Mining Engineer for GRE and an independent Qualified Person as defined by NI 43-101, is responsible for Sections 13, 17, and 18 and parts of Sections 1, 22, and 24 to 27. Mr. Katsura, Geologist and an independent Qualified Person as defined under NI 43-101, is responsible for Sections 2 through 12, 23, and parts of 1, 14, and 24 through 27.

Ms. Lane, Mr. Moritz, and Mr. Katsura are collectively referred to as the "Authors" of this PEA. Ms. Lane and Mr. Katsura have visited the property. In addition to their own work, the Authors have made use of information from other sources and have listed these sources in this document under "References."

2.2 Purpose of Report

The purpose of the Updated PEA is to provide TriMetals and its investors with an updated resource and PEA of the Gold Springs property, including an independent opinion as to the technical merits of the project and the appropriate manner to proceed with continuing exploration. It is intended that this report may be submitted to those Canadian stock exchanges and regulatory agencies that may require it. It is further intended that TriMetals may use the report for any lawful purpose to which it is suited.

2.3 Sources of Information

Drill hole and assay data for the property were generated by HDG from 2010 through 2014 through one of its subsidiaries, GSLLC. In 2013, HDG was acquired by TriMetals. In addition, an extensive geological and assay database was provided by Astral Mining Corporation from their work on the Gold Springs property between 2004 and 2009. Geologic maps, reports, results from geochemical sampling, and geophysical work were supplied by TMI, including available work by previous operators, and Mr. Katsura has satisfactorily verified these interpretations and results in the field during his visits to the Property.

2.4 Scope of Personal Inspection of the Property

Mr. Katsura has conducted site visits in November 2013, January 2014, and October 2014 to review the surface sampling, mapping, the results from the drilling programs conducted on the Property by TMI, and to directly observe the geological units and style of mineralization (Figure 2-1). Terre Lane conducted a site visit to the property in February 2014. Mr. Moritz has not visited the property.

Figure 2-1 : Surface Outcropping of the Jumbo Vein



Surface outcropping of the Jumbo vein in the Gold Springs property in Utah, note outcrop of the vein extends along the ridge in the right background

3.0 RELIANCE ON OTHER EXPERTS

In preparation of this report, the authors have conducted verification of the technical reports and data prepared by geologists engaged or employed by TMI as described below in Section 12.0.

The authors have not reviewed land status or independently verified the permitting status of the Gold Springs Project and have relied upon information provided through communication with Randy Moore, TMI Vice President of Exploration North America.

4.0 PROPERTY LOCATION AND DESCRIPTION

4.1 Property Location

The Gold Springs property is located along the Nevada-Utah state lines approximately 90 kilometres (km) west of Cedar City, Utah and 35 km east of Pioche, Nevada. The primary target resource areas on the property are approximately 15 km north of Utah State Highway 56/ Nevada Route 25, as shown in Figure 4-1. Cedar City is the nearest significant town to the property, with a population of approximately 29,000, and lies along Interstate 15, which provides access between Las Vegas, Nevada, Salt Lake City, Utah, and Cedar City, Utah, and is served by the Union Pacific railroad and an airport with regular daily service to Salt Lake City. There is a long history of mining in Iron County, Utah, dating back to the 1860s, and Cedar City has the facilities to provide labor and services to support the exploration and mining activities on the property. Recent mining in Iron County includes the underground Escalante silver mine that closed in 1988 and the CML open pit iron mine that operated until 2014. Pioche, Nevada, is located 35 km west of the property, with a population of approximately 2,000, and is the County seat of Lincoln County, Nevada.

Figure 4-1: Gold Springs Project Location



Gold Springs Project location and the Great Basin in Utah/Nevada, USA

4.2 Property Description

The Gold Springs property includes 961 unpatented lode claims on Bureau of Land Management (BLM) lands in Utah and Nevada, and on Stock Raising Homestead Lands in Nevada, where private surface rights are underlain by Federal mineral rights. The mineral rights located under the homestead lands were

staked under a Notice of Intent to Locate filed with the BLM Nevada state office. All claims were located with the use of a global positioning system (GPS) and tied to section corners and quarter-section corners physically located in the field. In addition to the unpatented lode claims, TMI controls 13 patented claims through lease or purchase agreements, two unpatented claims, one surface real estate deed parcel and right of way through an option to purchase agreement, and four Utah Trust Land leases for a total Property size of approximately 7,721 ha.

The TMI project area falls within several historic mining districts that include the Deer Lodge, Fay, and the Eagle Valley district, all within Nevada, and the Gold Springs District in Utah. For the purposes of this report, the entire area is collectively referred to as the Gold Springs Mining District. The project area contains numerous historic mines which were active starting around 1897 and several mines that continued producing gold intermittently until the early 1940s.

The Gold Springs project was formed by an Option and Earn-in Agreement dated January 10, 2010, which called for HDG to expend $1 million in exploration and make payments to Pilot Gold Inc. (“PG” or “Pilot Gold”) totaling $160,000. These obligations were completed, and the two companies formed a 60% (HDG) and 40% (PG) joint venture (JV) on the project, which is held in GSLLC; GSLLC is a wholly owned subsidiary of Nevada High Desert Gold, LLC. Following the formation of the JV, PG’s interest was diluted through non-contribution to the continuing exploration programs. In 2013, Nevada High Desert Gold, LLC, a wholly owned subsidiary of HDG, acquired PG’s remaining interest and currently holds a 100% interest in the Gold Springs project. On December 20, 2013, TriMetals completed the acquisition of HDG to take control of 100% of the property.

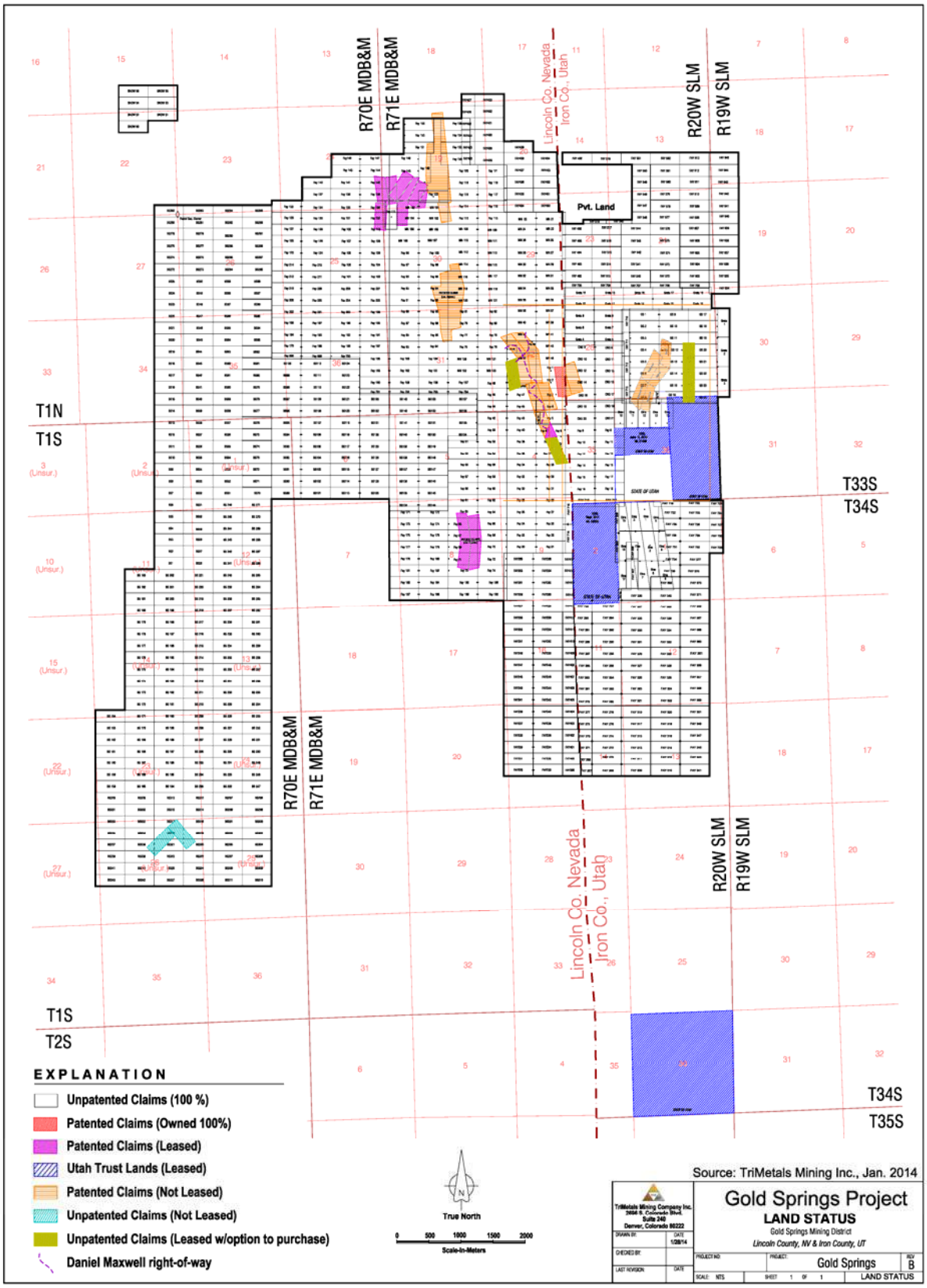
In addition to the federal lode claims which make up the bulk of the project at 7,218 ha., there are two blocks of patented lode claims which have been acquired through leases or option agreements and one that has been purchased through an option agreement. The blocks acquired through lease or option agreement are the Melville and Midnight patents, and the Talisman patent was purchased on June 12, 2015. These claim blocks represent an additional 92 ha., which are part of the project and shown in Figure 4-2. GSLLC has also completed leases on Utah Trust lands covering an additional 409 ha. and an option to purchase agreement on a surface real estate deed parcel for an additional 2 ha., along with a right of way. This brings the total land position to approximately 7,721 ha., as shown in Figure 4-2.

The Melville and Midnight patented claim blocks are subject to a lease agreement dated March 19, 2010, which provides for annual payments and a small retained Net Smelter Royalty (NSR). The Talisman patent was completed on June 12, 2015 and is now 100% controlled by TMI. The Maxwell unpatented claims, surface real estate, and right of way are subject to an option to purchase with a small retained NSR.

Two of the claims that were part of the original JV land package, the Grandee 2 and Grandee 4 are subject to an underlying lease with option-to-purchase agreement dated June 11, 2009. This agreement requires annual advanced royalty payments and is subject to a small NSR. It also allows for the purchase of a 100% interest in the claims within the first 10 years of the agreement.

All land agreements are in good standing as of the date of this report. Table 4-1 through Table 4-5 summarize the unpatented, patented, state leases, surface real estate and right-of-way comprising the Gold Springs property.

Figure 4-2: Gold Springs, LLC Land Position in Utah and Nevada



Map showing the Gold Springs property and the claims and leases held by Gold Springs LLC in Utah and Nevada

Table 4-1: Nevada Unpatented Federal Lode Claims

Name of Claim	BLM Serial No. Nevada State Office	County Recording No. Lincoln County, Nevada
BS 1 – BS 88	NMC 1063344 – NMC 1063431	DOC 0140182 – DOC 0140269
BS 89 – BS 157	NMC 1062422 – NMC 1062490	DOC 0140337 – DOC 0140405
BS 158 – BS 186	NMC 1067785 – NMC 1067813	DOC 0140667 – DOC 0140695
BS 187	NMC 1067815	DOC 0140696
BS 188	NMC 1067814	DOC 0140697
BS 189 – BS 271	NMC 1067816 – NMC 1067898	DOC 0140698 – DOC 0140780
BS 272 – BS 283	NMC 1086823 – NMC 1086834	DOC 0142426 – DOC 0142437
BS 284 – BS 293	NMC 1086785 – NMC 1086794	DOC 0142415 – DOC 0142424
BS 294 – BS 295	NMC 1086835 – NMC 1086836	DOC 0142438 – DOC 0142439
BS 296 – BS 343	NMC 1091016 – NMC 1091063	DOC 0143140 – DOC 0143187
FAY 1 – FAY 7	NMC 1020231 – NMC 1020237	DOC 0135170 – DOC 0135176
FAY 20 – FAY 49	NMC 1020238 – NMC 1020267	DOC 0135177 – DOC 0135206
FAY 51 – FAY 90	NMC 1020269 – NMC 1020308	DOC 0135208 – DOC 0135247
FAY 91	NMC 1020309	DOC 0135772
FAY 92 – FAY 104	NMC 1020310 – NMC 1020322	DOC 0135249 – DOC 0135261
FAY 105	NMC 1026130	DOC 0136167
FAY 106	NMC 1020324	DOC 0135263
FAY 107	NMC 1026131	DOC 0136168
FAY 108	NMC 1020326	DOC 0135265
FAY 109 – FAY 110	NMC 1026132 – NMC 1026133	DOC 0136169 – DOC 0136170
FAY 111 – FAY 117	NMC 1020329 – NMC 1020335	DOC 0135268 – DOC 0135274
FAY 118	NMC 1026134	DOC 0136171
FAY 119	NMC 1020337	DOC 0135276
FAY 120	NMC 1026135	DOC 0136172
FAY 121	NMC 1020339	DOC 0135278
FAY 122 – FAY 156	NMC 1026136 – NMC 1026170	DOC 0136173 – DOC 0136207
FAY 157 – FAY 170	NMC 1039147 – NMC 1039160	DOC 0137857 – DOC 0137870
FAY 171 – FAY 189	NMC 1026172 – NMC 1026190	DOC 0136208 – DOC 0136226
FAY 190	NMC 1026171	DOC 0136227
FAY 191 – FAY 214	NMC 1039161 – NMC 1039184	DOC 0137871 – DOC 0137894
FAY 229 – FAY 266	NMC 1062154 – NMC 1062191	DOC 0140054 – DOC 0140091
FAY 399 – FAY 417	NMC 1062192 – NMC 1062210	DOC 0140092 – DOC 0140110
FAY 422 – FAY 439	NMC 1062378 – NMC 1062395	DOC 0140112 – DOC 0140129
FAY 450 – FAY 454	NMC 1062406 – NMC 1062410	DOC 0140140 – DOC 0140144
FAY 698 – FAY 699	NMC 1081495 – NMC 1081496	DOC 0142225 – DOC 0142226
FAY 700	NMC 1081497	DOC 0144017
FAY 701 – FAY 704	NMC 1081498 – NMC 1081501	DOC 0142228 – DOC 0142231
FAY 714	NMC 1081502	DOC 0142233
FAY 715	NMC 1081503	DOC 0144018
FAY 739	NMC 1081504	DOC 0144019
FAY 740	NMC 1081505	DOC 0142237
FAY 741	NMC 1081506	DOC 0144020
FAY 742	NMC 1081507	DOC 0142239
MN 21 – MN 30	NMC 849467 – NMC 849476	120568 – 120577
MN 31 – MN 43	NMC 846731 – NMC 846743	120017 – 120029

Name of Claim	BLM Serial No. Nevada State Office	County Recording No. Lincoln County, Nevada
MN 45 – MN 47	NMC 846745 – NMC 846747	120031 – 120033
MN 108 – MN 121	NMC 846752 – NMC 846765	120038 – 120051
MN 130 – MN 133	NMC 846748 – NMC 846751	120034 – 120037
MN 181 – MN 188	NMC 846766 – NMC 846773	120052 – 120059
SNOW 50 – SNOW 56	NMC 1068047 – NMC 1068053	DOC 0140643 – DOC 0140649
SNOWFLAKE 6 (1)	NMC 1109884	DOC 0147130
SNOWFLAKE 7 (1)	NMC 1109885	DOC 0147131

(1) SNOWFLAKE 6 and SNOWFLAKE 7 mining claims are subject to a lease dated August 1, 2013 by and between Dan Maxwell and Gold Springs LLC.

Table 4-2: Utah Unpatented Federal Lode Claims

Name of Claim	BLM Serial No. Utah State Office	County Recording No. Iron County, Utah
CND 8 – CND 21	UMC 369567 – UMC 369580	00463645 – 00463658
ETNA 1 – ETNA 2	UMC 369036 – UMC 369037	00456463 – 00456464
ETNA 3 – ETNA 9	UMC 369560 – UMC 369566	00463638 – 00463644
ETNA 10 – ETNA 14	UMC 369942 – UMC 369946	00465039 – 00465043
ETNA 15 – ETNA 17	UMC 380867 – UMC 380869	00518145 – 00518147
FAY 8 – FAY 19	UMC 411144 – UMC 411155	00651846 – 00651857
FAY 267 – FAY 271	UMC 414459 – UMC 414463	00651834 – 00651838
FAY 272	UMC 414464	00655538
FAY 273	UMC 414465	00655544
FAY 274 – FAY 287	UMC 414466 – UMC 414479	00651859 – 00651872
FAY 288	UMC 414480	00655545
FAY 289 – FAY 294	UMC 414481 – UMC 414486	00651874 – 00651879
FAY 305 – FAY 308	UMC 419668 – UMC 419671	00636587 – 00636590
FAY 309 – FAY 311	UMC 414491 – UMC 414493	00651840 – 00651842
FAY 312	UMC 414494	00655539
FAY 313 – FAY 314	UMC 414495 – UMC 414496	00651844 – 00651845
FAY 315 – FAY 318	UMC 414497 – UMC414500	00651880 – 00651883
FAY 319	UMC 414501	00655546
FAY 320 – FAY 329	UMC 414502 – UMC 414511	00651885 – 00651894
FAY 330 – FAY 331	UMC 414512 – UMC 414513	00655547 – 00655548
FAY 332 – FAY 339	UMC 414514 – UMC 414521	00651897 – 00651904
FAY 340	UMC 414522	00655549
FAY 341	UMC 414523	00622007
FAY 343	UMC 414525	00622009
FAY 345	UMC 414527	00621011
FAY 347	UMC 414529	00643925
FAY 349	UMC 414531	00622015
FAY 351	UMC 414533	00643926
FAY 353	UMC 414535	00622019
FAY 355	UMC 414537	00622021
FAY 357	UMC 414539	00622023
FAY 359	UMC 414541	00622025
FAY 361	UMC 414542	00622026
FAY 363	UMC 414545	00622028
FAY 365	UMC 414547	00622030

Name of Claim	BLM Serial No. Utah State Office	County Recording No. Iron County, Utah
FAY 367	UMC 414549	00622032
FAY 369	UMC 414551	00656690
FAY 371	UMC 414553	00651906
FAY 373	UMC 414554	00651907
FAY 375	UMC 414556	00651908
FAY 377	UMC 414559	00651909
FAY 398	UMC 414580	00651910
FAY 482 – FAY 486	UMC 415345 – UMC 415349	00630968 – 00630972
FAY 492	UMC 415355	00630978
FAY 513 – FAY 515	UMC 415376 – UMC 415378	00622923 – 00622925
FAY 516	UMC 415379	00630999
FAY 517	UMC 415380	00622927
FAY 518	UMC 419661	00636614
FAY 519	UMC 415381	00622928
FAY 540 – FAY 544	UMC 415402 – UMC 415406	00622949 – 00622953
FAY 545 – FAY 549	UMC 419662 – UMC 419666	00636615 – 00636619
FAY 550	UMC 419667	00639210
FAY 551	UMC 415412	00622959
FAY 572 – FAY 578	UMC 415433 – UMC 415439	00622980 – 00622986
FAY 579	UMC 415440	00631004
FAY 580 – FAY 582	UMC 415441 – UMC 415443	00622988 - 00622990
FAY 603	UMC 415464	00623011
FAY 604	UMC 415465	00631006
FAY 605 – FAY 613	UMC 415466 – UMC 415474	00623013 – 00623021
FAY 634 – FAY 645	UMC 415495 – UMC 415506	00631025 – 00631036
FAY 705 – FAY 709	UMC 419650 – UMC 419654	00636621 – 00636625
FAY 710 – FAY 713	UMC 419655 – UMC 419658	00656691 – 00656694
FAY 716 – FAY 717	UMC 419672 – UMC 419673	00655551 – 00655552
FAY 719 – FAY 720	UMC 419675 – UMC 419676	00655553 – 00655554
FAY 721	UMC 419677	00660106
FAY 722 – FAY 723	UMC 419678 – UMC 419679	00655555 – 00655556
FAY 724	UMC 419680	00636599
FAY 725 – FAY 726	UMC 419681 – UMC 419682	00655557 – 00655558
FAY 727	UMC 419683	00636602
FAY 728 – FAY 729	UMC 419684 – UMC 419685	00655559 – 00655560
FAY 730	UMC 419686	00636605
FAY 731 – FAY 732	UMC 419687 – UMC 419688	00655561 – 00655562
FAY 733	UMC 419689	00636608
FAY 734 – FAY 737	UMC 419690 – UMC 419693	00655563 – 00655566
FAY 738	UMC 419694	00636613
FAY 743	UMC 419659	00656696
Grandee 2[(1)]	UMC 159222	145694
Grandee 4[(1)]	UMC 159224	145995
GRETA 1 - GRETA 3	UMC 417370 – UMC 417372	00633000 – 00633002
GRETA 4 – GRETA 10	UMC 417373 – UMC 417379	00627417 – 00627423
GRETA 11	UMC 417380	00633003
GRETA 12 – GRETA 15	UMC 417381 – UMC 417384	00627425 - 00627428

Name of Claim	BLM Serial No. Utah State Office	County Recording No. Iron County, Utah
GRETA 16 – GRETA 17	UMC 417385 – UMC 417386	00633004 - 00633005
GRETA 18 – GRETA 19	UMC 417387 – UMC 417388	00627431 - 00627432
GS 1 – GS 24	UMC 369581 – UMC 369604	00463659 – 00463682

Notes: (1) The Grandee 2 and Grandee 4 mining claims are subject to a lease dated June 11, 2009 by and between Burgess Farms and Nevada Eagle Resources LLC. Nevada Eagle Resources LLC conveyed its interest in that lease to Pilot Gold pursuant to an Assignment of Mining Lease dated April 4, 2011. Pilot Gold conveyed its interest in that lease to Nevada High Desert Gold, LLC., a wholly owned subsidiary of HDG pursuant to an Acquisition Agreement dated August 2, 2013 and an Assignment of LLC Membership Interest dated August 6, 2013. HDG conveyed its interest to GSLLC pursuant to an Assignment of Mining Lease dated September 25, 2012.

Table 4-3: Nevada Patented Lode Claims Leased or Optioned to Purchase by Gold Springs, LLC

Name of Claim	USMS Number
Talisman No. 2(1)*	2352
Nevada(2)*	3235
Nevada #5(2)*	3235
Jessie(2)*	3235
Mabel(2)*	3235
Jackenni(2)*	3235
Duplex #2(2)*	3235
Monitor #2(2)*	3235
Indiana(2)*	3235
Everest (amended)(2)*	3895
Midnight (amended)(2)*	3895
Ione (amended)(2)*	3895
Reliance (amended)(2)*	3895

Notes: (1) Subject to a lease with option to purchase dated April 4, 2011 by and between Beacon Group LLC and HDG. (2) Subject to a lease dated March 19, 2010 by and between Marvil Investments, LLC and HDG. * HDG conveyed its interest to GSLLC pursuant to an Assignment of Mining Lease dated September 25, 2012.

Table 4-4: State Lands Situated in Iron County, Utah Leased to Gold Springs, LLC

State Leases	Legal Description
ML#51806 (1)* T33S, R20W, SLB&M.	SEC.36: S1/2NW1/4
ML#52053 (2)* T34S, R20W, SLB&M.	SEC.2: LOTS 1(35.92), 2(24.05), 3(27.48), 4(28.26), 5(29.05), SE1/4NE1/4, E1/2SE1/4 [ALL]
ML#52119 (3)* T33S, R20W, SLB&M.	SEC.36: E1/2
ML#52608 (4)* T34S, R20W, SLB&M.	SEC.36

Notes: (1) Lease dated June 1, 2010 by and between State of Utah School and Institutional Trust Lands Administration (SITLA) and HDG. (2) Lease dated September 1, 2011 by and between State of Utah SITLA and HDG. (3) Lease dated March 1, 2012 by and between State of Utah SITLA and HDG. (4) Lease dated September 1, 2013 by and between State of Utah SITLA and GSLLC. * HDG conveyed its interest to GSLLC pursuant to an Assignment of Mining Lease dated September 25, 2012.

Table 4-5: Nevada Surface Real Estate and Right-of-Way Optioned to Purchase by Gold Springs, LLC

Name of Claim
Deed Parcel #12-080-04(1)
FLPMA Title V Pipeline/Access Road Right-of-Way #N-63132(1)

Notes: (1) Subject to a lease with option to purchase dated August 1, 2013 by and between Dan Maxwell and Gold Springs LLC.

Pursuant to the JV agreement (or Earn-in Agreement) with PG, GSLLC was formed to hold registered title to all properties subject to the JV agreement. The titles to all of the properties listed above have been transferred by PG and HDG into GSLLC, which is now a subsidiary of TMI.

The Authors do not know of any environmental, permitting, legal, title, surface access, taxation, socio-economic, marketing, or political issue that could materially affect the information contained in this technical report. Annual payments to the BLM are required to maintain the claims in good standing, and these are current through August, 2016.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

Access to the property is from Cedar City, west along State Route 56, to a point just west of the town of Modena, Utah, and then north via maintained gravel roads approximately 15 km to the Property. Access is also available via County-maintained gravel roads east from Pioche, Nevada, through Eagle Valley and Ursine, Nevada. Road access within the Property is served by a network of good gravel and dirt roads and trails that were previously developed to serve the mining and ranching activities in the area.

5.2 Climate

Climate is typical for the southern Great Basin, relatively arid with winter temperatures ranging from an average of 5°C in January to 9°C in February, and moderate summer temperatures that average 29.5°C in June to 33°C in July. Precipitation falls relatively evenly throughout the year, with slightly heavier periods during the summer monsoon season and from Pacific storm systems which generally last from July through early September and winter snow storms that occur between January and March. Average annual precipitation is 260 mm, as recorded at Modena, Utah, approximately 20 km southeast of the Property.

5.3 Local Resources

The Gold Springs property is located approximately 90 km west of Cedar City, Utah, 35 km east of Pioche, Nevada, and approximately 15 km north of Utah State Highway 56/ Nevada Route 25, as shown in Figure 4-1. Cedar City is the nearest significant town to the Property, with a population of approximately 29,000. Cedar City lies along Interstate 15, which provides access between Las Vegas, Nevada, and Salt Lake City, Utah, and is served by the Union Pacific railroad and an airport with regular daily service to Salt Lake City. Electric power lines and a spur of the Union Pacific railroad follow Utah State Highway 56, with the closest utility services at Modena, Utah, and Pioche, Nevada. There is a long history of mining in Iron County, Utah, and Lincoln County, Nevada, dating back to the 1860s, and Cedar City has adequate facilities to provide labor and services to support the exploration and mining activities on the Property. Recent mining activity includes the Iron Mountain mine that closed in late 2014 and the Escalante Silver Mine that closed in 1988 (Arentz, 1978; Holloway and Petersen, 1990). Pioche, Nevada, is located 35 km west of the property and is the County seat for Lincoln County, Nevada. Pioche has a population of approximately 2,000 and lies along U.S. Highway 93, which links Caliente and Ely, Nevada, and provides services to the local ranching communities.

5.4 Infrastructure

Currently there is little infrastructure developed at the Gold Springs property other than a series of gravel and dirt roads and trails, a few local springs, wells, and tanks for watering livestock. However, power lines and a spur railroad line follow Utah State Highway 56, approximately 15 km south of the Property. A power line easement exists from Pioche to the historic Jennie mill. The line has been removed, but this easement represents the closest power source for future development of the property. There has been adequate water available from springs and a well in the area to support the recent drilling operations at the project. Cedar City is currently the closest source for an adequate labor force available for mining and development, transportation, and medical services.

5.5 Physiography

The property has sufficient area in gently rolling topography and valleys available to accommodate the development of an open-pit, heap leach mining operation as described in this report.

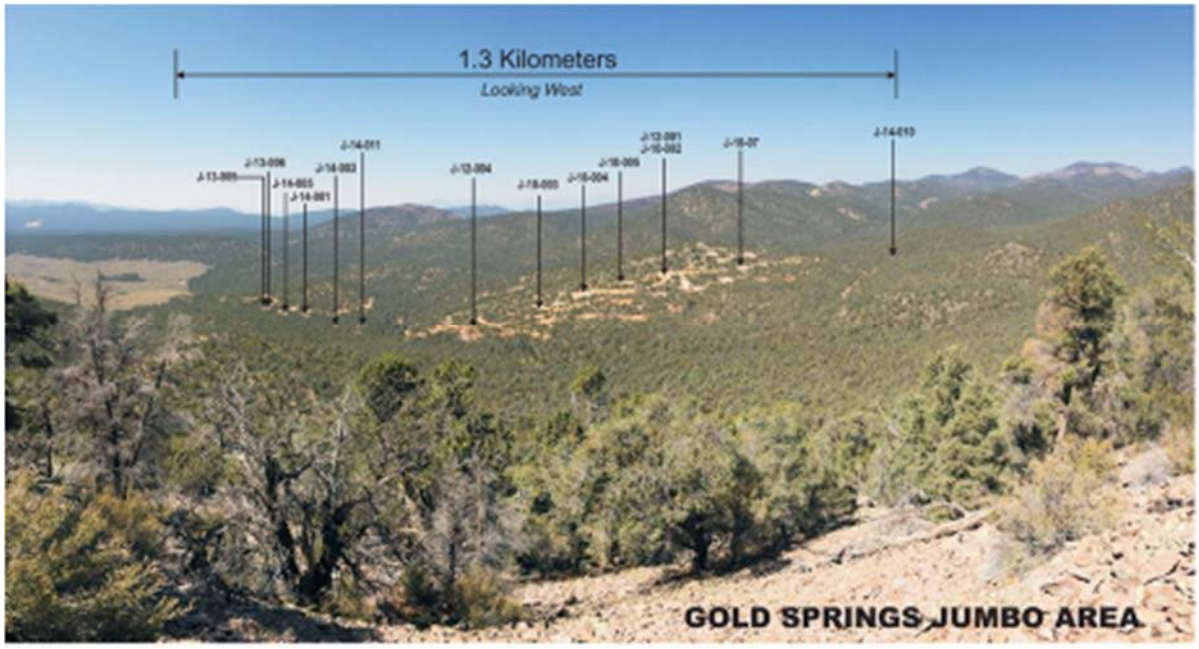
The Gold Springs property is located between Gold Springs Wash and the Deer Lodge Canyon along the southeastern flank of the Mahogany Mountains that straddle the Utah/Nevada state line. The project covers gently rolling to moderate topography that ranges in elevation from 1,950 metres (6,400 feet) above sea level (asl) at Newell Spring to 2,337 metres (7,668 feet) asl at Bull Mountain, and includes rolling hills and valleys as shown in Figure 5-1 and Figure 5-2. The topography is typical for the flanks of Basin and Range faulting, with colluvial cover blanketing the lower slopes of the fault-block range, which is subsequently being incised by more recent erosion. The hills and slopes in the project area are covered by scrub Juniper and Pinyon pine, with sage brush and grasses dominating the valleys where they support grazing for cattle and wild horses. Locally, areas have been stripped of trees (as shown in Figure 5-1) to support livestock grazing, which is currently the primary economic use of the land.

Figure 5-1 : View From the Jumbo Property Looking South Toward Etna Mine Area



View from the Jumbo property looking South toward the Etna Mine area. Note the bare slopes in the Utah State land section that are used for livestock grazing.

Figure 5-2: View of Drill Roads at the Jumbo Vein System



View looking west toward the drill roads along the east side of the Jumbo vein system area

6.0 HISTORY

The Gold Springs project area has a long history of gold mining and exploration activity dating back to the 1870s when "Old Man Pike" found high-grade float while prospecting in the area but was unable to trace it to its source (Perry, 1976) (Figure 6-1). In 1896, gold was discovered in the nearby Stateline District in Utah, and this "rush" attracted prospectors to the Gold Springs area (Tschanz and Pompeyan, 1970), with the first locations filed in 1897 on the Jumbo and Wild Irish claim groups (Salt Lake Mining Review, 1903). The Gold Springs district was formed shortly thereafter (Tingley, 1998; Doelling and Tooker, 1983). Originally, the portion of the mining district located in Utah was called the Gold Springs District, and the portion located in Nevada was called the Eagle Valley district and the Fay district (Perry, 1976); the use of several names for these mining areas has contributed to some of the confusion with regards to crediting past production records to various mining districts and various states (Perry, 1976). Mining continued in the Gold Springs area until the 1940s, with the historical production reported as being 9,300 ounces of Au up to 1942; however, it is certain that this amount is well below what was actually produced, because some reports have combined mine production from the Gold Springs and the nearby Stateline District in Utah, and some of the individual mine production records exceed what has been reported for the district (Perry, 1976). Historic reports describe the inability of operators to establish significant land positions and control the lateral extent of the vein systems as key elements that hampered previous exploration and development. In addition, some of the veins are cut and offset by post-mineral faults as is documented at the Jennie Mine, where the displaced extensions were never located. The largest historic producing mines in the district are the Horseshoe, Jennie, and Homestake mines, for which individual production records are generally lacking and inconsistent. Historically, the gold ores are reported to have been mined from high-grade veins and stockworks that averaged >10 g/t Au across mining widths that locally exceeded 10 metres wide (Perry, 1976). The ores typically had a low-sulfide content (<2%) and were treated in local

mills, which are reported to have recovered >80% of the gold by gravity separation and cyanide vat leaching methods (Short, 1909).

Figure 6-1: Ore Bin at the Thor Mine



In the 1960s to 1970s, Ranchers Exploration, Inc. and others conducted drilling programs at the Horseshoe and Jumbo properties, with limited success in identifying significant gold resources (Ranchers, 1974). In the early 1980s AMAX Exploration, Inc. looked at potential molybdenum mineralization in the nearby Stateline District in Utah (Candee, 1981), and there is evidence that FMC Exploration, Inc. may have also been interested in molybdenum mineralization in the Gold Springs caldera, where they drilled several holes that target the rhyolitic breccias and rhyolite dome complex in the Bull Mountain area (Askey, 1985).

In 1981, Energex Minerals Ltd. (“Energex”) initiated consolidation of a significant land position that included the Jumbo and Etna target areas, and in 1988 completed a 10-hole, 890-metre RC drilling program that focused on identifying bulk-mineable gold mineralization targets. Some of the Energex drilling data reported mineralized drill intercepts at the Jumbo target grading 2.0 g/t Au across 24.4 metres, and 14.5 g/t Au across 1.5 metres (Energex News Release, 9/1988). Between 1985 and 1988, Energex completed 12 drill holes in the Jumbo, Etna, and Thor target areas; however, this data was not available to the Authors for review. During 1996-1998, Cambior Inc. (“Cambior”), acquired a large land position in the area and conducted a program of geological mapping, rock chip, and soil sampling. Cambior collected and analyzed 662 rock chip samples across the project area and 88 soil samples. In 1998, the property was optioned to Phelps Dodge Exploration, Inc. (“Phelps Dodge”), who evaluated the property, focusing their efforts on gold mineralization hosted in the caldera environment and in potential bulk tonnage targets in the Jumbo and Etna areas. Phelps Dodge allowed the claims to lapse in 2001. North American Gold Inc. re-staked and acquired claims in the area during 2002-2003, conducted geochemical sampling, and completed the drilling of six RC holes in the Jumbo and Etna target areas. In 2004, Amanda Resources Corporation (“Amanda Resources”) acquired the property from North American Gold Inc., and

conducted exploration on a portion of the current property controlled by GSLLC. The work conducted by Amanda Resources included geologic mapping and sampling in the Etna, Jumbo, and Iris areas and geophysical work consisting of magnetometer and Controlled Source Audio Magneto Tellurics (CSAMT) surveys on portions of the property conducted by Zonge Geosciences of Reno, Nevada. In 2005, Amanda Resources changed its name to Astral Mining Corporation ("Astral") and filed a NI 43-101 report on their work to that date. Astral completed a 10-hole RC drilling program in 2006 on the Jumbo, Etna, and North Jennie targets, and, in 2009, Astral terminated their interest in the project due to a lack of funds.

7.0 GEOLOGIC SETTING AND MINERALIZATION

7.1 Regional Overview

The Gold Springs property is situated in the southeastern portion of the Basin and Range physiographic province, which is characterized by northerly-trending mountain ranges with closed internal drainage basins that are the result of extensional tectonism and associated volcanism during the Tertiary period. The Basin and Range province extends from southern Oregon and Idaho through Nevada and most of Utah. The Gold Springs project lies within the Indian Peak volcanic field, which is a broad Tertiary volcanic field that straddles the Utah-Nevada border and contains several nested, collapsed calderas and resurgent dome features that formed as part of a major Oligocene-Miocene "ignimbrite flare-up cycle" (Best, et al., 1989). The Indian Peak caldera complex is the southeastern extension of the Central Nevada volcanic complex and represents a ten million year period of focused magmatic and volcanic activity (Best, et al., 1989). The initial volcanic field formed about 32 to 27 million years ago (Ma) in the southeastern Great Basin and consists of the Indian Peak caldera complex and the surrounding blanket of calc-alkaline ash-flow tuff sheets that cover an area of approximately 55,000 square km, with an estimated volume of approximately 10,000 cubic km of volcanic rocks. The caldera complex is located central to the volcanic field, and the volume of rock is dominated by ash-flow tuff units, with minor amounts of andesite and rhyolite flows that were extruded during the early stages and again later in the life of the volcanic complex (Best et al., 1989). Subsequent dome building resurgence and associated felsic volcanism (25 to 19 Ma) and hydrothermal mineralization was related to the Buck Mountain-Gold Springs rhyolite dome-caldera-diatreme event between 19 to 16.5 Ma (Williams et al, 1997). Younger volcanic activity in the project area consists of felsic flows and tuffs dated between 16 to 10 Ma (Williams et al., 1997).

The oldest rocks in the region consist of Proterozoic through lower Mesozoic sedimentary sequence that became folded and thrust-faulted eastward during the Cretaceous Sevier orogeny and were subsequently overlain by Tertiary sedimentary deposits (Stewart, 1980). Regional crustal extension during the middle Cenozoic resulted in crustal thinning, widespread volcanic activity throughout the Central Nevada volcanic field, including the Indian Peak volcanic field, and extending eastward to the Marysville volcanic complex that was active until 10 Ma. The more recent basin and range faulting overprints the Indian Peak caldera complex, resulting in nearly half of the complex now lying beneath alluvium-filled basins or younger volcanic rocks (Best et al., 1989a).

Andesite and latite flows were prevalent during the early and late stages in the evolution of the Indian Peak volcanic complex. The early andesite flows have previously been correlated with the Escalante Desert Formation, Wah Wah Springs Formation, or Ryan Springs Formation, approximately 32 Ma (Best

et al., 1989a); however, new data suggests that the older andesite-latite sequence is more closely related to the 22 to 23 Ma Condor Canyon Formation (Williams et al., 1997; Rowley et al., 2008). This thick section (300 metres) of intermediate volcanic tuffs and flows are andesitic-latitic to trachydacitic in composition and are overlain by a series of rhyolitic to dacitic flows and tuffs associated with episodic eruptions from the caldera complex, which are correlated with the Blawn Formation. This latter stage of felsic volcanic activity includes the development of collapse caldera features and resurgent domes and ash eruptions that were deposited over an extensive area (Best et al., 1992). The Gold Springs caldera was formed during this period of activity, and is a prominent feature in the GSLLC project area.

Following a hiatus of approximately three million years after final eruptions in the Indian Peak complex, the Caliente caldera complex began activity 40 km to the south of the project area, and the resurgent White Rock caldera overprints the southwestern margin of the Indian Peak caldera, as part of the continued regional volcanism (Rowley and Sider, 1988; Best et al., 1989a). During the Pliocene, local basins and lakes formed as a result of Basin and Range faulting, and these features accumulated sediments and ash deposits that overlie the older volcanic rock units. Uplift and faulting has continued into the Quaternary, and many of the slopes surrounding the ranges are covered with a variable thickness of recent colluvial and alluvial deposits.

Gold mineralization in the Gold Springs project is hosted by complex sheeted veins, breccias, and stockworks that are oriented along northeast- and northwest-striking structural zones that cut andesite and latite flows and rhyolite dikes around the collapsed margins of the Gold Springs caldera. The veins typically form resistant ledges and ribs that protrude up to 10 metres above the surrounding ground surface and consist of quartz, adularia, and calcite with minor (<2%) sulfides. The vein systems are laterally extensive and can be traced for up to two km along strike between exposures, and likely further, where the veins extend beneath Quaternary cover. The Gold Springs area is known for numerous small mines and prospects, primarily exploiting high-grade gold and silver veins that are scattered across the volcanic field and have remained largely inactive since the 1940s (Perry, 1976; Thompson and Perry, 1976).

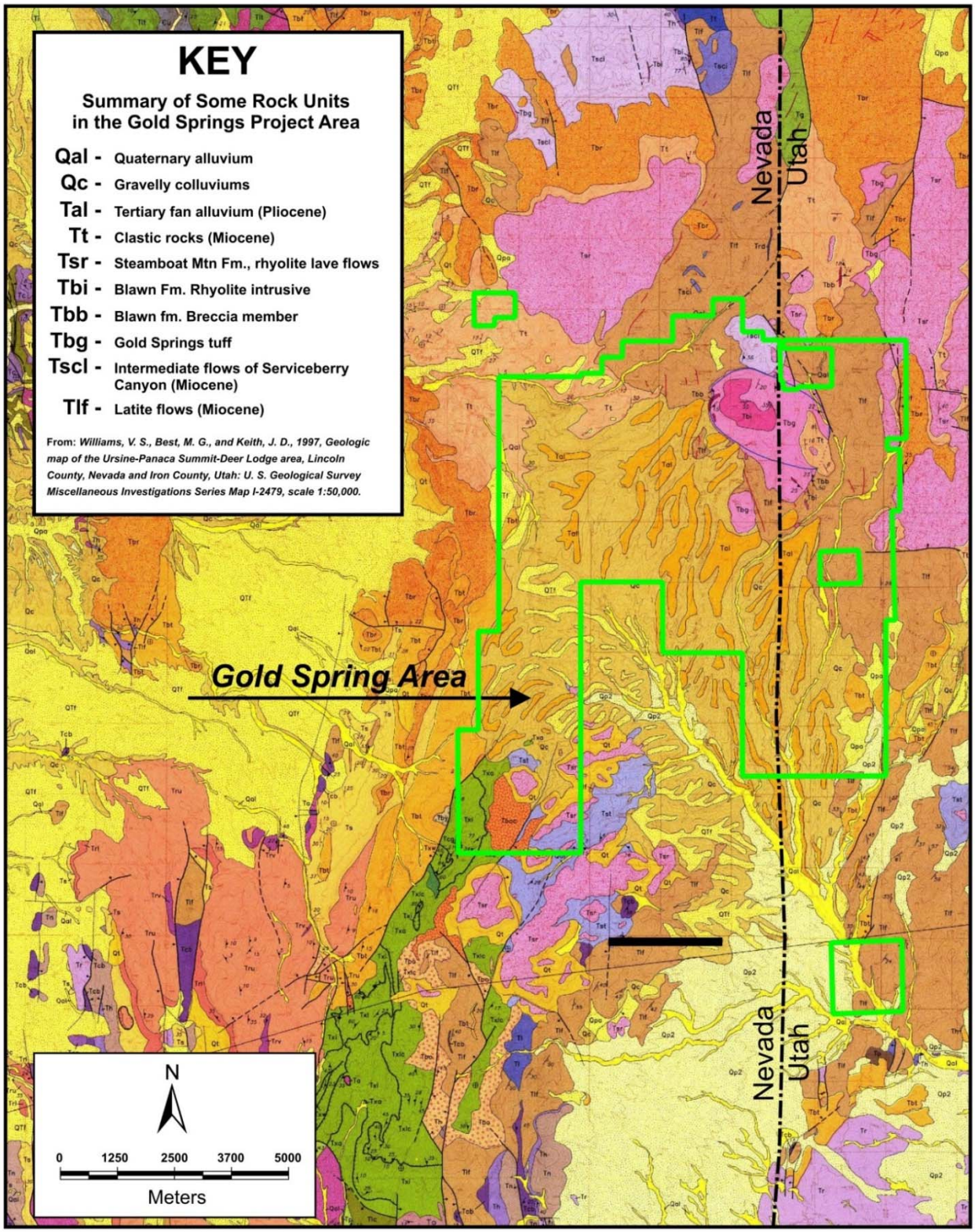
7.2 Local Geologic Setting

The Gold Springs project area is located in the southern portion of the Indian Peak volcanic field, surrounding and including the Gold Springs caldera.

The following is a summary of the rock units in the central Indian Peak volcanic complex near the project area, as they have been described and subdivided by Williams et al. (1997), in Utah by Rowley et al. (2008), and are summarized in Figure 7-1. The correlation among individual rock units within a volcanic field is inherently a complex matter, because individual eruptive events, flows, and units are generally not laterally extensive and temporal sequences are tenuous at best. In the Gold Springs project area, recent mapping by Rowley et al. (2008) was conducted in the Utah portion of the project area, and some of these maps units attempt to further refine the volcanic stratigraphy described by Williams et al. (1997). The following discussion of the geology is a comprehensive summary that incorporates a combination of this data. The rock units are described below from the oldest to youngest.

Andesite to latite lava flows and tuffs (Oligocene-Miocene 23 to 22 Ma) are prevalent in the project area (Tlf), and may be correlated with the Escalante Desert Formation, Wah Wah Springs Formation, or Ryan Springs Formation at approximately 32 to 28 Ma (Best, et. al., 1989a) or possibly part of the Condor

Figure 7-1: Regional Geologic Map Showing the Gold Springs Project Area



Canyon trachydacite at 22.8 Ma (Rowley et al., 2008). The andesite-latite-trachydacite flows are of variable thicknesses, and incomplete sections are as much as 300 metres thick (Rowley et al., 2008). The andesite section is predominant in the Buck Mountain to Grey Eagle area and is composed of a series of

andesite flows, lithic tuff breccias, and biotite tuffs and is the primary host rock for Au-Ag mineralization at Jennie, Thor, Snowflake, Homestake, and Grey Eagle mine areas. The older latite flows and tuffs appear to overlie the andesite section and are often only distinguishable from the andesites by having an increase in biotite content. The latite flows are the primary host rock for the vein systems that are exposed in the Jumbo, State Section, and portions of the Etna mine areas.

There are younger latite lava flows and tuffs (Miocene) which form a sequence of reddish-brown to grey-green lava flows containing phenocrysts of plagioclase, biotite, and clinopyroxene and magnetite, and are probably as much as several hundred metres thick in the Jumbo-Etna area (Best et al., 1992). The younger latite flows and tuffs are mostly post-mineral and are observed to cover mineralized sections in the older andesite and latite flows.

Blawn Formation (Miocene) is an assemblage of siliceous rhyolite rocks of early Miocene age that have been subdivided into informal members of rhyolite tuffs and rhyolite lava flows (Tbg), rhyolite intrusions (Tbi), breccias (Tbb), mafic lava flows, and minor epiclastic deposits (Tt). The age for the rhyolite flows range from 24 to 18 Ma (Best et al., 1992).

In the Utah portion of the property, the low-silica rhyolites described by Rowley et al. (2008) as Trdo (older rhyolites) probably represent the terminal phase of calc-alkaline volcanism related to an ignimbrite episode. Subsequent volcanism in the project area shows a trend towards increasing alkaline flows and tuffs. An upper unit locally contains a black vitrophyre (Best et al., 1989b). This unit is shown as Tbr in Figure 7-1.

Perhaps the most striking geologic feature in the project area is the collapsed Gold Springs caldera, mapped by United States Geological Survey (USGS) (Best, et al., 1992), in the vicinity of Bull Mountain. This caldera is bound on the west and northwest by heterolithic breccias along a steeply-dipping contact with older andesite flows. Interior to the caldera is a resurgent rhyolite dome complex at Bull Mountain and intercalated tuffaceous sediments, tuffs, and flows that are 20-16.5 Ma (Rowley et al., 2008). In the Pope and Charlie Ross Mine areas, the tuffs appear to have breached the caldera margin and uncomformably overlie the surrounding andesite flows, extending southward towards the Jennie Mine.

Pliocene-Miocene (16 to 10 Ma) clastic rock units (Tt) consist of a heterogeneous sequence of weakly consolidated primary pyroclastic flows, reworked pyroclastic material, conglomerates, and epiclastic rocks that locally underlie the Steamboat Mountain Formation (Best et al., 1992). This unit generally represents the erosional unconformity that occurred during and after the major felsic tuff eruptive cycle from the caldera complex. These sedimentary rock units were deposited in basins that formed during Basin and Range extensional faulting and subsidence of the Pine Park and Telegraph Draw calderas. These poorly consolidated volcanoclastic and epiclastic units cover broad areas of prospective older andesite and latite. The basal unconformity and pre-depositional topographic highs are being evaluated as potential target areas for mineralization in the exploration programs for the Grey Eagle, Jumbo, and Midnight areas.

Steamboat Mountain Formation (Tsr) is a bi-modal assemblage of high-silica rhyolite and basaltic trachyandesite of middle Miocene age (Best et al., 1987). In the project area, the Steamboat Mountain rhyolite flow unit is found capping some of the ridges between Deer Lodge Canyon and the Jumbo area.

Lacustrine Deposits (Upper Miocene to Pliocene) consist of silt and fine sand sediments (Tal) that accumulated in a lake that occupied ancestral Eagle Valley, to the west of the project area. These

sediments are generally fine-grained and grade laterally and upwards into coarse sands and gravels, representing a transition from lacustrine to alluvial deposition as the basin filled and along its eastern margins.

Quaternary Deposits consist of a number of distinguishable and mappable units that represent tectonic episodes and subsequent erosion and deposition along the basin and range front. These include talus (debris trains), colluvial deposits (Qc), alluvial deposits adjacent to streams (Qal), floodplain deposits in the modern washes, and older benches and terraces associated with progressive down cutting of fan and pediment alluvium. Perhaps the most important note here is that a majority of the project area is covered by Quaternary deposits of varying thickness. Of particular interest is the presence of high-grade vein material as cobbles and boulders that occur in these deposits. A number of shafts and cuts were historically developed in the colluviums and appear to follow boulders of ore-grade material. It is unclear how far this material has travelled from its source, and may represent nearby buried vein outcropping

7.3 Project Lithologic Units

The Gold Springs project is located in the southern portion of the Indian Peak volcanic field, surrounding and including the Gold Springs caldera. The project area includes many of the lithologic units that are described above, or portions of those units, and are shown in Figure 7-2. In general, the Au-Ag mineralization is found in a variety of northwest to northeast striking quartz-adularia +/- calcite veins, stockworks, hydrothermal breccias, and silicified structural zones which are predominantly hosted in older (23 to 22 Ma) andesite and latite flows and tuffs around the margins of the Gold Springs (19 to 16.5 Ma) caldera/diatreme. Locally, the Gold Springs rhyolite and welded to non-welded tuff breccias are also mineralized. The following lithologic descriptions summarize those found in the project areas.

The older andesites (Ta) are a composite of numerous flows, tuffs, and multilithic tuff breccias with a variable aggregate thickness of as much as 400 metres (Best et al., 1992). There has been some attempt to identify individual flow units (Smith, 2005); however, these are generally not laterally continuous. The uppermost member of the Ta andesite sequence is a biotite rich (5% to 20%) tuff found in the central Grey Eagle and White Point areas. It has been largely removed by erosion in the North and South Grey Eagle areas and is unconformably overlain by the Tt tuffs. The andesite flows are the primary host rock for the vein systems that have been historically mined in the Gold Springs project area (Perry, 1976), and are the primary host rocks for Grey Eagle, Homestake, Horseshoe, Snowflake, Jennie, Thor, and Midnight mine mineralization. Post-mineral andesite dikes are found in the Grey Eagle area and locally appear to cross cut the mineralization in the Grey Eagle and Iris mine areas. TMI is currently working to develop a better understanding of this important host rock unit, particularly where subdividing this package and identifying individual flows or units may have a bearing for preferentially hosting the high grade vein and stockwork mineralization.

The older latite flows and tuffs (Tol) are the prevalent ore hosts in the Jumbo-State Section-Etna areas and appear to conformably overlie, and are possibly intercalated with, the andesite flows observed in the South Jumbo area. Differentiating between the latite and andesite flows is difficult; however, the latite can generally be identified based on increased biotite content, magnetite, and rare quartz phenocrysts. Where mineralized, the older latites have typically been strongly QSP (quartz-sericite/illite-pyrite) altered with strong quartz stockworking and breccias in the main structural zones and increasing calcite veinlets at depth in the footwall zones. The northern and western flanks of the Jumbo Ridge area are often capped

by thin, platy, biotite-latite flows that are typically light grey in color, exhibit moderate sericitic (illite) alteration, and are weakly veined. These platy latites possibly formed a cap to the mineralizing fluids and possibly provided hydrothermal “ponding” at the base of the flows. The platy latite has a variable thickness (5 to 100 metres) and appears to have been largely eroded from the east flank of Jumbo Ridge. There appears to be an angular erosional unconformity on a significant portion of the Jumbo Vein/Breccia zone where it is overlain by latite.

A sequence of younger latite tuffs and flows (Tpl) overlies the mineralized andesite and latite flows along the east flank of Jumbo Ridge and ranges from 5 to 70 metres in thickness. The section of grey-green to reddish brown, variably indurated, locally altered biotite latite crystal tuff was deposited on an angular unconformity, often directly on the steeply east-dipping, Main Jumbo vein system. The typical tuff section consists of an upper grey-green propylitic tuff overlying a lower, oxidized, hematitic zone that overlies the vein zone. Detailed geologic cross sections indicate the Tol/Tpl contact is at a 35 to 60 degree slope, which is steeper than a normal depositional contact on an erosional unconformity. This suggests a possible syn or post depositional structural control, such as extensional horst-graben development, causing the Jumbo Ridge to be upthrown concurrently with the latite tuff eruptive event. The younger tuff is locally moderately, to strongly, QSP (quartz-sericite/illite-pyrite-calcite) altered with local disseminated pyrite content varying up to 25%. The altered tuff generally exhibits a slightly elevated level of detectable Au and Ag but is not known to host significant ore-grade mineralization. The younger tuff unit (Tpl) may have been deposited after main stage mineralization, and the observed pervasive alteration may be related to active hydrothermal activity. In the South Jumbo area, the younger tuff is capped by more recent buff colored, lacustrine and air-fall tuff (Tt) that overlies much of the district between the Jumbo and Grey Eagle areas.

The widespread latite-dacite flows (Tld) are weakly porphyritic, magnetite-bearing, and locally exhibit an aphanitic matrix. They surround and cover much of the State Section and Etna area, south of the Jumbo target, and are the dominant lithology of Rowley’s (2008) Tlf latite flows. The base of the latite flows are locally altered, but, in several locations north of Etna, the fresh flows overlie strongly stockworked, altered, and mineralized latite and andesite. The airborne magnetic survey conducted on the Jumbo-Etna area by GSLLC shows this unit to be strongly magnetic and indicates a large area of Tld extending to the northwest, west, south, and southeast of Etna.

A series of three moderately to densely welded units of trachytic ash-flow tuffs unconformably overlie the latite-andesite flows (Rowley et al., 1991). These units are referred to as the old rhyolite (Trdo) in the recent mapping in Utah (Rowley et al., 2008) and are the host for part of the mineralization in the State Line District to the north of the Gold Springs project. Remnants of an upper unit locally contain a black vitrophyre, and several lower members have been identified that exhibit reddish cooling units and may be intercalated with tuffs from other sources found to the east of the Jumbo mine area and cap some of the higher ridges and hills in the project area. Locally in the project area, there are zones with late stage deuteric alteration observed that appear as orange frothy tuff zones, but no significant mineralization has been found within the old rhyolites east of the Jumbo target area.

The Gold Springs caldera is a prominent feature in the project area and was identified by the USGS (Best, et al., 1992), in the vicinity of Bull Mountain. The caldera is partially defined on the west and northwest by outcrops of heterolithic breccias that locally form large ribs along the steeply-dipping contact with

older andesite flows to the south and west caldera margin and central to the caldera is a resurgent rhyolite dome complex. Rhyolitic flows and intercalated tuffaceous sediments and tuffs occur within the caldera and extend beyond the margins, where they unconformably overlie the surrounding andesite flows in the Pope and Charlie Ross Mine areas and extend southward towards the Jennie Mine. These tuffs are observed to host veins and stockwork gold mineralization. The Gold Springs Caldera appears to be the geographic focus of the district's Au-Ag mineralization as well as hosting fluorite-moly mineralization in pipe-like bodies that cross cut the resurgent dome flows.

Throughout the Gold Springs district, poorly consolidated felsic tuffs, reworked epiclastics and lacustrine deposits, and tuffaceous sediments accumulated in the ancestral Eagle Valley during the Miocene-Pliocene and are observed to unconformably overlie the mineralized andesite flows in the Grey Eagle areas and the older and younger latites in the Jumbo area. The lacustrine sedimentary units grade laterally into agglomerates and poorly sorted sediments that are weakly consolidated and are often indistinguishable from the younger Quaternary sediments. Locally present are vitrophyres, obsidian-bearing tephra units, and tuffaceous sedimentary units that are intercalated with the coarse sands and gravels. One example occurs on Buck Mountain and another near the north edge of Prohibition Flats. It appears that these naturally occurring obsidian deposits have been incorporated into the Quaternary deposits that blanket the range.

The USGS (Best et al., 1992) has identified a number of distinct mappable Quaternary deposits in the project area that represent a series of tectonic episodes and subsequent erosion and deposition along the range front. The basin filling sediments (Ts) help define the limits of extensional depressions that developed during the Miocene Basin and Range extension and during local caldera subsidence (Rowley et al., 2008) The most pronounced basin in the area is a broad, west-northwest trending basin that corresponds to Prohibition Flats area on the southwestern portion of the project. The clastic units include talus (debris trains), colluvial deposits, alluvial deposits adjacent to streams, floodplain deposits in the modern washes, and older benches and terraces associated with progressive down cutting of fan and pediment alluvium. A majority of the project area is covered beneath these Quaternary deposits, which are of varying thickness, and it is interesting to note that the vast majority of areas where the bedrock andesites are exposed are also where gold mineralization has been prospected and mined. Of particular interest is the presence of high-grade vein material as cobbles and boulders that occur in some of the Quaternary deposits. Historically, this is what initially attracted the first wave of prospecting in the 1870s, but the source for the ore material remained elusive to the early prospectors (Perry, 1976). There are a number of shafts and open cuts throughout the project area that appear to have been developed in colluvium searching for the presence of ore-grade material. In some cases, it appears that this material may not have travelled far from the source, and there is a possibility that these areas may be a relic of the large outcropping vein ribs, as seen in the Jumbo target area and as observed in trenches and by drilling in the Grey Eagle area. The significance of these local basin filling tuffs became evident during the 2013 Grey Eagle exploration drilling, where the main northeast-striking, westerly dipping South Grey Eagle stockwork zone was traced under post-mineral clastic cover for over 400 metres to the south. The post-mineral (Ts) tuff package is typically thin-bedded, gently to moderately (5 to 30 degrees) dipping to the southwest. The air fall and lacustrine crystal ash tuff units exhibit local scour and fill, graded bedding, and reworked conglomerates. The thickness of the post-mineral clastic unit (Ts) is locally modified by normal faulting and can vary between 3 and 50 metres, thickening downslope to the southwest where GSLLC

step-out drilling in 2014 intercepted >200 metres of overlying tuff above the mineralized contact. Drilling shows that the basal tuff zones incorporated variable thicknesses (one to eight metres) of mineralized vein-bearing regolith deposited in a high energy environment on moderate to steep topography that is an erosional surface. Resistant ridges of quartz veining are locally surrounded and covered by post-mineral clastics that show a minimum of 20 metres of relief. The 2014 road building and drilling program in the South Grey Eagle area exposed a >50-metre-thick zone of reworked tuff exhibiting high-energy cut and fill structures, mudflows, heterolithic, poorly sorted, vein bearing conglomerates. Along the southeast flank of the Grey Eagle main ridge, these deposits indicate that erosion had cut down through the early tuff into the Grey Eagle vein along the ridge top and southern flanks and appears to have removed a significant portion of the southern extension of the Grey Eagle vein system. This was illustrated with holes GE-14-001 to GE-14-004, which were drilled to extend the mineralization intercepted in GE-13-038, GE-13-016, and GE-13-005. The 2014 drilling indicated an erosionally thinned sequence of post-mineral tuff (Tt) and significantly thinner vein intercepts in the 2014 drilling with 45.7-metre (150-foot) thicknesses vs. the 2013 drilling intercepts of 61 to 76.2-metre (200 to 250-foot) intercepts.

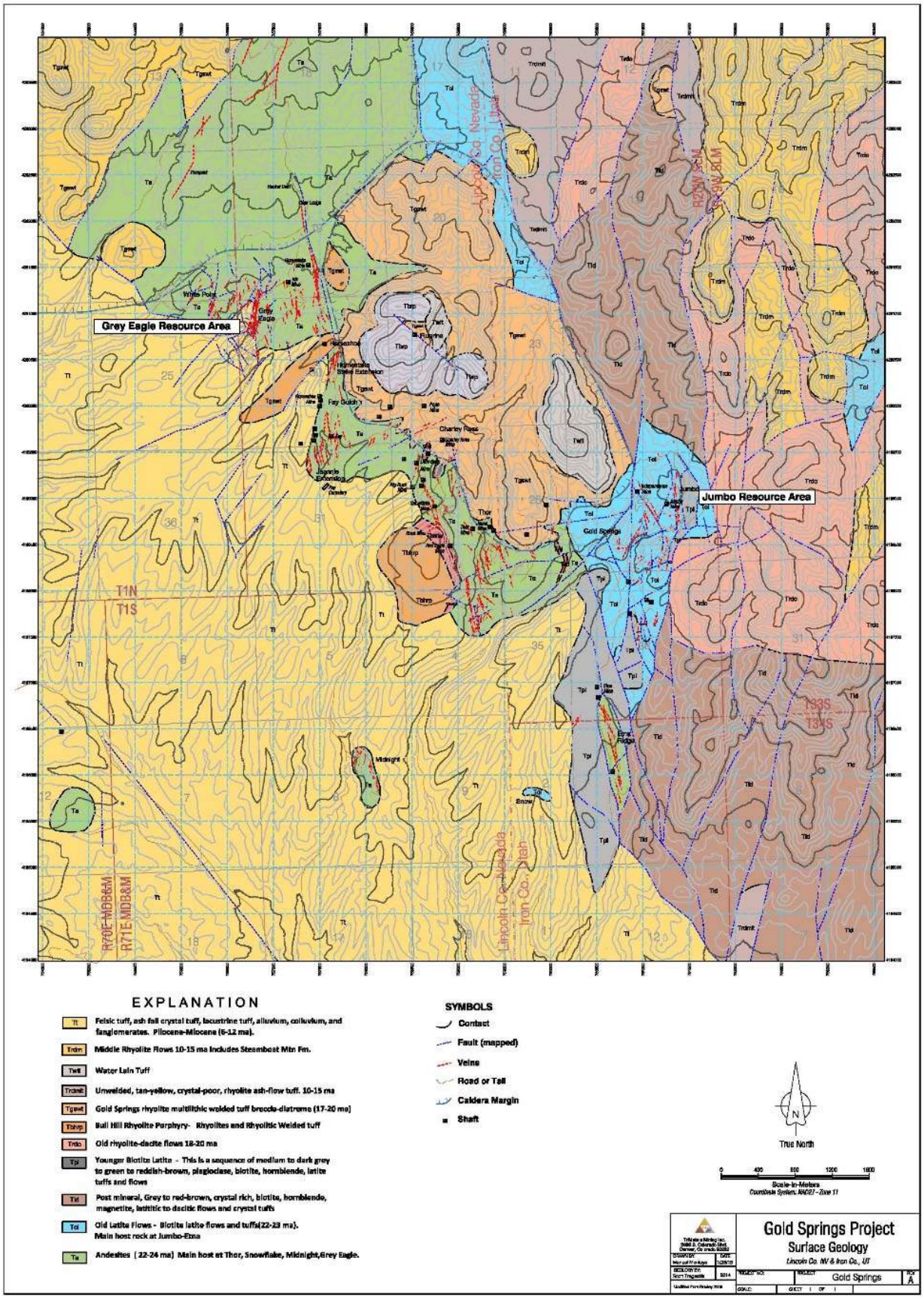
7.4 Structure

The Gold Springs project area is located within the Basin and Range physiographic province and is characterized by north-south block faulting that produced internally draining basins and ranges that have developed from east-west extensional tectonism since about 30 Ma (Best et al., 1992). The original rock units in the Indian Peak volcanic field have been displaced by faulting, and a majority of the project area remains covered beneath younger Pliocene to Quaternary sediments and colluvium.

The dominant mineralized structures in the Gold Springs project generally strike north-south to northeast-northwest and are moderately to steeply-dipping along laterally extensive fault zones that cut the andesites, as shown in Figure 7-2. In addition, there are subsidiary northeast-striking vein systems such as in the Etna and Midnight areas that locally exhibit a series of dilatent northwest-striking veins. At the Jumbo target, the vein system consists of a wide zone of silicification, veining, alteration, and clast and matrix-supported breccias, with predominate sets of north-northeast or southwest striking veins and numerous minor sets of varying vein orientations. Extensional tectonics (30 to 10 Ma) created a series of host and graben features in the district which are superimposed on earlier caldera collapse and resurgent dome fractures related to the development of the Indian Peak and White Rock Caldera systems (34 to 22 Ma). There are indications of strike-slip faulting following the same general north-south basin and range style block faulting with local conjugate shearing developing between parallel strike-slip faults. GSLLC is conducting more detailed analysis to determine if there are additional structural controls on the high grade gold mineralization, which has been suggested by detailed mapping on a portion of the Jumbo system. Historically at the Jumbo and other mines in the Gold Springs district, it is observed and reported that only certain portions of the veins grading >0.2 oz/t Au were mined (Perry, 1976), and the remaining vein material was left behind.

Post-mineral faults that offset mineralization have been observed and reported by previous workers (mostly from inaccessible underground mine workings). Several faults displace or are oriented parallel to the mineralized veins with the predominate faults striking east, northeast, and north-south. Some workers have speculated that the north-south faults reflect re-activation along basement structures in the pre-Tertiary rocks (Perry, 1976). In the Jennie Mine, the main vein was cut off above the 300-foot level by a

Figure 7-2: Map Showing the Project Geology and Structures



series of north-south faults dipping to the west, and a fault striking north-80° east, dipping 55° south, displaced the Jennie vein to the north of the main shaft (Mallory, 1928). The Thor vein is also cut off on the north and south by post-mineral faulting, and it is likely that the northern fault may be the same series of faults that offsets the Jennie vein nearby. In the Etna area, the main vein system strikes north-5 to 10° west and dips west consisting of a series of stringers and veins, which appears to follow a silicified latite porphyry dike and is observed to be cut locally by a post-mineral andesite dike that trends north-south. A major 350 to 355/65 west footwall shear separates the Etna Ridge mineralized latite section from younger weakly propylitic latites and trachydacites (Tld) to the east.

There are several areas where the north-south vein structures appear to intersect the margins of the Gold Springs Caldera (Figure 7-2) in the vicinity of the Pope and Charlie Ross mines. These areas exhibit stockwork veining and pervasive alteration (hematite, jarosite, and goethite staining) in the welded tuff units. The Pope vein strikes north-60° to 65° east, and is nearly vertical and cuts welded crystal tuffs. The Charlie Ross vein strikes north-30° east and dips 72° south and is associated with sericitic alteration and some quartz veining.

7.5 Mineralization

Mineralization in the Gold Springs area is characterized by dominant, generally north-striking faults and structures that are the primary control for the low sulfidation-type gold bearing quartz veins, with subsidiary northeast and northwest striking gold bearing veins also noted in the target areas. Andesite and latite flows are the primary host rocks to the Au-Ag mineralization in the district and were intercepted during drilling conducted by GSLLC at the Jumbo, Thor, Midnight, Grey Eagle, and White Point target areas.

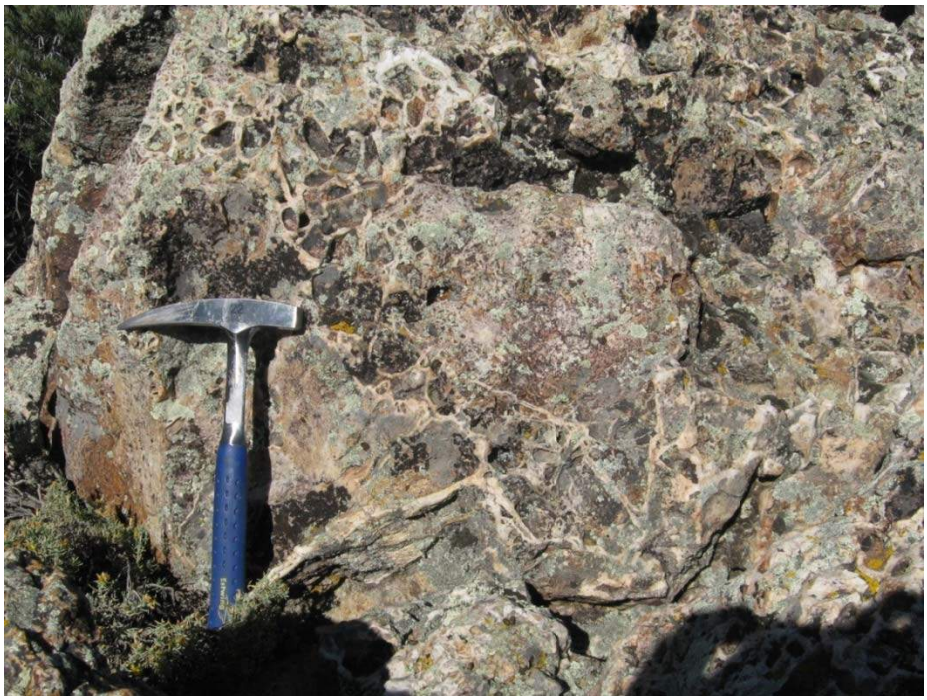
In general, the gold mineralization in the Gold Springs area consists of structurally controlled quartz-adularia +/-calcite veins, hydrothermal breccias, and associated stockwork veins, in addition to broad areas of disseminated mineralization in the footwall of the Jumbo structural zone. These types of mineralization are primarily hosted in andesite and latite flows that surround the collapsed Gold Springs Caldera. Host rocks adjacent to the veins and stockwork zones are variably silicified and exhibit sericitic (illite), argillic, and propylitic alteration in a general progression away from the vein. Mineralization also occurs in the Gold Springs rhyolite ash-flow tuff that locally overlies the andesites, and here the veins are commonly narrow, surrounded by stockworks, and exhibit broad areas of sericitic (illite) alteration associated with the presence of fluorite. Down-hole assay and surface trench data demonstrate broad areas of Au/Ag mineralization that shows a disseminated or widespread stockwork style of mineralization surrounding the vein systems. These broad areas of mineralization typically contain AuEq values of equal to or greater than 0.20 g/t and constitute a majority of the total gold mineralization at Gold Springs.

The dominant orientation for veins in the District is north-northwest to north-northeast with variable dips to the east and west. Individual veins may be segmented and occur in a regional belt or zones of mineralization that trend northwest to southeast. On a local scale, there is a distinct difference observed in the styles of mineralization between the Jumbo zone and the Grey Eagle zone, as described below.

The Jumbo-Shark's Mouth (South Jumbo)-State Section-Etna zone, referred to generally as the Jumbo Trend, is defined as a prominent north-south striking structural zone that was broadly affected by an early pyrite-argillic alteration related to an intermediate sulfidation phase of alteration associated with calc-alkalic andesitic volcanism (23 to 22 Ma). The argillic alteration may have created increased porosity

within the structural zone and allowed for younger low-sulfidation fluids to permeate during the younger Gold Springs caldera event. These younger alkaline fluids deposited the quartz-adularia, +/-calcite veins into fractures, faults, and hydrothermal breccia zones. The early acidic fluids created an inner pyrite-clay alteration that appears zoned outward into broad areas of chlorite-epidote stable propylitic alteration. The younger potassium-rich fluids created an inner zone of quartz-sericite (illite)-pyrite (QSP) alteration which appears to have zoned outwards into a blue-green potassium-smectite (celadonite) zone that locally overprints the pervasive propylitic alteration. Gold-silver mineralization is typically the strongest within the main vein-structural zone, particularly proximal to the pebble breccia zones. The pebble breccias occur within pipe-like bodies within the veins, where rounded to sub-rounded individual clasts of country rock are coated by a rim of acicular quartz crystals in a siliceous-quartz crystal matrix (Figure 7-3). In the Jumbo zone, significant mineralization is associated with siliceous micro-breccias and hairline silica fractures, which may indicate significant over-pressuring of the hydrothermal system and fluid being released during hydrofracture events into the surrounding wallrock. These structural zones formed areas of increased permeability well away from the main mineralization bearing conduits and host gold mineralization in the stockworks, breccias, and disseminated portions of the defined resources described in this report.

Figure 7-3: View of Pebble Breccia in the Main Jumbo Vein Zone



Note rounded clasts rimmed by quartz, many of the breccia clasts exhibit cross cutting relations from earlier vein episodes

The Grey Eagle and White Point zones are characterized by the widespread hematitic “red” alteration in the surrounding andesites and large areas of scattered quartz veins and stockworks. The andesite and latite exposures between Deer Lodge Canyon and Grey Eagle Canyon have been altered by low-sulfidation alkaline fluids which were biotite-hornblende stable and produced widespread disseminated adularia. The fluids weakly altered the plagioclase, which produced excess calcium carbonate and altered the magnetite to hematite. This alteration assemblage is typical of alkaline porphyry systems in the Northern Cordillera.

The main vein systems in the Grey Eagle area are strong northwest to northeast striking zones, moderately to steeply dipping, and crosscut a sequence of red andesite-latite flows which host 15- to 100-metre-thick zones of sheeted and stockwork quartz-adularia-calcite veins. The northern portion of the Grey Eagle zone is a north-northeast striking, westerly dipping structural zone with a 20- to -100-metre thick quartz-adularia-calcite vein-stockwork which forms a 500-metre-long resistant ridge flanked by overlying tuffs. In general, the Grey Eagle zone appears to be a structurally shattered zone between an upper and lower bounding fault structure. This structural preparation created a broad conduit for mineralization bearing fluids to migrate through, resulting in an overlapping sequence of quartz-calcite veins, quartz veins, and stockwork zones which constitute the Grey Eagle resource area described in this report. The 2013 drill program extended the Grey Eagle zone an additional 400 metres to the south, where it lies beneath post-mineral tuff and epiclastic material. The mineralized zone was intercepted in the 2013 drill program where the post-mineral cover appears to thicken towards the southwest. The Grey Eagle vein zone contains abundant calcite veining, and the gold mineralization is typically associated with 5% to 10% calcite.

Within the vein zones, quartz is generally coarse-grained crystalline and appears in crustiform, colloform banding, comb, and pseudomorphs of bladed carbonate forms. The quartz veins are generally white to light grey and greenish in color. Multiple episodes of veining are evident from the replacement textures and the different varieties of vein material being crosscut by subsequent veins.

Sulphides are uncommon in the veins and generally constitute <1% of the veins, but when observed, they typically occur as pyrite and lesser amounts of arsenopyrite, predominantly in the Jumbo-Etna area. Pyrite is observed disseminated throughout lateral or vertical zones within the host matrix or as blocky or equant crystals along fracture surfaces. Gangue minerals include calcite (with occasional iron and/or manganese carbonates), fluorite, and locally abundant amounts of adularia.

7.6 Target Areas

GSLLC has identified a number of additional target areas for gold mineralization located across the project area. These targets are shown in Figure 7-4 and include veins, stockworks, and disseminated styles of mineralization similar to that observed in the Jumbo and Grey Eagle resource areas. In addition, several target areas show gold mineralization hosted by welded tuffs and pipe-like breccias that are spatially associated with the Gold Springs caldera complex. The following is a synopsis of the targets where GSLLC conducted drilling and sampling followed by a brief description of additional targets that are identified in the project area. Table 7-1 summarizes the work completed by GSLLC for each of the target areas.

7.6.1 Jumbo Trend

The Jumbo Trend is located in the east-central part of the project area and consists of five previously identified target areas, including from north to south, North Jumbo, Jumbo, South Jumbo, State Section, and Etna (Figure 7-5). The Jumbo Trend extends approximately 10 km and is coincident with a significant Z-Tipper Electromagnetic System (ZTEM™) anomaly that appears to continue under colluvium (Figure 9-5). GSLLC has completed a total of 76 holes in the Jumbo Trend from 2010 through 2014. Prior to this, Astral completed nine drill holes in 2006, Amanda Resources completed three drill holes in 2003, and Energex completed 10 drill holes in 1988. This body of data provides the basis for determining the resource at Jumbo presented in this report, as described in Section 14.0. Each of the additional target areas within the Jumbo Trend have some unique characteristics and are described below.

Figure 7-4: Map Showing the Target Areas Identified by GSLLC in the Gold Springs Project Area

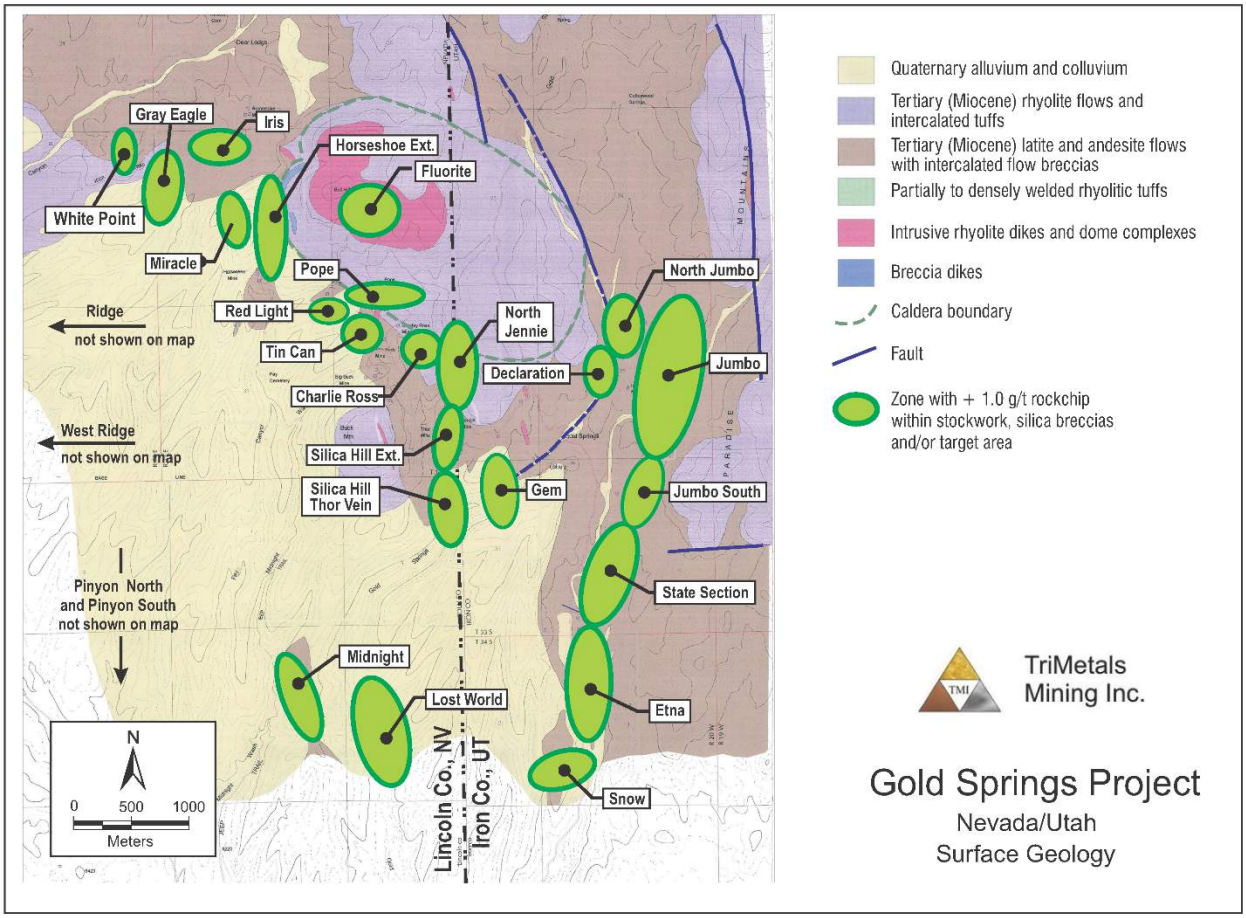


Table 7-1: GSLLC Target Areas and Comprehensive Summary of Work Completed

Target	RC Drilling	Core Drilling	Mapping	Rock Chip Sampling	Soil Sampling
Jumbo/Shark's Mouth	57 holes-GSLLC 16 holes pre-GSLLC	3 hole GSLLC	Yes	Detailed	Yes
Thor	2 holes GSLLC 2 holes pre-GSLLC	1 hole GSLLC	Yes	Detailed	Yes
Grey Eagle	85 holes GSLLC	2 holes	Yes	Detailed	Yes
White Point	5 holes GSLLC	No	Yes	Limited	Yes
Midnight	2 holes GSLLC	No	Yes	Detailed	Yes
Etna	9 holes GSLLC 4 holes pre-GSLLC	No	Yes	Detailed	No
North Jennie	1 hole pre-GSLLC	No	Yes	No	No
Jumbo North	1 hole GSLLC	No	Yes	Limited	No
Fluorite	3 holes GSLLC	No	Yes	Limited	No
Silica Hill	3 holes	No	Partial	Detailed	Yes
Silica Hill Extension	No	No	Partial	Detailed	Yes
Lost World/Camp Bell	No	No	No	Limited	No
Pope	2 holes GSLLC	No	Yes	Detailed	No
Tin Can	3 holes GSLLC	No	No	Detailed	No

Target	RC Drilling	Core Drilling	Mapping	Rock Chip Sampling	Soil Sampling
Horseshoe extension	No	No	Yes	Detailed	Yes
Iris	No	No	Yes	Detailed	Yes
Keno (now part of Grey Eagle)	Yes	No	Yes	Detailed	Yes
State Section (Sharks Belly)	6 holes GSLLC	No	Yes	Detailed	Yes
Snow	No	No	Yes	Limited	No
Ridge	No	No	No	Limited	No
West Ridge	No	No	No	Limited	No
Declaration	No	No	Yes	Limited	No
Miracle	No	No	Yes	Limited	No
Gem	No	No	Yes	Limited	No
Red Light	No	No	Yes	Limited	Yes

Figure 7-5: View of Stockwork Veining in the Etna System



7.6.1.1 North Jumbo Target

The North Jumbo target is a northern extension of the Jumbo Trend and is primarily defined by the ZTEM work by GSLLC and the CSAMT survey conducted by Astral. The majority of this area is covered by post-mineral colluvium. GSLLC completed one hole on the North Jumbo Target in 2012. Drill hole NJB-12-001 intercepted a few narrow quartz vein intervals containing significant gold mineralization. The best intercept is 3.05 metres at 1.75 g/t Au and 53.7 g/t Ag. In general, the mineralization is tightly restricted to the veins with no pervasive alteration.

7.6.1.2 Jumbo and South Jumbo (Shark's Mouth) Targets

The main Jumbo target consists of a prominent vein zone that is up to 30 metres wide along a north-south strike and a steep easterly dip that forms outcrops as shown in Figure 2-1. The South Jumbo (Shark's Mouth) area lies at the southern end of the Jumbo target and is characterized by numerous veins and stockworks over a broad area of up to 150 metres wide. Within the Jumbo vein system, there is a massive quartz and quartz/calcite vein portion that can exceed 5 metres in width: This is typically in the center of the vein system or zone and forms a distinct linear/planar pattern which contrasts with the somewhat braided appearance of the stockwork breccia portions of the vein system. Much of this central quartz vein is dense, fine-grained quartz which on close examination will exhibit relict rounded pebble breccias, banding, and bladed texture after calcite. The distribution and rounded form of the breccias clasts indicate that they are derived from repeated hydrothermal brecciation and fluidization within the vein system (Figure 7-3). In some areas the breccia consists of angular silicified wallrock clasts in a quartz matrix. The quartz veins at Jumbo exhibit bladed texture, which suggests that boiling occurred within the hydrothermal system, and is typical for a low sulfidation epithermal system, as described in Section 9.0. Adjacent to the veins and breccias, there are surrounding areas of quartz stockwork veining that becomes more diffuse away from the main vein structures. To the south, in the Shark's Mouth area, the vein structures are less prominent, and the system is characterized by numerous veins, hydrofractures, microbreccias, and stockworks over a broad area.

Locally within the vein system, there are somewhat discontinuous zones of distinct quartz veins, silicified wallrock, and quartz stockwork in both the foot-wall and hanging-wall to the central vein structure. At times, these zones appear to form an enigmatic S-like pattern so that north of drill hole number GS-10-5 (Figure 14-2) silicification is observed on the west or foot-wall side of the central, dominant vein, while south of that drill hole it is on the east or hanging-wall side. Within this southern, hanging-wall portion, there appear to be complex vein relationships with multiple short, interconnected vein segments that form an anastomosing pattern to the overall structure. Near drill hole number GS-06-01, there are outcrops of "vein" in the hanging-wall that form an arc-shaped zone of stockwork and breccia with quartz matrix. These appear to enclose short segments of northwesterly trending veins. Some of these observations may prove to be useful in understanding possible loci for some of the higher-grade intercepts of Au-Ag mineralization encountered in GS-06-01, and as described elsewhere in the district.

Detailed mapping of portions of the Jumbo vein system suggests that there may be a significant, relatively late stage quartz deposition episode that formed the prominent large outcrops of quartz at the Jumbo vein system. This late stage of quartz appears to over-print and cement the earlier hydrothermal pebble breccias and blade texture after calcite. The south end of the prominent Jumbo structural vein zone is truncated by an east-west trending post-mineral fault along Jumbo Creek.

Wallrock alteration surrounding the Jumbo vein system typically extends outward from the vein into the adjacent andesite wallrock up to 100 metres. In some instances, a narrow selvedge of sericitic alteration is observed adjacent to the veins that grades into relatively fresh, propylitic alteration in the andesite. Commonly, there is an intense argillic alteration selvedge observed adjacent to and along the hanging wall of the Jumbo vein zone. This may be the result of an incursion of acidic fluids late during the collapse of the hydrothermal system. It also has been observed that disseminated pyrite is paragenetically associated with an early mineralizing/alteration event and pre-dates the low-sulfidation gold mineralization. It is unclear if the early pyrite event is associated with gold mineralization. The low-sulfidation alkaline fluids

which formed the main quartz-adularia +/- calcite veins appear to be associated with the QSP (quartz-sericite/illite-pyrite) alteration assemblage and are spatially proximal to the main structural conduit. This alteration is observed to over-print the early propylitic (chlorite-epidote) alteration with potassium-iron smectite (celadonite) forming after chlorite, which results in a distinctive blue-green color to the QSP alteration. During 2014, drilling intercepted additional mineralization in the foot-wall to the main Jumbo vein in drill holes J-14-013, J-14-018, and J-14-019. These intercepts ranged from 3 to 43 metres and extend the width of the mineralized zones further eastward than previous drilling had indicated.

Sampling at an old prospect located in the flats east of the Jumbo Ridge returned 3.7 g/t Au and suggests that the subparallel zones in the hanging wall in addition to the footwall may extend further to the east from the main Jumbo zone. Drill hole J-14-010 was drilled at 090 degrees at an inclination of -045 degrees to test below the prospect. The hole intercepted a 32-metre (105-foot) zone of weakly veined, strongly QSP altered latite tuff from 151 to 183 metres (495 to 600 feet) (total depth) which contained significant Au and Ag mineralization ranging from 27 to 3,985 parts per billion (ppb) Au (averaging 454 ppb Au) and 1.9 to 26 parts per million (ppm) Ag (averaging 5.6 ppm Ag). In addition, the wide zones of mineralization and alteration observed in the 2014 drilling of the South Jumbo (Shark's Mouth) area indicates the potential for additional bulk tonnage resources.

7.6.1.3 State Section (Sharks Belly) Target

GSLLC controls portions of the Utah Trust Lands in section 36, Township 20 West, Range 33 South. This area is along the southern projection of the Jumbo zone and is shown to have a strong ZTEM resistivity anomaly. There are numerous small pits located on these lands with wide areas of clay +/- sericite alteration.

Mapping and sampling were completed on this target in 2012. The results of this work outlined several drill targets based on structural intersections and ZTEM resistivity anomalies. Sampling of the vein systems have produced values in rock chip samples of up to 6.7 g/t Au over two metres from a prominent vein exposure. Other veins have been sampled that carry gold values in the one- to two-g/t range. A total of six holes were completed within the State Section target. All of these holes intercepted zones of low-grade gold mineralization, with drill hole SS-12-002 returning 6.1 metres at 2.2 g/t Au. This hole was drilled into an area of post-mineral cover to test a ZTEM anomaly. Mapping in the southern portion of the State Section target identified areas of post-mineral latite flows that cover areas of strongly altered and stockwork-veined older andesite-latite flow, which appear similar to the younger latite flows observed at the Etna zone.

7.6.1.4 Etna Target

GSLLC has completed nine RC drill holes on the Etna target. Past operators conducted extensive rock chip sampling, and Energex and Astral completed six RC drill holes (Caulfield, 1988; Smith, 2005). The Etna Zone is located in the southeastern portion of the Gold Springs project. Mineralization at the Etna target occurs primarily as quartz stockwork in brecciated andesite that forms a prominent ridge extending from Newell Spring, on the south, for 1500 metres to the north. Vein mineralization dips consistently 60 degrees to the west. The outcropping width of the Etna zone varies from 30 to 75 metres (100 to 250 feet), with the greatest widths generally along the north end of the zone. The silicified latite porphyry locally forms

large cliff outcrops along the eastern side of the ridge, where the footwall country rock is eroded away from the vein zone.

Along the Etna target zone, hanging-wall mineralization occurs primarily as quartz healed breccia that grades west into quartz stockwork mineralization in the hanging wall. Individual quartz veins are generally less than 0.6 metres (2 feet) thick. The zone is not characterized by a single prominent veining, unlike other targets in the project area where the quartz vein structures are the dominant mineralized feature (Figure 7-5). Wallrock alteration consists of silicification occurring in variable amounts and re-cemented breccias and stockwork zones that grade into variably argillized andesite in the hanging wall of the vein system.

The Etna Mine is located on the southern end of the mineralized zone, as shown in Figure 7-4. An inclined shaft accessed the mine workings, in which several hundred feet of workings were driven on the 100-foot level (Perry, 1976). TMI has a database of rock chip sampling from Astral Mining and Cambior, and this data shows that numerous samples along the Etna vein system contain greater than 100 ppb Au with a high of 27.9 ppm. Data from the ZTEM surveys suggest that the Etna and Jumbo zones correlate to a larger resistivity anomaly that extends for 10 km in a north-south direction and define the Jumbo Trend. Two drill holes completed by Energex are reported to have intersected long intervals of Au and Ag mineralization during their work in 1988. One of these drill holes is reported to have contained an intercept of 91.44 metres averaging 0.5 g/t Au, including 24.4 metres at 1.46 g/t Au (Smith, 2005).

During 2012 and 2014, GSLLC completed nine drill holes in the Etna target. The first drill hole was to twin an Energex hole (E88-01) that was reported to bottom in 3.05 metres at 9.3 g/t Au at a depth of 91.44 metres and contained 44.2 metres at a gold grade of 0.88 g/t Au (Caulfield, 1988, Smith, 2005). The drill site is located on the northern end of Etna Ridge. The GSLLC drill hole E-12-001 intercepted 1.5 metres at 4.9 g/t Au at the same depth where the Energex hole bottomed in the high grade interval. The 2012 GSLLC drill hole E-12-001 intersected 39.6 metres at 0.57 g/t AuEq between 61 and 100.6 metres). The 2014 GSLLC drill hole E-14-001 intersected 106.9 metres at 0.49 g/t AuEq.

7.6.2 Grey Eagle

The Grey Eagle target is characterized by a complex zone of intersecting veins trending north-south, northeast, and northwest within a north-northeast trending structural zone dipping 50° to 85° west. (Figure 7-6) The structure is interpreted to be a segment of a caldera ring fracture system which is also observed in the ZTEM geophysical data. The veins form a mineralized corridor ranging from 20 to over 75 metres in width, which is traceable on the surface for over 700 metres before being obscured by post-mineral cover (Figure 7-7). The individual veins and vein zones are characterized by white quartz, crustiform, colloform banding, comb, and pseudomorphs of silica after bladed calcite forms. Calcite and fluorite have been observed both in outcrop and in drill samples. Areas of both stockwork and sheeted veining are present in both the hanging wall and footwall to the dominant veins, and breccias cemented by silica are often noted in close proximity to the vein structures. There are a number of historic shafts and adits located within the mineralized corridor, and only a few are accessible at this time.

Rock chip sampling in the Grey Eagle target has been conducted across the area of mineralization, and the results show values of up to 13.85 g/t Au and 35.3 g/t Ag. During 2012, GSLLC completed a 60-metre-long trench across a portion of the southern Grey Eagle zone and opened two historic underground workings. The trench was nearly perpendicular to the strike of the mineralized zone and exposed five main north-

Figure 7-6: Cross Section Showing Geology and Mineralization in the Grey Eagle Zone

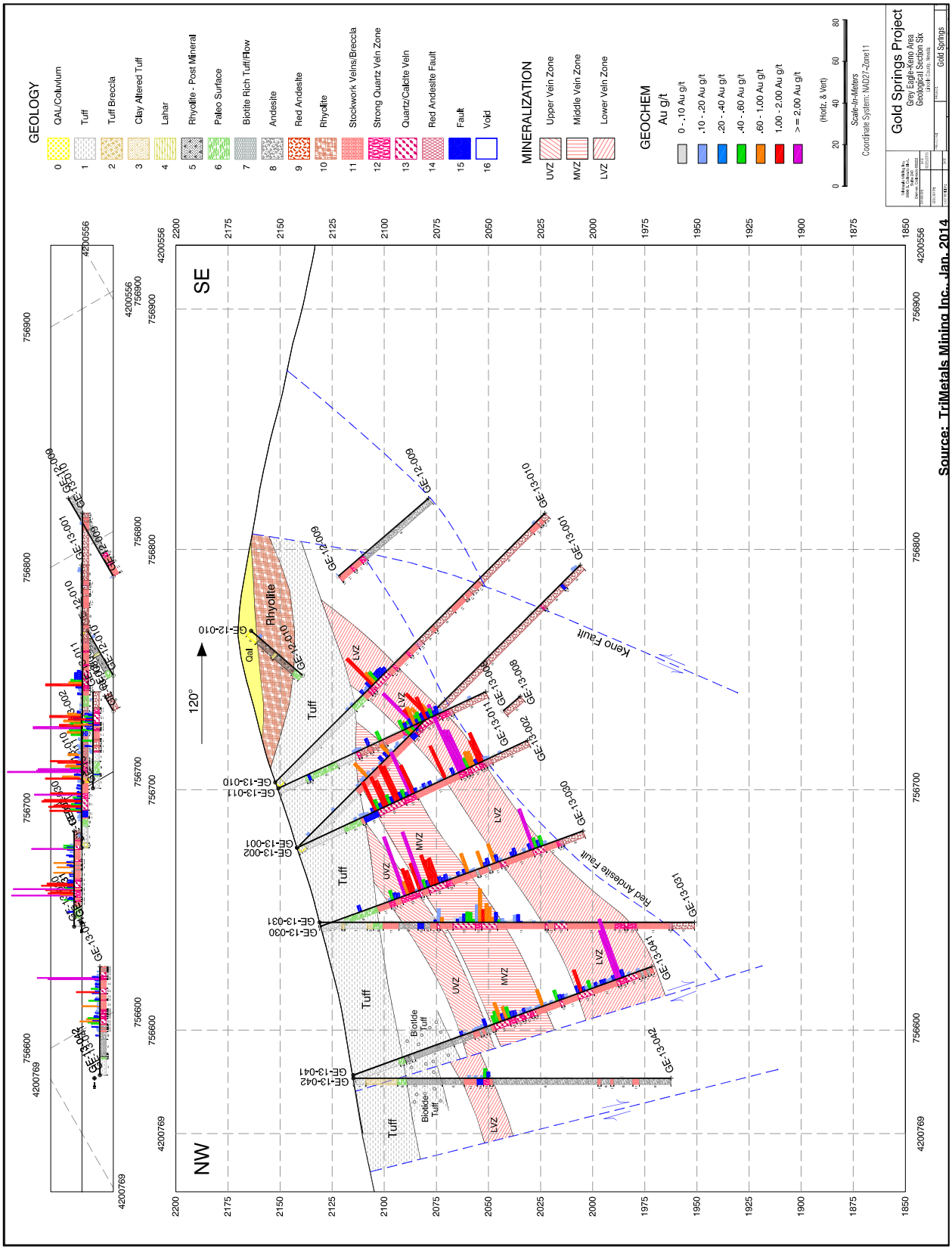
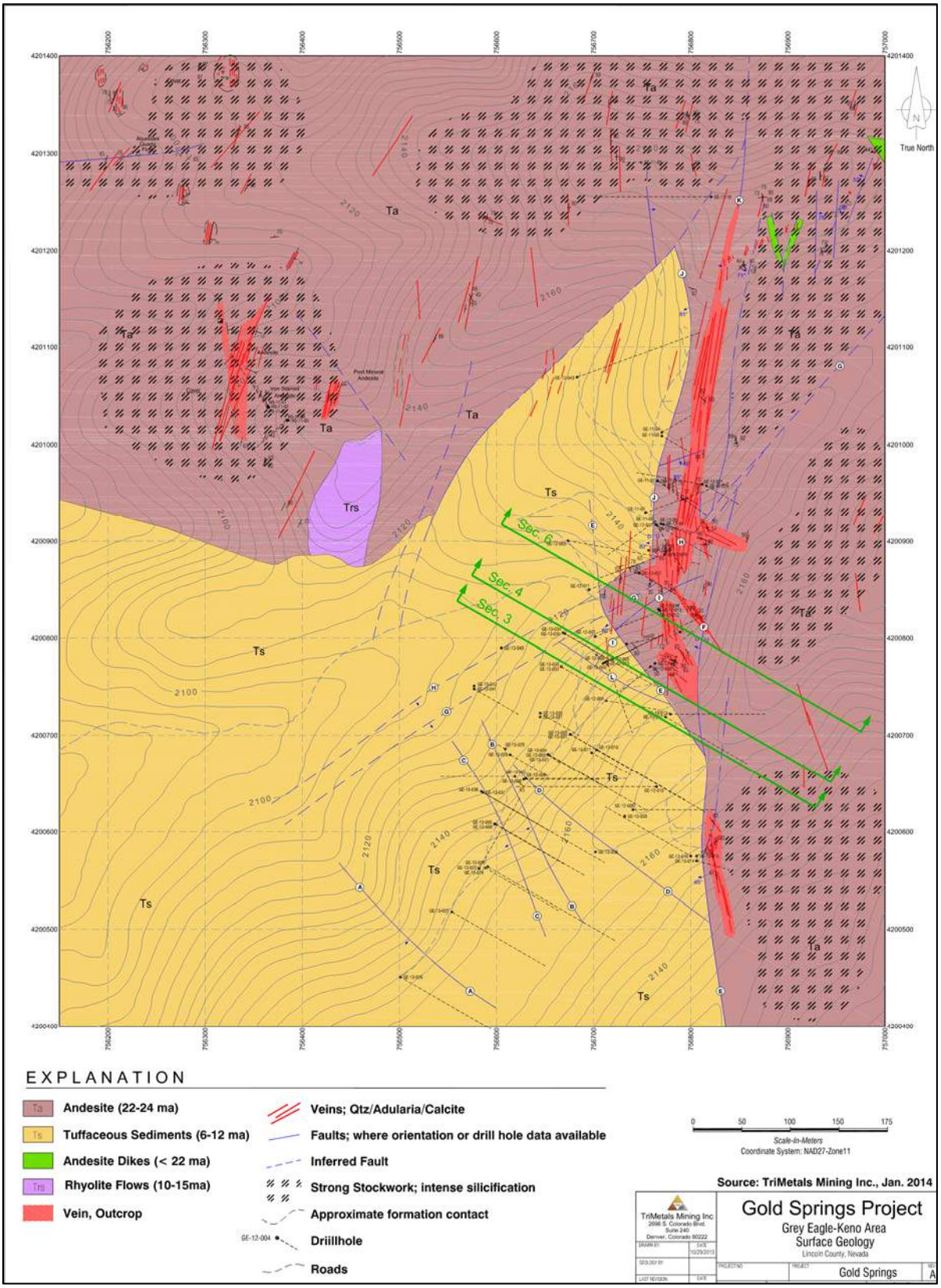


Figure 7-7: Geology and Mineralization in the Grey Eagle Zone



south striking veins between 1.5 to 8 metres thick and numerous smaller veinlets and stockworks of varying orientation. A 56.4-metre-wide section across the mineralization averaged 1.4 g/t Au and 10.1 g/t Ag. GSLLC collected 22 select vein and surrounding host rock samples throughout the length of the trench. The selective samples assayed from 0.12 g/t to 8.59 g/t Au, with an average value for all samples of 1.4 g/t. The 2013 and 2014 drilling programs demonstrated that this mineralization extends toward the south and west, where it lies covered by post-mineral tuff, rhyolite flows, and colluvium.

Additional surface sampling and trenching was conducted in the Grey Eagle target area in 2013. A series of eight, 5-foot continuous chip-channel samples across vein exposures along the north Main Ridge vein zone was conducted with line spacing of approximately 50 to 100 metres. The results showed strong Au-Ag mineralization (350 to 2,200 ppb Au) in most of the 5-foot channel samples across the northern zone.

An 800-foot (244-metre) long trench was excavated along the northern Grey Eagle Canyon ridge-line to expose the northern extension of the Main Grey Eagle Vein zone (Figure 7-8). Detailed sampling and mapping were completed on the >20-metre-thick main vein/stockwork zone and a series of complex, cross-cutting to sub-parallel footwall structural zones with variable quartz-calcite, +/-fluorite stockwork.

Figure 7-8: Trench in the Grey Eagle Zone



GSLLC trench through the southern Grey Eagle target area, showing vein mineralization

GSLLC to date has completed 85 drill holes in the Grey Eagle area for a total of 12,275 metres. The drilling in 2013 and 2014 was successful in extending known mineralization an additional 420 metres along strike to the south beneath post-mineral tuff. The mineralization consists of three anastomosing quartz-calcite

sheeted vein-stockwork zones ranging from 45 to 100 metres in cumulative thickness that are oriented north-30° east and dip 50° to 65° west.

During the previous work at the Grey Eagle target, Energex conducted underground sampling from an adit (Deering et al., 1985) that is beneath the trench that was excavated in 2012. The results (pre 43-101) from the Energex channel sampling report intervals of 0.91 metres at 0.37 oz/t Au, 1.83 metres at 0.20 oz/t Au, 0.91 metres at 0.33 oz/t Au, 0.91 metres at 0.31 oz/t Au, 0.91 metres at 0.20 oz/t Au, and 3.5 metres at 0.40 oz/t Au. These samples were all reported to have been collected from an underground stope that is in the footwall portion of the mineralized zone (Figure 7-9). During 2012, GSLLC collected select samples from these underground workings that showed values of up to 29.3 g/t Au and 47.4 g/t Ag. The samples are from quartz and quartz-calcite veins, stockwork zones, and matrix-supported breccia cemented by silica.

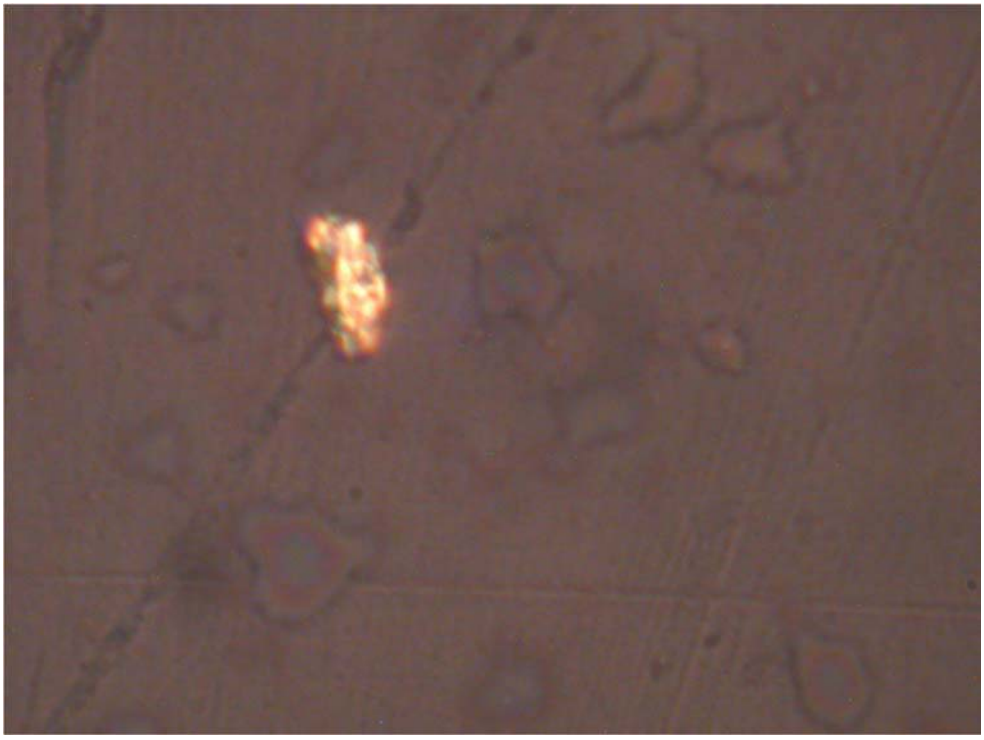
Figure 7-9: Underground Workings in the Grey Eagle Zone



Underground workings in the Grey Eagle area approximately underneath the GSLLC trench showing some of the previous Energex sampling intervals

In the Grey Eagle system, gold and silver are hosted within stacked quartz-calcite veins, stockwork, and breccia zones. Of particular interest is the observation that there is typically abundant calcite veining in close proximity to the precious metal mineralization and that some of the calcite appears to be contemporaneous with gold mineralization. Petrographic work identified gold grains within calcite in drilling samples from the 50.3- to 51.8-metre (165 to 170-foot) interval (sample #84451) in drill hole GE-12-002. This interval had values of 0.347 g/t Au. The gold grain is observed to be within quartz vein material and fragments cemented by later calcite and aragonite. Some of the aragonite blades are replaced by quartz, and gold occurs in the quartz and calcite (Hansley, P., 2012). A photomicrograph in reflected light is shown in Figure 7-10. Previously, the calcite veining was thought to be a late stage of veining and to post-date gold mineralization in many parts of the Gold Springs project area.

Figure 7-10: Photomicrograph Showing Gold Grain in Calcite, Grey Eagle Target



Native gold grain in calcite in polished section under reflected light, 1000x, FL 110 microns.

The Keno target is a north-south structural zone that intersects the Grey Eagle target in the vicinity of the trench excavated by GSLLC in 2012. This structure is characterized an open-space quartz breccia vein and is developed by one adit. Some underground channel sampling was conducted during 2013, and this failed to reveal significant gold mineralization.

7.6.3 White Point Target (Previously Homestead Target)

The White Point target (previously referred to as the Homestead target) was renamed based on several of the historic claims in the area. The White Point target area has now been expanded by GSLLC and is located in the northwest portion of the property on patented claims and BLM lands controlled by GSLLC. This target is characterized by a 3-metre-wide north-south to northeast striking vein system with an intersecting 5-metre-wide north-35° east vein (Figure 7-11). In addition, there is a wide zone of up to 100 metres of sheeted northeast-trending veins exposed in an old road cut. This zone can be traced along strike to where it is obscured by post mineral volcanic rocks and colluvium. There are several shafts located within the White Point zone; however, there is no recorded historic production.

GSLLC has conducted rock chip sampling in the White Point area with results that include values up to 8.169 g/t Au and 8.9 g/t Ag from selected vein samples. A total of five RC holes were drilled by GSLLC in 2011. In 2013, GSLLC completed a series of seven continuous chip/channel sample lines comprised of a set of contiguous 5 to 10-foot chip/channel samples across vein and stockwork zone exposures. The White Point target area has been prepared for a drilling program in 2015. Drill roads and pads were constructed along the target zone, and this construction has provided additional exposure of the structural zone that generally trends north-south. GSLLC conducted channel sampling along road cuts and drill pads with a series of continuous 3.05- to 4.6-metre (10- to 15-foot) channel samples in four zones across the target

Figure 7-11: Vein Exposed in Caved Stope at the White Point Target



area. A summary of the 2013 and 2014 channel sampling results from the White Point target area is shown in Table 7-2.

Table 7-2: White Point Channel Samples

Length of Channel Sample (meters)	Au (g/t)	Ag (g/t)	Au equivalent*
9.14	0.329	2.7	0.38
7.62	0.854	6.66	0.97
6.09	0.198	2.75	0.25
27.4	0.627	6.66	0.74
3.4	0.281	2.35	0.32
4.57	0.348	3.57	0.41
13.7	0.885	12.93	1.11
30.5	0.600	8.27	0.75
13.7	0.069	3.03	0.12
9.15	0.118	7.2	0.24
26.5	0.696	8.6	0.85

g/t – grams per tonne
* AuEq uses a Au/Ag ratio of 57.14 and assumes 100% metallurgical recoveries.

7.6.4 Midnight Target

The Midnight target area is located in the southern portion of the property. The target is covered by patented claims controlled by GSLLC. One of the largest shafts found within the project area is located on the Midnight vein system. In the 1990s, these patented claims were leased to a group that initiated excavation of a production size adit in the area of the shaft but never progressed beyond a depth of 20 metres. There are numerous cuts across the adjacent hillside areas that explore several smaller veins and stockwork zones within this vein system. A second shaft is located on a parallel vein approximately 50 metres east of the main shaft. Selected samples from this area show gold values of up to 57.3 g/t Au. A third parallel vein/silicified zone is located approximately 70 metres further east and was the target of several old diggings and small shafts. This eastern-most zone can be traced for approximately 600 metres in a north-south direction, all within the patented claim block. GSLLC has conducted surface rock chip sampling in the Midnight area that indicates a potentially wide area of gold mineralization (up to 120 metres wide) associated with predominantly north-south trending veins, sub-parallel faults, sheeted veins, and stockwork zones. Veins are characterized by white massive quartz, pale pink to gray to white colloform banding, druse-lined quartz fracture surfaces and/or vugs, and pseudomorphs of silica after bladed calcite forms with surrounding areas of intense argillization and/or propylitization. The rock sampling results include numerous samples of +0.1 g/t Au, with values up to 57.3 g/t Au and 59.4 g/t Ag.

In 2010, GSLLC completed two RC holes on the Midnight target. The results were encouraging; however, problems with the drilling included one hole that passed through two unanticipated open stopes in the underground workings.

During 2013, two east-west trenches were completed across portions of the main north-east striking vein system. The two trenches and an additional five east-west sample lines located approximately 100 metres apart were completed at the Midnight target during 2013 (Figure 7-12). The sample lines consisted of a series of 5-foot continuous chip-channel samples collected across exposures of a prominent quartz vein stockwork zone. The results indicate a wide zone of anomalous gold mineralization with variable concentrations from 0.20- to 1.10-g/t Au.

7.6.5 Thor Zone

The Thor vein is in the southeast 1/4 of section 32, Township 1 North, Range 71 East and is approximately 180 metres west of the Jennie Vein. The Jennie was one of the district's largest producing mines, with a reported grade of 0.4 oz/t (12.4 g/t) Au over widths of 1.5 to 7.0 metres (Perry, 1976). The Thor vein is poorly exposed along the surface due to colluvial cover but can be traced for more than 300 metres along strike by shallow pits and trenches. The Thor vein is reported to be offset on the north and south by post-mineral faults (Perry, 1976). It generally strikes northwest with a variable easterly dip but is reported at depth to roll over and dip to the west. The vein varies in width from 0.6 to 6.0 metres and consists of quartz, calcite, adularia sometimes exhibiting distinct bands of high-grade gold mineralization that were selectively mined with other vein bands that were left behind as waste. Unlike the Jumbo, Grey Eagle, and White Point targets, there is no significant wallrock mineralization observed surrounding the Thor vein structure. Samples of the vein mineralization left near the open stopes exhibit banded quartz and adularia, sparse oxidized sulfide grains, visible gold grains, and rock samples that assay up to 23.35 g/t Au and 252.9 g/t Ag. A rock chip sample across a 2-metre section of the Thor vein left behind by early mining assayed 3.28 g/t Au (sample KK-11-39) (Figure 7-13). The mapping and detailed rock chip sampling conducted by

GSLLC demonstrates that there are at least three narrow (0.2- to 1.0-metre) parallel veins located in the footwall of the Thor vein.

Figure 7-12: View, Looking to the East, at the Southern Trench in the Midnight Target



Excavated and sampled by GSLLC during 2013

Figure 7-13: Vein Exposed in Caved Stopes at the Thor Mine



Sample KK-11-39 was collected across 2 metres of this structure Vein exposed in caved stope at the Thor Mine, assays 3.1 g/t gold across the 2 metres face shown above.

GSLLC completed a total of three drill holes in the Thor target area during 2011. One core hole was drilled to intersect the vein in an area of historic work and contained several intercepts with values >3.0 g/t Au. Two additional RC drill holes were completed approximately 100 metres south of the core drill hole. Each of these drill holes intersected vein material and contained significant gold values.

7.6.6 Silica Hill (Silica Hill Extension)

The Silica Hill target areas are located to the west of and are generally sub-parallel to the Thor vein, where vein mineralization is exposed by numerous small pits and trenches. The target area is covered by colluvium that contains abundant vein fragments that link projections of the outcropping veins, suggesting that this material is locally derived. The vein material displays visible gold with assays reaching highs of 126.326 g/t Au. The Silica Hill and Silica Hill Extension are north-20° west trending zones that are 1,600 metres in length, displaying widths of up to 300 metres, in which these narrow high-grade veins are found. Veins within the corridor generally exhibit orientations of north-35° east, north-30° west and north-10° west, all of which contain gold mineralization.

Three holes were completed within the Silica Hill area. Two drill holes contained zones of significant gold mineralization ranging up to 1.86 g/t Au (SH-12-002, 86.9 to -88.4 metres). Hole SH-12-002 was lost after it entered a void thought to be a solution cavity. Just prior to entering the void, the hole contained 4.6 metres at 1.04 g/t Au (SH-12-002, 86.9 to 91.4 metres). The void is thought to be a possible dissolution cavity in a calcite vein. The third hole failed to reach the target depth.

7.6.7 Fluorite Target

Bull Hill is the historic name for the promine nt hill to the north of the Pope Mine (shown in Figure 7-14: View from the Pope Mine Looking Towards Bull Hill) and is a resurgent rhyolite dome surrounded by intercalated flows and tuffaceous sediments and tuffs that accumulated within the Gold Springs caldera moat (Best, 1992) (Figure 7-15). Locally, the rocks exhibit opaline silicification, which may represent the near-surface expression of an epithermal system as described by Hedenquist (2000) and shown schematically in Figure 8-1. Mineralization at the Fluorite target area is unusual and consists of a vertical shaft (Figure 7-15) and a lower adit that explore a fluorite-bearing pipe that cuts the rhyolite and tuffs and is surrounded by a broad area of phyllic alteration. The “vein” structure is reported to trend north-20° east, and averages 0.7 to 1.0 metres wide. Mineralization consists of purple and green fluorite, crustiform lattice quartz, and red earthy hematite. The hematite often occurs as thin seams between bands of fluorite and appears later than the quartz. The hematite material will produce a nice tail of gold when panned, and samples taken of the fluorite have resulted in assays of up to 23.45 g/t Au. GSLLC completed three drill holes on the Fluorite target. Each hole intercepted the target structure with fluorite associated with hematite muds and typically followed along the margins of a younger latite dike that cut the rhyolite flows. The latite dike appears to have a northwest strike and near vertical dip. Gold values from the holes were anomalous, and the drilling showed that these structures continue along strike and at depth.

Additional geological work is required to better understand the gold mineralization in the Fluorite area. Mineralization appears to be directly associated with the Gold Springs caldera complex and is a distinctly separate style of mineralization than the vein systems observed elsewhere in the district, and is a younger stage of gold mineralization.

Figure 7-14: View from the Pope Mine Looking Towards Bull Hill



Figure 7-15: View of the Bull Hill Area Showing a Portion of the Rhyolitic Dome and Flows



View of the Bull Hill area showing a portion of the rhyolitic dome and flows in the background and the heteroclastic breccias that form outcrops along the caldera margin.

Figure 7-16: The Shaft at the Fluorite Target Area



The shaft at the Fluorite target area, note the abundant red hematite staining and the banded fluorite veining.

7.6.8 Pope Target

The Pope Mine area is located in the central part of the current Gold Springs project and differs from the other targets described above. It may be unique in the style of gold mineralization described in the district. The Pope target consists of numerous narrow-sheeted quartz veins and clay seams which cut welded tuffs associated with the resurgent rhyolitic dome in the Gold Springs caldera. These veins generally strike east-west and are surrounded by a broad area of sericitic alteration and narrow veinlets and stockwork of quartz-adularia veins that individually can assay as high as 19.06 g/t Au and 70 g/t Ag. Rock chip samples reported by Cambior in 1997 indicated that anomalous gold values of up to 0.57 g/t were obtained from the silicified tuff unit (Katsura, 1997).

GSLLC completed two holes in the Pope Target area. Drill hole P-12-001 intersected an open stope between 56.4 metres and 62.5 metres, and at 72.6 metres the drill hole intersected 1.5 metres at 9.2 g/t Au. The second hole failed to get to target depth due to poor drilling conditions.

7.6.9 Charlie Ross

This target is similar to the Pope in that it is hosted within tuffs along the margin of the Gold Springs caldera. This area has not received any detailed work by GSLLC, but initial investigations reveal occasional narrow veins in a broad area of sericite and clay alteration. Samples of altered and hematite-stained tuff have returned gold values as high as 1.3 g/t. Historical reports describe a “175 foot shaft with a 40 foot talc zone with high-grade streaks and shipments up to $2,900/ton with tellurides of gold” (Tschanz and Pampeyan, 1970). The collar of the shaft is situated about 150 feet above the apparent rhyolite/andesite unconformity, and the contact may be a potential target associated with the Gold Springs caldera. The

Charlie Ross target is largely untested at this time and likely presents a continuation or similar style of mineralization as the Pope target.

7.6.10 Tin Can

This area is located north of the historic Little Buck mine and is characterized by a wide area of strong sericitic alteration with pyrite casts. There are a few historic pits with abundant vein float covering the hillside. GSLLC has done little work on this target, but the CSAMT survey conducted by Astral shows this area to be underlain by a resistivity anomaly.

Three holes were drilled in the Tin Can Target area in 2012. Two holes were drilled westerly to test the CSAMT anomaly. These holes generally intersected intervals of low-grade gold mineralization hosted by andesite. The highest individual assay interval was in TC-12-001 where interval 105.2 to 106.7 metres (1.5 metres) assayed 1.9 g/t Au. Drill hole TC-12-003 was drilled in an easterly direction to test a northeast trending structural zone consisting of quartz veins and stockworks, and the hole was lost in a void thought to be a solution cavity. The gold values were increasing in this drill hole prior to it entering the void, with an interval of 12.2 metres (141.7 to 153.9 metres) averaging 0.35 g/t Au, and where silver values averaged 15.9 g/t over the bottom 3.05 metres (150.85 to 153.9 metres). Abundant calcite veining was observed in these intervals.

7.6.11 North Jennie Target

Astral completed one hole on the North Jennie target, which is reported in their data (Smith, 2005). Astral defined this target based on interpretations of the CSAMT survey conducted by Zonge Geoscience. The target is located beneath a thick cover of Quaternary gravels at the drill collar. Astral's drill hole demonstrated that gold mineralization is present along the northern projection of the Jennie vein system. This projection corresponds to the resistivity anomaly shown in the CSAMT survey data. The majority of this area is covered by post-mineral colluviums, and the target currently remains untested by GSLLC.

7.6.12 Lost World (Camp Bell)

Camp Bell and Lost World represent targets developed during reconnaissance prospecting at Gold Springs that focused primarily on areas of colluvial cover in areas where ZTEM data identified potential anomalies. This target is characterized by linear traces of vein material as float fragments ranging in size from 0.2-metre to 1-metre across showing bladed quartz and adularia textures formed after calcite. The apparent linear zones of mineralized vein float follow the predominant orientation of the major veins within the district. Considering the large ribs that form in some of the Gold Springs vein systems, one hypothesis is that the source of these float trains may be locally derived and represent traces of nearby structures. Assays as high as 145.68 g/t Au and 148.2 g/t Ag have been generated from samples of the float material, and gold grades of >3 g/t Au are not uncommon. Continued exploration of this type of target will require either trenching or drilling to determine the presence of subsurface mineralization.

7.6.13 Horseshoe Extension

The historic Horseshoe mine was one of the largest producers in the historic Fay District. The northern projection of this north-south structural vein system extends into an area of extensive colluvial cover. This area contains numerous shafts that were collared in the colluvium and display gold bearing vein fragments on the dumps. There are rare outcrops of andesite which generally display stockwork veining that have

returned values of up to 4.0 g/t Au from rock chip samples collected across over 1-metre intervals. This target remains largely untested.

7.6.14 Iris

The Iris zone is located in the northwestern corner of the Gold Springs project. The vein strikes north-5° east and rolls steeply to the east and to the west. The vein can be traced on the ground for over 600 metres (2,000 feet) prior to going under post-mineral cover. The Iris mine produced high-grade gold from unknown widths. Samples from old stockpiles of ore return gold grades of 12.5 g/t. Of particular significance is that the area is characterized by wide zones of small and multiple parallel veins that cut the andesites in both the footwall and hanging wall of the main vein. During 2013, four drill holes (GE-13-017 to GE-13-020) were completed to test the southern extension of the Iris zone. These holes failed to intercept significant mineralization comparable to that observed in the historic workings. The complex structural elements observed at the Grey Eagle may apply to the Iris area, and further evaluation of the data may be warranted.

7.6.15 Snow

The Snow target is located approximately 800 metres west of Etna on the Utah side of the property. Selected rock samples from this east-west striking structural zone include assays of up to 3.7 g/t Au and 12 g/t Ag over 4.6 metres, as described in Table 7-3. This target is characterized by a series of historic underground workings and prospect pits. Historic mining exploited a 1 to 3-metre-wide shattered quartz vein zone which can be traced for 100 metres before going under post mineral cover. Results from initial sampling are shown in Table 7-3.

Table 7-3: Snow Target Samples

Sample Number	Description	Gold (g/t)	Silver (g/t)	Gold Equivalent* (g/t)
102789	2×3 m Panel of Altered Wall Rock	0.38	3.5	0.44
102790	4.6 m Across Altered Wall Rock	3.72	12.0	3.93
102791	Vein From Lower Dump	3.32	40.9	4.04
26448	Vein From Lower Dump	2.21	18.5	2.53
26449	Altered Wall Rock from Lower Dump	2.50	13.2	2.73

g/t – grams per tonne m - metre
* Gold Equivalent (AuEq) uses a Au/Ag ratio of 57.14 and assumes 100% metallurgical recoveries.

7.6.16 Ridge

The Ridge target is located 800 metres west of White Point and is characterized by scattered quartz vein float and limited outcropping veins. Several small prospect pits were identified using the bare earth LIDAR imagery. Sampling has produced numerous +1 g/t Au values. The area is dominated by post-mineral cover, and the extent and frequency of the veining is unknown at this time. Additional work will be required to further develop this target; in particular, trenching will be required to see below post-mineral cover. The Ridge area is situated on the western flank of a prominent north-northwest trending ZTEM conductivity

high ridge near an intersection with a moderate northeast trending ZTEM conductivity high linear. White Point and Grey Eagle are situated on the east side of the intersection.

7.6.17 West Ridge

Through the use of the bare earth LIDAR image, GSLLC was able to identify this new area with historic workings consisting of two adits and a number of prospect pits. The area is blanketed with post-mineral cover, but the dumps on the inaccessible adits show both vein and stockwork material. While the majority of the dumps consist of post mineral debris, select sampling of the veining carried 24.85 g/t Au and 24 g/t Ag. From the dump of a second tunnel, a sample of stockwork veined andesite carried 0.12 g/t Au and 4.6 g/t Ag. Exploration of this area will require trenching to expose bedrock and re-opening of the old adits.

7.6.18 Declaration

The Declaration area is located west of the Jumbo mine area on the west side of the Gold Springs drainage, where historic workings have been developed on a 330 to 350/70° east quartz vein/shear which is 3.05 to 4.8 metres thick. This target consists of a >150-metre-long vein exposure, and initial sampling shows values up to 1 g/t Au and 35 g/t Ag. The mineralization appears to be confined to the vein structure, which is nearly coincident with the southeastern margin of the Gold Springs diatreme/caldera.

7.6.19 Miracle

The Miracle target is located approximately 500 metres west of the Horseshoe Extension target. This was the site of historic mining, with a small shaft and adit located on the target. The workings exploited a banded quartz adularia vein system that can only be seen within a small window through the post-mineral cover. This area was detected from the bare earth LIDAR image. Initial sampling has returned low-level gold and silver values. Work moving this target forward will require the opening of the collapsed tunnel and trenching to expose bedrock.

7.6.20 Gem

The Gem target consists of a 3.05 to 4.8-metre-thick, moderately silicified 350/80° east trending shear zone near the Gold Springs town site which carries anomalous Au-Ag mineralization. The mineralization trends to the south, where it is largely covered by grey, weakly altered platy latites. Two samples collected in the zone show low level (93 to 113 ppb Au) gold mineralization; however, the platy latite may form a cap to mineralization, as is observed elsewhere in the Jumbo area.

7.6.21 Red Light

The Red Light target is situated in Faye Canyon near the old town site of Faye, where a series of prominent northeast trending structures with variable veining and stockwork zones are developed by several historic deep shafts and adits. Limited dump sampling and grid soil sampling has identified a broad northeast trending gold anomaly which justifies additional mapping and sampling in this area.

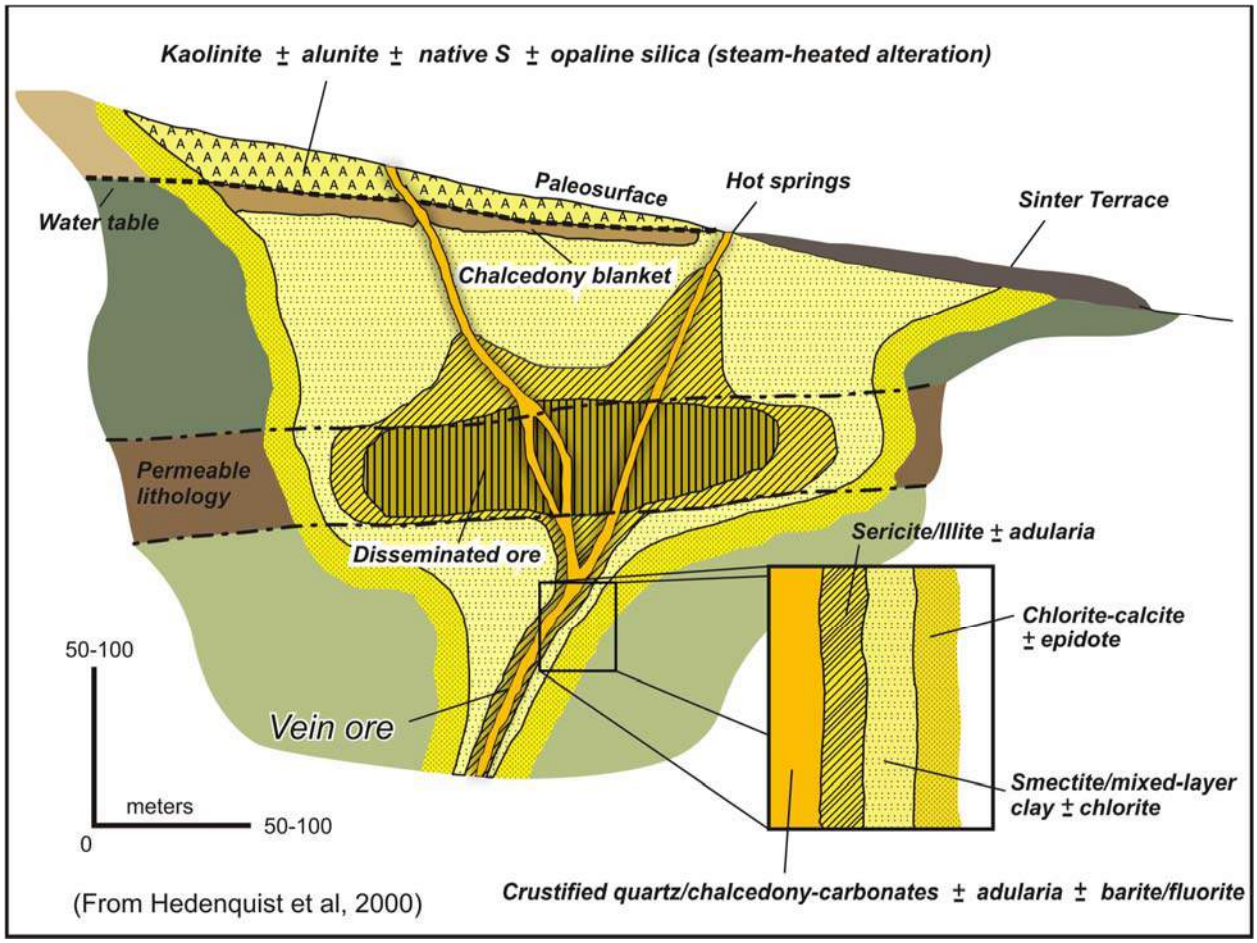
8.0 DEPOSIT TYPES

8.1 Mineralization

Gold mineralization on the Gold Springs project is characterized by structurally controlled vein and stockwork systems that are laterally extensive over a strike length of several kilometres. The veins exhibit

quartz, adularia, and low sulfide contents that are typical of a deposit type referred to as “low-sulfidation epithermal deposits” (Brommecker et al., 2007). Examples of this deposit type include Hishikari, Japan (Etoh et al., 2002), the Republic district, Washington, and Midas, Nevada (Leavitt et al., 2004). These systems have been correlated with fossil hot springs, and the hydrothermal systems that underlie them, that developed in response to alkalic and silicic volcanic activity, commonly in a caldera setting (Brommecker et al., 2007). One of the characteristics that help classify the Gold Springs systems as a “low-sulfidation epithermal deposit” are the observed textures of quartz, adularia, and calcite in the vein deposits and would be tentatively correlative with the “vein rock” schematically shown in Figure 8-1. These areas of “vein rock” are typically surrounded by broad areas of stockwork mineralization, and/or areas of altered and fractured wallrock where increased permeability hosts disseminated gold mineralization. The mineralization observed in the Bull Hill and Pope Mine areas may correspond to some of the upper levels of a hot springs system, as schematically shown in Figure 8-1, or may be a part of a completely different style of gold mineralization. Ongoing detailed geologic work by GSLLC is focusing on a better understanding of the mineralization in these target areas.

Figure 8-1: Schematic Cross Section Showing Components in a Low Sulfidation Epithermal System



Schematic cross section showing components in a low sulfidation epithermal system, after Hedenquist et al., 2000.

Several well documented “low sulfidation” epithermal gold systems include the El Penon deposit in Chile, where structurally controlled veins containing quartz and adularia, cut felsic volcanic units and are associated with waning rhyolitic volcanic activity (Robbins, 2000). Silicification extends outward from the

veins into the country rock, with sericitic alteration haloes. The precious metal-bearing veins exhibit stockworks, breccias, banded texture, comb quartz, and bladed texture in quartz that replaces carbonates (Figure 8-2) (Robbins, 2000). The Midas deposit in Nevada is another low sulfidation epithermal deposit that is structurally controlled near the margins of a volcanic complex and is known for very high-grade gold mineralizations hosted by veins (Leavitt et al., 2004).

Figure 8-2: Bladed Texture and Banding in Quartz Vein Sample from the Jumbo System



Low sulfidation epithermal gold deposits commonly exhibit a vertical zoning for precious metals that correspond to the levels of boiling that occurred within the hydrothermal system. Episodic sealing and explosive activity formed the breccias and stockworks commonly observed in the structures, and the concurrent rapid pressure changes resulted in the precipitation of carbonates and, in many cases, the subsequent resorption and replacement of the carbonates by quartz that result in a lattice-texture and bladed texture where quartz replaces calcite (Simmons and Christenson, 1994). These textures are noted as an important feature and observation in the mineralized zones of low sulfide systems because it records the rapid changes associated with the boiling zone and is associated with the precipitation of gold (Etoh et al., 2002). Low sulfidation epithermal systems are noted for distinct vertical zoning of mineralization horizons that correspond to the boiling level in the system (Etoh et al., 2002), and have been reported to range generally from <300 metres to almost 1 km vertical thickness (Brommecker et al., 2007). This vertical zoning of precious metal mineralization has also been documented in systems such as Midas, Nevada (Leavitt et al., 2000).

The alteration associated with low sulfidation epithermal systems commonly exhibits silicification proximal to the veins and stockworks, illite alteration, and distal propylitic alteration in the country rocks, with some vertical zonation of clay minerals that have been noted ranging from higher temperature (deeper) illite to low temperature (shallow) kaolinite in the wall rock alteration assemblage (Simmons et al., 2005). Low sulfidation epithermal systems associated with alkalic volcanism may exhibit vanadium-rich mica and abundant carbonate minerals in the alteration surrounding the veins (Jensen and Barton, 2000). In some examples, massive opaline silica and siliceous sinter can form, and generally indicate a very shallow level in the system that corresponds to where the paleo-water table intersected surface topography (Simmons et al., 2005).

In the Gold Springs project area, gold mineralization is typically hosted by andesites and is also associated with the rhyolitic volcanism (caldera formation). The vein systems exhibit silicification adjacent to the structures, sericitic alteration, and distal propylitic alteration in the andesites. In the Bull Hill and Pope Mine areas, mineralization is hosted by rhyolitic flows and tuffs, and alteration appears to have a different character, dominated by sericitic alteration with fluorite and carbonate.

8.2 Mineralization Types

As GSLLC continued to develop the Au-Ag resources within the Gold Springs project, it became evident that different styles of mineralization may have different responses to cyanide leaching. Mineralization at Jumbo and Grey Eagle were systematically subdivided into easily defined mineralization types which could be tested individually to characterize the expected overall leach recoveries. The defined mineralization types are identified in Table 8-1. These recoveries could then be applied to the block models and accounted for in looking at the expected recoveries from the resource areas. The mineralization type divisions were developed by the HDG geological staff and are defined based on combinations of geology, alteration, and oxidation state. The “mineralization types” are practical working units that GSLLC is using to test the leaching characteristics for the kinds of mineralization observed at the Gold Springs project area. The objective is to provide building blocks based on mineralization types to better understand the character and recovery in the target areas. Once additional test work is completed, mineralization types showing similar leaching characteristics may be combined. The following table describes the various mineralization types for the Jumbo and Grey Eagle resources. These mineralization type divisions have been incorporated into the database by assigning every 1.5-metre interval a specific mineralization type. By doing this, mineralization types can be incorporated into the block model.

Table 8-1: Mineralization Types

Mineralization Type	Description
Jumbo	
J-0	Unmineralized Post Mineral
J-1	Oxidized Quartz Sericite Pyrite Alteration
J-2	Unoxidized Quartz Sericite Pyrite Alteration
J-3	Quartz Vein +40% Quartz
J-4	Stockwork/Breccia 10-39% Quartz
J-5	Oxidized Footwall
J-6	Unoxidized Footwall
Grey Eagle	
GE-0	Unmineralized Post Mineral
GE-1	Quartz Calcite Vein +40% vein
GE-2	Stockwork/Breccia 10-39% Quartz
GE-3	Quartz Vein +40% Vein
GE-4	Andesite

8.2.1 Jumbo

Mineralization Type **J-0** is characterized by post-mineral tuffs. It is typically barren except where clasts of eroded vein or mineralized latite are incorporated into the epiclastic package. Figure 8-3 shows an example of mineralization type J-0.

Figure 8-3: Hole J-14-002C at a Depth of 93 Feet, Mineralization Type J-0



Argillized Multilithic Epiclastic

Mineralization type **J-1** is defined as oxidized Quartz-Sericite/Illite-Pyrite Alteration. It is commonly located in the hanging wall to Main Jumbo Vein Zone and across much of the southern Jumbo area. Figure 8-4 and Figure 8-5 show examples of mineralization type J-1.

Mineralization Type **J-2** is defined as unoxidized, quartz-sericite-pyrite alteration. This mineralization type is not common due to strong hanging wall oxidation, but has been noted in limited areas in the South Jumbo resource area.

Mineralization Type **J-3** consists of quartz vein, stockwork or hydrobreccia with +40% quartz. Figure 8-6 shows an example of mineralization type J-3.

Mineralization Type **J-4** is represented by stockwork and hydrobreccia with 10-39% Quartz veining. Figure 8-7 shows an example of mineralization type J-4.

Mineralization Type **J-5** is defined as oxidized footwall, propylitically altered, porphyritic latite with typical Quartz-Sericite/Illite-Pyrite alteration overprint and variable quartz–calcite veins and veinlets. No pyrite remains. Figure 8-8 shows an example of mineralization type J-5.

Mineralization Type **J-6** is represented by unoxidized footwall, propylitically altered, porphyritic latite with typical Quartz-Sericite/Illite-Pyrite alteration overprint and variable quartz–calcite veins and veinlets. Figure 8-9 shows an example of mineralization type J-6.

8.2.2 Grey Eagle

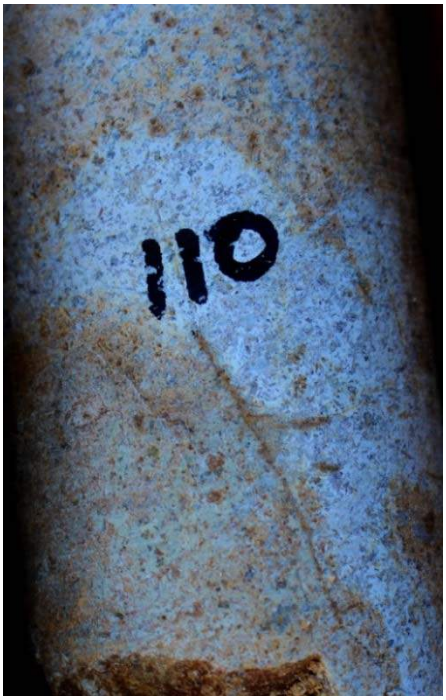
Mineralization type **GE-0** refers to post-mineral tuffs. These are typically barren except where clasts of eroded vein or mineralized latite are incorporated into epiclastic sequence. Figure 8-10 shows an example of mineralization type GE-0.

Figure 8-4: Hole J-14-001C at a Depth of 43 Feet, Mineralization Type J-1



6709 ppb Au, 86.4 ppm Ag, Oxidized, Quartz-Sericite-Pyrite altered latite tuff breccias

Figure 8-5: Hole J-14-002C at a Depth of 116 Feet, Mineralization Type J-1



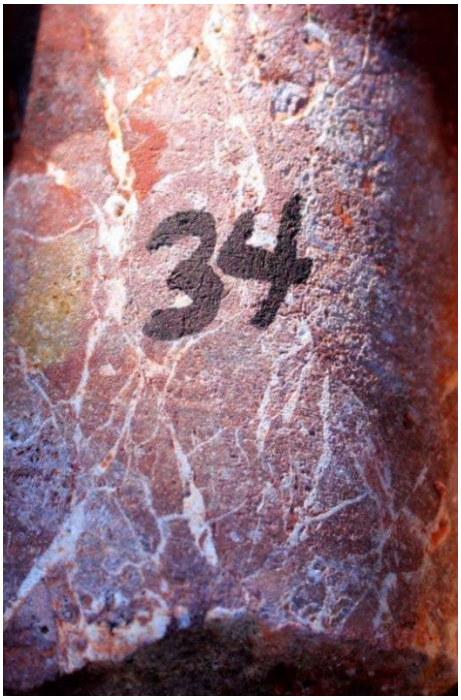
367 ppb Au, 11.8 ppm Ag, Oxidized, Quartz-Sericite-Pyrite altered porphrytic latite with minor quartz veinlets

Figure 8-6: Hole J-14-001C at a depth of 139 Feet, Mineralization Type J-3



140 ppb Au, 4.0 ppm Ag, Vuggy, bladed quartz after calcite, quartz stockwork breccias.

Figure 8-7: Hole J-14-001C at a Depth of 115 Feet, Mineralization Type J-4



149 ppb Au, 1.5 ppm Ag, Hematitic latite crackle breccias.

Figure 8-8: Hole J-14-002C at Depth 157 Feet, Mineralization Type J-5



398 ppb Au, 2.7 ppm Ag, Moderately oxidized, footwall quartz-calcite veinlets in propylitized latite

Figure 8-9: Hole J-11-001C at Depth 347-358 Feet, Mineralization Type J-6



220 ppb Au, 3 ppm Ag, Unoxidized footwall Propylitized porphyritic latite with minor quartz-calcite veinlets.

Figure 8-10: Hole GE-14-001C at a Depth 21 Feet, Mineralization Type GE-0



Argillized, multi-lithic epiclastic tuff

Mineralization Type **GE-1** consists of + 40% Quartz-Calcite vein material with calcium content >5%. Figure 8-11 shows an example of mineralization type GE-1.

Figure 8-11: Hole GE-14-001C at a Depth of 217-231 Feet, Mineralization Type GE-1

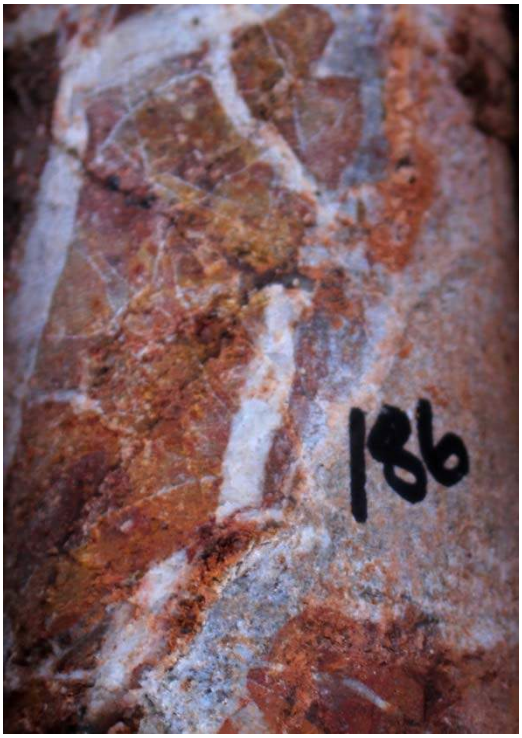


Average 470 ppb Au, 3.1 ppm Ag, Massive quartz-calcite stockwork breccia, veining

Mineralization Type **GE-2** is represented by quartz-calcite stockwork breccia consisting of 10-39% vein material. Figure 8-12 shows an example of mineralization type GE-2.

Mineralization Type **GE-3** consists of + 40% quartz vein with little to no calcite. Figure 8-13 shows an example of mineralization type GE-3.

Figure 8-12: Hole GE-14-001C at a Depth of 159 Feet, Mineralization Type GE-2



2,632 ppb Au, 21 ppm Ag, Hematitic andesite with quartz-calcite stockworking

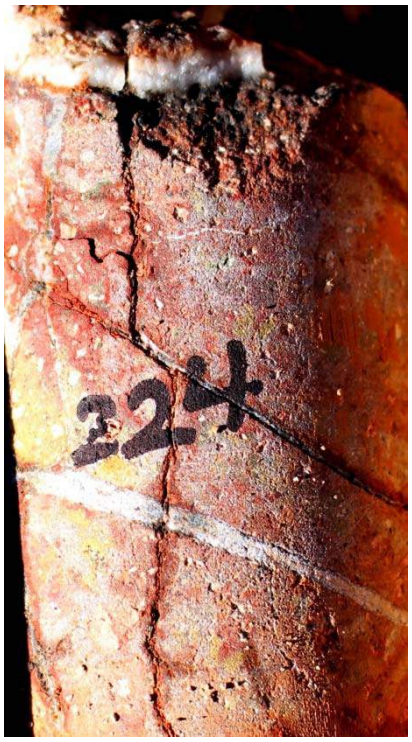
Figure 8-13: Hole GE-14-001C at a Depth 92 Feet, Mineralization Type GE-3



2,565 ppb Au, 15.5 ppm Ag, Quartz stockwork breccias

Mineralization Type **GE-4** is represented by hematitic andesite with minor veinlets <10% veining. Figure 8-14 shows an example of mineralization type GE-4.

Figure 8-14: Hole GE-14-001C at a Depth 267 Feet, Mineralization Type GE-4



418 ppb Au, 1.8 ppm Ag, Hematitic andesite with weak quartz-calcite veinlets

9.0 EXPLORATION

HDG/TMI have been involved with the Gold Springs Project since 2010 through the GSLLC subsidiary. Summaries of past exploration and drilling are detailed in the 2011, 2012, 2013, and 2014 NI 43-101 reports filed on SEDAR, (Lane and Katsura, 2014). Since 2010, GSLLC has drilled a total of 182 holes for 25,311 metres on the property (176 RC holes and six core holes). This includes 85 holes completed at the Grey Eagle resource area (including 2 core holes) for a total of 12,275 metres, and 61 holes completed at the Jumbo resource area (including 3 core holes) for a total of 8,742 metres. The remaining holes were drilled on other targets within the Gold Springs project area, distributed as follows: Etna – 9 holes for 1,228 metres, Fluorite – 3 holes for 355 metres, Midnight – 2 holes for 276 metres, Pope – 2 holes for 207 metres, Silica Hill – 3 holes for 311 metres, State Section – 6 holes for 693 metres, Thor – 3 holes for 277 metres, Tin Can – 3 holes for 518 metres and White Point – 5 holes for 429 metres. Previous companies completed holes on the Jumbo (18 holes), Etna (6 holes), Thor (2 holes), and North Jennie (1 hole) targets. In all cases, the holes intersected gold mineralization.

Exploration activities carried out on the property between 2010 and 2014 include:

- 24,649 metres of drilling in 176 RC holes
- 662 metres of drilling in 6 core holes
- Surface geologic mapping

- Geological interpretations of the resource areas and 3D modeling
- Flying and the interpretation of a property-wide airborne ZTEM and magnetic survey
- Flying of a project-wide LIDAR survey and the development of a detailed elevation model
- Collection of surface rock chip and trench samples
- Extensive soil surveys
- Stream sediment surveys
- Ongoing metallurgical testing programs, including:
  - Gravity concentration followed by bottle roll cyanidation of the gravity tailing of 74-micron (200-mesh) material from drill cuttings
  - Cyanide extraction from bottle roll tests on drill cuttings ground to 74 microns
  - Cyanide extraction from bottle roll tests of RC cuttings which varied in size from a P_{80} of 0.762 to 6.069 mm
  - Small column tests of trenched Grey Eagle material and Jumbo drill core crushed to 9.5 mm
- Resource calculations for the Jumbo and Grey Eagle areas
- Identification of 26 areas with outcropping gold mineralization in addition to the resource areas

9.1 Geophysics

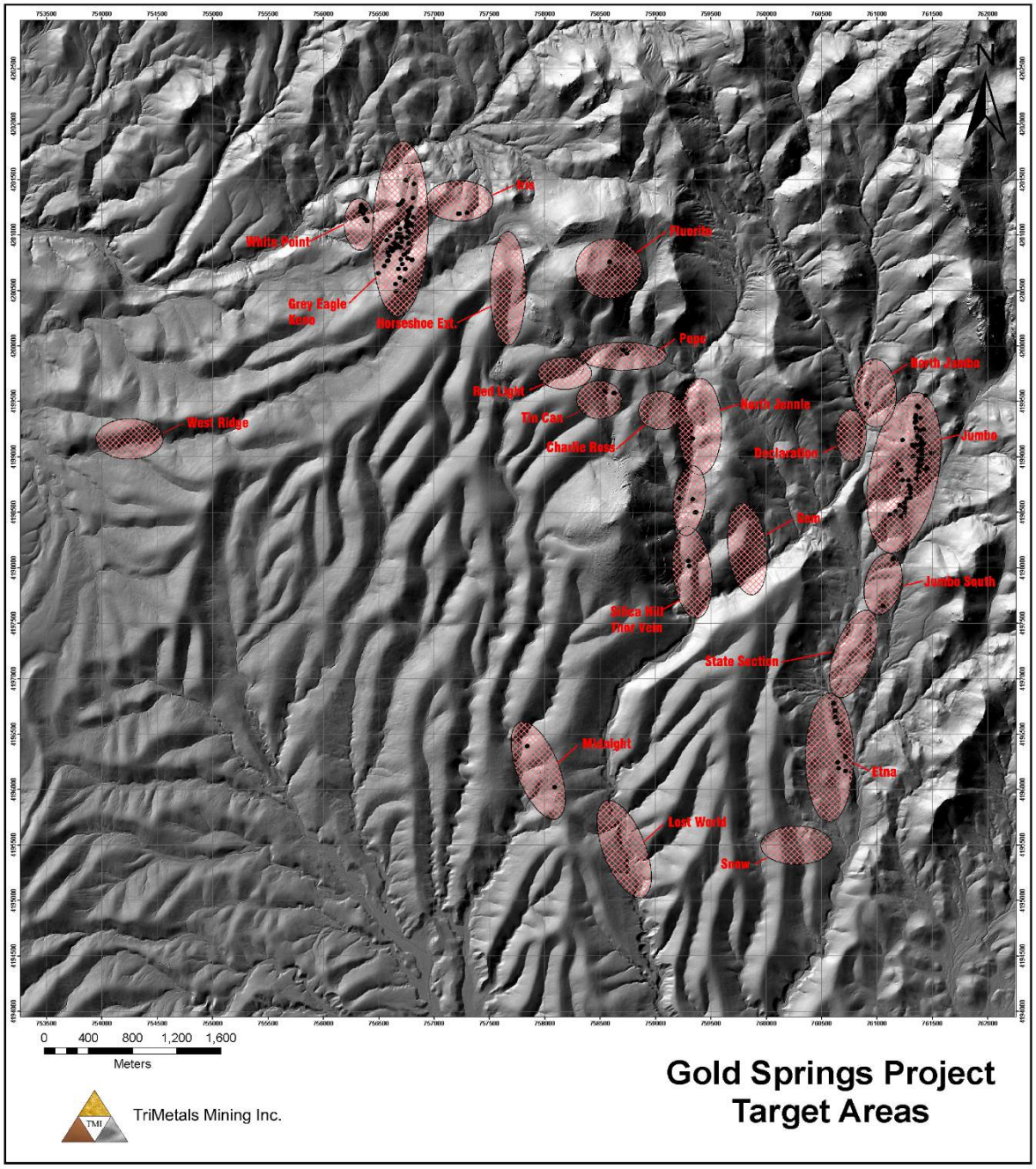
9.1.1 LIDAR

The Lidar survey was completed by GSLLC in late June, 2014, and final deliverable products were received in August, 2014. Products include the following:

- Classified LiDAR point clouds, Ground (DTM Keypoints), Low Vegetation and High Vegetation
- Digital Terrain Model (DTM Keypoints)
- Bare Earth and Full Feature grid points at 1-metre spacing
- Greyscale hillshade models of Bare Earth and Full Feature surfaces at 1-metre pixel resolution
- 1-metre topographic contours without breaklines
- Digital color orthophoto mosaics with a 20 cm pixel resolution, 1 km x 1 km tiles
- LIDAR and orthotile index map
- LIDAR survey report outlining collection methodology, quality control measures, sensor description, calibration and check point statistics, flight line maps, ground control, LiDAR and orthophoto processing.

The survey results provided a valuable detailed topographic base for future mine planning and produced a bare earth view of the project area filtering out the Pinyon pine forest (Figure 9-1). This enhanced view allows for a more detailed structural interpretation by removing all of the vegetation as well as identifying additional areas of historic pits, adits, and shafts for follow-up sampling activities. Several new areas of mineralization were identified by this process.

Figure 9-1: Bare Earth Image Showing Target Areas



9.1.2 ZTEM

In 2011, GSLLC completed a 470-line-km ZTEM and aeromagnetic helicopter survey. Previous ground CSAMT surveys revealed a positive correlation between the known epithermal gold systems and buried, subvertically-dipping resistivity high features. The ZTEM results correlated very well with CSAMT results and known geology, in particular the presence of all the known mineralized areas. This work indicated numerous additional targets in the project area which were later covered by additional federal lode claims.

During April 27–30, 2011, Geotech Ltd. carried out a helicopter-borne geophysical survey for GSLLC over the Gold Springs project (Figure 9-2). The principal geophysical sensors included a ZTEM and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimetre. A total of 470-line-km of geophysical data were acquired during the survey.

Figure 9-2: Helicopter Conducting ZTEM Survey for GSLLC during 2011



The survey operations were based out of the town of Pioche, Nevada. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results were presented as the following maps:

- 3D view of In-Phase Total Divergence versus Skin Depth (30-720Hz) to 720 hertz [Hz])
- Total Magnetic Intensity (TMI)
- Digital Elevation Model (DEM)
- Reduced to Pole (RTP) of TMI
- First Vertical Derivative of RTP
- Second Vertical Derivative of RTP
- 30 Hz In-Phase Total Divergence Grid
- 90 Hz In-Phase Total Divergence Grid
- 360 Hz In-Phase Total Divergence Grid

- Tzx (In-line) In-Phase Profiles over 90Hz Phase Rotated In-Phase Grid
- Tzx (In-line) Quadrature Profiles over a 90 Hz Phase Rotated Quadrature Grid
- Tzy (Cross-line) In-Phase Profiles over 90 Hz Phase Rotated In-Phase Grid
- Tzy (Cross-line) Quadrature Profiles over a 90 Hz Phase Rotated Quadrature Grid

In addition to the above, Geotech was contracted to complete two-dimensional (2-D) inversion processing of the ZTEM data and more detailed processing of the magnetics, including the development of first and second derivatives of the RTP.

The survey was flown in an east to west (north-90° east azimuth) direction, with a flight line spacing of 200 metres. Tie lines were flown in a north to south (north-0° east azimuth) direction, with a flight line spacing of 1900 metres.

Total Divergence (DT) imaging, analogous to the very low frequency (VLF) Peaker parametre of Pedersen (1998), converts the ZTEM tipper cross-over data into peak responses, which assists their interpretation in plan. The DT lows (conductive) areas signify areas with sulphides or possibly conductive clays, and the DT highs (resistive) areas represent resistive rocks which show an excellent correlation with known gold occurrences, as would be expected in the low sulphidation environment. This correlation of resistive rocks and gold mineralization can also be demonstrated in the prior ground CSAMT.

Subsequent to the 2-D inversion completed by Geotech, Mira Geoscience was contracted to complete a three-dimensional (3-D) inversion of both the ZTEM conductivity data and the magnetics. This work was carried out in 2012. The modelling process used geologic and geophysical modelling software including GOCAD, ZTEM_MT3D and MAG3D. The resulting models for the ZTEM and magnetic inversions provided a 3-D conductivity model of the earth that honours the ZTEM and magnetic data to a specified level of fit. The modelling correctly considered 3-D topographic effects, which can significantly influence the data. The inversion modelling was unconstrained by geologic and physical property information.

The primary outcome of these studies was the development of a clear correlation with the location of surface gold mineralization and gold intersected in drill holes particularly with the margins of the high resistivity features. This correlation can be seen both in the “depth-slice” presentation (Figure 9-3 and Figure 9-4) of the data and in cross-sections developed from the 3-D inversion study (Figure 9-3). When the resistivity high is shallow, a strong correlation between the margins of the resistivity highs and gold intersected in drill holes exists, as can be seen in the Jumbo Resource area (Figure 9-3). When the resistivity high is deeper, as at Grey Eagle, gold mineralization is found both at the margins and over the top of the resistivity features. This correlation is interpreted as relating to the heat source for the “hot spring” style mineralization seen at Gold Springs, the heat source being high silica, highly resistive rhyolites.

Figure 9-3: ZTEM Resistivity Highs and Correlation with Outcropping Gold Bearing Rocks and Gold in Drill Holes in the Jumbo Resource Area

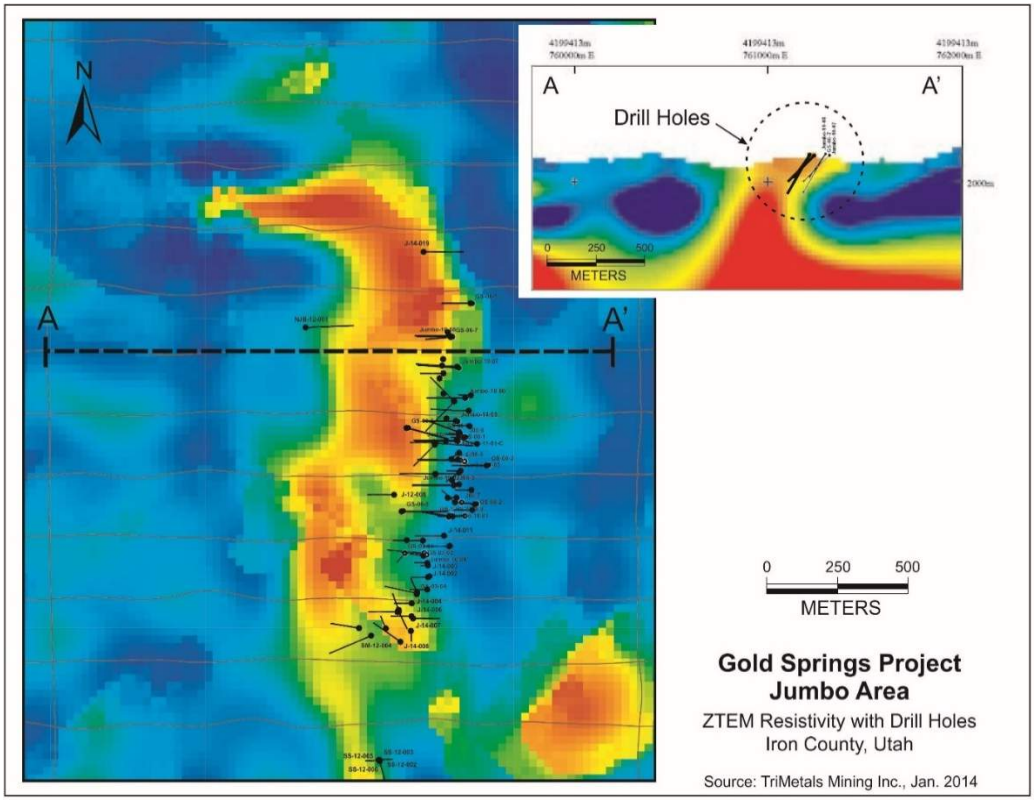


Figure 9-4: ZTEM Resistivity Highs and Correlation with Outcropping Gold Bearing Rocks in the Gold Springs Project Area

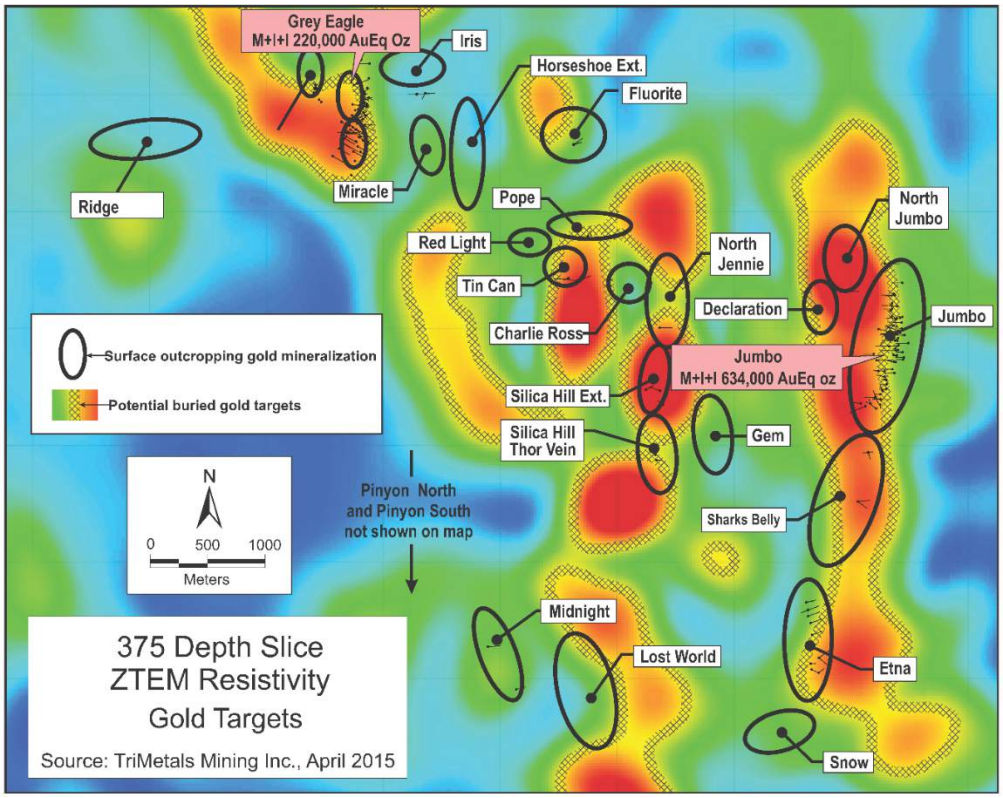
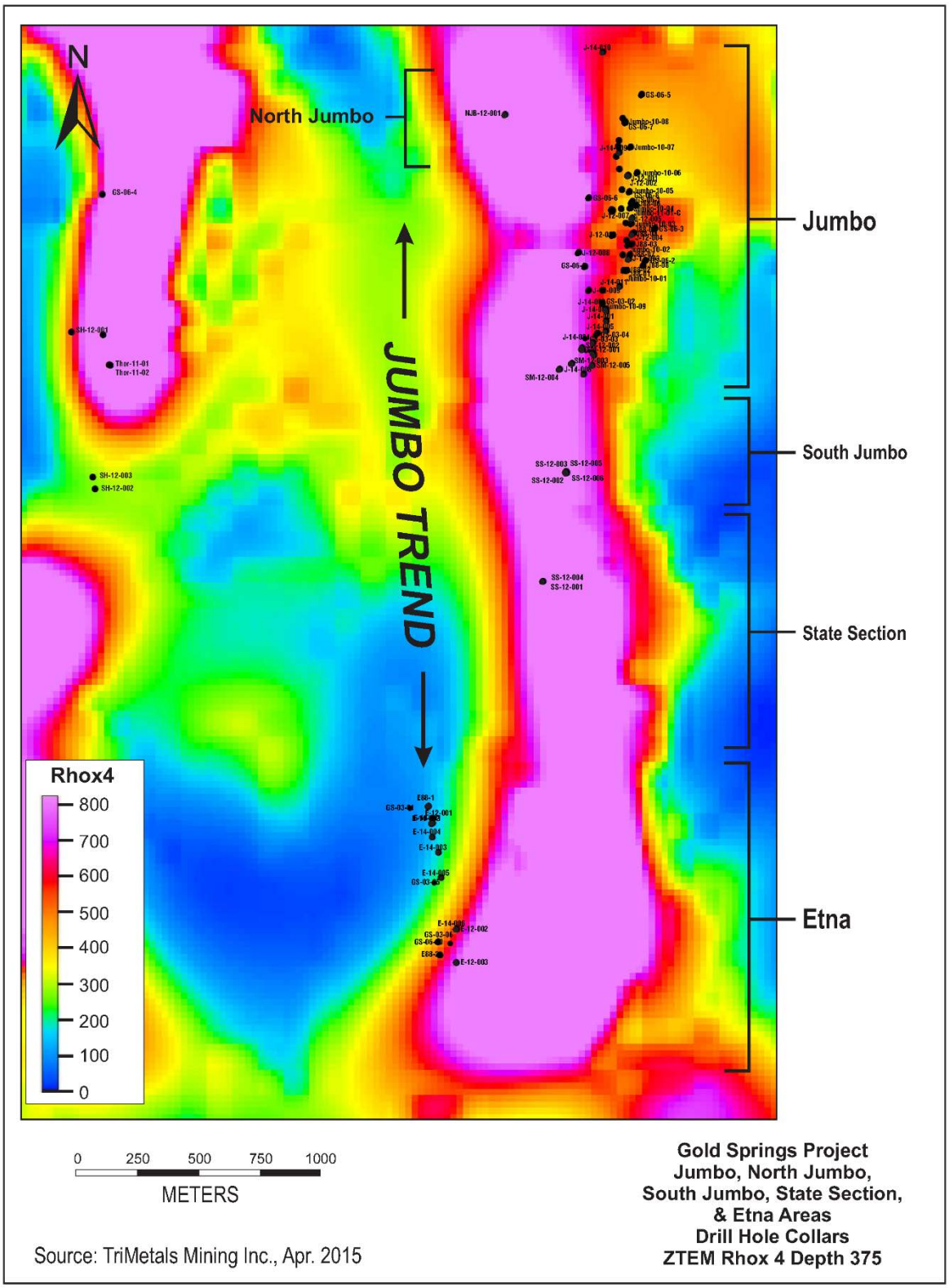


Figure 9-5: Jumbo Trend Showing ZTEM Anomaly and the Individual Target Areas



Presently, surface follow-up of the resistive features is underway. In the case of the Jumbo Zone, it can be seen to extend in the subsurface for several kilometres to the north of the area drilled to date and several kilometres to the south of the area drilled to date. It is thought that these extensions have an excellent

potential for discovery of further gold mineralization. TMI is currently working with the geophysical data to help define targets and extensions of known gold mineralization where they may extend under the colluvial cover or be offset by fault structure.

10.0 DRILLING

Exploration work in 2014 focused on completing a 38-hole RC and 4-hole core drill program. The RC drill program was designed to:

- Add to the resource at Jumbo by extending mineralization to the east where the 2013 program intersected higher grade material
- Follow mineralization up-dip in the southern Grey Eagle resource area to fill in holes in the deposit model
- Move portions of the resource from the Inferred category to Measured and Indicated categories
- Test a third target to determine the potential of developing a third resource area.

Nine holes were completed at Grey Eagle. The holes were designed to test the up-dip projection of the current resource in the southern portion of the system. Holes encountered thicker than expected post-mineral cover, and, while they did demonstrate the presence of the projected mineralization, it was much thinner and lower-grade than the resource area to the north.

Twenty-two holes were completed in the Jumbo target and were designed to follow-up on, and step-out from, higher-grade holes from the 2013 drill program, extend mineralization to the east to add to the resource, and elevate resources from the previous Inferred category reported in the 2014 PEA into the Measured and Indicated categories. The 2014 program successfully accomplished all of these goals.

A total of 6 RC holes were completed on the Etna target at the southern end of the Jumbo Trend. These holes were designed to offset 2012 drill holes and begin developing a resource in this area. While these drill holes encountered Au-Ag mineralization, they do not constitute a resource at this time.

Four core holes were completed in 2014, two in the Jumbo and two in the Grey Eagle resource areas. These drill holes were completed to collect material for metallurgical testing and to start to collect geotechnical data.

The 2014 drill holes are listed in Table 10-1 with significant results listed in Table 10-2.

All drill hole locations in 2014 were surveyed by Platt & Platt Inc., professional surveyors, using Trimble surveying instrumentation. GSLLC completed downhole surveys on 10 of the 22 drill holes. Surveys were conducted by International Directional Services, LLC (IDS) using a gyro deviation survey instrument.

10.1 RC Drilling

The following is a synopsis of the Gold Springs drilling conducted by GSLLC.

The 2010 drilling program was performed by Diversified Drilling and was done by wet reverse-circulation. Material coming out of the hole passed through a wet rotary splitter producing two samples of equal size. The samples were collected on 5-foot (1.5-metre) intervals and handled by HDG employees at all times. A geologist was at the drill site at all times during drilling. The geologist collected a small sample coming

from the rotary splitter and placed it into chip trays labeled by drill hole number and footage. Samples were numbered with one split being designated as a duplicate sample. Duplicate samples were stored on site until the end of the drill program, when they were transported to a locked storage facility in Cedar City, Utah. Samples for analysis were transported on a daily basis to a secured area behind locked gates.

Table 10-1: TriMetals Mining Inc. 2014 Drilling

Hole ID	Target	Easting UTM NAD 27	Northing UTM	Elevation (m)	Azimuth	Inclination	Total Depth (ft)	Total Depth (m)
Jumbo Target								
J-14-001	Jumbo	761305	4198465	2077	270	-65	405	130
J-14-002	Jumbo	761305	4198504	2074	270	-45	200	61
J-14-003	Jumbo	761308	4198505	2074	270	-80	445	136
J-14-004	Jumbo	761253	4198382	2082	270	-65	445	136
J-14-005	Jumbo	761303	4198426	2078	270	-65	445	136
J-14-006	Jumbo	761251	4198335	2078	270	-65	520	159
J-14-007	Jumbo	761259	4198336	2078	90	-45	400	122
J-14-008	Jumbo	761216	4198260	2074	305	-45	500	152
J-14-009	Jumbo	761352	4199122	2149	270	-45	350	107
J-14-010	Jumbo	761289	4199516	2107	90	-45	600	183
J-14-011	Jumbo	761356	4198599	2069	270	-55	540	165
J-14-012	Jumbo	761376	4198568	2071	270	-60	540	165
J-14-013	Jumbo	761466	4198898	2102	270	-65	764	233
J-14-014	Jumbo	761451	4198749	2081	270	-70	580	177
J-14-015	Jumbo	761374	4198568	2072		-90	620	189
J-14-016	Jumbo	761270	4198413	2084	90	-85	430	131
J-14-017	Jumbo	761444	4198953	2111	270	-70	640	169
J-14-018	Jumbo	761441	4199002	2115	270	-50	730	223
J-14-019	Jumbo	761446	4199054	2118	270	-75	650	198
J-14-020	Jumbo	761311	4198469	2079		-90	520	159
J-14-021	Jumbo	761077	4198297	2060	280	-45	505	154
J-14-022	Jumbo	761192	4198323	2076	305	-50	500	152
Etna Target								
E-14-001	Etna	760633	4196506	1997	70	-45	460	140
E-14-002	Etna	760625	4196502	1997	247	-45	300	92
E-14-003	Etna	760625	4196455	1990	70	-45	480	146
E-14-004	Etna	760653	4196395	1987	70	-45	500	152
E-14-005	Etna	760663	4196291	1975	70	-45	380	116
E-14-006	Etna	760723	4196096	1972	55	-45	540	165
Grey Eagle Target								
GE-14-001	Grey Eagle	756763	4200584	2159		-90	380	116
GE-14-002	Grey Eagle	756724	4200533	2157	120	-60	500	152
GE-14-003	Grey Eagle	756682	4200488	2159	120	-60	620	189
GE-14-004	Grey Eagle	756740	4200490	2148		-90	620	189
GE-14-005	Grey Eagle	756693	4200408	2145		-90	620	189
GE-14-006	Grey Eagle	756658	4200355	2143		-90	580	177
GE-14-007	Grey Eagle	756673	4200281	2124		-90	490	149
GE-14-008	Grey Eagle	756736	4200386	2129	120	-70	440	134
GE-14-009	Grey Eagle	756596	4200612	2138		-90	740	226

Hole ID	Target	Easting UTM NAD 27	Northing UTM	Elevation (m)	Azimuth	Inclination	Total Depth (ft)	Total Depth (m)
Core Holes								
J-14-001C	Jumbo	761405	4198847	2105	270	-45	352	107
J-14-002C	Jumbo	761252	4198383	2082	270	-65	302	92
GE-14-001C	Grey Eagle	756664	4200775	2124		-90	356	109
GE-14-002C	Grey Eagle	756762	4200973	2150	125	-70	240	73

Table 10-2: TriMetals Mining Inc. 2014 Significant Drill Results

Drill Hole	Target	From (m)	To (m)	Thickness (m)	Gold ppm	Silver ppm	True Thickness(m)**
J-14-001	Jumbo	56.4	106.7	50.3	0.56	24.83	41.2
Inc.		56.4	91.5	35.1	0.68	29.86	28.7
J-14-002	Jumbo	45.7	61.0	15.2	0.58	19.49	14.7
J-14-003	Jumbo	64.0	135.6	71.6	0.48	16.62	46.0
Inc.		64.0	97.5	33.5	0.54	26.67	21.6
J-14-004	Jumbo	16.8	83.8	67.0	0.60	24.38	54.9
Inc.		16.8	64.0	47.2	0.69	29.41	38.7
Inc.		16.8	44.2	27.4	0.92	31.19	22.5
J-14-005	Jumbo	51.8	109.7	57.9	0.34	18.04	47.4
Inc.		77.7	94.5	16.8	0.51	25.45	13.7
J-14-006	Jumbo	71.6	141.7	70.1	0.22	10.24	57.4
J-14-009	Jumbo	0.0	15.2	15.2	0.49	24.81	14.7
and		85.3	96.0	10.7	0.30	3.70	10.3
J-14-010	Jumbo	150.9	176.8	25.9	0.54	6.24	unknown
J-14-011	Jumbo	71.6	126.5	54.9	0.54	13.48	49.7
Inc.		82.3	120.4	38.1	0.71	16.93	34.5
J-14-012	Jumbo	93.0	132.6	39.6	0.21	11.01	34.3
Inc.		100.6	111.3	10.7	0.33	18.21	9.2
J-14-013	Jumbo	77.7	137.2	59.4	0.24	4.14	48.7
Inc.		117.3	134.1	16.8	0.49	6.75	13.7
J-14-014	Jumbo	48.8	61.0	12.2	0.35	4.69	9.3
and		132.6	146.3	13.7	0.31	11.03	10.5
J-14-016	Jumbo	41.1	131.1	89.9	0.53	15.95	51.6
Inc.		56.4	111.3	54.9	0.71	16.93	31.5
J-14-016	Jumbo	41.1	131.1	89.9	0.53	15.95	51.6
Inc.		56.4	111.3	54.9	0.71	16.93	31.5
J-14-017	Jumbo	57.9	182.9	125	0.31	9.89	95.7
Inc.		64.0	91.4	27.4	0.54	7.39	21.0
J-14-018	Jumbo	83.8	222.5	138.7	0.69	17.87	130.3
Inc.		106.7	143.3	36.6	1.39	37.85	34.4
J-14-020	Jumbo	82.3	158.5	76.2	0.44	17.2	38.1
J-14-021	Jumbo	16.8	68.6	51.8	0.21	6.14	50.1
J-14-022	Jumbo	10.7	56.4	45.7	0.28	9.91	43.0
Inc.		22.9	42.7	19.8	0.42	13.95	18.6
GE-14-002	Grey Eagle	59.4	91.4	32.0	0.38	5.39	32.0
Inc.		68.8	79.2	10.7	0.71	8.41	10.7
GE-14-008	Grey Eagle	53.3	93.0	39.6	0.38	4.88	39.6
Inc.		61.0	77.7	16.8	0.71	8.02	16.8
GE-14-009	Grey Eagle	166.1	173.7	7.6	0.50	7.36	6.6
and		184.4	190.5	6.1	0.83	1.45	5.3
E-14-001	Etna	22.9	129.6	106.7	0.38	6.80	103.0

Drill Hole	Target	From (m)	To (m)	Thickness (m)	Gold ppm	Silver ppm	True Thickness(m)**
Inc.		77.7	106.7	29.0	0.85	10.22	23.0
E-14-002	Etna	4.6	30.5	25.9	0.16	2.49	Unknown
E-14-003	Etna	39.6	146.3	106.7	0.16	3.22	103.0
E-14-006	Etna	0.0	61.0	61.0	0.17	3.11	58.9
Inc.		0.0	32.0	32.0	0.24	3.78	30.9

ppm – parts per million
**assumes 55^0 dip at Grey Eagle and a 70^0 dip at Jumbo and Etna

Drill samples were transported from the site to the Inspectorate Laboratory facility in Sparks, Nevada, by HDG employees every three to four days and were delivered directly to laboratory personnel.

The 2011 RC drill program was conducted by Drift Drilling and was done without injecting water. Material from the hole was passed through a Jones-style splitter, and 100% was collected in two equal splits on 5-foot (1.5-metre) intervals. One split was labeled as a duplicate sample, which was stored on site behind a locked access gate until the end of the drill program and then transported by HDG employees to a locked facility in Cedar City, Utah. Samples were handled at all times by HDG personnel, and a geologist was present at all times during drilling. The geologist collected a small portion of the duplicate sample, which was placed into chip trays labeled by drill hole number and footage. Chips were then logged on site by the geologist. From the duplicate sample, HDG filled a 4x6 inch zip lock bag labeled by drill hole number and footage. This material is intended to be used for chip boards and future petrographic study. Samples for analysis were transported from the drill site to a secured area behind a locked gate on a daily basis. From the secured area, samples were picked up by Inspectorate Laboratories and transported to their facilities in Sparks, Nevada.

The 2012, 2013, and 2014 drilling programs were performed by Diversified Drilling and conducted by wet reverse-circulation drilling method. All RC samples were collected by, or under the direct supervision of, an HDG geologist. Emphasis was placed on quality control and the proper handling and numbering of all samples. The RC drill cuttings are collected as they come out of the drill hole from an industry standard rotary wet splitter provided by the drilling company, which delivers the material to three collection points. Samples are collected on 1.52-metre (5-foot) intervals. Material from the first collection point was designated for transport to Inspectorate Laboratories, located in Sparks, Nevada, USA for analysis. The material from the second sample point was retained as a duplicate sample for future testing if needed. The material from the third sample point was geologically logged onsite and put into chip trays which are labeled with sample numbers and footage intervals from which the sample was taken. In addition to the chip trays, a 10.16 x 15.24-centimeter (4 x 6-inch) zip lock bag labeled with the drill hole designation and footage interval was filled from the third sample point. This material was retained for possible petrographic work. All samples were transported on a daily basis to a secured area behind a locked gate where they are stored. Samples designated for analysis are picked up by Inspectorate Laboratory personnel or transported by HDG personnel to the Inspectorate sample preparation laboratory facility in Elko, Nevada. No sample preparation was conducted by an employee, officer, director, or associate of GSLLC, HDG or HDG.

Scott Tregaskis, Project Manager, or Randall Moore, Executive Vice President of Exploration - North America for TriMetals, organized sampling procedures and supervised the labeling and cataloging of all samples.

10.2 Core Drilling

GSLLC completed two core holes in 2011. The holes were drilled by West-Core Drilling, and they provided GSLLC with oriented core. Core was collected in a split tube to reduce breakage and to provide the drillers the ability to remove the core without rotation. Core was then placed in boxes by the drill crews. Boxes were labeled by drill hole number, box number, and footage. Boxes were collected at the drill site by HDG geologists and transported to a secure area behind locked gates. Core was logged by HDG geologists who determined sampling intervals. Intervals were marked in the boxes and noted on the drill logs. The core was split in half by HDG employees by either a rock saw or a mechanical splitter. Half the core was returned to the box, taking care to keep the proper alignment and location for the pieces. Half of each sample interval was placed in numbered bags for analysis. These bags were stored in a secure area behind locked gates and later transported to the Inspectorate laboratory facility in Sparks, Nevada, by HDG employees.

One core hole was drilled on the Thor target to look at the high grade vein system in that target area. A second core hole was drilled as a twin to RC hole J-10-04 on the Jumbo target, with the purpose of testing variations in grade between the two drilling methods. Neither of the twin holes had down-hole surveys completed on them so separation distances down the holes cannot be determined, but the collars were located 1.5 metres apart. The RC hole was sampled on 1.5-metre intervals, and most of the core hole was sampled on 1.5-metre intervals as well. Overall, there was good correlation between the holes when looking at the mineralized envelopes. There is some variation in the spikes in gold and silver values between the two holes, which is to be expected in epithermal gold occurrences. Of importance, there is no evidence of down-hole contamination in the RC hole. Overall, the AuEq grade over the length of the mineralized interval in the core hole is slightly higher at 0.36 g/t AuEq vs. 0.33 g/t AuEq in the RC hole over the same mineralized interval.

In 2014, GSLLC completed four core holes (Table 10-3) in order to collect geotechnical data for rock quality designation (RQD), fracture analysis, and lithologic and alteration data and to provide metallurgical samples to test recoveries and recovery rates for Au and Ag for the various mineralization types that were developed for the project. The HQ sized holes were drilled by Timberline Drilling utilizing a skid mounted diamond drill with accessory mud-mixing tanks. They utilized a five-foot core barrel and achieved 100% recovery in all holes except for the top five feet of unconsolidated pad fill on GE-14-001C. Core was then placed in boxes by the drill crews. Boxes were labeled by drill hole number, box number, and footage. Boxes were collected at the drill site by HDG geologists and transported to a secure area behind locked gates. Core was logged by a HDG geologist who determined sampling intervals based on mineralization type breaks for metallurgical testing. Intervals were marked in the boxes and noted on the drill logs. The core was split in half by HDG employees utilizing a rock saw. Half the core was quartered with one quarter returned to the box, taking care to keep the proper alignment and location for the pieces, and the other quarter sample interval was placed in numbered bags and delivered by an HDG employee to Inspectorate Laboratories in Sparks, Nevada, for Au-Ag and trace element analysis. The half sample was placed in correspondingly

Table 10-3: High Desert Gold Core Drilling Summary

Hole ID	Target	Easting (NAD 27)	Northing	Elevation (m)	Inclination	Azimuth	Depth (m)
Jumbo-11-01 Core	Jumbo	761398	4198905	2123	-45	270	143.6
Thor-11-01 Core	Thor	759337	4198411	2094	-45	290	137.2
J-14-001C	Jumbo	761405	4198847	2103	-45	270	107.3
J-14-002C	S Jumbo	761252	4198383	2082	-65	270	92.1
GE-14-001C	Grey Eagle	756664	4200775	2124	-90		108.5
GE-14-002C	N Grey Eagle	756762	4200973	2150	-70	125	73.2

NAD – North American Datum
m – metres

numbered sample bags which were stored in a secure storage facility until HDG employees delivered them to RDi in Denver for metallurgical testing. Samples of each mineralization type except Jumbo-2 were represented in the core samples. Each mineralization type was composited, and a 1-kilogram sample was subjected to bucket test cyanide leaching at various crush sizes. Sizes used for each mineralization type were P_{80} 3 mm, 3/6-inch, ¾-inch and 1-inch.

J-14-001C was drilled in the main Jumbo resource area, J-14-002C was drilled in South Jumbo, GE-14-001C was drilled in the main Grey Eagle zone, and GE-14-002C was drilled in the North Grey Eagle.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Quality Assurance and Quality Control Procedures

All drill sampling, testing, and analysis are conducted using rigorous quality assurance/quality control (QA/QC) procedures to ensure reliability and validity of results beyond basic regulatory guidelines. Having sound QA/QC protocols in place instills a level of confidence with the Company, as TMI is fully aware of what is happening with all samples, at all times. Moreover, transparent QA/QC procedures demonstrate TMI's strict adherence to industry "Best Practices" to the investment community. Initial sample preparation and assays were reported by Inspectorate Laboratories USA (a wholly owned subsidiary of Acme Laboratories, which was ultimately purchased by Bureau Veritas in late 2014). This report will refer to all of these associated laboratories as Bureau Veritas (BV).

The following is a description of the handling that all samples follow from initial drilling to final announcement of results.

11.1.1 On the Property

HDG geologists lay out drill-hole locations in the field. Hole locations are designed from the GIS database, geologic interpretations, and detailed cross-section evaluation. HDG staff supervises pad construction (and later reclamation), and fore-sight/back-sight markers are set to align the direction of drilling. Drillers are informed by TMI as to the inclination of the hole. Once the drill is set on the pad both the bearing and inclination are checked by HDG geologic staff.

1. RC drilling is conducted by a third party contractor. The drill is a track-mounted rig (Figure 11-1) capable of drilling to 500 metres.

2. Down-hole surveys are conducted by IDS using a gyro deviation survey instrument at or near the termination of the hole. These surveys provide detailed down-hole data on the azimuth and dip of the hole over the length of the hole. Surveys were performed for a portion of the 2014 drilling and will be performed on all holes in the future.
3. Drill hole locations are surveyed by Platt & Platt Inc. Professional surveyors located in Cedar City, Utah. This information is compiled in a drill hole database which includes drill hole number, UTM location, elevation, inclination, bearing, and depth of holes.
4. RC drilling provides for a continuous sample stream which passes through a cyclone into a rotary sample splitter. The RC drill cuttings are collected as they come out of the drill hole from an

Figure 11-1: 2013 Drilling at the Grey Eagle Target, GE-13-002



industry standard rotary wet splitter provided by the drilling company. The splitter delivers the material to three collection points. Samples are collected on 1.52-metre (5-foot) intervals. Material from the first collection point is designated for transport to Inspectorate Laboratories, located in Elko, Nevada, USA, for preparation, and the pulps are then sent to Inspectorate Laboratories in Sparks, Nevada, for analysis. The material from the second sample collection point is retained as a duplicate sample for future testing if needed. The material from the third sample point is geologically logged onsite and put into chip trays which are labeled with drill hole number, sample numbers, and footage intervals from which the sample was taken. In addition to the chip trays, a 10.16 x 15.24-centimeter (4 x 6-inch) zip lock bag labeled with the drill hole designation and footage interval, is filled from the third sample point. This material is retained for possible petrographic work.

5. HDG personnel prepare the sample bags prior to drilling. Two sets of bags are numbered sequentially, one having a “D” designation signifying “Duplicate.” HDG has two representatives at the drill at all times. One is a geologist who logs the cuttings onsite, and the other is a helper to oversee the sampling and make sure bags and samples are kept in order. At the end of every 1.52-metre sample interval, the bags are loaded into HDG trucks and, at the end of the day, transported back to the Gold Springs compound behind locked gates for air drying. There they are picked-up by the laboratory. Duplicate samples are stored on site until the end of the drill program, when they are transported to a locked storage facility in Cedar City, Utah.
6. Every 20 samples the standards and blanks are inserted into the numbering sequence of the drill cuttings. These are then submitted to the laboratory as part of the numbered drill sample sequence. The samples are analyzed in the sequence order they are received in by the lab and used to check for discrepancies in analysis. These samples are recorded on a master database which contains all of the sample numbers, footage intervals, and drill hole numbers. The standards and blanks are also recorded on the drill log that is produced by HDG geologists at the drill. Independent standard and blank material inserted by HDG is purchased from Minerals Exploration and Environmental Geochemistry (MEG) of Reno, Nevada. MEG is an independent sample preparation laboratory with a focus on providing standard reference materials (SRM) to the mining and environmental industries.
7. HDG geologists record the sample number, footage, geological, alteration and structural information for each sample interval. This information is later transcribed into the master database used to build the geologic model of the resource areas.
8. Sample bags are picked up by Inspectorate Laboratories or driven by HDG personnel to the Laboratory prep facility in Elko, Nevada. At the time of pick-up or delivery, HDG delivers a sample submittal sheet to the lab personnel listing the samples submitted and the desired analysis.

11.1.2 Inspectorate Laboratories in Elko and Sparks, Nevada

1. Under controlled laboratory conditions, the samples were dried, crushed, split, ground and analyzed for gold using an industry standard 30 gram fire assay charge, with an atomic absorption (A.A.) or gravimetric finish, and trace element geochemistry was performed using standard Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) methods beginning with a four-acid, near-total digestion of the sample matrix. All samples with geochemical content greater than the upper detection limit for ICP methodology were re-analyzed using standard assay methods. Initial analytical results were checked by re-analysis of suites of both drill samples and rock chip samples. The lab facilities are International Organization for Standardization (ISO) 9001:2000 certified laboratories.
2. The laboratory inserts an average of approximately 10% blank and standard samples into each analyzed sample batch to ensure precision and accuracy. The lab conducts repeat analysis of pulps from samples submitted at a rate of approximately 5% and creates duplicate pulps from the coarse rejects that are analyzed at a rate of approximately 5%. Both types of check analyses showed very consistent results with variations of less than +/- 2%.

11.1.3 TMI

1. Results are tabulated on spreadsheets by both the geologist and the head office personnel. Originals of the assay certificates are sent by e-mail to the head TMI office and stored there.
2. Upon receiving completed analytical results, geologists then extract the blank and standard samples for examination of expected values tested values.
3. Pulps are resubmitted for samples around any blanks or standards that returned values outside of an acceptable range.
4. ALS Chemex performs a "repeat analysis" on 5% of the sample pulps for an external lab check. These are submitted by HDG from existing pulps along with a 5% rate of standards or blanks.
5. The spreadsheet information for drill hole samples is then matched with sampling intervals and geological observations for interpretation. This data is merged with the assay data into a master database.
6. Results of the merged data are then sent to TMI management for comparison with the spreadsheet compiled at the head office. If discrepancies are found, they are reconciled by use of the assay certificates, and the final report is moved to the project database.
7. TMI management periodically prepares news releases to make public the information from the drilling in a format compatible with NI 43-101 standards. A "Qualified Person" signs-off on news releases containing technical data. Results are kept in strict confidence until a news release is prepared and the information released.

11.2 QA/QC Results

11.2.1 External Quality Assurance Protocol

Individual drill holes in the 2014 drill programs were submitted as separate jobs. Each drill hole submitted for analysis included external certified standards that were placed at a regular interval of every 20 samples, accompanied by the occasional envelope blank standard. As a blinding technique, sample numbers were used rather than drill hole number and footage to identify each sample. External certified standards and blanks were provided by Shea Clark Smith /MEG, Inc. to GSLLC, who inserted the quality control samples into the sample stream. The standards were only partially blinded to the analytical laboratory because “receive weights” of less than 0.1 kilograms are identifiable as an envelope of standard reference material.

11.2.2 External Blanks

Blank standard (MEG-Au.12.03) was purchased from Shea Clark Smith /MEG, Inc. and is composed of pulverized barren quartz sand. Values are certified to contain less than 0.003 ppm Au using conventional industry-standard round robin assay methods (Figure 11-2). In this QA/QC evaluation, indicated detectable concentrations of less than 5 times the lower detection limits for blank standards indicate that there is no carry-over contamination.

11.2.3 Historical External Blank Standard Values

The use of blank standards began relatively late in the project, from September through October. These standards do not go through the sample preparation circuit and monitor only the digestion and analytical processes. All of the reported values were above the certified gold concentration of 0.003 ppm, yet only

one is considered to have exceeded the failure limit of 5 times the analytical detection limit. These results indicate that a moderate amount (5 to 16 ppb) of between-sample contamination occurred, which should not adversely affect resource evaluation.

11.2.4 External Gold Standards

Gold and silver standards were purchased from Shea Clark Smith /MEG, Inc. and are made from mineralized rock that has been doped with additional gold to create suites of material with a wide range of metal concentrations. Values are certified for gold using conventional industry-standard round robin assay methods. In this QA/QC evaluation, the standards and their concentrations were as shown in Table 11-1.

Figure 11-2: Blank Standard Statistics Generated from 2014 Drill Program

Blank Statistics	
Statistic	Au (ppm)
Count =	14
Min =	0.005
Max =	0.016
Range =	0.011
Mean =	0.007
Median =	0.005
Std Dev =	0.004
Variance =	0.000
Coeff of Variance =	0.520
Standard Error =	0.00
% RSD =	13.89
Detection Limit =	0.003

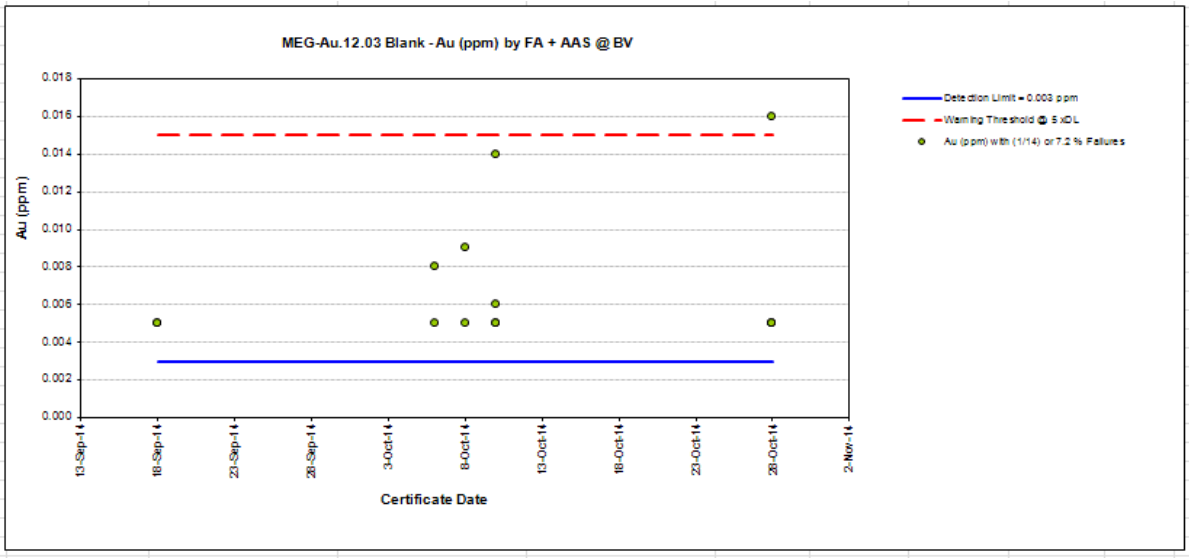


Table 11-1: External Standards Used in the 2014 Drill Program

Standard	Mean (ppm Au)	95% Confidence Limits
MEG-Au.10.01	0.02	0.016 – 0.027
MEG-Au.10.03	0.06	0.044 – 0.068
MEG-Au.11.19	0.12	0.093 – 0.146
MEG-Au.13.01	0.31	0.279 – 0.337
MEG-Au.12.25	0.72	0.655 – 0.782
MEG-Au.11.13	1.8	1.644 – 1.969
MEG-Au.11.29	3.6	3.013 – 4.289

11.2.5 Historical External Gold Standard Values

In a relatively small project where the number of quality control analyses for the laboratory of choice is less than the original number of certified analyses (commonly 100 analyses), it is acceptable practice to use the original certified statistics for the standards. However, when the number of analyses exceeds the original number of assays for certification, and which have been calculated based upon the preferred analytical method at the preferred laboratory used in the drill program, it is acceptable practice to use historical values generated by the new data. These statistics (the "historical mean and standard deviation") should not exceed 5% of the original values established by the qualifying and certified round robin studies. Figure 11-3 shows a list of the historical statistics derived from analyses for the 2014 drill program along with the number of analyses used to generate these statistics. These values are compared to the certificate values, with a calculated "Percent Bias" for the historical data.

Figure 11-3: External Gold Standard Statistics Generated from 2014 Drill Program

Standard MEG-Au.10.01 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	28.000	Certificate Mean =	0.022	Std. Error =	0.002
No. > 2 SD Limit =	5.000	Calculated Mean =	0.025	Relative Std Error =	0.000
% > 2 SD Limit =	17.857	Certificate Std.Dev. =	0.003	% RSD =	40.726
No. > 3 SD Limit =	4.000	Calculated Std. Dev. =	0.010	% Accuracy =	86.201
% > 3 SD Limit =	14.286	Percent Bias =	13.799		

Standard MEG-Au.10.03 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	13.000	Certificate Mean =	0.056	Std. Error =	0.002
No. > 2 SD Limit =	1.000	Calculated Mean =	0.059	Relative Std Error =	0.000
% > 2 SD Limit =	7.692	Certificate Std.Dev. =	0.006	% RSD =	11.770
No. > 3 SD Limit =	0.000	Calculated Std. Dev. =	0.007	% Accuracy =	94.093
% > 3 SD Limit =	0.000	Percent Bias =	5.907		

Standard MEG-Au.11.19 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	29.000	Certificate Mean =	0.120	Std. Error =	0.002
No. > 2 SD Limit =	1.000	Calculated Mean =	0.122	Relative Std Error =	0.000
% > 2 SD Limit =	3.448	Certificate Std.Dev. =	0.013	% RSD =	10.887
No. > 3 SD Limit =	0.000	Calculated Std. Dev. =	0.013	% Accuracy =	98.391
% > 3 SD Limit =	0.000	Percent Bias =	1.609		

Standard MEG-Au.12.25 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	22.000	Certificate Mean =	0.719	Std. Error =	0.013
No. > 2 SD Limit =	3.000	Calculated Mean =	0.695	Relative Std Error =	0.001
% > 2 SD Limit =	13.636	Certificate Std.Dev. =	0.032	% RSD =	9.027
No. > 3 SD Limit =	2.000	Calculated Std. Dev. =	0.063	% Accuracy =	96.694
% > 3 SD Limit =	9.091	Percent Bias =	-3.306		

Standard MEG-Au.11.13 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	23.000	Certificate Mean =	1.806	Std. Error =	0.023
No. > 2 SD Limit =	2.000	Calculated Mean =	1.817	Relative Std Error =	0.001
% > 2 SD Limit =	8.696	Certificate Std.Dev. =	0.081	% RSD =	5.972
No. > 3 SD Limit =	1.000	Calculated Std. Dev. =	0.109	% Accuracy =	99.369
% > 3 SD Limit =	4.348	Percent Bias =	0.631		

Standard MEG-Au.13.01 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	26.000	Certificate Mean =	0.308	Std. Error =	0.003
No. > 2 SD Limit =	2.000	Calculated Mean =	0.314	Relative Std Error =	0.000
% > 2 SD Limit =	7.692	Certificate Std.Dev. =	0.014	% RSD =	4.666
No. > 3 SD Limit =	0.000	Calculated Std. Dev. =	0.015	% Accuracy =	97.927
% > 3 SD Limit =	0.000	Percent Bias =	2.073		

Standard MEG-Au.11.29 - Au (ppm) by 30/FA + AAS @ BV					
No. of Analyses =	2.000	Certificate Mean =	3.651	Std. Error =	0.156
No. > 2 SD Limit =	0.000	Calculated Mean =	3.577	Relative Std Error =	0.078
% > 2 SD Limit =	0.000	Certificate Std.Dev. =	0.319	% RSD =	6.168
No. > 3 SD Limit =	0.000	Calculated Std. Dev. =	0.221	% Accuracy =	97.973
% > 3 SD Limit =	0.000	Percent Bias =	-2.027		

11.2.6 Relative Standard Deviation

The percent Relative Standard Deviation (RSD) values (RSD = Standard Deviation divided by the mean, times 100) are a measure of a standard's performance. One normally expects a well-behaved standard to have an RSD value of less than 5%. Provisional standard RSD values range from 5 to 15%. Materials with RSDs of less than 15% are acceptable for use as certified reference materials. Materials with RSDs of greater than 15% are not normally used or certified as reference materials.

11.2.7 External Gold Standard Results

The quality control results for the standards are given in Figure 11-3. As mentioned previously, the historical statistics compare favourably with the original round robin statistics. The bias between the two sets of means is within 5%, except for standard MEG-Au.10.01 where the mean concentration for gold is very near the 5 x Detection Limit criterion (certificate mean = 0.022 vs. 5 x Detection Limit = 0.015). The RSDs are all less than 15. There are less than 5 samples for any given standard which exceed the acceptable control limit of the mean ± 2 standard deviations. A total of 14 failures for 143 certified standard analyses is a 10% failure rate. For a criterion of mean ± 3 standard deviations, the failure rate drops to below 5% (7 failures/ 143 analyses). Standards analyses show acceptable accuracy for resource estimation.

11.2.8 External Gold Standard Quality Control Graphs

Figure 11-4 through Figure 11-9 show graphical representations of standards performance for gold by date. The dates of analysis are presented on the x-axis and concentration on the y-axis. The certified mean is indicated by the solid red line, the ± 2 standard deviation control limits are depicted by the dashed red lines, and the ± 10% control limits are depicted by the dashed blue lines.

Figure 11-4: MEG-Au.10.01 Statistics

Standard MEG-Au.10.01 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	28		Certificate Mean =	0.022		Std. Error =	0.0019
No. > 2 SD Limit =	5		Calculated Mean =	0.025		Relative Std Error	0.0001
% > 2 SD Limit =	17.9		Certificate Std.Dev. =	0.003		% RSD =	40.73
No. > 10% Limit =	14		Calculated Std. Dev. =	0.010		% Accuracy =	86
% > 10% Limit =	50.0		Percent Bias =	13.80			

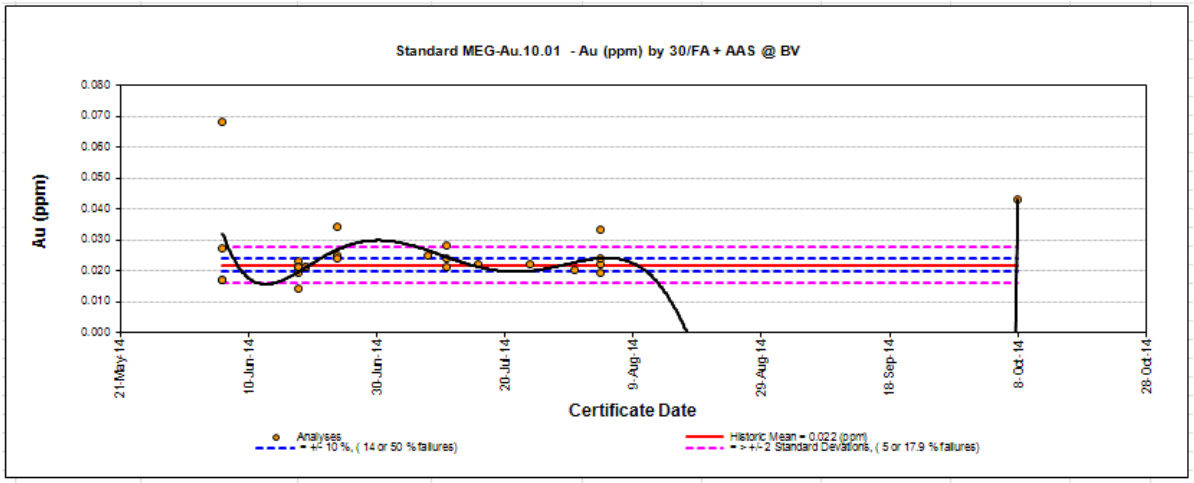


Figure 11-5: MEG-Au.10.03 Statistics

Standard MEG-Au.10.03 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	13		Certificate Mean =	0.056		Std. Error =	0.0019
No. > 2 SD Limit =	1		Calculated Mean =	0.059		Relative Std Error =	0.0001
% > 2 SD Limit =	7.7		Certificate Std.Dev. =	0.006		% RSD =	11.77
No. > 10% Limit =	6		Calculated Std. Dev. =	0.007		% Accuracy =	94
% > 10% Limit =	46.2		Percent Bias =	5.91			

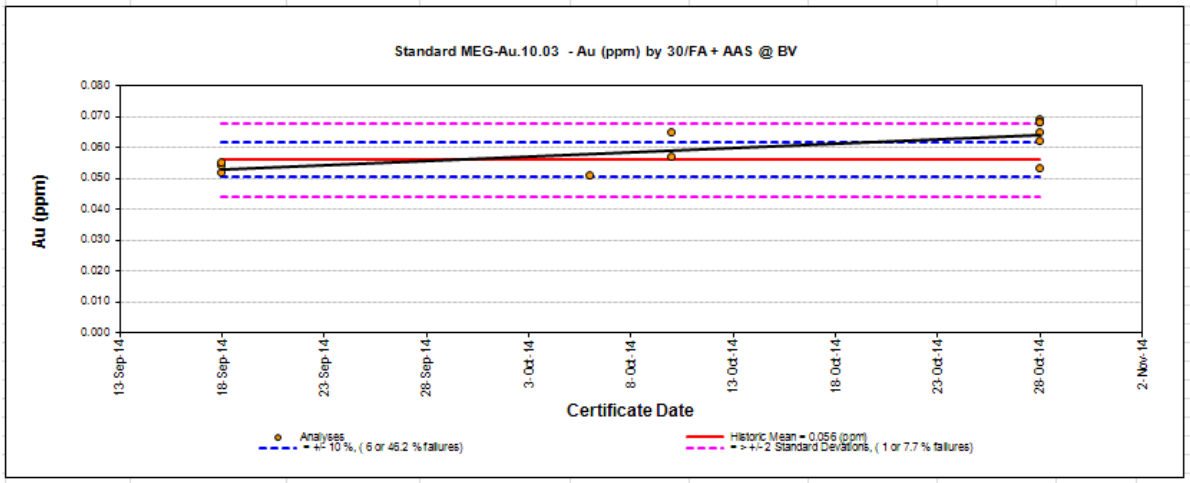


Figure 11-6: MEG-Au.11.19 Statistics

Standard MEG-Au.11.19 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	29		Certificate Mean =	0.120		Std. Error =	0.0025
No. > 2 SD Limit =	1		Calculated Mean =	0.122		Relative Std Error =	0.0001
% > 2 SD Limit =	3.4		Certificate Std.Dev. =	0.013		% RSD =	10.89
No. > 10% Limit =	10		Calculated Std. Dev. =	0.013		% Accuracy =	98
% > 10% Limit =	34.5		Percent Bias =	1.61			

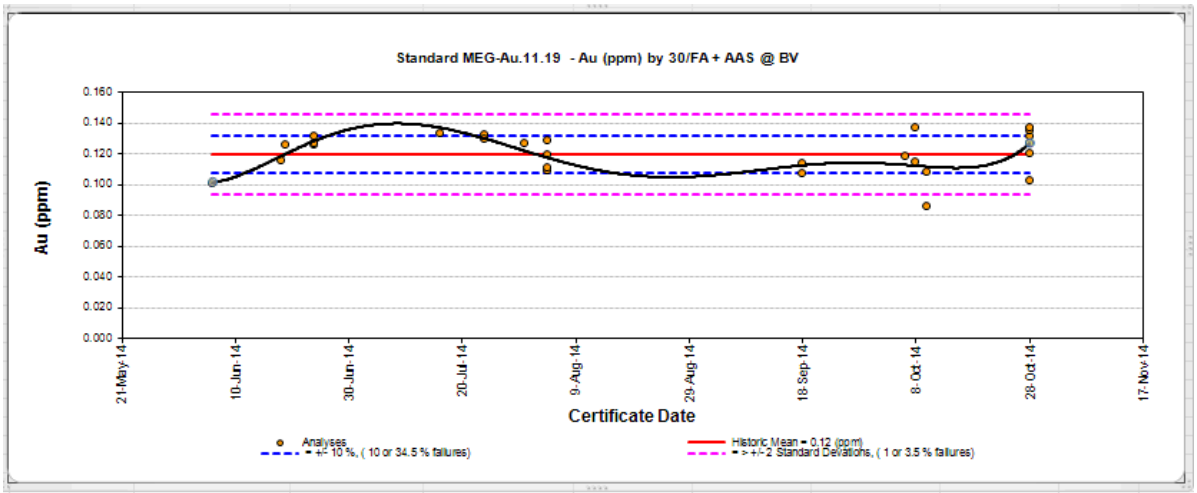


Figure 11-7: MEG-Au.13.01 Statistics

Standard MEG-Au.13.01 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	26		Certificate Mean =	0.308		Std. Error =	0.0029
No. > 2 SD Limit =	2		Calculated Mean =	0.314		Relative Std Error =	0.0001
% > 2 SD Limit =	7.7		Certificate Std.Dev. =	0.014		% RSD =	4.67
No. > 10% Limit =	1		Calculated Std. Dev. =	0.015		% Accuracy =	98
% > 10% Limit =	3.8		Percent Bias =	2.07			

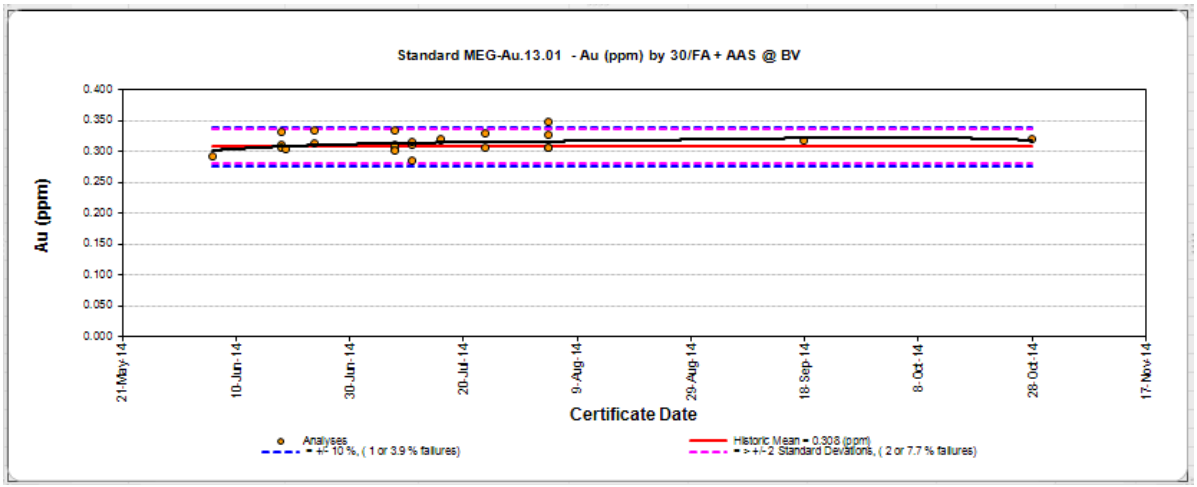


Figure 11-8: MEG-Au.12.25 Statistics

Standard MEG-Au.12.25 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	22		Certificate Mean =	0.719		Std. Error =	0.0134
No. > 2 SD Limit =	3		Calculated Mean =	0.695		Relative Std Error =	0.0006
% > 2 SD Limit =	13.6		Certificate Std.Dev. =	0.032		% RSD =	9.03
No. > 10% Limit =	3		Calculated Std. Dev. =	0.063		% Accuracy =	97
% > 10% Limit =	13.6		Percent Bias =	-3.31			

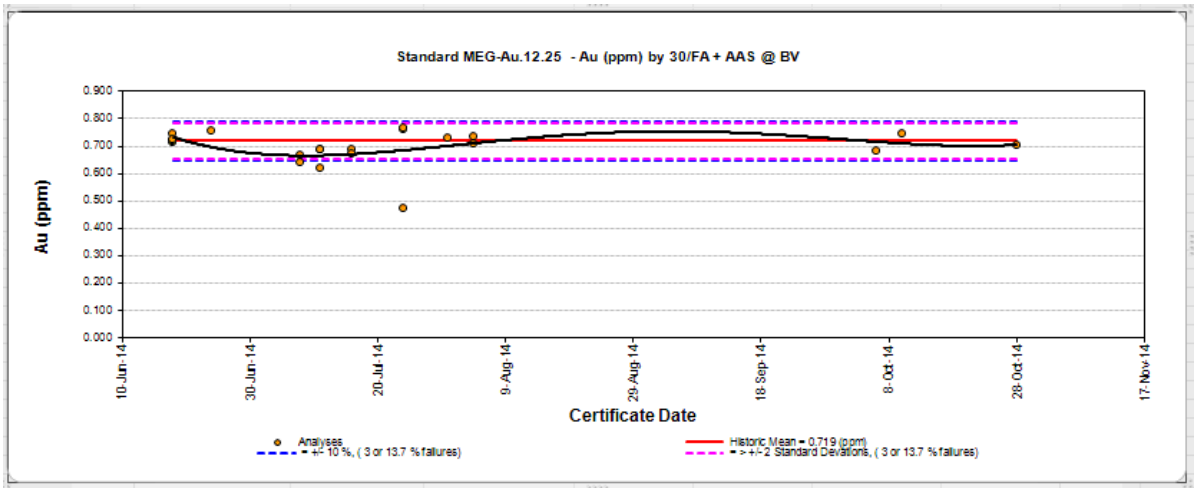
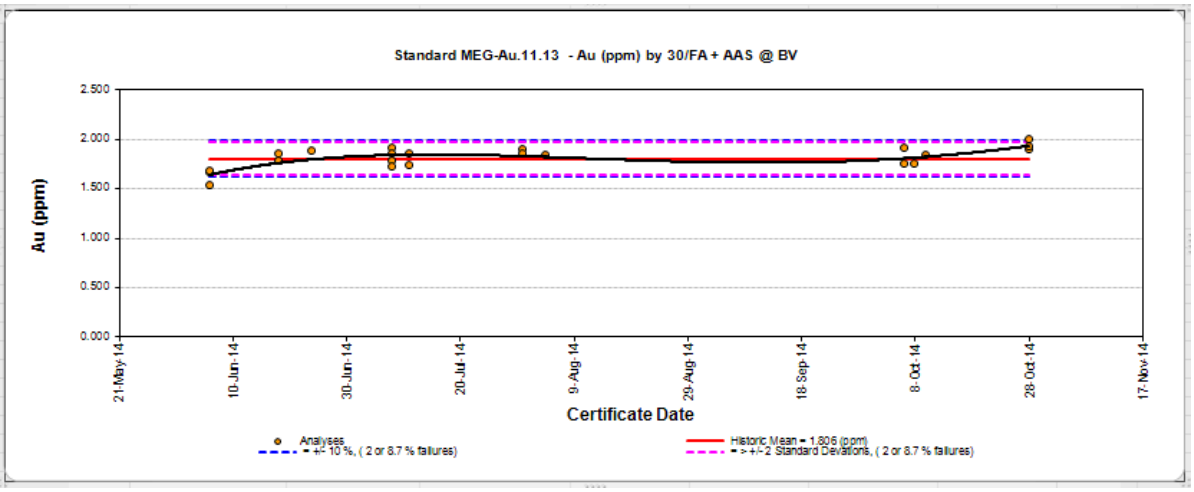


Figure 11-9: MEG-Au.11.13 Statistics

Standard MEG-Au.11.13 - Au (ppm) by 30/FA + AAS @ BV							
No. of Analyses =	23		Certificate Mean =	1.806		Std. Error =	0.0226
No. > 2 SD Limit =	2		Calculated Mean =	1.817		Relative Std Error =	0.0010
% > 2 SD Limit =	8.7		Certificate Std.Dev. =	0.081		% RSD =	5.97
No. > 10% Limit =	2		Calculated Std. Dev. =	0.109		% Accuracy =	99
% > 10% Limit =	8.7		Percent Bias =	0.63			



Visual examination of these quality control plots reveals that the analyses of the certified standards very rarely exceed the ± 2 standard deviations control limits (except again for MEG-Au.10.01 which has a concentration very near the 5 x Detection Limit of 0.015). None of the failures cluster, and although there appear to be a diurnal systematics through the data points (again MEG-Au.10.01 the exception), they are low in amplitude, perhaps relating to operator and/or variations in the laboratory environments over the 6 month duration of the project.

The performance of gold standards indicates that the results from the 2014 drilling program at Gold Springs are of acceptable accuracy for resource analyses.

BV uses internal standards to monitor quality assurance within the laboratory. Results are reported to the client and can be used to provide additional information about data reliability. Placement of the standards in the submittal is not indicated in the report, yet data are compiled at the bottom of every dated report. It is assumed that internal standards are evenly distributed through the submittal and not analyzed in a group.

11.2.9 Internal Blanks

BV uses an internal blank rock (Rock-E) that goes through the sample preparation circuit. The source and chemistry of this rock is unknown. All of the reported values were above the certified gold concentration of 0.003 ppm, and three are considered to have exceeded the failure limit of 5 times the analytical detection limit. One event in late July accounts for all three failures, which make analyses at this time somewhat suspect (Figure 11-10). These results indicate that a moderate amount (5 to 23 ppb) of between-sample contamination occurred, which should not adversely affect resource evaluation. Silver results are more favorable, with no failures above the limit of 5 times the analytical detection limit of 0.5 ppm Ag (Figure 11-11).

Figure 11-10: Prep Blank Used Internally at Bureau Veritas: Gold Analysis

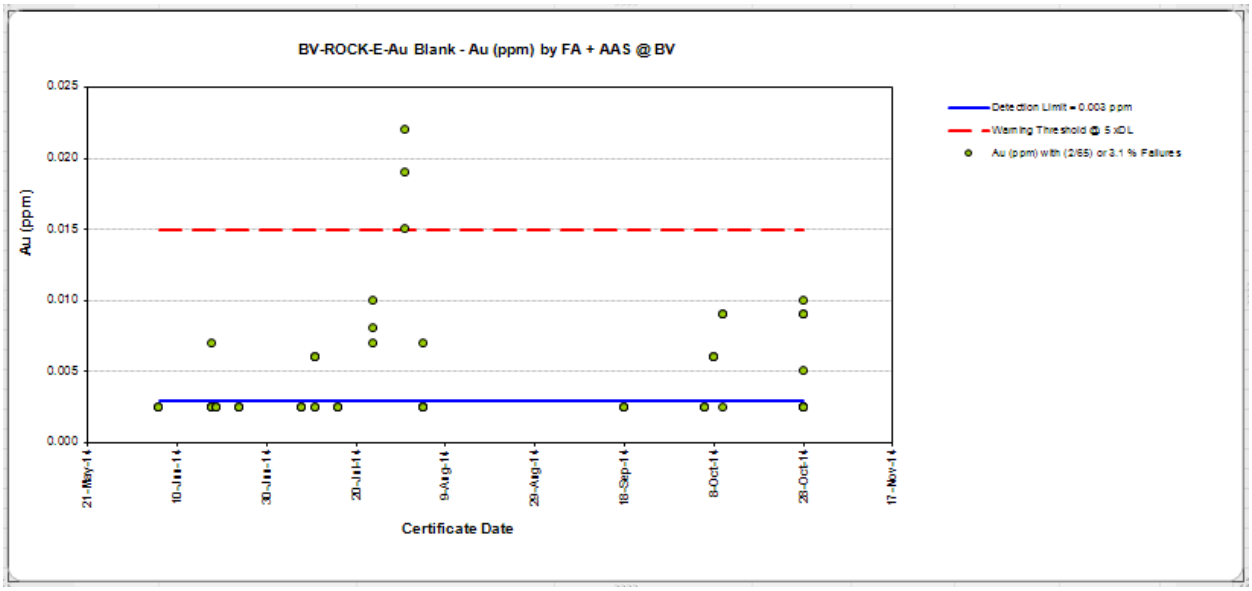
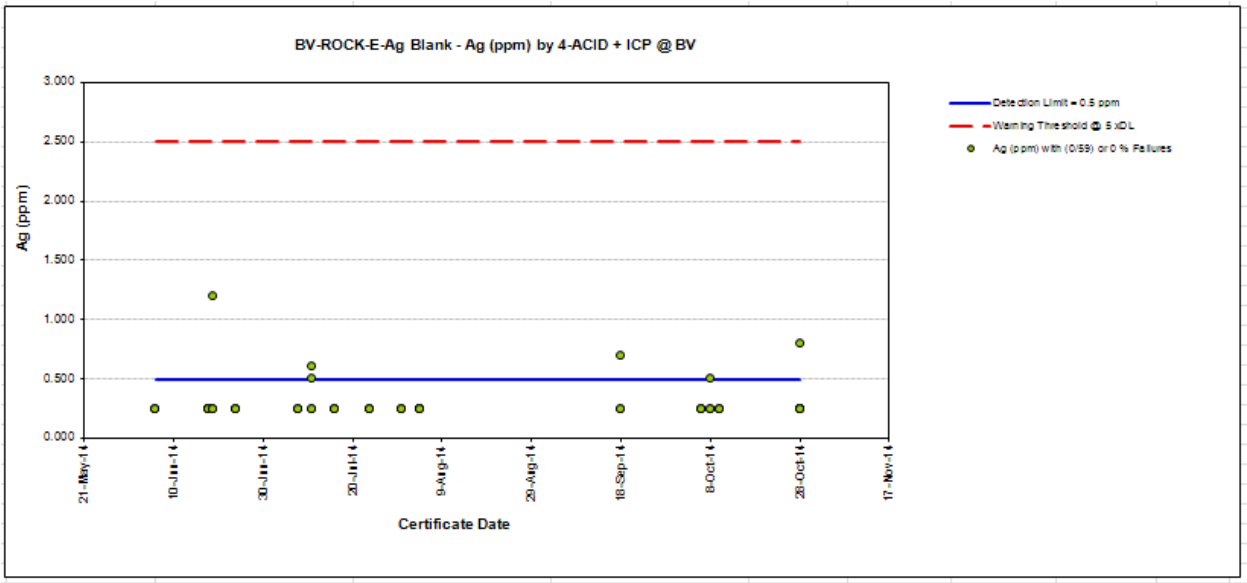


Figure 11-11: Prep Blank Used Internally at Bureau Veritas: Silver Analysis



11.2.10 Internal Gold Standards

BV used seven internal gold standards that were purchased from various commercial vendors (Rocklabs, OREAS, and CDN). Statistical parameters for each standard are available from each vendor's website. The gold standards are as shown in Table 11-2.

11.2.11 Historical Internal Gold Standards

Figure 11-12 through Figure 11-18 show the historical gold statistics derived from analyses for the 2014 drill program, along with the number of analyses used to generate these statistics. These values are compared to the certificate values, with a calculated "Percent Bias" for the historical data.

Table 11-2: Internal Gold Standards Used in the 2014 Drill Program

Standard	Mean (ppb Au)	95% Confidence Limits
OXA-89	83.6	81.1 – 86.1
OXD-108	414	411 - 417
OXD-87	414	411 - 417
OXF-85	417	413 - 421
OXi-121	805	801 - 809
SP37	18140	17990 - 81290
CDN-GS-22	22940	11740 - 34140

Figure 11-12: OXA89 Statistics (Rocklabs)

Standard BV-OXA89-Au - Au (ppb) by 30/FA + AAS @ BV

No. of Analyses =	63		Certificate Mean =	83.600		Std. Error =	0.6847
No. > 2 SD Limit =	46		Calculated Mean =	80.429		Relative Std Error =	0.0109
% > 2 SD Limit =	73.0		Certificate Std.Dev. =	1.250		% RSD =	6.76
No. > 10% Limit =	14		Calculated Std. Dev. =	5.435		% Accuracy =	96
% > 10% Limit =	22.2		Percent Bias =	-3.79			

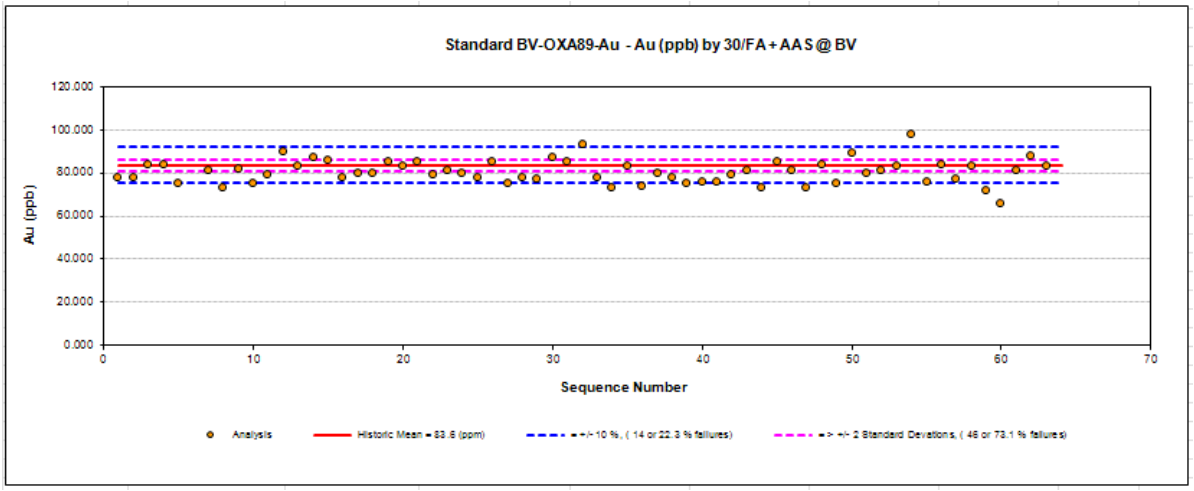


Figure 11-13: OXD108 Statistics (Rocklabs)

Standard BV-OXD108-Au - Au (ppb) by 30/FA + AAS @ BV							
No. of Analyses =	19		Certificate Mean =	414.000		Std. Error =	3.3443
No. > 2 SD Limit =	17		Calculated Mean =	404.789		Relative Std Error =	0.1760
% > 2 SD Limit =	89.5		Certificate Std.Dev. =	1.500		% RSD =	3.60
No. > 10% Limit =	0		Calculated Std. Dev. =	14.578		% Accuracy =	98
% > 10% Limit =	0.0		Percent Bias =	-2.22			

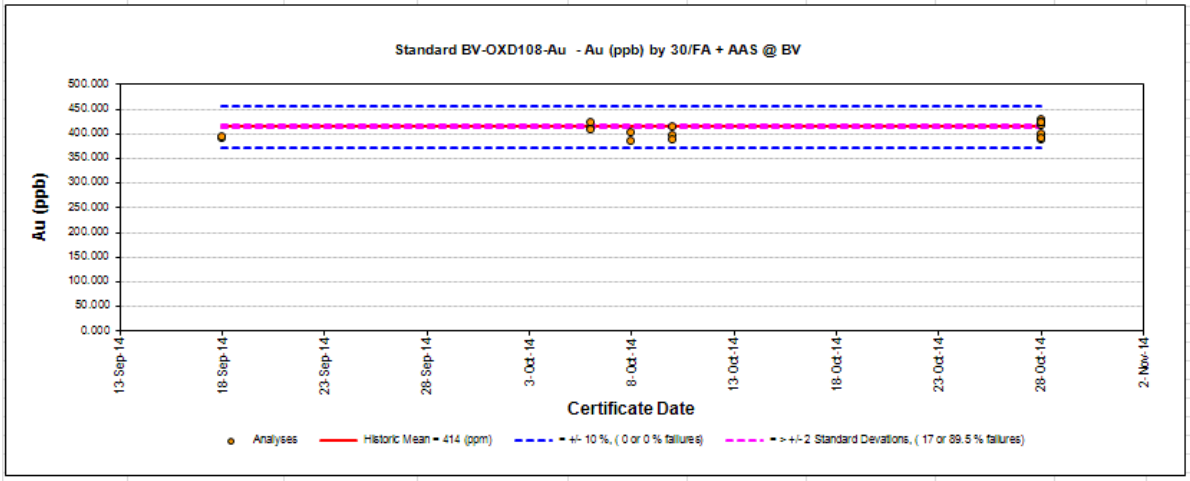


Figure 11-14: OXD87 Statistics (Rocklabs)

Standard BV-OXD87-Au - Au (ppb) by 30/FA + AAS @ BV							
No. of Analyses =	48		Certificate Mean =	417.000		Std. Error =	1.9922
No. > 2 SD Limit =	43		Calculated Mean =	408.583		Relative Std Error =	0.0415
% > 2 SD Limit =	89.6		Certificate Std.Dev. =	2.000		% RSD =	3.38
No. > 10% Limit =	0		Calculated Std. Dev. =	13.802		% Accuracy =	98
% > 10% Limit =	0.0		Percent Bias =	-2.02			

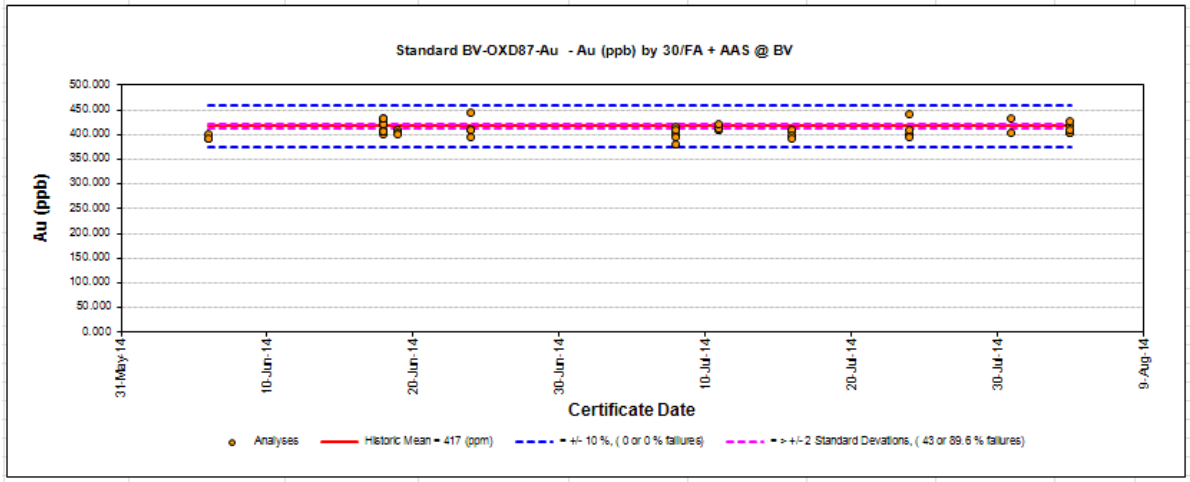


Figure 11-15: OXF85 Statistics (Rocklabs)

Standard BV-OXF85-Au - Au (ppb) by 30/FA + AAS @ BV							
No. of Analyses =	76		Certificate Mean =	805.000		Std. Error =	3.6949
No. > 2 SD Limit =	61		Calculated Mean =	792.553		Relative Std Error =	0.0486
% > 2 SD Limit =	80.3		Certificate Std.Dev. =	4.000		% RSD =	4.06
No. > 10% Limit =	1		Calculated Std. Dev. =	32.212		% Accuracy =	98
% > 10% Limit =	1.3		Percent Bias =	-1.55			

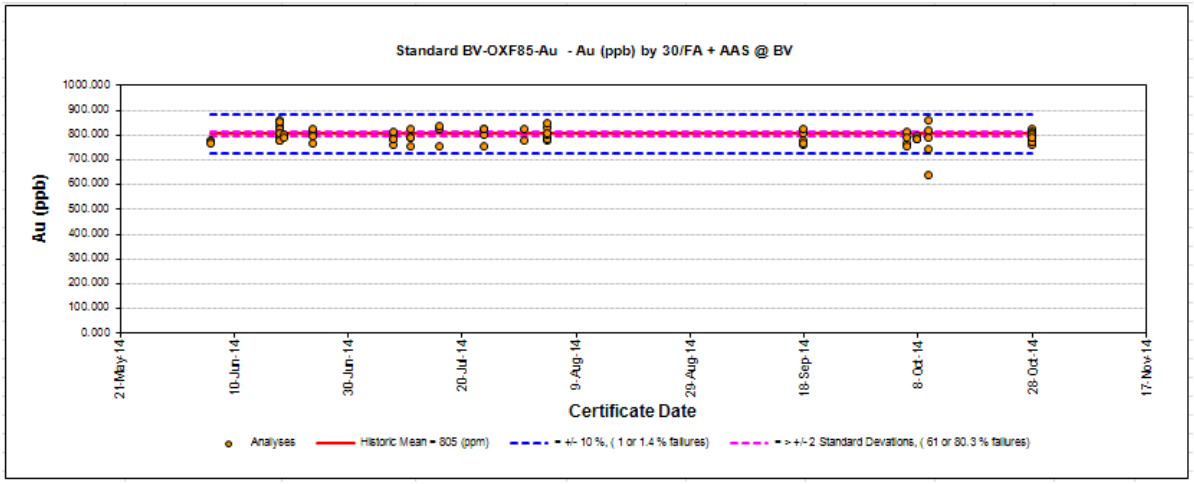


Figure 11-16: OXi121 Statistics (Rocklabs)

Standard BV-OXi121-Au - Au (ppb) by 30/FA + AAS @ BV							
No. of Analyses =	43		Certificate Mean =	1834.000		Std. Error =	8.7013
No. > 2 SD Limit =	38		Calculated Mean =	1815.093		Relative Std Error =	0.2024
% > 2 SD Limit =	88.4		Certificate Std.Dev. =	7.000		% RSD =	3.14
No. > 10% Limit =	0		Calculated Std. Dev. =	57.058		% Accuracy =	99
% > 10% Limit =	0.0		Percent Bias =	-1.03			

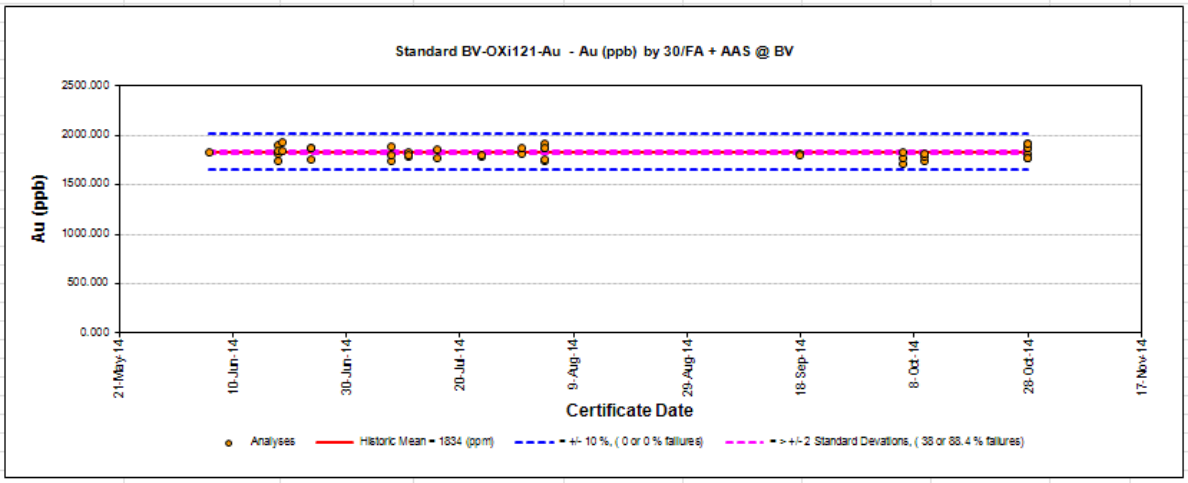


Figure 11-17: SP37 Statistics (Rocklabs)

Standard BV-SP37-Au - Au (ppb) by 30/FA + AAS @ BV							
No. of Analyses =	14		Certificate Mean =	18140.000		Std. Error =	66.5052
No. > 2 SD Limit =	11		Calculated Mean =	18235.571		Relative Std Error =	4.7504
% > 2 SD Limit =	78.6		Certificate Std.Dev. =	75.000		% RSD =	1.36
No. > 10% Limit =	0		Calculated Std. Dev. =	248.840		% Accuracy =	99
% > 10% Limit =	0.0		Percent Bias =	0.53			

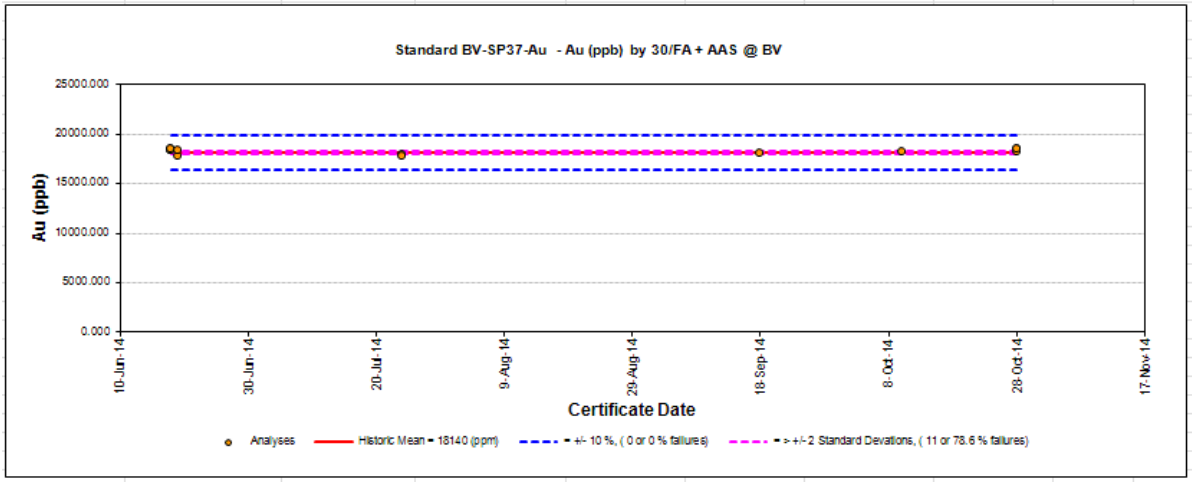
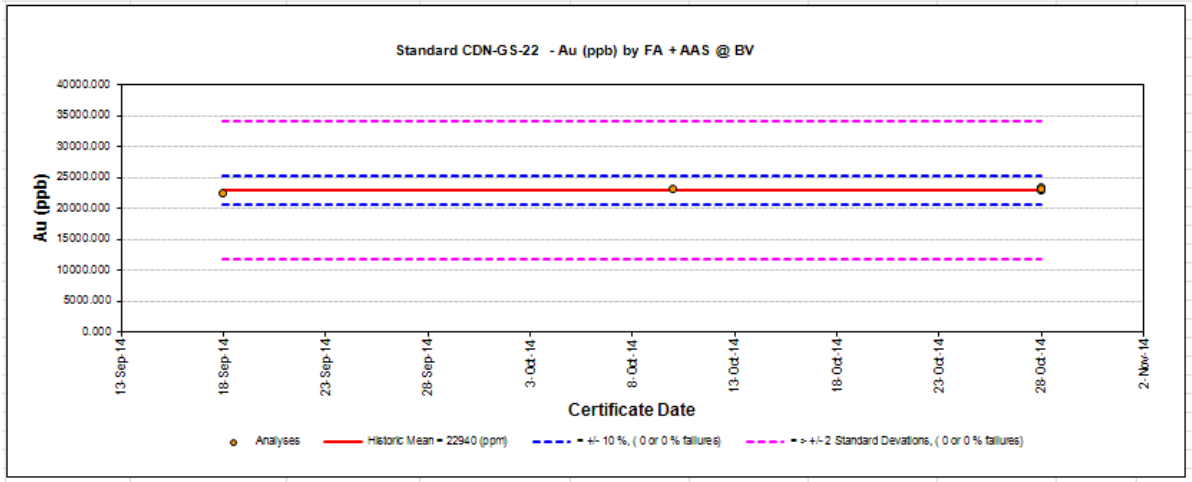


Figure 11-18: CDN-GS-22 Statistics (CDN)

Standard CDN-GS-22 - Au (ppb) by FA + AAS @ BV							
No. of Analyses =	6		Certificate Mean =	22940.000		Std. Error =	132.9384
No. > 2 SD Limit =	0		Calculated Mean =	23001.167		Relative Std Error =	22.1564
% > 2 SD Limit =	0.0		Certificate Std.Dev. =	5600.000		% RSD =	1.42
No. > 10% Limit =	0		Calculated Std. Dev. =	325.631		% Accuracy =	100
% > 10% Limit =	0.0		Percent Bias =	0.27			



11.2.12 Historical Internal Gold Standard Results

The quality control results for the internal standards are given in Figure 11-12 through Figure 11-18. The historical statistics compare favourably with the certificated statistics. The bias between the two sets of means is below 5%. The RSDs are all less than 7%. It is conventional internal practice at most laboratories to consider +/- 10% of the mean as failure limits. A total of 15 failures for 269 analyses is a 6% failure rate. These standard analyses show acceptable accuracy for resource estimation.

11.2.13 Internal Silver Standards

Inspectorate used three internal silver standards that were purchased from various commercial vendors (Rocklabs, OREAS, and CDN). Statistical parameters for each standard are available from each vendor's website. The silver standards are as shown in Table 11-3.

Table 11-3: Internal Silver Standards Used in the 2014 Drill Program

Standard	Mean (ppm Ag)	95% Confidence Limits
ORS-92	0.7	0.64 – 0.76
CDN-ME-8	61.7	57.0 – 66.4
SP-72	83	82.1 – 83.9

11.2.14 Historical Internal Silver Standards

Figure 11-19 through Figure 11-21 show the historical silver statistics derived from analyses for the 2014 drill program along with the number of analyses used to generate these statistics. These values are compared to the certificate values, with a calculated "Percent Bias" for the historical data.

Figure 11-19: ORS-92 Statistics (OREAS)

Standard ORS-92-Ag - Ag (ppm) by 4-ACID + ICP @ BV								
No. of Analyses =	68		Certificate Mean =	0.700		Std. Error =	0.1050
No. > 2 SD Limit =	66		Calculated Mean =	1.770		Relative Std Error =	0.0015
% > 2 SD Limit =	97.1		Certificate Std.Dev. =	0.030		% RSD =	48.93
No. > 10% Limit =	29		Calculated Std. Dev. =	0.866		% Accuracy =	-53
% > 10% Limit =	42.6		Percent Bias =	152.84			

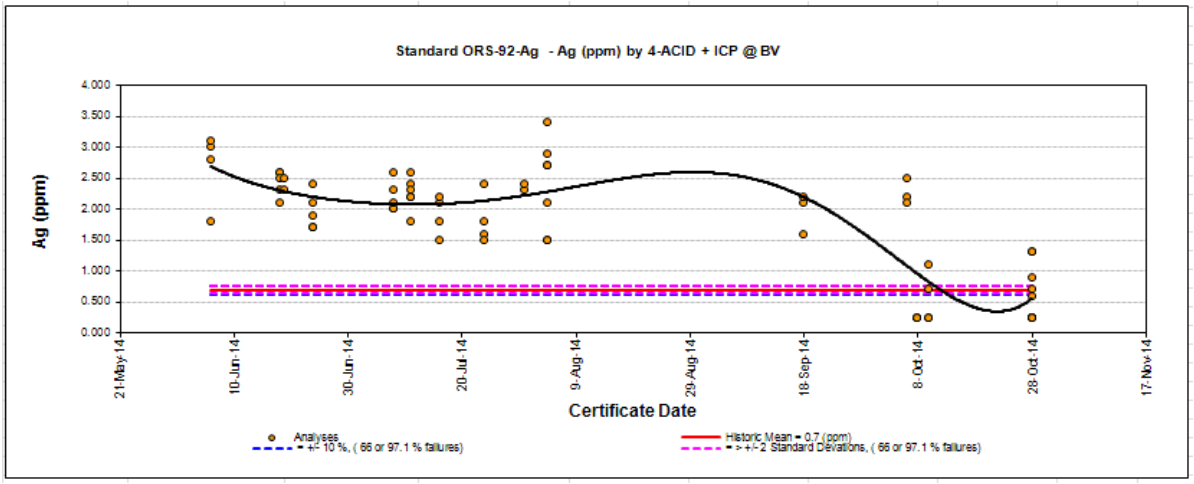


Figure 11-20: CDN-ME-8 Statistics (CDN)

Standard CDN-ME-8 - Ag (ppm) by 4-ACID + ICP @ BV							
No. of Analyses =	68		Certificate Mean =	61.700		Std. Error =	0.4053
No. > 2 SD Limit =	18		Calculated Mean =	63.600		Relative Std Error =	0.0060
% > 2 SD Limit =	26.5		Certificate Std.Dev. =	2.350		% RSD =	5.25
No. > 10% Limit =	4		Calculated Std. Dev. =	3.342		% Accuracy =	97
% > 10% Limit =	5.9		Percent Bias =	3.08			

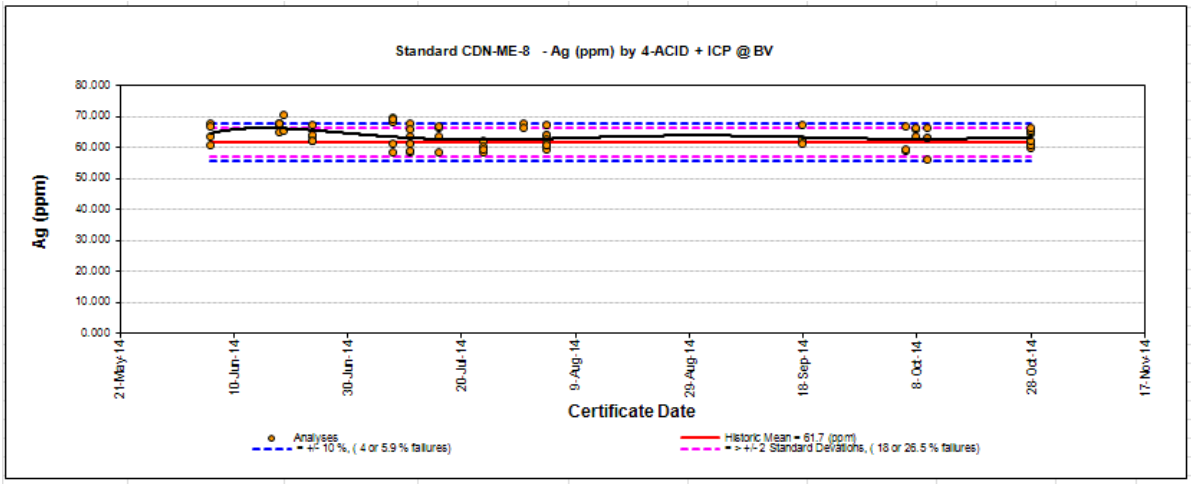
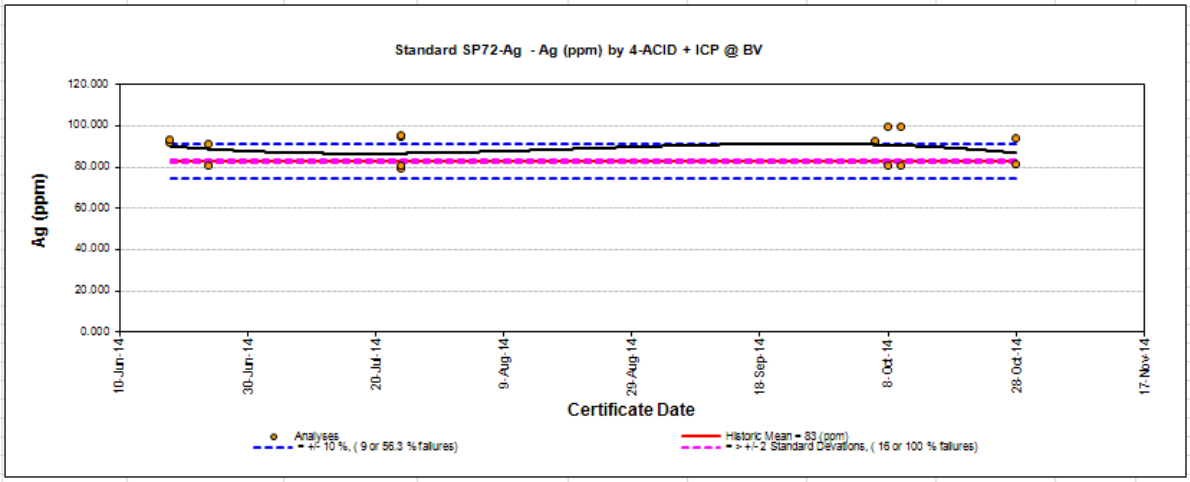


Figure 11-21: SP72 Statistics (Rocklabs)

Standard SP72-Ag - Ag (ppm) by 4-ACID + ICP @ BV							
No. of Analyses =	16		Certificate Mean =	83.000		Std. Error =	1.8264
No. > 2 SD Limit =	16		Calculated Mean =	88.925		Relative Std Error =	0.1141
% > 2 SD Limit =	100.0		Certificate Std.Dev. =	0.450		% RSD =	8.22
No. > 10% Limit =	9		Calculated Std. Dev. =	7.306		% Accuracy =	93
% > 10% Limit =	56.3		Percent Bias =	7.14			



11.2.15 Historical Internal Silver Standard Results

The quality control results for the internal standards are given in Figure 11-19 through Figure 11-21. The historical statistics for two of the internal standards compare favourably with the certificated statistics. The bias between the two sets of means is 3% to 7%. The RSDs are 5% to 8%. It is conventional internal practice at most laboratories to consider +/- 10% of the mean as failure limits. A total of 13 failures for 84 analyses is a 15% failure rate.

However, the laboratory had excessive trouble with ORS-92 (Figure 11-19). There was a bias of 152.8% between the historical and certified means and a 56% failure rate (29 failures out of 69 analyses) at the mean +/-10% criterion. This indicates that silver values that are reported in the 0.5 to 5 ppm Ag range may not be reliable, particularly the data reported before October 8, 2014.

11.2.16 Internal Duplicate and Replicate Gold Assays at Bureau Veritas

Duplicate samples (two samples generated from one sample after the crush stage) and Replicate samples (two samples analyzed from one sample after the pulverization stage) were created internally at Bureau Veritas. The precision of these data were evaluated using the Thompson-Howarth plot method, though other methods (Youden Plots, Shewhart Plots) may have been more revealing of other characteristics of the analytical process (such as more details about variation with metal concentration).

11.2.17 Internal Replicate Gold Assays at Bureau Veritas

The results are displayed in Figure 11-22 through Figure 11-25 for 79 replicate analyses of gold. Pulp replicates are within 10% of each other 86.6% of the time, and within 20% of each other 91.4% of the time, with a low bias of 16.7% (Figure 11-22). A high correlation of 82%, and cross correlation of 84% is demonstrated in Figure 11-23. Failures are few above the gold cut-off of 0.2 ppm (200 ppb Au), and therefore should not adversely affect resource estimation (Figure 11-25).

Figure 11-22: Summary Statistics of Internal Gold Replicates at Bureau Veritas

REPLICATE (PULP) for BV-Au (1) vs BV-Au (2)					
Statistic	BV-Au (1)	BV-Au (2)		% Precision =	111.5
Count =	79	79		% Bias =	16.7
Min =	4.400	2.000		Correlation =	0.82
Max =	4130.000	3985.000		Cross Correlation =	0.84
Mean =	232.499	199.190	72.9 % of the data has a precision of better than 5% for Values > 201 ppm		
Median =	48.000	53.000	86.6 % of the data has a precision of better than 10% for Values > 201 ppm		
Std Dev =	592.161	480.641	89.5 % of the data has a precision of better than 15% for Values > 201 ppm		
Coeff of Var =	2.547	2.413	91.4 % of the data has a precision of better than 20% for Values > 201 ppm		

Figure 11-23: Internal Gold Replicates at Bureau Veritas (ppb)

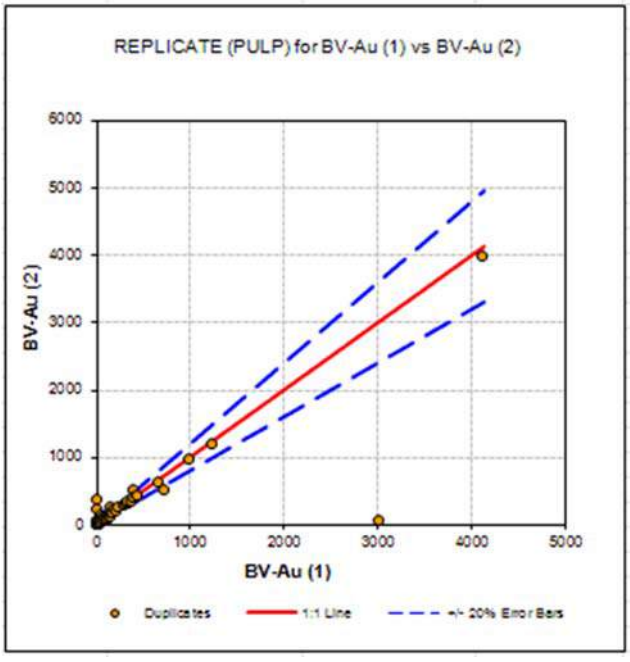


Figure 11-24: Precision of Internal Gold Replicates at Bureau Veritas by Date

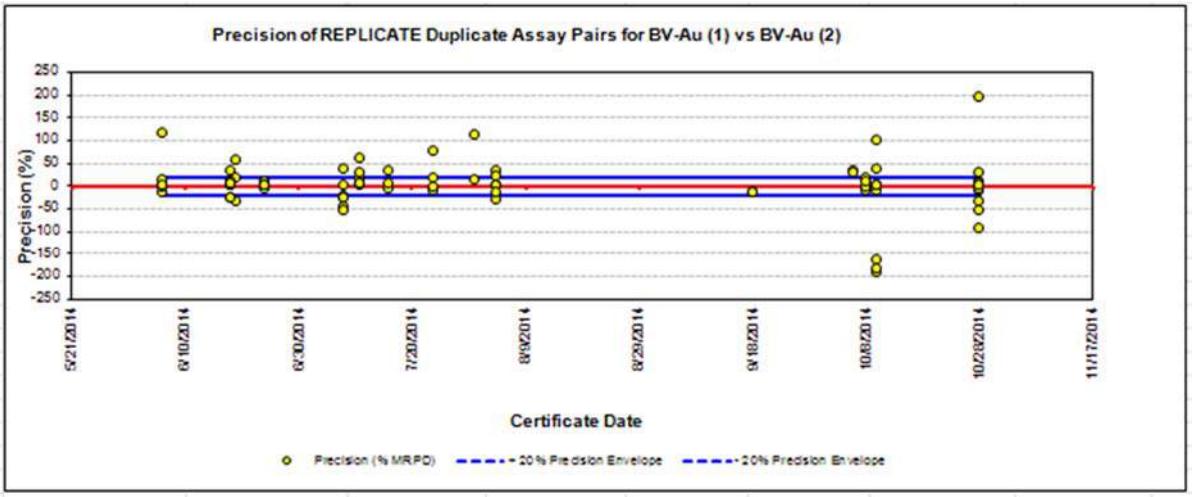
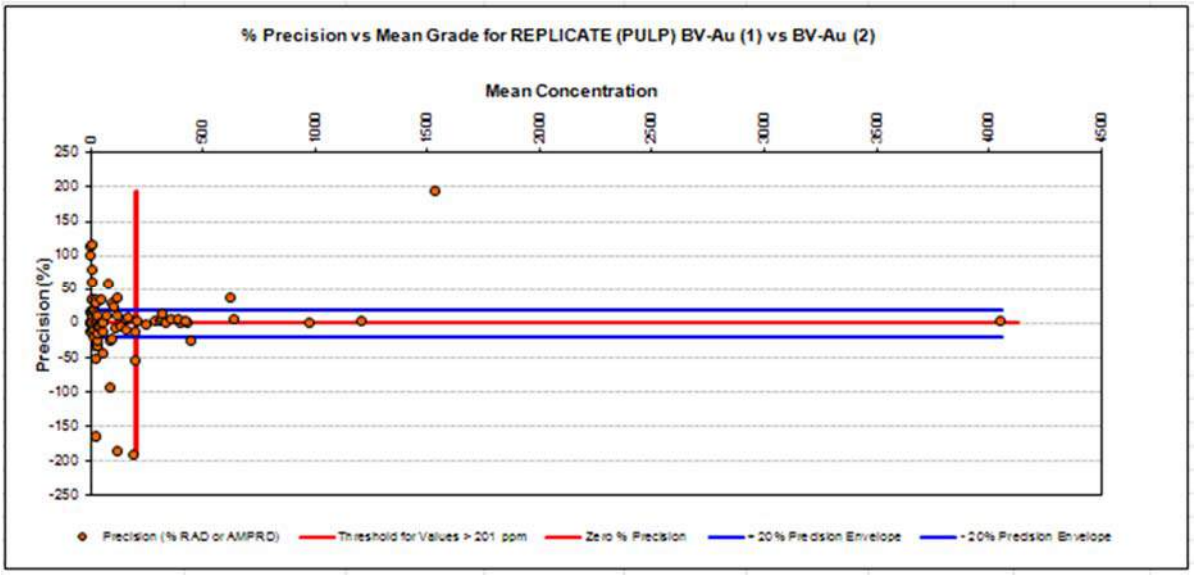


Figure 11-25: Precision of Internal Gold Replicates at Bureau Veritas by Concentration



11.2.18 Internal Replicate Silver Assays at Bureau Veritas

The results are displayed in Figure 11-26 through Figure 11-29 for 53 replicate analyses of silver. Pulp replicates are within 10% of each other 47.3% of the time, and within 20% of each other 59.5% of the time, with a low bias of -17.1% (Figure 11-26). A moderate correlation of 53%, and cross correlation of 63% is demonstrated in Figure 11-27. Failures persist above a silver cut-off of 5 ppm, and may indicate a need for a more aggressive protocol for silver analysis regarding resource estimation (Figure 11-29).

Figure 11-26: Summary Statistics of Internal Silver Replicates at Bureau Veritas

REPLICATE (PULP) for BV-Ag (1) vs BV-Ag (2)					
Statistic	BV-Ag (1)	BV-Ag (2)		% Precision =	142.0
Count =	53	53		% Bias =	-17.1
Min =	0.900	0.250		Correlation =	0.53
Max =	72.500	85.200		Cross Correlation =	0.63
Mean =	5.322	6.422	**26.1 % of the data has a precision of better than 5% for Values > 5 ppm**		
Median =	2.900	2.500	**47.3 % of the data has a precision of better than 10% for Values > 5 ppm**		
Std Dev =	10.034	13.567	**55.2 % of the data has a precision of better than 15% for Values > 5 ppm**		
Coeff of Var =	1.886	2.113	**59.9 % of the data has a precision of better than 20% for Values > 5 ppm**		

Figure 11-27: Internal Silver Replicates at Bureau Veritas (ppb)

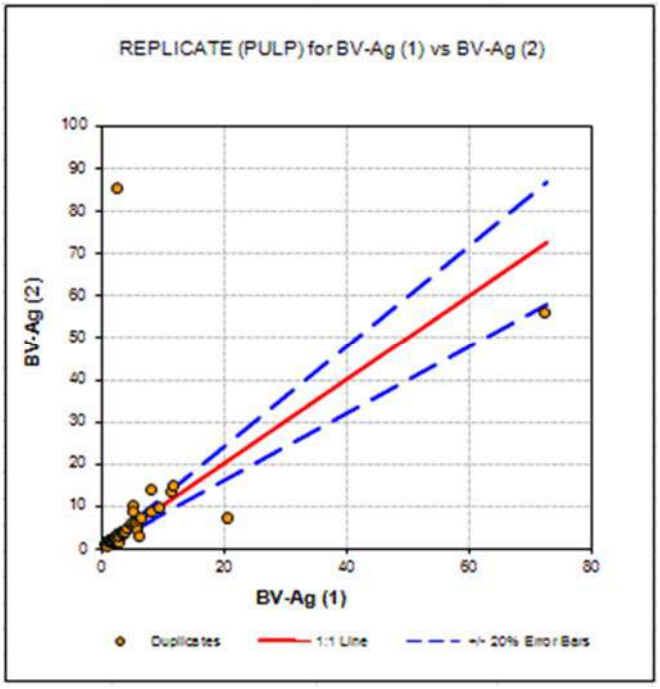


Figure 11-28: Precision of Internal Silver Replicates at Bureau Veritas by Date

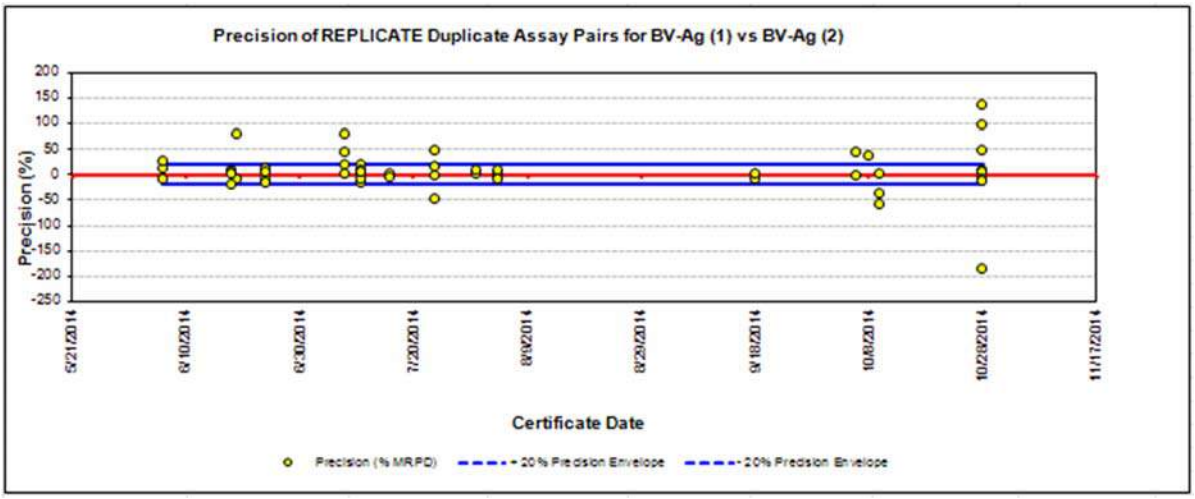
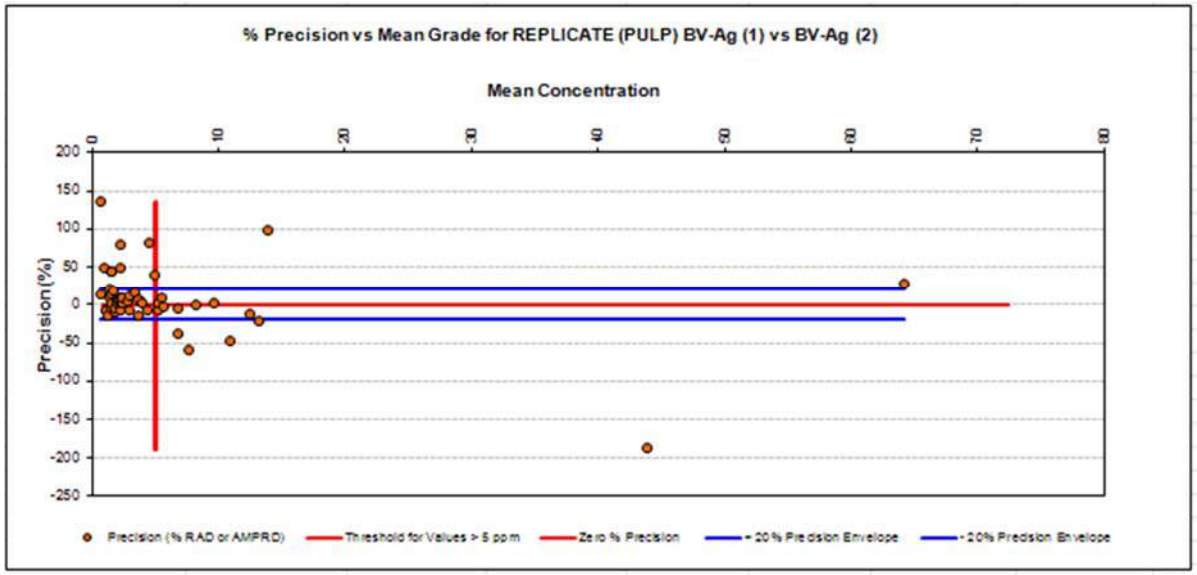


Figure 11-29: Precision of Internal Silver Replicates at Bureau Veritas by Concentration



11.2.19 Internal Duplicate Gold Assays at Bureau Veritas

Duplicate samples are splits of selected samples that are created immediately after crushing. Each crush split is then pulverized separately. The results are displayed in Figure 11-30 through Figure 11-32 for 77 duplicate analyses of gold. Crush duplicates are within 10% of each other 39.7% of the time, and within 20% of each other 60.8% of the time, with a low bias of -2.9% (Figure 11-30). A high correlation of 89%, and cross correlation of 91% is demonstrated in Figure 11-31, with error limits placed at +/-30% of the mean. Failures are fewer above the gold cut-off of 0.2 ppm (200 ppb Au), and therefore should not adversely affect resource estimation (Figure 11-32).

Figure 11-30: Summary Statistics of Internal Gold Duplicates at Bureau Veritas

DUPLICATE (CRUSH) for BV-Au (1) vs BV-Au (2)					
Statistic	BV-Au (1)	BV-Au (2)		% Precision =	62.0
Count =	77	77		% Bias =	-2.9
Min =	2.000	2.000		Correlation =	0.89
Max =	1193.000	1499.000		Cross Correlation =	0.91
Mean =	142.156	146.338	25.7 % of the data has a precision of better than 5% for Values > 201 ppm		
Median =	47.000	49.000	39.7 % of the data has a precision of better than 10% for Values > 201 ppm		
Std Dev =	250.876	278.433	51.2 % of the data has a precision of better than 15% for Values > 201 ppm		
Coeff of Var =	1.765	1.903	60.8 % of the data has a precision of better than 20% for Values > 201 ppm		

Figure 11-31: Internal Gold Duplicates at Bureau Veritas (ppb)

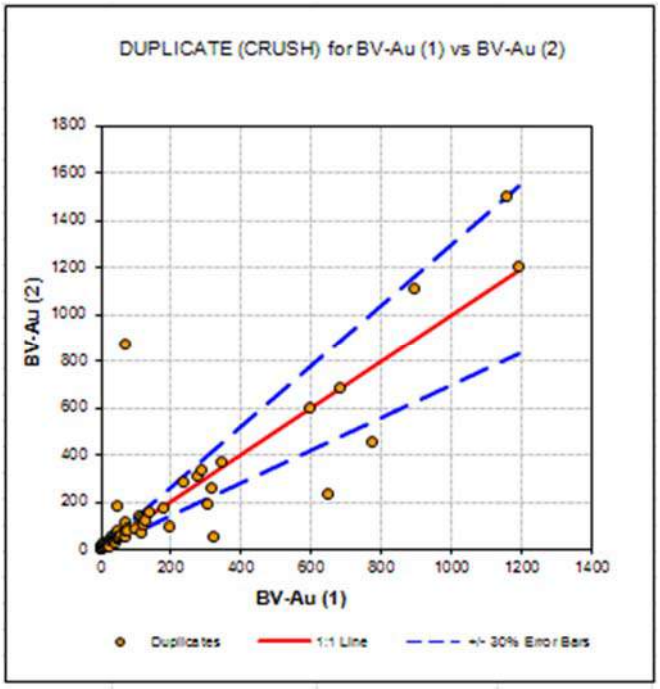
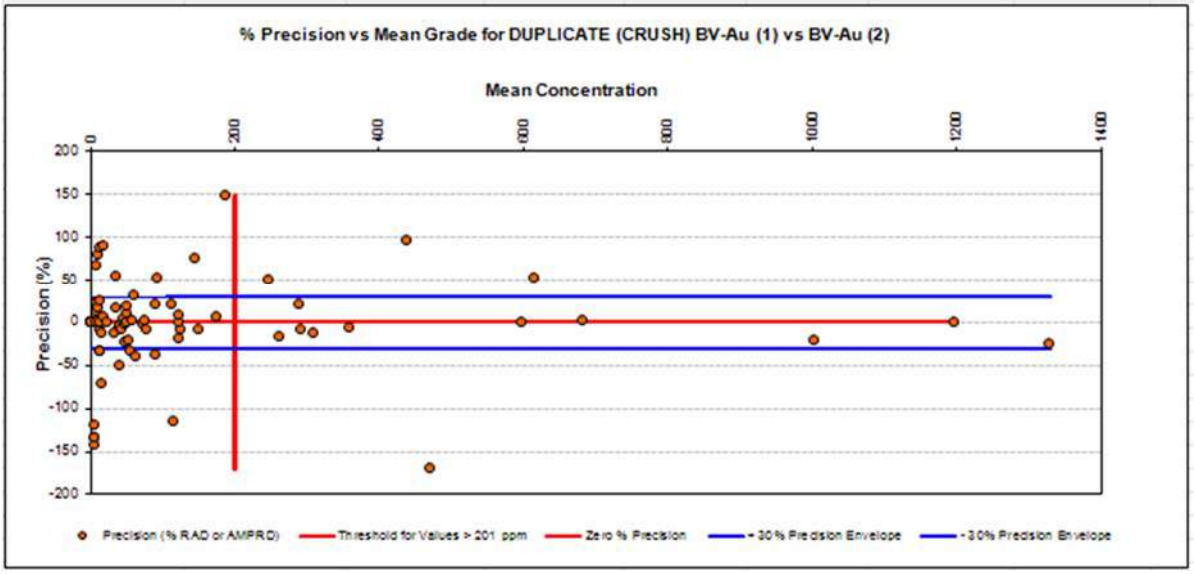


Figure 11-32: Precision of Internal Gold Duplicates at Bureau Veritas by Concentration



11.2.20 Internal Duplicate Silver Assays at Bureau Veritas

The results are displayed in Figure 11-33 through Figure 11-35 for 70 crush duplicate analyses of silver. Crush duplicates are within 10% of each other 42.6% of the time and within 20% of each other 58.5% of the time, with a low bias of -2.8% (Figure 11-33). A moderate correlation of 75% and cross correlation of 85% is demonstrated in Figure 11-34. Failures persist above a silver cut-off of 5 ppm, and may indicate a need for a more aggressive protocol for silver analysis regarding resource estimation (Figure 11-35).

Figure 11-33: Summary Statistics of Internal Silver Duplicates at Bureau Veritas

DUPLICATE (CRUSH) for BV-Ag (1) vs BV-Ag (2)					
Statistic	BV-Ag (1)	BV-Ag (2)		% Precision =	64.4
Count =	70	70		% Bias =	-2.8
Min =	0.700	0.700		Correlation =	0.75
Max =	27.200	33.200		Cross Correlation =	0.84
Mean =	4.507	4.637	23.9 % of the data has a precision of better than 5% for Values > 5 ppm		
Median =	2.350	2.350	42.6 % of the data has a precision of better than 10% for Values > 5 ppm		
Std Dev =	5.592	6.128	51.3 % of the data has a precision of better than 15% for Values > 5 ppm		
Coeff of Var =	1.241	1.322	58.5 % of the data has a precision of better than 20% for Values > 5 ppm		

Figure 11-34: Internal Silver Duplicates at Bureau Veritas (ppb)

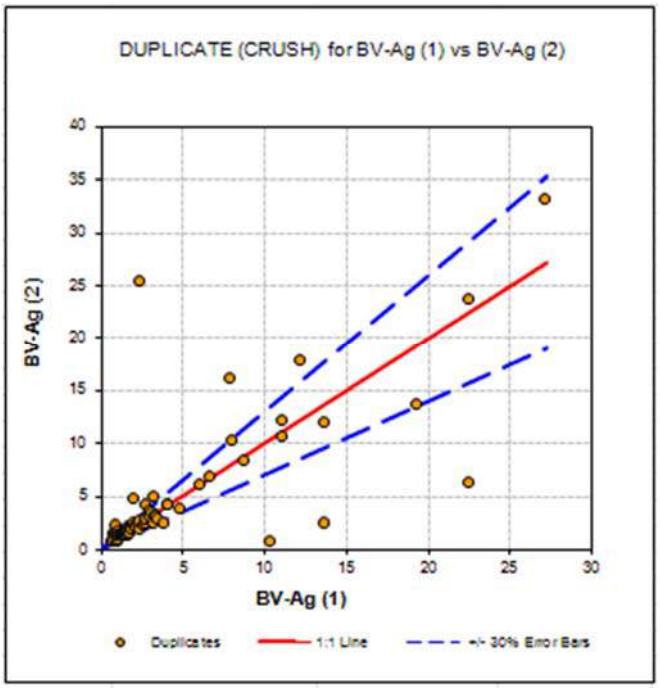
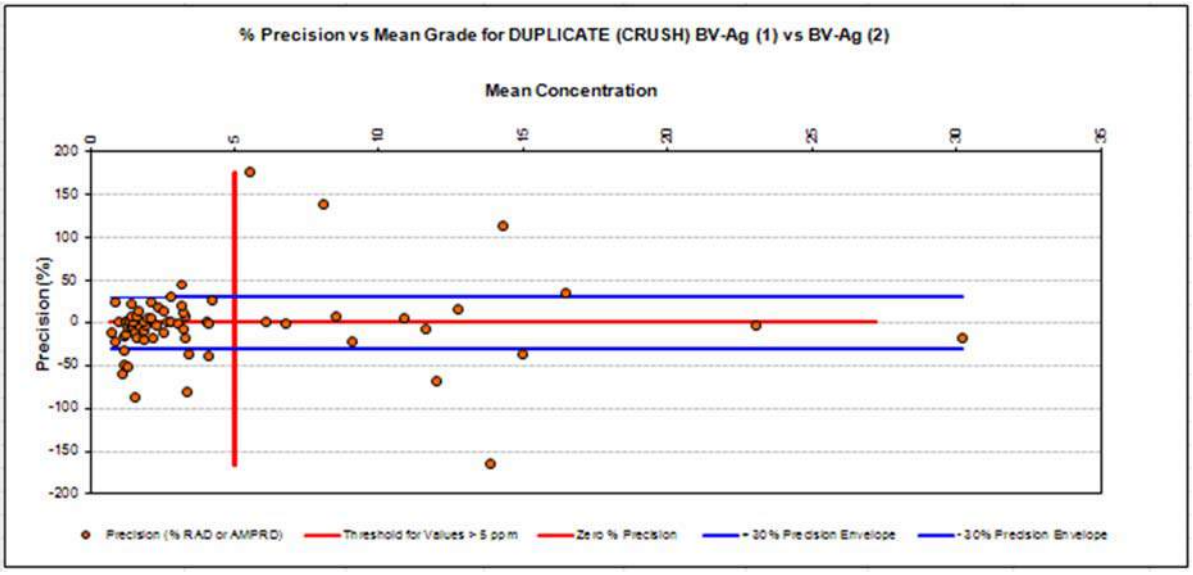


Figure 11-35: Precision of Internal Silver Duplicates at Bureau Veritas by Concentration



11.2.21 Check Analysis Programs

A check analysis program was conducted on the reproducibility of pulps that were initially created at Bureau Veritas, and subsequently assayed at ALS (Reno). The check samples were a selection from interesting intervals as observed by the project geologist. TMI relied on internal laboratory standards, duplicates, and blanks to monitor analytical accuracy and precision for this test work. These quality control samples indicated acceptable accuracy and precision within the check program.

11.3 QA/QC Conclusions

- External analytical blanks that did not go through the sample preparation circuit display carry-over contamination of about 0.005 to 0.016 ppm (0.0005 ounces per tonne [opt] Au). This should not adversely affect resource evaluation with a cut-off of 0.2 ppm (0.006 opt Au).
- Internal prep blank samples provided by BV showed several significant failures above 0.015 ppm. TMI should add external sample prep blank standards to future programs.
- External standards with gold concentrations below 0.15 are of little practical use to future drill programs with a resource cut-off of 0.20. Most of the 2014 standard failures related to two standards that had concentrations of 0.02 and 0.06 ppm Au. The result was chasing unimportant failures.
- If silver will be an important economic metal at Gold Springs, then prep/assay protocol must be improved. These 2014 QA/QC data indicate that initial silver analysis on a 0.5 gram/4-acid/ICP analysis should be followed with an overlimit method using a 15 to 30 gram threshold for re-assay with an acid or fire fusion digestion with or without a gravimetric finish.
- Communication with the lab concerning the concentrations of internal standards may improve overall efficiency. For instance, silver standard ORS-92 has a certified concentration below 5 ppm Ag and contributed to most of the internal failures in the QA/QC data. Another case of chasing unimportant failures.
- Internal pulp splits (“REPS”) and crush splits (“DUPS”) were reasonably comparable, though silver was marginally to considerably worse than gold. This again indicates that the silver protocols need to be improved.
- Pulp check assays for gold were reasonably close (72.4% for reported values that are within a 20% error limit). However, it is noted that BV reports overall slightly higher gold values than ALS.
- In general conclusion, these results indicate assay values for gold and silver are satisfactory for resource evaluation, with indications where future protocol could be improved.

12.0 DATA VERIFICATION

All geological data has been reviewed and verified by Kurt Katsura as being accurate to the extent possible, and, to the extent possible, all geologic information was reviewed and confirmed. The Authors have relied on technical reports, data prepared by geologists employed by HDG, and selective check sampling conducted by Kurt Katsura, a consulting geologist independent of TMI, during site visits in 2014.

The geochemistry data from the GSLLC drilling was compiled by TMI into a comprehensive database. This database was checked against approximately 10% of the data reported in the original assay certificates from Labs for accuracy by the Authors. This review verified that the database information is accurate, and that no discrepancies between the assay certificates and the data base were detected.

The Authors feel that the assay sampling and review of the QA/QC work conducted by TMI provides adequate and good verification of the data. The recommendations discussed above in Section 11.1 should be considered to maintain and improve the reliability of the assay data.

12.1 Katsura's Check Sampling

During site visits in 2014, Kurt Katsura, a Registered Member of the Society for Mining, Metallurgy, and Exploration (SME) and a consulting geologist independent of TMI, collected representative samples from the splits of drill cuttings that are stored in Cedar City by TMI. A split of these samples was collected by Mr. Katsura and sent to Inspectorate Labs in Reno, Nevada, for analysis and checked against the samples collected by TMI. The results of this check sampling are shown in Table 12-1.

Each of the samples was collected and bagged by or supervised by Mr. Katsura and directly labeled for submittal to the lab. The samples were selected by Mr. Katsura with the intent of testing a representative sample of the mineralized intervals, and these results are shown in Table 12-1 with the corresponding data that was reported by TMI for each check sample. The intent of Mr. Katsura's sampling was to duplicate the same type of sample taken by TMI and to provide independent verification of the results. Mr. Katsura ensured that, to the extent possible, each sample was collected and prepared to be representative for the drill interval.

The results of the sampling by Mr. Katsura confirm the presence of gold mineralization and in the relative value ranges that have been reported by TMI. Although there are some variations in the geochemical data for the check samples, this was considered by the Authors as being within an acceptable range considering that the samples taken were not exactly identical to the original GSLLC samples from drilling and sample sites.

The author has verified the data used in this report by:

- Visiting the property and confirming the geology and mineralization
- Taking check samples at the property
- Visiting the core and RC chip storage facility
- Checking the location of some drill holes in the field
- Reviewing QA/QC.

The author concludes that:

- Exploration drilling, sampling, sample preparation, assaying, and density measurements have been carried out in accordance with best current industry standard practices and are suitable to support resource estimates
- Exploration and drilling programs are well planned and executed and supply sufficient information for resource estimates and resource classification
- Sampling and assaying includes quality assurance procedures

Table 12-1: Check Samples From Duplicate Splits

Hole ID	Interval	GSLLC Sample No.	GSLLC Results Au (ppb)	GSLLC Results Ag (ppm)	Duplicate Results Au (ppb)	Duplicate Results Ag (ppm)	Katsura Sample No.
Grey Eagle Drilling							
GE-14-001	170-175	112220	399	9.5	524	10.5	CKS-14-001
GE-14-004	380-385	112579	265	4.2	390	6.4	CKS-14-002
GE-14-007	270-275	112938	625	7.7	666	7.6	CKS-14-003
GE-14-008	225-230	113032	509	13.1	376	5.2	CKS-14-004
GE-14-008	240-245	113035	1591	12.1	2977	14.4	CKS-14-005
GE-14-009	550-555	104093	1200	10.7	1158	8.1	CKS-14-006
GE-14-009	615-620	104107	1588	1.4	985	3	CKS-14-007
Etna Drilling							
E-14-001	165-170	111544	964	40.8	807	14.4	CKS-14-008
E-14-001	265-270	111565	6540	74.8	6626	19.8	CKS-14-009
E-14-003	165-170	111704	686	2.3	174	<0.5	CKS-14-010
E-14-004	395-400	111853	565	2.8	192	3.5	CKS-14-011
Jumbo Drilling							
J-14-001	290-295	110662	2157	80.6	2061	59.4	CKS-14-012
J-14-002	160-165	110721	1048	14.9	852	16.1	CKS-14-013
J-04-003	215-220	110774	1126	55.9	1281	37.6	CKS-14-014
J-04-003	300-305	110792	1813	23.2	739	23.7	CKS-14-015
J-04-003	435-440	110821	1837	21.4	2128	27.9	CKS-14-016
J-14-004	120-125	110848	5476	39.6	3109	40.4	CKS-14-017
J-14-004	265-270	110878	543	30.6	647	26.8	CKS-14-018
J-14-005	405-410	111002	1905	13.5	624	14.2	CKS-14-019
J-14-009	25-30	111314	1089	45.1	749	46.8	CKS-14-020
J-14-011	300-305	112132	4993	77.8	5258	57.7	CKS-14-021
J-14-012	340-345	104205	273	20.3	247	14.3	CKS-14-022
J-14-013	405-410	104332	3145	28.6	2060	20.2	CKS-14-023
J-14-013	700-705	104394	2578	106.8	2609	83.1	CKS-14-024
J-14-014	160-165	104442	1077	8.9	1317	6.3	CKS-14-025
J-14-017	270-275	138708	2915	10.1	4644	11.5	CKS-14-029
J-14-017	345-350	138724	65	28.3	47	15.9	CKS-14-030
J-14-017	575-580	138772	3606	53.7	3795	59.5	CKS-14-031

ppb – parts per billion
ppm – parts per million
HDG – High Desert Gold Corporation
TMI – TriMetals Mining Inc.

- Exploration databases are professionally constructed and are sufficiently error-free to support resource estimates.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

In 2012, GSLLC conducted a series of metallurgical tests designed to assess the recoverability of gold by bottle roll testing using cyanidation. This work was completed by Inspectorate Labs of Sparks, Nevada. Tests were completed on 4,748 samples collected from available RC chips from the 2012 drill program at

the Grey Eagle and Jumbo targets. Additional samples were included from a trench at the Grey Eagle target. All samples had previously been analyzed by fire assay methods.

These bottle roll tests used a sample size of one kilogram. Previous fire assays were based on a 30-gram sample. The average cyanide recovery for all gold samples tested was 90% (33%-98%). With the exception of one test, all test results achieved greater than 77% recovery. Gold grades calculated from the cyanide recoveries increased by an average of 15% over the original fire assays for values >0.2 g/t Au. Gold grades ranged from 0.043 g/t to 13.056 g/t in the original results, providing a broad range of values for the test work. Samples in this test came from drill holes GE-12-001, GE-12-002, J-12-004, and J-12-005, as well as the Grey Eagle trench.

The one-kilogram samples were ground to 85% less than 200 mesh, then subjected to cyanidation for 72 hours, with gold assays taken at 24, 48, and 72 hours. The residue or tail was also assayed. The vast majority of the gold was recovered in the first 24 hours with only an additional 3% of the gold being recovered between 24 and 48 hours and little additional recovery between 48 and 72 hours, indicating rapid availability of the gold at the 200 mesh size. Recoveries were very uniform, with only a slight increase in recovery with grade.

During 2013, GSLLC conducted further metallurgical tests utilizing KCA of Reno, Nevada. These tests were conducted on seven samples collected from the RC chips from the 2012 drill program at the Grey Eagle and Jumbo targets. Tests were carried out on RC chips rather than pulverized material as had been used in previous metallurgical tests.

Five kilogram samples were subjected to cyanidation bottle roll testing using agitation for one minute every hour for 40 days. The average gold extraction in the Grey Eagle target (Nevada) was 71% (range: 38%-83%). For the Jumbo (Utah) target, the results were 88% and 89% for the two tests. Gold grades for all the tests ranged between 0.16 g/t and 6.2 g/t. These values are based upon calculated heads. Tested sizes ranged from 0.76 millimeters to 8.6 millimeters.

Silver extractions for the same samples were much more variable and lower than gold, as was anticipated from previous work. There is a significant difference in silver extraction between Grey Eagle and Jumbo, with much higher extractions coming from Jumbo. The average silver extraction from Grey Eagle was 21% and from Jumbo was 54%. Further testing will be needed to determine why these are different.

Samples in this latest test series came from the same drill holes, GE-12-001, GE-12-002, J-12-004 and J-12-005, as used in the 2012 tests.

During 2015, KCA completed a set of column leach tests on three samples each from Jumbo and Grey Eagle. The material was crushed to 100% passing 9.5 millimeters and was leached in columns 75 millimeters in diameter and 0.6 meters in height. The material leached quickly, and the majority of the gold leaching occurred within the first 20 days and was substantially completed in 60 days. Silver leaching was typically much slower. The cyanide concentration was increased at approximately day 85, which did result in an increase in silver recovery, from little change to a very measurable 10% increase. Unfortunately this change in reagent concentration significantly increased the cyanide consumption.

Using a simple average, gold recovery for the Grey Eagle and Jumbo area were 77% and 68%, respectively. This does not take into account weighting of the recovery by proportion of rock type. Globally the recovery averaged 73% for gold. Silver recovery averaged 16% and 47% for Grey Eagle and Jumbo, respectively.

The cause for the lower silver recovery experienced for Grey Eagle is unknown at this time. Table 13-1 presents the results of this test program.

Table 13-1: 2015 KCA Column Tests

Sample Description	Crush Size (mm)	Days of Leach	Calculated Head (Au g/t)	Calculated Head (Ag g/t)	Extracted Au	Extracted Ag	Consumption NaCN (Kg/t)	Cement Addition (Kg/t)
GE Trench 1	9.5	141	2.548	12.01	82%	23%	14.31	2.01
GE Trench 2	9.5	141	2.446	12.00	87%	15%	13.60	2.05
GE Trench 3	9.5	141	0.899	11.01	63%	9%	11.61	1.95
Jumbo Met Samples 1-4	9.5	141	0.679	12.52	92%	37%	14.61	2.02
Jumbo Met Samples 5-7	9.5	141	0.843	17.28	56%	45%	12.04	2.03
Jumbo Met Samples 8-11	9.5	141	0.370	20.33	57%	58%	12.69	2.01

mm – millimeters
Au – gold
Kg/t – kilograms per tonne
g/t – grams per tonne
Ag – silver

Bucket static leach tests were completed at Resource Development Inc. in Wheat Ridge, Colorado in 2015. Five samples from the Jumbo deposit and four from the Grey Eagle deposit were selected for the tests. Bucket tests are a screening method to test select crush size for subsequent column testing as well as estimating recovery. Each sample was tested at four sizes: 3, 9.5, 19, and 25 millimeters. The duration of the bucket tests was 42 days. In most cases, the material was still leaching at termination of the test. The available bucket test information was extrapolated to 140 days to estimate extraction and compare differences across crush size. Using this information, a crush size of 25 millimeters was selected for Jumbo and 9.5 millimeters for Grey Eagle. The final report and analysis for the bucket testing program has not been received.

Within Jumbo, Met Samples 1-4 (Table 13-1) correspond to mineralization type 1, Jumbo Met Samples 5 through 7 correspond to mineralization type 5, and Jumbo Met Samples 8 through 11 correspond to mineralization type 6. Bucket tests are available for mineralization types 1, 3, 4, 5, and 6. The main zone within Jumbo contains mineralization types 1, 3, and 4, representing 73% of the gold ounces within the deposit. Mineralization type 5 and 6 represent the remainder. Mineralization type descriptions can be found in Table 8-1. Estimated extractions were reduced by 5% for lab-to-field scale-up and uncertainty. Table 13-2 summarizes the extractions for Jumbo.

Table 13-2: Jumbo Estimated Gold Extractions

Jumbo	Estimated Extraction	Mineralization Types	Proportion Of Gold Ounces
Main Zone	86%	1, 3, 4	73%
Hanging & Footwall Zone	57%	5, 6	27%
Weighted Extraction	78%		
Reduction	5%		
Estimated Extraction	**73%**		

Grey Eagle contains 99% of the gold ounces within the main zone represented by mineralization types 1, 2, and 3. Columns of 9.5-millimeter crush size were available representing each of the three mineralization types within the main zone. A very small portion of the ounces are located within the footwall zone. Table 13-3 presents the estimated gold extractions for Grey Eagle.

Table 13-3: Grey Eagle Estimated Gold Extractions

Grey Eagle	Estimated Extraction	Mineralization Types	Proportion Of Gold Ounces
Main Zone	77%	1, 2, 3	99%
Footwall Zone	66%	4	1%
Weighted Extraction	77%		
Reduction	5%		
Estimated Extraction	**72%**		

A similar process as outlined above was followed for estimated silver extraction for Jumbo. This resulted in an estimated silver extraction of 40%. Grey Eagle test work gave mixed results on silver. An extraction of 20% for silver was applied to Grey Eagle deposit. Total silver contribution to project revenue is approximately 15%, with the Grey Eagle deposit contributing slightly greater than 1% of total project revenue.

14.0 MINERAL RESOURCE ESTIMATES

The Mineral Resource reported for the Gold Springs project was completed under the direction of Terre Lane, Principal of GRE and a NI 43-101 Qualified Person.

14.1 Definitions

Mineral resources stated for the Gold Springs project conform to the definitions adopted by the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM), December 17, 2010, as amended May 10, 2014, and meet criteria of those definitions, where:

> A Mineral Resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.
>
> A "Measured Mineral Resource" is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

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

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

14.2 Block Models

Separate block models were created for the Gold Springs Grey Eagle and Jumbo deposits using block dimensions of 5 meters by 5 meters by 5 meters in each. Blocks were located relative to the LIDAR elevation model. Each of the blocks was assigned fields to contain gold and silver grade for each estimation method, resource classification, rock density, block tonnage, contained ounces, lithology, and mineralization type.

The block models have the attributes shown in Table 14-1.

Table 14-1: Block Model Attributes

	Grey Eagle	Jumbo
Minimum east (m)	756450	760870
Maximum east (m)	757000	761695
Minimum north (m)	4200200	4198100
Maximum north (m)	4201325	4199575
Minimum elevation (m)	2200	2175
Maximum elevation (m)	1850	1765
Baseline azimuth	90 degrees	90 degrees

14.3 Data Used for the Gold and Silver Grade Estimation

14.3.1 Drill Holes

Data provided by TMI, and verified by Kurt Katsura, included drill hole data for 230 drill holes and trenches, collar coordinates, drill hole direction (azimuth and dip), lithology, and sampling and assay data. Topography was derived from 1-meter LIDAR data. The assay data included hole ID, gold in ppb, silver in ppm, plus results for 30 and 50 element geochemical analysis.

GSLLC drilled in numerous areas, but this and previous Technical Reports have focused on two areas, Grey Eagle and Jumbo, which contain the bulk of the drilling. To date, GSLLC has completed 94 exploration holes and trenches in the Grey Eagle deposit totaling 12,400.83 meters, and 86 exploration holes and trenches in the Jumbo deposit totaling 11,023.17 meters. Figure 14-1 and Figure 14-2 show the drill hole

Figure 14-1: Drill Hole Location Map – Grey Eagle

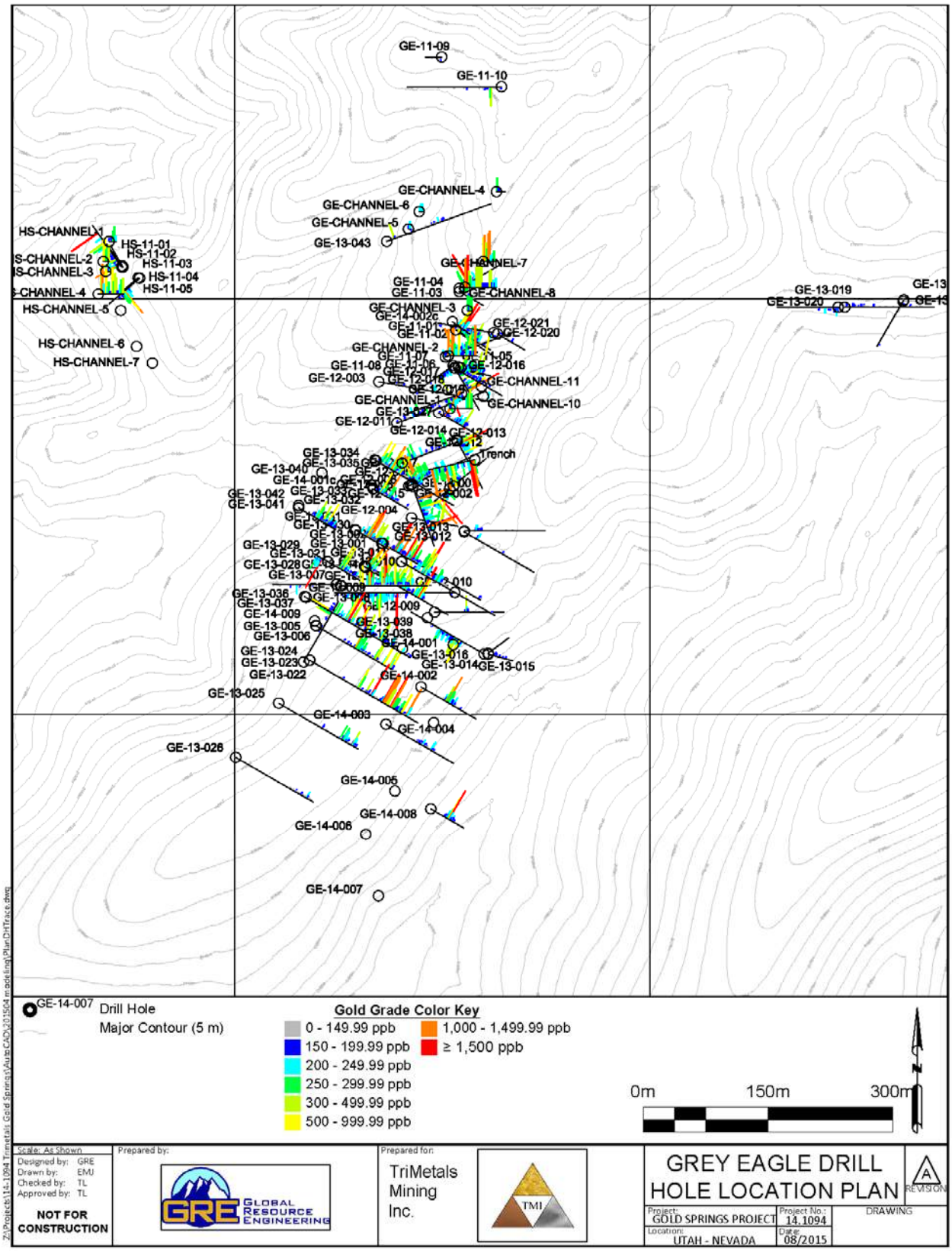
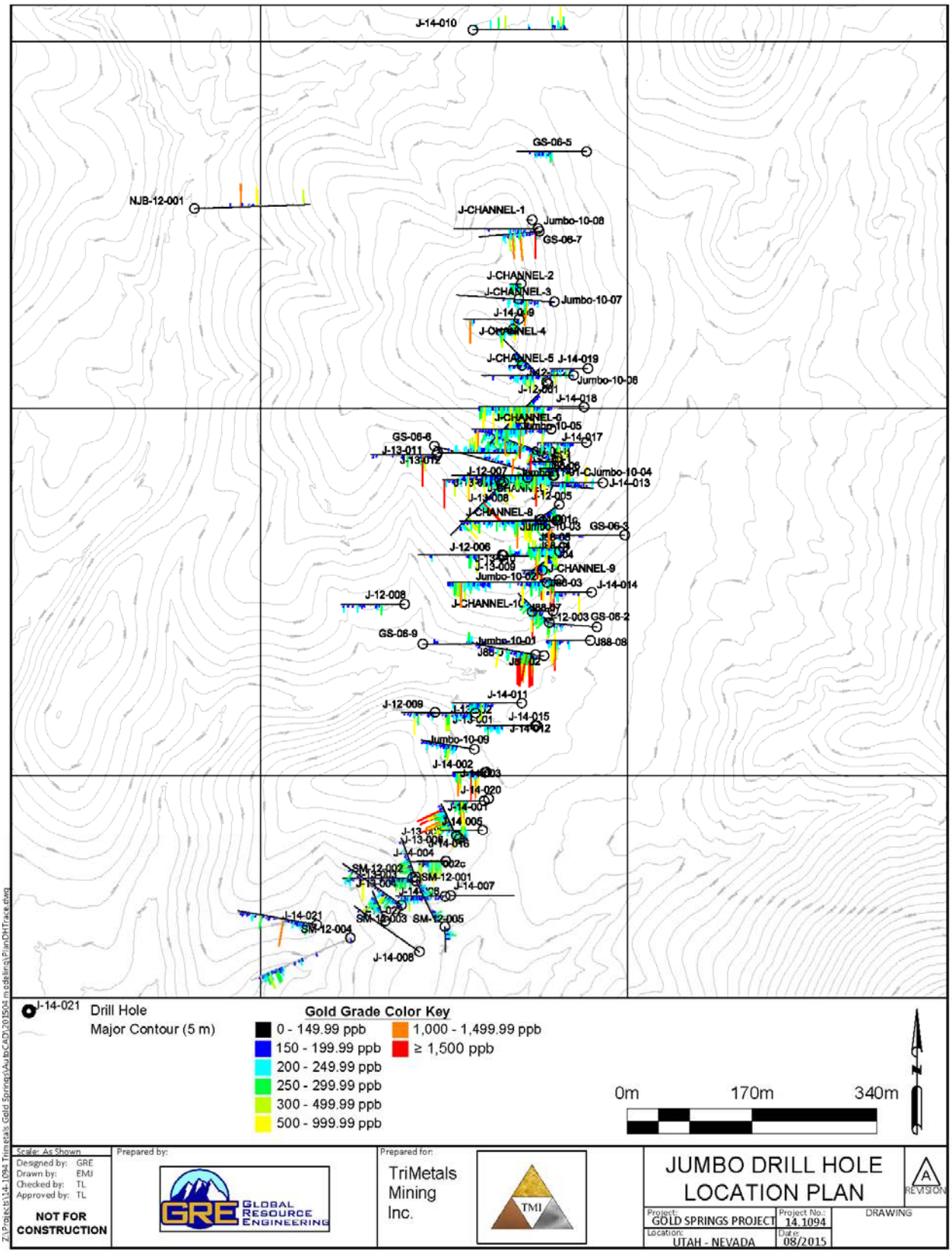


Figure 14-2: Drill Hole Location Map – Jumbo



and deposit locations for Grey Eagle and Jumbo, respectively. The figures also show the drill hole traces in two dimensions, with assay gold data plotted as variable-length and color bars. The drill holes include nine RC and two diamond drill holes completed at Grey Eagle in 2014 totaling 1,702.61 meters, and 22 RC and 2 diamond drill holes completed at Jumbo in 2014 totaling 3,658.57 meters. The Grey Eagle drill holes are up to 262 meters deep, and all but four (GE-13-017 through GE-13-020) are within the block model limits. Drill holes in the Jumbo deposit are up to 233 meters deep, and all are within the block model limits. Recent drill hole collar locations were surveyed by Platt & Platt Inc., professional surveyors, using Trimble surveying instrumentation. Historic drill hole collar locations were surveyed in a similar manner. For the modeling, GRE adjusted the drill hole collar elevations to align with (drape on) the LIDAR elevation model.

HDG provided lithology and mineralization type for each 5-foot sample within each drill hole. Lithologies and mineralization types provided are shown in Table 14-2.

Downhole surveys were conducted on 10 of the 24 2014 Jumbo drill holes.

14.3.2 Specific Gravity

Specific gravity measurements were conducted on the four core holes drilled in November, 2014, as well as on a series of surface samples collected from various sites on the North and South Jumbo targets. In addition KCA performed numerous specific gravity tests on samples from the Grey Eagle trench and core from hole J-11-001C. For the 2014 core drilling, a core sample was selected for specific gravity tests at approximately five foot intervals from each core hole drilled and given a sequential number from 1-273 and described by Drill Hole, Footage, Lithology, and Mineralization Type. The series of Jumbo surface samples was numbered sequentially from 274-315 and described by Geographical Reference or Drill Pad ID, GPS Location, Lithology, and Mineralization Type.

Measurements were conducted using a Veritas S3201 Precision Balance (+/- 0.1 g) with a normal surface weighing pan and an undercarriage hook for under balance weighing of a suspended sample submerged in water. The Veritas balance was leveled and plugged into a 110-volt power source for a minimum of 0.5 hours to allow for machine electronic stabilization and was then calibrated using the auto-calibration function with a high precision 1 kg +/- 0.1 g stainless steel standard weight. A sheet of clean velum weighing-paper was zeroed out using the zero-tare function key. A 5-gallon bucket of water was placed under the Veritas balance, and a 30-inch hooked copper wire, which would subsequently be used to support a rock sample suspended in water, was hung from the under balance hook and weighed while partly submerged in water to give a wire weight. Ideally, the fresh water should be at 4°C, but the water temperature during the weighing ranged from 2 to 4°C; however, the error induced by the minor difference is minimal.

Specific gravity, also called relative density, is the ratio of the density of a substance to that of a standard substance. The usual standard of comparison for solids and liquids is water at 4°C (39.2°F), which has a density of 1.000 kg per liter (62.4 pounds per cubic foot). (Encyclopedia Britanica)

The specific gravity is calculated using the following formula: $SG = \frac{\text{Dry Weight}}{\text{Dry Weight - (Wet Weight - Wire Weight)}}$.

14.3.2.1 Procedure For Competent Samples

1. Weigh dry sample in air on upper balance tray with tared weighing paper. Record weight.

Table 14-2: Lithologies and Mineralization Types

Description	Code	Grey Eagle		Jumbo	
		Number of Sample Intervals	Meters	Number of Sample Intervals	Meters
Lithology					
Overburden	0	70	106.68	109	165.53
Tuff	1	1,274	1,940.05	213	324.66
Tuff Breccia	2	23	35.05		
Clay Altered Tuff	3	202	307.75		
Lahar	4	20	30.48		
Post Mineral Rhyolite	5	133	202.69	3	4.6
Paleosurface	6	257	391.67	2	3.01
Biotite Rich Andes Tuff	7	211	321.56		
Andesite	8	1,982	3,024.92		
Red-Hematitic Andesite (from Magnetite)	9	1,112	1,694.69		
Rhyolite	10	37	56.39	1	1.6
Stockwork Veins/Brx (10-39% Vein)	11	1,338	2,060.23	1,162	1,805.68
Strong Quartz Vein Zone (> 39% Vein)	12	494	757.06	649	1,000.73
Quartz-Calcite Vein	13	730	1,142.94		
Red Andesite Fault	14	46	73.76		
Fault	15	51	77.72	51	76.93
Void	16	2	3.05		
Porphyritic Biotite Latite	18			3,942	6,042.77
Andesite Tuff	19			14	21.60
Latite Tuff	21			697	1,062.14
Latite Prophyry	22			2	3.00
Brown Latite Tuff	23			137	208.90
No Lithology		108	174.04	94	302.01
Mineralization Type					
Umineralized	J-0			924	1,407.84
Oxidized Quartz Sericite Pyrite Alteration	J-1			977	1,493.25
Unoxidized Quartz Sericite Pyrite Alteration	J-2			947	1,443.34
Quartz Vein +40% Quartz	J-3			739	1,133.22
Stockwork/Breccia 10-39% Quartz	J-4			1,168	1,814.88
Oxidized Footwall	J-5			526	808.10
Unoxidized Footwall	J-6			1,744	2,681.51
Unmineralized	GE-0	2,129	3,243.07		
Quartz Calcite Vein +40% vein	GE-1	732	1,147.46		
Stockwork/Breccia 10-39% Quartz	GE-2	1,390	2,140.38		
Quartz Vein +40% Vein	GE-3	608	940.25		
Andesite	GE-4	3,231	4,929.68		
No Mineralization Type				51	241.02

2. Secure sample in copper wire “cage,” hook wire with sample into balance hook, and submerge the suspended sample entirely into underlying bucket. Record weight.

3. Calculate SG.

14.3.2.2 Procedure For Porous-Poorly Indurated Samples

1. Weigh dry sample in air on upper balance tray with tared weighing paper. Record weight.
2. Dip porous tuff sample in melted wax bath until completely coated. Weigh and record weight.
3. Secure sample in copper wire "cage," hook wire with sample into balance hook, and submerge the suspended sample entirely into underlying bucket. Record weight.
4. $SG = \frac{\text{Dry Weight (no wax)}}{\text{Dry Weight - (Wet Weight - Wax Weight - Wire Weight)}}$

There is a minor error introduced by coating the sample with wax in that it decreases the overall density of the sample by adding a low density material, but the weight of the wax added ranged from 0.7% to 1.6 % of the total sample dry weight, and the error is considered insignificant for the calculated specific gravities of the post mineral, low density tuffs.

In addition to the specific gravity work performed by TMI, a series of core samples from the 2011 drilling at Jumbo, trench samples from Grey Eagle, and surface samples of the post mineral tuff were submitted to KCA for SG testing. A summary of the work as presented in their report, Gold Springs Project Report of Metallurgical Test work (2014) is provided below.

Rock density tests were completed on specimens selected by the client prior to the test program. The specimens selected were whole shapes or broken pieces and exhibited sufficient structural integrity to permit handling. Rock densities were determined utilizing the wax immersion test method (ASTM Method C914, Standard Test Method for Rock Density and Volume of Solid Refractories by Wax Immersion).

Each specimen was tested as follows:

1. The test specimen was dried to a constant weight by heating to 104° to remove entrapped moisture. Any loose material or soil was removed from the test specimen. The dried specimen was then weighed for an initial weight, *W*.
2. The test specimen was then coated with wax by submersion in the container of melted wax. A wax coated weight, *P*, of the test specimen was then measured.
3. A counterbalanced device was then utilized to suspend the sample in water and measure the water-immersed weight of the wax-coated specimen, *S*.
4. Since 1 cubic centimeter of water weighs 1 gram, the total volume, *V1*, of the wax coated test specimen (specimen including the wax coating) was calculated in cubic centimeters as follows:

   $V1 = P - S$
5. Given *K* is the density of the wax, the volume of the wax coating on the test specimen, *V2*, was calculated in cubic centimeters as follows:

   $V2 = (P - W)/K$
6. The volume of the test specimen, *V*, was then calculated by subtracting the volume of the wax coating (Step 5) from the total volume (Step 4).

   $V = V1 - V2$

7. The rock density, *D*, of the test specimen in grams per cubic centimeters (g/cm^3) was calculated as the quotient of the initial weight divided by the volume of the test specimen, excluding the volume of wax.

   $D = W/V$

Measured SGs for each mineralization type were averaged to obtain representative SGs by mineralization type, as shown in Table 14-3.

Table 14-3: Gold Springs Specific Gravity by Mineralization Type

Mineralization Type	Subset	Average Specific Gravity (g/cm^3)
J-0		
	Andesite	2.46
	Rhyolite	1.90
	Tuff	1.93
J-1		2.43
J-2		2.49
J-3		2.52
J-4		2.49
J-5		2.50
J-6		2.60
GE-0		
	Andesite	2.42
	Red Andesite Fault	2.45
	Tuff	1.62
GE-1		2.54
GE-2		2.51
GE-3		2.54
GE-4		2.46

14.3.3 Assay Data

The assay data contains a total of 16,512 gold results, ranging from 0 to 18,867 ppb, and 16,511 silver results, ranging from 0.1 to 189.7 ppm. Non-detect data was entered into the database at the detection limit. Within the Grey Eagle deposit, there are 6,906 gold results, ranging from 5 to 15,181 ppb, and 6,905 silver results, ranging from 0.5 to 89.2 ppm. Within the Jumbo deposit (which includes the North Jumbo, Jumbo, and South Jumbo zones), there are 6,476 gold results, ranging from 0 to 18,867 ppb, and 6,475 silver results, ranging from 0.1 to 189.7 ppm. Histograms of the Grey Eagle and Jumbo gold and silver assay data are provided as Figure 14-3 through Figure 14-6.

14.3.4 Capping of Assays

Statistics of the raw assay gold value above 5 ppb within the entire Gold Springs database are shown in Figure 14-7. The cumulative frequency plot indicates a log normal distribution with very few outliers within the database. Figure 14-8 shows the cumulative frequency plot of the Grey Eagle data, and Figure 14-9 shows the same plot for Jumbo data. A total of 10 assay values over 10,000 ppb occur in the data, five at Grey Eagle and four at Jumbo, with one outside these two zones. The data approximates a straight

Figure 14-3: Grey Eagle Gold Assay Data Histogram

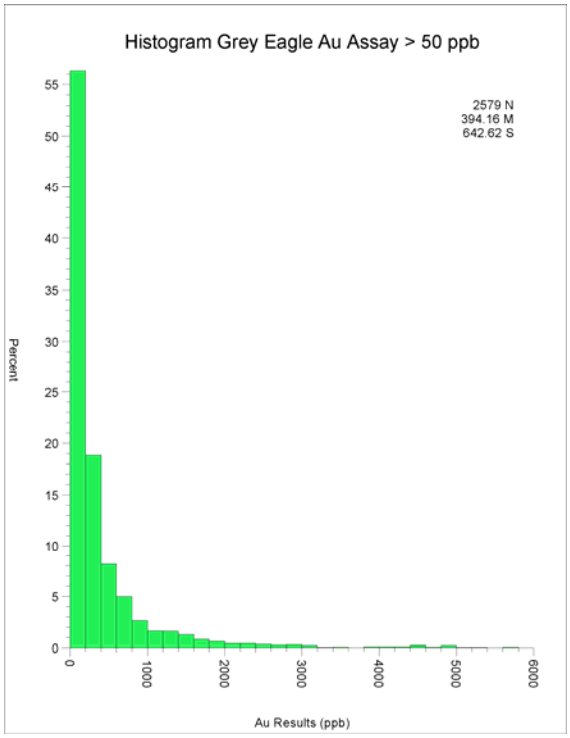


Figure 14-4: Jumbo Gold Assay Data Histogram

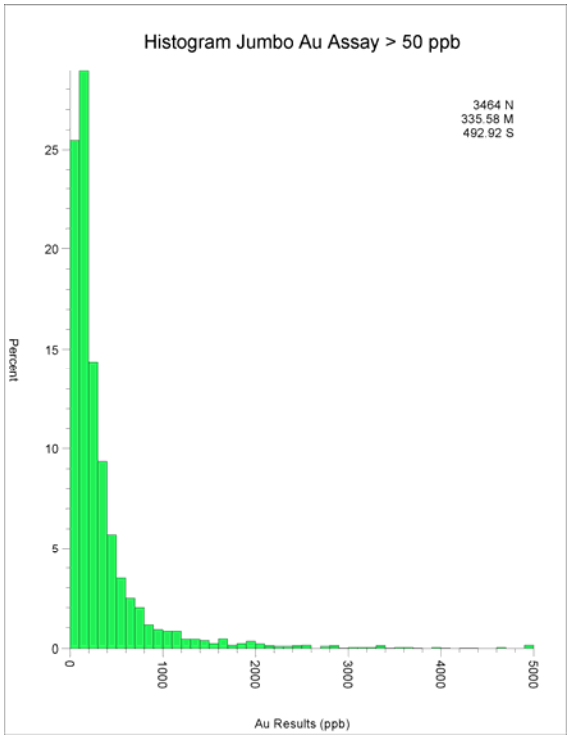


Figure 14-5: Grey Eagle Silver Assay Data Histogram

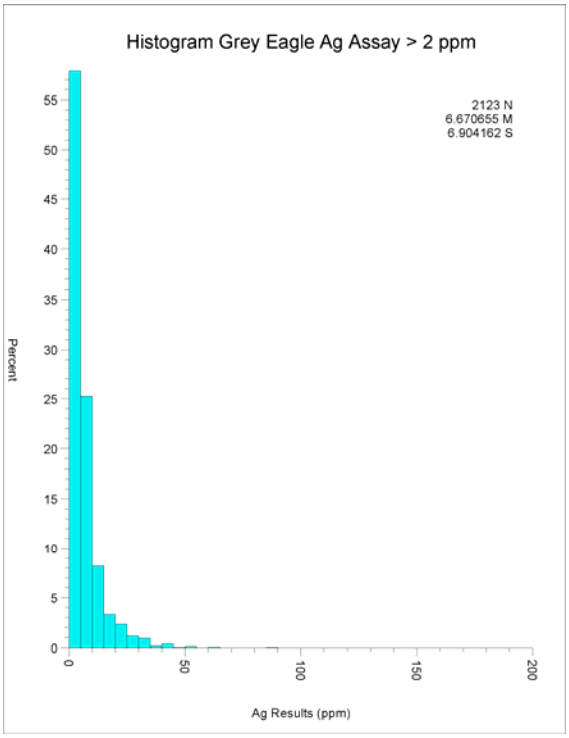


Figure 14-6: Jumbo Silver Assay Data Histogram

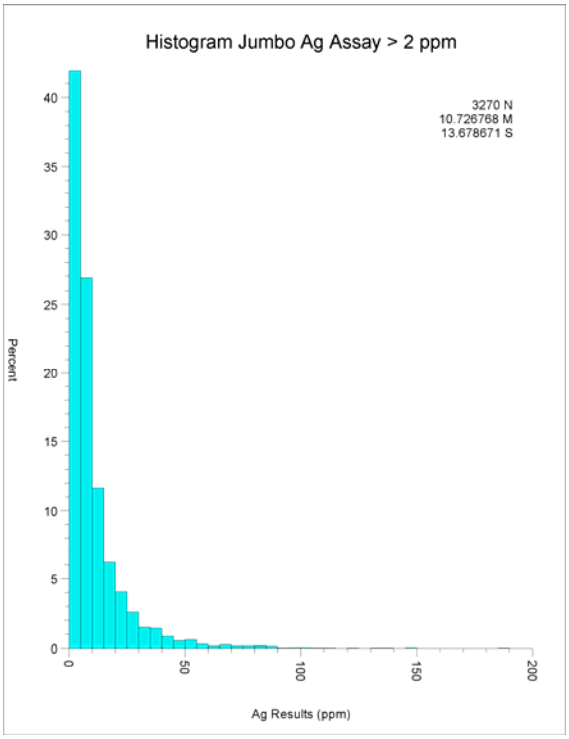


Figure 14-7: Cumulative Frequency Plot, Gold Springs Assay Data

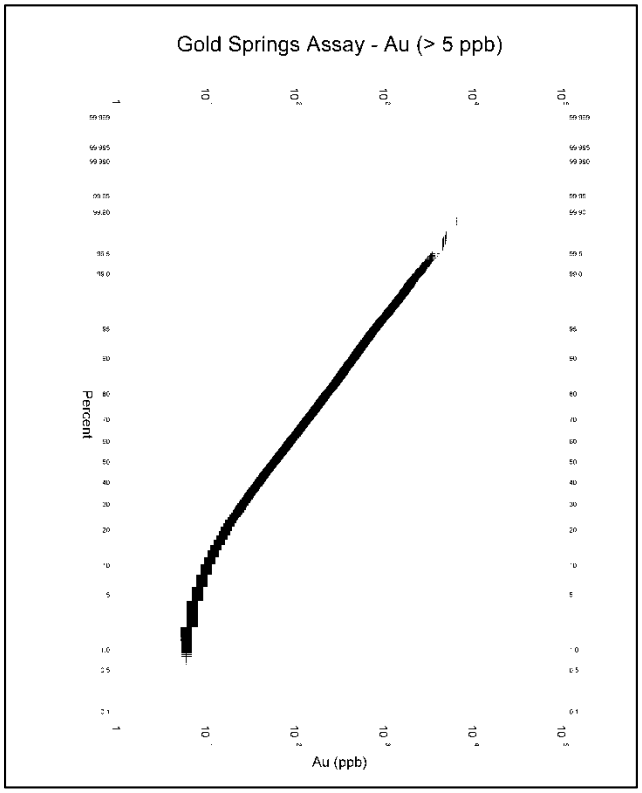


Figure 14-8: Cumulative Frequency Plot, Grey Eagle Assay Data

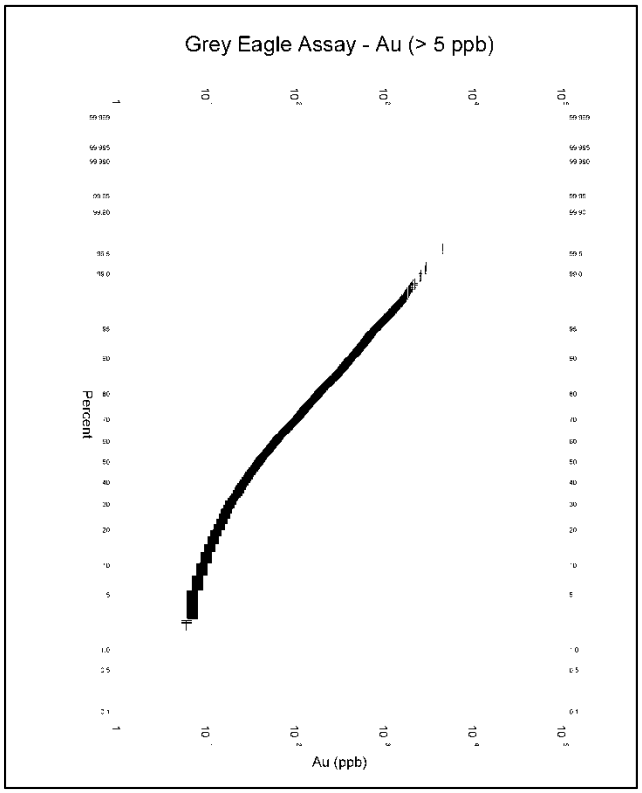
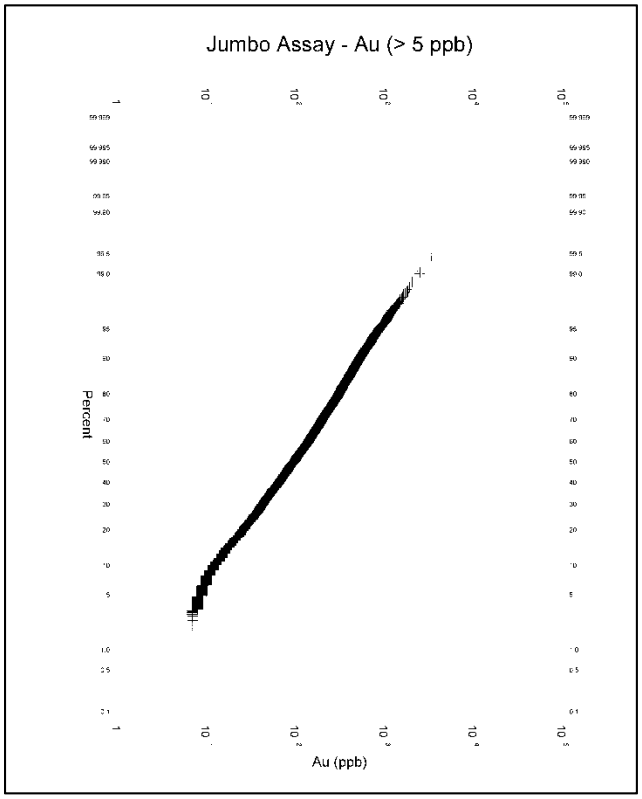


Figure 14-9: Cumulative Frequency Plot, Jumbo Assay Data



line, which is consistent with a log-normal distribution and one population. Therefore, the high assay value data is believed to be a valid part of the data set, and the impact of including these high assay values uncut and including them in the composites is negligible to the overall resource estimate.

14.3.5 Compositing

Compositing sample assay intervals to larger intervals is typically required to accurately model open pit minable deposits and is viewed by the geostatistical community as one of the first steps required to perform a geostatistical resource estimate.

The Gold Springs assaying was performed almost exclusively using 1.52-meter-long sample intervals and assayed using a 30-gram fire assay. This small sample will have higher variability (higher and lower grade) than a larger open pit minable volume due to the size of the mining equipment and its ability to selectively mine a discrete volume.

The change of support, or correction for volume variance, will affect the spread and symmetry of the distribution, but should not result in drastic changes to the mean value. When moving from a small sample size to a larger volume, a reduction in the spread and variability of the data set is expected. To verify an appropriate change from the sample data set to the composited values, a set of summary statistics was performed for the metals to be estimated. Table 14-4 compares the sample and composite statistics. As shown in the table, the spread and variability of each metal is reduced, with no significant change in the mean value, indicating that the 15-foot composite length is an appropriate selection.

Table 14-4: Sample and Composite Summary Statistics, Gold Springs

Statistic	Sample Values		15-Foot Composite Interval	
	Au (ppb)	Ag (ppm)	Au (ppb)	Ag (ppm)
Number	16,512	16,510	5,540	5,539
Mean	183.60	3.97	185.17	4.00
Standard Deviation	585.03	8.03	458.38	6.86
Variance	342,254.52	64.47	210.112.81	47.10
Maximum	18,867	189.7	11,694.54	111.76
Minimum	0	0.01	0.33	0
Range	18,867	189.69	11,694.20	111.76
Coefficient of Variance	318.63	202.02	247.54	171.49

Au – gold Ag – silver
ppb – parts per billion ppm – parts per million

14.4 Cumulative Frequency Plots

Cumulative frequency plots were generated for the assay data and composite interval data for gold greater than 5 ppb, broken down by each lithology code and each mineralization type. A total of 74 cumulative frequency plots were generated, four of which are shown as Figure 14-10 through Figure 14-13. The Mineralization Type cumulative frequency plots within each deposit were compared, and those that exhibited similar characteristics were selected to be combined for the variography analyses. Those exhibiting similar characteristics were Mineralization Types 1 and 3 within the Grey Eagle deposit,

Figure 14-10: Cumulative Frequency Plot, Grey Eagle Composite Data, Mineralization Type 1

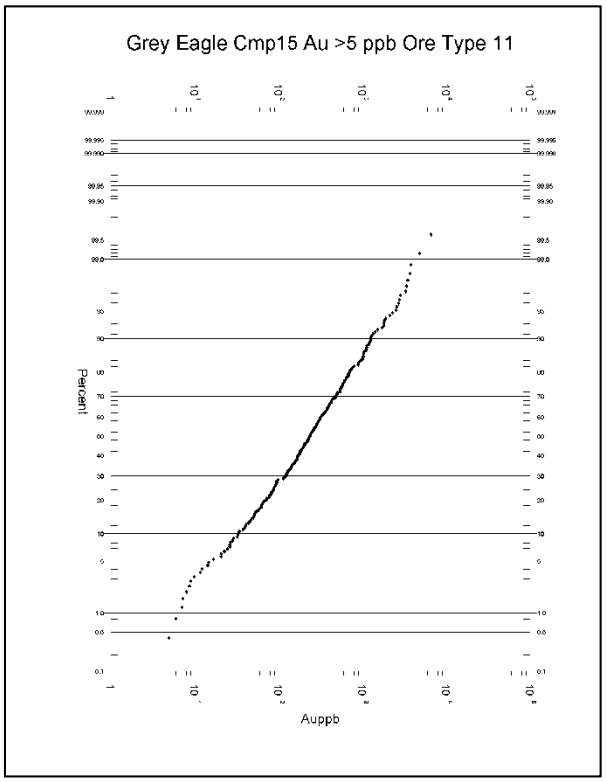


Figure 14-11: Cumulative Frequency Plot, Grey Eagle Composite Data, Mineralization Type 3

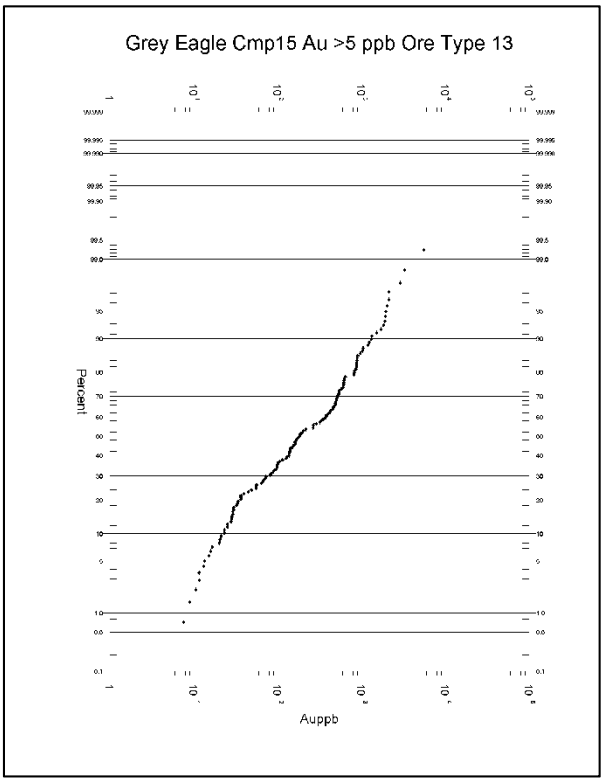


Figure 14-12: Cumulative Frequency Plot, Jumbo Composite Data, Mineralization Type 3

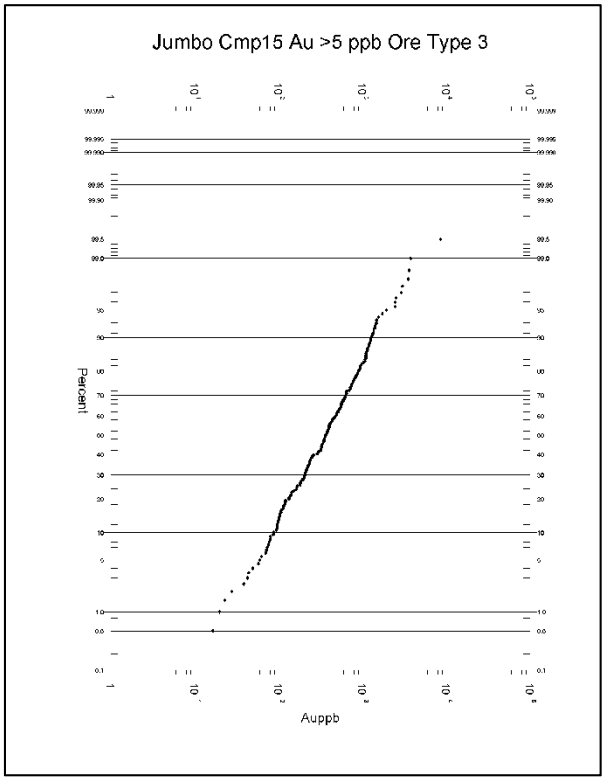
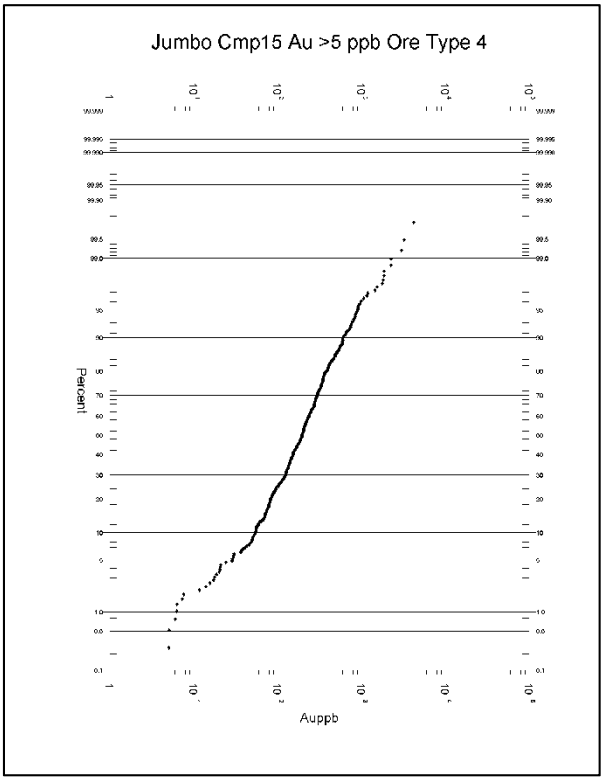


Figure 14-13: Cumulative Frequency Plot, Jumbo Composite Data, Mineralization Type 4



Mineralization Types 1 and 2 within the Jumbo deposit, Mineralization Types 3 and 4 within the Jumbo deposit, and Mineralization Types 5 and 6 within the Jumbo deposit.

14.5 Variography

The spatial variability within each deposit was assessed using semi-variograms (variograms). The following types of variograms were generated for both the Grey Eagle and Jumbo deposit areas:

- "Global" omni-directional exponential variogram for both gold and silver using a "pair wise" organizing of the variance pairs
- Down-hole variograms for both gold and silver using a "pair-wise" organizing of the variance pairs
- Directional variograms for both gold and silver at increments of 30 degrees for both azimuth and dip using a "pair-wise" organizing of the variance pairs
- "Global" omni-directional exponential variogram for both gold and silver using correlogram organizing of the variance pairs
- Down-hole variograms for both gold and silver using correlogram organizing of the variance pairs
- Directional variograms for both gold and silver at increments of 30 degrees for both azimuth and dip using correlogram organizing of the variance pairs

A total of 132 variograms were generated.

Variograms from the Grey Eagle and Jumbo deposits are provided as Figure 14-14 and Figure 14-15, respectively.

Figure 14-14: Variogram Grey Eagle Deposit, Global

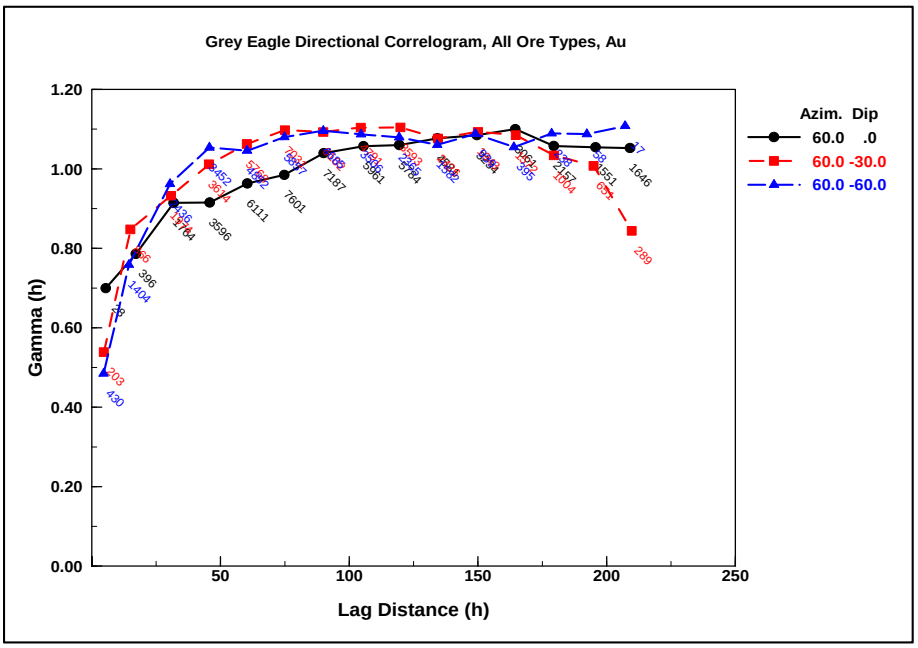
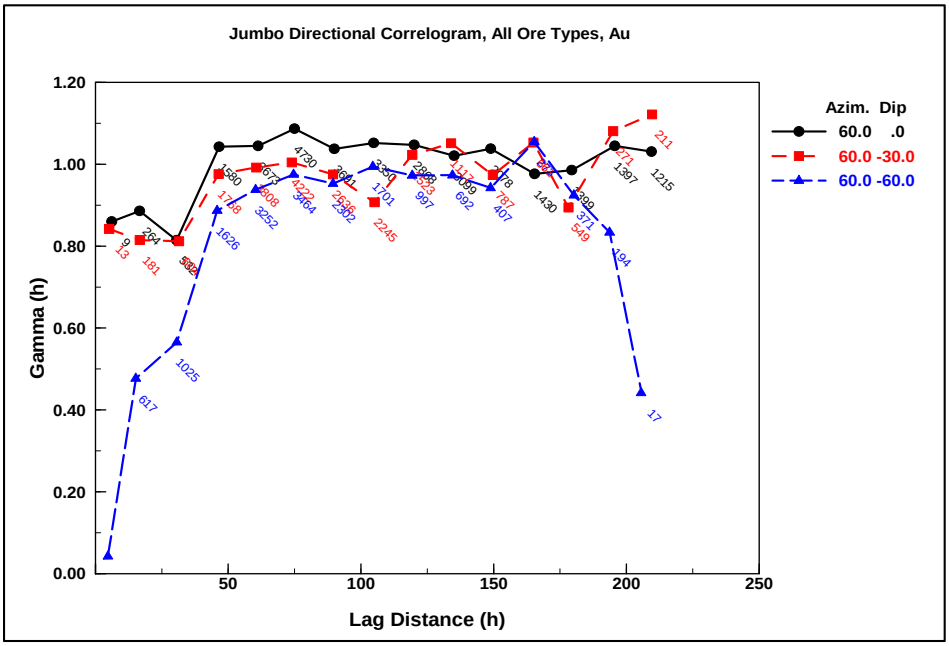


Figure 14-15: Variogram, Jumbo Deposit, Global



Sill values were evaluated using global omni-directional variograms, and the nugget was evaluated using down-hole variograms, which best represent the inherent short-scale variability within the mineralized areas. Ellipsoid axis ratios were based upon variograms created for both of the angles normal to the primary axis. The model results were then used for the search and variography parameters for modeling

the gold and silver grades into the block model. The primary axis length search parameter was set at the maximum of the modeled range or 150 meters.

Based on visual interpretation of the borehole data at Jumbo, the Jumbo deposit was divided into northern and southern sections, with differing anisotropies in each section. The primary axis length search parameter was set at the minimum of the modeled range or 150 meters. A summary of the search parameters is presented in Table 14-5, and a summary of the variography parameters for kriging is presented in Table 14-6.

Table 14-5: Gold Springs Model Search Parameters

Deposit	Length			Dip		Azimuth
	U	V	W	U	V	
Grey Eagle	150	150	45	40	30	300
Jumbo	140	120	55	80	0	90
Jumbo-South	140	120	55	60	0	90

Table 14-6: Gold Springs Variography Parameters

Deposit	Nugget	Sill	Major Axis Length (m)	Intermediate Axis Length (m)	Minor Axis Length (m)	Major Axis Dip (degrees)	Intermediate Axis Dip (degrees)	Azimuth (degrees)
Grey Eagle	0.18	0.82	312.2	145.4	41.9	40	30	300
Jumbo – North	0.274	0.726	136.9	116.9	50.4	80	0	90
Jumbo – South	0.274	0.726	136.9	116.9	50.4	60	0	90

14.6 Estimation Methodology

A multi-step estimation process was undertaken to obtain the resource estimate, as described in the following subsections.

14.6.1 Lithology and Mineralization Type Modeling

Because the SGs for the deposits were broken down by mineralization types and lithologies, it was necessary to model the mineralization types and lithologies into the block model so that each block could be assigned a specific gravity value. Mineralization types and lithologies were estimated from the composite data into the block model using an inverse distance cubed (ID3) algorithm and the search parameters and anisotropies shown in Table 14-5 and Table 14-6. Mineralization types and lithologies representing tuff were not modeled into the block models; instead, a tuff bounding surface contoured from drill hole intercepts was used to delineate all tuff blocks. The ID3 model generated more geologically reasonable zones for the non-tuff mineralization types and lithologies throughout the block model and was therefore used.

After modeling the mineralization types and lithologies into the block models, each block was assigned the specific gravity associated with the mineralization type and lithology present within it. For blocks above the tuff bounding surface, the appropriate tuff SG was applied.

Block model cross-sections showing modeled mineralization types and lithologies were determined to not adequately represent the geology of the deposits, particularly within the mineralized areas, so the ID3

modeled mineralization types and lithologies were not used directly to model gold and silver grades into the block model. Instead, an intermediate step of defining a "mineralization zone" was undertaken, as described below.

14.6.2 Mineralization Zone Modeling

Mineralization types, lithologies, and gold and silver grades from the assay data were loaded into LeapFrog™ software for 3-D contouring of the drill hole data. Figure 14-16 and Figure 14-17 show 3-D representations of the Grey Eagle and Jumbo drill holes, respectively, with mineralization types shown using various colors. GRE and TMI selected intervals on each drill hole that were primarily vein or stockwork (mineralization types J-3 and J-4 for Jumbo and mineralization types GE-1, GE-2, and GE-3 for Grey Eagle) and then used LeapFrog to model bounding surfaces at the tops and bottoms of those intervals. 3-D representations of the results are shown in Figure 14-18 and Figure 14-19. The area between the two bounding surfaces creates a solid that represents the Mineralization Zone for each deposit.

Parameters for the two bounding surfaces were exported to Maptek Vulcan™ software, where solids were created and all of the block model blocks within the two surfaces were tagged as being within the Mineralization Zone and all those outside the surfaces were tagged as being outside the Mineralization Zone. The tagged block models were exported to Techbase for use in the gold and silver grade estimation.

14.6.3 Gold and Silver Resource Modeling

GRE used four methods to estimate grade for both gold and silver within each block model to compare and validate the estimate. GRE chose the ID3 method as the preferred method because it had better local variability that more closely fit the data. The four estimation methods use were:

- Kriging with one drill hole required: Kriging was used to estimate the gold and silver grade in all model blocks of the Grey Eagle and Jumbo mineralized bodies. Parameters for the kriging include the nugget, sill, and range, as well as the anisotropy of the ellipsoid defining the spatial variability. For Grey Eagle and Jumbo, these were determined by variogram analysis and by considering the expected variation based on the site geology. For each block in the block model, the estimate required a minimum of two and a maximum of 10 samples within the search ellipsoid. The search parameters and anisotropy are identified in Table 14-6.
- Kriging with a minimum of two drill holes required: The search parameters and anisotropy are identified in Table 14-6. For each block in the block model, the estimation required a minimum of five and a maximum of 10 samples, with a maximum of four samples per drill hole, within the search ellipsoid.
- Inverse distance cubed (ID3) with a minimum of one drill hole required: The inverse distance cubed method was used to estimate gold and silver grade in all model blocks of the Grey Eagle and Jumbo mineralized bodies. The inverse distance cubed estimate required a minimum of two and a maximum of 10 samples within the search ellipsoid.
- Nearest neighbor with one drill hole required: Nearest neighbor estimates were performed for gold and silver in both the Grey Eagle and Jumbo block models as a means of validating the other estimates. Within a specified search ellipsoid, each block in the block model was assigned the gold and silver grade of the sample nearest to the block centroid.

Figure 14-16 Grey Eagle 3-D Drill Hole Representation with Mineralization Zones

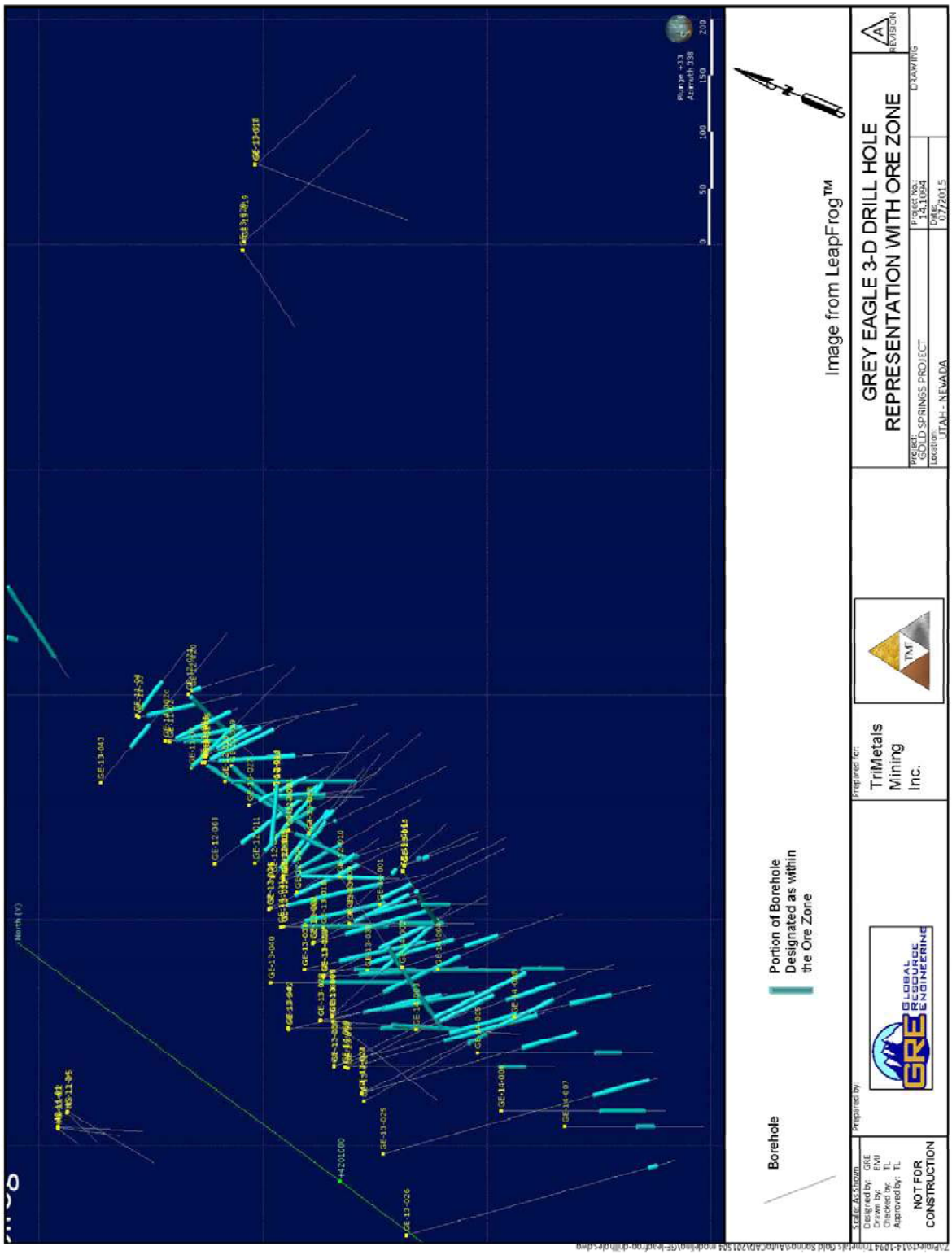


Figure 14-17 Jumbo 3-D Drill Hole Representation with Mineralization Zones

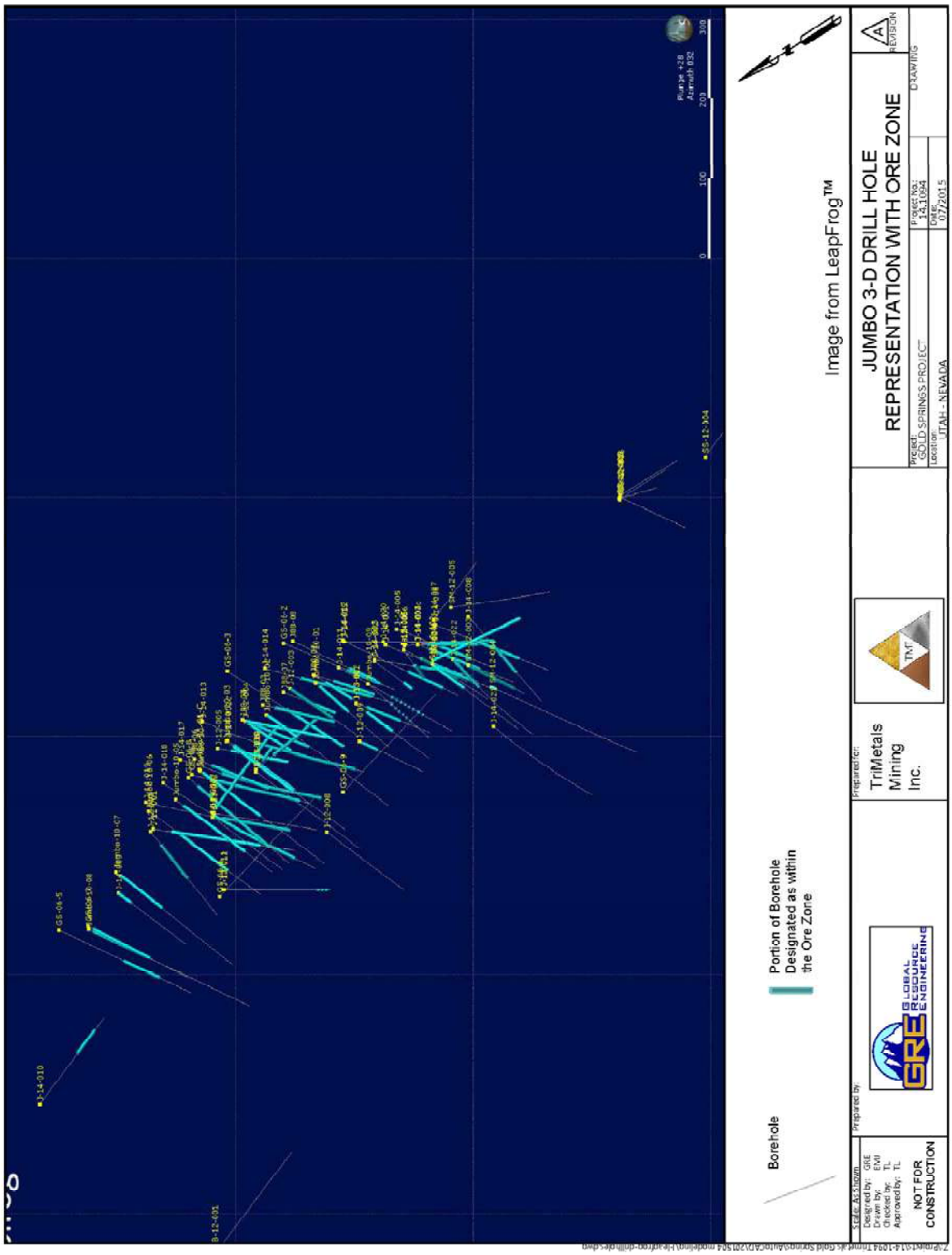


Figure 14-18 Grey Eagle 3-D Mineralization Zone Representation

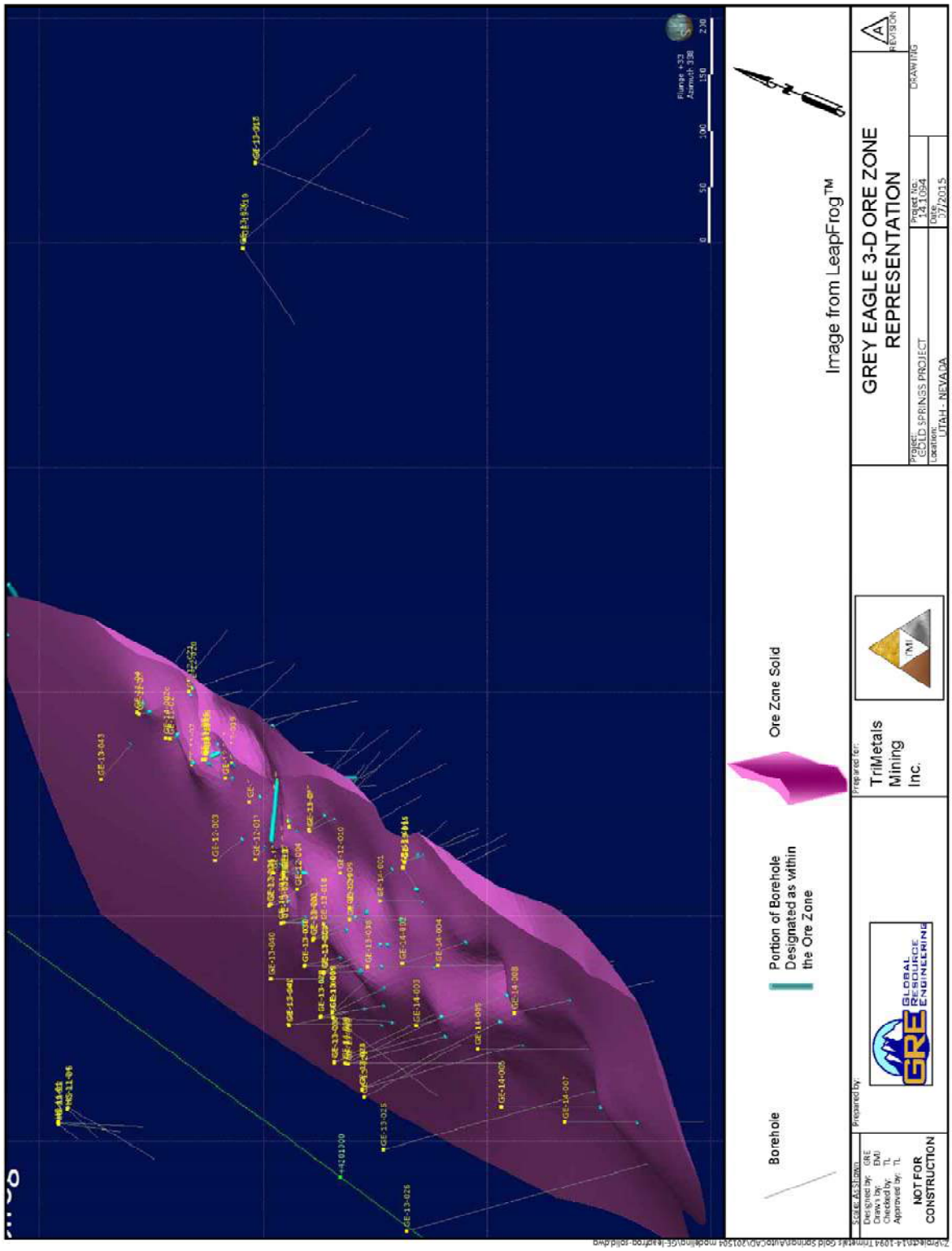
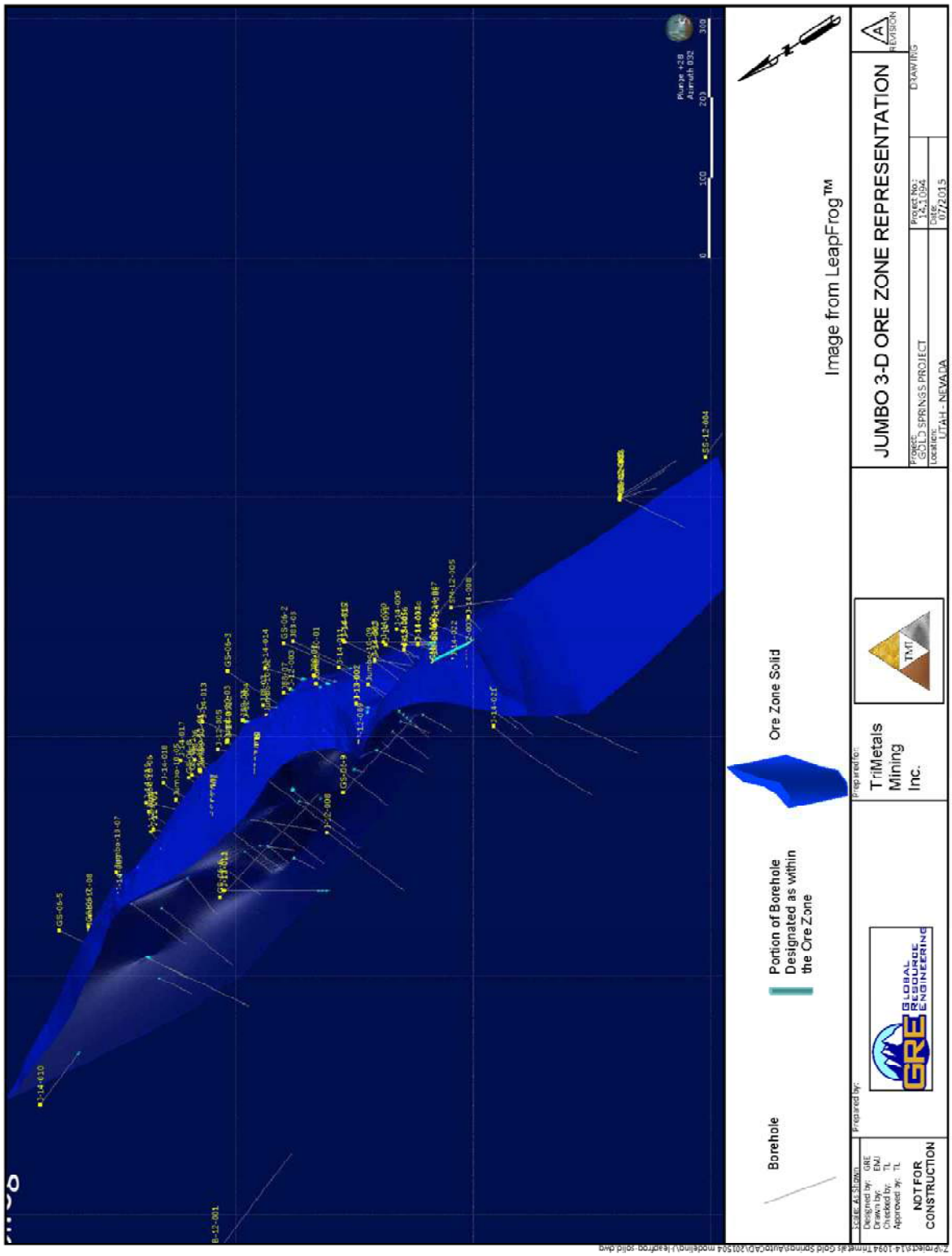


Figure 14-19 Jumbo 3-D Mineralization Zone Representation



For each estimate, GRE first modeled the gold and silver grades of blocks within the Mineralization Zone solid, then modeled blocks outside the Mineralization Zone. Troy ounces of gold and silver contained were calculated from the modeled grades using the block specific gravity.

14.6.4 Resource Category Modeling

As part of the inverse distance cubed estimation, the average distance to composites was stored in the model. These distances were then used to establish the resource category, as follows:

- Measured: average distance less than 25 meters from the drill holes
- Indicated: average distance between 25 and 50 meters from the drill holes
- Inferred: average distance between 50 and 100 meters from the drill holes

Each block was tagged with a numeric code for the appropriate resource category: 1 for measured, 2 for indicated, and 3 for inferred.

14.6.5 Removal of Grade from Tuff

The Grey Eagle and Jumbo deposits are partially overlain by unmineralized ash flow tuff. Model blocks located below the ground surface and above the base of the tuff were tagged within the block model as being part of the tuff strata, and the gold and silver grade of tuff was set to zero.

14.7 Estimate Results

Results from the four modeling exercises, at a cutoff of 0.2 g/t, are summarized in Table 14-7. Detailed results for the inverse distance cubed method are provided in Table 14-8 through Table 14-10.

Readers are advised that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability under National Instrument 43-101. This PEA is preliminary in nature and includes inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves under National Instrument 43-101.

AuEq calculations reflect gross metal content using the Au/Ag price ratio of 57.14 and have not been adjusted for metallurgical recoveries. This resource estimation includes all drill data obtained as of January, 2015.

Table 14-7: Summary of Gold Springs Resource Estimates by Various Methodologies

Estimate Method	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)
Grey Eagle							
Measured							
Kriging with One Hole Required	3,527	63,000	0.556	750,000	6.614	76,000	0.670
Kriging with Two Holes Required	3,558	63,000	0.551	749,000	6.548	76,000	0.664
Inverse Distance Cubed	**3,368**	**63,000**	**0.582**	**736,000**	**6.797**	**76,000**	**0.702**
Nearest Neighbor	2,528	61,000	0.751	665,000	8.182	73,000	0.898
Indicated							
Kriging with One Hole Required	5,833	99,000	0.528	1,184,000	6.313	120,000	0.640
Kriging with Two Holes Required	5,858	100,000	0.531	1,171,000	6.218	120,000	0.637
Inverse Distance Cubed	**5,751**	**96,000**	**0.519**	**1,165,000**	**6.301**	**116,000**	**0.627**
Nearest Neighbor	4,044	93,000	0.715	1,036,000	7.968	111,000	0.854

Estimate Method	Tonnes above cutoff (x1000)	Au Above Cutoff (Troy oz)	Au Grade (g/tonne)	Ag Above Cutoff (Troy oz)	Ag Grade (g/tonne)	Au Equivalent Above Cutoff (Troy oz)	Au Equivalent Grade (g/tonne)
Measured Plus Indicated							
Kriging with One Hole Required	9,360	162,000	0.538	1,934,000	6.427	196,000	0.651
Kriging with Two Holes Required	9,416	163,000	0.538	1,920,000	6.342	197,000	0.651
Inverse Distance Cubed	**9,119**	**159,000**	**0.542**	**1,901,000**	**6.484**	**192,000**	**0.655**
Nearest Neighbor	6,572	154,000	0.729	1,701,000	8.050	184,000	0.871
Inferred							
Kriging with One Hole Required	2,844	34,000	0.372	451,000	4.932	42,000	0.459
Kriging with Two Holes Required	3,164	38,000	0.374	492,000	4.837	47,000	0.462
Inverse Distance Cubed	**2,193**	**25,000**	**0.355**	**339,000**	**4.807**	**31,000**	**0.440**
Nearest Neighbor	1,826	28,000	0.477	320,000	5.451	34,000	0.579
Jumbo							
Measured							
Kriging with One Hole Required	6,366	89,000	0.435	2,464,000	12.04	132,000	0.645
Kriging with Two Holes Required	6,268	89,000	0.442	2,482,000	12.32	132,000	0.655
Inverse Distance Cubed	**6,209**	**90,000**	**0.451**	**2,468,000**	**12.36**	**133,000**	**0.666**
Nearest Neighbor	5,130	91,000	0.552	2,409,000	14.61	133,000	0.806
Indicated							
Kriging with One Hole Required	14,962	180,000	0.374	4,845,000	10.07	265,000	0.551
Kriging with Two Holes Required	13,882	172,000	0.385	4,919,000	11.02	258,000	0.578
Inverse Distance Cubed	**14,718**	**185,000**	**0.391**	**4,927,000**	**10.41**	**271,000**	**0.573**
Nearest Neighbor	12,232	196,000	0.498	5,010,000	12.74	284,000	0.722
Measured Plus Indicated							
Kriging with One Hole Required	21,328	269,000	0.392	7,309,000	10.66	397,000	0.579
Kriging with Two Holes Required	20,150	261,000	0.403	7,401,000	11.42	390,000	0.602
Inverse Distance Cubed	**20,297**	**275,000**	**0.409**	**7,395,000**	**10.99**	**404,000**	**0.600**
Nearest Neighbor	17,362	287,000	0.514	7,419,000	13.29	417,000	0.747
Inferred							
Kriging with One Hole Required	18,525	184,000	0.309	3,920,000	6.58	253,000	0.425
Kriging with Two Holes Required	12,760	135,000	0.329	3,337,000	8.13	193,000	0.470
Inverse Distance Cubed	**18,694**	**200,000**	**0.333**	**4,274,000**	**7.11**	**275,000**	**0.458**
Nearest Neighbor	14,713	230,000	0.486	4,713,000	9.96	312,000	0.660
Grey Eagle Plus Jumbo							
Measured							
Kriging with One Hole Required	9,893	152,000	0.478	3,214,000	10.11	208,000	0.654
Kriging with Two Holes Required	9,826	152,000	0.481	3,231,000	10.23	209,000	0.662
Inverse Distance Cubed	**9,577**	**153,000**	**0.497**	**3,204,000**	**10.41**	**209,000**	**0.679**
Nearest Neighbor	7,658	152,000	0.617	3,074,000	12.49	206,000	0.837
Indicated							
Kriging with One Hole Required	20,795	279,000	0.417	6,029,000	9.02	385,000	0.576
Kriging with Two Holes Required	19,740	272,000	0.429	6,090,000	9.60	379,000	0.597
Inverse Distance Cubed	**20,469**	**281,000**	**0.427**	**6,092,000**	**9.26**	**388,000**	**0.590**
Nearest Neighbor	16,276	289,000	0.552	6,046,000	11.55	395,000	0.755
Measured Plus Indicated							
Kriging with One Hole Required	30,688	431,000	0.437	9,243,000	9.37	593,000	0.601
Kriging with Two Holes Required	29,566	424,000	0.446	9,321,000	9.81	587,000	0.618
Inverse Distance Cubed	**30,046**	**434,000**	**0.449**	**9,296,000**	**9.62**	**597,000**	**0.618**
Nearest Neighbor	23,934	441,000	0.573	9,120,000	11.85	601,000	0.781
Inferred							
Kriging with One Hole Required	21,369	218,000	0.317	4,371,000	6.36	294,000	0.428
Kriging with Two Holes Required	15,924	173,000	0.338	3,829,000	7.48	240,000	0.469
Inverse Distance Cubed	**20,887**	**225,000**	**0.335**	**4,613,000**	**6.87**	**306,000**	**0.456**
Nearest Neighbor	16,539	258,000	0.485	5,033,000	9.47	346,000	0.651

g – grams oz – ounces Note: due to rounding, some numbers may not added correctly.

Table 14-8: Grey Eagle Resource Estimate by Inverse Distance Cubed with One Hole Required

Cutoff (Au g/tonne)	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)
Measured							
0.00	11,733	75,000	0.199	1,067,000	2.829	94,000	0.249
0.15	3,982	67,000	0.523	810,000	6.327	81,000	0.633
0.20	**3,368**	**63,000**	**0.582**	**736,000**	**6.797**	**76,000**	**0.702**
0.25	2,871	60,000	0.650	666,000	7.215	72,000	0.780
0.30	2,489	56,000	0.700	605,000	7.560	67,000	0.837
0.50	1,379	42,000	0.947	403,000	9.090	49,000	1.105
1.00	352	20,000	1.767	156,000	13.784	23,000	2.032
1.50	145	12,000	2.574	83,000	17.804	13,000	2.789
Indicated							
0.00	42,733	135,000	0.098	2,458,000	1.789	178,000	0.130
0.15	6,806	102,000	0.466	1,278,000	5.840	124,000	0.567
0.20	**5,751**	**96,000**	**0.519**	**1,165,000**	**6.301**	**116,000**	**0.627**
0.25	4,835	89,000	0.573	1,047,000	6.735	107,000	0.688
0.30	4,187	83,000	0.617	950,000	7.057	100,000	0.743
0.50	1,938	55,000	0.883	565,000	9.068	65,000	1.043
1.00	515	24,000	1.449	216,000	13.045	28,000	1.691
1.50	162	10,000	1.920	78,000	14.976	11,000	2.112
Measured Plus Indicated							
0.00	54,466	210,000	0.120	3,525,000	2.013	272,000	0.155
0.15	10,788	169,000	0.487	2,088,000	6.020	206,000	0.594
0.20	**9,119**	**159,000**	**0.542**	**1,901,000**	**6.484**	**192,000**	**0.655**
0.25	7,706	149,000	0.601	1,713,000	6.914	179,000	0.722
0.30	6,676	139,000	0.648	1,555,000	7.245	166,000	0.773
0.50	3,317	97,000	0.910	968,000	9.077	114,000	1.069
1.00	867	44,000	1.578	372,000	13.345	51,000	1.830
1.50	307	22,000	2.229	161,000	16.312	25,000	2.533
Inferred							
0.00	85,135	97,000	0.035	2,945,000	1.076	149,000	0.054
0.15	2,908	29,000	0.310	419,000	4.481	36,000	0.385
0.20	**2,193**	**25,000**	**0.355**	**339,000**	**4.807**	**31,000**	**0.440**
0.25	1,637	21,000	0.399	265,000	5.034	26,000	0.494
0.30	1,337	19,000	0.442	223,000	5.187	23,000	0.535
0.50	237	5,000	0.655	58,000	7.602	6,000	0.786
1.00	6	-	-	2,000	9.874	-	-
1.50	0	-	-	-	-	-	-

g – grams oz – ounces Note: due to rounding, some numbers may not added correctly.

Table 14-9: Jumbo Resource Estimate by Inverse Distance Cubed with One Hole Required

Cutoff (Au g/tonne)	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)
Measured							
0.00	16,779	117,000	0.217	3,376,000	6.26	176,000	0.326
0.15	7,838	99,000	0.393	2,754,000	10.93	147,000	0.583
0.20	**6,209**	**90,000**	**0.451**	**2,468,000**	**12.36**	**133,000**	**0.666**
0.25	4,953	81,000	0.509	2,175,000	13.66	119,000	0.747
0.30	3,995	73,000	0.568	1,913,000	14.89	106,000	0.825
0.50	1,589	43,000	0.842	946,000	18.52	60,000	1.174
1.00	300	16,000	1.659	199,000	20.63	19,000	1.970
1.50	152	10,000	2.046	92,000	18.83	12,000	2.456

Cutoff (Au g/tonne)	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)	Above Cutoff (Troy oz)	Grade (g/tonne)
Indicated							
0.00	61,236	292,000	0.148	8,448,000	4.29	440,000	0.223
0.15	20,562	218,000	0.330	5,926,000	8.96	322,000	0.487
0.20	**14,718**	**185,000**	**0.391**	**4,927,000**	**10.41**	**271,000**	**0.573**
0.25	10,977	158,000	0.448	4,114,000	11.66	230,000	0.652
0.30	8,332	135,000	0.504	3,489,000	13.02	196,000	0.732
0.50	2,694	66,000	0.762	1,480,000	17.09	92,000	1.062
1.00	428	19,000	1.381	276,000	20.06	24,000	1.744
1.50	143	8,000	1.740	65,000	14.14	9,000	1.958
Measured Plus Indicated							
0.00	78,015	409,000	0.163	11,824,000	4.71	616,000	0.246
0.15	28,400	317,000	0.347	8,680,000	9.51	469,000	0.514
0.20	**20,927**	**275,000**	**0.409**	**7,395,000**	**10.99**	**404,000**	**0.600**
0.25	15,930	239,000	0.467	6,289,000	12.28	349,000	0.681
0.30	12,327	208,000	0.525	5,402,000	13.63	303,000	0.765
0.50	4,283	109,000	0.792	2,426,000	17.62	151,000	1.097
1.00	728	35,000	1.495	475,000	20.29	43,000	1.837
1.50	295	18,000	1.898	157,000	16.55	21,000	2.214
Inferred							
0.00	132,809	439,000	0.103	11,398,000	2.67	638,000	0.149
0.15	30,317	266,000	0.273	5,939,000	6.09	370,000	0.380
0.20	**18,694**	**200,000**	**0.333**	**4,274,000**	**7.11**	**275,000**	**0.458**
0.25	12,809	158,000	0.384	3,229,000	7.84	215,000	0.522
0.30	8,552	121,000	0.440	2,543,000	9.25	166,000	0.604
0.50	1,605	34,000	0.659	633,000	12.27	45,000	0.872
1.00	118	5,000	1.318	58,000	15.29	6,000	1.582
1.50	21	1,000	1.481	7,000	10.37	1,000	1.481

g – grams oz – ounces Note: due to rounding, some numbers may not added correctly.

Table 14-10: Grey Eagle Plus Jumbo Resource Estimate by Inverse Distance Cubed with One Hole Required

Cutoff (Au g/tonne)	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz.)	Grade (g/tonne)	Above Cutoff (Troy oz.)	Grade (g/tonne)	Above Cutoff (Troy oz.)	Grade (g/tonne)
Measured							
0.00	28,512	192,000	0.209	4,443,000	4.847	270,000	0.295
0.15	11,820	166,000	0.437	3,564,000	9.378	228,000	0.600
0.20	**9,577**	**153,000**	**0.497**	**3,204,000**	**10.406**	**209,000**	**0.679**
0.25	7,824	141,000	0.561	2,841,000	11.294	191,000	0.759
0.30	6,484	129,000	0.619	2,518,000	12.079	173,000	0.830
0.50	2,968	85,000	0.891	1,349,000	14.137	109,000	1.142
1.00	652	36,000	1.717	355,000	16.935	42,000	2.004
1.50	297	22,000	2.304	175,000	18.327	25,000	2.618
Indicated							
0.00	103,969	427,000	0.128	10,906,000	3.263	618,000	0.185
0.15	27,368	320,000	0.364	7,204,000	8.187	446,000	0.507
0.20	**20,469**	**281,000**	**0.427**	**6,092,000**	**9.257**	**388,000**	**0.590**
0.25	15,812	247,000	0.486	5,161,000	10.152	337,000	0.663
0.30	12,519	218,000	0.542	4,439,000	11.029	296,000	0.735
0.50	4,632	121,000	0.813	2,045,000	13.732	157,000	1.054
1.00	943	43,000	1.418	492,000	16.228	52,000	1.715
1.50	305	18,000	1.836	143,000	14.583	21,000	2.142

Cutoff (Au g/tonne)	Tonnes above cutoff (x1000)	Au		Ag		Au Equivalent	
		Above Cutoff (Troy oz.)	Grade (g/tonne)	Above Cutoff (Troy oz.)	Grade (g/tonne)	Above Cutoff (Troy oz.)	Grade (g/tonne)
Measured Plus Indicated							
0.00	132,481	619,000	0.145	15,349,000	3.604	888,000	0.208
0.15	39,188	486,000	0.386	10,768,000	8.547	674,000	0.535
0.20	**30,046**	**434,000**	**0.449**	**9,296,000**	**9.623**	**597,000**	**0.618**
0.25	23,636	388,000	0.511	8,002,000	10.530	528,000	0.695
0.30	19,003	347,000	0.568	6,957,000	11.387	469,000	0.768
0.50	7,600	206,000	0.843	3,394,000	13.890	265,000	1.085
1.00	1,595	79,000	1.541	847,000	16.517	94,000	1.833
1.50	602	40,000	2.067	318,000	16.430	46,000	2.377
Inferred							
0.00	217,944	536,000	0.076	14,343,000	2.047	787,000	0.112
0.15	33,225	295,000	0.276	6,358,000	5.952	406,000	0.380
0.20	**20,887**	**225,000**	**0.335**	**4,613,000**	**6.869**	**306,000**	**0.456**
0.25	14,446	179,000	0.385	3,494,000	7.523	240,000	0.517
0.30	9,889	140,000	0.440	2,766,000	8.700	188,000	0.591
0.50	1,842	39,000	0.658	691,000	11.666	51,000	0.861
1.00	124	5,000	1.251	60,000	15.014	6,000	1.501
1.50	21	1,000	1.460	7,000	10.222	1,000	1.460

g – grams oz – ounces Note: due to rounding, some numbers may not added correctly.

14.8 Estimate Validation

GRE generated cross-sections, longitudinal sections, and bench plans of the deposits for each estimation method to examine the results of the modeling and confirm that the results agree with the geology. GRE selected ID3 as the preferred estimate because the estimated grade better fit local drill hole data. The sections and plans show the block model results, including estimated gold grade (in parts per billion), resource category (1 = measured, 2 = indicated, and 3 = inferred), and mineralization type. Figure 14-20 and Figure 14-21 show the locations of the cross sections and longitudinal sections at Grey Eagle and Jumbo, respectively. A Grey Eagle representative gold grade cross-section, longitudinal section, and bench plan are provided in Figure 14-22, Figure 14-23, and Figure 14-24. A Jumbo representative gold grade cross- section, longitudinal section, and bench plan are provided in Figure 14-25, Figure 14-26, and Figure 14-27.

Figure 14-20 Grey Eagle Section Location Plan

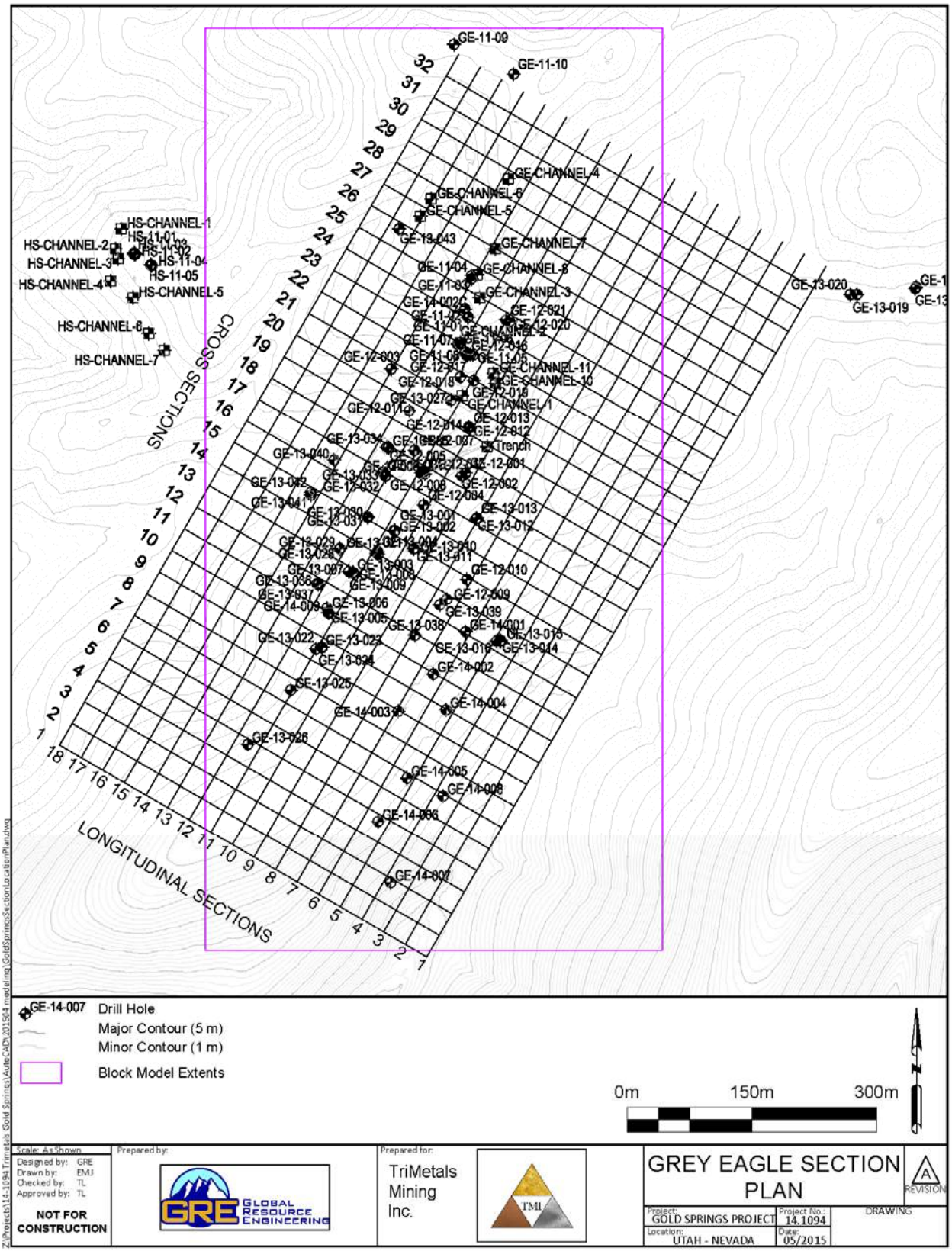


Figure 14-21 Jumbo Section Location Plan

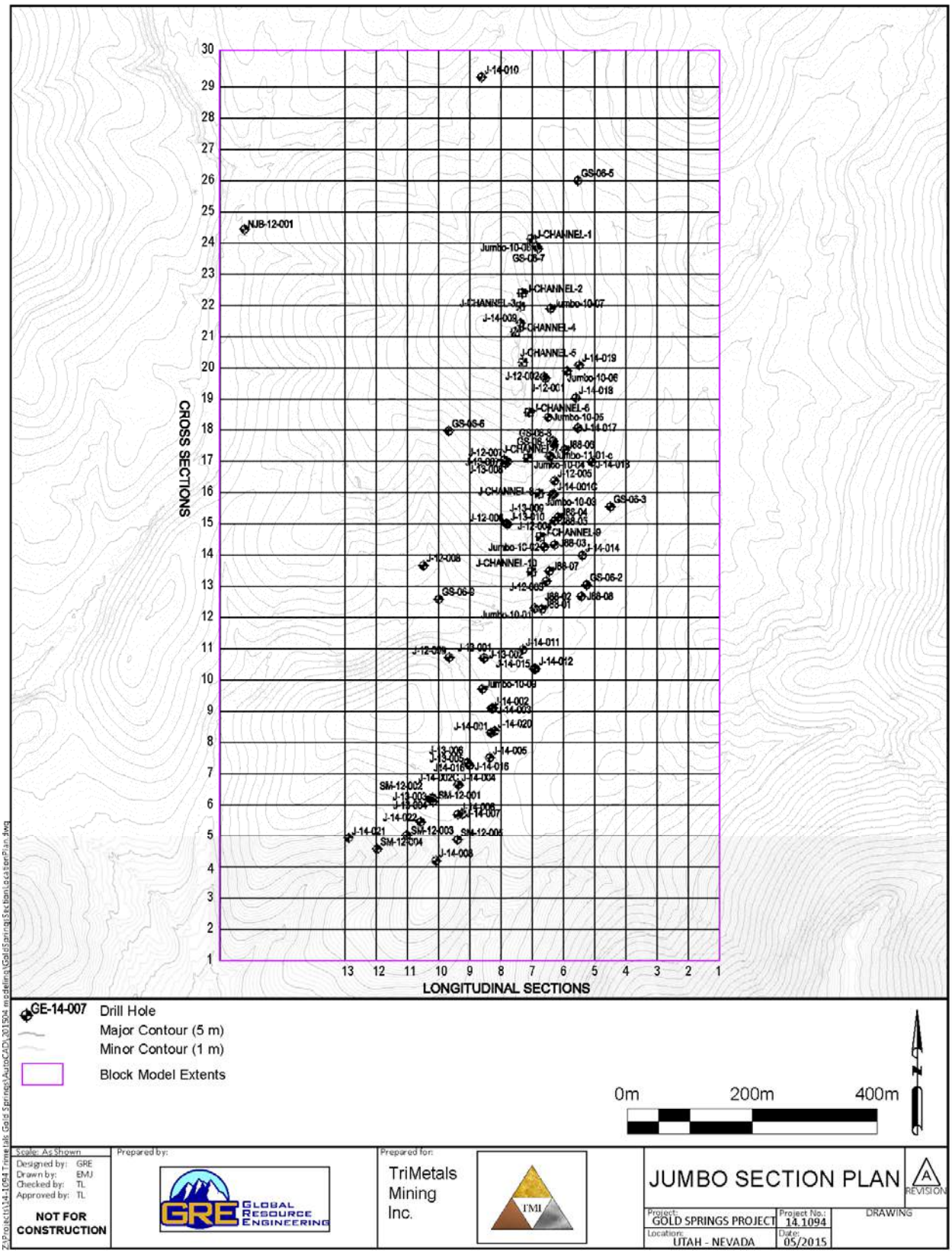


Figure 14-22 Grey Eagle Gold Grade Cross-Section 12 – Inverse Distance Cubed with One Hole Required

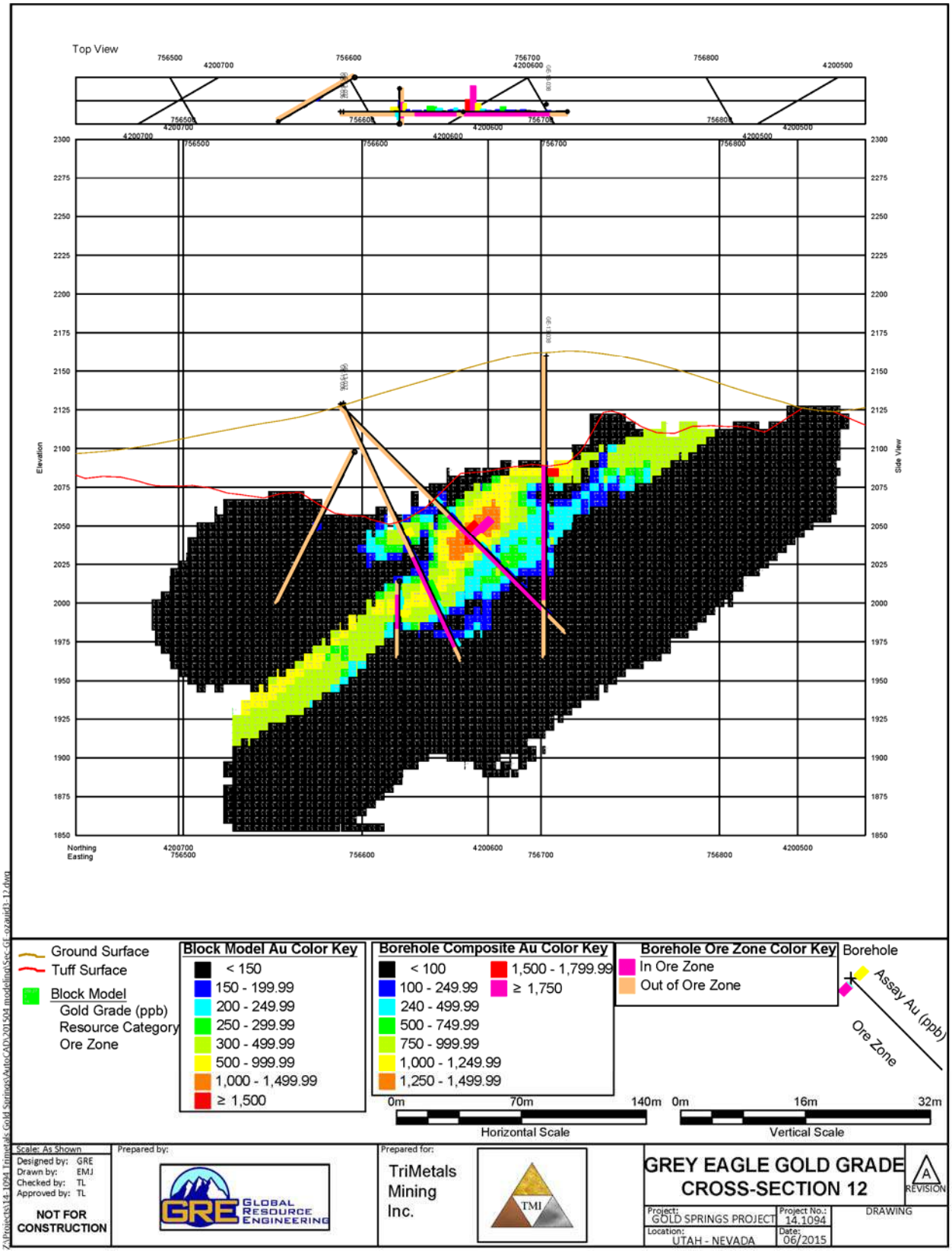


Figure 14-23 Grey Eagle Gold Grade Longitudinal Section 10 – Inverse Distance Cubed with One Hole Required

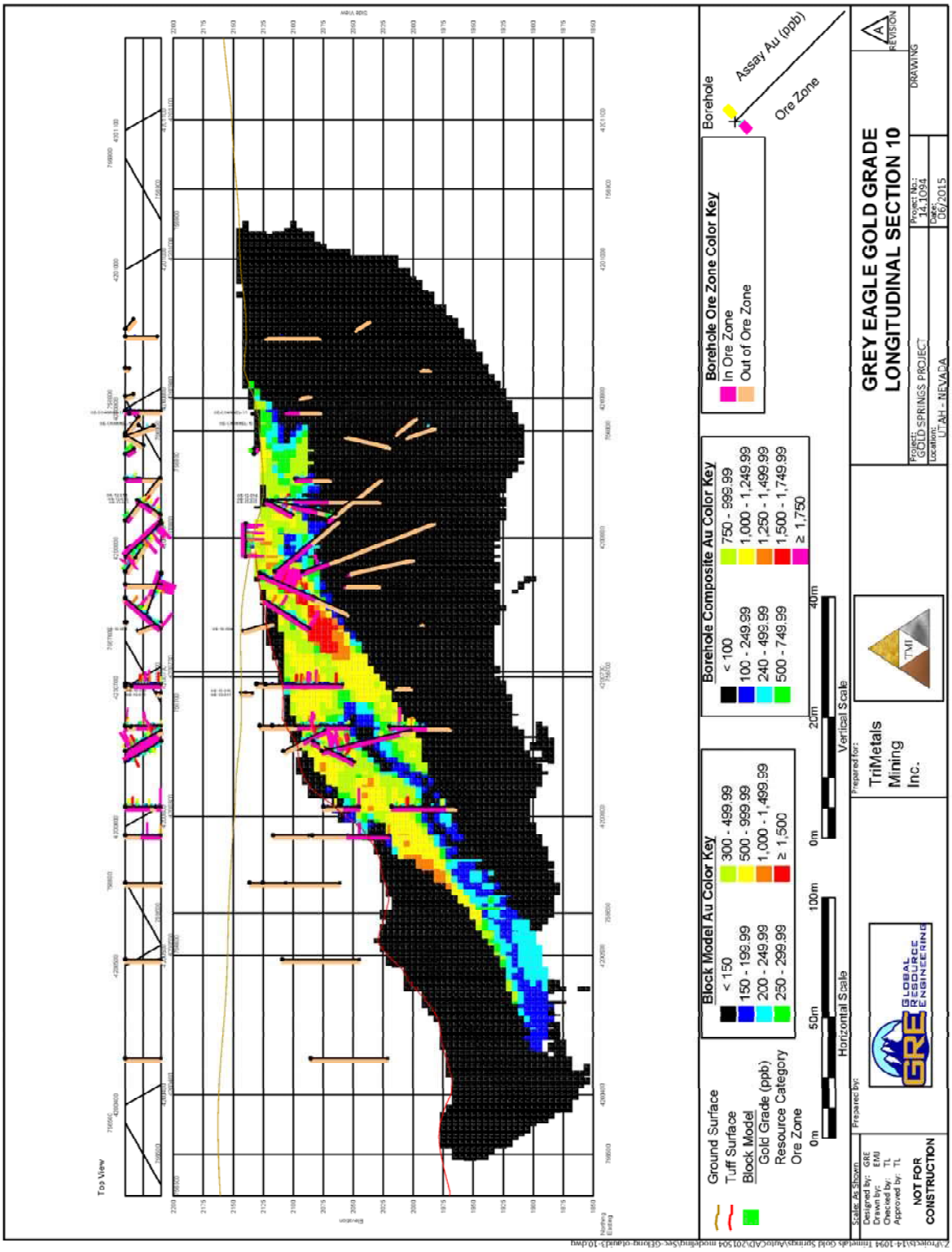


Figure 14-24 Grey Eagle Gold Grade Bench Plan, Elevation 2040 meters – Inverse Distance Cubed with One Hole Required

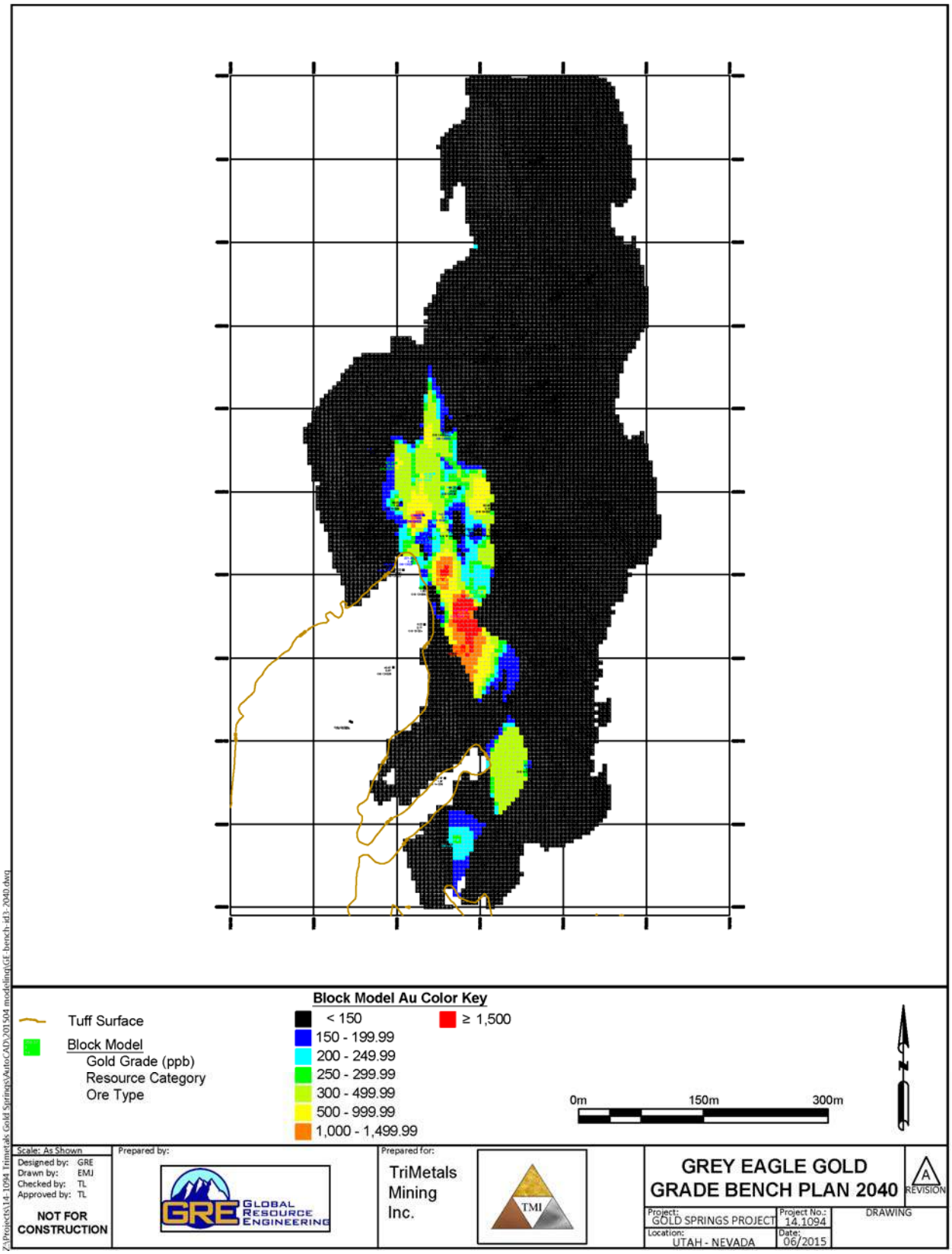


Figure 14-25 Jumbo Gold Grade Cross-Section 12 – Inverse Distance Cubed with One Hole Required

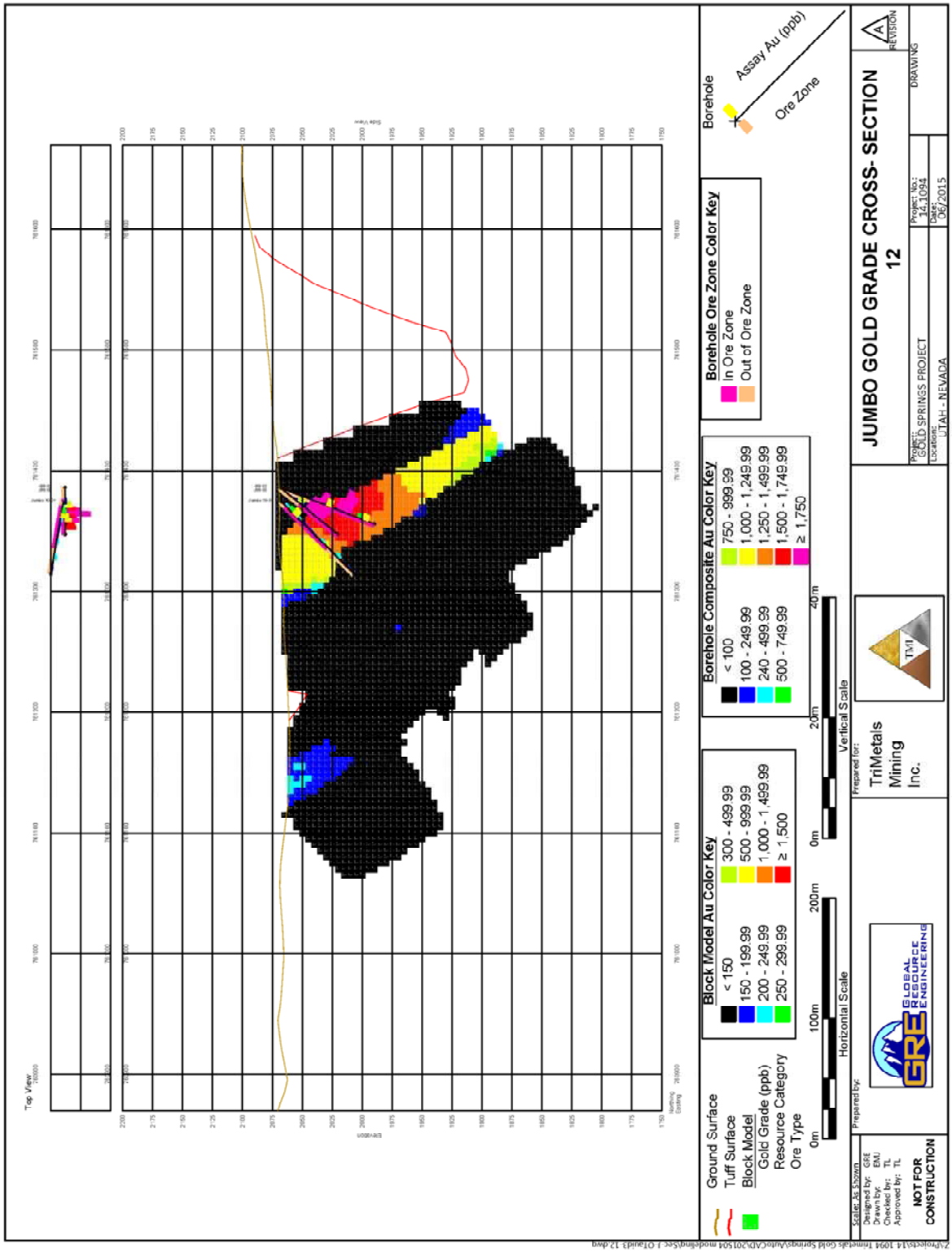


Figure 14-26 Jumbo Gold Grade Longitudinal Section 7 – Inverse Distance Cubed with One Hole Required

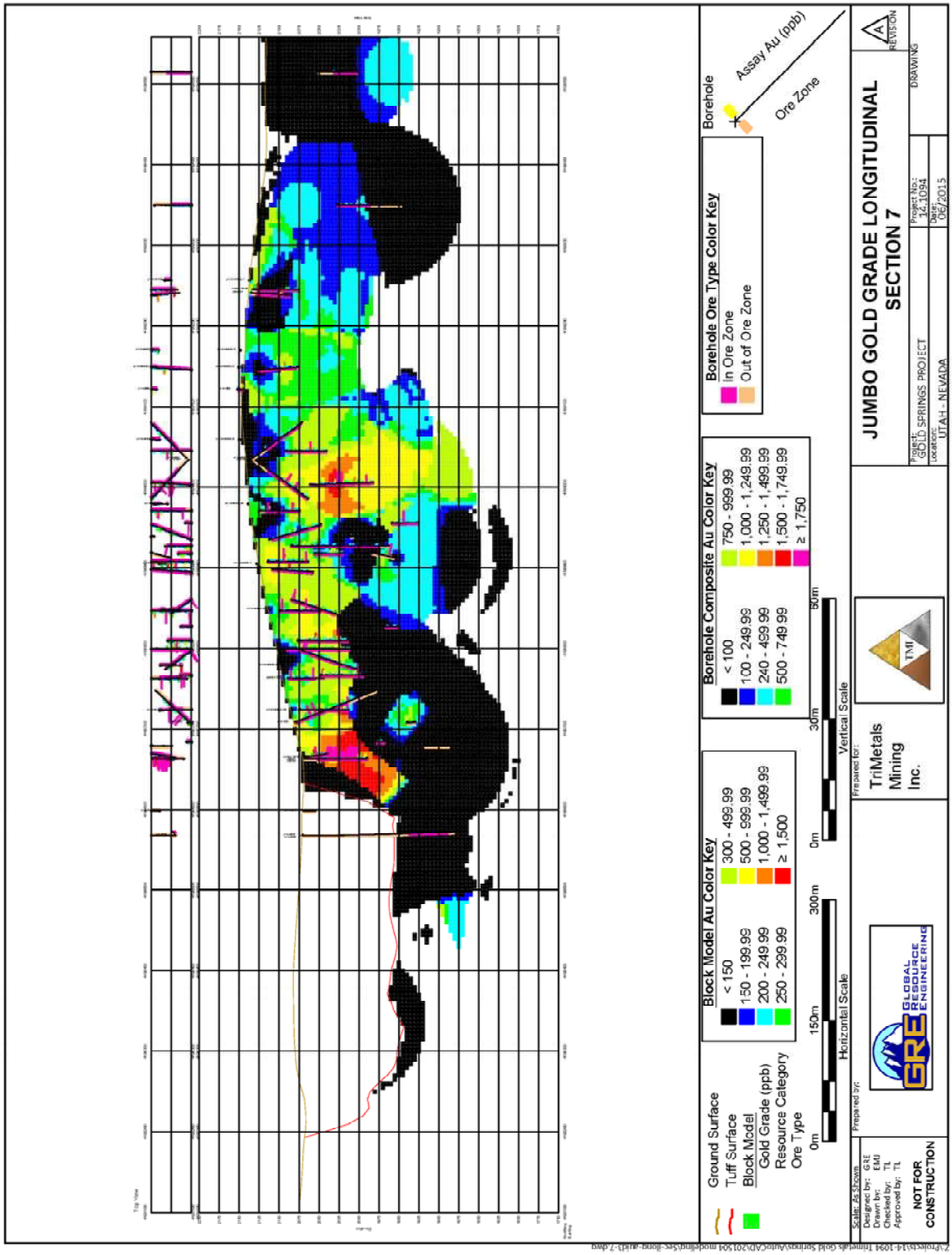
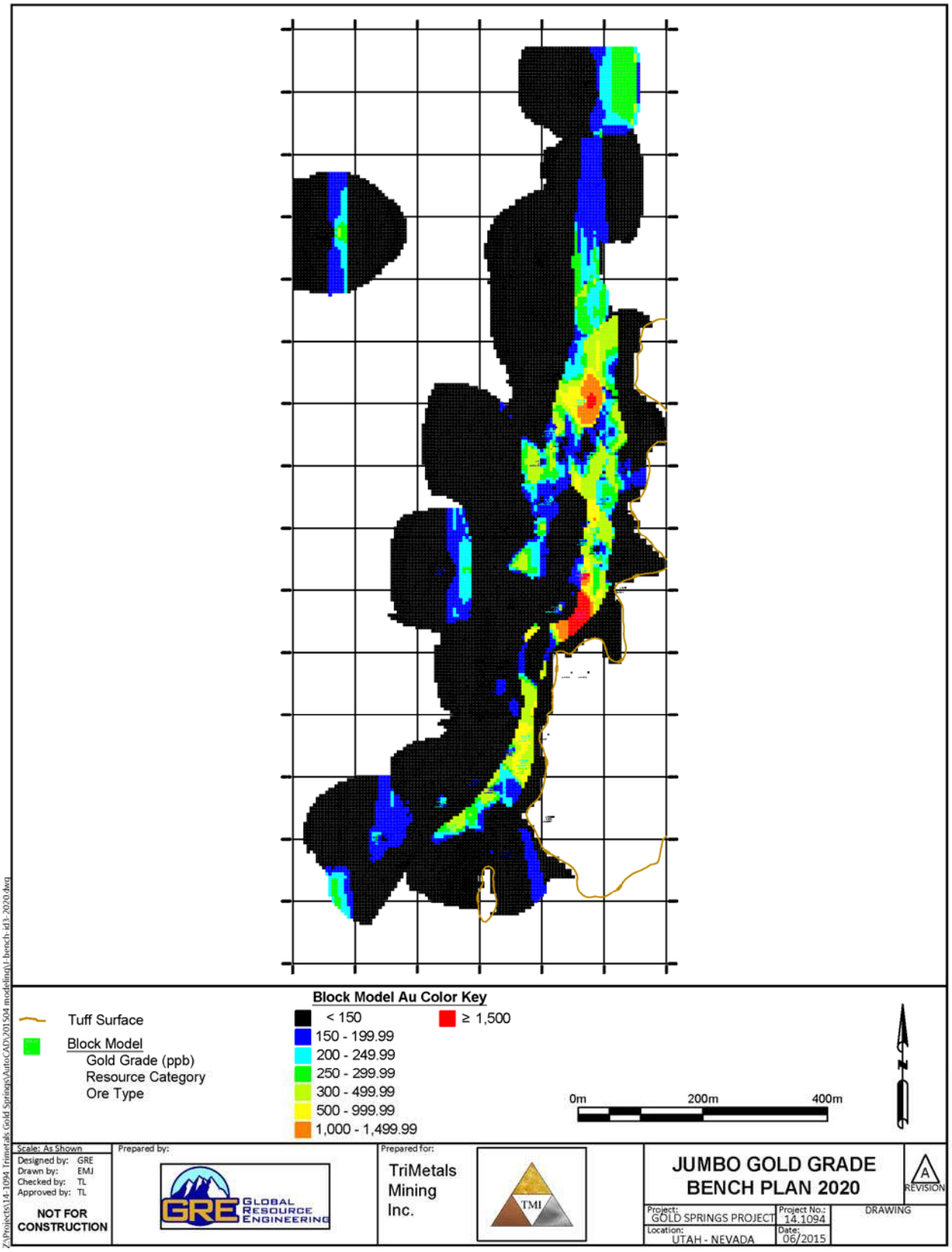


Figure 14-27 Jumbo Gold Grade Bench Plan, Elevation 2020 meters – Inverse Distance Cubed with One Hole Required



GRE compared the results from the four models for all of the blocks that received grade and found that the tonnes and grade showed slight differences, as would be expected for each estimation method. The results are illustrated in Figure 14-28 through Figure 14-31.

Figure 14-28 Grey Eagle Gold Estimate Comparison

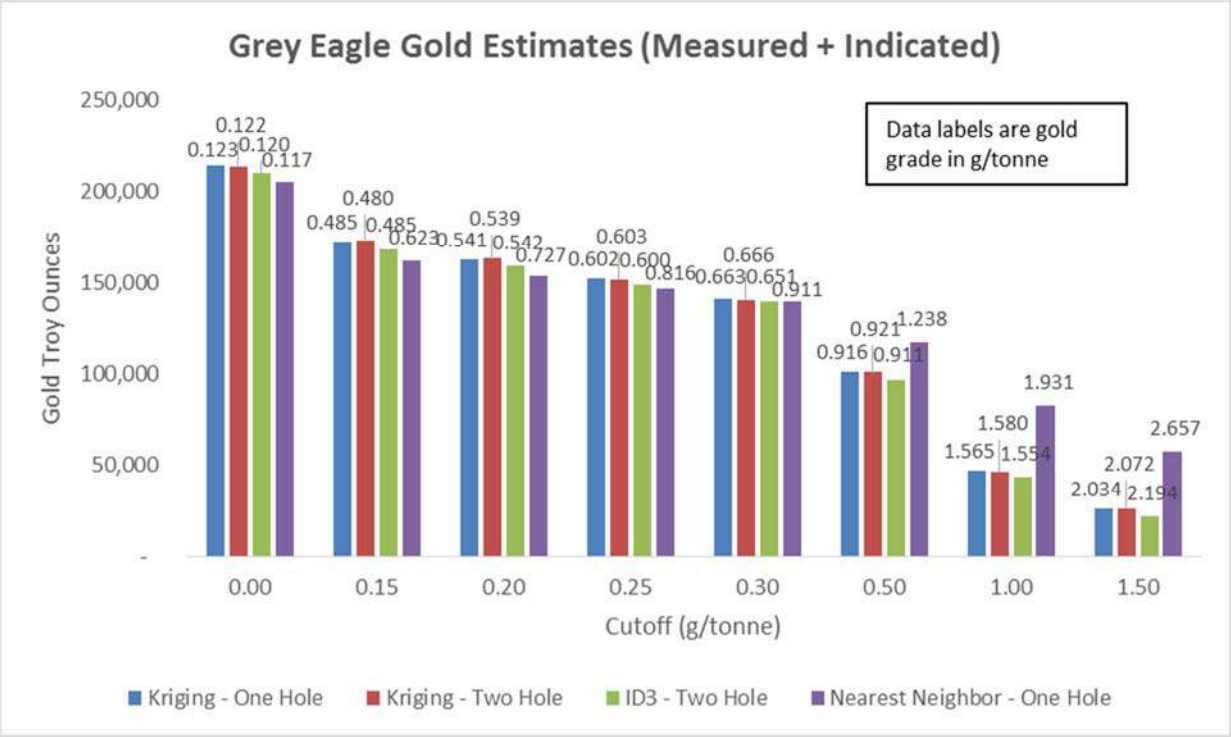


Figure 14-29 Grey Eagle Silver Estimate Comparison

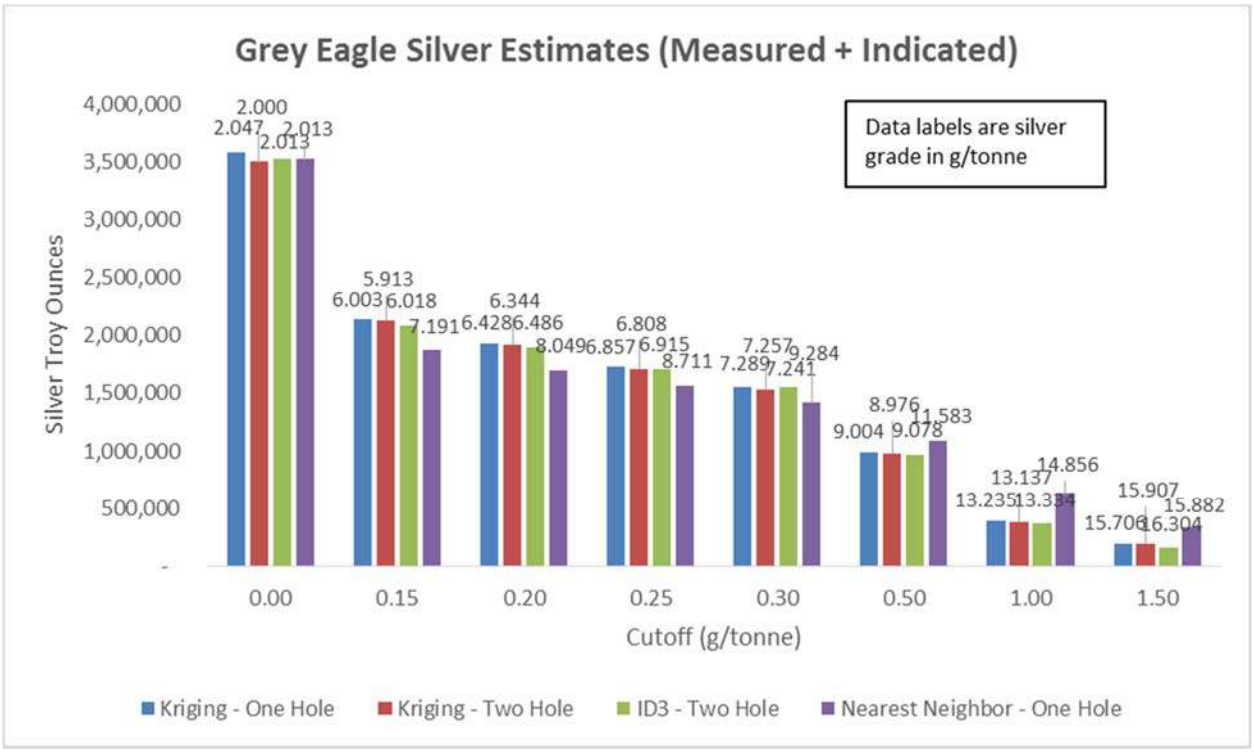


Figure 14-30 Jumbo Gold Estimate Comparison

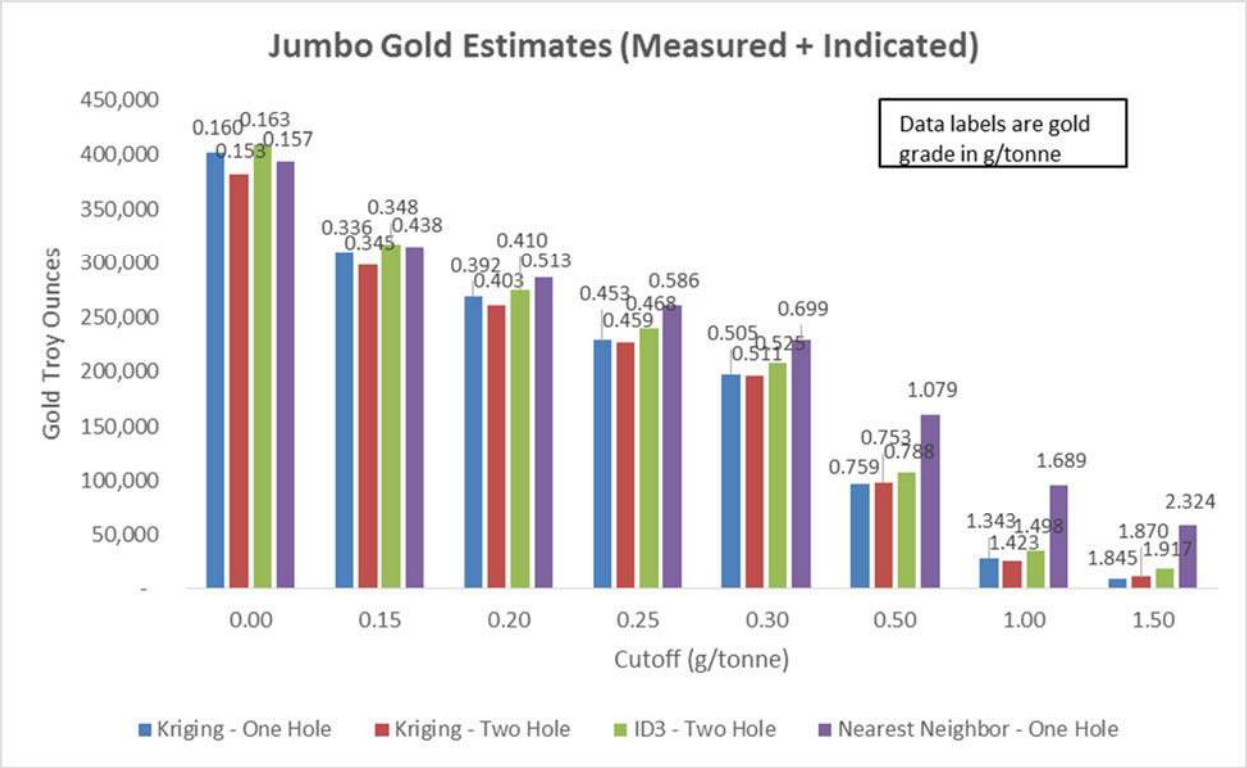
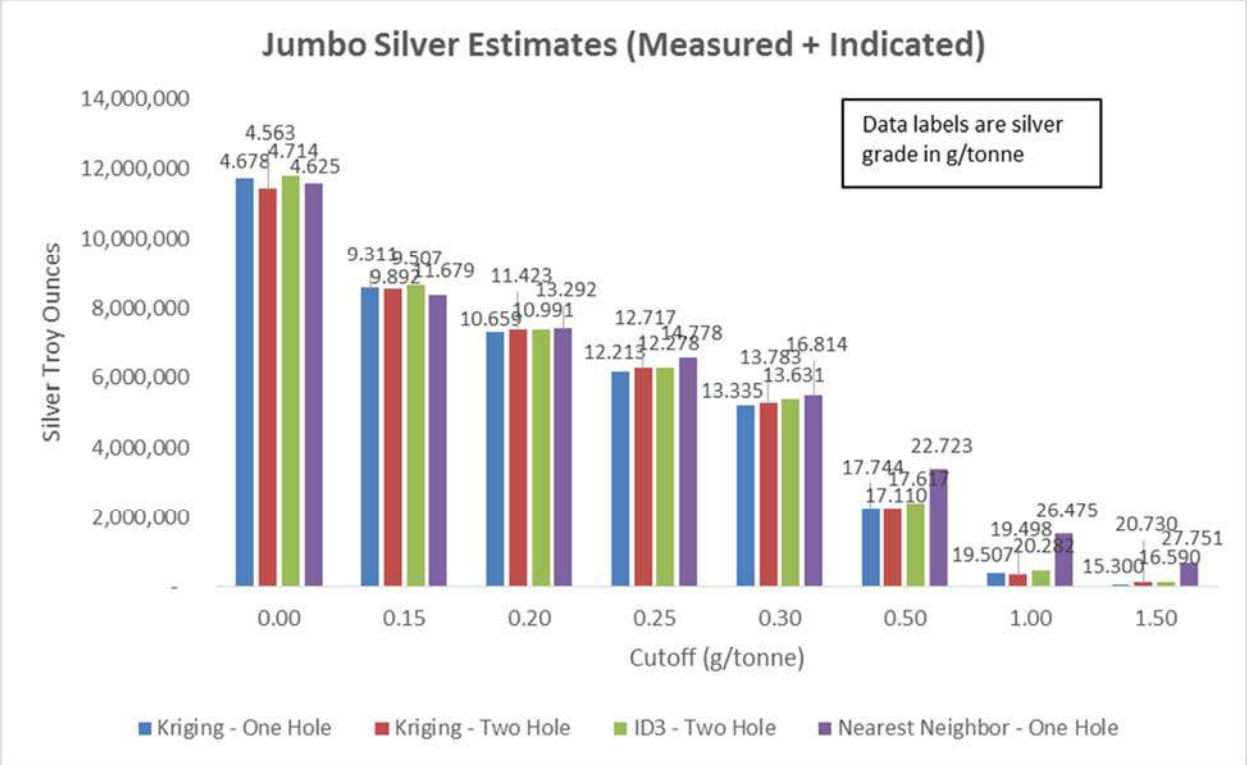


Figure 14-31 Jumbo Silver Estimate Comparison



A scatter plot of individual block grades to the average distance to composite values utilized in the block estimate was created to confirm that large portions of the block model were not being populated by high

grade composite values far away from composite data. Figure 14-32 and Figure 14-33 contain scatter plots of the individual block gold grades versus the average distance to the composite samples for Grey Eagle and Jumbo, respectively. As shown in the plots, there is no spike in the block grades as distances to the composites near 100 meters for either deposit, demonstrating that the spread of higher grade samples is well controlled. The vast majority of blocks (88%) were estimated from the maximum number of composites, representing 46 million tonnes containing 602,000 ounces of Au (0.41 g/t) at a 0.20 g/t cutoff. Only 134,000 tonnes containing 1,350 ounces of Au (0.31 g/t) at a 0.20 g/t cutoff was estimated at an average distance of more than 75 meters and with the minimum number of composites (2).

Figure 14-32 Grey Eagle Gold Grade vs. Distance Scatter Plot

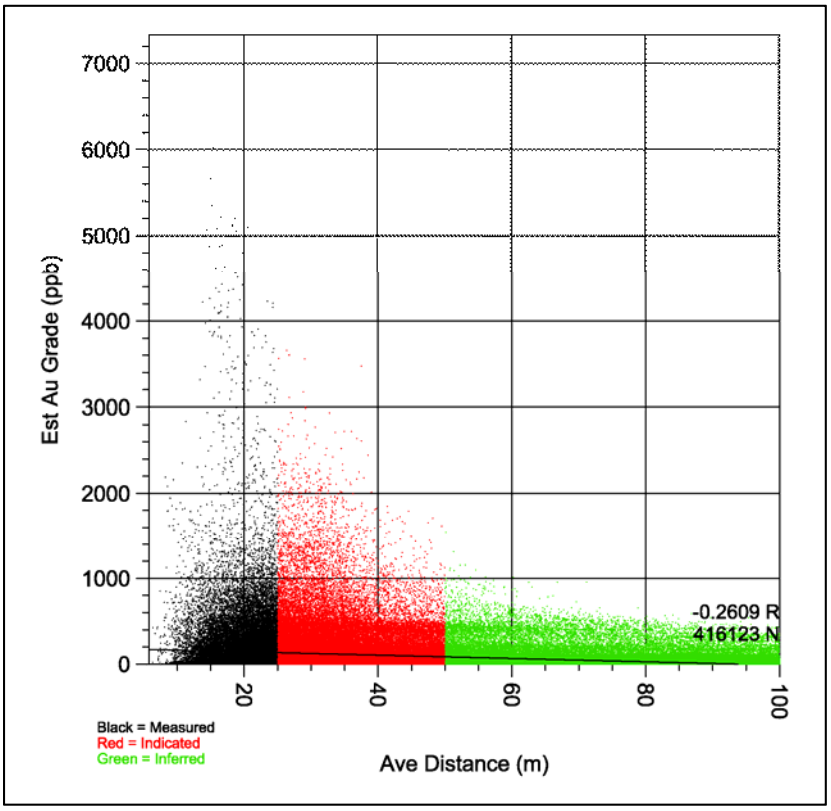
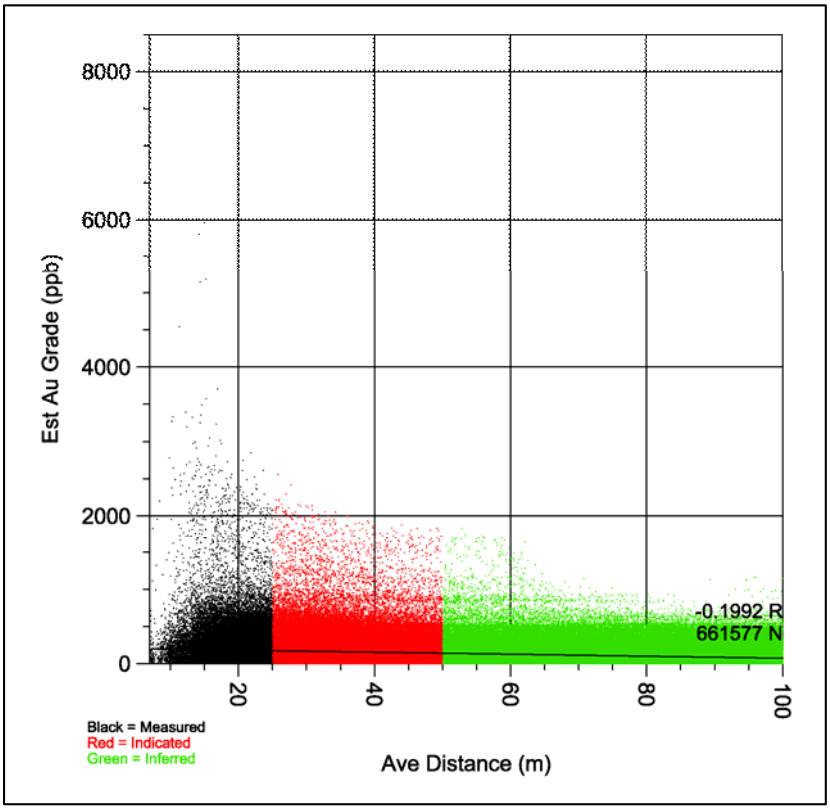


Figure 14-33 Jumbo Gold Grade vs. Distance Scatter Plot



14.9 Dilution

GRE believes the inverse distance cubed resource estimate is adequately diluted, reflecting grades that could be obtained by bulk tonnage open pit mining methods.

14.10 Cutoff Grade

GRE calculated the cutoff grade as follows:

Typical open pit heap leach operating costs:

Mining	$1.50/tonne
Process	$3.00/tonne
G&A	$0.50/tonne
Total	$5.00/tonne

With 72% recovery, the cost is $66.94/tonne contained, and with a metal price of $1,200/oz, the calculated cutoff grade is: $\frac{\$6.94/\text{tonne}}{\$1{,}200/\text{oz}} = 0.00578 \frac{\text{oz}}{\text{tonne}} \text{x} 31.104 \frac{\text{g}}{\text{oz}} = 0.18 \frac{\text{g}}{\text{tonne}}$

GRE rounded the calculated cutoff grade to the nearest 0.05 g/tonne, resulting in a final cutoff grade of 0.20 g/tonne. The cutoff grade is shown in boldface in Table 14-8 through Table 14-10.

14.11 Mineral Resource Classification

GRE believes that the drilling has created enough sample support and that the models show enough continuity of mineralization to warrant the classification of a Measured, Indicated, and Inferred resource according to the definition adopted by the CIM, December 17, 2010, as amended May 10, 2014. Measured

resources occur within 25 meters of a drill hole, which is less than half of the variogram range, indicated resources occur between 25 and 50 meters of a drill hole, and inferred resources occur between 50 and 100 meters of a drill hole.

14.12 Mine Modeling

GRE performed floating cone pit optimization as a precursor to mine scheduling, cost estimation, and economic modeling. Using the block models developed for resource estimation, GRE set up the Techbase OPCONE floating cone miner to calculate the maximum extent of open pit mining that would be potentially mineable at various gold prices. Mining and processing costs were fixed at $1.50/tonne for mining, $3.00/tonne for processing, and $0.50/tonne for General and Administrative (G&A). A 45-degree pit slope angle was specified to accommodate haul roads; the pits were not designed with haul roads. Gold recovery was set at 75%, and silver recovery was set at 25% for Grey Eagle and 45% for Jumbo.

The floating cone miner determined the potential economics of mining each mineralized block within the block model, mining the potentially mineable blocks and continuing to enlarge the pit until no potentially mineable blocks remained. The model evaluates the economics of mining a block by considering several factors, including:

- The amount of waste rock that would have to be mined within the cone above the block in order to mine the mineralized block.
- The value of the gold and silver within the mineralized block. The value is based on the amount of the mineral present in the block times the price of the mineral times process recovery for the mineral.
- The net revenue generated by a block, which is calculated as either the mining cost or the block revenue minus the cost to mine and process the block, whichever is greater. G&A is included in the cost to mine and process the block. An incremental cutoff (i.e., a determination of leachable material vs. waste, not including the mining cost) once rock has been mined was not used.

Separate mine model runs were completed for four sets of gold and silver prices: 1) $800/oz Au and $14/oz Ag; 2) $1,000/oz Au and $17.50/oz Ag; 3) $1,200/oz Au and $21/oz Ag; and 4) $1,500/oz Au and $26/oz Ag. Each model run generated a set of pits, one for Grey Eagle and one for Jumbo. The pit sets were numbered 1 through 4, corresponding to the gold and silver price definitions above, with pit set 1 being the smallest and pit set 4 being the largest. The quantities of leachable material, waste rock, gold, and silver mined were reported out of the model for each set of pits, and drawings of the pit contours were generated and overlain on the current ground topography. The pit contour maps are presented in Figure 14-34 and Figure 14-35. In addition, cross-sections of the deposits showing the pit shell outlines along with AuEq block model grades were generated. Samples of these for each of the deposits are presented in Figure 14-36 and Figure 14-37.

Resource within the modeled floating cone pits are summarized in Table 14-11, with estimates shown for various cutoff grades. All results are based on the inverse distance cubed resource estimate. In general, increasing the cutoff grade decreases the tonnage reported and improves the mineral grade.

Figure 14-34 Grey Eagle Floating Cone Pits

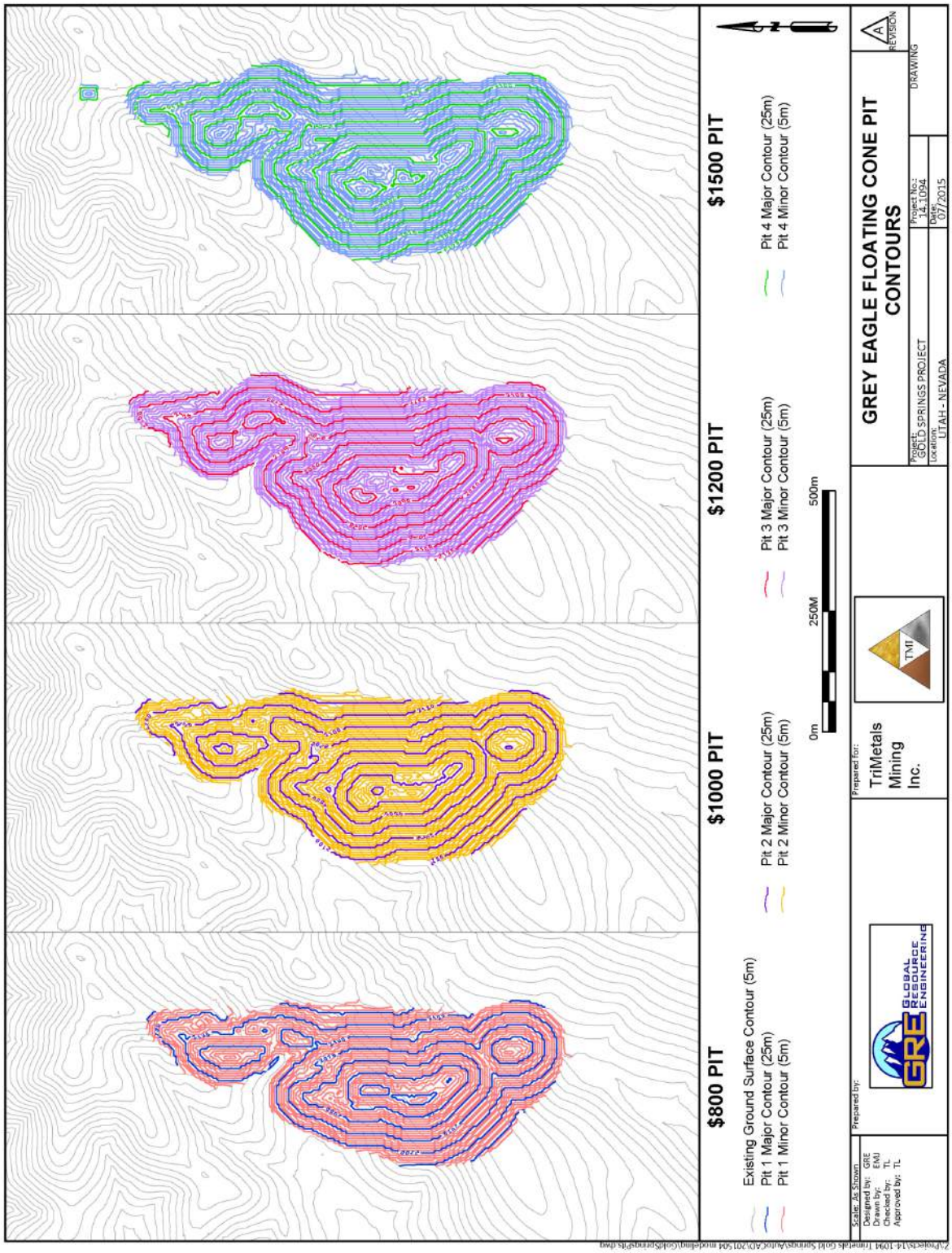


Figure 14-35 Jumbo Floating Cone Pits

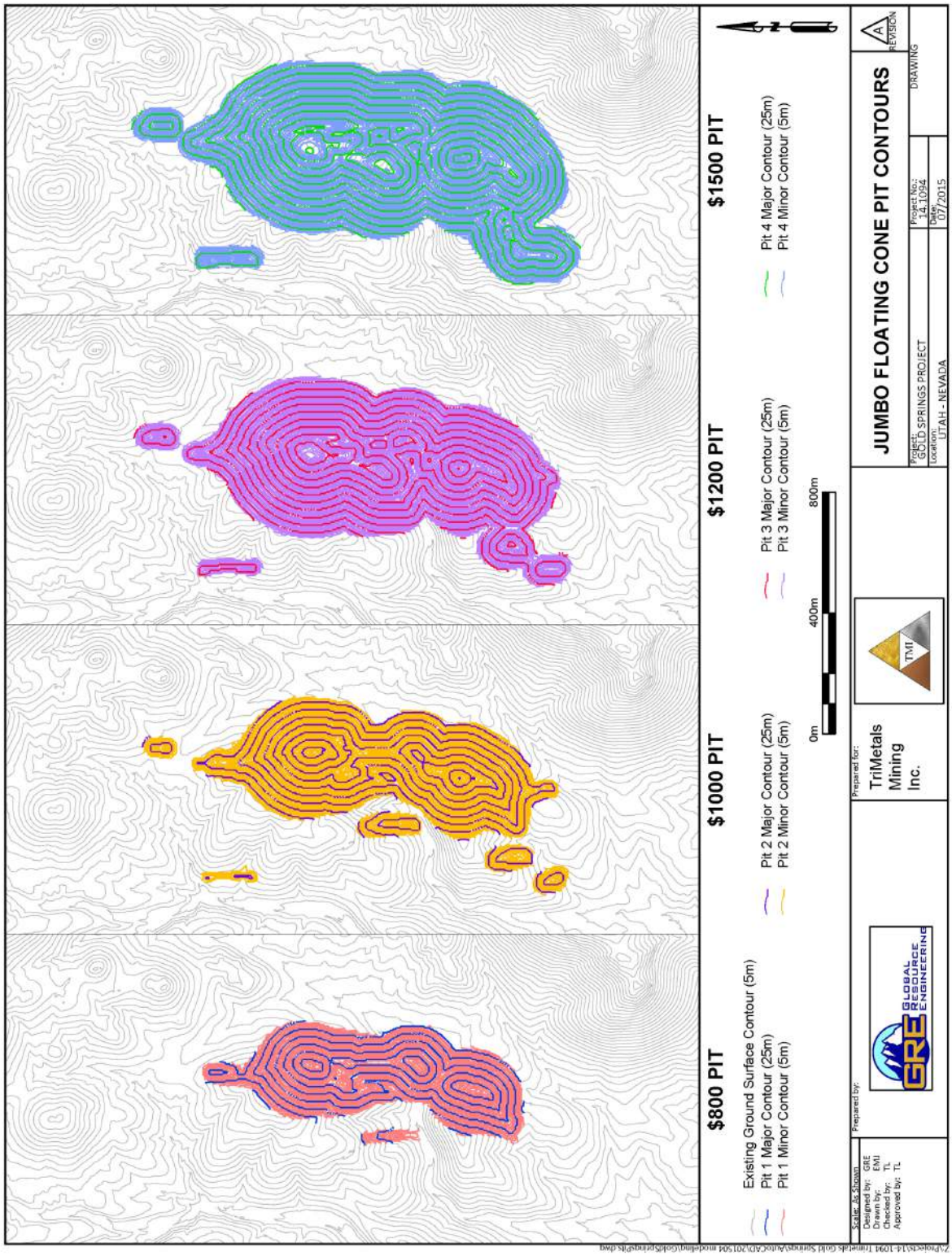


Figure 14-36: Grey Eagle Floating Cone Pit-Shell Cross-Section 11

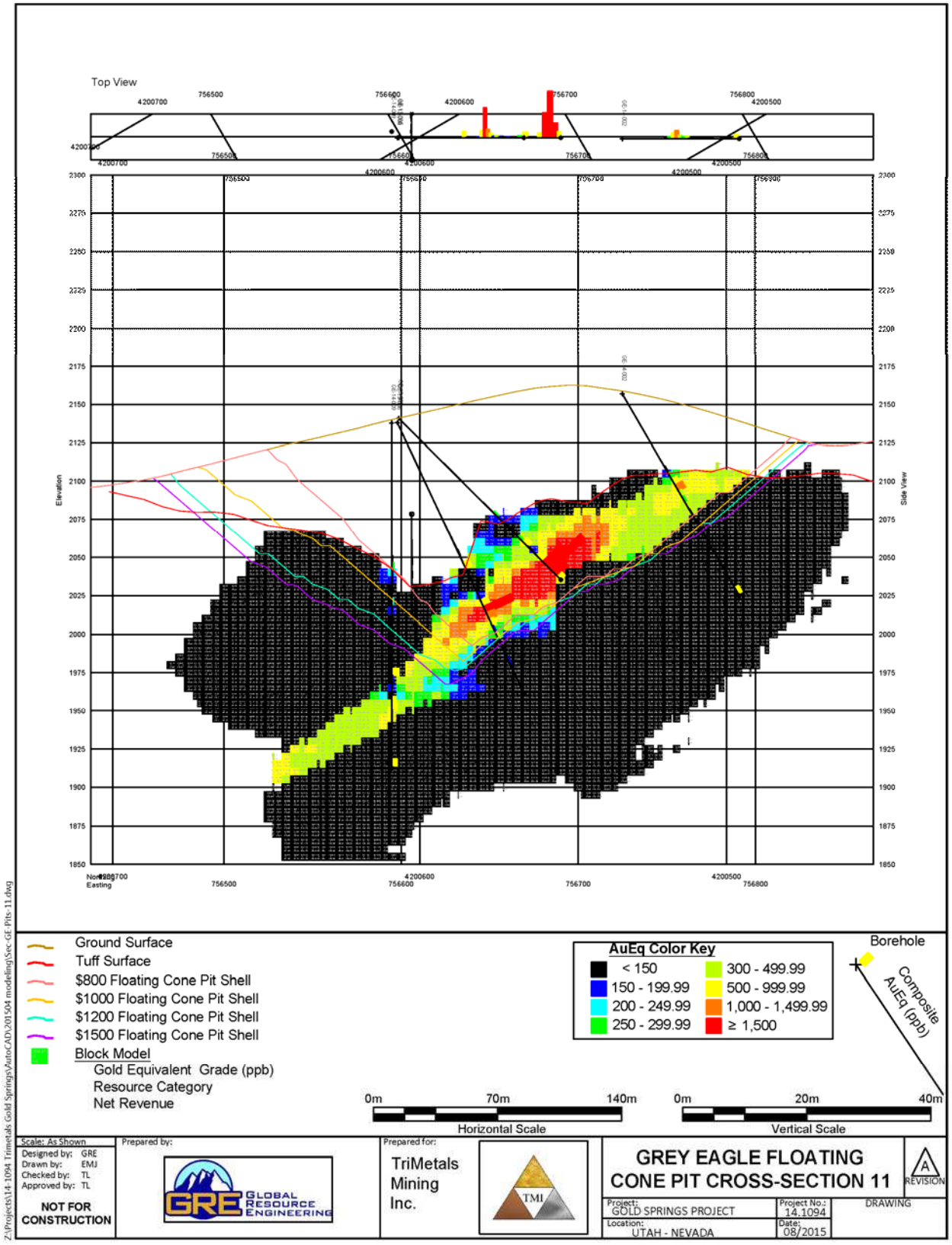


Figure 14-37: Jumbo Floating Cone Pit Shell Cross-Section 13

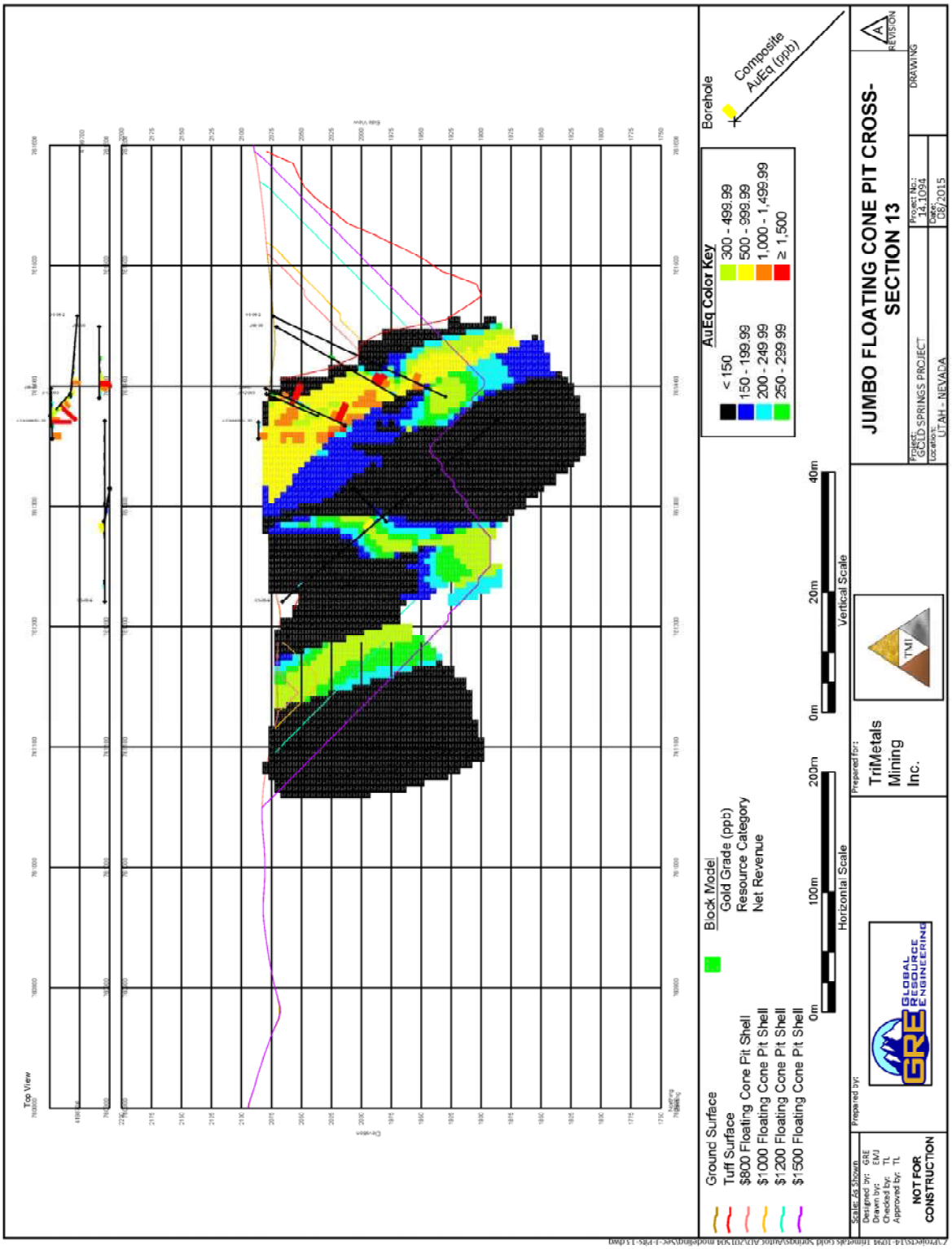


Table 14-11: Resources Within Each Floating Cone Pit

Cutoff (g/t)	Total Tonnes above Cutoff (x 1000)	Total Ounces Gold above Cutoff	Gold Grade (g/t)	Total Ounces Silver above Cutoff	Silver Grade (g/t)	Gold Equivalent Ounces above Cutoff	Gold Equivalent Grade (g/t)
$800 Pit							
Jumbo							
Measured Plus Indicated							
0.15	13,355	187,352	0.436	5,393,322	12.56	281,740	0.656
0.20	11,808	178,632	0.471	5,093,916	13.42	267,780	0.705
0.25	10,094	166,251	0.512	4,679,654	14.42	248,149	0.765
0.30	8,477	151,963	0.558	4,202,084	15.42	225,503	0.827
Inferred							
0.15	2,072	25,319	0.380	685,749	10.29	37,320	0.560
0.20	1,712	23,314	0.424	620,684	11.28	34,176	0.621
0.25	1,469	21,557	0.457	569,774	12.07	31,529	0.668
0.30	1,208	19,249	0.495	509,377	13.11	28,164	0.725
Grey Eagle							
Measured Plus Indicated							
0.15	7,137	132,786	0.579	1,609,629	7.01	160,956	0.701
0.20	6,635	129,947	0.609	1,553,965	7.29	157,143	0.737
0.25	6,025	125,528	0.648	1,468,004	7.58	151,219	0.781
0.30	5,373	119,766	0.693	1,361,050	7.88	143,585	0.831
Inferred							
0.15	638	8,602	0.419	129,799	6.33	10,874	0.530
0.20	585	8,298	0.441	125,024	6.64	10,486	0.557
0.25	543	7,989	0.458	119,676	6.86	10,084	0.578
0.30	492	7,542	0.476	111,719	7.06	9,497	0.600
$1000 Pit							
Jumbo							
Measured Plus Indicated							
0.15	19,043	241,067	0.394	6,864,269	11.21	361,197	0.590
0.20	15,524	221,214	0.443	6,177,349	12.38	329,323	0.660
0.25	12,844	201,912	0.489	5,534,437	13.40	298,770	0.724
0.30	10,463	180,874	0.538	4,856,013	14.44	265,859	0.790
Inferred							
0.15	4,441	46,454	0.325	1,191,620	8.35	67,308	0.471
0.20	3,154	39,333	0.388	980,732	9.67	56,496	0.557
0.25	2,530	34,844	0.428	851,704	10.47	49,749	0.612
0.30	1,852	28,956	0.486	701,464	11.78	41,232	0.693
Grey Eagle							
Measured Plus Indicated							
0.15	8,287	144,287	0.542	1,792,060	6.73	175,650	0.659
0.20	7,472	139,679	0.581	1,696,342	7.06	169,366	0.705
0.25	6,592	133,333	0.629	1,572,671	7.42	160,856	0.759
0.30	5,800	126,346	0.678	1,443,681	7.74	151,612	0.813
Inferred							
0.15	858	11,083	0.402	168,132	6.09	14,025	0.508
0.20	788	10,678	0.422	161,182	6.36	13,498	0.533
0.25	717	10,162	0.441	151,359	6.57	12,811	0.556
0.30	638	9,461	0.461	138,649	6.76	11,887	0.580

Cutoff (g/t)	Total Tonnes above Cutoff (x 1000)	Total Ounces Gold above Cutoff	Gold Grade (g/t)	Total Ounces Silver above Cutoff	Silver Grade (g/t)	Gold Equivalent Ounces above Cutoff	Gold Equivalent Grade (g/t)
$1200 Pit							
Jumbo							
Measured Plus Indicated							
0.15	24,918	288,670	0.360	8,120,411	10.14	430,785	0.538
0.20	19,151	256,291	0.416	7,028,465	11.41	379,295	0.616
0.25	14,952	226,132	0.470	6,060,089	12.61	332,189	0.691
0.30	11,891	199,124	0.521	5,225,307	13.67	290,572	0.760
Inferred							
0.15	12,654	123,956	0.305	2,927,428	7.20	175,188	0.431
0.20	9,031	103,561	0.357	2,339,915	8.06	144,512	0.498
0.25	6,482	85,355	0.410	1,924,354	9.23	119,033	0.571
0.30	4,949	72,014	0.453	1,617,712	10.17	100,325	0.630
Grey Eagle							
Measured Plus Indicated							
0.15	9,148	153,424	0.522	1,904,683	6.48	186,758	0.635
0.20	8,046	147,228	0.569	1,775,243	6.86	178,297	0.689
0.25	7,025	139,869	0.619	1,634,747	7.24	168,478	0.746
0.30	6,155	132,191	0.668	1,494,768	7.55	158,351	0.800
Indicated							
0.15	1,001	12,424	0.386	190,656	5.93	15,761	0.490
0.20	895	11,821	0.411	179,533	6.24	14,963	0.520
0.25	792	11,074	0.435	164,736	6.47	13,957	0.548
0.30	688	10,151	0.459	148,004	6.69	12,742	0.576
$1500 Pit							
Jumbo							
Measured Plus Indicated							
0.15	25,721	294,353	0.356	8,287,534	10.02	439,392	0.531
0.20	19,556	259,776	0.413	7,131,549	11.34	384,584	0.612
0.25	15,094	227,764	0.469	6,106,334	12.58	334,630	0.690
0.30	11,980	200,296	0.520	5,260,079	13.66	292,352	0.759
Inferred							
0.15	18,182	169,847	0.291	4,016,384	6.87	240,137	0.411
0.20	12,348	136,839	0.345	3,091,023	7.79	190,935	0.481
0.25	8,425	108,819	0.402	2,371,978	8.76	150,331	0.555
0.30	6,407	91,273	0.443	1,986,108	9.64	126,032	0.612
Grey Eagle							
Measured Plus Indicated							
0.15	9,500	156,872	0.514	1,944,785	6.37	190,907	0.625
0.20	8,255	149,888	0.565	1,800,759	6.78	181,403	0.683
0.25	7,175	142,107	0.616	1,653,605	7.17	171,047	0.741
0.30	6,279	134,195	0.665	1,510,741	7.48	160,634	0.796
Inferred							
0.15	1,161	13,913	0.373	214,950	5.76	17,675	0.474
0.20	1,013	13,079	0.402	199,245	6.12	16,566	0.509
0.25	875	12,076	0.429	179,059	6.37	15,209	0.541
0.30	747	10,945	0.456	158,314	6.60	13,715	0.571

g/t – grams per tonne Note: due to rounding, some values may not add correctly

15.0 MINERAL RESERVE ESTIMATES

"Mineral reserves" differ from "Mineral Resources" in that Mineral Reserves are known to be economically feasible for extraction. The CIM Definition Standards require the completion of a Preliminary Feasibility Study (PFS) as the minimum prerequisite for the conversion of Mineral Resources to Mineral Reserves. At this time, a PFS has not been completed for the Gold Springs project. Therefore, reserve estimates have not been made.

16.0 MINING METHODS

The Gold Springs deposit is a near surface epithermal gold system most suitable for open pit mining and heap leach gold recovery. GRE has used that approach for economic analysis.

The resources were reported by bench showing tonnes of leachable material, waste, and tuff and ounces of gold and silver. Codes distinguishing measured, indicated, and inferred resources were not used for this study (i.e., all leachable material, whether measured, indicated, or inferred, was treated equally for the purposes of this PEA).

Codes identifying the average grade of the leachable material on a bench were set up to allow GRE to easily and quickly view the effects of changing the cutoff grade on the project schedule and economics. GRE examined the project at four cutoff grades: 0.15 g/t, 0.20 g/t, 0.25 g/t, and 0.30 g/t.

GRE's economic model for the mine looked at all four pits at each of the four cutoff grades and using either owner operation or contractor operation (a total of 32 cases) to optimize the mine planning and design. Based on the economic analysis of all 32 cases, GRE selected the $1200 pit at a cutoff grade of 0.15 g/t with contractor operation. All further references to "the pit" or the "base case" in this document are referring to the $1200 pit at a cutoff grade of 0.15 g/t with contractor operation.

16.1 Mine Scheduling

A preliminary mining schedule was generated from the base case pit resource estimate. GRE used the following assumptions to generate the schedule:

- Leachable Material Production Rate: 15,000 tonnes per day (tpd)
- Mine Operating Days per Week: 7
- Mine Operating Weeks per Year: 52
- Mine Operating Shifts per Day: 2
- Mine Operating Hours per Shift: 10

The schedule was broken out into Phase 1 and Phase 2, where Phase 1 included all material within the $800 pit (the smallest pit), and Phase 2 included remaining material, approximating a phased pit design. Additional design work will likely better balance the annual leach and waste stripping and metal production.

Pre-stripping of waste and/or tuff was included if either of the following criteria were true: 1) waste or tuff occurred on a bench that had no corresponding leachable material or 2a) for phase 1, the tonnage of waste or tuff on a bench exceeded nine times the tonnage of leachable material on that bench 2b) for

phase 2, the tonnage of waste or tuff on a bench exceeded six times the tonnage of leachable material on that bench. The production rate for Phase 1 pre-strip benches was set to two times the leach material production rate, or 30,000 tpd, and the production rate for Phase 2 pre-strip benches was set to 2.25 times the leach material production rate, or 33,750 tpd.

For all other benches, all waste and tuff on a bench were scheduled to be mined over the same duration as the leach material on that bench (i.e., if the leach material mining duration on a bench was 10 days, all waste and tuff on that bench, regardless of quantity, were also mined during those same 10 days). This scheduling method resulted in some years with high waste and/or tuff quantities relative to the leach material quantity mined. GRE used pre-stripping and phasing, as described above, as much as possible to smooth out the production, but the limitations of the scheduling program resulted in some inefficiencies.

The mining schedule is summarized below in Table 16-1. Jumbo was mined first, followed immediately by Grey Eagle. Mining Jumbo first optimized the project economics because it is large enough to be mined in phases, increasing early year cash flow with a higher grade initially mined first. The tuff tonnes listed in Table 16-1 are those handled by the rippers and scrapers. The non-rippable tuff is included with the waste quantities. Pre-stripping of waste in Phase 2 resulted in some Phase 2 leach being mined concurrent with Phase 1.

Table 16-1: Mine Schedule Summary

	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Jumbo											
Phase 1 Leach Tonnes	-	5,460	5,460	4,594	-	-	-	-	-	-	15,514
Phase 2 Leach Tonnes	-	656	686	3,320	5,460	5,306	-	-	-	-	15,428
Phase 1 Waste Tonnes	-	7,250	5,408	2,180	-	-	-	-	-	-	14,838
Phase 2 Waste Tonnes	-	-	4,673	15,764	19,719	8,366	3,136	743	-	-	52,401
Phase 1 Tuff Tonnes	-	258	3,111	1,077	-	-	-	-	-	-	4,446
Phase 2 Tuff Tonnes	-	-	-	1,901	3,255	1,071	44	-	-	-	6,271
Phase 1 Au Ounces	-	62	71	80	-	-	-	-	-	-	213
Phase 2 Au Ounces	-	-	3	16	40	50	55	45	-	-	209
Phase 1 Ag Ounces	-	1,926	2,077	2,089	-	-	-	-	-	-	6,092
Phase 2 Ag Ounces	-	-	46	341	1,038	1,339	1,371	1,013	-	-	5,148
Grey Eagle											
Phase 1Leach Tonnes	-	-	-	-	-	-	-	1,254	5,460	1,077	7,791
Phase 2 Leach Tonnes	-	-	-	-	-	-	-	-	128	2,260	2,388
Phase 1 Waste Tonnes	-	-	-	-	-	-	-	1,455	2,331	312	4,098
Phase 2 Waste Tonnes	-	-	-	-	-	-	-	-	-	3,613	3,613
Phase 1 Tuff Tonnes	-	-	-	-	-	-	-	4,711	5,485	55	10,251
Phase 2 Tuff Tonnes	-	-	-	-	-	-	-	-	283	1,946	2,229
Phase 1 Au Ounces	-	-	-	-	-	-	-	19	100	22	141
Phase 2 Au Ounces	-	-	-	-	-	-	-	-	1	24	25
Phase 1 Ag Ounces	-	-	-	-	-	-	-	285	1,190	265	1,740
Phase 2 Ag Ounces	-	-	-	-	-	-	-	-	19	338	357

All numbers are x1000 Au – gold Ag – silver g/t – grams per tonne

16.2 Mine Operation and Layout

The Grey Eagle and Jumbo areas each have a site for crushing, a dedicated leach pad, a Merrill-Crowe plant site, and a waste dump. The leach material and waste will be drilled and blasted using a rotary crawl driller and ammonium nitrate fuel oil (ANFO) and transported in dump trucks. The tuff at Grey Eagle and in the southern portion of Jumbo will be ripped with a dozer and then transported with scrapers to the waste dump. The tuff in the northern portion of Jumbo will be drilled and blasted along with the leach material and waste.

Initially, leachable material from Jumbo will be trucked from the Jumbo pit to the crushing site near Jumbo, while Jumbo waste rock and tuff will be trucked to the Jumbo waste dump. After size reduction, Jumbo leachable material will be transported to the Jumbo leach pad by conveyor, where it will undergo cyanide leaching, followed by gold recovery by the Merrill-Crowe process. When mining at the Jumbo pit is complete and crushing of Jumbo leachable material are complete, the skid- mounted crushing equipment will be moved and set up at Grey Eagle. Leachable material from Grey Eagle will be put under leach while the last Jumbo leaching is completed. This will prevent a shortfall in metal production. Once the last Jumbo leach is completed (about 2-3 months after mining ends) and the gold and silver are recovered, the skid-mounted Merrill-Crowe plant and precipitate filter will be moved to Grey Eagle, where the leaching and recovery of gold and silver from Grey Eagle will proceed. The office, warehouse, and furnace facility used for final casting of ingots and buttons will be constructed at Jumbo and will remain at Jumbo after the other facilities are relocated to Grey Eagle. Precipitate from the Merrill-Crowe plant at Grey Eagle will be transported to Jumbo for smelting and refining.

GRE developed conceptual layouts for the deposit areas, including waste dump locations and sizes, leach pad locations and sizes, pond locations and sizes, processing facility locations, access road routes, and overhead power line routes. Figure 16-1 illustrates the conceptual Gold Springs project layout with pits, pads, and dumps.

16.3 Mine Equipment Productivity

GRE estimated cycle times determining the equipment size and numbers of trucks and loaders that would be required to meet the project schedule. A simplified approach to cycle calculations was used; it considered productivity variables such as average daily production of leachable material and waste, average truck haul distance and travel speed, hours per shift and shifts per day, availability variables such as breaks during the day, and truck and loader/shovel capacities. Hourly production rates and truck and loader wait times were calculated in order to optimize the design. The haul truck and loader productivity calculations are summarized in Table 16-2.

A similar cycle time formulation was prepared for the scrapers for the rippable tuff to determine the number of scrapers needed to meet the project schedule. The results of the scraper productivity calculations are summarized in Table 16-3.

Table 16-2: Summary of Gold Springs Haul Truck and Loader Productivity Calculations

		Value
Truck Haul Distance	Meters	1,975
Truck Haul Time Loaded	Minutes	6.2
Truck Haul Time Empty	Minutes	2.4
Tonnes	Tonnes per Day	37,887
No. of Shifts		2
Equipment Availability		95.00%
Effective work minutes / hour		57
Basic Shift Time	Hours	10
Effective Shift Time	Hours	9.50
Total Time Available	Hours	8.00
Cat Loader Model		994K
Loader Bucket Capacity	Cubic Meters	21.8
Loader Bucket Fill Factor		0.95
Net Loader Bucket Capacity	Cubic Meters	20.71
Cat Truck Model		789D
Truck Capacity - Heaped	LCM	108.0
Truck Maximum Load	Tonnes	190
Truck Maximum Capacity	Cubic Meters	106.0
Buckets/ Truck	Buckets	5.00
Fill Amount	Cubic Meters	103.55
Underfill	Cubic Meters	2.4
No. of Trucks	Trucks	4
Truck Load	Tonnes	185.65
Load Time/ Truck	Minutes	3.33
Loader Wait for Spot	Minutes	0.25
Truck Cycle/ Load Cycle		4.25
Truck Wait/ Truck Cycle	Minutes/Truck Cycle	0.00
Loader Wait Time	Minutes/Loaded Truck	0.22
Average Truck Cycle with Wait	Minutes	15.22
Effective Production	Tonnes/hour	2,900
Effective Production	Tonnes/day	46,800
Required hours	Hours/day	12.94
Available hours	Hours/day	16.00
Required Fleet		1

Figure 16-1 Gold Springs Conceptual Site Layout

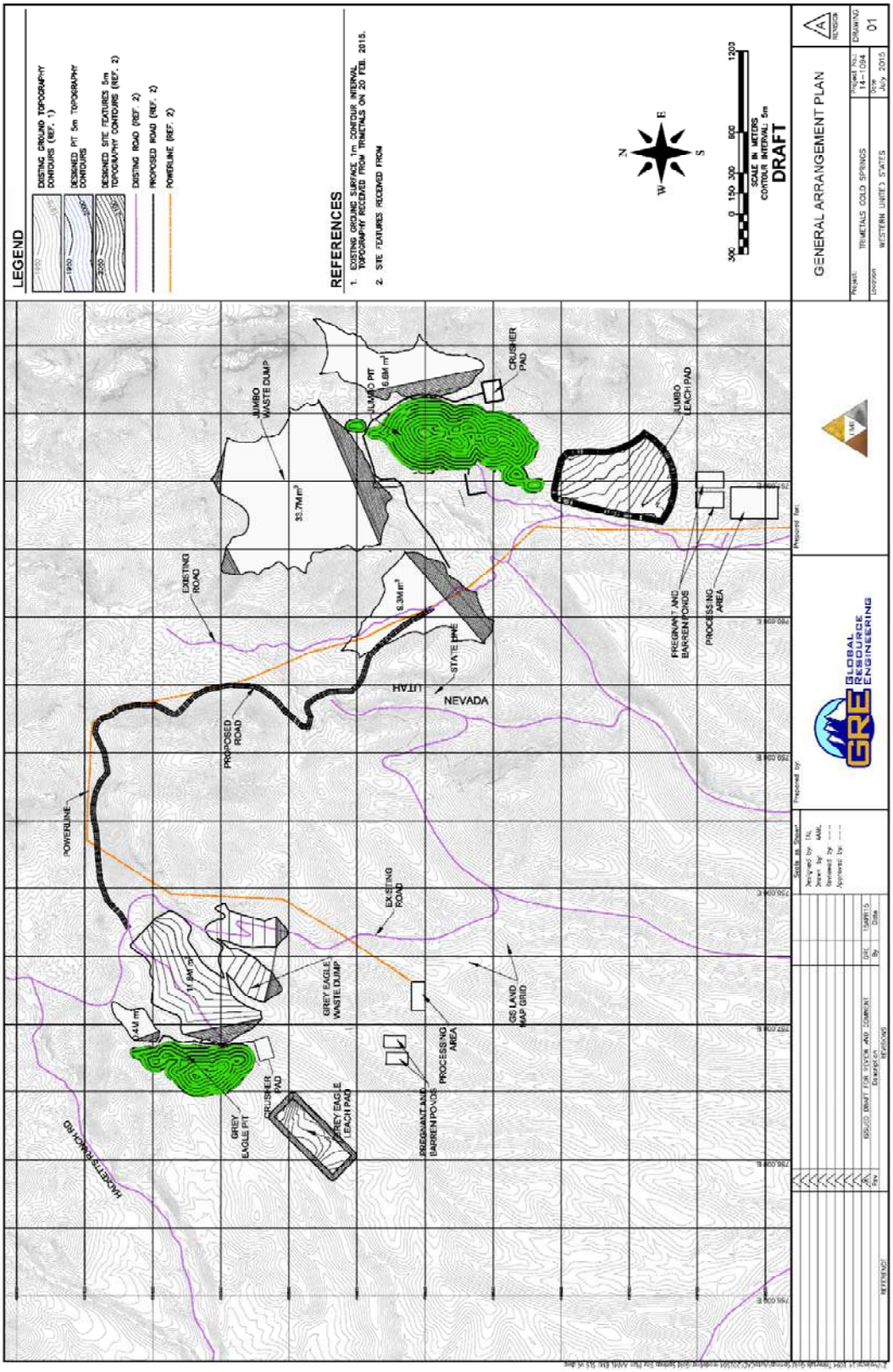


Table 16-3: Summary of Gold Springs Scraper Productivity Calculations

		Value
Scraper Haul Distance	Meters	979
Scraper Haul Time Loaded	Minutes	3.1
Scraper Haul Time Empty	Minutes	1.2
Tonnes	Tonnes per Day	7,083
No. of Shifts		2
Equipment Availability		95.00%
Effective work minutes / hour		57
Basic Shift Time	Hours	10
Effective Shift Time	Hours	9.50
Cat Scraper Model		657G
Scraper Capacity - Heaped	LCM	33.4
Scraper Maximum Load	Tonnes	37.013
Scraper Maximum Capacity	Cubic Meters	32.0
No. of Scrapers	Scrapers	2
Scraper Load	Tonnes	31.99
Scraper Cycle	Minutes	6.28
Effective Production	Tonnes/hr	600
Effective Production	Tonnes/day	9,800
Required hours	Hours/day	11.58
Available hours	Hours/day	16.00
Required Fleet		1

17.0 RECOVERY METHODS

17.1 Crushing Plant

The leachable material mined at Gold Springs will be crushed in two or three stages to produce a product of 25 mm or alternatively 9.5 mm. The crusher circuit will initially be used to produce a 25-mm product for Jumbo. During the mining of Grey Eagle, a small secondary crush stockpile will be added as well as tertiary crushers, and associated screening, to produce a 9.5-mm product. The appropriate capital and operating costs have been included in the capital and operating cost section. The crushing circuit has been sized for a nominal production rate of 750 metric tonnes per hour, equivalent to 15,000 metric tonnes per day.

A rock box capable of holding 136 tonnes will discharge to a grizzly feeder followed by a 0.96-meter x 1.57-meter jaw crusher. The grizzly feeder will scalp the undersize material prior to primary crushing. A hydraulic rock breaker is provided to break any oversize that might be present.

Secondary crushing will be completed with two 373 kilowatt (kW) cone crushers, which will reduce the material to a nominal 25 millimeters. Prior to secondary crushing, material 25 millimeters or less will be removed using a 2.1-meter x 6-meter screen. The screened material will go directly to the leach pad during the mining of the Jumbo pit.

During the mining of the Grey Eagle pit, material from the secondary crusher will feed to a small stockpile with subsequent feed to a tertiary screen where material 9.5 mm or smaller will be scalped and the oversize will be fed to two 373-kW cone crushers for further reduction. The tertiary cone crushers will be operated in open circuit. Tertiary crushing will produce a final product of 9.5 mm.

The crushed material will be transported by a series of “jump” conveyors from the crushers to the heap leach pads, where it will be stacked into a "heap" on an impermeable liner and irrigated with an alkaline sodium cyanide solution to dissolve the gold and silver. If agglomeration is indicated, by future test work, the jump conveyors and multiple drop points can be effective. The leachate (pregnant solution) will be collected as it percolates out from the base of the heap and will be piped into the pregnant solution pond. Pregnant solution will be treated within the Merrill-Crowe plant.

17.2 Merrill-Crowe Plant

GRE has included a Merrill-Crowe plant for recovery of gold and silver from the pregnant solution. An Adsorption-Desorption Refining (ADR) plant may be preferred with low solution metal concentrations. Capital costs are nearly identical for the two.

The first step within the Merrill-Crowe plant will be clarification to remove the suspended solids from gold/silver cyanide solution. Suspended solids not only blind the zinc dust cake and filter media within the precipitation filter presses but can slow down zinc precipitation through passivation on the metallic zinc surface. To remove the suspended solids from solution, the clarification filter utilizes a pressure leaf filter coated with diatomaceous earth. The highly porous diatomaceous earth filters the suspended solids from the solution. The suspended solids concentration after clarification will typically be less than 5 ppm. Cleaning the clarifiers will be done after the clarifier is taken off line from the process solution stream. The clarifier will be washed by manually opening and closing the appropriate valves. The diatomaceous earth and removed solids will be discharge to a pond for this purpose.

After passing through the clarifiers, the solution will be fed to the de-aeration tower, where a negative pressure generated by a vacuum pump removes dissolved oxygen from the solution. Presence of dissolved oxygen slows down the reaction with the metallic zinc and also increases precious metals content in the barren solution due to re-dissolution of precious metals. The dissolved oxygen concentration of the de-aeration tower is targeted for less than 1 ppm.

Zinc will be used to precipitate the gold and silver from the cyanide solution. Zinc is less noble than gold and silver and gives up its electron to these metals along with copper and other metals. By zinc giving up this electron, it brings gold and silver to their native states. Once this happens, the zinc corrodes and dissolves in the cyanide solution. Zinc will be fed to the solution after de-aeration to prevent oxidation and passivation of the zinc surface. Zinc will be fed at a specific rate into solution to precipitate the desired metals. Lead nitrate can also be added at a rate of approximately 10% of the zinc rate. The lead increases the zinc reactivity and inhibits the formation of zinc hydroxide on the zinc surface. Typically zinc is added in excess of the stoichiometric quantity depending upon the solution grade. Lower grade solutions require a higher proportion of zinc addition.

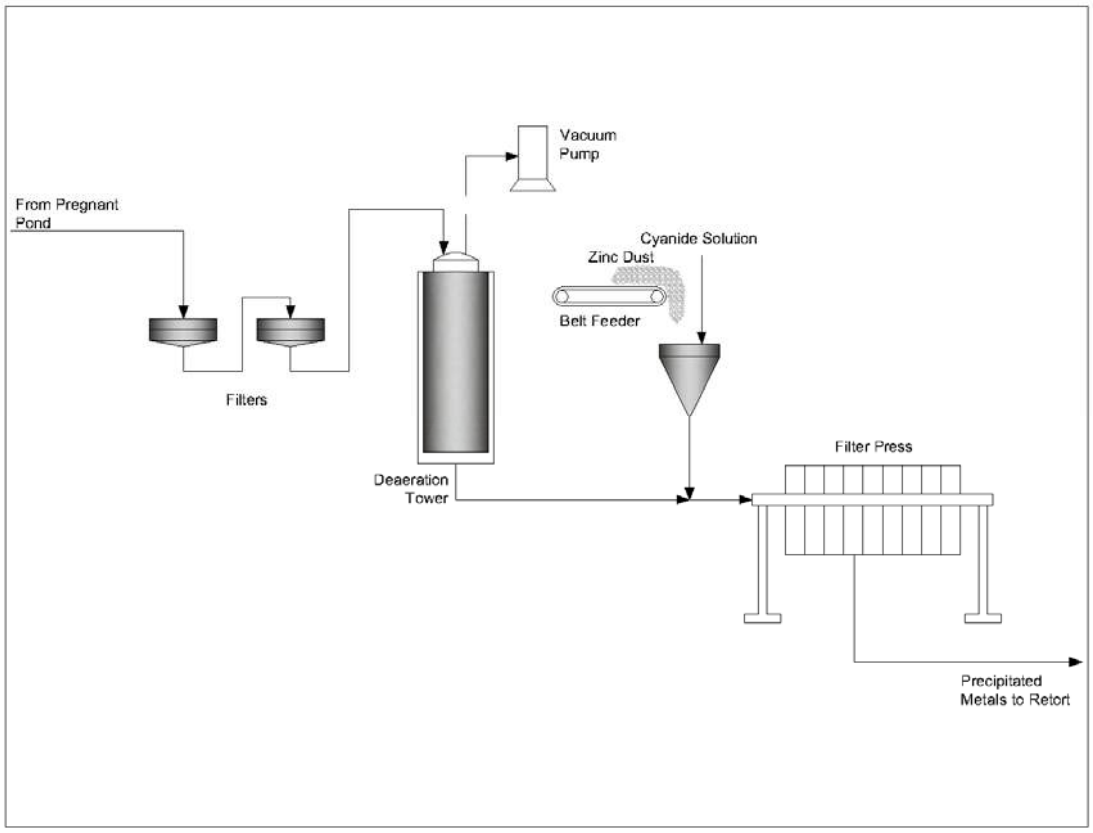
Gold and silver precipitates will be collected within a recessed plate “precipitate filter press.” The discharge solution from the filter press is a barren solution. The precipitate filters will be emptied on a weekly basis. Prior to opening, the filter will be purged with low pressure compressed air to remove the

excess solution and partially dry the filter cake precipitate. The precipitate will be collected from the press and dried prior to refining.

Refining is a multistep process. The cake will first be dried, followed by retorting to remove any contained mercury. After completion of retorting, the cake will be mixed with appropriate fluxes and smelted in an electric melting furnace. Dore´ (a mixture of gold and silver) will be stored in a vault until shipment to a third party refinery.

A schematic of a Merrill-Crowe system is provided in Figure 17-1.

Figure 17-1: Merrill-Crowe System Schematic



18.0 PROJECT INFRASTRUCTURE

Currently, the project site has no electricity, one small water well, and low-quality gravel access roads. The project will require a power line along the old Jeannie Mill power line right-of-way in Rose Valley approximately 10 miles from the site, additional upgrades to the access roads, and at least one additional water well. TMI has identified available water within the project area, and has applied for rights to use that water.

As discussed above, GRE developed conceptual layouts for the deposit areas, including waste dump locations and sizes, leach pad locations and sizes, pond locations and sizes, processing facility locations, access road routes, and overhead power line routes. An office, dry, warehouse, truck shop, guard house, substation, and fuel tank are included in the estimate. A general site layout was provided earlier as Figure 16-1.

Makeup water for processing operations is estimated to average 300 gallons per minute (gpm) annually, with an additional 100 gpm required at the crusher for water addition and dust control, 100 gpm for domestic use and truck wash, and 110 gpm for dust control on haul roads.

19.0 MARKET STUDIES AND CONTRACTS

The Gold Springs project will produce doré (gold-silver alloy) bars. A long-established, active, worldwide market exists for the buying and selling of gold and silver. TMI expects this to continue throughout the life of the Gold Springs project. Further market studies are not deemed necessary to establish the existence of a market for the product.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The Company is operating its exploration program under a Plan of Operations (PoO) in Nevada and is in the process of completing a Plan of Operations in Utah. Under the PoO, the Company was required to complete an Environmental Assessment (EA), and the Bureau of Land Management (BLM) determined that there was no significant impact from the PoO. The Company has completed cultural and biological surveys over large portions of the project area as part of the EA. On March 27, 2014, BLM Caliente Office of Nevada issued a Record of Decision (ROD) and a Finding of No Significant Impact (FONSI) for TriMetal's EA covering exploration on the Nevada portion of the Gold Springs project. The acceptance of the EA means that the Company is free to conduct the work proposed in its PoO, which outlines staged exploration activities for possible resource expansion.

Prior to mining activities, the project will require an Environmental Impact Statement (EIS) that will include investigation of the impacts of the project on flora, fauna, and community. The EIS process is expected to take two to three years, including the collection of data, preparation of the document, agency review, and public comment and review. The EIS will determine requirements and final design of leach facilities, waste dumps, and mine closure.

The water table is well below current pit bottom elevation at Grey Eagle, so pit lake issues are not anticipated. Jumbo will have pit dewatering requirements during operations and a pit lake at closure.

Table 20-1 outlines anticipated permits and regulatory agency approvals needed for the Gold Springs project.

Table 20-1: Anticipated Environmental and other Permitting Requirements

Permit	Agency	Purpose
Federal Permits, Approvals, and Registrations		
Plan of Operations/EIS	U.S. Bureau of Land Management	Prevent unnecessary or undue degradation associated with Plan of Operations. EIS to disclose environmental impacts and project alternatives. Includes biological and cultural surveys.
Explosives Permit	U.S. Bureau of Alcohol Tobacco &	Storage and use of explosives

Permit	Agency	Purpose
	Firearms	
EPA Hazardous Waste ID No.	U.S. Environmental Protection Agency	Registration as a small-quantity generator of wastes regulated as hazardous
Notification of Commencement of Operations	Mine Safety & Health Administration	Mine safety issues training plan mine registration
Nationwide Section 404 Permit	U.S. Army Corps of Engineers	Installation of any required culverts on the access road.
Endangered Species Act	U.S. Fish and Wildlife Service	Only if project affects species listed as threatened or endangered (not anticipated)
Federal Communications Commission	FCC Frequency registrations for radio/microwave communication facilities	
State Permits		
Air Quality Operating Permit	NV/UT Division of Environmental Protection/Bureau of Air Pollution Control	Regulates project sources of air emissions.
Mercury Operating Permit to Construct Air	NV/UT Division of Environmental Protection/Bureau of Air Quality Planning/ Nevada Mercury Air Emissions Control Program	Requires use of NVMACT for all thermal units that have the potential to emit mercury
Reclamation Permit	NV/UT Division of Environmental Protection/Bureau of Mining Regulation & Reclamation	Reclamation of surface disturbance due to mining and mineral processing.
Water Pollution Control Permit	NV/UT Division of Environmental Protection/Bureau of Mining Regulation & Reclamation	Prevent degradation of waters of the state from mining establishes minimum facility design and containment requirements.
Petroleum-Contaminated Soil Management Plan	NV/UT Division of Environmental Protection/Bureau of Mining Regulation & Reclamation	On-site treatment and management of hydrocarbon contaminated soils
Solid Waste Class III Landfill Waiver	NV/UT Division of Environmental Protection/Bureau of Solid Waste	On-site disposal of non-mining non-hazardous solid wastes
General Stormwater Discharge Permit	NV/UT Division of Environmental Protection/Bureau of Water Pollution Control	Management of site stormwater Permit to Appropriate Water NV Division of Water Resources Water appropriation
Permit to Construct Impoundments	NV/UT Division of Water Resources	Design and construction of a tailings embankment or other structures with a crest height 20 feet or higher as measured from the downstream toe to the crest or that will impound 20 acre-feet or more
Industrial Artificial Pond Permit	NV/UT Department of Wildlife	Ponds containing chemicals directly associated with mineral processing
Liquefied Petroleum Gas License	NV/UT Board of the Regulation of Liquefied Petroleum Gas	Tank specification and installation handling and safety requirements

Permit	Agency	Purpose
Potable Water System Permit	NV/UT Bureau of Safe Drinking Water	Water system for drinking water and other domestic uses (e.g. lavatories)
Radioactive Materials License	NV/UT Bureau of Safe Drinking Water	Nuclear flow and mass measurement devices if used in the mineral processing facilities
Septic Treatment Permit Sewage Disposal System	NV/UT Division of Environmental Protection/Bureau of Water Pollution Control	Design operation and monitoring of septic and sewage disposal systems
Hazardous Materials Storage Permit	Nevada Fire Marshall/UT	Hazardous materials safety
Local Permits		
Building Permits	Building Planning Departments, Lincoln County, NV and/or Iron County, UT	Facility construction
County Road Use and Maintenance Permit	Building Planning Departments, Lincoln County, NV and/or Iron County, UT	Use and maintenance of county roads

Both Nevada and Utah have a long history of mining and derive a significant portion of their revenue from the mining industry. The primary social and community impacts that are expected to occur with full scale development of the Gold Springs property relate to the creation of jobs and tax revenue in the surrounding area, particularly affecting Lincoln County, NV and Iron County, UT. Based on the manpower estimates in Table 21-10, the number of jobs directly created could be about 150 (60 in mining and 60 in processing, plus administration). Additional jobs would be created indirectly in the surrounding communities. Along with increased tax revenue, local communities would experience an increased demand for services such as roads and schools.

Mine closure requirements and costs have been anticipated in the costing of the project by including a reclamation bond in the amount of $2.7 million. At this stage of the project, this estimation is considered adequate. Mine closure is anticipated to include the removal of haulage and access roadways, potential re-contouring and seeding of waste dumps, and removal, re-grading, and seeding of all process facilities, shops, offices, and warehouse, most of which will be modular construction.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Costs

The following mining, processing, and G&A items were included in the capital cost estimate. The majority of the capital costs occur during year -1, i.e., during the year preceding the start of operations. Several items, however, have capital costs scheduled to occur later: tertiary crushing equipment for Grey Eagle is scheduled to occur during the year prior to the start of Grey Eagle operations; leach pad expansions are scheduled to occur at regular intervals throughout the mine life.

- Mining production equipment required includes haul trucks, loaders, blast hole drills, dozers, and scrapers. Mining production equipment capital costs were estimated, but those costs were set to zero for the contractor operation scenario. The mining equipment could also be leased.
  - Leach material and waste load and haul cycle calculations show two 21.8-cubic meter loaders and eight 150-tonne trucks are needed as haul distances are very short.
  - One to two crawler-mount blast hole drills are required to achieve the production rate of 15,000 tpd of leach material, varying with stripping ratio.
  - One D10 size dozer is needed to support the loader with the leach material and waste.
  - One D10 size dozer is needed to rip the relatively soft tuff overlying mineralization at Grey Eagle and south Jumbo, and two 657-sized scrapers are needed to move broken tuff to the waste dump. This combination will likely have very high productivity on the tuff. A mid-range value of 400 bank cubic meters per hour was used. Sonic velocity tests should be done on the tuff to more accurately determine ripper productivity.
- Mining support equipment that will be needed at the mine includes the following. Mining support equipment capital costs were estimated, but those costs were set to zero for the contractor operation scenario.
  - a D6 size dozer
  - a 150-hp grader
  - a 5000-gallon water truck
  - service/tire trucks
  - an ANFO truck
  - light plants
  - submersible pumps
  - pickup trucks.
- Mining facilities required include a heavy equipment shop, a fuel station, a changing facility, and a cap magazine and ANFO storage bin. Costs for all of these items were estimated, but costs for the heavy equipment shop were set to zero for the contractor operation scenario.
- The Process Plant includes a Merrill-Crowe gold and silver recovery system, leach pads, ponds, crushing plant and stacking system, a laboratory, and mobile equipment.
  - The Merrill-Crowe Plant includes the following items:
    - Barren Wash Solution Pump and motor
    - Two Clarification Filters
    - Precoat Pump and motor
    - Body Feed Pumps
    - Two Body/precoat Tank Mixers
    - Two Body/precoat Tanks
    - Vacuum Pump and Tower
    - Precipitation Filter Feed Pumps and motors and two Precipitation Filters
    - Refinery Sump Pump, Clarification Area Sump Pump, and DE Area Sump Pump
    - Zinc Feeder
    - Air Compressor

- Instrument Air Compressor
- Mercury Retort System
- Melting Furnace
- Refinery Air Scrubber
- Flux Mixer
- Slag Area Sump Pump and motor, Slag Handling Water Tank, and Slag Storage Tank
- Cyanide Addition Pumps, Cyanide Storage Tanks, Cyanide Area Sump Pump, and Cyanide Transfer Air Compressor

- Leach pads were sized with four lifts and a maximum height of 40 meters.
- The two-stage Crushing Plant and stacking system for Jumbo includes the following items:
  - Lippmann 38 x 62 Jaw Crusher
  - Grizzly Feeder
  - Discharge Conveyor
  - Rock Hammer
  - Three deck 7 x 20 screen
  - Discharge Conveyor
  - Two MVP 550 Cone Crushers
  - Discharge Conveyor
  - Portable Stacking Conveyor 36 x 70
  - Seven Portable Stacking Conveyors 36 x 60
  - Portable Stacking Conveyor 36 x 125
  - Trailblazer Groundline Conveyor 36 x 500
  - 20 Portable Jump Conveyors 36 x 100
  - 10 Portable Jump Conveyors 36 x 100
  - Portable Conveyor 36 x 50
  - Telestack Conveyor 36 x 136
  - 100 Ton Lime Silo
  - AES Control Van

  The three-stage Crushing Plant and stacking system for Grey Eagle includes the following additional equipment:
  - Tunnel Conveyor
  - Three deck screen 8 x 20 screen
  - Two MVP 550 Cone Crushers
  - Discharge Conveyor
  - Jump Conveyor 36 x 100
- The laboratory includes the following equipment items:
  - Jaw Crusher
  - Roll Crusher
  - Pulverizer
  - Dust Enclosure
  - Compressor
  - Dust Collector
  - Sample Splitter
  - Two Assay Furnaces
  - Two Balances

        - Two AA Machines
        - Drying Oven
    - The Pumping System includes the following items:
        - Two Barren pumps and motors
        - Two Pregnant pumps and motors
    - Mobil equipment includes a track dozer for leach pad operations.
- G&A items include:
    - Survey
    - Guard house/security
    - Startup training
    - Emergency vehicle/supplies
    - Office
    - Warehouse
    - Fire Protection
    - Water supply
    - Power line to the site, which was assumed to come from the old Jeannie Mine in Rose Valley, approximately 10 miles from the site
    - Electrical substation and switchgear
    - Reclamation bond
- Development included pioneering, clearing, grubbing, access road improvements, and haul road construction, assumed to be 5,000 feet of new haul roads.
- First Fills: Materials and reagents needed for initiating mining and production were estimated based on the quantity needed during the first quarter of operation. The estimated first-fill items and quantities are summarized in Table 21-1.

GRE obtained quotes from vendors for the Merrill-Crowe plant and crushing plant. Capital cost estimates for other equipment items and consumables were obtained from the InfoMine USA, Inc. *Mine and Mill Equipment Costs, An Estimator's Guide* (InfoMine, 2014).

Working capital was estimated to be 2 months' operating costs. The working capital was estimated to be recovered the year after production ends. Sustaining capital was estimated as 10% of the mobile equipment cost per year, which, for the contractor operation scenario, does not include mining equipment capital. Capital contingency was set at 15%.

Owner's costs such as permitting, land, exploration, metallurgical testing, and feasibility studies were not included in the cash flow, but were estimated and are shown in
Table 21-2.

The capital costs are summarized in Table 21-3. As stated above, however, the $26 million in mining equipment costs and approximately $700,000 in heavy equipment shop costs (in the Buildings line item) were set to zero for the final economic analysis because the contractor mining scenario was used. The contingency is also reduced by approximately $4 million, resulting in total capital costs of $79.9 million.

Table 21-1: Summary of Gold Springs First Fill Requirements

First Fills	Units	Quantity
Sodium Cyanide	kg	148,000
Cement	kg	409,000
Lime	kg	225,000
Zinc Dust	kg	7,700
Lead Nitrate	kg	800
Diatomaceous Earth	kg	8,100
Anti-scale	kg	1,700
Borax	kg	800
Sodium Carbonate	kg	420
Silica Sand	kg	420
Propane	kg	11,000
Diesel	gallons	10,000
Gasoline	gallons	1,000
ANFO	lbs	469,000
Caps	each	900
Primers	each	900
Snap Line	each	900
Tires	allowance	
Warehouse	allowance	

kg – kilograms
ANFO – ammonium nitrate/fuel oil

Table 21-2: Estimate of Owner's Costs

Item	Cost
Definition Drilling	$10,000,000
Permitting	$2,000,000
Engineering	$2,000,000
Total	**$14,000,000**

Table 21-3: Summary of Gold Springs Capital Costs

Item	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Mine												
Development	$1,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,100
Mining Equipment	$26,048	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$26,048
Buildings	$1,243	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,243
Processing												
Crushing Plant	$12,637	$0	$0	$0	$0	$0	$2,654	$0	$0	$0	$0	$15,291
Merrill-Crowe Plant	$10,836	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,836
Pumping Systems	$1,034	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,034
Leach Pad and Ponds	$9,422	$0	$7,377	$0	$7,377	$0	$7,377	$0	$0	$0	$0	$31,553
Laboratory	$768	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$768
G&A Capital	$6,194	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,194
Subtotal Equipment Capital	**$69,282**	**$0**	**$7,377**	**$0**	**$7,377**	**$0**	**$10,031**	**$0**	**$0**	**$0**	**$0**	**$94,067**
Working Capital	$6,096	$0	$0	$0	$0	$0	$0	$0	$0	$0	($6,096)	$0
First Fills	$0	$2,336	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,336
Sustaining Capital	$0	$11	$11	$11	$11	$11	$11	$11	$11	$11	$0	$99
Contingency	$10,392	$0	$1,107	$0	$1,107	$0	$1,505	$0	$0	$0	$0	$14,111
Total Capital Costs	**$85,770**	**$2,347**	**$8,495**	**$11**	**$8,495**	**$11**	**$11,547**	**$11**	**$11**	**$11**	**($6,096)**	**$110,613**

All costs are x1000

21.2 Operating Costs

Operating costs include manpower, mining equipment costs, processing equipment costs, consumables, and G&A operating costs.

- Mining production equipment hours were estimated from the equipment productivity estimates (see Table 16-2 and Table 16-3 above), the scheduled leach material and waste tonnage, and the number of pieces of equipment required. Because the productivity estimates were generated from average mine production requirements, some years have higher than average scheduled leach material and waste tonnes, and the required equipment hours to handle those tonnes may exceed the maximum yearly equipment hours for the fleet. During these years, rental equipment was included in the estimate. Rental equipment costs were included for both the contractor and owner operation scenarios. Table 21-4 summarizes the production equipment operating hour requirements.

Table 21-4: Summary of Gold Springs Mine Production Equipment Operating Hours

Item	Pieces per Fleet	Maximum Hours per Year for Fleet	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Haul Truck 789D	4	24,900	18,600	23,400	24,900	24,900	20,200	12,500	11,200	11,600	10,400	157,700
Loader 994K	2	6,200	4,600	5,800	6,200	6,200	5,000	3,100	2,800	2,900	2,600	39,200
Blast Hole Drill	1		6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	55,800
Dozer D10T	2	12,400	500	5,400	5,200	5,700	1,900	100	8,600	9,900	3,300	40,600
Scraper for Tuff 657G	2	12,400	500	5,400	5,200	5,700	1,900	100	8,600	9,900	3,300	40,600
Rental Haul Truck 789D	As needed		-	-	11,600	11,900	-	-	-	-	-	23,500
Rental Loader 994K	As needed		-	-	2,900	3,000	-	-	-	-	-	5,900
Rental Scraper for Tuff 657G	As needed		-	-	-	-	-	-	-	-	-	-

- Mining support equipment hours were calculated from the number of pieces of equipment times the operating hours per day, assuming utilization of 90% and availability of 95%, times the operating days per year. Table 21-5 summarizes the support equipment operating hour requirements.

Table 21-5: Summary of Mine Support Equipment Operating Hours

Item	Qty	Operating Shifts per Day	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Dozer w/Ripper D6T	2	2	12,400	12,400	12,400	12,400	12,400	12,400	12,400	12,400	7,600	106,800
Grader 12ft	1	1	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	1,900	26,700
Water Truck 5,000 gal	1	1	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	1,900	26,700
Service/Tire Trucks	2	1	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	3,800	53,400
ANFO Truck	1	1	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	1,900	26,700
Light Plants 10 kw	2	1	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	3,800	53,400
Pumps 40 HP (submersible)	2	0.12	700	700	700	700	700	700	700	700	400	6,000
Pickup Trucks	6	0.23	4,400	4,400	4,400	4,400	4,400	4,400	4,400	4,400	2,700	37,900

- Blasting materials requirements were determined in a drilling and blasting schedule that used the parameters and assumptions detailed in Table 21-6. The drilling and blasting requirements are summarized in Table 21-7.

Table 21-6: Parameters for Drilling and Blasting Calculations

Constants		
ANFO density	0.9	tonnes/cubic meter
ANFO powder factor – leach	0.5	pounds/tonne rock
ANFO powder factor - waste	0.4	pounds/tonne rock
Bench height	5	meters
Drilling rate	0.6	meters/minute
Drill available %	90	
Minutes used/hour	50	
Available labor hours per shift	9	
Blasthole depth	6	meters
Blasthole diameter	10.66	inch
Rod length	45	feet
ANFO thickness	5	meters
ANFO setup min/hole	15	minutes
Calculated		
Blasthole diameter	0.271	meters
Blasthole volume	0.345	cubic meters
ANFO volume	0.288	cubic meters
ANFO weight tonnes	0.259	tonnes
Tonnes of rock blasted/hole	1142.5	tonnes/hole
Volume of rock blasted/hole	455.2	cubic meters/hole
Drillhole grid spacing	9.5	meters

Table 21-7: Summary of Drilling and Blasting Requirements

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Number drillholes per year – leach	4,800	5,200	6,200	4,800	4,800	4,800	4,800	4,900	2,900	43,200
Number drillholes per year -- waste	6,300	8,800	15,700	17,300	7,300	2,700	2,000	2,000	3,400	65,400
Daily meters	180	200	400	400	200	100	100	100	100	1,780
Daily drilling time @ 90% rig availability	340	430	670	670	370	230	210	210	170	
Rig moving time minutes	150	190	300	300	170	100	90	100	190	
Total daily drilling time (minutes)	490	620	970	980	540	330	300	310	90	
Rig shifts per day	1	1	2	2	1	1	1	1	1	
Number of Drill Rigs Required	1	1	1	1	1	1	1	1	1	
Number of Drilling Crews Required	1	2	2	2	2	1	1	1	1	
ANFO setup (15 min/hole)	460	580	900	910	500	310	280	290	280	
ANFO setup hr (at 50 min/hour)	10	10	20	20	10	10	10	10	10	
ANFO setup shifts (7 hr/shift)	1	1	2	2	1	1	1	1	260	4,490
Number of ANFO Trucks	1	1	1	1	1	1	1	1	1	110
ANFO Truck workers	1	1	1	1	1	1	1	1	1	
Drilling Productivity - leach (tph)	750	810	970	750	750	750	750	770	1	
Drilling Productivity - waste (tph)	1,000	1,380	2,460	2,710	1,150	430	310	320	460	
ANFO consumption - leach (tpy)	1,200	1,300	1,600	1,200	1,200	1,200	1,200	1,300	540	6,760
ANFO consumption - waste (tpy)	1,300	1,800	3,300	3,600	1,500	600	400	400	800	10,290
Caps (each)	11,100	14,000	21,900	22,000	12,100	7,500	6,700	6,900	700	11,000
Primers (each)	11,100	14,000	21,900	22,000	12,100	7,500	6,700	6,900	6,400	13,600

ANFO – ammonium nitrate fuel oil
hr – hour
min – minute
tph – tonnes per hour
yr – year
tpy – tonnes per year

- Operating hours for the crushing plant, Merrill-Crowe plant, and leach pads were assumed to be 24 hours per day, 7 days per week, for 52 weeks per year. The operating hours for the process plants and leach pads are summarized in Table 21-8.

Table 21-8: Summary of Process Plant and Leach Pad Operating Hours

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Crushing Plant										
Lippmann 36 x 50 Jaw Crusher	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Grizzly Feeder	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Discharge Conveyor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Rock Hammer	900	900	900	900	900	900	900	900	500	7,700
Three deck screen 7 x 20 screen	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Discharge Conveyor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
MVP 550 Cone Crusher	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	10,700	150,700
Discharge Conveyor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Portable Stacking Conveyor 36 x 70	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Portable Stacking Conveyor 36 x 60	61,200	61,200	61,200	61,200	61,200	61,200	61,200	61,200	37,400	527,000
Portable Stacking Conveyor 36 x 125	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Tunnel Conveyor	0	0	0	0	0	0	2,100	8,700	5,300	16,000
Three deck screen 7 x 20 screen	0	0	0	0	0	0	2,100	8,700	5,300	16,000
MVP 450 Cone Crusher	0	0	0	0	0	0	4,200	17,500	10,700	32,200
Discharge Conveyor	0	0	0	0	0	0	2,100	8,700	5,300	16,000
Jump Conveyor 36 x 100	0	0	0	0	0	0	2,100	8,700	5,300	16,000
Trailblazer Groundline Conveyor 36 x 500	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Portable Jump Conveyor 36 x 100	87,400	87,400	87,400	87,400	87,400	87,400	87,400	87,400	53,400	752,600
Portable Jump Conveyor 36 x 100	43,700	43,700	43,700	43,700	43,700	43,700	43,700	43,700	26,700	376,300
Portable Conveyor 36 x 50	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Telestack Conveyor 36 x 136	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
100 Ton Lime Silo	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
AES Control Van	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	5,300	74,900
Merrill-Crowe Plant										
Barren Wash Solution Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Motor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Clarification Filter	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Precoat Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Motor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Body Feed Pumps	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Body/precoat Tank Mixer	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	8,700	78,300
Body/precoat Tanks	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Vacuum Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Vacuum Tower	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Precipitation Filter Feed Pumps	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Motor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	17,500	157,500
Precipitation Filter	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Refinery Sump Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Clarification Area Sump Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
DE Area Sump Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Zinc Feeder	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Air Compressor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	17,500	157,500
Instrument Air Compressor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Mercury Retort System	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Melting Furnace	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Refinery Air Scrubber	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Flux Mixer	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Slag Area Sump Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Motor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Slag Handling Water Tank	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Slag Storage Tank	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Cyanide Addition Pumps	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Cyanide Storage Tanks	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Cyanide Area Sump Pump	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Cyanide Transfer Air Compressor	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Pumping Systems										
Barren Pumps	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Motors	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Pregnant Pumps	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Motors	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	157,500
Leach Pad										
Solution Distribution	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	8,700	78,300
Track Dozer	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	9,900

- Laboratory operating hours were set at 2 shifts per day, 8 hours per shift, and 260 operating days per year.
- Reagent usage was estimated from metallurgical testwork, InfoMine estimates, and GRE experience. Table 21-9 summarizes the estimated annual reagent consumption.

Table 21-9: Summary of Estimated Reagent Usage

Item	Units	Estimated Annual Consumption	Unit Cost
Sodium Cyanide	Kg	1,781,000	$3.00
Cement	Kg	4,909,000	$0.12
Lime	Kg	2,700,000	$0.21
Zinc Dust	Kg	92,000	$3.15
Lead Nitrate	Kg	9,200	$0.60
Diatomaceous Earth	Kg	97,000	$0.44
Anti-Scale	Kg	20,000	$4.01
Borax	Kg	10,000	$1.61
Sodium Carbonate	Kg	5,100	$1.92
Silica Sand	Kg	5,100	$0.17
Propane	litre	127,000	$0.86

- Manpower for the mine and processing facility includes hourly-rate employees and salaried employees, who are generally superintendents and professional personnel. The number of required equipment operators was estimated using the quantities of equipment required, the quantity of personnel per piece of equipment, and the number of shifts per day. Numbers of required processing and salaried personnel were estimated based on GRE's experience. A burden factor of 38% was added to all labor. The burden includes fringe benefits, holidays, vacation and sick leave, insurances, etc. A summary of the manpower requirements is provided in Table 21-10.

Table 21-10: Summary of Gold Springs Manpower Requirements

Manpower	Personnel		Burdened Hourly Rate/Annual Salary
Mine			
Hourly Personnel			
Drillers	4		$37.93
Blasters	2		$38.27
Excavator/Loader Operators	4		$40.57
Truck Drivers	16		$32.58
Grader/Dozer Operators	6		$36.56
Tuff - Dozer	8		$36.56
Tuff - Scraper	8		$36.56
Water truck Operators	2		$31.60
Mechanics	8		$37.84
Laborers/Maintenance	2		$28.32
Total Hourly Personnel	**60**		
Salaried Personnel			
Mine Superintendent	1		$142,100
Foreman	4		$118,100
Maintenance Foreman	4		$118,100
Engineer	1		$131,199
Geologist	1		$97,601
Surveyor/Technician	2		$87,150
Total Salaried Personnel	**13**		
Leaching and Gold Recovery	**Jumbo**	**Grey Eagle***	
Hourly Personnel			
Plant Operations			
Stacker Operator	6	8	$30.08
Crusher Operator	6	8	$30.08
Plant Operator	4	4	$35.53
Crusher Helper	6	8	$23.25
Plant Helper	4	4	$27.95
Refinery Operator	2	2	$35.53
Laborer	2	2	$23.25
Leach Pad			
Pad Operator	2	2	$34.43
Pad Helper	2	2	$23.25
Assay Laboratory			
Assayer	2	2	$34.50
Sample Prep	2	2	$24.56
Plant Maintenance			
Mechanic/Welder	7	8	$36.11
Mechanic Helper	4	4	$23.25
Electrician	4	4	$36.23
Total Hourly Personnel	**53**	**60**	
Salaried Personnel			
Plant Superintendent	1		$145,600
Plant General Foreman	1		$126,000
Shift Foreman	3		$122,200
Clerk	1		$92,100
Plant Maintenance Superintendent	1		$128,800
Maintenance General Foreman	1		$128,800
Maintenance Foreman	1		$122,200
Metallurgist	1		$127,800
Total Salaried Personnel	**10**		

* The difference in personnel numbers between Jumbo and Grey Eagle for Leaching and Gold Recover is due to tertiary crushing at Grey Eagle. The number of plant personnel will be either 53 (at Jumbo) or 60 (at Grey Eagle).

- Administrative operating costs include labor and services and supplies, as shown in Table 21-11.

Table 21-11: Summary of Gold Springs Administrative Requirements

Item		
Labor	**Quantity**	**Burdened Annual Salary**
General Manager	1	$184,939
Accountant	1	$100,099
Clerk	1	$65,696
Secretary	1	$60,059
Compliance Manager	1	$113,160
Environmental Engineer	1	$113,160
Health and Safety	1	$62,100
Training	1	$62,100
Human Resources	1	$138,000
Total Administrative Personnel	9	
Services and Supplies		**Annual Cost**
Office Supplies		$12,000
Computers / Software		$36,000
Mining Software		$12,000
Training		$36,000
Subscriptions		$12,000
Travel		$48,000
Contributions - Local		$30,000
Insurance		$48,000
Security		$240,000
Ambulance / Safety		$36,000

Annual and unit operating costs for equipment and facilities were obtained from InfoMine USA, Inc. *Mine and Mill Equipment Costs, An Estimator's Guide* (InfoMine, 2014).

Operating contingency was set at 5%.

A summary of the project operating costs is provided in Table 21-12**.** These are the base operating costs for the contractor operation, which include a 20% markup on mining equipment, materials, and hourly labor.

The cash operating costs per ounce of AuEq are $767, and the total cost per ounce of AuEq are $925.

Table 21-12: Summary of Gold Springs Operating Costs

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Mine Operating										
Production Equipment	$7,753	$10,826	$15,410	$15,650	$8,720	$5,518	$7,261	$7,902	$5,761	$84,804
Support Equipment	$1,069	$1,069	$1,069	$1,069	$1,069	$1,069	$1,069	$1,069	$654	$9,209
Mining Materials	$3,973	$4,942	$7,560	$7,514	$4,291	$2,806	$2,539	$2,622	$2,285	$38,533
Rental Equipment	$0	$0	$8,974	$8,974	$0	$0	$0	$0	$0	$17,947
Leach and Process Operating										
Crushing Plant	$3,395	$3,395	$3,395	$3,395	$3,395	$3,395	$3,760	$4,986	$3,047	$32,165
Merrill-Crowe Plant	$721	$721	$721	$721	$721	$721	$721	$721	$721	$6,486
Pumping Systems	$238	$238	$238	$238	$238	$238	$238	$238	$238	$2,140
Leach Pad	$290	$290	$290	$290	$290	$290	$290	$290	$290	$2,606
Laboratory										
Laboratory Equipment	$133	$133	$133	$133	$133	$133	$133	$133	$81	$1,146
Consumables	$598	$598	$598	$598	$598	$598	$598	$598	$598	$5,386
Reagents										
Reagents	$7,061	$7,061	$7,061	$7,061	$7,061	$7,061	$7,061	$7,061	$4,315	$60,803
Labor										
Mine Hourly	$5,132	$5,132	$5,132	$5,132	$5,132	$5,132	$5,132	$5,132	$3,137	$44,201
Mine Salaried	$1,490	$1,490	$1,490	$1,490	$1,490	$1,490	$1,490	$1,490	$911	$12,831
Processing Hourly	$3,320	$3,320	$3,320	$3,320	$3,320	$3,320	$3,569	$3,742	$2,287	$29,517
Processing Salaried	$1,238	$1,238	$1,238	$1,238	$1,238	$1,238	$1,238	$1,238	$756	$10,660
G&A Operating										
Labor	$899	$899	$899	$899	$899	$899	$899	$899	$899	$8,094
Services and Supplies	$510	$510	$510	$510	$510	$510	$510	$510	$510	$4,590
Operating Contingency	$1,742	$1,910	$2,584	$2,592	$1,795	$1,600	$1,692	$1,792	$1,226	$16,933
Total Operating Costs	**$39,714**	**$43,957**	**$60,942**	**$61,147**	**$41,062**	**$36,140**	**$38,335**	**$40,563**	**$27,813**	**$389,672**

All costs are x1000
Due to rounding, numbers may not add correctly
G&A – General and Administrative

22.0 ECONOMIC ANALYSIS

Readers are advised that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability under National Instrument 43-101. This PEA is preliminary in nature and includes inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves under National Instrument 43-101. Readers are advised that there is no certainty that the results projected in this preliminary economic assessment will be realized.

The 3-year trailing averages for gold and silver prices through May 2015 are $1,386/oz and $22.61/oz, respectively. In line with this data, GRE used a gold price of $1,300/oz and a silver price of $21.00/oz for the base case analyses.

The projected metal recovery rates were 73% for gold at Jumbo, 72% for gold at Grey Eagle, 40% for silver at Jumbo, and 20% for silver at Grey Eagle, as previously described in Section 13.0 . Base case gold and silver revenues are summarized in Table 22-1.

Operating costs were $7.92 per tonne of leachable material. The project has direct mining costs of $4.22, processing costs of $3.07, G&A costs of $0.26, and operating contingency of $0.38 / tonne of leach material. Cash operating costs are $669 per ounce of gold net of silver credit, and standalone project all-in sustaining cash costs of $863 per ounce gold net of the silver credit. Operating costs were deducted from revenue, yielding before-tax cash flow, which is summarized in Table 22-2. The project does not have overriding royalties. The operating costs shown in Table 22-2 include the 20% surcharge applied to mining costs for contractor operation.

GRE included depreciation and depletion deductions from the income before taxes to obtain taxable income. Depreciation was calculated, using the units of production method, as the percentage of gold ounces remaining in the deposit times the project capital costs for each year of operation. Depletion allowance was calculated as 15% of revenues up to a maximum of 50% of before-tax income minus depreciation. Federal tax at 35% was applied to the taxable income, Nevada severance tax at 7% was applied to the taxable income, and weighted average state sales taxes at 6.2% of consumables were calculated. The taxes were deducted from the taxable income, then the depreciation and depletion allowance were added back from taxable income to obtain net cash flows after taxes. After-tax NPV_5, NPV_{10}, and IRR were calculated from the net after-tax cash flow. Table 22-3 summarizes the tax calculations and after-tax cash flow, and Table 22-4 shows the before-tax and after-tax NPV and IRR results.

The economic model indicates favorable after-tax NPV_5 of $92 million with an IRR of 35.78%, at a gold price of $1,300/oz and silver price of $21/oz.

The tax calculation should be considered conservative, without consideration for exploration costs incurred, corporate tax philosophy, losses carried forward, and other factors.

Salient results for the project base case are shown in below.

- $4.22/t leachable material for mining costs (or $1.41/t mined)
- $3.07/t leachable material for processing costs
- $0.26/t leachable material for G&A costs
- $0.38/t leachable material for operating cost contingency
- Average annual production of 48,000 oz AuEq (Includes mining, processing, G&A, and operating cost contingency)
- Strip Ratio: 2.00:1
- Contractor mining
- Gold Recovery: 73% at Jumbo and 72% at Grey Eagle
- Silver recovery: 40% at Jumbo and 20% at Grey Eagle
- about 155 full time personnel
- Power requirements approximately 5 megawatts

Table 22-1: Summary of Gold Springs Gold and Silver Revenues

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Recoveries										
Au Recoverable (oz)	45	55	70	29	37	40	47	74	33	430
Au Recovered (with leaching curve delay)	40	59	69	30	37	40	46	74	33	428
Au Process Recovery	66%	73%	72%	73%	73%	73%	73%	73%	73%	
Ag Recoverable (oz)	770	849	972	415	535	548	462	242	121	4,914
Ag Recovered (with leaching curve delay)	693	926	972	415	535	548	457	248	121	4,915
Ag Process Recovery	36%	40%	40%	40%	40%	40%	39%	38%	37%	
Revenue										
Gold @ $1300/ounce	$52,598	$76,735	$89,479	$39,355	$47,949	$52,443	$59,326	$96,546	$42,499	$556,930
Silver @ $21/ounce	$14,560	$19,449	$20,411	$8,716	$11,244	$11,517	$9,592	$5,201	$2,533	$103,223
Total	**$67,158**	**$96,184**	**$109,890**	**$48,071**	**$59,193**	**$63,960**	**$68,918**	**$101,747**	**$45,032**	**$660,153**

All results, except percentages, are x1000

Table 22-2: Summary of Gold Springs Before-Tax Cash Flow

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
Revenue (Au + Ag)	$67,158	$96,183	$109,891	$48,072	$59,192	$63,960	$68,918	$101,747	$45,032	$660,153
Total Operating Costs	$39,714	$43,774	$60,624	$60,827	$40,902	$36,019	$38,201	$40,423	$27,714	$389,672
Before Tax Cash Flow	**$27,444**	**$52,410**	**$49,266**	**($12,755)**	**$18,290**	**$27,941**	**$30,717**	**$61,323**	**$17,318**	**$270,481**

All results are x1000

Table 22-3: Summary of Gold Springs Tax Calculations and After-Tax Cash Flow

	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Net Income Before Taxes, Depreciation, and Depletion	$0	$27,444	$52,227	$48,949	($13,075)	$18,130	$27,820	$30,583	$61,184	$17,219	$0	$270,481
Depreciation	$0	$9,203	$10,821	$13,462	$5,591	$7,149	$7,685	$8,507	$11,987	$5,475	$0	$79,880
Depletion Allowance	$0	$9,120	$14,428	$16,484	$0	$5,490	$9,594	$10,338	$15,262	$5,872	$0	$86,588
Taxable Income	$0	$9,120	$26,978	$19,003	$0	$5,490	$10,541	$11,739	$33,935	$5,872	$0	$122,679
Federal Taxes	$0	$3,192	$9,442	$6,651	$0	$1,922	$3,689	$4,109	$11,877	$2,055	$0	$42,938
Severance and Other State and Local Taxes	$0	$638	$1,888	$1,330	$0	$384	$738	$822	$2,375	$411	$0	$8,588
Sales Taxes	$0	$751	$811	$973	$971	$771	$679	$663	$668	$477	$0	$6,764
Income After Tax	$0	$4,538	$14,836	$10,049	($971)	$2,413	$5,435	$6,146	$19,014	$2,929	$0	$64,390
Add Back Depreciation	$0	$9,203	$10,821	$13,462	$0	$7,149	$7,685	$8,507	$11,987	$5,475	$0	$74,289
Add Back Depletion Allowance	$0	$9,120	$14,428	$16,484	$0	$5,490	$9,594	$10,338	$15,262	$5,872	$0	$86,588
Net After Tax Cash Flow	($55,042)	$20,515	$31,590	$39,983	($21,569)	$15,043	$11,168	$24,980	$46,253	$14,265	$6,096	$133,282

All results are x1000

Table 22-4: Summary of Gold Springs Economic Results

	Before Tax		After Tax	
	NPV_5	IRR	NPV_5	IRR
Gold Springs Base Case	$137,364	49.90%	$92,060	35.78%

NPV_5 results are x1000
NPV_5 – net present value at a 5% discount rate
IRR – internal rate of return

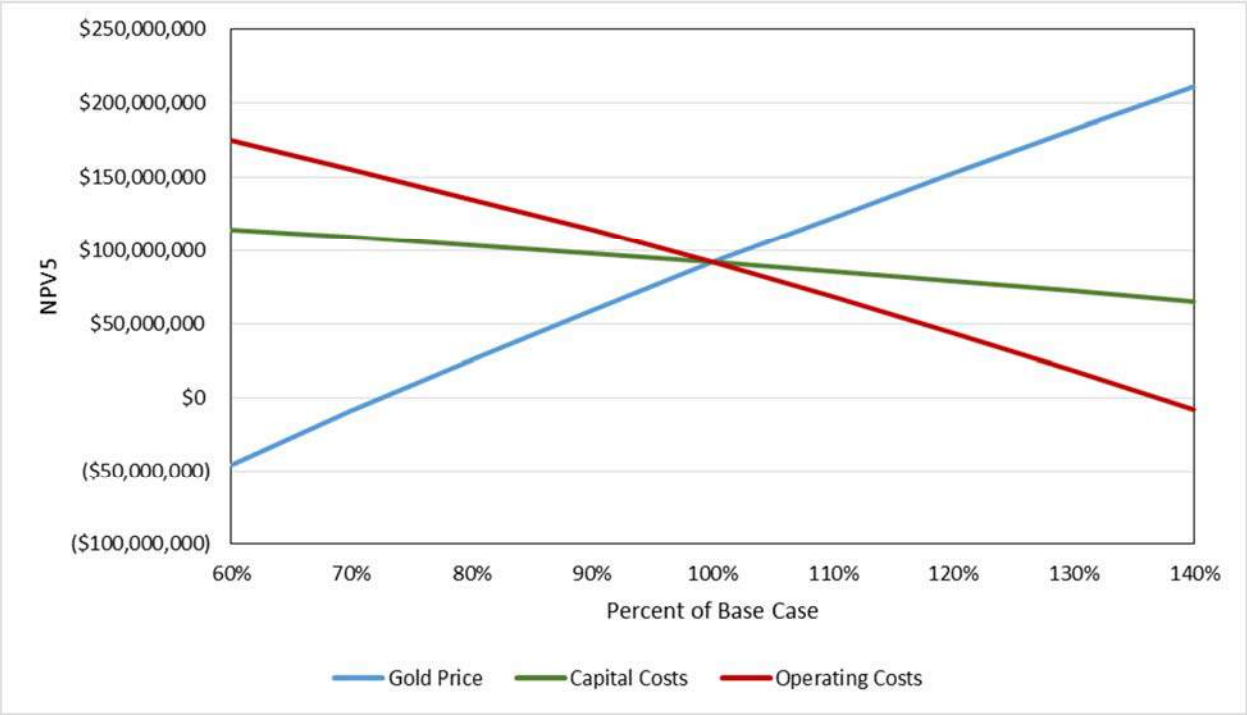
- Power line construction approximately 14 km
- Water requirement approximately 1,000 gallons/min
- 9 year, 15,000 tpd "heap-leach" project
- pre-tax NPV_5 of $137.4 million ($92.1 million after-tax)
- pre-tax IRR of 49.9% (35.8% after-tax)
- initial capex of $55 million plus an additional $24.8 million in sustaining capital
- payback of 3.1 years
- $133 million after-tax cumulative cash flow
- 35% Federal tax rate
- 7% Nevada severance, Utah state tax and local tax
- 6.2% sales tax
- cash operating cost net of silver credit of $669/oz Au (Includes mining, processing, G&A, and operating cost contingency)
- fully-loaded cost net of silver credit of $863/oz Au (Includes mining, processing, G&A, operating cost contingency, sustaining capital, federal, state and local taxes)

22.1 Sensitivity Analyses

GRE evaluated the after-tax NPV_5 sensitivity to changes in gold price, capital costs, and operating costs. The results are shown in Figure 22-1.

The results in Figure 22-1 indicate that after-tax NPV_5 is least sensitive to changes in capital costs, ranging from $115 million at 60% of the base case capital costs to $65 million at 140% of the base case capital costs, or approximately ±25%. The after-tax NPV_5 stays positive for the full range of capital costs examined. The after-tax NPV_5 is moderately sensitive to changes in operating costs, ranging from $175 million at 60% of the base case operating costs to -$8 million at 140% of the base case operating costs, or approximately ±95%. The after-tax NPV_5 goes negative when operating costs reach approximately 138% of the estimated base case operating costs. The after-tax NPV_5 is most sensitive to changes in gold price, ranging from -$46 million at 60% of the base case gold price to $211 million at 140% of the base case gold price, or approximately ±140%. The after-tax NPV_5 goes negative when the gold price drops to approximately 72.5% of the base case gold price, or $943.

Figure 22-1: NPV_5 Sensitivity to Varying Gold Price, Capital Costs, and Operating Costs



22.2 Break Even Analysis

GRE looked at the project breakeven gold and silver prices, to further evaluate project economics. The project breakeven gold/silver prices (defined as 0% before-tax IRR) are approximately $925/$14.94 (keeping the gold/silver price ratio at $1,300/$21 or 61.9).

Once the project is in operation, the breakeven gold price is defined as the price that results in zero net cash flow (before taxes). Because the mineral revenues, operating costs, and capital costs will vary with each year of operation, the operational breakeven gold price will also vary with each year of operation. The operational breakeven gold/silver prices (defined as $0 before tax cash flow) are approximately as follows:

- Year 1: $814/$13.15
- Year 2: $708/11.44
- Year 3: $721/11.65
- Year 4: $1,883/30.42
- Year 5: $902/14.57
- Year 6: $969/15.65
- Year 7: $723/11.68
- Year 8: $518/8.37
- Year 9: $803/12.97

Additional refining of phasing and scheduling will reduce the year 4 loss.

22.3 CONCLUSIONS OF ECONOMIC MODEL

The project economics shown in this PEA are favorable, providing positive NPV at varying gold prices, capital costs, and operating costs.

23.0 ADJACENT PROPERTIES

Pilot Gold has mining claims and properties adjacent to the northern boundary of the TMI claim block and approximately 6 kilometres to the northeast in the Stateline District in Utah, where they are actively exploring outside the Gold Springs Property area.

24.0 OTHER RELEVANT DATA AND INFORMATION

Section 27, References, provides a list of documents that were consulted in support of the PEA. No further data or information is necessary, in the opinion of the Authors, to make the PEA understandable and not misleading.

25.0 INTERPRETATION AND CONCLUSIONS

The Gold Springs project, located in western Iron County, Utah and eastern Lincoln County, Nevada and consists of 961 unpatented lode claims 13 patented lode claims, four state of Utah leases, and one surface real estate deed parcel and right-of-way, covering approximately 7,721 ha. Gold mineralization at the Gold Springs project is characterized by large through-going veins, complex sheeted veins, breccias and stockwork vein systems that are laterally extensive and locally form resistant ledges and ribs that protrude up to 10 metres above the surrounding ground surface. The veins contain quartz, adularia, bladed calcite, minor fluorite, and minor sulfides (<2%) and represent low sulfidation, epithermal gold-silver vein systems. Trace element geochemistry for arsenic and antimony show relatively low values compared to other similar quartz-adularia epithermal vein systems such as the K-2 deposit in Washington and the Midas deposit in northern Nevada (Leavitt et al., 2004; Simmons et al., 2005). This is especially true for the Grey Eagle system which reflects an alkalic, low-sulfidation, hydrothermal system with magnetite alteration to hematite, stable Kspar-biotite-hornblende, high calcite, trace fluorite environment. The Jumbo-Etna system reflects an early calc-alkaline, intermediate sulfidation hydrothermal system with quartz-sericite (illite)-pyrite alteration with weakly anomalous arsenic and antimony being overprinted with an alkalic, low-sulfidation system which formed the strong quartz-adularia-calcite-bladed quartz after calcite vein stockwork, sheeted veins and hydrothermal breccias.

Vein systems in the Gold Springs district generally strike north-south but vary in orientation from northeast to northwest. This is observed in the Grey Eagle target area where several syn-post-mineral structural trends displace and locally offset the main north-south trending, westerly dipping vein zone. The early vein bearing structures probably formed in response to the emplacement and subsequent collapse of the Gold Springs dome-caldera (20 to 17 Ma). GSLLC has completed rock chip sampling, detailed mapping, soil sampling, stream sediment sampling, a property-wide aero-magnetic and ZTEM geophysical survey, and a property LIDAR survey. This work has identified 26 targets containing surface samples of >1 g/t Au, and all targets are located within lands controlled by GSLLC. Drill results from the

GSLLC programs and from previous operators suggests that many of these targets will produce positive drill results which could define new resource areas. The combination of surface geochemical sampling and drilling results completed on the project to date shows the potential for significant gold mineralization in the Gold Springs project area as narrow high-grade veins (>3.0 g/t Au) and areas of broad lower-grade mineralization (<1.0 g/t Au).

The resource in this report includes measured, indicated, and inferred categories. The base case measured plus indicated resource is 30,046,000 tonnes at 0.45 g/t Au and 9.6 g/t Ag for a contained 434,000 troy ounces Au and 9,296,000 troy ounces Ag plus an Inferred Mineral Resource of 20,887,000 tonnes at 0.34 g/t Au and 6.9 g/t Ag for an additional 225,000 troy ounces Au and 4,613,000 troy ounces Ag using a 0.2 g/t Au cutoff. This equates to a Measured plus Indicated resource of 597,000 ounces AuEq averaging 0.62 g/t AuEq and an additional Inferred resource of 306,000 ounces AuEq at 0.46 g/t AuEq. AuEq calculations reflect gross metal content using the Au/Ag ratio of 57.14 and have not been adjusted for metallurgical recoveries. Numbers have been rounded. This mineralization remains open along strike and at depth within the Jumbo and Grey Eagle target areas. Readers are advised that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability under National Instrument 43-101.

There are a variety in the styles of mineralization which include disseminated and stockwork controlled bulk targets, high-grade underground targets, tuff-hosted sheeted vein and disseminated bulk targets, and pipe-like features hosted within intra-caldera tuffs and rhyolites. The geologic setting is positive for discovery and the number of high-grade gold samples and the wide spread distribution across the project area suggests that there is a good possibility for additional discoveries.

For purposes of costing and economic modeling, GRE considered four basic mine pit models driven by a range of gold and silver prices. Subsequent cost modeling and economic analyses examined each of the four pit models over a range of cut-off grades and with owner operation and contractor operation. The most robust pit shell at varying gold prices was selected for this Study. The analysis assumed a heap leach process with a Merrill-Crowe plant to recover gold and silver.

GRE chose the pit shell that was mined at gold and silver prices of $1,200/oz and $21/oz, at a cut-off grade of 0.15 g/t and with contractor operation for the base case for the economic model. The economic model used a base gold price of $1,300/oz and a silver price of $21/oz, which are both commensurate with the 3-year trailing averages through May, 2015 of $1,386/oz and $22.61/oz, respectively, and results in total revenue for both gold and silver of $660 million.

The life of mine capital costs were $79.9 million, with initial capital costs of $55.0 million, using contractor mining. Operating costs were $7.92 per tonne of leachable material. The before-tax NPV_5 was $137.4 million, with a before-tax IRR of 49.9%.

Depreciation of capital costs and depletion allowance were deducted from the income before taxes, depreciation, and depletion to determine taxable income. Federal Income tax of 35%, Nevada severance tax of 7%, and average state sales taxes of 6.2% were applied to the taxable income, generating income after tax. The depreciation and depletion allowance were then added back from taxable income to determine the final net cash flows after taxes. The after-tax NPV_5 and IRR were $92 million and 35.8%, respectively. Approximately $15 million and $43 million are paid in State and Federal taxes, respectively.

Highlights of the base case based on $1,300/oz Au price and $21/oz Ag price include:

	2015 PEA
IRR after tax	36%
NPV_5 after tax	$92 million
After-tax payback	3.1 years
Pre-production Capex (including contingency)	$55 million
Total Capex (including contingency)	$79.9 million
LOM Gold oz. recovered	428,408
LOM Silver oz. recovered	4,915,349

The project economics shown in this PEA are favorable; continued exploration and development is warranted.

25.1 Risk

This PEA is preliminary in nature and includes inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves under National Instrument 43-101. Readers are advised that there is no certainty that the results projected in this preliminary economic assessment will be realized. There is inherent engineering and metallurgical risk in all projects at this stage of development which are reduced as metallurgical test work and engineering studies, including the prefeasibility and feasibility studies, progress. This project, as with others, would be negatively impacted should metallurgical recoveries prove to be less than that used in the study or positively impacted if recoveries are higher. Similarly, if further rock mechanics or other studies lead to changes in the inputs to this study, the project could be impacted positively or negatively. It is unlikely that changes will impact the NPV by more than 20%, with the largest likely impact being future changes in the price of gold and silver.

26.0 RECOMMENDATIONS

Table 26-1 tabulates the estimated costs to complete a Pre-feasibility Study.

Table 26-1: Estimated Costs to Complete Pre-Feasibility Study

Category	Estimated Costs (000's)
Drilling	$2,600
Metallurgical testing	$582
Geotech soils	$90
Baseline cultural / environmental	$940
Land work	$425
Utilities	$100
Pre-Feasibility Study	$500
Subtotal	$5,237
Contingency 30%	$1,571
Staff, camp costs, other	$2,000
Total	**$8,808**

26.1 Drilling

Drilling requirements have been estimated for RC and diamond core drilling. An allowance has been made for 30,000 feet of RC drilling, which is designed for deposit definition and expansion. An additional 11,000 feet of diamond core drilling will be used for geotechnical information, geologic interpretation, and as a source of material for metallurgical testing. The planned core drilling footage should be adequate to cover all of these requirements.

Geotechnical core will be used to define the acceptable slopes within the planned open pits. Core provides a better view of the geology than RC chips. A portion of the core will be consumed for metallurgical column testing.

26.2 Metallurgical Testing

Limited metallurgical testing has been completed on the Gold Springs project. To advance the project, it will be necessary to complete additional column testing. It is estimated that 56 columns will be necessary to define the two deposits, represent each of the mineralization types, and cover spatial and grade variation. These additional tests will better define extraction and reagent consumption.

26.3 Geotechnical Soils

To assist in the future design and placement of facilities, a soils geotechnical evaluation is proposed for the site. Sample collection will be a combination of auger holes and test pits. Collected samples will be logged and lab tested.

26.4 Baseline Cultural / Environmental

Cultural and biological surveys have been completed as part of clearance for exploration sampling and drilling. Work should continue on air, water, biology, cultural, and potential acid rock drainage studies. An estimate has been made to fund these future activities. An allowance has been made for ground water modeling as part of the baseline studies.

26.5 Land Work

Allowances have been made to keep land ownership and title current along with acquisition.

26.6 Utilities

Availability of water and power should have more detailed review during the Pre-Feasibility Study. TMI has identified available water within the project area and has applied for those water rights.

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CERTIFICATE OF QUALIFIED PERSON

I, Terre A Lane, of 600 Grant St., Suite 975, Denver, Colorado, 80203, the co-author of the report entitled "Preliminary Economic Assessment Update, Gold Springs Property, Utah/Nevada, USA" with an effective date of August 12, 2015 (the "PEA"), DO HEREBY CERTIFY THAT:

1. I am a MMSA Qualified Professional in Ore Reserves and Mining, #01407QP.
2. I hold a degree of Bachelor of Science (1982) in Mining Engineering from Michigan Technological University.
3. I have practiced my profession since 1982 in capacities from mining engineer to senior management positions for engineering, mine development, exploration, and mining companies. My relevant experience for the purpose of this PEA is as the resource estimator, mine planner, and economic modeler with 25 or more years of experience in each area.
4. I have taken classes in geology, structural geology, mineralogy, Mineral Resource estimation in university, and have taken several short courses in geostatistics subsequently.
5. I have worked in geology, managed geologic teams, created lithological and structural models, and I have been involved in or conducted the estimation of resources for several hundred projects at locations in North America, Central America, South America, Africa, Australian/New Zealand, India, China, Russia and Europe using nearly all estimation techniques.
6. I have estimated resources for many epithermal style gold deposits including, Santa Fe, Relief Canyon, Gilt Edge, Buffalo Valley, Golden Reward, Idaho Almaden, Aurora, and others, and have oversaw the resource estimate of many other similar gold deposits.
7. I have created or overseen the development of mine plans for several hundred open pit and underground projects and operating mines.
8. I have been involved in or managed several hundred studies including scoping studies, prefeasibility studies, and feasibility studies.
9. I have been involved with the mine development, construction, startup, and operation of several mines.
10. I am a Member of the Society for Mining, Metallurgy, and Exploration.
11. I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of National Instrument 43-101.
12. I most recently visited the Gold Springs property in February 2014 for one day and have reviewed previous geological data, geochemical results, metallurgical and technical reports on the subject property.
13. I am responsible for Sections 14 through 16 and 18 through 22 of the PEA and have contributed to Sections 1, 24, 25, and 27.
14. I am independent of TriMetals Mining Inc. as described in section 1.5 by National Instrument 43-101.
15. I performed a Resource Estimate Technical Report for the Gold Springs project, a Resource Estimate and a PEA for the Gold Springs project, and an Amended Resource Estimate and PEA for the Gold Springs project in 2014.
16. I have read National Instrument 43-101 and Form 43-101F1. The PEA has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.

17. As of the effective date of the PEA, to the best of my knowledge, information and belief, the PEA contains all scientific and technical information that is required to be disclosed to make the PEA not misleading.

Terre A. Lane

"Terre A. Lane"

Mining Engineer
Global Resource Engineering, Ltd.
Denver, Colorado
Date of Signing: August 12, 2015

CERTIFICATE OF QUALIFIED PERSON

I, KURT T. KATSURA, of P.O. Box 51346, Eugene, Oregon, 97405, the co-author of the report entitled "Preliminary Economic Assessment Update, Gold Springs Property, Utah/Nevada, USA" with an effective date of August 12, 2015 (the "PEA"), DO HEREBY CERTIFY THAT:

1. I am a Registered Geologist in the State of Oregon RG #1221 and a Licensed Geologist in the State of Washington #1720, and practice under the designation of Registered Geologist (RG).
2. I hold degrees in Geology and I hold the degree of Bachelor of Science (1981) and a Master of Science (1988), both from the University of Oregon.
3. I have been practicing my profession since 1982 (33 years) and have since that time been actively employed in various capacities in the mining industry at numerous locations in North America and Central America. My relevant experience for the purpose of this PEA is as a Registered Geologist.
4. I am a Registered Member of the Society for Mining, Metallurgy, and Exploration (#4194699)
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of National Instrument 43-101.
6. I most recently visited the Gold Springs property in October, 2014 for seven days and have reviewed previous geological data, geochemical results, and technical reports on the subject property.
7. I am responsible for Sections 2 through 12 of the PEA and for the geologic content in Sections 1, 14, and 23 through 27.
8. I am independent of TriMetals Mining Inc. as described in section 1.5 by National Instrument 43-101.
9. I spent 6 months during 1996-1997 working at the Gold Springs project area for Cambior Exploration, Inc. I co-authored Technical Reports on the Gold Springs Property in 2012 and 2013, a Resource Estimate Technical Report in 2014, and a Resource Estimate and PEA and updated Resource Estimate and PEA for the Gold Springs project in 2014.
10. I have read National Instrument 43-101 and Form 43-101F1. The PEA has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.
11. As of the effective date of the PEA, to the best of my knowledge, information and belief, the PEA contains all scientific and technical information that is required to be disclosed to make the PEA not misleading.

Kurt T. Katsura RG

"Kurt T. Katsura"

Consulting Geologist

Eugene, Oregon

Date of Signing: August 12, 2015

CERTIFICATE OF QUALIFIED PERSON

I, Richard D. Moritz, of 600 Grant Street, Suite 975, Denver, CO 80203, the co-author of the report entitled "Preliminary Economic Assessment Update, Gold Springs Property, Utah/Nevada, USA" with an effective date of August 12, 2015 (the "PEA"), DO HEREBY CERTIFY THAT:

1. I am currently employed as Principal Process and Mining Engineer by Global Resource Engineering, Ltd.
2. I am a graduate of the University of Nevada, Reno and received a Bachelor of Science degree in Mining Engineering in 1979 and a MBA in 1987.
3. I am a Qualified Professional with MMSA, member number 01256QP in Metallurgy/Processing,
4. I have practiced mine and process engineering for over 30 years since my graduation. I have worked for several mine and process engineering companies, a royalty company, and several mining companies over the course of my career. I have been involved with review, design, engineering, construction, startup, and operations for numerous mines.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of National Instrument 43-101.
6. I have not visited the Gold Springs Property.
7. I am responsible for Sections 13, 17, and 18 and parts of Sections 1, 22, and 24 through 27 of the PEA.
8. I am independent of TriMetals Mining Inc. as described in section 1.5 by National Instrument 43-101.
9. I have had no prior involvement with the Gold Springs project.
10. I have read National Instrument 43-101 and Form 43-101F1. The PEA has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.
11. As of the effective date of the PEA, to the best of my knowledge, information and belief, the PEA contains all scientific and technical information that is required to be disclosed to make the PEA not misleading.

Rick Moritz

"Rick Moritz"

Mining Engineer
Global Resource Engineering, Ltd.
Denver, Colorado
Date of Signing: August 12, 2015