Bonanza

AMERICAN BONANZA GOLD CORP.
COPPERSTONE PROPERTY, LA PAZ COUNTY, ARIZONA

43-101 TECHNICAL REPORT

Prepared by:

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Effective Date: 27 March 2006

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CERTIFICATE OF AUTHOR

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I, William A. Tilley, PE do hereby certify that:

1. I am Senior Mining Engineer of:
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   2001 W. Camelback Road, Suite 300, Phoenix, Arizona, 85015 USA
2. I graduated with a degree in Bachelor of Science in Mining Engineering from the Montana College of Mineral Science and Technology in 1988.
3. I am a registered professional engineer in the state of Arizona and a member of the SME.
4. I have worked as an engineer for a total of 18 years since my graduation from university.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the Purposes of NI 43-101.
6. I am responsible for the preparation of sections 1 through 6, 15, and 18 through 22 of the technical report title *NI-43-101 Technical Report, Copperstone Property, La Paz, Arizona,* and dated 27 March 2006, (the "Technical Report") relating to the Copperstone property. I visited the Copperstone property on 02 June 2005 for 1 day.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 27th Day of March 2006.

"Signed and Sealed"

William Tilley, PE

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I, Edward J. C. Orbock III, do hereby certify that:

1. I am a Principal Geologist of:
   AMEC E&C Services, Mining & Metals Division
   2001 W. Camelback Road, Suite 300, Phoenix, Arizona, 85015 USA
2. I graduated with a degree in Master of Science in Economic Geology from the University of University of Nevada-Reno in 1992.
3. I am a member of the Australasian Institute of Mining and Metallurgy.
4. I have worked as a geologist for a total of 20 years since my graduation from university.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI-43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the Purposes of NI 43-101.
6. I am responsible for the preparation of sections 7, through 17 of the technical report title *NI-43-101 Technical Report, Copperstone Property, La Paz, Arizona,* and dated 27 March 2006, (the “Technical Report”) relating to the Copperstone property. I visited the Copperstone property on June 1, 2006 for 2 days. I visited the Copperstone property on June 12, 2006 for 2 days.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 27th Day of March 2006.

Signed and Sealed

Edward J. C. Orbock III

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I, Todd Wakefield, MAusIMM, do hereby certify that:

1. I am employed as Principal Geologist of:
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   780 Vista Blvd, Suite 300, Reno, Nevada 89434 USA
2. I graduated with a Bachelor of Science degree in Geology from the University of Redlands in 1986. In addition, I obtained a Masters of Science degree in Geology from the Colorado School of Mines in 1989.
3. I am a member of the Australasian Institute of Mining & Metallurgy (AusIMM).
4. I have worked as a geologist for a total of 17 years since my graduation from university.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the Purposes of NI 43-101.
6. I am responsible for the preparation of sections 12 through 14 of the technical report title *NI-43-101 Technical Report, Copperstone Property, La Paz, Arizona,* and dated 27 March 2006, (the "Technical Report") relating to the Copperstone property. I visited the Copperstone property on 12 June 2005 for 2 days.
7. I have not had prior involvement with the property that is the subject of the Technical Report
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 27th Day of March 2006.

Signed and Sealed

Todd Wakefield, MAusIMM

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I, William Colquhoun, Pr.Eng, do hereby certify that:

1. I am William Colquhoun of:
   AMEC E&C Services, Mining & Metals Division
   111 Dunsmuir Street, Suite 400, Phoenix, Arizona, USA
2. I graduated with a degree in BSc Chemical and Process Engineering from the University of Strathclyde in 1982.
3. I am a member of the South African Council for Professional Engineers.
4. I have worked as a metallurgist for a total of 23 years since my graduation from university.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the Purposes of NI 43-101.
6. I am responsible for the preparation of section(s) 16, 18.2 of the technical report title *NI-43-101 Technical Report, Copperstone Property, La Paz, Arizona,* and dated 27 March 2006, (the "Technical Report") relating to the Copperstone property. I visited the Copperstone property on 02 June 2005 for 1 day.
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8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 27th Day of March 2006.

Signed and Sealed

William Colquhoun, Pr.Eng

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1.0 SUMMARY

The Copperstone property is located in La Paz County, Arizona, about 9.5 miles north of the town of Quartzite. The property consists of 335 unpatented mining claims and three state mineral sections covering an area of approximately 8,821 acres. Within the property boundary lies the Copperstone deposit, a mid-Tertiary, detachment fault hosted, high-grade gold deposit, which is structurally controlled by the Copperstone Fault.

American Bonanza Gold Corp. ("American Bonanza") holds a 100% leasehold interest in the Copperstone Project. Patch Living trust is the landlord. The lease is for a 10-year term starting 12 June 2005, and is renewable for one or more additional 10-year terms.

The Copperstone Property is a 'brown field" site and has been for the most part fully reclaimed and released by the State of Arizona. The fact that previous mining activity occurred on the site provides several opportunities to contract the permitting schedule for a new mining operation. The relatively recent (1987 to 1996) successful permitting and closure activities carried out by Cyprus at Copperstone provide empirical baseline data and historic results to bolster future permitting efforts. In particular Cyprus activities demonstrated the predominate oxide nature of both the ore and waste at Copperstone and the minimal environmental impact of continued mining efforts. Cyprus Minerals produced approximately 500,000 oz Au from 1987 to 1993, when the pit finally reached its economic limits. Several companies have been involved in exploration and drilling campaigns since then.

American Bonanza (formerly Asia Minerals) has been active on the Copperstone Property since 1998. Site work has included several drill campaigns, underground development from the pit bottom, and sampling for metallurgical testing.

In recent years, exploration has focused on the C- and D-Zones, which lie north of the existing pit, and down-dip of the previously mined portion of the Copperstone Fault. In addition, American Bonanza has been collecting comprehensive hydrological, geotechnical, archeological, geochemical, and meteorological data to support future permitting efforts.

In April 2005, American Bonanza commissioned AMEC to prepare a Preliminary Assessment, which is the subject of this Technical Report. The scope included updating the resource estimate with current drill data, preparing conceptual mining and processing plan, and developing preliminary economic analyses.

AMEC estimated total Mineral Resources by tabulating all mineralization within the 0.03 oz Au/t grade shell and above a cutoff grade of 0.05 oz Au/t. This represents mineralization that may have reasonable prospects for economic extraction at higher gold prices, economies of scale and the potential for extraction of mineralization from expansion of the existing open pit. America Bonanza disclosed this Mineral Resource in a February 8th press release.

Table 1-1: Mineral Resource Tabulation – $PACK_{100}$ Model Capped at 4.0 oz Au/t with a 0.05 oz Au/t Cutoff Grade

Zones	Classification	Tons	Grade (oz Au/t)	Cont. Ounces
A, B, C, and D	Measured	17,200	0.426	7,333
A, B, C, and D	Indicated	2,654,900	0.162	429,563
A, B, C, and D	Measured + Indicated	2,672,100	0.164	436,896
A, B, C, and D	Inferred	587,300	0.152	89,445

Mineral resources above a cutoff grade of 0.20 oz Au/t, and with dilution and mining extraction parameters applied are listed below.

Table 1-2: Mineable Mineral Resources – $PACK_{100}$ Model Capped at 4.0 oz Au/t with a 0.20 oz Au/t Cutoff Grade

Zones	Classification	Tons	Grade (oz Au/t)	Cont. Ounces
A, B, C, and D	Measured	10,300	0.394	4,028
A, B, C, and D	Indicated	362,500	0.366	132,807
A, B, C, and D	Measured + Indicated	372,800	0.313	136,835
A, B, C, and D	Inferred	3,700	0.299	1,113

It should be noted that the economic parameters applied to this mineable resource are preliminary and that the Mineral Resources do not have demonstrated economic viability until financial analyses determine that the resources can be extracted at a profit after recovery of operating and capital costs. Furthermore, in accordance with NI 43-101 Section 2.3.3, the Preliminary Assessment 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, and there is no certainty that the Preliminary Assessment will be realized.

Resource geometry (dip and thickness), rock mass characteristics, and continuity limit the ability to support a large scale operation with highly productive stopes; however, a combined approach of selective mining methods such as drift and fill and blasthole stoping is proposed to maximize extraction and minimize dilution. A sustainable production rate of 350 tpd is suitable for the currently defined underground mineable resource.

Metallurgical test work supports gold recoveries in excess of 90% utilizing a process, which involves crushing, grinding, and floating a gold concentrate, dissolution of gold, followed by gold recovery using the Merrill Crowe process and refining.

Tailings are proposed to be stored in a new, unlined, facility, which is constructed above the existing fully-lined tails facility.

Key permitting issues relate to the decision to prepare an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). The EA is briefer, less costly, but is only applicable if the project can meet a standard of no potential significant environmental impacts. The EIS is more detailed and costly. Even though Copperstone would ostensibly have no significant environmental impacts due to previous mining activity and environmental reviews performed for that activity, there may be greater assurance to successfully permit the project under an EIS in a timely manner (The Mines Group 2004). Other key permits that will affect timing include the Aquifer Protection Permit, Dam permit, and Air Quality Permit.

Conceptual mine production totals 377,000 t with an average grade of 0.366 oz Au/t. The mine life is 3 years, at a nominal production rate of 350 tpd. Project capital costs are estimated to be $32 Million, assuming the installation of all new equipment. Life-of-mine operating costs average $103/t.

Financial analyses indicate the base case mine plan has a net present value of ($14.9) million non-discounted or ($16.2) million at a 5% discount rate using basis metal prices of $450/oz Au and $6.50/oz Ag.

Sensitivity analyses indicate metal prices of $600/oz Au and $8.00/oz Ag are required to yield an IRR of 1.3% and/or a 3.7-year payback.

The following areas are identified as having the greatest opportunity to add value to the Copperstone project:

- Increase mineable resources through down-dip and down-strike exploration of the existing resource, supplemented with additional resources yet to be delineated from nearby geophysical and exploration anomalies. Order-of-magnitude sensitivity analyses indicate a non-discounted breakeven cash flow can be achieved if the resource base increases from 377,000 t with an average grade of 0.366 oz Au/t to 748,000 t with the same average grade. The required tonnage increases to 1,506,000 with a 10% discount rate. This sensitivity analysis is based on the assumption that pre-production capital and operating costs are identical to those in the proposed base case mine plan, with a minor incremental ongoing capital cost expense.
- Increase gold production through increased mill head grades by being more selective within the currently defined resources, supplemented with additional resources yet to be delineated from nearby geophysical and exploration anomalies. Order-of-magnitude sensitivity analyses indicate a non-discounted breakeven cash flow can be achieved if the average grade of the current mineable resource

increases from 0.366 oz Au/t to 0.469 oz Au/t. The required grade increases to 0.525 oz Au/t if a 10% discount rate is applied. This sensitivity analysis is based on the assumption that capital and operating costs are identical to those in the proposed base case mine plan.

- Reduce capital costs utilizing a mixture of used and new equipment. The study's capital cost estimate assumed 100% new equipment. Used equipment if available, could be substituted for new in several areas with the potential to reduce upfront capital costs, although, there could be an associated minor increase in maintenance costs and reduction in availability. These areas include the crushing and grinding circuits in the mill and the underground mining equipment fleet.
- Many opportunities for economic improvement exist within the proposed mine and process plan, which are the subject of recommended additional studies, but most are relatively minor in significance, compared to the three described above, on a stand-alone basis.

2.0 INTRODUCTION

2.1 Purpose

AMEC was retained by American Bonanza in April 2005 to prepare a Preliminary Assessment for the Copperstone Project. American Bonanza requested that AMEC provide a report (Technical Report), the format of which to conform to Form 43-101F1, *Technical Report.* This effort was commissioned and managed by Joe Kircher, Vice-President, and Chief Operating Officer for American Bonanza.

The purpose of this technical report is to present the results of a comprehensive evaluation of the Copperstone deposit, which incorporates an updated resource model, mining, processing concepts, and a current economic evaluation, and to outline opportunities to improve project economics viability.

AMEC understands that this report may be submitted to the TSX Exchange in support of filings by American Bonanza.

2.2 Source of Information

Data used to prepare this report was provided by American Bonanza, and included certified copies of assay certificates, an electronic copy of the assay database, site access to AMEC personnel, and copies of previously published reports. AMEC was also authorized to consult with metallurgical, hydrological, geotechnical, and environmental consultants retained by American Bonanza.

Some aspects of this report, regarding summarizations of the history and geology, were derived from previous 43-101 technical reports on the Copperstone project. Mine Development Associates (MDA) of Reno, Nevada produced a report for American Bonanza in October 2000 that reviewed the exploration activities and results of the project up to that time (MDA, 2000). Michael Pawlowski produced a technical report on drill results up to and including 18 January 2005 (Pawlowski, 2005).

2.3 Qualified Persons

Qualified persons for this report include the following:

- William Tilley, PE, Sections 1 through 6, Section 15, and Sections 18 through 22
- Edward J.C. Orbock III (Ed Orbock) , MAusIMM, Sections 7 through 17
- Todd Wakefield, MAusIMM, Sections 12 through 14
- William A. Colquhoun, Pr.Eng, Section 16 and 18.2.

Mr. Tilley was assisted in estimates of capital costs by Terence Tham, AMEC Cost Estimator and in financial analyses by Graham Wood, AMEC Manager of Financial Services.

2.4 Field Involvement of Qualified Persons

The study was initiated with a site visit on 02 June 2005 by the following AMEC personnel:

- Ed Orbock, Project Lead, Geology
- William Colquhoun, Project Lead, Metallurgy and Process
- Paul Kaplan, Project Lead, Tails Management
- Michael Baigent, Project Lead, Cost Estimating
- William Tilley, Project Manager.

The intent of the site visit was to familiarize AMEC personnel with site conditions, collect data, review project scope, and outline any additional data requirements. The visit included a comprehensive tour of existing surface facilities, the pit, the exploration ramp, the tails impoundment, and inspection of a selection of core samples.

A second site visit was made by Ed Orbock and Todd Wakefield on 12 to 13 June 2005. The purpose of the second visit was to review the deposit geology and mineralization with American Bonanza personnel and collect information on sampling, sample preparation and assaying, assay QA/QC, and data verification.

2.5 Terms of Reference

AMEC is not an associate or affiliate of American Bonanza, or of any associated company. AMEC's fee for this Technical Report is not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report. This fee is in accordance with standard industry fees for work of this nature, and AMEC's previously provided estimate is based solely on the approximate time needed to assess the various data and reach the appropriate conclusions.

The effective date of this report is 27 March 2006.

Unless stated otherwise, all quantities are in US Commercial Imperial units and currencies are expressed in constant US$ 2006. To convert numbers from imperial to metric please refer to Section 2.6.3. The mineral resource and mineral reserve summaries are reported in both imperial and metric units.

2.6 Units of Measure

2.6.1 Common Units

Above mean sea level	amsl
Ampere	A
Annum (year)	a
Billion years ago	Ga
British thermal unit	Btu
Cubic feet per second	ft^3/s or cfs
Cubic foot	ft^3
Cubic inch	in^3
Cubic yard	yd^3
Day	d
Days per week	d/wk
Days per year (annum)	d/a
Degree	°
Degrees Fahrenheit	°F
Foot	ft
Gallon	gal
Gallons per minute (US)	gpm
Grams per tonne	g/t
Greater than	>
Hectare	ha
Horsepower	hp
Hour	h
Hours per day	h/d
Hours per week	h/wk
Hours per year	h/a
Inch	"
Kilo (thousand)	k
Kilovolt	kV
Kilovolt-ampere	kVA
Kilovolts	kV
Kilowatt	kW
Kilowatt hour	kWh
Kilowatt hours per short ton (US)	kWh/st
Kilowatt hours per year	kWh/a
Less than	<
Megavolt-ampere	MVA
Megawatt	MW
Micrometre (micron)	µm
Miles per hour	mph
Milliamperes	mA
Milligram	mg
Milligrams per litre	mg/L
Millilitre	mL
Millimetre	mm
Million	M
Minute (time)	min
Month	mo
Ohm (electrical)	Ω
Ounce	oz
Ounces per ton	oz/t

Parts per billion	ppb
Parts per million	ppm
Percent	%
Phase (electrical)	Ph
Pound(s)	lb
Pounds per square inch	psi
Short ton (2,000 lb)	st
Short ton (US)	t
Short tons per day (US)	tpd
Short tons per hour (US)	tph
Short tons per year (US)	tpy
Specific gravity	SG
Square foot	ft^2
Square inch	in^2
Total dissolved solids	TDS
Total suspended solids	TSS
Volt	V
Yard	yd
Year (US)	yr

2.6.2 Common Chemical Symbols

Aluminum	Al
Ammonia	NH_3
Antimony	Sb
Arsenic	As
Bismuth	Bi
Cadmium	Cd
Calcium	Ca
Calcium carbonate	$CaCO_3$
Calcium oxide	CaO
Calcium sulfide dehydrate	$CaSO_4 \cdot 2H_2O$
Carbon	C
Carbon monoxide	CO
Chlorine	Cl
Chromium	Cr
Cobalt	Co
Copper	Cu
Cyanide	CN
Gold	Au
Hydrogen	H
Iron	Fe
Lead	Pb
Magnesium	Mg
Manganese	Mn
Manganese dioxide	MnO_2
Manganous hydroxide	$Mn (OH)_2$
Molybdenum	Mo
Nickel	Ni
Nitrogen	N
Nitrogen oxide compounds	Nox
Oxygen	O_2
Palladium	Pd

Platinum	Pt
Potassium	K
Silver	Ag
Sodium	Na
Sulfur	S
Tin	Sn
Titanium	Ti
Tungsten	W
Uranium	U
Zinc	Zn

2.6.3 Metric Conversion Factors (divide by)

Short tons to tonnes	1.10231
Pounds to tonnes	2204.62
Ounces (Troy) to tonnes	32,150
Ounces (Troy) to kilograms	32.150
Ounces (Troy) to grams	0.03215
Ounces (Troy)/short ton to grams/tonne	0.02917
Acres to hectares	2.47105
Miles to kilometers	0.62137
Feet to meters	3.28084

2.6.4 Abbreviations

American Society for Testing and Materials	ASTM
Canadian Institute of Mining and Metallurgy	CIM
Global Positioning System	GPS
Internal Rate of Return	IRR
Net Present Value	NPV
Rock Quality Designation	RQD
Universal Transverse Mercator	UTM
Reverse Circulation	RC

3.0 RELIANCE ON OTHER EXPERTS

The results and opinions expressed in this Technical Report are based on AMEC's field observations, discussions with American Bonanza personnel during site visits and the geological and technical data listed in the References. While AMEC has carefully reviewed all of the information provided by American Bonanza and their consultants, and believes the information to be reliable, AMEC has not conducted an in-depth independent investigation of all of the provided information to verify its accuracy and completeness.

The results and opinions expressed in this report are conditional upon the aforementioned technical and legal information being current, accurate, and complete as of the date of this report, and the understanding that no information has been withheld that would affect the conclusions made herein. AMEC reserves the right, but will not be obliged, to revise this report and conclusions if additional information becomes known to AMEC subsequent to the date of this report. AMEC does not assume responsibility for American Bonanza's actions in distributing this report.

Areas where AMEC has relied on the opinions of other experts include the following:

AMEC did not perform an independent verification of the mining claim status, as this area is outside our area of expertise. Instead, AMEC relied on Michael Pawlowski's review (Pawlowski, 2005) and verbal confirmation from American Bonanza that receipts for BLM and AZ lands filing fees are available in their offices for review. AMEC has no reason to believe that the mining claims and fee lands are not valid.

AMEC relied on Golder Associates' (Golder, 2006) opinion for geotechnical parameters required to support mine design, such as opening geometry, orientation, and ground support requirements.

AMEC relied on Water Management Consultants' (WMC 2006) opinion with respect to hydrological issues such as water management philosophy and estimating ground water inflows for the mine.

AMEC relied on The Mines Group's opinion (TMG 2004) on environmental and permitting related issues.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Copperstone property is located in La Paz County, Arizona, approximately 9.5 miles north of the town of Quartzite (Figure 4-1). The property is situated within Sections 18 to 22 of Township 6 North, Range 19 West (T6N, R19W) and Sections 1, 2, 11 to 14, 22 to 27 of Township 6 North, Range 20 West (T6N, R20W) Gila & Salt River Meridian (GSRM).

4.1 Mineral Tenure and Agreements

4.1.1 Mineral Rights

The Copperstone property encompasses an area of approximately 8,821 acres (Figure 4-2). The property consists of 335 contiguous unpatented lode mining claims in Sections 18 to 22 of Township 6 North, Range 19 West (T6N, R19W) GSRM and Sections 1, 2, 11 to 14, and 22 to 27 of Township 6 North, Range 20 West GSRM (T6N, R20W). American Bonanza also holds mineral leases totaling approximately 1,920 acres on state mineral lands in sections 6, 7 and 31 of Township 7 North, Range 19 West (T7N, R19W) GSRM. The Department of Interior, Bureau of Land Management ("BLM") administers public lands in the area of the Copperstone property under the Federal Land Policy and Management Act of 1976. The west side of the property borders the Colorado River Indian Tribes reservation.

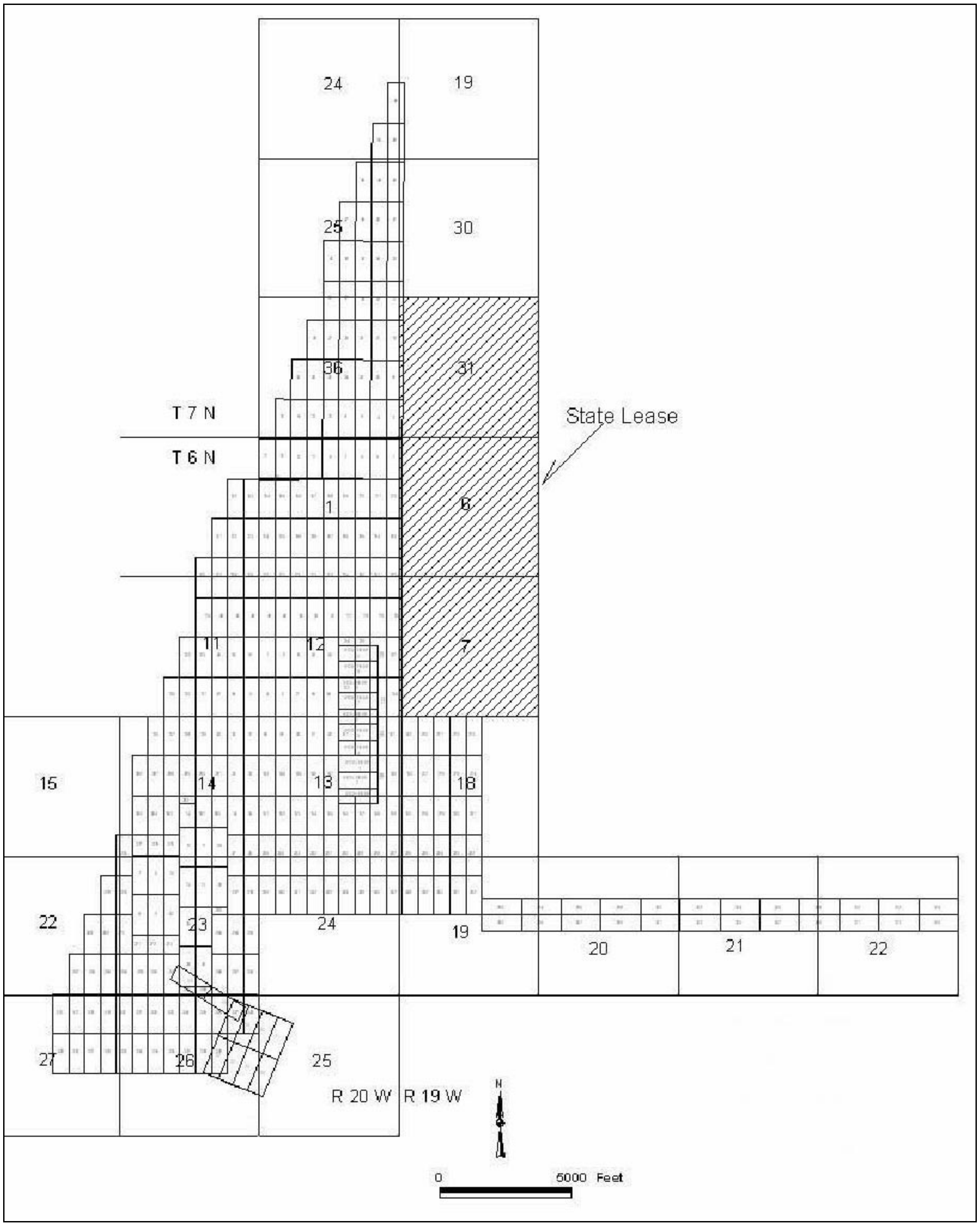
Annual claim maintenance fees of $125 per claim are payable yearly by September 1st. All 335 mining claims are active with the current assessment paid though 1 September 2005. The La Paz County yearly tax has been paid on existing building and improvements on the Copperstone property.

AMEC relied on the (Pawlowski, 2005) review of mineral rights regarding the validity of unpatented mining claims and title to fee lands. American Bonanza reports that claims fees are up to date and receipts for BLM and Arizona lands filing fees are available at American Bonanza's offices. AMEC has no reason to believe that the mining claims and fee lands are not valid.

The property was legally surveyed by Rob Berry of Land Management Services in Artesia, New Mexico.

Figure 4-1: Location Map of the Copperstone Property

Figure 4-2: Claim Map of the Copperstone Property



4.1.2 Agreements and Royalties

The following section is adapted from (Pawlowski, 2005).

American Bonanza holds a 100% leasehold interest in the Copperstone Project. The landlord is the Patch Living trust and the lease is for 10-year term starting 12 June 1995. The Patch Living Trust receives an annual advance royalty payment of $30,000 over the 10-year term of the agreement. The lease is renewable by American Bonanza for one or more ten-year terms at American Bonanza's option under the same terms and conditions. Effective 12 June 2005, American Bonanza renewed the lease with the Patch Living Trust for an additional ten year term. American Bonanza is obligated to pay for all permitting and state lease bonding, insurance, and taxes. The production royalty is paid on the basis of all gold refined and/or sold from the property as follows.

Table 4-1: Production Royalty Schedule

Royalty (GPR)	Avg. LME Gold Price (month/oz)
1%	< $350
2%	$350 to $400.99
3%	$401 to $450.99
4%	$451 to $500.99
5%	$501 to $550.99
6%	>$551

In August 1998, American Bonanza entered into an agreement with Arctic Precious Metals Inc. ("Arctic"), a subsidiary of Royal Oak Mines Inc., to explore and develop the Copperstone gold property. Pursuant to this agreement, American Bonanza acquired a 25% interest in the Copperstone project for a cash payment of US$500,000 with an option to increase its interest in the property to 80% by incurring US$4,000,000 of exploration expenditures and other payments. In addition, American Bonanza continued to make the US$30,000 annual advance royalty payment to the property owner.

In November 1999, American Bonanza entered into a purchase and sale agreement with Arctic whereby American Bonanza agreed to purchase for US$1,000,000 all of Arctic's right, title and interest in the Copperstone Project owned by Arctic who was undergoing US Bankruptcy Code Chapter 11 financial restructuring.

On 4 March 2002, upon approval of the US Bankruptcy court, American Bonanza completed the acquisition of the remaining 75% not already owned in the Copperstone property at the cost of US$1,000,000. This transaction was funded by loan of US$1,100,000 from Brascan Financial Corporation. On 29 October 2003, American Bonanza paid the final payment on the loan to Brascan Financial Corporation.

In June 2000, American Bonanza entered into an agreement (the D-Zone Joint Venture) with Centennial Development Corporation (“CDC”) for the underground exploration and extraction of mineralized materials from only the D-Zone of up to 50,000 tons of mineralized material at the Copperstone property. According to this agreement, American Bonanza assumed a 55% interest in the property as follows:

- additional 5% interest if American Bonanza provides all funding necessary to complete Phase One as documented in the agreement (completed by American Bonanza in 2001)
- further 15% interest for a cash payment of US$500,000.

On 24 February 2002, American Bonanza entered into an agreement with CDC whereby it would acquire the remaining 40% of the D-Zone Joint Venture not already owned for the following considerations:

- assumption of a total of US$325,000 of the Copperstone related liabilities and if these liabilities exceed the estimated amount then the additional amounts will be paid equally by CDC and American Bonanza
- assumption of an estimated CDC payroll tax liability of up to US$180,000 and if above, then the amount to be equally paid by CDC and American Bonanza
- US$345,000 payable to CDC and or its principal on or before 31 July 2002
- a net smelter royalty of 3% paid to CDC form the first 50,000 tons of mineralized materials extracted from the D-Zone, following repayment of the Brascan loan agreement
- US$70,000 from initial proceeds from extraction of mineralized materials from the D-Zone, following repayment of the Brascan loan agreement.

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

5.1 Accessibility

The Copperstone property is located on public land in La Paz County, Arizona, approximately 9.5 miles north of Quartzite. The site is accessed by approximately 90 miles of paved road (Interstate 10 and Arizona State Highway 95), and 2 miles of gravel road from Phoenix. The highway is suitable for the transportation of major project components and considered acceptable. Driving time from Phoenix to the mine site is approximately two hours.

The nearest town to the property is Quartzite, Arizona with a permanent population of 3,354 (Census 2000 data).

5.2 Climate

The climate in the area is classified as hot, dry desert where high wind conditions produce periods of naturally blowing sand. Predominant wind directions are north and south. Basic statistics on weather for the area are as follows:

- Average daily temperature, April to October ....105°F
- Extreme annual temperatures
  (Max) ....121°F
  (Min) ....20°F
- Average annual rainfall ....4 inches

Water resources in the region are derived from precipitation or from surface water recharge. The region is the driest area in the United States and large areas are categorized as arid and semiarid. Annual precipitation generally is related to altitude of the land surface.

5.3 Local Resources and Infrastructure

The Copperstone deposit is favorably located across flat, sandy desert. A main line of the Santa Fe railroad passes to the north of the property. Adjacent to the site access road process water, from site surface wells, and overhead commercial power is routed to the project site.

Existing site infrastructure includes an office for geological exploration crew, warehouse/shop for mining surface equipment, laboratory building, change house, 10 trailer house hook-ups, septic system, and various shipping containers, a number of which act as secure areas for American Bonanza reverse circulation and diamond drill core logging boxes. Incoming commercial 69 kV overhead electrical power is delivered to a power substation near the proposed plant site. Water is currently delivered from three water wells to an existing 375,000 gal storage tank in the same area.

Within a 35-mile radius of Copperstone several communities including Parker and Quartzite, Arizona and Blythe, California, are equipped to provide housing, shopping and schools for mine personnel and their families.

5.4 Physiography

Topography in the area is flat to moderate, located on a dry, sandy terrain. Several small knolls and prominent longitudinal northeast trending sand dunes categorize the project area. Surface elevations range from 725 to 900 ft amsl.

5.5 Labor

Skilled labor for construction and general operations is available from the towns of Quartzite, Yuma, and Parker Arizona, and from Blythe, California. Skilled underground miners will need to be recruited from other outside sources.

6.0 HISTORY

The history of the Copperstone project is adopted from MRDI (1999), MDA (2000), and (Pawlowski, 2005).

The Copperstone property and environs were first identified as a copper prospect in 1968. The first recorded activity on the property was from 1968 to 1980, when Charles Ellis of the Southwest Silver Company controlled the Continental Silver claim group (Salem, 1993).

In 1975, Newmont Mining leased the property, conducted a geophysical survey, and drilled a single hole in an unsuccessful attempt to outline weak porphyry copper mineralization.

In 1980, Southwest Silver Company drilled six rotary holes with unknown results and then dropped the claims. Later in the same year, Don Patch staked 63 Copperstone claims and leased the property to Cyprus-Amoco (Salem, 1993). Cyprus then purchased the Iron Reef Claim group from W. Rhea and added additional claims to expand the claim block to 284 claims. After initial field evaluation and sampling programs the Copperstone property was identified for potential gold mineralization (MDA, 2000).

Cyprus acquired a 100% working interest in the original 65 Copperstone claims, expanded the holdings to 290 claims, and proceeded to outline broad areas of gold mineralization throughout the property. Drilling campaigns from 1980 to 1985 totaled over 400 reverse-circulation and 70 diamond drill holes and resulted in Cyprus compiling baseline economic studies, metallurgical testwork programs and financial analysis leading to mine construction in 1986.

The proposed open pit area was drilled off in 1986 and a decline was driven from the surface to a level approximately at current open pit bottom. In 1987 mine stripping and production commenced. Ore was treated at a rate of 2,500 tpd through a CIP milling operation. The Copperstone mine was designed, constructed, and operated as a zero discharge operations with environmental safeguards.

Open pit mining continued through to late 1992 in accordance with original mining permits allowing mining to the groundwater table. In early 1993, further pit exploratory drilling encountered large volumes of water and coupled with pit wall stability problems and corporate concerns regarding potential negligence citations, mining was halted. Future underground mine plans were abandoned whilst the surface ore stocks were treated. Milling operations ceased in May 1993 and Cyprus removed all mine, mill equipment and structures.

The mine was closed under the approvals from the Arizona Department of Environmental Quality Aquifer Protection Permit and the Bureau of Land Management. The mine and waste dump closure plan and reclamation study of surface disturbance associated with the mine was implemented, and operated by Cyprus and finally completed in September 1998.

The reported production of the Copperstone mine was 447,000 oz of gold from 5,880,017 tons of ore grading 0.086 oz/t of gold (Salem, 1993). Ackerman (1998) reported production by Cyprus at Copperstone of 514,000 oz of gold from 5,600,000 Mt of ore grading 0.089 oz/t of gold.

Santa Fe Pacific Gold Corporation (Santa Fe) leased the property in 1993 and completed 12,500 ft of reverse circulation drilling on seven exploration targets. One Santa Fe drill hole (DCU-8) intersected significant gold mineralization in the footwall of the Copperstone fault. This intercept assayed 0.646 oz/t of gold over 15 ft (Santa Fe, 1994).

In 1995, Royal Oak Mines leased the property from the Patch Living Trust and drilled 35 drill holes totaling about 25,875 ft between 1995 and 1997 (McCartney, 2000). The drill program concentrated on deep extensions of the mineralization in the Copperstone Fault to the north and down dip to the east of the open pit. Results showed several high-grade gold intersections to the north and east of the open-pit with potential for underground mining (McCartney, 2000).

In August of 1998, Asia Minerals entered into a joint venture with Royal Oak Mines to explore and develop the Copperstone property. During the summer of 1998, Asia Minerals drilled 15 holes with a total of about 10,050 ft of drilling completed. A series of drill holes within what was then termed the D-Zone showed relatively high-grade gold intersections.

In February of 1999, MRDI Canada and Golder Associates completed a scoping level evaluation of the Northwest High Grade Zone (C- and D-zones). MRDI estimated an Indicated resource of 892,200 tons averaging 0.32 oz/t gold and an Inferred resource of 1,193,700 tons averaging 0.354 oz/t gold. These historic resource estimates do not comply with CIM Definitions and Standards for Mineral Resources and Mineral Reserves (2005) and are provided herein for historic purposes only. MRDI also concluded that additional exploration potential existed, which might increase the resource in the B-, C-, and D-Zones, the northern strike extension of the Copperstone Fault, and in the footwall of the Copperstone Fault (MRDI, 1999).

In early 2000, Asia Minerals conducted additional diamond and reverse-circulation drilling with a total footage of 7,470 ft. The holes were designed to test the strike extension of the D-Zone with the best intercept in hole A00-10 which assayed 0.943 oz/t Au over 10.5 ft.

On 13 September 2000, Centennial Development Corp. of Salt Lake City, in joint venture with Asia Minerals, began an underground development and exploration decline from the north side of the Copperstone open-pit. The purpose of the northward decline was to test the higher-grade gold mineralization identified from drilling, provide underground drill stations for further exploration drilling, and possible extraction of bulk sample material. The planned length for the decline was 2,000 ft and permitting was obtained to remove up to 50,000 tons of material. A 64 lb high-grade sample was sent to the McClelland Labs in Sparks, Nevada for various metallurgical and milling tests. In 2000, Asia Minerals changed its name to American Bonanza Gold Mining Corp. to better reflect the geographic, metal, and grade focus of the company.

On 26 October 2000, Mine Development Associates completed a report in compliance with National Instrument 43-101 on the Copperstone Property for American Bonanza. MDA visited the property, took samples, reviewed published and unpublished reports, and modified the exploration plan.

On 4 March 2002, American Bonanza announced that it had gained control of a 100% equity interest in Copperstone subject only to the royalty schedule payable to the Patch Living Trust and the agreement with Trilon Securities whereby Trilon will arrange a US$1.1 million secured credit facility for the company.

In November 2002, American Bonanza selected Merritt Construction of Kingman, Arizona to expand the underground development. The objective of extending the decline was to establish underground infrastructure for subsequent exploration and development programs.

On 5 May 2003, American Bonanza announced that significant high-grade gold exposed in the D-Zone was sampled in the decline. In June 2003, an underground drill station was completed and drilling began in July. By 17 May 2004, American Bonanza had drilled 33 underground core holes on the D-Zone with a total of 9,234 ft.

Throughout 2004, American Bonanza conducted the D-Zone, Footwall, and High Wall drilling programs. The D-Zone drilling from underground drill bay number one was focused on estimation of measured and indicated resources in the D-Zone. The Footwall drill program targeted a fault about 400 ft below the main Copperstone fault. The High Wall drilling program focused on the area immediately north of the open-pit, to the southeast of the C and D-Zones.

In October 2004, American Bonanza retained certain specialized firms to assist it with collecting environmental, geotechnical, hydrological and metallurgical baseline data.

The firms included Golder Associates Inc. to review geotechnical data; Water Management Consultants to assess hydrological characteristics and The Mine's Group to provide input with overall project permitting of the Copperstone site.

In early January 2005, American Bonanza retained Michael R. Pawlowski and Thornwell Rogers to complete an updated NI 43-101 technical report on the Copperstone Project. The report did not include an updated estimate of mineral resources since infill drilling was still ongoing.

In April 2005, American Bonanza commissioned AMEC to complete a Preliminary Assessment, including an updated resource estimate, preliminary mine plan, and preliminary economic analysis.

7.0 GEOLOGICAL SETTING

The regional and local geology is adapted from (Pawlowski, 2005). AMEC reviewed Pawlowski's report and project geological maps and concurs with the following descriptions.

7.1 Regional Geology

The Copperstone property is located in the northern Moon Mountains, regionally within the Basin and Range province of western Arizona (Figure 7-1). The Moon Mountains are located in the westernmost exposure of the regional Whipple-Buckskin-Rawhide detachment system and centrally located within the Maria fold and thrust belt (Spencer and Reynolds, Figure 11, 1989).

The middle Tertiary tectonic activity in Arizona was dominated by widespread normal faulting and fault-block rotation that accommodated major northeast to southwest and east-northeast to west-southwest crustal extension (Spencer and Reynolds, 1989). Movement occurred on low to high-angle normal faults, and many high-angle normal faults are known or suspected to be truncated downward by, or to flatten downward and merge with major detachment faults (Spencer and Reynolds, 1989). Detachment faults in Arizona have several to several tens of kilometers of displacement and are the most important structural features of mid-Tertiary age in the Basin and Range Province.

In most cases, the upper-plate rocks above major detachment faults are tilted in one direction, toward the breakaway fault and opposite to the direction of upper-plate displacement. The lower-plate, mylonitic rocks are typically plutonic and high-grade metamorphic rocks exposed in domal uplifts termed "metamorphic core complexes."

7.2 Local Geology

The Moon Mountains are comprised, from oldest to youngest, of the following rock types (Figure 7-2): Precambrian gneiss, schist, and amphibolites; Paleozoic metavolcanics; Jurassic quartz syenite and quartz latite porphyry; Tertiary granite (Copper Peak), biotite granite, hornblende biotite granite; and Tertiary basalt (Knapp, 1989). Buising (1988) identified outcrops of the upper Miocene to lower Pliocene Bouse Formation at Moon Mountain.

The Moon Mountain detachment fault is exposed in the northern Moon Mountains about 1.5 miles south of the Copperstone property. The detachment fault strikes easterly and dips shallow to the northeast. Ductile fabrics display a consistent top-to-the-northeast sense of shear in the footwall biotite granites of early Miocene age (Knapp, 1989).

The Moon Mountain detachment fault displays upper plate Paleozoic, Mesozoic, and Tertiary age brittle rocks over lower plate, ductile deformed, granitic units.

The top of the lower plate is brecciated Copper Peak granite showing a tectonic fabric characterized by flattened, stretched quartz grains and deformed potassium feldspar (Knapp 1989). The Jurassic quartz latite porphyry host to much of the Copperstone mineralization is inferred by Knapp (1989) based on intrusive relations, to be older than the Tertiary age Copper Peak granite. The Copper Peak granite is intruded by a biotite granite dated by U-Pb zircon as early Miocene (20.8$\pm$ 3.2 million years) in age (Knapp 1989). The mylonitic biotite granites are intruded by hornblende biotite granite.

The Moon Mountains show a complex history of deformation, metamorphism, and magnetism that typifies much of the Mojave-Sonoran desert (Table 7-1)

The major structure in the southern Moon Mountains is the Mesozoic Valenzuela thrust fault (Figure 7-2). The Valenzuela thrust fault dips moderately southeast and movement on the thrust was multi-staged, with apparent evidence of south and north directed phases of movement (Knapp, 1989). Late Cretaceous thrusting at the Valenzuela thrust resulted in Jurassic quartz syenites and Precambrian gneisses/schists overlying deformed Paleozoic sediments metamorphosed to the lower amphibolite facies.

7.3 Copperstone Stratigraphy

The Copperstone gold mineralization lies in the hanging wall of the Moon Mountain detachment fault, which has not been penetrated in drilling to date. The stratigraphy in the pit and from drilling consists of Triassic sediments, Jurassic volcanics rocks and Miocene breccias, and basalt flows.

Table 7-1: Principle Geological Events in the Copperstone Area

Age	Event
mid-late Tertiary	Basin and range normal extensional faulting
mid-Tertiary	Detachment faulting, mineralization
----------------	Metamorphism, formation of metamorphic core complexes
late Cretaceous	Intrusion of plutons, folding and thrust faulting of Maria Belt
Triassic-Jurassic	Volcanic-plutonic rocks, thick clastic sequences
Paleozoic	Carbonate and clastic sedimentation
----------------	Erosion, development of unconformity
Precambrian	Metamorphic rocks, accompanying intrusions

Table 7-2: Detailed Stratigraphy of the Copperstone Pit Area

Age	Name	Description
Early Miocene	Basalt	Basalt to andesite. Cut by mineralized amethyst-quartz-specularite veins to the SW of the pit where economic mineralization developed.
Early Miocene	Monolithic Breccia (MSB)	Monolithic fragments derived from Jurassic QLP. Locally developed above the Copperstone fault. Hematization and quartz-specularite mineralization. Contains economic gold mineralization. A sub-aerial sedimentary unit (Chaotic breccia?)
Jurassic	Quartz Latite Porphyry (QLP)	Volcanic flows with well-developed metamorphic foliation. The principle ore host in the pit where it occurs in both the hanging wall and footwall of the Copperstone Fault. Where cut by the Copperstone Fault, a breciatted and mineralized interval about 15 m thick is developed. A minimum thickness of 275 m is postulated by drilling.
Triassic	Meta-sediment Unit	A fining upwards sedimentary cycle; quartzite, chlorite schist (siltstone) and marble (limestone). The principle host rocks for D-Zone. Marble or limestone (LST) occurs at the top of the meta-sediments. It contains intervals of massic specular hematite ± manganese oxide and secondary Cu minerals as veins and in nodular replacements. The mineralization and brecciation observed in the unit is related to the Copperstone Fault. Quartzite (QTZ) is present in the D-Zone area at the base of the meta-sediment package. Characterized by vein and stockwork stringer mineralization.
Triassic	Phyllite (PHY)	Phyllite is the oldest exposed unit in the upper plate and up to 90 m thick in drill holes. Phyllite only has only been recognized in the footwall of the Copperstone Fault in the north part of the pit and in D-Zone and C-Zone drill holes.

The Triassic age metasediments display a fining upwards cycle of quartzite, chlorite schist and marble, exposed in widths up to 100+ ft north of the pit. These meta-sediments occur as the principal mineralized host of the D-Zone (MRDI, 1999). These chloritic to calcareous phyllites show microfolds, local silicification and sercitization, local carbonate veins, and sparse quartz veinlets. These metasediments are thought to be 240 million year old metamorphosed sedimentary rocks correlative to the Triassic Buckskin Formation (Spencer, 1988).

The quartzite unit, typically at the base of the metasedimentary package, is comprised of quartz with minor biotite and chlorite. Various geologists have interpreted this unit as a silicified carbonate, metamorphosed siliciclastic, or a recrystallized chert (MDA, 2000).

The chlorite schist unit generally occurs at the quartzite-marble transition or interbedded within the marble unit. This epiclastic rock is composed segregated bands formed with chlorite, quartz and minor muscovite and biotite. Associated with the chlorite schist are carbonate veinlets; quartz-specularite as replacements and open-space fillings; and earthy hematite replacing specularite.

Marble occurs at the top of the metasedimentary package associated with intervals of massive specular hematite±manganese oxides, and copper oxides veins and replacements.

In thin section, the marble is comprised of equigranular granoblastic mosaics of calcite with minor siderite-ankerite (Salem, 1993). The unit is interpreted as a sedimentary limestone unit on the basis of its weak bedding feature, interbeds of silty material, and the relationship to an underlying quartzite-siltstone sequence in a fining-upward pattern (MDA, 2000).

The Jurassic quartz latite porphyry unit is a volcanic flow with well-developed metamorphic foliation (MRDI, 1999). Microscopically, the quartz latites are holocrystalline and porphyritic with phenocrysts of quartz, k-feldspar, plagioclase, biotite, and magnetite (Salem, 1993). The quartz latite porphyry unit is the principal ore host in the pit where it occupies both the hangingwall and footwall of the Copperstone fault. Salem (1993) suggests that the Jurassic quartz latite porphyry may be correlated to the Jurassic Planet volcanics of the Rawhide-Buckskin Mountain by their lithologic similarities and consistent stratigraphic position above the Triassic Buckskin Formation equivalent. Furthermore, Reynolds (1987) reports an age of 162 to 150 million years by U-Pb analyses on zircon from the Planet Wash volcanics in the Planet Mineral Hill area, which is similar to the age of 138 to 205 million year bracket for the quartz latite porphyry by Spencer (1988).

The monolithic sedimentary breccias at Copperstone are derived from the quartz latite porphyry and similarly observed near Copper Peak by Spencer (1988). These breccias are interpreted as sub-aerial sedimentary units deposited in basins developed during the regional development of the Moon Mountain detachment fault. The breccias are interpreted as Tertiary in age from lithology and clast composition and comparison with other sediments of known Tertiary age (Spencer, 1988, Knapp, 1989). The breccias are comprised of angular to subangular, pebble to cobble sized fragments with a matrix composed of smaller crushed rock material. Strong hematite occurs in along fractures and filling open-spaces. Quartz and quartz-specularite veins cut the breccias that often host gold mineralization at Copperstone. Tertiary basalt is the youngest unit at Copperstone and is reported from drill holes to be up to 450 ft in thickness. The basalts are red brown to black and hypo- to holo- crystalline with phenocrysts of plagioclase, olivine, clinopyroxene, hornblende and magnetite. Calcite and high-temperature quartz often occur in amygdules in the basalts.

7.4 Copperstone Structure

The brecciated Copperstone fault is the principal host for gold mineralization on the Copperstone property. The Copperstone fault strikes about N 30° to 60° W and dips from 20° to 50° NE. The brecciated fault zone ranges from 45 ft to 180 ft in width with characteristic fault gouge, multi-phase breccia textures, shear fabric, and intense fracture sets across this width (MDA, 2000).

Cyprus geologists interpreted the Copperstone fault as a conformable, inter-formation volcanic breccia between the contact of quartz-latite tuff and massive quartz latite footwall rocks. American Bonanza and Salem (1993) note that the volcanic breccias are not conformable and that the Copperstone fault is a listric splay of the Moon Mountain detachment. This is further supported in that the distribution of gold mineralization in the D-Zone suggests that the Copperstone Fault is gently refracting across a structurally complex sedimentary package (MDA, 2000).

Locally the upper D-Zone is localized along a siltstone-carbonate contact changing down dip as it transgresses up to follow the volcanic-carbonate contact. Mineralization associated with the upper limestone contact shows pervasive hematite/specularite, replaced limestone, often in parallel mineralized fault slivers (MDA, 2000).

Cyprus and Bonanza geologists have mapped several mineralized NW faults, sub-parallel to the Copperstone fault, in the pit area. The NW striking faults dip steeply northeast from 70° to 80° and locally control mineralization.

A dominant northeast-striking fault zone offsets the mineralized Copperstone fault zone at the south end of the pit. The mineralized Copperstone fault is offset about 270 ft with left-lateral movement having a dip-slip component as interpreted by Bonanza geologists. This northeast-striking fault dips steeply northwest and contains angular quartz-latite porphyry fragment in a poorly consolidated sandy gouge over an approximately 45 ft thickness (MDA, 2000).

A massive, cataclastic breccia zone was observed in the north end of the drill grid and throughout the length of drill holes A98-12, C97-25, and C97-31 (MDA, 2000).

A northeast striking fault extends into this area but the extensive area with cataclastic rocks cannot be explained by faulting alone. Furthermore, logging of the fragment and matrix composition showed that the sediment-volcanic contact can be traced into the breccia without significant displacement. McCartney (1999) suggested that the cataclastic unit may be a breccia pipe and not a large fault zone.

8.0 DEPOSIT TYPES

Gold mineralization on the Copperstone property is detachment fault related and is described by Singer and Cox (1986) model 37b, Descriptive Model of Gold on Flat Faults.

MDA (2000) summarized the detachment fault model as follows.

Mineral deposits related to detachment faults typically contain iron, manganese and copper oxides, and/or sulfides with quartz, calcite, barite, fluorite, and gypsum in dilatent structures resulting from fault movement. A chlorite envelope is commonly co-planar to the fault and has lesser amounts of epidote and sericite. Potassic alteration is generally present, but not necessarily associated with mineralization. Mineralization is syntectonic, as indicated by polyphase deformation of the epithermal minerals. Plunging undulations in the detachment surface may exert control on mineralization.

Detachment faulting is generally protracted and episodic in nature. The faulting creates intense brecciation, up to hundreds of meters thick, above and below the detachment surface. The brecciation provides permeability, which along which tangential listric and high angle inter-plate faults provide the locus of mineralization. Open space filling is the dominant mineralization type, with important but lesser amounts of reactive rock replacement-style mineralization. Both syn- and post-orogenic mineralization can occur at the same site. The mineralizing fluids are believed to be high-salinity brines migrating up dip from syn-orogenic basins.

9.0 MINERALIZATION

The following discussion of mineralization is adapted from (Pawlowski, 2005) and was confirmed in observations of core and geological maps by AMEC.

9.1 Alteration and Mineralization

Potassic and propyllitic alteration characterize the early stages of pre-mineralization alteration (Table 9-1) (Salem, 1993). These were followed by early amethyst-quartz-chlorite-specularite-hematite-fluorite-barite-calcite-gold; late fine-grained quartz-adularia-earthy hematite±specularite±magnetite-chrysocolla-malachite-gold; and barren quartz-pale green fluorite-barite-hematite. Silicification was introduced in two stages: an early stage consisting of amethyst-quartz-iron-chlorite and a late-stage consisting of quartz-adularia-copper oxides.

Table 9-1: Principle Phases of Alteration and Mineralization

Alt/Min Phase	Description
Oxidation	All host rocks are oxidized down to maximum depths of exploration, often producing earthy red hematite. Some oxides such as specularite and chrysocolla are primary. Sulfide phases are rarely observed.
Post mineral veins	Quartz-fluorite-barite-hematite veins
Late stage mineralization	Fine grained quartz and earthy hematite with minor chalcopyrite, chrysocolla and malachite. *Auriferous*.
Early stage mineralization	Amethyst-quartz-chlorite-specularite veins/replacements. *Auriferous*. Pyrolusite is a common associate. Well developed in meta-sediments, includes massive Fe-oxide replacement of marble in D-Zone. In volcanic host rocks, characterized by thin veinlets with open space filling textures. Amethyst is not abundant in D-zone but increases to the south in the pit area.
Propylitic alteration	Pre-mineralization phase
Potassic alteration	Pre-mineralization phase

Potassic alteration of Tertiary volcanic and sedimentary upper plate rocks accompanied Tertiary crustal extension in many of the precious-metal mineralized detachment fault deposits in the southwest United States (Davis, 1986). At Copperstone, potassic alteration is early stage associated with potassic metasomatized basalts. Also near the Copperstone fault, sericite alters the plagioclase and biotite in the quartz latite porphyry.

Propylitic alteration comprised of an assemblage of chlorite, epidote, and calcite is well developed in the Moon Mountain detachment fault in the Copper Peak area. Similar chloritic alteration is typical of most mineralized detachment faults in the southwest United States. At Copperstone, chlorite as a result of retrograde metamorphism is typical in the phyllite, schists, and marble units. Epidote, chlorite, and calcite after plagioclase are strongly developed in the quartz latite porphyry as a result of Fe-rich hydrothermal fluids.

In the early stage hydrothermal alteration, specularite mineralization is well developed in the metasedimentary rocks and minor in the basal phyllites as veinlets and replacement mineralization associated with earthy hematite along the Copperstone Fault. In the quartz-latite porphyry rocks, specularite-hematite-chlorite is introduced with banded amethyst-quartz veins with local cockcomb textures. Chlorite alteration, an important stage of alteration/mineralization associated with gold mineralization, occurs with fracture-controlled structures within the quartz-latite porphyry. Gold is introduced along the Copperstone fault in this early stage of quartz-chlorite-specularite-hematite alteration. Gold is associated with amethyst and white quartz.

The late-stage fine-grained quartz mineralization occurs as replacements and open-space fillings in the quartz latite porphyry and in the Tertiary sedimentary breccia along the Copperstone Fault. In thin section, quartz-adularia-hematite-magnetite veinlets cross cut the early stage amethyst-quartz-chlorite-specularite veinlets in the quartz latite porphyry. Gold mineralization in the Copperstone Fault is associated with earthy hematite, quartz, and locally calcite. Chrysocolla and malachite are associated with gold mineralization within the quartz latite porphyry and monolithic sedimentary breccias associated with the Copperstone Fault.

The last stage of mineralization was barren quartz-fluorite-barite-earthy hematite veins observed crosscutting the late stage gold-copper mineralized quartz-adularia-hematite veins. Barite occurs in fractures and open-space filling in the quartz latite porphyry and monolithic sedimentary breccias. Occasionally the rock is exclusively comprised of earthy hematite, pale green fluorite, and barite.

9.2 Gold Mineralization

Salem (1993) and Hazen Research (1995) conducted petrographic examinations and assays to study the gold mineralization at Copperstone. Gold occurs mostly as particles with about 80% as small flakes ranging between 4 µm to 40 µm. Coarse gold ranges in size from 50 µm to 150 µm. Gold typically is free and associated with early and late stage quartz/amethyst and occasionally calcite.

Coarse gold occurs in the quartz latite porphyry cut by amethyst-quartz vein fringes, as flakes in fracture, and on the wall rock associated with copper oxides. Salem (1993) concludes that much of the coarse gold is directly depositional in origin (rather than from supergene enrichment), because it occurs as discrete three-dimensional grains and aggregates apparently co-genetic with amethyst-quartz-specularite veins.

9.3 Copper Mineralization

Copper oxide minerals chrysocolla and minor malachite and local azurite are common in the mineralized Copperstone Fault. Copper sulfides are sparse with chalcopyrite observed in petrographic studies and rarely in the pit (Salem 1993). Salem (1993) observed chalcopyrite replaced by covellite along its borders in polished section.

Appendix A lists composites of gold assays used in resource estimates.

10.0 EXPLORATION

Recent exploration by American Bonanza has consisted primarily of exploration and infill drilling. During the 2003 to 2005 drill campaign, American Bonanza completed 263 drill holes totaling 169,977 ft, of which 243 drill holes totaling 152,436 ft are included in the database used to estimate resources. A distribution of the holes drilled follows:

- Highwall – 163 holes totaling 133,206 ft (143 holes in database)
- Footwall – 22 holes totaling 14,259 ft (all in database)
- Underground – 78 holes totaling 22,512 ft (all in database).

American Bonanza drilling includes both surface and underground drilling. Drilling was concentrated in the A-, B-, C-, and D-Zones. Section 11 of this report, Drilling, provides detailed information on the drilling program.

While the results of the drill campaign were often encouraging, in general, the drilling returned lower grades than those from previous campaigns, often removing continuity previously thought to exist between higher grade intercepts.

In addition, American Bonanza completed underground mapping and sampling, limited surface mapping and sampling and geophysical surveys. AMEC reviewed surface and underground mapping by American Bonanza and found them to be conducted in an industry standard manner. Surface and underground rock-chip sampling results and the geophysical survey results were not incorporated into the resource model and were not reviewed by AMEC.

11.0 DRILLING

Exploration drilling on the Copperstone property has occurred in several campaigns from 1975 to the present (Table 11-1). No information remains from drilling by Newmont and the Southwest Silver Company; therefore drill holes from these campaigns are not included in the resource database.

Table 11-1: Summary of Copperstone Drill Campaigns

Company	Campaign Timeframe	Drill Holes Completed	Feet Drilled	Drilling Styles
Newmont	1975	1	Unknown	unknown
Southwest Silver	1980	6	Unknown	RC
Cyprus	1980-1986	536	225,435	Mostly RC
Santa Fe	1993	17	12,500	Mostly RC
Royal Oak	1995-1997	34	28,414	Mostly RC
Asia Minerals	1998-2000	26	19,589	RC pilot/core tail
Bonanza	2003-2005	263	169,977	RC pilot/core tail

Note: Drill hole totals and feet drilled are calculated from list of holes and their lengths in collar table in database. This list includes 20 holes drilled by American Bonanza since the database cutoff date in June 2005.

Drill contractors for the 2003-2005 drilling included Ruen Drilling (diamond) of Clark Fork, Idaho, Layne-Christensen (diamond and reverse circulation (RC)) of Chandler, Arizona, and Diversified Drilling (RC) of Missoula, Montana.

American Bonanza commonly drilled a RC pre-collar hole to a level above mineralization and then drilled the mineralized interval to the planned total depth by diamond drill. Diamond tools employed included HQ (63.5 mm) diameter tools for surface holes and NQ (47.6 mm) diameter tools for underground holes.

AMEC inspected American Bonanza core at site and geotech logs for American Bonanza core holes. These indicate excellent core recovery at Copperstone. Bonanza geologists on site confirm that core recovery is typically very high. AMEC was not provided with digital recovery data to calculate project recovery rates for core or RC.

No information was provided to AMEC regarding the tools used for drilling in previous operators drill campaigns.

11.1 Collar Surveying

American Bonanza drill hole collar locations were surveyed by American Bonanza geologists using a Trimble TSC-GPS system. Cyprus established benchmarks provide survey control. Locations were surveyed in Arizona state plane coordinates, downloaded to computer at the site, and transferred in a spreadsheet to the American Bonanza office in Reno, Nevada for loading to the project database. Underground collar locations were surveyed by transit and chain from control points established by Lemme Engineering Inc., of Phoenix, Arizona.

AMEC was not provided with the collar surveying methods for the Cyprus, Santa Fe, Royal Oak, or Asia Minerals drill campaigns.

Drill hole collar elevations (from drill holes drilled from surface) for all drill campaigns agreed well with the digital topographic surface when checked using MineSight®. AMEC believes that collar locations are suitably accurate to support resource estimates.

11.2 Down-Hole Surveying

During the 2003 to 2005 drill campaign, American Bonanza RC pre-collar drill holes were surveyed for dip with a single-shot camera within the drill steel at 100 ft intervals. This was done to ensure that drill holes did not droop or rise beyond acceptable limits. RC drill holes deviating more than 3° were terminated and redrilled. Upon completion of the core tail, the RC pipe was removed and the entire drill hole (pre-collar plus core tail) was surveyed by Wel Nav of Tustin, California, using a gyroscopic multi-shot tool, which returned azimuth and dip readings at nominal 50 ft intervals. Bonanza underground core holes during this campaign were surveyed using a single-shot camera at nominal 100 ft intervals.

A series of short, underground Bonanza holes (CDH-1 to 10, nominal 100 ft total depth), the 2003 Bonanza RC drill holes testing the Footwall zone (CRD-03-01 to 13, nominal 600 ft total depth), and the 2003 underground core holes testing the D-Zone (CUDH-03-01 to 15, nominal 300 ft total depth) were not surveyed down-hole.

Asia Minerals RC pre-collars were not surveyed and the core tails were surveyed with a single-shot camera at irregular intervals. Eight of the 26 Asia Minerals drill holes were not surveyed. Royal Oak drill holes were surveyed with a single-shot camera at irregular intervals. Fifteen of the 35 Royal Oak drill holes in the database do not contain surveys. Santa Fe and Cyprus drill holes were not surveyed and contain a single planned collar azimuth and dip record in the database for each drill hole.

12.0 SAMPLING METHOD AND APPROACH

The drill sampling methodology employed by American Bonanza during the 2003 to 2005 drill campaign is detailed below. AMEC was not provided with the sampling methodology employed during previous operators drill campaigns. 461 holes are used to estimate resources, of which 195 were drilled by American Bonanza (including 14 by Asia Minerals); Santa Fe drill holes were not used in the resource estimate by virtue of their location outside mineralization.

Individual American Bonanza geologists are assigned to each drill rig and are responsible for managing all aspects of the drill sampling.

12.1 Core Sampling

Drill core is placed into standard waxed cardboard core boxes by the drill helper at the drill site. Core run intervals are marked on wood blocks and placed at the end of each core run. Core boxes are marked with the drill hole name and drill interval.

Drill core is retrieved from the drill rigs two to three times daily by the project geologists and brought to the core shed. There, core is photographed and logged for lithology and geotechnical information. Lithology log fields for each drill hole include rock type, rock qualifier (grain size, fragment types, iron type, etc.), alteration mineralogy and intensity, structure, and reaction to hydrochloric acid.

Core is then marked for sampling by the geologist on nominal two-foot intervals in visibly mineralized material and on nominal five-foot intervals in visibly unmineralized material. American Bonanza drill holes are sampled in their entirety. Marked intervals are sawn in half by a technician at the core shed. A geologist or technician then bags one-half of the core for assay and the other one-half is retained for further study and third party review.

Samples for a drill hole are submitted to American Assay & Environmental Laboratories (AAL) in Reno, Nevada as a single batch with four standard reference materials (SRMs) inserted in the project sample stream. Select mineralized intervals are marked for the measurement of specific gravity, which is also determined by AAL in Reno.

12.2 Reverse Circulation Sampling

RC holes are drilled with water injection to stabilize the holes. RC samples are collected in five foot intervals by drill helpers at the drill site. Approximately five pounds of material is collected from a rotary splitter (3 of 12 sections open for ¼ split) installed below the cyclone on the drill rig. Samples are bagged in micro-pore bags, pre-numbered according to sequentially numbered sample tickets. Sample bags are then loaded into large plastic mesh bags, sealed with tamper-proof ties, and transported to the core shed.

A small portion of the cuttings are washed and placed in plastic chip trays. Chip trays are labeled with the hole name and the sample interval. RC cuttings are logged for lithology information. Lithology log fields for each drill hole include rock type, rock qualifier, alteration mineralogy and intensity, structure, and reaction to hydrochloric acid.

RC samples from a drill hole are submitted to AAL as a single batch with four SRMs inserted in the project sample stream.

13.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

13.1 Sample Preparation 2003 to 2005 Drilling

At AAL, samples are prepared as follows:

- samples are first dried at 100°C until sufficiently dry for further preparation
- samples are then crushed to 75% passing a 10 mesh screen
- the sample is then split until a 300 to 500 gram subsample is generated
- the subsample is then pulverized to 75% passing a 150 mesh screen.

AAL conducts grind tests on 15% of the prepared samples. If a sample fails to meet grind specifications, samples around the failed sample are tested and all samples failing grind specifications are repulverized to meet specifications.

13.2 Analyses

American Bonanza employed AAL as their primary assay laboratory. AAL assayed gold and silver by standard fire assay on a 2 assay ton pulp sample with gold concentrations read on an electronic balance (gravimetric finish). Between one and three (mostly two) fire assays were performed for gold and silver for each sample. Copper was assayed by digesting 0.5 grams of sample in aqua regia and determining the assay value by atomic absorption spectrometry.

Asia Minerals employed Intertek Testing Services (ITS) in Vancouver, Canada as their primary assay laboratory. ITS assayed gold by standard fire assay on a 50 gram pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid. Asia Minerals submitted only select intervals for gold assay. Silver, copper and other elements were assayed by aqua regia digestion ICP-OES for select intervals based on the gold assays. .

Royal Oak, like American Bonanza, employed AAL as their primary assay laboratory. AAL assayed gold by standard fire assay on a 30 gram pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid.

No information on the assaying procedures for the Santa Fe drilling program were provided to AMEC. No Santa Fe assays remain in the resource database.

Cyprus used several laboratories as their primary assay laboratory for exploration drill holes. Before constructing the Copperstone mine laboratory, drill samples were sent to Cone Laboratories in Reno, Nevada, GeoMonitor in Hesperia, California, or CYMET (location not documented) for assay.

Cone, GeoMonitor and CYMET all assayed gold and silver by the same methods. Gold and silver were assayed by digesting (amount not documented) sample in aqua regia and reading the gold concentration on an atomic absorption spectrometer. Select mineralized intervals were assayed for gold by standard fire assay on a one assay ton pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid. Copper was assayed for select drill intervals by aqua regia digestion and read on an atomic absorption spectrometer.

Drill samples assayed at the Copperstone mine lab were assayed by cyanide leach and mineralized intervals (generally Au cyanide greater than 0.1 oz/ton) were assayed by standard fire assay on a one assay ton (29.157 grams) pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid.

Only fire assay data from the Cyprus, Santa Fe, and Royal Oak drill campaigns were entered into the assay database.

13.3 Assay QA/QC Programs

Assay QA/QC programs are carried out to verify the quality of the assays that comprise an important part of the resource database. These programs are designed to determine the accuracy and precision of the assays produced by the assay laboratory. Accurate assays are required to develop a resource estimate that accurately reflects the true grade of the mineralization. Precise assays are required to model ore zones with a high degree of confidence.

American Bonanza regularly included four SRM samples with each drill hole laboratory submission to monitor and control assay quality. American Bonanza also submitted select drill intervals to an umpire laboratory for check assay. Asia Minerals employed a program of SRMs, blanks, check assays, and coarse duplicates to monitor and control assay quality.

On AMEC’s recommendation, American Bonanza conducted a series of check assay programs to validate the accuracy of the Cyprus, Santa Fe, and Royal Oak drill programs. No information on the original quality control programs for these drill campaigns were provided to AMEC.

13.3.1 Assay Accuracy

Accuracy is the measure of a laboratories ability to estimate the true grade of a material. Copperstone assay accuracy was demonstrated through the SRM, check assay, and metallic screen programs carried out by the various operators.

American Bonanza SRM Program

American Bonanza used four SRMs in their SRM QA/QC program, including two Nevada Bureau of Mines (NBM) certified SRMs and two SRMs generated in-house by American Bonanza from material at Copperstone. SRM assays represent approximately 4% of the American Bonanza assays in the database. AMEC was not provided with American Bonanza's protocol for evaluating the SRM results.

The two in-house American Bonanza SRMs are named 'C-Ore' and 'C-Waste' and represent ore-grade and waste-grade material from the Copperstone project site. 'C-Ore' is generated from material collected from the underground muck bay in the decline at the north end of the Copperstone pit. 'C-Waste' is generated from barren RC cuttings from American Bonanza pre-collar drill holes. The SRM material is stored in five gallon buckets in the core shed and is submitted as nominal five pound samples in the same bags as the project samples. The SRM material is submitted to the assay laboratory unprocessed (meaning the material is not crushed, homogenized, or otherwise prepared). The 'C-Ore' material is run-of-mine and resembles a coarse rock-chip sample. The 'C-Waste' material is RC cuttings. No certification program was conducted on these materials to establish their homogeneity or recommended values for gold, silver, and copper.

AMEC plotted control charts for SRMs used in American Bonanza's quality control program (Appendix B).

The gold control charts for the two NBM SRMs show that, overall, the AAL gold, silver, and copper assays are accurate and show no significant bias (AAL gold assays for SRM NBM-2b are shown to be biased slightly low). The gold and silver grades of the two SRMs are within the range of expected grades from mineralized project samples (though it could be argued that NBM-3b is too high grade), but the copper grades are significantly lower than the expected grades from copper mineralized material.

As expected, the control charts for C-ORE and C-WASTE show that these materials should not be used to control assay quality. The precision of the gold and copper assays is very poor and there is obvious variation with grade over time where the C-ORE and C-WASTE material was likely replenished from different sources. These variations are not related to laboratory accuracy and can not be predicted.

The control charts show the AAL assays to have poor precision. The control charts show an unacceptable number of assays outside the designated limits for individual drill holes. This indicates that, though AAL assays are accurate on average; they are not precise. Put another way, AAL is able to accurately estimate the true value of a material when all the assay values are averaged, but each individual assay may be far from the true value.

At AMEC's request, AAL reassayed 10 samples (including and around the failed SRM) from each failed batch in 2005 (based on NBM-2b assays). AMEC reviewed the results of this program and recommends that the new assays replace the old assays in the assay database. The reassay gold values for NBM-2b for all but one batch were within acceptable limits. AMEC recommends that American Bonanza monitor the quality of AAL gold assays more closely and instruct AAL to reassay batches which fail to meet quality control standards set for the program.

Bonanza Check Assay Program

American Bonanza conducted a program of submitting select drill intervals to Inspectorate in Reno, Nevada to check the accuracy of AAL's gold assays. AMEC was unable to evaluate this check assay program because American Bonanza had reused sample number sequences and was unable to provide AMEC with a key to the original samples to compare the check assay values.

Asia Minerals SRM Program

AMEC reviewed SRM data for the 1998 Asia Minerals drill program and found the accuracy of the gold analyses to be acceptable. All SRM gold values were within 10% of the expected value and showed no signs of significant bias. All blank samples returned values less than 0.025 ppm (five times the lower detection limit)

Typically, a SRM and blank were inserted for each batch of 40 samples. The expected gold value of the SRM (0.5 oz/ton) is appropriate for the expected range of the project samples.

Asia Minerals Check Assay Program

Asia Minerals submitted select drill intervals (approximately 10% of all samples) to an umpire laboratory (lab name not provided) for check assay. AMEC plotted the check assays (Appendix B) and found there to be no significant bias in the ITS gold assays.

Royal Oak Check Assay Program

Upon AMEC's recommendation, American Bonanza submitted 30 Royal Oak quarter-core samples to AAL for check assay to determine the accuracy of the gold assays from the Royal Oak drill campaign. AAL assayed according to American Bonanza's normal protocol (2 AT fire assay with gravimetric finish). The Royal Oak drill intervals were selected by AMEC from available core intervals located at the Copperstone core shed. The highest grade intercepts were not available for sampling as they had apparently been consumed for check assay and metallurgical purposes. Information on Royal Oak's original QA/QC programs was not provided to AMEC.

AMEC plotted the results of the check assay program (Appendix B) and found the AAL gold assays to be significantly different than the Royal Oak assays. There is, in fact, an extremely poor correlation between the paired gold assays. SRM results for the program were found to be acceptable.

Given that no original QA/QC data exist to support the Royal Oak gold assays and that this recent quarter-core check assay program does not support the accuracy of the Royal Oak gold assays, AMEC has a low confidence in the original Royal Oak gold assays. In total, there are 28 Royal Oak gold assays in the assay database that are greater than 0.1 oz/t. AMEC recommends that American Bonanza resample these zones where possible, reassay them, and replace the original Royal Oak assays with these assays. Where this is not possible, AMEC recommends that American Bonanza redrill these zones where no supporting assays from Cyprus or American Bonanza core samples are available.

Cyprus Check Assay Program

Upon AMEC's recommendation, American Bonanza submitted 232 Cyprus pulps (approximately 7.5% of all Cyprus gold assays) to AAL for check assay to determine the accuracy of the gold assays from the Cyprus drill campaign. The Cyprus drill intervals were selected randomly by AMEC from the assays entered from Cyprus drill holes. Information on Cyprus' QA/QC programs was not provided to AMEC.

AMEC plotted the results of the check assay program (Appendix B) and found the Cyprus assays to be accurate with no significant bias relative to the AAL check assays. Three of the 12 SRMs submitted with the program were outside acceptable limits. AAL reassayed project samples around the three failed SRMs and found no significant change in gold concentration. In AMEC's opinion, the accuracy of the Cyprus assays is acceptable based on the results of the check assay program.

Metallic Screen Assays

Metallic screen assays mentioned in MRDI (1999) were not provided to AMEC.

Conclusions and Recommendations

AMEC provides the following conclusions and recommendations regarding assay accuracy.

- AMEC finds the accuracy of the AAL gold, silver, and copper assays on American Bonanza drill samples to be acceptable based on the evaluation of SRMs submitted with the project samples.
- AMEC finds the accuracy of the Asia Minerals assays to be acceptable based on the evaluation of SRMs and check assays submitted with the project samples.
- AMEC has a low level of confidence in the accuracy of the original Royal Oak gold assays. The assays from the quarter-core check assay program of available Royal Oak core show very poor correlation with the original assays. AMEC recommends that American Bonanza replace Royal Oak assays by resampling or redrilling where warranted.
- AMEC finds the accuracy of the gold assays from the Cyprus drilling campaign to be acceptable based on the evaluation of a pulp check assay program of 7.5% of the assays in the resource database.
- AMEC recommends that American Bonanza discontinue the use of the C-ORE and C-WASTE SRMs. In AMEC's opinion, the two Copperstone in-house SRMs are not acceptable for use in controlling assay quality. The material for these SRMs is not homogenous and therefore is unlikely to produce a consistent assay grade. This quality is essential in a SRM. SRMs are used to accept or reject the quality (accuracy) of a batch of project samples. If the assay grade of the SRM is not predictable, no decision as to the accuracy of the project samples can be made based on its result.
- AMEC recommends that American Bonanza use SRMs with gold grades close to the cutoff grade and average grade of the deposit. AMEC considers SRM NBM-3b to be too high grade in gold to be of much utility. Consideration should also be given to acquiring SRMs with higher levels of copper to monitor the accuracy of the copper assays at grades similar to those expected at Copperstone. SRM grades should target important decision making points for the project.
- AMEC recommends that American Bonanza replace the current protocol of inserting four SRMs into each analytical batch with a more industry standard protocol of inserting SRMs, blanks, and duplicates at a regular interval (1 in 20 to 25).
- AMEC recommends that American Bonanza closely monitor the results of their QA/QC programs and undertake corrective actions where warranted.

13.3.2 Assay Precision

Precision is the measure of a laboratories ability to return the same value for multiple assays of the same material. Duplicate assays of pulp samples by the same laboratory allow for the calculation of the analytical precision.

American Bonanza typically assayed gold and silver for two or three splits of each sample. AMEC compiled this information and used it to calculate the precision of AAL's gold and silver assays. Asia Minerals inserted coarse reject duplicates within the same batch as part of their QA/QC program.

Bonanza Pulp Duplicate Program

AMEC plotted the absolute relative difference (ARD) for pulp duplicate pairs against the cumulative frequency of the distributions for gold and silver for American Bonanza drill samples (Appendix B). ARD diagrams provide a visual representation of assay precision where precise measurements (low relative difference) are shown on the left side of the diagram and imprecise measurements (high relative difference) are shown on the right side. AMEC considers assay precision to be adequate when greater than 90% of the pulp duplicate pairs yield absolute relative differences of less than 10%. These limits are represented by the red dashed lines on the figures.

When plotting all duplicate pairs (Appendix B), the AAL precision for gold and silver assays is adequate. Approximately 89% of the gold duplicate pairs and 96% of the silver duplicate pairs yield absolute relative differences of less than 10%. However, when the duplicate pairs, whose average assay is at or below the lower detection limit, are removed from the plots (Appendix B) the precision for gold and silver degrades significantly. Approximately 62% of the gold duplicate pairs and only 7% of the silver duplicate pairs yield absolute relative differences of less than 10%. Typically the assay precision of a group of samples is improved when pairs near the detection limit are removed because assays at the detection limit are, by definition, ± 100%. In this case, however, the detection limits for gold (0.003 oz/ton) and silver (0.2 oz/ton) are relatively high and so unmineralized samples (of which there are many) consistently return values below the detection limit, thereby producing a high percentage of zero ARD results.

In AMEC's opinion the precision of AAL's gold and silver assays is marginal. The reason for the relatively poor precision is most likely due to coarse gold and silver and the less-than-optimal sample preparation employed. AMEC recommends that American Bonanza improve the quality of their sample preparation protocol.

Asia Minerals Coarse Reject Duplicate Program

Asia Minerals assayed coarse reject duplicates samples in the same batch as part of the QA/QC program. The variation (error) in assay pairs from coarse reject duplicates includes sub-sampling variation plus analytical variation.

AMEC evaluated the duplicate data and found the precision of the gold assays to be acceptable. The precision of the BSI gold assays was calculated at 17% at the 90%

confidence limit. AMEC considers sub-sampling precision to be adequate when greater than 90% of the coarse reject duplicate pairs yield absolute relative differences of less than 20%.

Conclusions and Recommendations

AMEC finds the precision of the AAL gold and silver assays to be marginal based on the results of the pulp duplicate program results. The reason for the marginal precision is most likely due to coarse gold and silver and the less-than-optimal sample preparation protocol selected by American Bonanza to prepare the drill samples.

AMEC recommends that American Bonanza improve the sample preparation protocol for Copperstone drill samples to improve the precision of the gold and silver assays. Present-day sample preparation protocols for gold typically stipulate crushing the entire sample to 95% passing 10 mesh (2 mm), splitting 500 to 1,000 grams for pulverization to 95% passing 150 mesh (106 µm), followed by a 30 to 60 gram fire assay.

AMEC also recommends that American Bonanza conduct metallic screen assays on select mineralized intervals to determine whether coarse gold is a factor in the poor precision of the fire assay results.

13.4 Security

Drill samples are transported from the drill site to the core shed by American Bonanza geologists. Drill samples are stored in the secure core shed before being shipped directly from the mine site to AAL via DATS Trucking, Inc at regular intervals. Drill sample bags are closed with tamper-proof ties and AAL reports any missing or damaged sample bags upon receipt.

14.0 DATA VERIFICATION

In order to verify that the resource database accurately reflects the source documents for the project, a minimum of five percent of the database was audited for accuracy. In addition integrity checks were conducted on the entire database to ensure that the database is acceptable for resource modeling.

14.1 Bonanza Drill Campaign

Five percent of the assay records for American Bonanza drill holes were audited against the original assay certificates. A total of 1,189 of the 23,787 American Bonanza assay records were audited, including all records with an average gold value (field Au_AVG) greater than 0.1 oz/t, all records with an average gold value below the AAL detection limit (0.003 oz/t), and a random selection of the remaining records. Assays for gold, silver, and copper were included in the audit.

A total of 27 assay errors were found out of the 5,945 assay values checked for an error rate of 0.45%. This error rate is within AMEC's typical acceptable limit for data integrity of 1% error. Most of the errors were the result of a certificate being improperly loaded into the database. These errors were corrected by AMEC. Because AMEC's audit selection spanned most American Bonanza assay certificates, AMEC is confident that few, if any, similar errors remain in the database.

Ten percent of the lithology records for American Bonanza drill holes were audited against the original lithology logs. A total of seven logging errors were found out of the 5,568 geology values from 25 randomly selected drill holes checked for an error rate of 0.1%. This error rate is within AMEC's typical acceptable limit for data integrity of 1% error. Errors observed included minor data entry errors in alteration fields and in AMEC's opinion, are not likely to have a significant negative impact on geologic modeling.

14.2 Cyprus, Santa Fe, Royal Oak, Asia Minerals Drill Campaigns

Eleven drill holes were randomly selected for audit from a list of 205 non American Bonanza drill holes containing at least one interval returning greater than 0.1 oz/t gold (not including mined out sections).

During the audit, AMEC found that gold assays for Cyprus, Royal Oak and Santa Fe drill holes in the database are a mix of different analytical methods, including aqua regia digestion, cyanide digestion, fire assay AA finish, and fire assay gravimetric finish. AMEC also found that gold assays for some drill holes are a calculated average of the cyanide and fire assay results. Available silver and copper data were not represented in the database. Though the error of combining (by mathematical average and mixing both in the same database field) total gold assays (fire assay) with partial digestion gold assays (aqua regia and cyanide) is a conservative error, AMEC recommended that Bonanza reclaim Cyprus, Royal Oak and Santa Fe drill hole assays from the original assay certificates.

As a result, AMEC conducted a program to hand enter all available gold fire assay data as well as available silver and copper data from the original assay certificates of 254 drill holes considered by AMEC to be relevant for resource modeling. Data were entered twice with discrepancies resolved by a third person.

The results of this data entry program are shown in Table 14-1. Drill holes located in the Copperstone open pit that had no impact on the current resource were not entered. This explains the large discrepancy between the number of drill holes and assays in the assay database before and after the data entry program shown in Table 14-1.

Table 14-1: Drill Hole and Assay Totals for Copperstone Database

Company	Drill Holes (before)	Drill Holes (after)	Gold Assays (before)	Gold Assays (after)
Cyprus	536	211	25,004	3,100
Santa Fe	17	0	530	0
Royal Oak	34	14	3,929	1,378

Note: Before and after AMEC data entry program for Cyprus, Santa Fe, and Royal Oak drill campaigns.

Asia Minerals gold assays audited were found to match original assay certificates.

Lithology, collar locations, and down-hole survey records were found to be acceptable for all pre-American Bonanza drill campaigns with one exception. Two of the three down-hole surveys for the Royal Oak drill hole audited did not match single-shot down-hole camera readings provided with the drill log. As a result, AMEC recommends that American Bonanza compare down-hole surveys against the original camera surveys and correct any errant values.

14.3 Database Integrity

Integrity checks of the Copperstone database discovered the following inconsistencies:

- Gold assay values of zero in the database are represented as <0.003 oz/t on the assay certificate. AMEC corrected these errors.
- Minor errors exist in the calculation of the average gold value (Au_AVG field) from the duplicate and triplicate gold assays from AAL. AMEC re-calculated the Au_AVG field to accurately represent the average of the available gold assays for each interval.

15.0 ADJACENT PROPERTIES

There are no adjacent properties that are material to this report.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 Introduction

This section describes the current status of the Copperstone gold project metallurgical test work and the selection of the process flowsheet for the basis of this scoping study. There are two main ore zones in the new Copperstone ore body. The zones are the D- and the HW-Zone. Silver levels are low and have no significant bearing on economics.

16.2 Metallurgical Testwork

AMEC has reviewed historical metallurgical test work, dating from 1986 to 2001 and the results of the most recent program conducted by McCLelland Laboratories on Hanging Wall and D-Zone sample composites, which zones form the basis of the new project resource for the current scoping program.

A summary of historical metallurgical test results is provided in Table 6-1 and these are discussed below.

Table 16-1: Summary of Metallurgical Test Results

	Sample			Wt	Grade		Ag	Cu %	Parameter		Extraction/ Recovery			CN	
Zone	ID	Date	Test	Kg	Au oz/t	Au (Calc)	oz/t	Total	Grind	Time	Au	Ag	Cu	g/l	kg/t
Hanging Wall	CS-MET	1999	Direct Cyanidation	2.6	0.33	7.42	0.04	0.05	150M	24	83	27	5	1.0	0.004
D-Zone	CS-MET	1999	Direct Cyanidation	9.4	0.56	26.4	0.06	0.24	150M	24	91	49	16	1.0	1.085
Ore Composite		2000	Gravity/Cyanidation	63.7	1.03	0.82		0.60	270M	72	99			0.5	2.877
			Gravity/Cyanidation		1.03	0.85			270M	72	99			1.5	3.286
			Gravity/Cyanidation		1.03	1.18			100M	72	93			1.5	3.173
			Direct Cyanidation		1.03	1.00			200M	72	92			1.5	3.173
			Float		1.03	1.18			200M		94				
Ore Composite	None	2001	Float (McCoy/Cove)	2.0	1.51	0.75		0.56	140M		88		9		
D-Zone	D-Zone	2005	Grav/Leach	122.5	0.51	0.53	0.06	0.57	150M	48/72	96/98	>47			3.195
			Grav/Leach						200M	48/72	94/96	>47			3.354
			Grav/Leach+NH4OH						200M	48/72	90/95	>47			3.559
			Grav/Float						150M		89				
									200M		89				
Hanging Wall	HW	2005	Grav/Leach	103.0	0.33	0.33	0.03	0.90	150M	72/96	91/97	>32			7.422
			Grav/Leach						200M	72/96	90/98	>29			7.100
			Grav/Leach+NH4OH						200M	72/96	96/98	>48			7.918
			Grav/Float						150M		88				
			Grav/Float						200M		91				
D-Zone+HW			Conc Cyanidation			11.23			200M	48/72	89/99				0.477

16.2.1 Historical Test work (1986-2001)

Hazen Research (1986) – Original Open Pit Heap and Agitated Leach Test work

In 1986, Hazen carried out test work on six inch diameter core samples of breccia and silicified rock types that formed the basis of the original project prefeasibility for open pit mining and low grade oxide heap leaching and agitation leaching. Therefore, the data and mineralogy isn't relevant to the new high-grade underground mining and processing project.

The results of this test work are presented in the following report:

Reference 1: Copperstone Metallurgical Studies, Phase III – Core Samples, Hazen Research, Inc, October 10, 1986.

The studies were conducted on three composite core samples representing the different ore type lithologies being considered in the deposit: brecciated, silicified, and mixed. The composites assayed 0.09 oz/ton to 0.127 oz/ton, and typically contained negligible silver and total sulfur (0.01%) and about 0.2% total copper. Cyanide consumption was about 0.16 kg/t to 0.39 kg/t. This data is mentioned here to differentiate the characterization of this material relative to Hanging Wall and D-Zone mineralization. Relatively good cyanidation (column and bottle roll) and flotation responses were obtained in this work.

Hazen Research (1986)

In 1995 Hazen Research conducted mineralogical investigations on three samples (zones unidentified). This is presented in the following report:

Reference 2: Memorandum, Hazen Research. Copperstone Project, Mineralogical Study. Mineralogy on three Copperstone ore samples (CP-01, CP-02 and CP-03), zone not identified (other than 47968-1, 47968-2 and 479968-3 respectively). August 31,1995.

The key observations were:

- Based on the presence of oxide copper minerals concerns were raised for cyanidation of the ore, including higher-than-normal cyanide consumption and difficult cyanide destruction. It was recommended future process development efforts must consider these factors.
- Gravity/flotation may prove to be more viable than cyanidation.
- Copper extraction may prove difficult, due to the resistance of the copper minerals to flotation. As well, the calcite content raised concerns about high acid consumption, should acid leaching be considered.

Overall, the sample mineralogy and conclusions appear to be consistent with subsequent analysis and test work conducted on samples from the Hanging Wall and D-Zone mineralization.

Resource Development Inc (1999)

Preliminary characterization and cyanidation/leaching studies were conducted in 1999 by Resource Development Inc. on composite samples from core intervals within the Hanging Wall and D-Zone mineralization. The results and discussion of this work are presented in the following reports and memorandum:

> *Reference 3: Fax, Bema Gold. RDI Report (Edwin Bentzen) on Pulverizing and cyanide leaching of two met samples (CS-MET-Hanging Wall and CS-MET D-Zone) as authorized by Herb Osborn. December 7,1999.*
>
> *Reference 4: Memorandum to George Johnson Sr VP Bema Gold, Review of The Copperstone Project, H.C. Osborne and Associates. December 27, 1999.*
>
> *Reference 5: Fax, American Bonanza, Ian D McCartney, October 28, 2000. Data on the locations and character of the two metallurgical test samples processed by Bema (HW C97-29 and D-Zone A98-5) – Refers to origin of samples in the 1999 Bema Gold Report.*

This work was conducted as part of a fatal flaw review on behalf of Bema to provide a basis for a go or no go project investment decision. Bema's interest was discontinued shortly thereafter because commercial negotiations failed. The main observations and conclusions in Items 3 and 5 were:

- Metallurgical characterization was not considered conclusive, but provided an insight into potential high cyanide consumptions associated with copper minerals that commonly accompany the gold mineralization.
- The Hanging Wall composite consumed a minor (0.004 kg/t) of cyanide, while consumption in the D-Zone composite was significantly higher (1.085 kg/t). Although both samples contained copper the D-Zone sample contained approximately five times more. Higher cyanide consumption in D-Zone was attributed to higher levels of cyanide soluble copper minerals.
- AMEC noted poor accountability between assayed gold head and calculated, which may be due to nugget effects. Visible gold was noted in Item 5. Possibly a metallics assay would have given better assay reconciliation, as was done in subsequent test work in 2000.
- Additional work was recommended to better define the relationship between cyanide consumption and copper mineralization.
- Reference 5 indicates the Hanging Wall sample was from intervals of C-Zone hole extension east of pit, high grade, volcanic hosted quartz late porphyry (manganese oxide and specular hematite). The D-Zone Hole was hosted by limestone replaced

by silica, iron oxide and with copper oxide mineralization (visible gold, chrysocolla, specularite, hematite, chlorite, silicification).

- Reference 4 provides a fatal flaw review by H C Osborne and Associates of a summary of the above work and a historical review of the original mill operations. In the underlying test work reports potential differences in mineralization style to the original ore are flagged. The summary Osborne reviewed did not identify this possibility, and because cyanide consumptions were not unreasonably high, the due diligence review concluded that direct cyanidation, as used on the original project, still appeared viable. The due diligence correctly qualifies this conclusion to the extent that the samples were representative only to the area selected, and intended only to aid an initial decision by Bema. The review also suggests no visible gold was present in the samples but this appears to be incorrect, based on Item 5, and poor accounting of gold assay head relative to test work (measured) indicated above. Subsequent work in 2000 and currently in 2005, on new Hanging Wall and D –Zone samples, appears to support the insight provided in the 1995 mineralogical and 1999 RDI reports, into potentially higher levels of copper in the mineralization, and much higher cyanide consumption and associated difficult cyanide destruction.
- Although the original plant operation was successful and resulted in good gold recoveries, it is understood from its operating history that cyanide levels in the process, tailings solutions and pond were very high and resistant to breakdown. This is characteristic of an accumulation of copper cyanide in the circulating solutions, which becomes difficult and expensive to destroy. It is unlikely that cyanide in ponds at such high levels will be permittable today, and cyanide soluble copper levels in the new resource mineralization appear to be several times higher than the original open pit ore.

McClelland Laboratories (2000)

In 2000 McClelland Laboratories were commissioned by American Bonanza to conduct a gravity, cyanidation and flotation process evaluation on a composite sample. This work is presented in the following extract and report:

Reference 6: Report, American Bonanza. Section 14.0 Extract from Geologic Report for the Copperstone Gold Property, October 26, 2000. Summarizes testing in Reference 3 and describes testing in progress at McClelland on new samples of D-Zone.

Reference 7: Report, McClelland Laboratories, Inc. November 21, 2000. Report on metallurgical test work on a metallurgical composite of new sample intervals from four drill holes (A98-2, 3 5, and 13) described as testing in progress in Item 4. The zone of interest is not indicated. Gravity/cyanidation, whole ore *cyanidation, flotation testing. Appendices contain Pocock report on settling and pulp rheology, and Svedala report on Bond Ball Mill Work Index test.*

The key observations of this test work are:

- A total of 10 drill hole intervals (from four holes A98-2, 3 5, and 13) were composited into a single test sample. The specific mineralized zone these intervals represent is not identified.
- No mineralogy was conducted.
  - Gold head grade was determined by metallics assay and the reconciliation with test work calculated was good. Small free gold particles were observed in both gravity and flotation products.
  - Both whole ore cyanidation and a single bulk flotation test gave good recoveries.
  - Optimum cyanide concentrations were about 1.5 g/l, which is high. This was required to improve the recovery rate (at 48 h), which otherwise at 0.5 g/L would take 72 h. Cyanide consumptions were high at about 3 kg/t, it was stated because of cyanide soluble copper dissolution. No copper leach balances or speciation data were provided to support this, but it is consistent with current and past test work observations. There was about 0.6% Cu in the sample.
  - The gravity work indicated high (about 50%) potential gold recovery, but this is inconclusive because the weight recoveries were also very high.
- A bulk float test recovered 94% gold into a 16.7 % feed wt concentrate at 200 M. Copper flotation metallurgy, or concentrate cyanidation was not investigated.
- Because of the relatively high hematite content the sample solids specific gravity is quite high 3.37.
- Conventional thickening tests on leach residue indicated good flocculation and rapid settling characteristics.
- A single Ball Mill Work Index of 13.7 kWh/st indicates the material is of moderate to hardness with respect to ball milling.

Echo Bay Minerals (2001)

In 2001 Echo Bay Minerals evaluated flotation processing Copperstone ore at their McCoy/Cove mill on behalf of American Bonanza. The results of this are reported in the following:

Reference 8: Report, Echo Bay Minerals, Flotation Testing of Copperstone Ore. February 15, 2001.

The key observations were:

- A flotation test was conducted on a single 2 kg high-grade sample, but its origin was not identified.
- Flotation recovery was reasonable at 87% into a 4% feed wt concentrate. Possibly recovery could have been higher with an alternate frother, higher weight recovery and finer grind. However, the objective was to study the response of the mineralization using McCoy/Cove operating parameters.
- Copper (0.56% Cu in head) recovery to the concentrate was only about 9%. This is consistent with current flotation/concentrate cyanidation work which has much lower cyanide consumption compared to whole ore leaching probably because there is less cyanide soluble copper in the concentrate than the feed. However, there is no copper assay balance data to verify this. The poor copper flotation recovery suggests copper is present dominantly as chrysocolla, and this appears to be supported by Item 5. This is important because chrysocolla is not recoverable (up to about 15%) in conventional flotation. It could also explain why in the most recent McClelland test program, ammonium hydroxide pretreatment to the cyanide leach, to try and reduce cyanide consumption attributable to cyanide soluble copper oxides was not effective. Ammonium hydroxide would have solubilised and complexed copper as oxides, but not as chrysocolla. In AMEC's underground visit much of the mineralization was noted to be stained blue-green, typical of chrysocolla.

16.2.2 McCLelland Testwork (2005)

In early 2005 McCLelland Laboratories Inc. were commissioned to prepare two new D-Zone and Hanging Wall metallurgical composites, using samples provided by American Bonanza, and to conduct a new prefeasibility test work program on these. The HW zone sample consisted of 43 intervals from 7 drill holes. The D-Zone sample consisted of 51 intervals from 3 holes. The intervals consisted of half cores. McClelland crushed the samples to 10 mesh and blended each zone for a master composite. The head analyses are provided in Table 1. Separate bulk samples were taken for the Bond Work and Abrasion tests. These tests require larger pieces than the half core available.

The metallurgical bench-scale testing work was supervised by H.C. Osborne and Associates, American Bonanza's metallurgical consultant.

The program was originally designed to be conducted in two phases. Phase I was scoping in nature to test the effects of grind size on gravity recovery, flotation and direct cyanidation.

The Phase II tests were intended to optimize the parameters of the selected process and to provide the data necessary for mill design. Phase II tests also included Bond Work and Abrasion Tests, thickening and pulp rheology tests. The parameter optimization part of phase II is still to be completed. The program was suspended because ongoing mining and project scale optimization resulted in uncertainty in the eventual mill head grade parameter to be tested and optimized. As well, the study objective was subsequently redefined to scoping for which the current level of metallurgical work currently completed is regarded as more than appropriate.

McCLelland did not issue a formal test work report, but reported results to American Bonanza in the form of the following reports and data sheets:

Reference 9: Data Sheet, McLelland Laboratory, HW and D-Zone Composite Sample Analyses and Phase 1 Results. March 4, 2005.

Reference 10: Data Sheet, McLelland Laboratory, Gravity Tail Cyanidation test results. May 16, 2005.

Reference 11: Data Sheet, McLelland Laboratory, Intensive Cyanidation of Rougher Flotation Concentrates test results. May 19, 2005.

Reference 12: Data Sheet, McLelland Laboratory, ICP Analysis of HW and D-Zone Composite Samples. May 23, 2005.

Reference 13: Data Sheet, McLelland Laboratory, Gravity Separation and Cyanidation test results. June 22, 2005.

Reference 14: Report, Metso Minerals Laboratories, Test Plant Report 67216, Results of BWI and Ai Testing, August, 2005.

Reference 15: Report, Dawson Metallurgical Laboratories, Results of Magnetic Concentration of a Flotation Tailings Sample, September, 2005.

Reference 16: Report, Pocock Industrial Inc., Gravity Sedimentation and Pulp Rheology Studies, July, 2005.

The data issued by McCLelland was reviewed and summarized in five memorandums between July and September, 2005 by H.C Osbourne. These are presented in Appendix 6B. The brief summary of the test work that follows has mainly been extracted from the McLelland and Osbourne reports and memorandum listed above, and AMEC believes these reasonably summarize the status and results of the test work. The results of the McLelland program are also summarized in Table 16-1.

Phase 1

Gravity concentration, whole ore gravity/cyanidation and gravity/flotation and concentrate cyanidation investigations were conducted and reported by McCLelland. An initial Phase 1 of testing was conducted in March, but the results were inconsistent and inconclusive, and this was followed up by a similar Phase 1.5 program in June.

Gravity recoveries were relatively low in Phase 1 but improved in Phase 1.5. Phase I.5 was undertaken to test methods of reducing the cyanide consumption in direct cyanidation and to improve flotation recoveries into a lower weight concentrate. The Phase I direct cyanidation tests produced good gold recoveries but at very high cyanide consumptions and extended leach times, due to the presence of soluble copper in the ore. Flotation work was conducted to investigate the production of a smelter concentrate. During an initial data review AMEC noted the soluble copper issue and earlier work that suggested most copper reports to the flotation tail. A secondary objective of the flotation test work became to investigate the potential to separate gold and copper using flotation and produce a concentrate that could be cyanided more economically. Gold flotation recoveries were reasonable and concentrate cyanidation recoveries and cyanide consumptions were very good. The key observations are summarized below:

- *Samples and Characterization*. The D-Zone composite comprises seven drill hole core intervals from two drill holes. The Hanging Wall composite comprises twelve drill hole core intervals from two drill holes and twenty five intervals of coarse assay rejects from five holes, which is a reasonably wide range compared to the D-Zone composite. An assessment of the extent of metallurgical sample coverage should be made in the future. Copper is also an important issue relative to process selection. Additional work is recommended to better define the relationship between cyanide consumption, flotation and copper mineralization (speciation). This was recommended in earlier programs. Copper speciation should be done on some sample sub-composites to help identify copper mineralization trends.
- *Gravity.* The gravity recoverable gold potential in the 2005 composite samples appears relatively low at about 8-15% at typical weight recoveries (0.02% to 0.22%) used to produce a direct smelt material. However, gravity is not considered to be the primary recovery process, more as an insurance against occasional nugget gold and other unrecoverable gold by direct cyanidation or flotation. Gravity gold recovery showed some potential to improve overall recovery in the test work. However to achieve acceptable gravity recoveries weight recoveries were high and the concentration ratios low because of the concomitant recovery of iron present as magnetite/hematite in the samples. Improved panning in Phase 1.5 in some instances successfully eliminated the magnetite, and further work on gravity is recommended because it appears to have the potential to add 1% to 2% to the overall recovery from gold that may not float well. Possibly the gravity concentrate

will not be a viable direct smelt material due to its high magnetite content and a separate intensive cyanidation unit will be required. However an industrial-scale centrifugal gravity unit could be more selective in eliminating magnetite, versus the batch laboratory Knelson unit used in the test work, and further work on this concept is recommended. Previous work on other D-zone and Hanging Wall zone samples suggests visible gold is present. AMEC also recommends testing is done using an alternate stage grinding/gravity test protocol. Gravity potential may be being understated by initially grinding in a single stage to 200 M followed by testing. At the client's request gravity processing was not included in this study flowsheet.

- *Direct Leach.* Extended direct leach times are required (72 h to 96 h) to achieve good gold recoveries 95-98% and cyanide and lime consumptions were very high. Cyanide consumptions were about 3 kg/t for D-Zone material and 7 kg/t for HW zone material. This is consistent with earlier work and indicative of the presence of elevated levels of soluble copper. Figure 16-1 summarizes historical test cyanide consumption and shows this is commensurate with the presence of copper. Copper levels and cyanide consumption are highest in the new Hanging Wall sample. Both 150 mesh and finer 200 mesh grinds gave good recoveries and no trends were noted.

- *Flotation.* (see Table 16-2) Only bulk rougher flotation concentration test work was conducted. Bulk gold flotation recoveries are reasonable and at a grind of 200 mesh direct flotation recoveries of about 89-90% are indicated and when combined with gravity 92% to 96%. Gravity appears to have the potential to add 1% to 2% to the overall recovery from gold that may not float well. However, some flotation optimization potential is indicated that may offset this. Additional kinetic tests are recommended to assess float time and grind requirements and optimize mass pulls. Finer grinding to 200 mesh appears to improve recovery but the results are inconclusive. Similar reagent suites were used in both phases but Phase 1.5 utilized different reagent addition rates and pull techniques. Some cleaner work is also recommended to investigate the potential to produce a direct smelt product, or optimize cyanidation economics. Copper and sulfur balances should also be done. Assuming copper mineralization is dominantly chrysocolla, it is expected copper recovery will be low using conventional flotation processing and this appears to be the case based on the relatively low cyanide consumption (relative to whole ore) in the concentrate cyanidation test work.

- *Concentrate Leaching.* (see Table 16-3) The flotation concentrates from all the Phase I tests were combined in a single sample to provide sufficient material for assaying and meaningful metallurgical tests. The flotation concentrates from Phase I.5 were likewise combined. The flotation concentrates leached very well and in 72 h produced recoveries of 98.3% to 99.4% and with much lower cyanide consumptions than direct cyanidation. The results are summarized in Table 16-3.

This suggests the copper mineralization did not float well, which is consistent with earlier flotation work done by Echo Bay minerals, and that it may be present predominantly as chrysocolla. However, no copper speciation or copper assays were done to be able to assess this. Copper and other base metals will accumulate in the leach solution if recycled and provision should be made in the design to bleed and destroy cyanide to remove this. Additional work will be required to assess the bleed and cyanide destruction requirements.

Figure 16-1: Copperstone Cyanide Consumption vs. Total Cu %

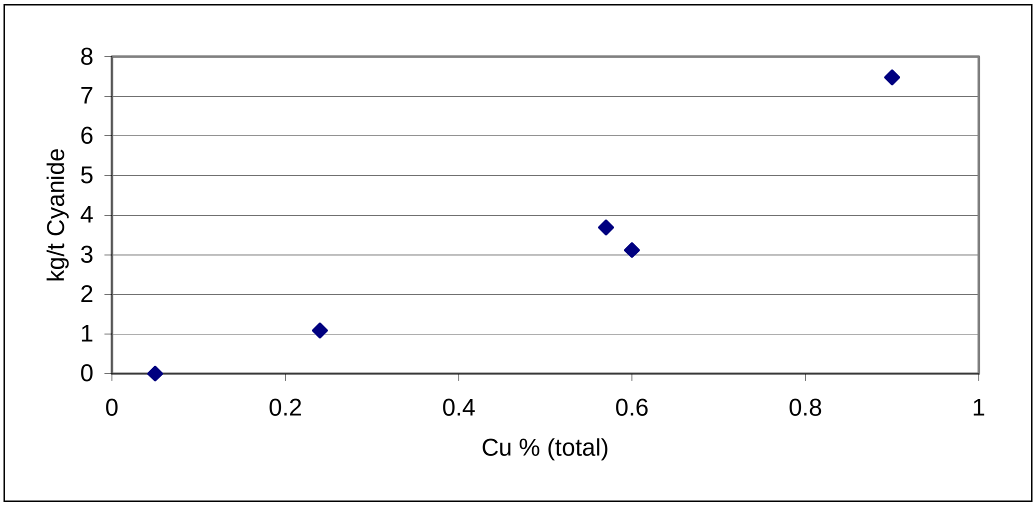


Table 16-2: Flotation Results

Zone	Phase	Grind	Conc. Wt.%	Assay Oz/Ton	Au Distribution
D	I (whole ore)	150	2.38	18.1	85.1
	I (whole ore)	200	3.57	13.2	89.2
	I.5 Gravity m+t	150	2.43	17.9	88.6 (91.7)
	1.5 Gravity m+t	200	1.98	19.8	89.1 (92.7)
HW	I (whole ore)	150	5.76	5.18	89.1
	I (whole ore)	200	12.71 (*1)	1.91	74.8
	I.5 Gravity m+t	150	3.08	7.52	88.2 (94.2)
	1.5 Gravity m+t	200	2.17	11.4	90.7 (96.1)

Notes: [1] Difficulty with Sliming. [2] Combined gravity and flotation recovery.

Table 16-3: Concentrate Cyanidation Results

Phase	72 hour Recovery %	CN Cons Direct	CN Con Ton/Ore	CaO Cons Direct+
I	98.3	29.4	1.20	*25.6
I.5	99.4	43.5	1.05	11.1

Note: * NaOH

Phase 2

The following Phase II tests were completed to investigate other opportunities provide some of the data necessary for mill design. Rheology and Settling work was done to support an underground paste backfill option investigation, but this is not considered in this scoping study. All plant tailings are directed to the tailings dam.

- *Magnetite Recovery.* Dawson investigated the production of a by-product magnetite product from tailings. Only about 5% of the iron in the feed reported to the final concentrate. The sample was highly oxidized and it was assumed that most of the iron is present as hematite. No further work was recommended.
- *Rheology.* The rheology of a rougher tailing underflow sample was assessed by Pocock showed Bingham Plastic characteristics at all solids concentration tested. Experience shows that thickener underflow solids concentrations exhibiting a yield value in excess of 30 Pascals (Pa) are not considered practical for standard thickener design, as pumping and torque problems will likely result. This threshold occurred at slightly above 60% solids for the Flotation Rougher Tailings. In a full scale plant, underflow solids concentrations exceeding 60% solids should be avoided unless specialized equipment is employed to handle the higher viscosities.
- *Settling.* Static thickening tests by Pocock explored the effect of variations in flocculent dose, and feed solids concentrations for conventional thickener design. Thickener unit area sizing on properly flocculated thickening tests performed on the Flotation Rougher Tailings material generally fell below the minimum range of 0.125 m^2/Mtpd to 0.150 m^2/Mtpd recommended by Pocock Industrial for full scale conventional thickeners. This recommended design range corresponds to underflow solids concentrations from 50% to 60% solids by weight. Dynamic (High Rate) thickening tests were also performed on the Flotation Rougher Tailings sample to determine the recommended hydraulic design basis and expected overflow suspended solids concentrations. The recommended Four buckets (two of each) of D-Zone and HW-Zone samples were submitted by McCLelland to Metso Minerals for Bond Work Index (BWI) and abrasion index (Ai) testing. The D-Zone sample BWI indicated it was softer than the HW-Zone (12.98 kWh/st and 15.04 kWh/st) but much more abrasive with an Ai of 0.4464 and 0.1508 respectively. Overall this material can be ranked as of medium hardness and abrasivity with respect to ball milling and power and wear rates should not be expected to be excessive.

17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

17.1 Geologic Models and Data Analysis

The deposit was assigned domains based on lithological grouping (see Table 17-1) and each lilthology group was separated into domains of low- and high-grade gold mineralization. Mineralized envelopes were drawn from 6 ft composites onto cross section using a 0.030 oz/t Au minimum cutoff grade. Within the 0.03 oz/t Au envelope, a gold indicator of 0.100 oz/t Au was used to delineate the boundary between high and low grade gold zones.

Table 17-1: Major Lithological Domains for Copperstone Block Model

Domain	Domain Code	Description
QAL; Overburden	63	Alluvium and Overburden
Volcanics	64	Quartz Latite Porphyry, Monolithic Breccia and Heterogenic Breccia
Sedimentary and Metasediments	65	Limestone, Siltstone, Phylite, and Marble
Ironstone	66	Ironstone, Ironstone Breccia, and Ironstone Stockworks
Undefined	67	All remaining unassigned blocks

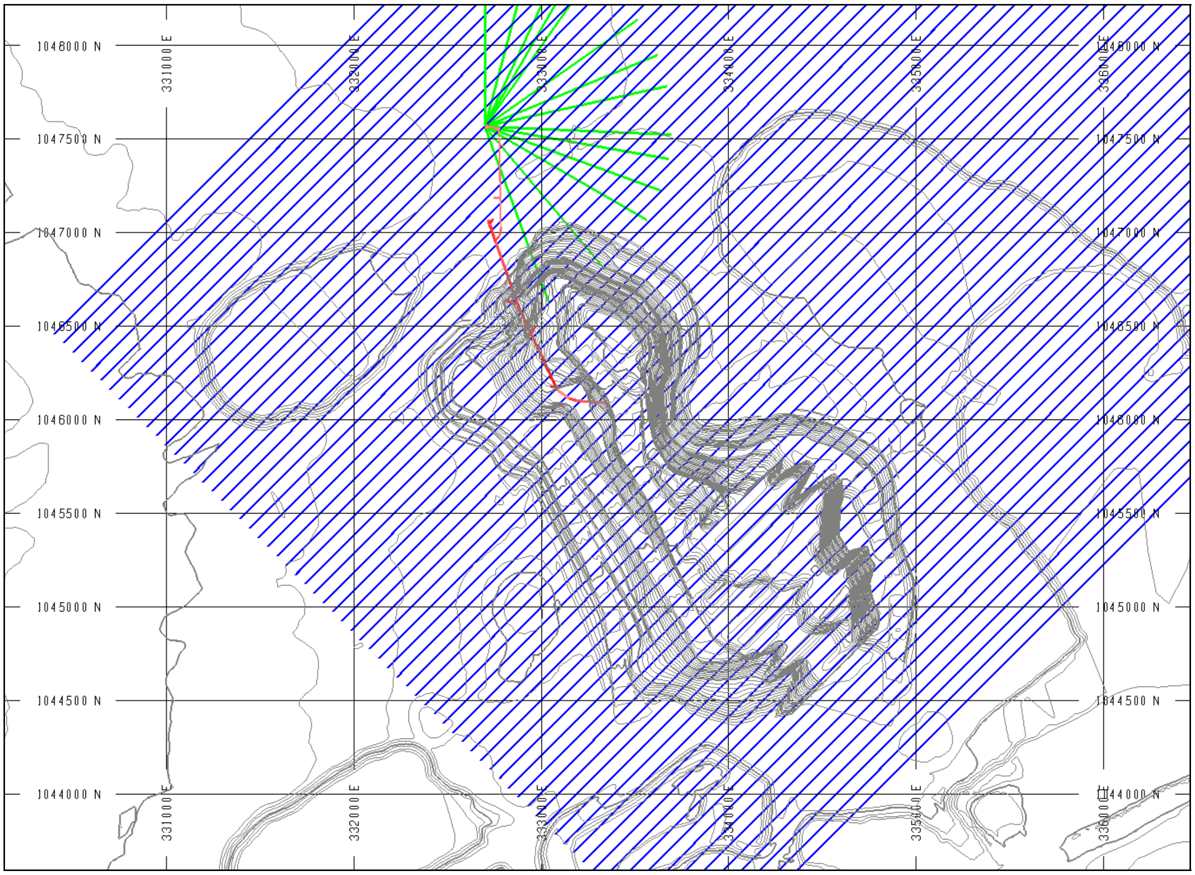
Lithologies and the 0.030 oz/t Au mineralized envelopes were interpreted from drill hole composites projected on to cross section from ± 35 ft. A total of 85 cross sections were created, with 70 sections oriented from SW to NE and set at 70 ft spacing. The other 15 cross sections radiate out from the underground drill station at various azimuths, see Figure 17-1.

AMEC constructed three-dimensional geological solids for each lithology domain listed in Table 17-1 and for the 0.030 oz/t Au mineralized domain. The solids were used to code the block model cells for lithology and mineralization.

AMEC also modeled high- and low-grade domains within the 0.03 oz/t Au mineralized envelope. The modeling method uses a grade indicator and the procedures were as follows:

- Mineralized indicators were assigned to all composites within the 0.03 oz/t Au mineralized boundary: Composites were assigned a 0 if below 0.100 oz/t Au, and 1 if equal to or greater than 0.100 oz/t Au.
- The 0 and 1 values were estimated with ordinary kriging using gold variogram parameters listed in Table 17-5 to determine a “probability” that each mine block was high grade. Those with kriged probabilities of 0.5 or greater were designated as high grade blocks.
- Those blocks with kriged probabilities of less than 0.5 were designated as low grade. Blocks previously identified as high grade blocks, as defined above were not changed.

Figure 17-1: Plan View of Copperstone Mine Topography with Cross Section Grid Lines



Note: Blue shows SW to NE cross sections lines. Green shows cross section lines from the underground drill station in the D-Zone. Red show the trace of the decline from the pit bottom to drill station.

- Ordinary kriging was employed to interpolate gold grade into high grade blocks using only composites equal to or greater than 0.100 oz/t Au.
- Ordinary kriging was also used to interpolate grade into mine blocks tagged as low grade, using only low grade composites of less than 0.100 oz/t Au.
- Mine blocks outside of the 0.030 oz/t Au mineralized envelope were not assigned grades and were considered to be waste at a zero Au value.

A set of cross sections with drill holes color-coded by domain and with mine blocks similarly colored were plotted on computer screen and inspected to determine the proper assignment of lithology and mineralized domains.

17.2 Evaluation of Extreme Grades

17.2.1 Gold Assays

To limit an undue influence of high grade assays on the resource, a capping methodology was used to remove high-grade assays that show no spatial continuity. If these assays are not cut or restricted, large areas might be assigned unreasonably high grades. In the worst case, waste will be assigned ore grades.

The assay histograms and probability plots were reviewed to determine the outlier population (as shown in Figures 17-2 and 17-3). This was resolved to be 4.0 oz/t Au, which in turn, affected eleven composites. Capping also reduced the Coefficient of Variance from 3.288 to 2.040 (see Figures 17-4 and 17-5).

Figure 17-2: Au Histogram of Uncapped Assays

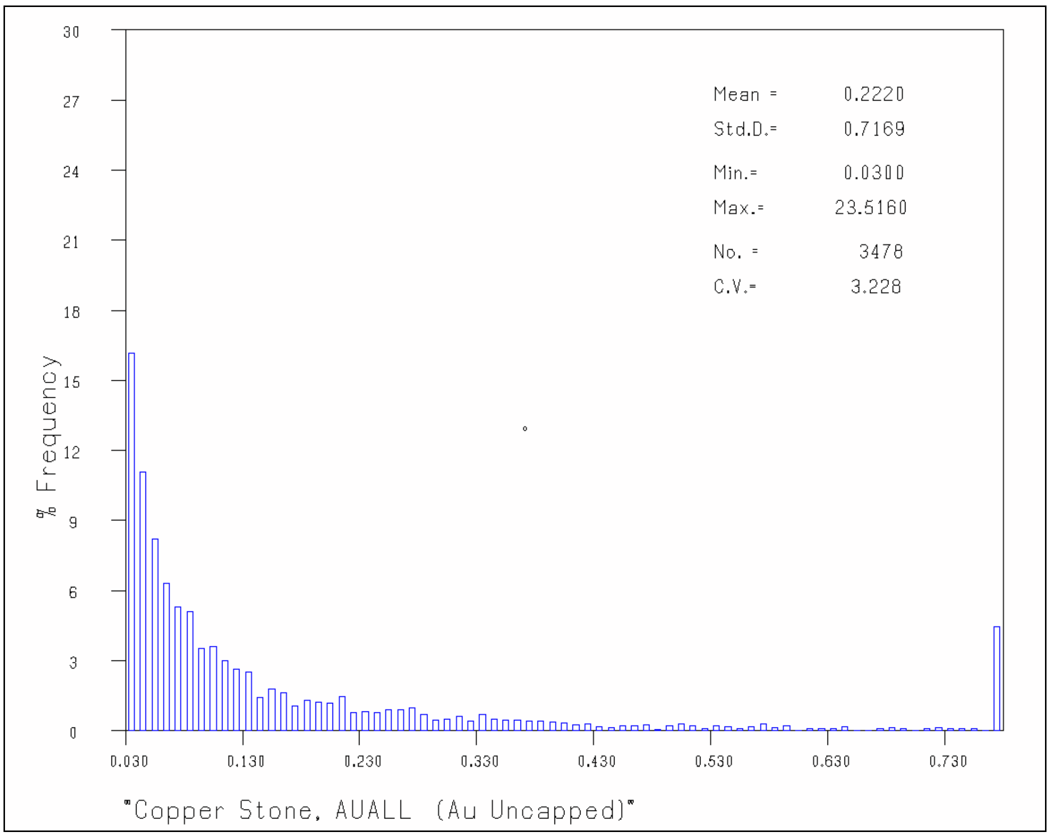


Figure 17-3: Cumulative Probability of Uncapped Au Assays

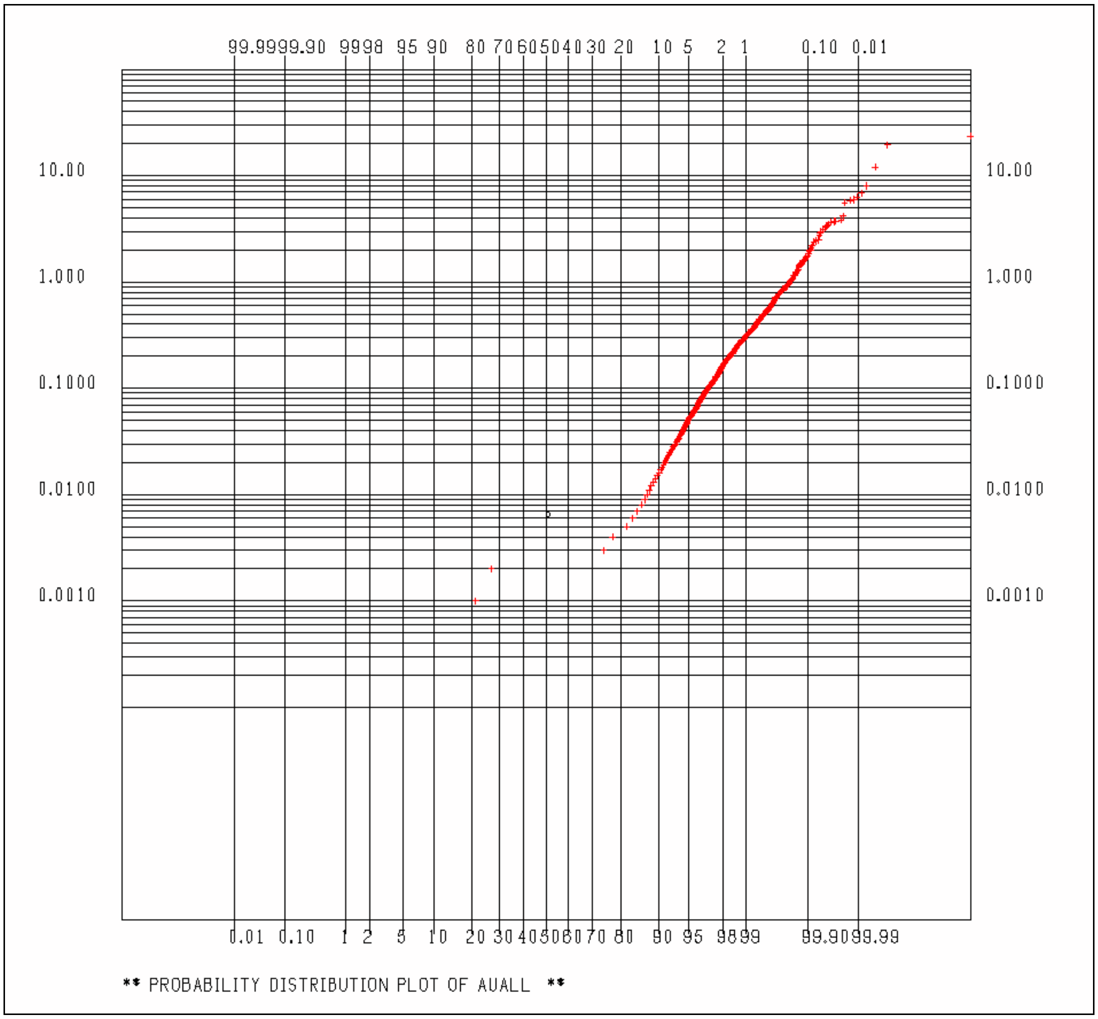


Figure 17-4: Histogram of Capped Au Assays

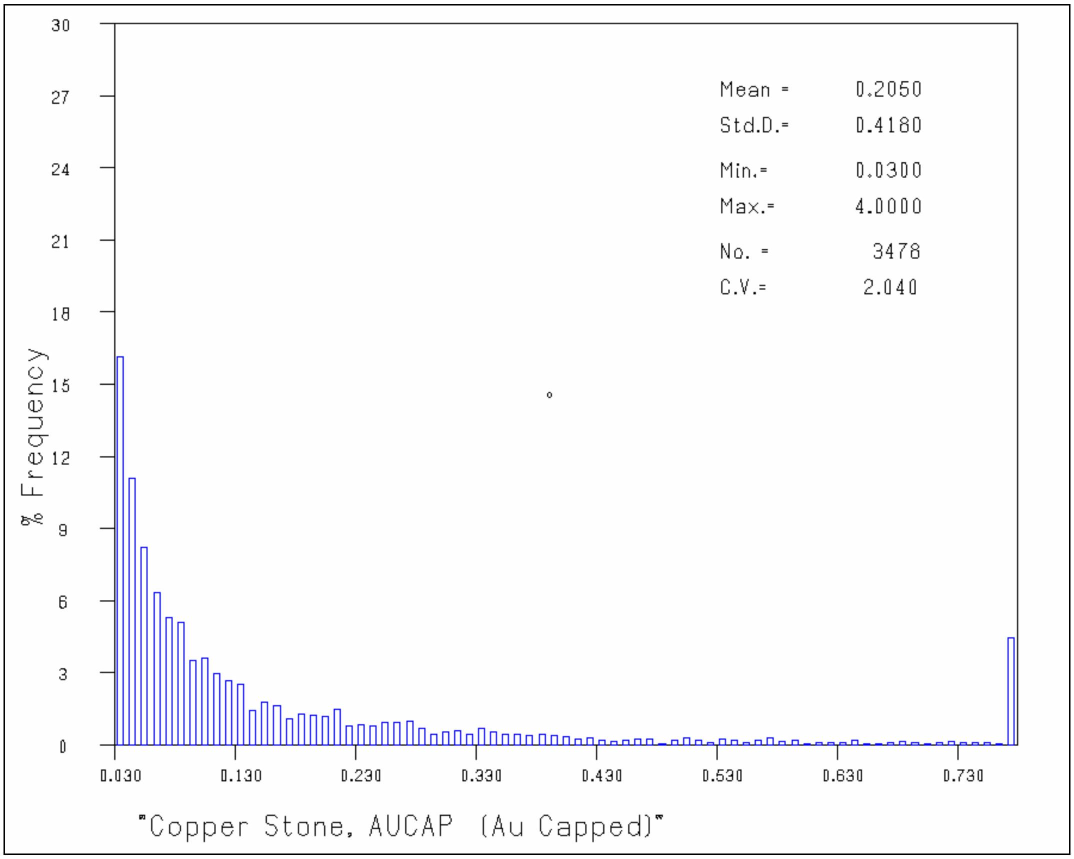
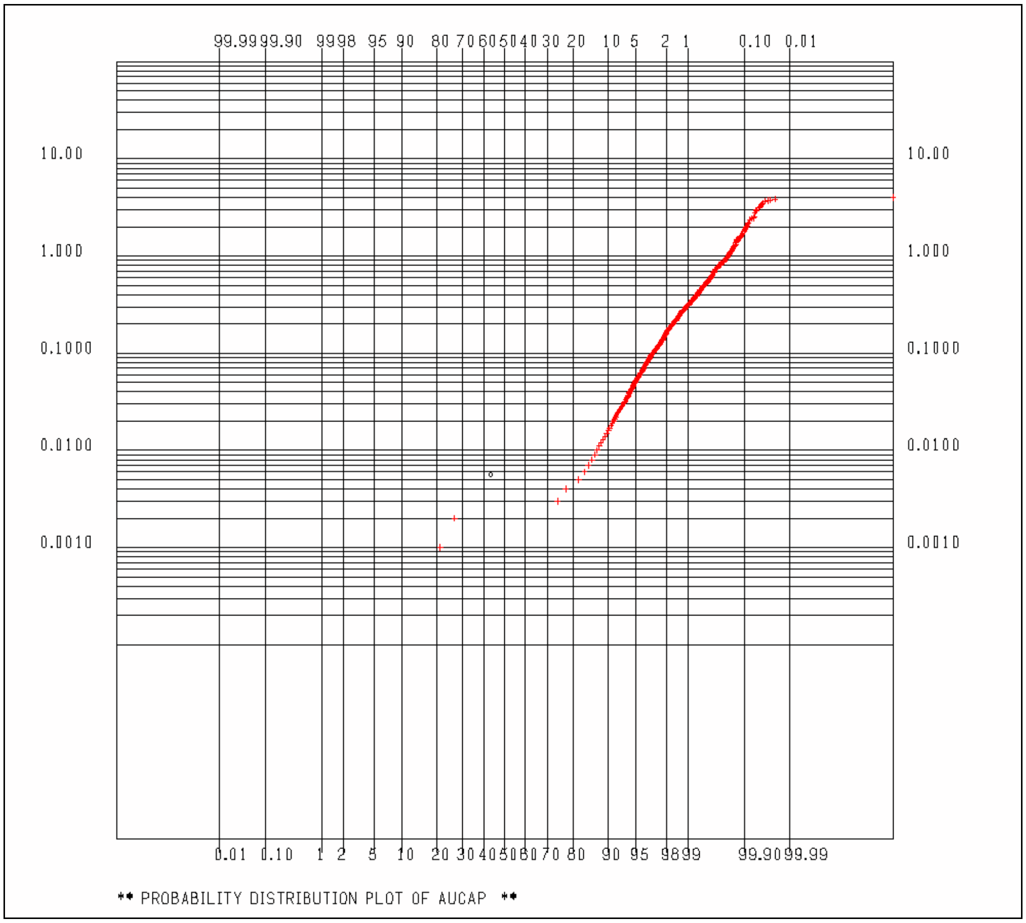


Figure 17-5: Cumulative Probability of Capped Au Assays



17.2.2 Silver Assays

Silver assays were not capped prior to compositing. During the grade interpolation runs, an outlier restriction beyond 36 ft was placed on silver composites greater than 4 oz/t.

17.2.3 Copper Assays

Copper assays were not capped prior to compositing. During the grade interpolation runs, an outlier restriction beyond 36 ft was placed on copper composites greater than 10%.

17.3 Density

17.3.1 Measurements

Specific gravity (SG) was measured for 262 samples from five Bonanza diamond drill holes by AAL by the water immersion method. AMEC typically recommends that density values for all significant rock and alteration type be calculated from a minimum of 30 SG measurements for each rock and alteration type.

Specific gravity was determined by AAL as follows:

- the core sample was dried and covered with a low-weight wax
- the core sample was weighed in grams to three decimal places suspended from below a digital balance
- the core sample was totally immersed in a known volume of water and weighed in grams to three decimal places
- the volume of water displaced was calculated by subtracting the immersed weight from the air weight
- specific gravity was calculated by dividing the air weight of the core sample by the volume of water displaced by the core sample and the density (same number as specific gravity) was reported in units of g/cm^3 or lb/ft^3.

Average density values by rock types obtained by this method are presented in Table 17-2.

Excluding QAL, the composite database indicates that the nine untested rock units represent only 2.25 % of the material and does not represent a significant impact on the model. These untested rock units were grouped into other major lithology domains, modeled, and assigned the average density of that respective lithology. The QAL lithology at Copperstone is a well packed wind deposited sand that was assigned a density of 1.72 g/cm^3.

Table 17-2: Density Measurements of Ore and Waste Units at Copperstone

Lithology	Density (g/cm^3)	Number of Measurements	Rock Numeric Code
Quartz Latite Porphyry	2.738	126	1
Limestone	2.612	13	2
Siltstone	2.809	16	3
Phylite	2.610	1	4
Schist	Not Tested	0	5
Marble	2.71	8	6
Volcanic	Not Tested	0	7
Monolithic Breccia	2.680	8	8
Heterogenic Breccia	2.490	1	9
Vein-Quartz	Not Tested	0	10
Vein-Specularite	Not Tested	0	11
Vein-Hematite	Not Tested	0	12
Vein-Goethite	Not Tested	0	13
Jasperoid	Not Tested	0	14
Quartzite	Not Tested	0	15
Vein-Magnetite	Not Tested	0	16
Fault	2.110	1	17
Ironstone	3.277	47	18
Ironstone Breccia	2.976	27	19
Ironstone Stockwork	2.975	13	20
QAL; Overburden	Not Tested	0	63

17.3.2 Densities Applied to Resource Estimates

Final density for lithology domains were determined by applying the weighted average density average of each rock unit within a grouped lithology. Ironstone lithology had one high sample capped from 8.179 g/cm^3 to 5.2 g/cm^3, the density of magnetite. Table 17-3 lists the density values as assigned by lithological domain.

Table 17-3: Density Values Used in Copperstone Resource Domains

Domain	Density	Lithologies
Volcanics	2.70	Quartz Latite Porphyry, Monolithic Breccia and Heterogenic Breccia
Metasedimentary	2.66	Limestone, Siltstone, Phylite, and Marble
Ironstone	3.08	Ironstone, Ironstone Breccia, and Ironstone Stockworks
QAL,; Overburden	1.72[1]	Overburden
Undefined	2.66[2]	Missing Lithologies

Notes: [1]Average density of packed sand as reported by www.simetric.co.uk and www.powderandbulk.com. [2]Assigned lowest measured rock group density of 2.66 g/cm^3.

17.4 Drill Hole Collar Elevations and Topography

Drill hole collar elevations were plotted against electronic topography, AMEC found good agreement with collar elevation and topography. Of the 743 holes drilled from surface 7 showed differences greater than the contour interval of 10 ft (Table 17-4). This represents less than 1% of the drill holes and in AMEC's opinion does not have a significant impact on resource modeling. AMEC's suggest that these collar locations be resurveyed during the next exploration program.

Table 17-4: Collar Elevation Difference from Topography Exceeding Contour Interval

Hole ID	Elevation Difference (ft) (Collar – Topo)
CS-273	-16
CSR-82A	-13
CSR-102	-17
CSR-104	-25
CSR-105	-18
H4-74	14
H5-102	25

17.5 Composite Statistics

AMEC created 6 ft bench composites of the following assay items for the purposes of grade interpolation.

AUALL .... Uncapped gold composite
AUCAP .... Capped gold composite
AGOPT .... Silver composite
CUPCT .... Copper composite

AMEC reviewed the compositing parameter files and manually checked the calculation for a few AUCAP composites to confirm that the compositing function worked correctly. Figure 17-6 shows histogram and stats of composites used for grade interpolation. The relatively low percentage of composites of less than 0.030 oz/t Au is due to modeling domains with composites equal to or greater than 0.030 oz/t Au.

Figure 17-7 shows the cumulative probability plot of capped gold composites used in gold interpolation. The line inflection at 0.030 oz/t Au is due to the modeling of mineralized zones with a minimum composite grade of o.030 oz/t Au. The relatively linear line between 0.030 and 4 oz/t Au indicate that the composites are most likely from the same population and should behave well during linear kriging runs.

Figure 17-6: Copperstone Composite Histogram of Item Capped Au Item 'AUCAP' within the 0.030 oz/t Au Mineralized Envelope

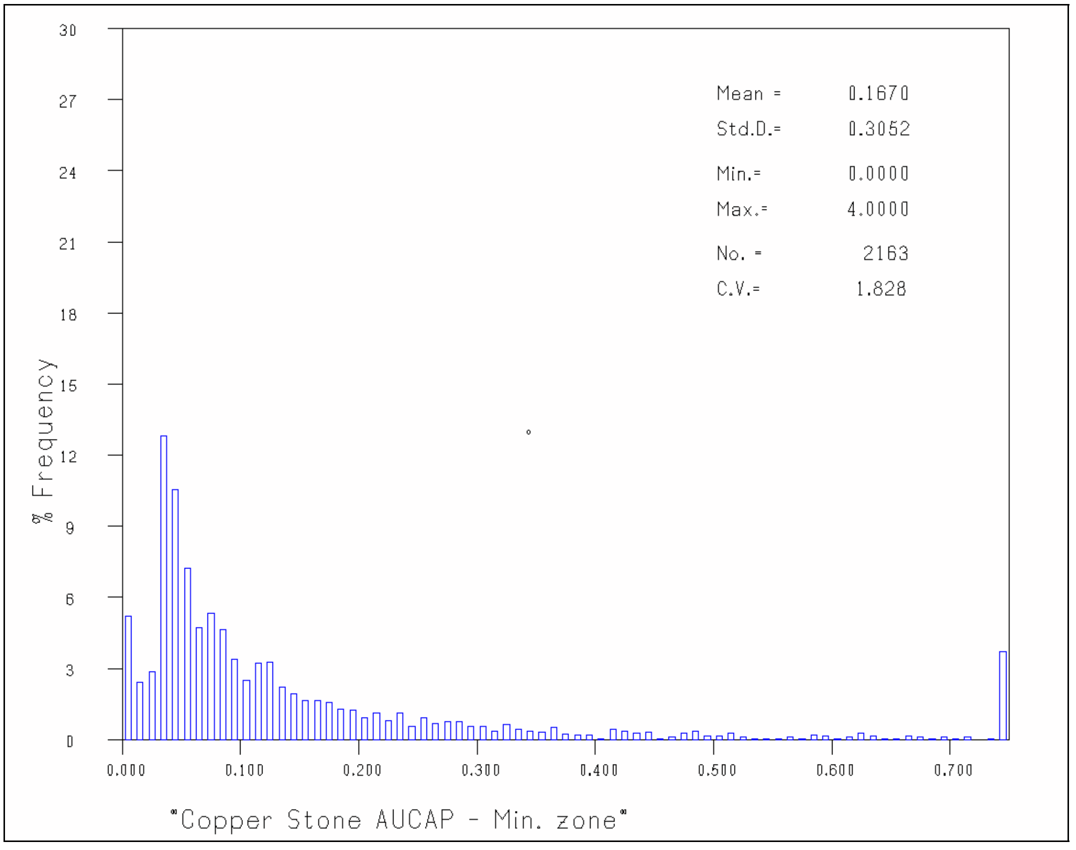
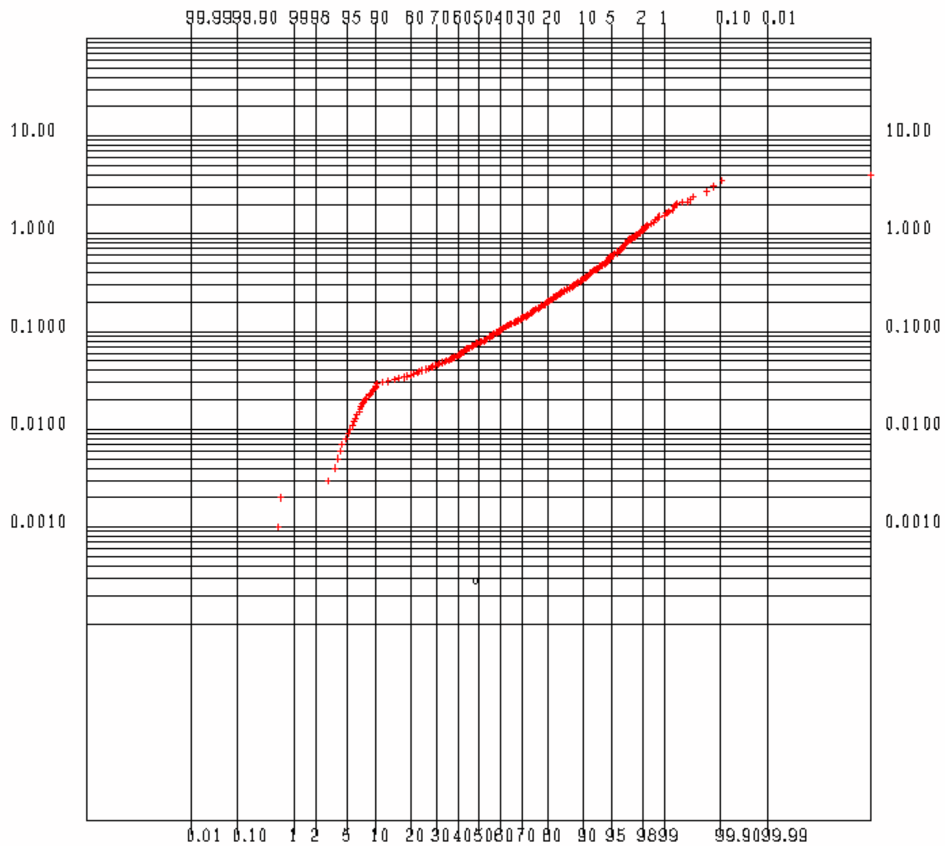


Figure 17-7: Copperstone Cumulative Probability Plot of Capped Au Composites used in Grade Interpolation



** PROBABILITY DISTRIBUTION PLOT OF AUCAP **

ITEM	AUCAP	NATURAL LOGS	
NUMBER	2160	NUMBER	2160
MEAN	0.1670	MEAN	-2.5200
MINIMUM	0.0010	MINIMUM	-6.9080
MAXIMUM	4.0000	MAXIMUM	1.3860
VARIANCE	0.0930	VARIANCE	1.4890
ST.DEV.	0.3050	ST.DEV.	1.2200

Copper Stone AUCAP Au Min. Zone

17.6 Variography

Pairwise variograms are used to define the weights used during kriging estimations by quantifying the spatial variability between the samples. Variograms quantify the variability between samples due to both the distance between the samples and the direction between the samples. As the variability increases, correlation decreases and the kriging weights decrease. The pairwise relative variogram divides each sample pair's difference by its mean, and tend to be smoother than normal variograms and may aid in resolving the structure of the variogram

To determine if the direction between the samples change in variability, pairwise relative variograms were generated in 15° increments in both the horizontal and vertical planes. Variogram maps were then used to establish the directions of highest correlations and were found to follow the main structural zone that strikes N45W and dips 30 to the northeast. Pair-wise relative variograms for gold and copper were then calculated and fitted using a two-structure spherical model along strike, down dip and perpendicular the strike and dip of the structural zone. Nuggets for the variograms were established using down-the-hole variograms. The variography data is summarized in Table 17-5 and individual variograms are included in Appendix C.

Table 17-5: Summary of Gold, Copper, and Silver Variography Parameters

	Az	DIP	C0	C1	C2	a1	a2
Gold							
X'	135.00	0	0.14	0.35	0.21	60.7	104.3
Y'	45	-30	0.14	0.35	0.21	102.7	139.5
Z'	225	-60	0.14	0.35	0.21	42.3	98.5
Copper							
X'	135.00	0	0.33	0.49	0.10	49.2	104.5
Y'	45	-30	0.33	0.49	0.10	51.6	80.1
Z'	225	-60	0.33	0.49	0.10	32.1	50.0
Silver							
X'	0	0	0.0129	0.0351	0.0134	37.0	68.7
Y'	0	0	0.0129	0.0351	0.0134	37.0	68.7
Z'	0	0	0.0129	0.0351	0.0134	37.0	68.7

17.7 Grade Estimation

17.7.1 Gold Grade Domaining

AMEC estimated gold mineral resources using MineSight®, a commercially-supplied mine planning software package, to develop a three-dimensional block model.

Project limits are based on UTM grid coordinates. The project extents are 330,860.44 to 336,643.78 East, 1,043,450.00 to 1,049,233.38 North, and -1,265 to 1880.9 ft elevation. Block model cells are rotated to 315° azimuth and -30° northeast down dip, allowing the blocks to better align with the strike and dip of the mineralization. Cell dimensions are 18 ft down dip, 12 ft along strike, and 6 ft high.

Drill hole assays were capped at 4 oz Au/t and composited to a maximum length of 6 ft along the drill string. Outlines of zones of mineralization >0.03 oz Au/t were drawn on sections perpendicular to strike, and oriented southwest to northeast. Sections are spaced on a 70 ft interval along strike. Plan views were consulted to assist in sectional interpretations. Mineralized sections were wire-framed to form solids to control final grade interpolation.

Weakly and strongly mineralized domains were used with indicator kriging to avoid mixing of unrelated grade populations. A composite grade of 0.100 oz Au/t was selected as an indicator boundary between low and higher grade mineralization. Composites below 0.100 oz Au/t were assigned a value of 0 (indicating weak mineralization), while composites equal to and above 0.100 oz Au/t were assigned a value of 1 (indicating strong mineralization). Indicator probability values were estimated for each block with ordinary kriging and where values were greater than 50% probability the blocks are assigned to the strong mineralized domain. Blocks with probabilities below 50% were assigned to the weakly mineralized domain. The domain assignments were compared to the composite indicator values to ensure that assignments were reasonable.

17.7.2 Gold Grade Estimation

Gold grades were estimated with ordinary kriging. Gold grades equal to or greater than 0.100 oz Au/t (with composites capped at 4 oz Au/t) were interpolated into blocks designated as strong mineralization, while low grade composites were interpolated into blocks designated as weak mineralization. The search ellipsoids were oriented along strike and dip. Blocks were assigned a gold grade in two passes when a minimum of three composites and two drill holes were present. The maximum number of allowed composites per drill hole was 10. The first pass used a large search block distance of 500 ft along x, y, and z, in order to estimate grade within all mineralized blocks, while a second tighter pass honored the variogram parameters listed in Table 17-5 Blocks and composites were matched with respective low and high grade domain. Nearest-neighbor (NN) grades were also estimated for validation purposes.

17.7.3 Copper Grade Estimation

Grade interpolation was by ordinary kriging (OK). Copper grades were not capped prior to compositing, but an outlier restriction of 36 ft was imposed on composites greater than 10% during block grade interpolation. Block grade estimates were accomplished with two passes using a minimum of three composites to a maximum of 10 composite and no more than two composites per drill hole. The first pass used a large search block distance of 500 ft along x, y, and z, in order to estimate grade within all mineralized blocks, while the second tighter pass honored the variogram parameters listed in Table 17-5.

17.7.4 Silver Grade Estimation

Grade interpolation was by ordinary kriging (OK). Ag grades were not capped prior to compositing, but an outlier restriction was imposed on composites greater than 4 oz/t to 36 ft during block grade interpolation. Block grade estimates were accomplished in two passes using a minimum of three composites to a maximum of 10 composite with a maximum of two composites per drill hole. The first pass used a large search block distance of 500 ft along x, y, and z, in order to estimate grade within all mineralized blocks, while a second tighter pass honored the variogram parameters listed in Table 17-5.

17.7.5 Density

Bulk density values were assigned to each block based on density averaged by rock type.

17.8 Model Validation

17.8.1 Bias Checks

Three gold models were kriged, one without any indicators or a 0.000 oz/t Au indicator, a gold model using 0.100 oz/t Au indicator between low- and high-grade domains and a gold model using 0.150 oz/t Au indicator between low and high grade domains.

Table 17-6 compares mean grades of Measured and Indicated blocks of the three kriged indicator models as compared to nearest-neighbor grades for bias.

Table 17-6: Bias Statistics on Au from Different Indicator Kriged Models

Model	Tons	Krige Grade	NN Grade	Difference (%)
0.000 oz/t Au Indicator	4,135,432	0.1310	0.1122	16.7
0.100 oz/t Au Indicator	4,135,432	0.1195	0.1122	6.5
0.150 oz/t Au Indicator	4,135,432	0.1030	0.1122	-8.2

The “0.000 oz/t Au Indicator” model, show a relatively high bias of 16.7% above the nearest neighbor model, whereas the “0.150 oz/t Au Indicator” model is biased low, at 8.2% less than the nearest neighbor model. The “0.100 oz/t Au indicator” model shows a positive bias of 6.5% above the nearest neighbor model which is slightly above the 5% AMEC standard. In light of the other two models, the 0.100 oz/t Au indicator model is more acceptable and should still closely predict expected resource grades. AMEC suggest that future resource modeling use an indicator near 0.125 oz/t Au.

17.8.2 Swath Checks

To check for local bias in the kriged gold grades, AMEC made swath plots of gold grades along Easting, Northing, and Elevation comparing the nearest neighbor and kriged models (Appendix W). These show acceptable spatial comparisons without any large grade differences within the deposit.

17.8.3 Visual Inspection of Cross Section and Plan

Visual inspection of the gold models in computerized plans and cross sections indicate that the estimation parameter files have been run successfully for each estimation domain compare well to composite grades.

17.9 Mineral Resource Classification

Measured Resources were limited to blocks with centroids within 25 ft of an existing underground working and a minimum of three drill holes, with the nearest drill hole within 65 ft. Blocks were classified as Indicated when a minimum of two drill holes and three composites with one of the composites is within 65 ft. The 65 ft distance corresponds to the range when 80% of the sill is reached from the Au variogram in the Y direction. All remaining uncoded blocks with grade were classified as Inferred Resources.

17.10 Resource Statement

AMEC estimated total Mineral Resources by tabulating all mineralization within the 0.03 oz Au/t grade shell and above a cutoff grade of 0.05 oz Au/t (Table 17-7). This represents mineralization that may have reasonable prospects for economic extraction at higher gold prices, economies of scale and the potential for extraction of mineralization from expansion of the existing open pit. America Bonanza disclosed this Mineral Resource in a February 8^{th} press release.

Table 17-7: Mineral Resource Tabulation – $PACK_{100}$ Model Capped at 4.0 oz Au/t with a 0.05 oz Au/t Cutoff Grade

Zones	Classification	Tons	Grade (oz Au/t)	Cont. Ounces
A, B, C, and D	Measured	17,200	0.426	7,333
A, B, C, and D	Indicated	2,654,900	0.162	429,563
A, B, C, and D	Measured + Indicated	2,672,100	0.164	436,896
A, B, C, and D	Inferred	587,300	0.152	89,445

At this same time, AMEC prepared a tabulation of Mineral Resources that conceptually could be mined by underground methods only, based a 0.15 oz Au/t cutoff (5.1 g/t).

These Mineral Resources are provided as Table 17-8. The 0.15 oz Au/t cutoff was developed from a preliminary estimate of underground operating costs and a $425/oz Au metal price.

Table 17-8: Mineral Resource Tabulation – PACK$_{100}$ Model Capped at 4.0 oz Au/t with a 0.15 oz Au/t Cutoff Grade

Zones	Classification	Tons	Grade (oz Au/t)	Cont. Ounces
A, B, C, and D	Measured	11,500	0.610	7,005
A, B, C, and D	Indicated	1,058,000	0.310	327,924
A, B, C, and D	Measured + Indicated	1,070,000	0.313	334,929
A, B, C, and D	Inferred	209,000	0.317	66,266

Note: Rounding of tons as required by reporting guidelines results in apparent differences between tons, grade and contained ounces gold in the mineral resource tables.

These mineral resource estimates were prepared by Edward Orbock, MAusIMM of AMEC.

Subsequent to the disclosure of these two resource estimates, mineable resources were estimated using a revised economic cutoff of 0.21 oz Au/t, which in turn was derived from preliminary estimates of mining costs ($40.52/t), processing costs ($29.56/t), general and administrative costs ($12.95), recovery (90%), and a basis metal price of $450/oz Au. Drift and Fill stope outlines were prepared on a 12 ft vertical interval throughout the deposit, using the 0.20 oz Au/t grade shell as a guideline. Outlines were extruded to 12 ft high, and the contents measured and recorded in tabular format. Measured attributes included tons, gold grade, silver grade, copper grade, density, and planned or internal dilution for each classification.

Five areas were identified where drift and fill shapes could be joined to make blasthole stopes. In each of these areas, the dip was steeper than normal (greater than 45°) and the resource shape was fairly regular along strike. These shapes were linked together, the contents were measured, and the results were added to the resource table.

External or unplanned dilution and extraction parameters were developed for the respective mining methods and applied to the in situ resource estimates to develop diluted tons and grade estimates. The dilution and extraction parameters are summarized in Table 17-9.

Table 17-9: Dilution and Extraction Parameters

Area/Item	Drift and Fill Stopes	Blasthole Stopes
Internal Dilution	Included in shape query	Included in shape query
External Dilution	5% of in situ tons at 75% of cutoff grade	15% of in situ tons at 75% of cutoff grade
Backfill Dilution	5% of in situ tons at nil grade	2.5% of in situ tons at nil grade
Extraction Loss	5% of diluted tons at avg. diluted grade	5% of diluted tons at avg. diluted grade

AMEC recognized that the resource would be significantly reduced in size if stopes (or groups of stopes) that did not generate sufficient revenue to offset operating and development costs were eliminated on a stand-alone basis. As such, all stopes with a positive net operating cash flow (recovered gold value minus operating costs) were maintained in the resource inventory. Follow-up evaluations can be performed once a basis mine plan is developed to determine whether sub-economic stopes or stoping areas should be eliminated from the plan.

Mineral resources above a cutoff grade of 0.20 oz Au/t, and with dilution and mining extraction parameters applied are listed in Table 17-10.

Table 17-10: Mineable Mineral Resources – $PACK_{100}$ Model Capped at 4.0 oz Au/t with a 0.20 oz Au/t Cutoff Grade

Zones	Classification	Tons	Grade (oz Au/t)	Cont. Ounces
A, B, C, and D	Measured	10,300	0.394	4,028
A, B, C, and D	Indicated	362,500	0.366	132,807
A, B, C, and D	Measured + Indicated	372,800	0.313	136,835
A, B, C, and D	Inferred	3,700	0.299	1,113

It should be noted that the economic parameters applied to this mineable resource are preliminary and that the Mineral Resources do not have demonstrated economic viability until financial analyses determine that the resources can be extracted at a profit after recovery of operating and capital costs. Furthermore, in accordance with NI 43-101 Section 2.3.3, the Preliminary Assessment 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, and there is no certainty that the Preliminary Assessment will be realized.

These estimates of mineable mineral resources were prepared by William Tilley, PE, of AMEC.

The 1999 scoping study by MRDI reported a historical resource for Zones C and D of 827,400 t with an average grade of 0.555 oz Au/t, based on a cutoff of 0.25 oz Au/t and a gold price of $300/oz Au. This estimate is provided for comparison to historical estimates only. Subsequent drilling from 2003 to 2005 added 58 underground and 107 surface drill holes to the Copperstone database. While this data increased the understanding of the resource continuity and grade distribution, the net effect was a reduction in mineral resources due to a decrease in the extent and continuity of individual zones of mineralization.

Several opportunities exist that could allow American Bonanza to increase mineral resources:

- extend resources to depth and along strike with additional drilling
- refine the designs for all sub-economic stopes currently excluded from the mineral resource
- reduce the cutoff grade by incorporating ramp and stope access refinements, backfill requirement reductions, and use of a greater proportion of blasthole stopes.

AMEC is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues that would affect the estimate of mineral resources.

17.11 Exploration Potential

Additional resource potential on the Copperstone Project lies close in to the existing mineralized bodies. It is recommended that additional drilling down dip along the Copper Stone Fault be completed to expand the resource as well as to further define underground mineable potential.

Opportunities such as offset zones, areas with low drill density, parallel structures, perpendicular structures, and feeder zones, all have the potential to increase Copperstone resources. Extending the existing ramp into the hanging wall may provide an improved drill platform. The cost would be at least partially offset by drill footage reductions.

American Bonanza has identified several nearby geophysical anomalies, which provide the opportunity to increase resources and improve project economics.

18.0 OTHER RELEVANT DATA AND INFORMATION

18.1 Mining

18.1.1 Mining Methods

AMEC proposes a combination of two mining methods for Copperstone: Drift and fill and blasthole stoping. Drift and fill is the primary mining method, which is used in all areas where mineralization is flat lying (dipping less than 45°) and irregular in profile. Blasthole stopes are proposed for five locations where the mineralization shapes are regular and the dip exceeds 45°.

Drift and fill stoping involves accessing the ore from a ramp (preferably located in the footwall). The initial stope access is driven down grade to the waste/ore contact, then extended through the mineralization to the hanging wall contact (flat). Once the hanging wall has been located, longitudinal panels are mined perpendicular to the access drift, along strike, to the stope ends. Stope lengths average approximately 97 ft, with only a few extending beyond 300 ft. Design panel widths are 12 ft, but stope widths vary between 6 and 37 ft, averaging 24 ft. If mineralization is wider than 12 ft, but less than 24 ft, stopes may be slashed to full width prior to filling. If a stope is wider than 24 ft, it must be filled before adjacent panels towards the footwall can be mined. Once all the panels in a given cut are mined and filled, the crew retreats up the access ramp sufficient distance to allow for stashing/ramping to the next cut above. This sequence is repeated until all the cuts in a stope are mined.

A nominal level spacing of 60 ft was selected, providing access to five 12 ft high drift and fill cuts from a single access point. The resolution provided by the 12 ft high cuts reduces dilution along the hanging and footwall compared to higher cuts, while still providing sufficient access height for highly-productive mining equipment.

The number of cuts per stope varies between two and five. Stope access gradients are selected to minimize stope access length. This approach does, however, result in down grade accesses, which are susceptible to water pooling near the face. Small pump allowances are included in the development and production costs to mitigate this issue. Typical stope access drift gradients are summarized in Table 18-1.

Table 18-1: Stope Access Geometry

Stope Access Drifts	Stope Access Gradients
2	Flat and -18%
3	+18%, Flat, and -12%
4	+18%, Flat, -12%, and -18%
5	+18%, +12%, 0%, -12%, and -18%

Initial stope access drifts are rather lengthy, compared to access drifts typical of other mining methods, due to the relatively flat gradient of the mineralization. Reducing the number of cuts per access point would reduce the average stope access drift length, but it would increase the number of stope access points and the associated access development.

In a typical drift and fill operation, several stopes would be accessed from a common footwall drift extending across each level. In this case, insufficient access points exist to justify excavating such footwall drifts. A series of ramps are proposed that provide access to the optimum access point for each stope.

Blasthole stopes are either accessed from the bottom, or in two cases (where the stopes are taller) top and bottom. Blastholes are drilled from the top and/or bottom accesses to blast muck into a slot, which would be excavated from bottom to top towards one end of the stope. Muck is retrieved from the stope bottom with LHD.

Cross sections through typical drift and fill and blasthole stopes are presented in Figures 18-1 and 18-2, respectively.

Key opportunities to improve mining costs include optimizing ramp and stope access designs, and incorporating additional blasthole stopes.

Cross sections through typical drift and fill and blasthole stopes are presented in Figures 18-1 and 18-2, respectively.

Key opportunities to improve mining costs include optimizing ramp and stope access designs, and incorporating additional blasthole stopes.

18.1.2 Production Rate and Stoping Productivity

The proposed production rate is 350 tpd. At this rate, the current resource will support an operation for nearly three years. Crew productivity is estimated to vary between 120 and 530 tpd, depending on the excavation methodology such as slashing in “good” ground or full-face excavating in “poor” virgin ground. Stopes are scheduled at 175 tpd, providing redundant face to ensure production quota are met during fill cycles, low productivity cycles (when stopes are in poor ground), and to allow for unforeseen delays.

Figure 18-1: Cross Section through a Typical Drift and Fill Stope

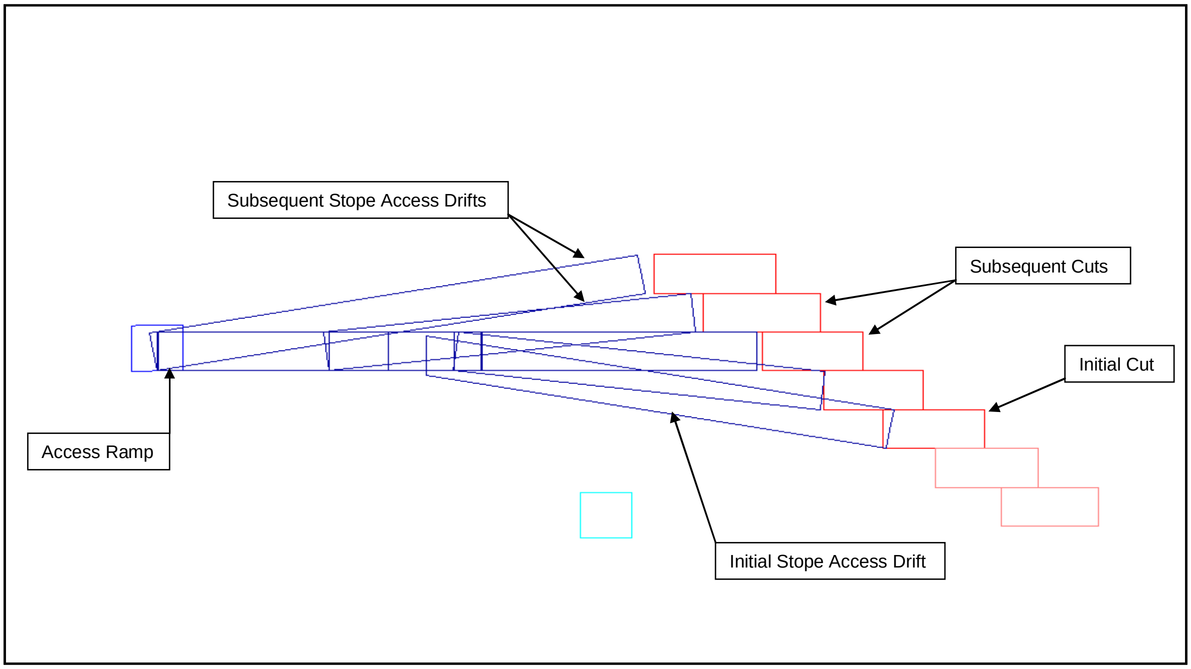
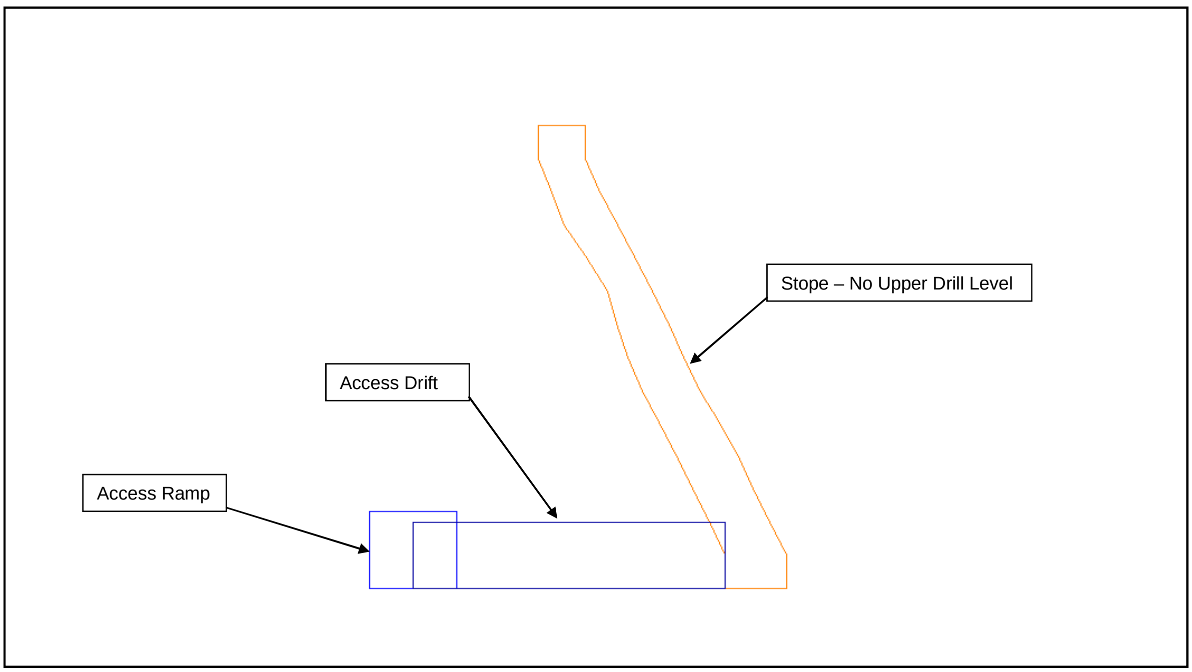


Figure 18-2: Cross Section through a Typical Blasthole Stope



Stoping productivity calculations incorporate the following parameters:

- Owner's crews
- 3 shift/d, 7 effective h/shift, 50 effective min/h
- use 2-boom jumbo, 3.9 yd^3 (3 m^3) LHD, and bolt with Jacklegs
- drill 10 ft, break 9 ft
- powder factor is 1.9 lb/t
- support with 6 ft (2 m) split sets (and screen) on a 5 ft x 5 ft (1.5 m x 1.5 m) pattern
- muck to transfer at 250 ft
- 2.5 miner crew plus 1 mechanic/electrician per crew
- no equipment rentals (equipment is purchased)
- slashing productivity has reduced drilling, powder factor, and ground support.

Based on the parameters above, a standard 12 ft height x 12 ft width heading in "moderate" ground is developed at a rate of 21.5 ft/d and a unit cost of $340/ft. These basis values are prorated to determine productivities and costs for "good" and "poor" ground conditions, which are in turn weighted to determine average rates for scheduling and cost estimating purposes. Excavation in good ground is assumed to be done at 75% of the standard cost and at 133% of the productivity. Excavation in poor ground is assumed to be done at 300% of the standard cost and at 33% of the productivity. The overall average rate for a 12 ft height x 12 ft width drift is 20 ft/d at a cost of $367/ft ($27.77/t). The assumed ground type distribution is 10% poor, 40% moderate, and 50% good.

Slashing for a 12 ft height x 12 ft width heading is estimated to cost $237/ft or $17.98/t.

Drift and fill costs are assessed under the assumption that 67% of the production is done in virgin ground and 33% is done by slashing, reducing the average unit cost to $24.54/t.

Blasthole stoping costs are calculated to comprise 20% drifting and 80% slashing; however, the slashing costs have been reduced from $17.98/t to $13.48/t by removing ground support costs to produce an average blasthole stoping cost of $16.34/t.

Contractor costs for the same headings are estimated to be approximately 70% higher. The cost increase is primarily due to the incorporation of equipment rentals, indirect costs, and margins. Contract mining could be considered as an alternative to Owner operation, to avoid equipment purchase; however, the overall costs associated with contract mining are higher.

Verbal discussions with three contractors indicate unit costs will be significantly higher than those calculated for this project. The reasons for the higher costs are primarily related to recent increases in labor, equipment, and materials costs. The same issue could exist for Owner costs, as the unit cost calculation methodology and inputs are identical. AMEC recommends performing market surveys and soliciting contractor quotations in future studies to validate preliminary assessment costs.

The opportunity exists to further reduce the amount fill required, but this will require detailed stope geometry and sequencing analysis, and additional fill strength and stope stability evaluations.

Details related to productivity calculations are presented in AMEC's 2006 Preliminary Assessment.

18.1.3 Production Sequence/Schedule

The net operating cash flow (recovered gold value minus operating costs) was used as a general guideline for stope sequencing. Pre-production development exposes a significant number of stopes; however, some of the most valuable stopes require additional access development constraining the production sequence.

Production is scheduled quarterly over the project duration. Given the significant quantity of pre-production development performed and the limited production rate, a build-up period is excluded.

The production schedule is summarized in Table 18-2.

Table 18-2: Production Summary

Item	Year 1	Year 2	Year 3	Total
Tons	127,752	127,750	120,977	376,500
Gold (oz/t)	0.398	0.420	0.276	0.366
Silver (oz/t)	0.178	0.231	0.118	0.177
Copper (%)	0.595	0.569	0.447	0.535

Note: Totals may not balance due to rounding.

18.1.4 Ore Haulage

Drift and fill production costs only include the transport of ore from the stope to a transfer point. Separate haulage crews transport ore from the transfer point to surface. A local contractor will transport ore from the surface dump to the plant at additional cost.

Key parameters associated with ore haulage follow:

- ore is scheduled to be hauled in the same quarter that each stope is mined
- load truck with 3.9 yd^3 LHD
- haul ore with 20 ton truck
- average fill haul distance is 4,000 ft from stope to pit bottom
- no equipment rentals (equipment is purchased)
- average unit cost for underground ore haulage is $1.76/t
- average haul distance from pit bottom to plant is 6,700 ft
- load truck with 966 Loader
- haul with D20D haul truck
- price includes equipment rentals
- unit cost for surface ore haulage is $1.47/t.

18.1.5 Backfill

Both mining methods utilize cemented rock fill. The fill limits exposed span while mining successive adjacent panels in a cut, and supports the stope hanging wall providing access to successive cuts. The proposed plan includes allowances to fill all stopes except the last cut in the drift and fill stopes (provided the cut is independent of subsequent stopes) and the top 20% in top/bottom access blasthole stopes. The remaining void is used for waste rock disposal. Blasthole stopes with a single bottom access are not filled. A total of 136,000 yd^3 or 84% of the stopes are filled.

Backfill is truck-hauled from a crushing/screening/slurry plant in the pit bottom to a transfer point near the stope. An LHD transports the fill into the stope. A second LHD with a rammer pushes the fill tight to the back, where necessary.

Following are key backfill haulage and scheduling parameters:

- backfill is scheduled to be placed during the same quarter that each stope is mined
- backfill requirements are calculated from the stope volumes and an in-place fill density of 14.4 ft^3/t fill
- haul fill with 20 ton truck
- average fill haul distance is 4,000 ft
- no equipment rentals (equipment is purchased)
- average unit cost is $1.74/t hauled
- transfer fill with 3.9 yd^3 LHD
- average fill transfer distance is 200 ft

- average cement content is 4%
- average unit cost is $7.72/t placed.

The opportunity exists to further reduce the amount fill required, but this will require detailed stope geometry and sequencing analysis, and additional fill strength and stope stability evaluations.

The backfill schedule is presented in AMEC's 2006 Preliminary Assessment.

18.1.6 Development Sequence/Schedules

Mine development is classified into four categories:

- *Ramp – 14 ft height x 14 ft width* – Includes miscellaneous excavations such as remuck bays, sumps, and electrical cutouts. A complete loop is developed during the pre-production period by a single crew starting in near the face of the exiting decline. Once the ramp is complete, the crew moves to surface and excavates a new portal and access drift, providing a breakthrough target for a ventilation raise from below. This loop not only provides access to many stopes, but it provides flow through ventilation, and a secondary means of egress. Pre-production development is performed by a Contractor. Remaining ramp development is performed by the Owner at a rate of 1,000 ft/qtr. Beyond the pre-production period, ramp development is sequenced to accommodate the production schedule. Pre-production development is shown in Figure 18-3. The complete underground mine plan is shown in Figure 18-4.
- *Stope Access Drift – 12 ft height x 12 ft width* – This is the initial access to each stope and is driven in virgin ground. All stope access drifts are scheduled to be developed during the quarter before stoping commences. Note: three stope accesses are developed by the Contractor during the pre-production period.
- *Inter-stope Access Drift – 12 ft height x 12 ft width* – Development needed to access nearby isolated resource pods. Inter-stope access development is scheduled simultaneous with production.
- *Stope Access Slash – 12 ft height x 12 ft width* – All access drifts subsequent to the initial access are excavated by slashing. These accesses are "pulled in" to the resource to minimize length. Stope access slashing is scheduled simultaneous with production.

The opportunity exists to purchase equipment in Year -1, allowing the Owner to develop the mine. This would eliminate Contractor's margins and equipment rental fees, but Contractor indirect costs would mostly be incurred by the Owner.

Figure 18-3: Pre-Production Development

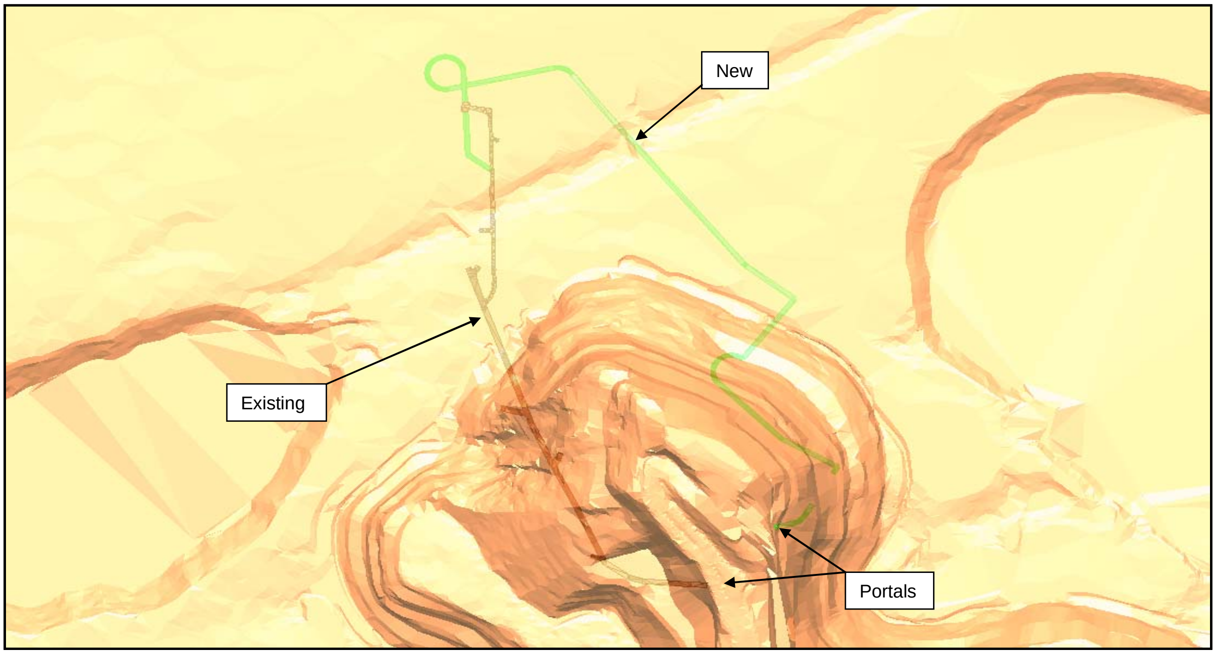
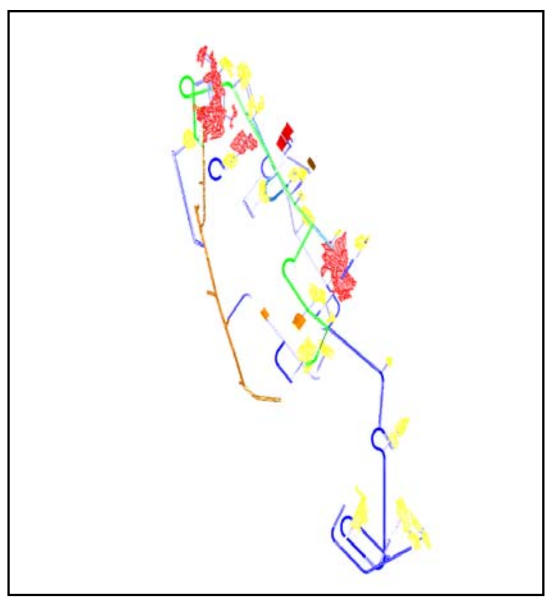


Figure 18-4: Copperstone Mine Plan

With Topography

Without Topography



The development schedules discussed above are presented in AMEC's 2006 Preliminary Assessment.

Owner's crew productivities are identical to those for Contractors, with the key differences being in removal of equipment rental costs, Contractor's indirect costs, and Contractor's margins.

18.1.7 Waste Haulage

Waste rock is generated by excavating ramps, stope accesses, inter-stope accesses, and stope access slashing. A Contractor hauls waste to surface during the pre-production period. The Owner hauls 50% of the waste generated during operations to surface. The other 50% is stored in the tops of mined-out, backfilled, stopes. The waste haulage schedule is presented in AMEC's 2006 Preliminary Assessment.

Following are the waste haulage cost parameters.

- haul to surface by Owner at $1.76/t (same as ore haul cost)
- haul to stope by Owner at 33% of waste haul cost or $0.59/t
- haul to surface by Contractor at 170% of waste haul cost or $3.00/t.

18.1.8 Drilling

Delineation drilling requirements are calculated from an average hole length and the assumption that four pierce points are needed per five-cut stope. The average hole length is the sum of the stope access length (131 ft), the average stope width (24 ft), and a 5 ft overdrill allowance, for a total of 160 ft. The pierce point assumption equates to 0.8 pierce points or holes per cut. The drilling per stope is calculated for each stope from the number of cuts per stope. A total of 14,464 ft of drilling are required over the mine life. Costs are assessed at $75/ft (including assays). Drilling costs are spread evenly over the last quarter of pre-production and the first 10 quarters of the mine life.

The drilling summary is presented in AMEC's 2006 Preliminary Assessment.

18.1.9 Ventilation Fans

A flow-through ventilation circuit is envisioned for Copperstone. Fans are mounted in a bulkhead in the new access drift on the east side of the pit. The fans draw fresh air down the existing ramp and past the accesses for all stopes.

The total ventilation requirement is based on the mobile equipment fleet motor sizes, an operating factor, and an allowance of 125 cfm/bhp. The resulting ventilation load is approximately 160,000 cfm. This air will be delivered by a pair of 100 hp fans.

Auxiliary fans force fresh air from the ramp to the working faces using ventilation duct.

Ventilation requirement and fan calculations are included in AMEC's 2006 Preliminary Assessment.

Water Management

Water Management Consultants (WMC March 2006) suggests using one to four surface dewatering wells to intercept flows that might otherwise report to the mine. Total pumping rates of 100 to 400 gpm (50 to 75 gpm at startup) are estimated. Stated benefits of the dewatering wells include the following:

- reduced hydraulic pressures, decreasing mine inflows and improving geotechnical conditions
- interception outside the mining areas
- provision of a steady water supply for the plant
- maintaining higher water quality than would likely occur underground.

Allowances are provided for two 800 ft deep wells located northwest and southeast of the immediate mining area. Each well includes an overland 4 inch diameter HDPE line which discharges near the plant. Each well is equipped with a 25 hp pump capable of pumping 75 gpm at 1,000 total dynamic head.

WMC estimates the underground inflows to be between 20 and 50 gpm.

Allowances are provided for two sumps. The first pumps from the 0 Level in the mine to the pit bottom. The second pumps from the pit bottom to the plant. Each sump feeds a 2.5 inch pipe line. Each sump is equipped with a 10 hp pump capable of delivering 50 gpm at 500 total dynamic head. A single spare pump is included in the fixed equipment list.

Plant make-up water is estimated to by approximately 20 gpm. WMC recommends disposing of excess water by one of two means:

- a forced evaporation system, which could be located within the footprint of the tails or within the existing open pit
- a rapid infiltration basis in the basin fill material, again staying within the footprint of the project.

The opportunity exists to exclude the surface wells and manage the additional inflows underground. Additional evaluations will be needed to determine whether the additional inflows will have a material affect on ground support costs and productivity.

Pump calculations are included in AMEC's 2006 Preliminary Assessment.

18.1.10 Power Supply

An overland power line (5 kVA) will provide power from the existing substation to a new substation near the existing portal. The line will extend across the surface to the pit wall above the portal, and down the pit wall to a termination point.

The mine operating load is estimated to be 560 kVA. However, the usage points are spread over an extensive area. A 5 kVA power line will be installed in each adit, which terminates at a second skid-mounted 750 kVA transformer near the ramp midpoint. All mine loads will be serviced from these two locations, as well as power boxes located at a 1,000 ft interval along the ramp system.

The opportunity exists to reduce equipment costs by purchasing second hand skid-mounted substations.

The load list and power supply cost estimate are included in AMEC's 2006 Preliminary Assessment.

18.1.11 Mine Services

Most indirect operating costs such as maintenance, supervision, and electrical power are included in other cost items. The mine services area includes costs for operating equipment such as fans, pumps, the crushing/screening plant, and compressors (see AMEC's 2006 Preliminary Assessment for details).

18.1.12 Fixed Equipment Costs

Fixed equipment costs are calculated by listing the equipment required to support the mine along with quantities, unit costs, and allowances for spares and freight. Spares are assessed against the base unit cost (of select items) using a sliding scale: 8% for single units, 4.5% for two units, and 3.3% for three or more units. Freight is assessed at 3% of the base unit cost. All costs are in US$2006 (no escalation is applied). The purchase of each item is scheduled on an "as needed" basis, providing a fixed equipment expenditure schedule.

Given the relatively short mine life, a salvage value of 30% is assessed against key pieces of equipment. The salvage value is assumed to be recovered in Year 4.

Fixed equipment costs total $928,284, with an associated salvage value of $268,443.

Fixed equipment costs are summarized in Table 18-3. The fixed equipment expenditure schedule is presented in AMEC's 2006 Preliminary Assessment.

Table 18-3: Fixed Equipment Summary

Unit	Quantity	Total Cost ($)
Surface		
Shop Tools and Equipment	1 ls	51,500
Crane – 20 t Monorail	1 ea	20,600
Fuel Station	1 ea	8,240
Explosives Magazine	1 ea	7,210
Cap Magazine	1 ea	1,545
Office and Dry Equipment	1 ea	50,000
Dewatering Well Pumps	3 ea	22,323
Backfill Plant – Crushing/Screening Equip.	1 ea	138,750
Backfill Plant – Slurry Mixer/Dispenser	1 ea	54,390
Transformer – 750 kVA	1 ea	156,000
Underground		
Misc. Ground Support Equipment	1 ls	22,200
Jackleg	8 ea	59,528
Main Fan – 100 hp	2 ea	43,000
Auxiliary Fan – 50 hp	4 ea	51,024
Air Doors	1 ea	15,450
Dirty Water Pump – 13 hp	6 ea	7,654
Maintenance Shop Tools and Equipment	1 ea	51,500
Monorail Crane – 5 ton	1 ea	15,450
Portable Compressor – 350 cfm, 75 hp	1 ea	33,300
Portable Refuge Chamber	1 ea	15,450
Self Contained Breathing Apparatus	6 ea	40,170
Breathing Apparatus Tester	1 ea	6,180
Air Pack	6 ea	15,450
First Aid Supplies	1 ls	6,180
Cap Lamps and Chargers	1 ls	9,270
Self Rescuers – W65	20 ea	6,180
Sanitary Unit	3 ea	3,090
Communications Equipment	1 ls	16,650
Total		928,284

18.1.13 Mobile Equipment Costs

Production and development fleet requirements are calculated from quantity take-offs and productivity rates for each activity. All quantities include spare units, based on assumed mechanical availability of 85%. Required units are summed, and then rounded to the nearest whole number. Auxiliary units are assessed manually. Details related to the mobile equipment quantities are presented in AMEC's 2006 Preliminary Assessment.

Mobile equipment costs are calculated by listing the equipment required to support the mine along with quantities, unit costs, and allowances for development (first fills and commissioning), spares, and freight. Spares are assessed against the base unit cost (of select items) using a sliding scale: 10% for single units, 6.0% for two units, and 4.5% for three or more units. Freight is assessed at 3% of the base unit cost. All costs are in US$ 2006 (no escalation is applied). The purchase of each item is scheduled on an “as needed” basis, providing a mobile equipment expenditure schedule.

Given the relatively short mine life, a salvage value of 30% is assessed against key pieces of equipment. The salvage value is assumed to be recovered in Year 4.

Mobile equipment costs total $6,442,375, with an associated salvage value of $1,904,363.

Mobile equipment costs are summarized in Table 18-4. Refer to AMEC’s 2006 Preliminary Assessment for the mobile equipment expenditure schedule.

Table 18-4: Mobile Equipment Summary

Unit	Quantity	Total Cost ($)
Surface		
Pickup Truck – ¾ ton	4 ea	94,500
Reagent Forklift	1 ea	142,780
Flatbed Truck	1 ea	41,890
Underground		
Drill Jumbo – 2 Boom	2 ea	1,805,760
Bench Drill	1 ea	270,220
LHD – 3.9 yd3	3 ea	1,805,625
Haul Truck – 20 ton	2 ea	889,200
Scissors Lift	1 ea	295,000
Road Grader	1 ea	459,020
Lube/Fuel Truck	1 ea	330,400
Boom Truck	1 ea	307,980
Total		6,442,375

The opportunity exists to reduce capital expenditures by purchasing used equipment; although, availability and maintenance costs could be adversely affected.

18.2 Processing

18.2.1 Process Selection

Comminution is based on conventional (two-stage) crushing and ball milling. At 350 st/d AMEC regards this as more economical than an alternate Semi-Autogenous-Grinding and ball mill circuit for the basis of this study.

Gravity gold recovery showed some potential in test work but at the client’s request gravity processing was not included in this study flowsheet.

Overall, the test work results appear to support the selection of flotation and concentrate cyanidation over direct cyanidation as the basis for the flowsheet. Silver grades are low therefore gold recovery can be considered by concentrate leach tails filtration and Merrill Crowe (MC), or by Carbon in Pulp. In the case of the latter all the cyanide in tails slurry will have to be destroyed. In the case of Merrill Crowe cyanide destruction would be done only on a bleed solution stream, resulting in lower cyanide destruction costs, and the treated solution used to wash the filter cake. The tails could be a dry product that goes to a separate tailings management facility from the float tails. However in this case it is assumed the cyanide will be destroyed/washed in the cake and then repulped and combined with the flotation tails to a single tailings disposal area. The solid/liquid separation could be by CCD or filter. A filter will produce a washed clean tail and improve gold and cyanide recovery. A small belt filter will be very effective at washing and this is used in this study. An alternate pressure filter with a wash cycle could also be considered.

A strict separation of solutions must be maintained between the flotation and cyanidation circuits. The cyanide will interfere with flotation even at very low levels. This requires at least a thickener for the flotation concentrates. Filtering the concentrates provides an even better balance in the leach circuit and this is included in the flowsheet.

Consideration could also be given to direct electrowinning in lieu of a MC circuit. In both cases a bleed to cyanide destruction would be required to control zinc and other base metal (copper) impurity levels in the leach and the water balance. At 350 tpd and a 7.5% combined wt. percentage flotation concentrate the circuit produces 25 tpd, a very small circuit. At the small scale proposed the various recovery options will probably have similar economics. Because of the high grades, the solution grade could be high and possibly directly electrowinned in a small electrowinning cell. Possibly direct electrowinning could be more favorable economically, but this will require more investigation. A number of direct electrowinning operations are currently being assessed and constructed, but few are operating commercially and data is limited. Consequently this study uses a standard Merrill-Crowe system. A simple bleed of solution to an INCO cyanide SO_2-Air cyanidation destruction circuit is provided to manage base metals levels.

18.2.2 Recovery

At a 200 mesh grind flotation recoveries of about 89% to 90% are indicated and when combined with gravity 92% to 96%. Gravity appears to have the potential to add 1% to 2% to the overall recovery from gold that may not float well and additional work has been recommended to investigate this. However, some flotation optimization potential is indicated that may offset this. On this basis AMEC believe it reasonable to use a higher flotation (only) recovery of about 92% for the basis of this study.

Flotation concentrates leached very well and in 72 h produced recoveries of 98.3% to 99.4%. A recovery of 98% is used for the basis of this study.

A net flotation and concentrate leach recovery of 90.2% (0.92* 0.98) is indicated. An additional 0.2% soluble loss is deducted to give an overall recovery projection of about 90%. Additional variability test work is recommended to improve confidence in this projection.

18.2.3 Process Design Criteria and Construction Concept

The mill design criteria are based on processing 350 st/d and a flowsheet and mass balance are provided in Appendix A. The key design criteria are summarized below:

Crushing		
Daily Tonnage	350	st/d
No Shifts	1	
Availability	70	%
Crusher Feedrate	62.5	stph
Primary Crusher F80	200	mm
Secondary Crusher P80	13	mm
Grinding		
Mill Head Grade	0.33	oz/st
Daily Tonnage	350	st/d
No Shifts	3	
Availability	93	%
Ball Mill Feedrate	15.7	stph
Ball Mill Feed	13	mm
Ball Mill Product	74	µm
Ball Mill Wi	15	kWh/st
Ball Mill Power Draw	16.1	kWh/st
	253	kW
	333	hp
Motor Power	350	hp
Mill Diameter	2.44	m
Mill Length	3.66	m
Flotation		
Flotation Feed	15.7	stph
Flotation Feed	24	m^3/h
Retention Time	40	min
Aeration Factor	0.85	
Flotation Volume	19	m^3
Flotation Cell Volume	3.5	m^3
No. Flotation Cells	6	
Concentrate	7.5	wt%
Concentrate Leaching		
Leach Feed	1.1	stph
Leach Feed	1.7	m^3/h
Retention Time	72	h
No Tanks	6	
Tank Live	20	m^3
Tank Diameter	3.05	m
Tank Height	3.65	m
Agitation type	Mechanical, top-entry	

Leach Air	1	$m^3/h/m^3$ vol
	122	m^3/h
	72	cfm
Concentrate Filtration		
Conc Filter Feed	1.1	tph
Conc Filtration Rate	0.35	tph/m^2
Conc Filtration Area	3.0	m^2
Belt Filter Area	9.0	m^2
Filter Width	1.8	m
Filter Length	5.0	m
Merrill Crowe & Refinery		
MC Wash Ratio	7.5	
MC Feedrate	8.0	m^3/h
	35	USGPM
Gold Recovery	90	%
	104	oz/d

An equipment list is provided in the estimate in AMEC's 2006 Preliminary Assessment and a conceptual layout based on preliminary major equipment sizing is provided in Appendix A.

The crushing plant design is based on an open portable crushing arrangement, operating one shift per day. Ore will be trucked from the mine ROM stockpile, direct dumped and crushed on a single shift. Labor costs are a very significant component of operating costs and the design objective is to minimize this and the rehandling of ore. A mill feed bin and automatic bin reclaim feeder are provided for this reason in lieu of an open stockpile and a three shift reclaim operation. All conveyors and the mill feed bin will be open. The bin is unlined due to the short project life of three years.

The ball mill is sized to grind an oversized secondary crusher product to 200 mesh, based on the hardest zone (HW Zone) BWI of 15 kWh/st.

The flotation circuit cell sizing is based on a typical 40 minute retention time. Additional work has been recommended to optimize this to confirm this selection.

The concentrate treatment circuit is based on a flotation weight recovery of 7.5% (about 25 st/d). Average flotation weight recoveries of 3% to 5% were experienced in test work. However, this study does not include a gravity circuit and at these weight recoveries, and without gravity, test work flotation recovery was a little lower at about 90%. To achieve the 92% flotation recovery used in this study a higher flotation weight recovery has been assumed. Possibly this is a conservative design assumption and additional work has been recommended to reassess gravity recovery potential and optimize flotation parameters.

The concentrate leach circuit is based on conventional agitated tank leaching using a 72 hour retention time. This is installed outdoors in a containment area. An alternate batch intensive cyanidation tank reactor system could possibly be considered as a trade-off, especially if the flotation weight recovery design basis is reduced from 7.5%.

Gold recovery is done in a conventional Merrill Crowe (MC) plant. This is a very small 35 gpm unit and will be supplied as a completely preassembled package mounted on three small skids with interconnecting piping, sitting on the refinery floor. Field installation requirements will be minimal.

All control will be local start/stop and by programmable logic controller in the field. No central control system is provided.

The mill and MC/Refinery buildings will be prefabricated structures and will not be required to support overhead cranes or internal structure. Internal hoist frames and jibs are provided over the mill and flotation areas for maintenance. A hoist frame and jib is also provided over the leach tanks for agitator maintenance. A maintenance laydown area is provided. Because of the moderate dry hot climate the building is not climate controlled and cladding will not be insulated. Natural ventilation drafts will be provided in the roof design. The mill building will be lightly clad to the operating platform for sun protection, but open at the basement. The refinery and MC building will be completely enclosed for security reasons.

18.2.4 Process Description

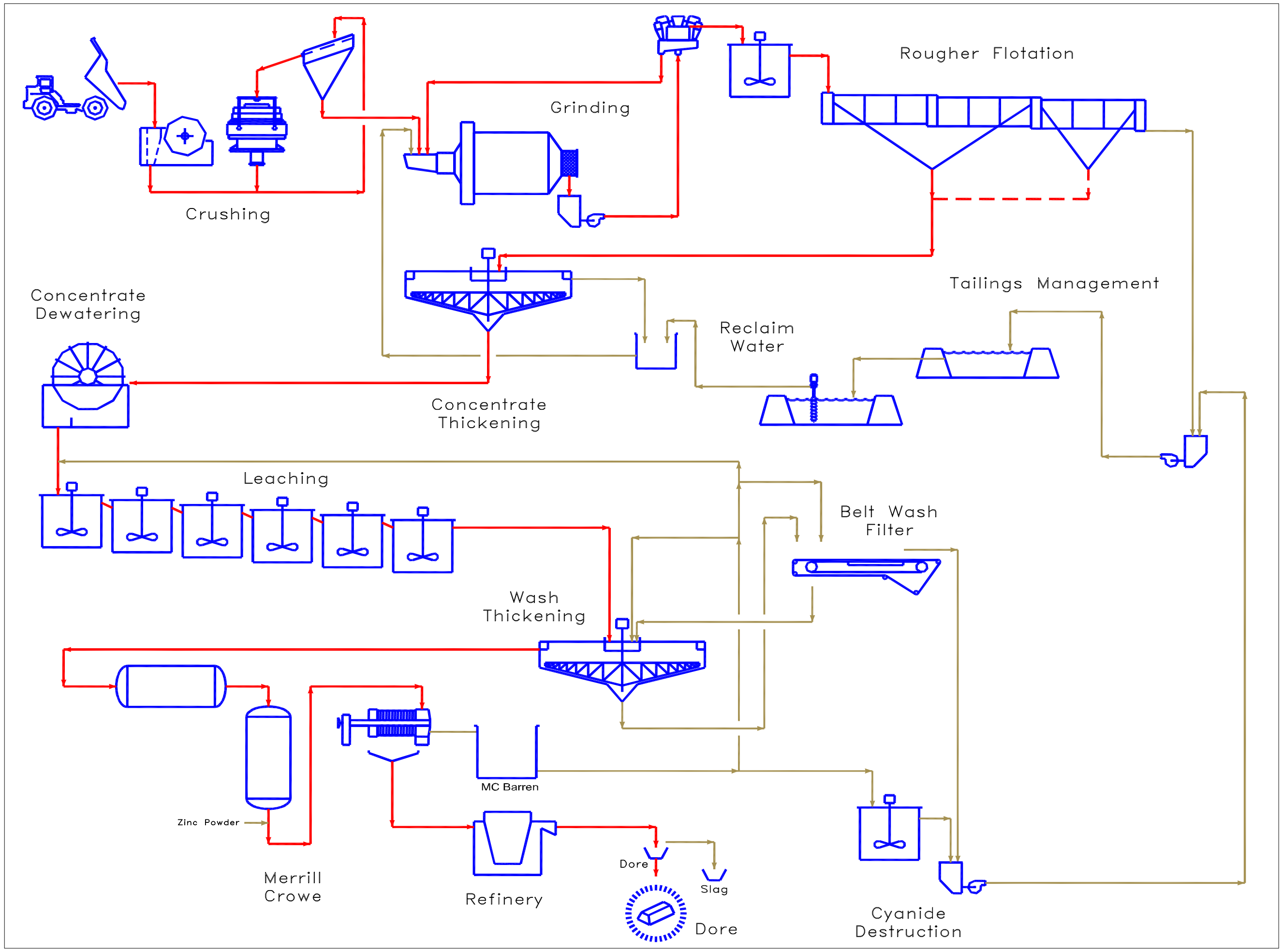
A simplified depiction of the overall process flowsheet is shown in Figure 18-5.

Ore will be trucked from the mine ROM stockpile, direct dumped and crushed on a single shift. The crushing plant is an open portable crushing arrangement, crushing 350 st/d of -200 mm ore to a P_{80} of 13 mm, on a single shift. This consists of three mobile units; a feeder plant including receiving hopper, grizzly, vibrating feeder, belt conveyor, a primary crusher and a combined secondary crusher and screening unit. Crushed ore will be stored in a 350 t (live) mill feed bin providing one days storage.

A belt feeder will be used to reclaim ore from the ore bin and it will be fed to a single 2.44 m diameter by 3.66 m (350 hp) ball mill for grinding.

Ground slurry will be pumped to a bank of cyclones. The cyclone underflow will be returned to the ball mill. The cyclone overflow will flow by gravity to the flotation circuit consisting of six 3.5 m^3 cells. Reagents will be added to the slurry to promote the flotation process. The gold will be collected in the flotation concentrate, which will be processed further in order to recover the precious metals. The concentrate will account for approximately 7.5% weight of the feed to the plant, i.e., 25 st/d. The flotation tailings will be combined with washed leach concentrate tailings and pumped to the surface tailings impoundment.

Figure 18-5: Copperstone 350 st/d Gold Project Simplified Process Flow Diagram



The flotation concentrate will be thickened in a concentrate thickener, dewatered in a disk filter and then repulped with barren solution and pumped to the leach circuit.

The leach circuit consists of a series of six open agitated tanks that provide 72 hours of retention time. Sodium cyanide and lime will be added to leach the gold and silver from the concentrate. The leached slurry will flow by gravity to the leach wash thickener. The pregnant solution will overflow from the thickener and the leach residue will report to the thickener underflow. The residue will be washed both in the thickener and on a belt filter. The pregnant solution will be pumped to a Merrill-Crowe silver-gold recovery circuit.

The washed, dewatered leach residue will fall from the belt filter into a tank where it will be re-pulped with treated water and pumped to the flotation tailings pump box for co-disposal in the surface tailings impoundment. Since the residue is filtered and washed, the amount of residual cyanide that reports to the surface tailings impoundment is very low.

In the Merrill-Crowe circuit, the pregnant circuit will be clarified in a clarifying filter and the oxygen will be removed in a de-aeration tower. Zinc dust will then be added to the pregnant solution in order to remove the gold and silver by precipitation. The precipitate will be removed from the solution by a plate and frame filter press. The dewatered precipitate will be dried and fed to a smelting furnace along with fluxes in order to produce doré bars.

A bleed of the barren solution that discharges from the Merrill-Crowe circuit will be pumped to a SO_2-Air cyanide destruction circuit, which is included in order to control the copper and zinc concentrations in the solutions.

18.3 Tails Management

Following is a description of the tailings disposal facility.

18.3.1 Design Parameters

- site the facility on the existing regraded tailings facility
- production is 350 tpd for 3 years
- total required storage capacity is 400,000 tons
- tailings delivered to the storage facility as a slurry of whole tailings
- tailings dry, in place density assumed to be equal to 80 lb/ft^3
- provide two feet of freeboard in impoundment
- centerline construction

- supernatant solution will be decanted from a barge or decant structure
- underdrainage from the tailings is collected in existing underdrain system
- underdrainage reports to existing reclaim solution pond
- fluid containment is provided by existing 40-mil PVC liner system
- decant solution and underdrainage recycled to the mill for processing.

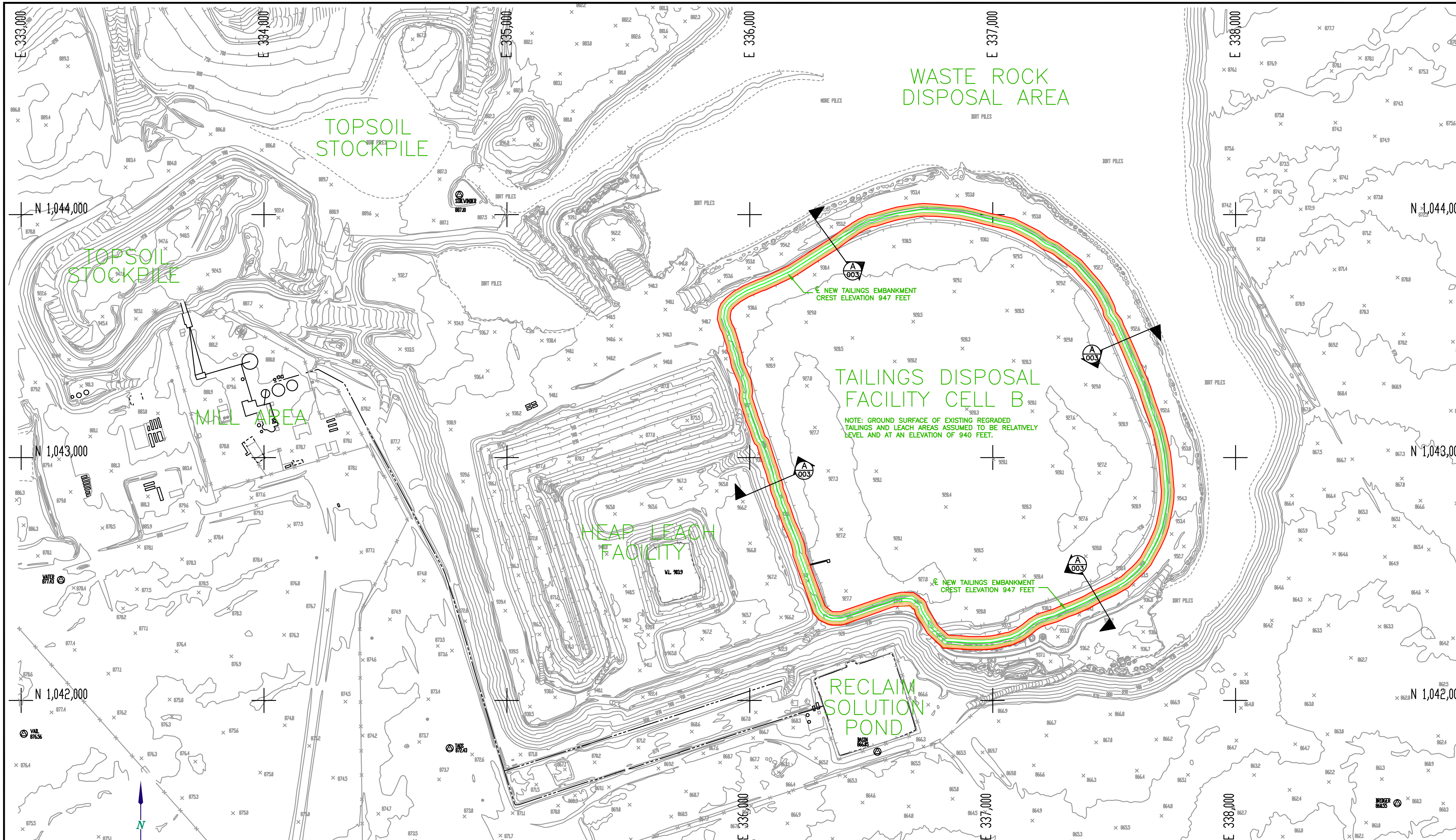
Recent topography for the project site is not available. The most recent available digital topography for the site is from December 1992 (Golder, 1993).

The existing tailings disposal area and heap leach pad were reclaimed and the surface has been covered (leveled) with an unknown thickness of fill and crushed surfacing material. The resulting top surface of the reclaimed tailings disposal area, the heap leach pad, and the surrounding waste rock disposal area is relatively flat and at an unknown elevation.

For the purposes of this preliminary assessment, the elevation of the top surface of the area was assumed to be 940 ft. The tailings disposal area embankments assessed for this report assumed centerline construction using the approximate centerline from the available 1992 topography with the assumption that the entire area had been leveled to a constant elevation of 940 ft. For the purposes of this evaluation, the validity of this assumption would have a negligible impact on the facility layout and the capital estimate.

18.3.2 Facility Layout and Design

The tailings disposal area for deposition of the proposed 400,000 dry tons of whole slurry tailings is depicted in Figure 18-6. Deposition is anticipated to consist of rotationally spigotted tailings from the perimeter of the embankment crest. With the geometry shown, the disposal facility can store the required tailings tonnage at an approximate embankment height of 5 ft with an assumed conservative tailings in-place dry density of 80 lb/ft^3. An additional 2 ft was added to the embankments to provide nominal freeboard for storm event storage. With the assumed base elevation of 940 ft, the embankment crest was established at an elevation of 947 ft.



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JOB NO.	5-417-000689
DESIGN	PK
DRAWN	AMEC
DATE	02/2006
SCALE	graphical

FIGURE 18-6
TAILINGS DISPOSAL FACILITY
COPPERSTONE PROJECT
AMERICAN BONANZA
LA PAZ COUNTY, ARIZONA

5-417-000689FIGURE_1.dwg

The surface area, storage capacity, elevation relationship is presented in Figure 18-7. Assuming a base elevation of 940 ft, the facility will store the required tailings at an elevation of approximately 944.4 ft with the assumption that the deposited tailings surface is horizontal. The remaining storage above elevation 944.4 ft to the crest elevation of 947 ft is to provide 2+ ft of freeboard for decant pool storage, storm event storage and to account for the fact that the tailings surface will be relatively flat, but will not be horizontal. For a preliminary assessment level study, these assumptions are considered valid.

A typical embankment cross section is shown in Figures 18-7 and 18-8. The embankment geometry has been established with a 25 ft wide crest and 2:1 (horizontal:vertical) interior and exterior slopes. Twenty-five feet was selected for the nominal crest width to provide for pickup truck and maintenance vehicle traffic, the tailings slurry discharge line, and safety berms (as needed). Embankment materials are expected to consist of waste rock and/or spent heap leach materials borrowed from the surrounding area. The embankment materials should consist of generally well-graded rockfill with sand, gravel, and fines. The maximum particle size of the rockfill should be on the order of 12 inches. The rockfill should be compacted in lifts to form a dense, stable mass. Two to one (2:1) interior and exterior slopes were selected to provide a generous factor of safety for slope stability. Steeper slopes may be considered and evaluated as part of further design development studies.

A filter zone of finer grained material is required on the upstream slopes of the embankment to provide filtration for the fine grained tailings deposits. For this assessment, the filter zone has been established at a nominal thickness of 3 ft as depicted in Figure 18-9. The filter zone material must be filter-compatible with both the rockfill embankment and the tailings to prevent piping. It is anticipated that a locally available silty sand and gravel unit obtained from an approved borrow source will be used for filter zone materials. Geotechnical work on the rockfill, locally available soils and projected tailings gradations will be required as part of any further design development work to establish design criteria and specifications for these materials.

Additional geotechnical and hydrological evaluations may be required to confirm existing facility stability and existing impoundment and reclaim solution pond liner integrity.

Computed earthwork material quantities for the facility are summarized in Table 18-5.

Figure 18-7: Storage Capacity

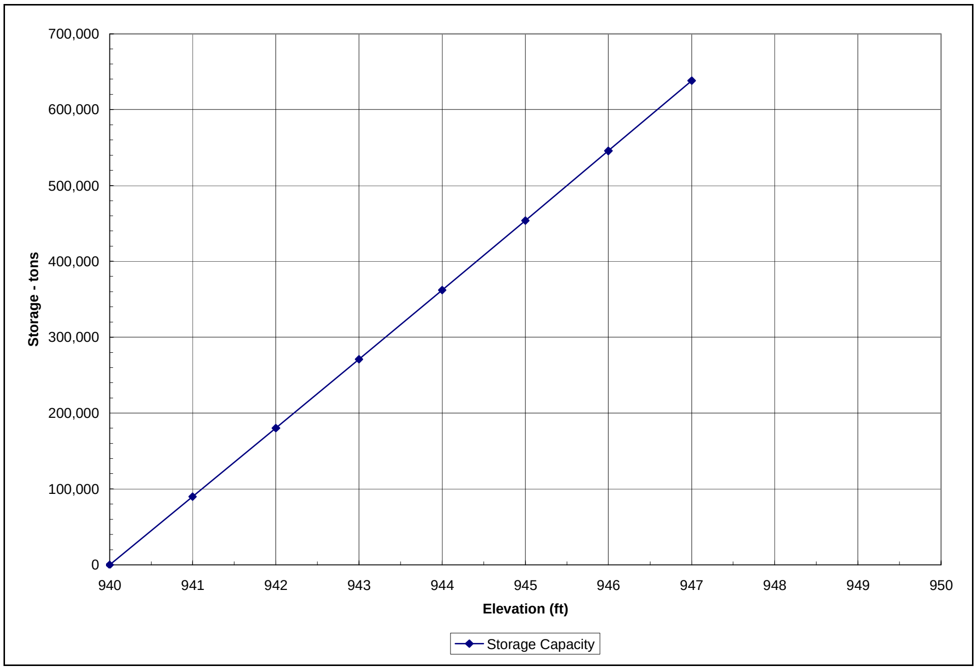


Figure 18-8: Surface Area – Storage Capacity Relationship

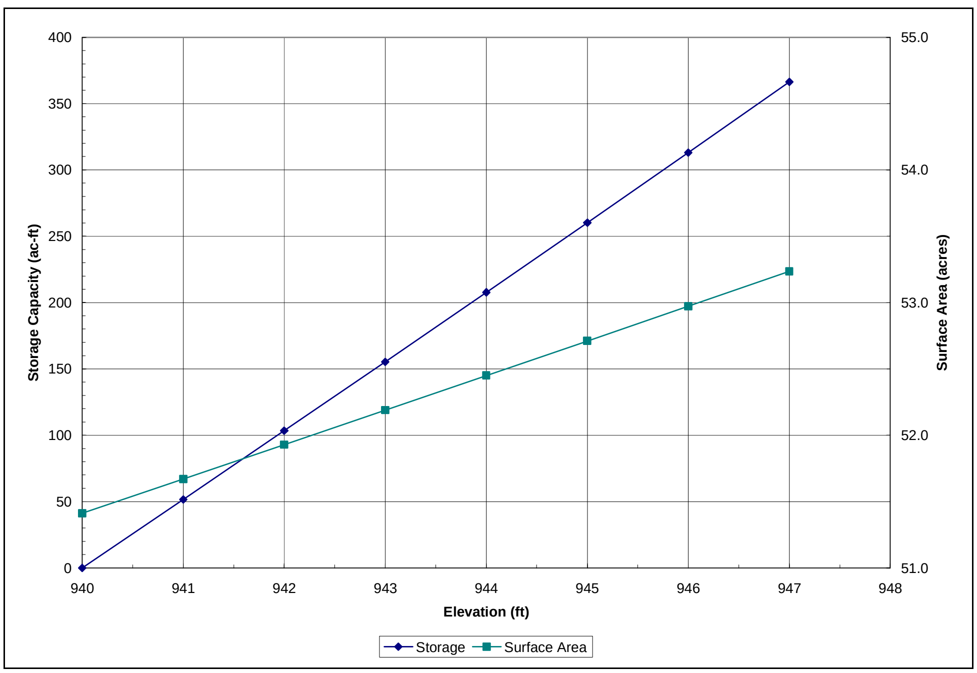


Figure 18-9: Typical Embankment Section

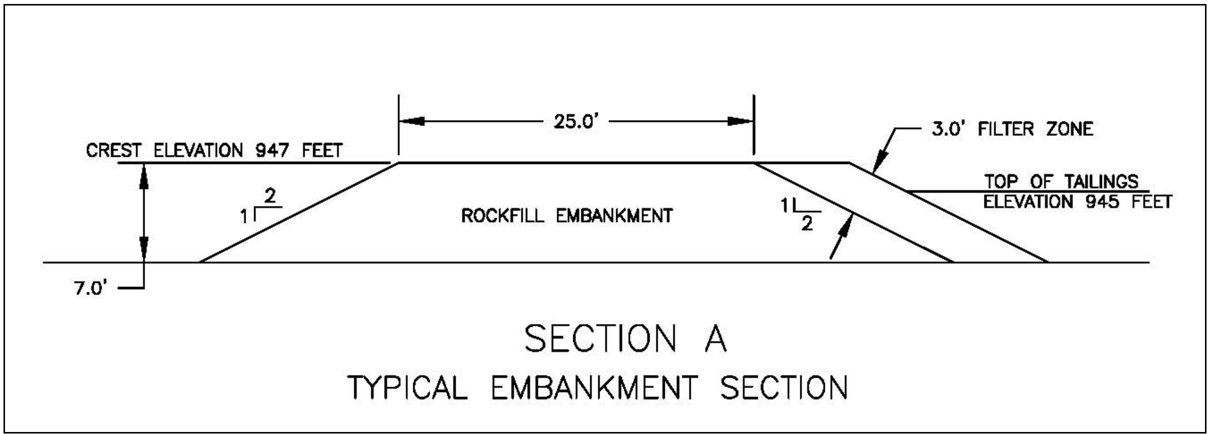


Table 18-5: Estimated Earthwork Quantities

Item	Estimated In-Place Quantity (yd^3)
Embankment Fill	58,000
Filter Zone Material	10,000

Note: Considering the preliminary nature of the project, quantities should be considered accurate to ±25%.

18.3.3 Environmental Considerations

Placement of the tailings disposal facility on top of the existing facility was selected as the preferred alternative for several reasons as follows:

- the projected storage requirement is relatively small at 400,000 tons
- the existing facility is fully-geomembrane-lined with 40-mil PVC to provide containment
- an existing collection system is in place to capture under-drainage and route it to a lined reclaim pond
- the current facility design will result in a drained tailings mass at closure
- additional disturbance to construct the facility is negligible
- all indications are that the existing facility performed in an environmentally safe manner
- site infrastructure (power line corridors, roads, etc.) is in place to support the new development.

Negative environmental aspects to constructing the facility over the existing facility are as follows:

- because the new facility will be constructed over the existing thickness of tailings, it will take some period of time to establish a steady state underdrain flow
- underdrainage will continue after deposition is completed for a longer period than if a new facility were constructed
- closure liability for the facility is transferred from Phelps Dodge to American Bonanza.

18.3.4 Opportunities

Opportunities for project optimization or cost savings are presented in this section.

- With the current ore processing methodology, approximately 92.5% of the ground ore does not undergo cyanide treatment. The remaining 7.5% (26 tpd) undergoes cyanide treatment and could be discharged from the mill as a belt filtered product or slurry. There is an opportunity, if the flotation tailings are considered benign from an environmental standpoint, to place these tailings in an unlined area. The remaining 7.5% of the tailings would then need to be placed in a lined facility. Assuming the existing facility could be used for deposition of the cyanide tailings this alternative would reduce the storage requirement to approximately 40,000 tons and reduce the size of the new facility by a significant amount. Depending on the nature of the tailings, the Arizona Department of Environmental Quality (ADEQ) may require that the cyanide tailings be placed in a facility with a more robust liner system than the existing facility. ADEQ may also require containment for the flotation tailings which would negate any benefit of separating the tailings streams.
- Separation of the tailings streams may be a negative impact as certain constituents would be concentrated in the separate tailings streams. Blending the two streams results in a larger mass of tailings with minor amounts of residual cyanide, but the overall concentrations of the various constituents are diluted. Additional evaluations would be required to ascertain the cost/benefit of this scenario.
- Construct a new facility for storage of the entire 400,000 tons of tailings. This alternative would entail the construction of a new facility meeting the current ADEQ requirements for liner systems, environmental control, etc. The cost of this facility would exceed the cost of the existing plan, but the drain down period and ultimately the closure period would be reduced. Additionally, closure liability of the existing tailings and heap leach facility would remain with Phelps Dodge. The facility could also likely be sited such that tailings could gravity flow from the mill eliminating some pumping costs.

- Optimize the existing design. Further studies would be needed to optimize the current design. Evaluations could include alternative layouts and slope stability analyses with steeper slope geometry to minimize/optimize embankment volumes.
- In order to defer costs, the embankment could be constructed in two phases, each approximately 3.5 ft in height. However, the earthwork volumes are not large and contractor mobilization/demobilization and tailings discharge line relocation costs, may make phasing uneconomic. Further studies would be needed to demonstrate whether the embankment construction should be completed in one or two phases.

18.4 Operating Cost Estimate

18.4.1 Operating Cost Summary

The overall average operating cost is estimated to be $103.13/t processed. The total operating cost is comprised of $58.47/t in mine costs, $30.09/t in processing costs, and $14.56/t in General and Administrative costs. Details related to each of these major cost categories are presented in Table 18-6.

Table 18-6: Operating Cost Summary

Area	Total Cost ($/t)
Mine	
Drill, Blast, and Muck	23.94
Ore Haulage	3.24
Backfill	6.38
Development	18.09
Waste Rock Disposal	0.91
Delineation Drilling	2.62
Mine Services	2.84
Maintenance (included above)	0.00
G&A (included below)	0.00
Electrical Power	0.45
Plant	
Labor	18.71
Consumables	6.64
Mobile Equipment Operating	0.14
Electrical Power – Process	4.13
Electrical Power – HVAC/Lighting	0.47
General and Administrative	14.56
Total	103.13

Operating costs are presented in US$ 2006. An operating expenditure schedule is included in AMEC's 2006 Preliminary Assessment.

18.4.2 Operating Cost Estimate Basis

Mine operating cost estimates are developed from quantity take-off (measured from the three-dimensional mine model) and unit costs developed specifically for this project. Key contributions to the mine operating costs are described in Section 18.1.

Process operating costs are developed from cost curves for similar plants, with adjustments for process variations, and local labor and consumables costs.

Project general and administrative costs include project management and supervision personnel, and allowances for general operating expenses, which include the following:

- pickup truck operation
- assay lab operation
- travel
- consultants
- office supplies
- computers and software
- project insurance
- communications
- public relations
- site photography
- legal costs
- recruitment
- training
- relocation and housing
- safety supplies.

18.5 Capital Cost Estimate

18.5.1 Summary

The total estimated preproduction cost to design, procure, construct, and commission the various facilities described in this study is summarized in Table 18-7. The estimate is categorized as scoping level with an expected accuracy range of ±35% at the bottom line. All costs are expressed in first quarter 2006 US dollars, with no allowance for escalation or interest during construction. The estimate covers the direct field costs of executing the project, plus the indirect costs associated with design, construction and commissioning of the facilities. The details of the capital cost estimate are in AMEC's 2006 Preliminary Assessment.

Table 18-7: Capital Cost Summary, (US$000)

Major Area	Total
Mining	10,681
Process Facilities	9,183
Site Development	105
Utilities	671
Ancillary Buildings and Facilities	260
Tailings Management & Reclaim Systems	641
Subtotal Direct Costs	21,541
Owner's Costs	938
Indirect Costs	4,100
Contingency	5,421
Total Capital Costs	32,000

18.5.2 Direct Costs

Civil and Structural

A minor allowance was made for site preparation as it is assumed that little disturbance of the plant site area has occurred since the Cyprus mine closure in 1993. An allowance was made for site fencing.

In the crushing area, an allowance was made for the foundations to support the portable crushing plant. In the bin storage and conveying area, the costs for concrete and structural components were factored based on the mechanical equipment values.

The process plant can be divided into three main areas. One is the grinding and flotation area, another is the leaching area and the final area is the refinery and reagents area. The grinding, flotation, refinery, and reagents areas were priced on a plan area basis, which includes the building shell, foundations, structural steel, and lighting. Items that were excluded from this unit cost were allowances for offices, control room, plumbing, fire protection, and HVAC. The unit cost used for the grinding and flotation area is higher than the refinery and reagents area due to the height of the respective buildings. For the leaching area, the tanks will be located outdoors in a containment area. This area was also priced on a plan area basis, which includes the containment walls, tank foundations, and structural steel.

According to American Bonanza, existing ancillary buildings and facilities such as the maintenance shop, change house, sewage system, administration building, and warehouse are in good condition and were deemed suitable to be re-used. AMEC has not verified the condition of these facilities. An allowance was made to cover the minor clean-up for these existing facilities.

Mechanical (Equipment)

Equipment was itemized and priced as new as per the project equipment list. Motors were identified and are included with equipment cost unless otherwise noted. In-house pricing data were used for costing of equipment. Tank weights and platework weights were calculated and estimated by actual unit costs from recent project costs. The unit prices include steel purchase, detailing, fabrication, and installation. Installation hours were obtained from in-house data and vendor guidelines where appropriate.

Piping

Tailings and raw water supply and distribution piping were based on drawing take-offs. In-house pricing data were used for costing of pipelines. An allowance was made for valves and fittings with no allowance for trenching or backfill

Process pipe was based on a percentage of mechanical equipment within the battery limits of each area.

Electrical and Instrumentation

Power supply is from an existing substation on site. No allowances have been included for refurbishing or upgrading this facility.

Power distribution to the mine was estimated based on takeoffs for electrical equipment and medium voltage cabling. Equipment pricing was based on budget pricing from suppliers and cable pricing was based on recent actual costs from other projects. An existing power distribution line to the reclaim pond will be re-used. An allowance was made for power distribution to facilities within the process plant site. Low voltage process electrical was factored based on the value of the mechanical equipment and allowances were included for lighting and grounding.

Instrumentation costs were factored based on the value of the process equipment.

18.5.3 Mine Costs

Mine capital costs include all direct costs associated with contractor mobilization, mine development and construction, and contractor demobilization, and the purchase of fixed and mobile equipment required to support mining operations.

18.5.4 Indirect Costs

Included in this area are costs for engineering, procurement and construction management, construction equipment, temporary construction facilities and services, freight, start-up and commissioning, and first fills and capital spares. These costs were factored based on the total direct costs.

18.5.5 Owner's Costs

Owners costs were based on a percentage of direct cost. American Bonanza has not supplied an owners cost at the time of this study. These costs cover Owner's project staff personnel, time/travel, recruitment, relocation, and training of operating personnel, insurance, and expenses related to project implementation.

18.5.6 Contingency

A contingency of 20% of all costs has been included, reflecting the preliminary nature of this estimate. The contingency is not intended to account for scope changes, currency fluctuation, escalation, or force majeure items.

18.5.7 Assumptions

The following assumptions have been made in the preparation of this estimate:

- all material and equipment purchases and installation subcontracts will be competitively tendered on a lump sum basis
- the project will proceed on an EPCM basis
- site work is continuous and is not constrained by factors outside of the EPCM contractor's control such as weather, political unrest, or Owner's requirements
- there is a 60 hour work week for the construction phase of the project
- all material and equipment will be sourced from Continental United States
- skilled tradespersons, supervisors, contractors, and construction equipment will be sourced from the local area of the jobsite.

18.5.8 Exclusions

The following are not included in this cost estimate:

- escalation
- scope changes
- interest during construction
- cost of schedule delays such as those caused by:
  - scope changes
  - unidentified ground conditions

  - labor disputes
  - environmental permitting activities.
- cost of financing including interest during construction
- cost of land acquisition
- import duties and taxes
- cost of this or any further studies prior to the beginning of the EPCM phase of the project
- cost of exploration
- sustaining capital
- sunk costs
- working capital
- closure costs
- permitting costs
- environmental costs (engineering and construction)
- geotechnical investigations and engineering costs
- state and local taxes
- power supply costs (surface construction)
- water supply costs
- ocean freight
- fuel surcharges
- process plant and refinery (offices, control room, plumbing, fire protection, HVAC)
- construction management site facilities and costs
- labor and material bonds
- DCS or PLC control system.

18.6 Financial Analysis

The Copperstone Scoping Study was evaluated on a 100% equity financed basis as per instruction from American Bonanza.

18.6.1 Basis of Financial Analysis

The project was evaluated using a discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections for the mine for the 3 years of production. Cash outflows such as capital, operating costs and royalties are subtracted from the inflows to arrive at the annual cash flow projections.

To reflect the time value of money, the annual net cash flow projections are discounted back to the project valuation date at various discount rates (interest rates). The discount rate appropriate to a specific project will depend on many factors, including the type of commodity; and the level of project risks, such as market risk, technical risk and political risk. The discounted, present values of the cash flows are summed to arrive at the project's net present value (NPV).

In addition to NPV, discounted cash flow rate of return (DCFROR), or internal rate of return (IRR), and payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero.

18.6.2 Metal Prices Considered

Six cases were evaluated using differing metal prices as shown in Table 18-8. Base case mineral prices used in this study are conservative, based on historical, long-term values, and do not necessarily reflect current market prices.

Table 18-8: Metal Prices, (US$)

	Base Case	Case 2	Case 3	Case 4	Case 5	Case 6
Gold	450	400	500	550	600	625
Silver	6.50	6.00	7.00	7.50	8.00	8.50

Copper has not been included in the cash flow model. This may represent an opportunity in the future.

18.6.3 Principal Assumptions for Evaluation

- 100% equity financing was assumed for the project
- all monetary figures are reported in 1st quarter (Q1) 2006 US dollars
- there are no penalty charges for deleterious metals
- no year to year stockpiling occurs; all ore mined in a particular year is processed in that same year
- closure and reclamation costs are equivalent to 5% of initial capital expenditure
- value of salvaged was roughly estimated at $5 million, which equates to approximately 36% of the total direct material and equipment cost
- working capital requirements have been set at 3 months site operating costs
- no inflation rate has been applied to prices and costs
- cash flows occur at the end of each period
- payback period excludes the one year period of pre-production development.

18.6.4 Capital Costs

Fixed Capital

Capital costs are detailed in Section 18.5 of this report and included in the project cash flow analysis. Initial capital costs are estimated at $32 million.

Working Capital Allowance

Working capital is a temporary use of funds incurred at the start-up of operations to fund mining and production operations until the receipt of first revenues. As revenues and costs typically vary from year to year, the working capital will also change each year. However, all working capital is recovered at the end of the project. For the Copperstone project, a working capital allowance was estimated at three months of total site operating costs (accounts payable, salaries, etc).

Sustaining Capital

Sustaining capital is the capital required during operations to replace or add to the existing equipment inventory to maintain or expand production. Mine sustaining capital of $189,000 is reflected in the cash flow. It is assumed that there are no additional sustaining capital costs.

Salvage Value and Reclamation

Closure and reclamation costs are assumed to be equivalent to 5% of initial capital expenditure. Value of any equipment salvaged after termination of operation has been roughly estimated at $5 million which is equivalent to approximately 36% of the total direct material and equipment cost. No detailed analysis was performed to arrive at this figure.

18.6.5 Operating Costs

Royalties

As per instructions from American Bonanza, royalties have been applied as shown in Table 18-9.

Table 18-9: Royalty Schedule

Gold Price		Royalty Payable (%)
Lower Limit	Upper Limit	
0.00	349.99	1
350.00	400.99	2
401.00	450.99	3
451.00	500.99	4
501.00	550.99	5
551.00	999.99	6

Operations

Annual operating costs are detailed in Section 18.4 of this report and included in the project cash flow analysis.

18.6.6 Smelter Contract

Gold bullion terms are outlined in Table 18-10.

Table 18-10: Bullion Terms

Bullion Terms		
Pay Factor Au	%	99.5
Pay Factor Ag	%	98.5
Refining Charge Au	US$/oz	5.00
Refining Charge Ag	US$/oz	0.40
Transport Charge	US$/dst	5,000

18.6.7 Taxation

The scoping study cash flows do not include any provision for municipal, state, or federal income taxes. Consequently, capital expenditures have not been amortized. This aspect should be visited in detail for any future studies related to this property.

18.6.8 Financial Analysis

Results of the financial analysis are summarized in Table 18-11.

Table 18-11: Cash Flow Analysis

		Base Case	**Case 2**	**Case 3**	**Case 4**	**Case 5**	**Case 6**
Commodity							
Gold	US$/oz	450	350	400	500	550	600
Silver	US$/oz	6.50	5.50	6.00	7.00	7.50	8.00
Pre-Tax							
IRR	%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
NPV 0%	US$000	(14,914)	(26,525)	(20,443)	(9,509)	(4,228)	928
NPV 5%	US$000	(16,151)	(26,244)	(20,955)	(11,457)	(6,871)	(2,394)
Payback	Years	N/A	N/A	N/A	N/A	N/A	3.7

18.6.9 Sensitivity Analysis

Sensitivity analysis was performed by varying operating cost, metal price, and capital expenditure across a range of minus 50% to plus 50%. The cash flow model is most sensitive to changes in metal price, slightly less so to operating cost, and least sensitive to changes in capital expenditure (see Figures 18-9, 18-10 and 18-11).

Figure 18-10: Sensitivity of Internal Rate of Return

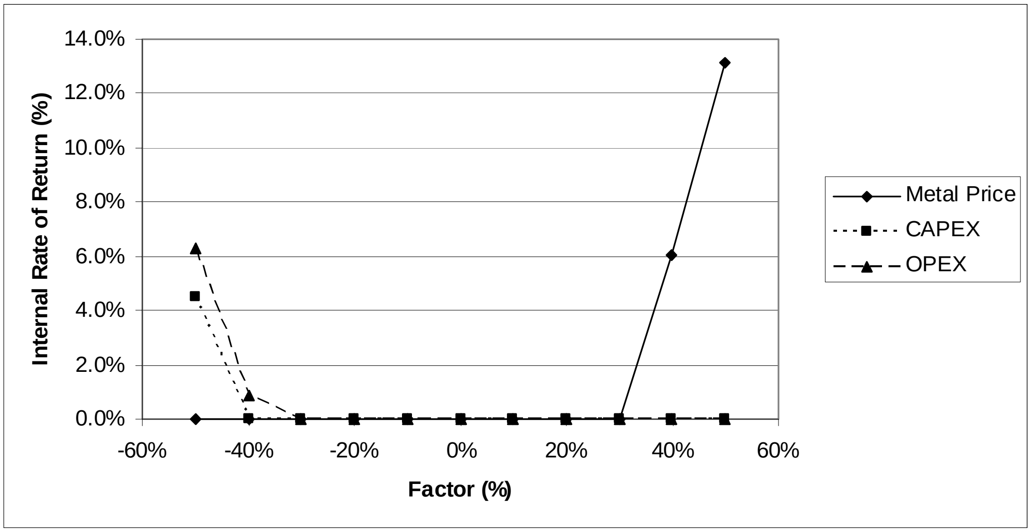


Figure 18-11: Sensitivity of Net Present Value (Undiscounted)

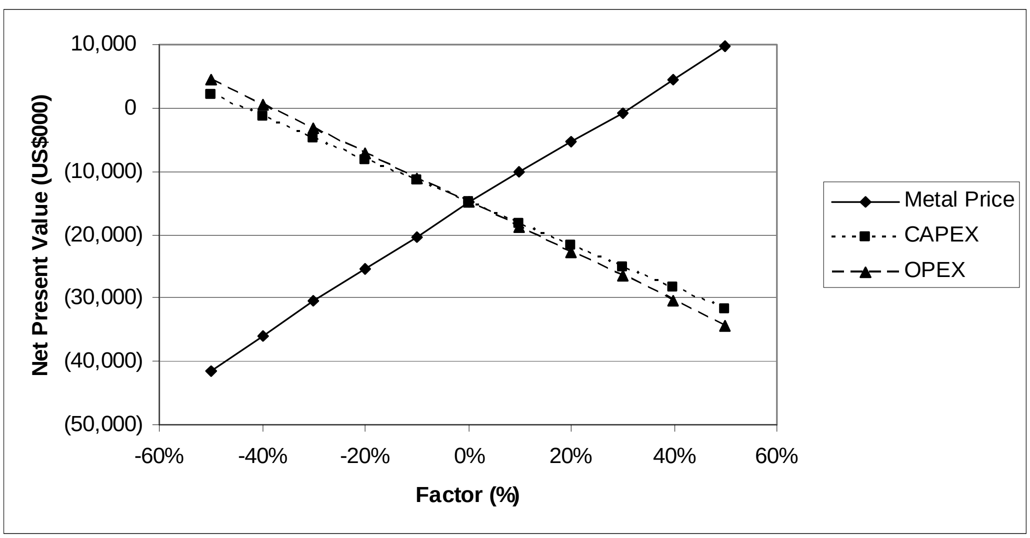
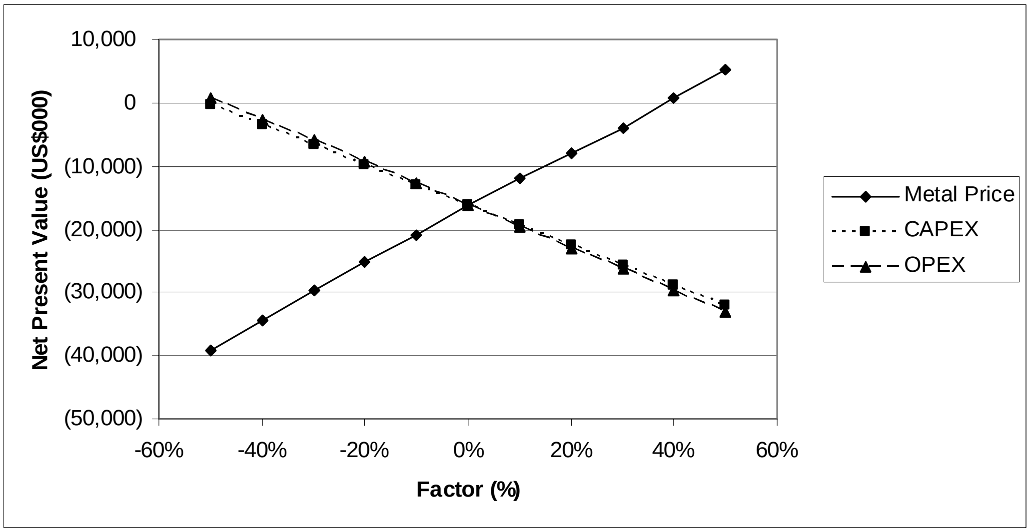


Figure 18-12: Sensitivity of Net Present Value (Discounted at 5%)



Analysis was also performed to evaluate average gold grade required for the defined reserve to allow the project to break even. This was performed for the undiscounted cash flow and also when it was discounted at a rate of 10%. All other parameters were held constant.

The same was done to establish the total tonnage required with grades held constant. In this case, additional sustaining mine capital was allowed for at a conservative, ongoing rate of 0.3% of initial capital.

Table 18-12: Grade or Tons Required For Break Even

	Undiscounted	Discounted at 10%
Grade required (oz/t)	0.469	0.525
Reserve required (tons)	748,000	1,506,000

19.0 INTERPRETATION AND CONCLUSIONS

19.1 Drilling and Surveying

AMEC considers the core and RC drilling and surveying methods employed by American Bonanza to be acceptable and consistent with industry standards.

Several of the American Bonanza RC pre-collars were not surveyed and display large kinks when plotted in cross section because the first down-hole survey is in the core section and a large amount of deviation has occurred in the RC section that is not surveyed.

An analysis of surveyed drill holes indicates that down-hole deviations for the deeper sections (greater than 500 ft) can exceed a tenth of a foot per foot drilled (e.g., 90 ft of deviation at 900 ft depth). These deviations were observed for steeply inclined holes (60° to 70°) as well as vertical drill holes. There is, therefore, the potential that deep mineralization intercepts in unsurveyed drill holes are located significant distances from their modeled locations. This is likely true for unsurveyed drill holes from the Cyprus, Santa Fe, Royal Oak, and Asia Minerals drill campaigns also.

19.2 Sampling Method and Approach

AMEC observed core and RC sampling procedures being carried out by American Bonanza during the site visit. AMEC finds the sampling methodology to be acceptable for providing representative samples of the Copperstone deposit.

19.3 Sample Preparation, Analyses, and Security

AMEC found the gold, silver, and copper assays from the Bonanza, Asia Minerals, and Cyprus drill campaigns to be acceptably accurate. Resampling of core produced in the Royal Oak period of drilling produced poor agreement between original and reassayed core. AMEC recommends that mineralized intervals of Royal Oak holes be reassayed for use in future resource estimates.

AMEC found assay precision for the Bonanza and Asia Minerals drilling campaigns to be acceptable for a Preliminary Assessment. AMEC recommends that Bonanza's sample preparation protocols be improved in future programs accommodate high-grade gold (such as crushing to 95% passing 10 mesh, split 500 to 1,000 grams, pulverize to 95% passing 150 mesh) or that Bonanza consider employing metallic screen assays for visibly mineralized intervals. Duplicate pulp assays are not available for the Royal Oak or Cyprus drill campaigns, therefore precision estimates could be made for these drilling campaigns.

AMEC finds American Bonanza sample security conforms to industry standard practices.

19.4 Database

AMEC finds the Copperstone project database to be adequate to support resource modeling and estimation.

19.5 Resource Model

In AMEC's opinion, the number and quality of the water immersion density measurements in the Copperstone database are adequate for a preliminary assessment study and to assign block densities according to lithologic and alteration types for the Copperstone deposit.

The "0.100 oz/t Au indicator" model shows a positive bias of 6.5% above the nearest neighbor model which is slightly above the 5% AMEC standard, which is acceptable and should still closely predict expected resource grades.

Swath checks for local bias in kriged gold grades show acceptable spatial comparisons without any large grade differences within the deposit.

Visual inspection of the gold models in computerized plans and cross sections indicate that the estimation parameter files have been run successfully for each estimation domain compare well to composite grades.

19.6 Exploration

The potential exists to expand Copperstone resources through further exploration of down-dip and along-strike extensions, as offset zones, areas with low drill density, parallel structures, perpendicular structures, and feeder zones.

American Bonanza has identified several nearby geophysical anomalies, which provide the opportunity to increase resources and improve project economics.

19.7 Mining

Resource geometry (dip and thickness), rock mass characteristics, and continuity are such that the Copperstone deposit will not support a large scale operation with highly productive stopes; however, the opportunity exists to employ bulk methods such as blasthole stoping in select locations to reduce unit operating costs. A combined mining approach is most suitable for Copperstone using selective mining methods such as drift and fill and blasthole stoping to maximize extraction and minimize dilution. A sustainable production rate of 350 tpd is suitable for the currently defined resource.

Ramps driven from the pit bottom to stoping blocks provide the lowest cost means accessing, mining, and ore transfer. Long footwall drives or “levels” would be underutilized due to the lateral distance between stopes. Limited mine depth and resources would not likely support alternate access means such as shafts.

Contract mine development is assumed for the preproduction period. Discussions with American contractors indicate that the preproduction development costs used in this study are relatively low compared to what Contractors are currently receiving for similar projects. Alternatives such as Owner development provide the opportunity to reduce costs associated with Contractor development and better utilize the equipment purchased for operations.

Mine production totals 377,000 t with an average grade of 0.366 oz Au/t. This resource will support a 350 tpd, mine for three years.

19.8 Processing

Metallurgical test work supports a process, which involves crushing, grinding , floating a gold concentrate, dissolution of gold, followed by gold recovery using the Merrill Crowe process and refining. Opportunities to improve the process are discussed in Section 21.

Tailings are proposed to be stored in a new, unlined, facility, which is constructed above the existing fully-lined tails facility. Ultimate embankment height is 7 ft, providing 2 ft of freeboard.

19.9 Cost Estimates and Financial Analysis

Project capital costs are estimated to be $32 million.

Life of mine operating costs average $103/t.

Financial analyses indicate the base case mine plan has a net present value of ($14.9) million non-discounted or ($16.2) million at a 5% discount rate using basis metal prices of $450/oz Au and $6.50/oz Ag.

Sensitivity analyses indicate metal prices of $600/oz Au and $8.00/oz Ag are required to yield an IRR of 1.3% and/or a 3.7-year payback.

Order-of-magnitude sensitivity analyses indicate a non-discounted breakeven cash flow can be achieved if the resource base increases from 377,000 t with an average grade of 0.366 oz Au/t to 748,000 t with the same average grade. The required tonnage increases to 1,506,000 with a 10% discount rate. This sensitivity analysis is based on the assumption that pre-production capital and operating costs are identical to those in the proposed base case mine plan, with a minor incremental ongoing capital cost expense.

Order-of-magnitude sensitivity analyses indicate a non-discounted breakeven cash flow can be achieved if the average grade of the current mineable resource increases from 0.366 oz Au/t to 0.469 oz Au/t. The required grade increases to 0.525 oz Au/t if a 10% discount rate is applied. This sensitivity analysis is based on the assumption that capital and operating costs are identical to those in the proposed base case mine plan.

20.0 RECOMMENDATIONS

20.1 Database

Based on a review of the resource database, AMEC has the following recommendations:

- Analyze the surveyed RC holes to determine if a correction should be applied to ‘smooth’ kinks observed in unsurveyed RC pre-collar sections. Corrections should only be applied if a consistent deviation pattern is observed in the surveyed holes. If a correction is applied, these surveys should be designated as corrected surveys in the database and should be distinct from measured surveys.
- Survey down-hole all future drill holes with planned total lengths over 300 ft.
- Survey several Cyprus, Royal Oak, and Asia Minerals collar locations to ensure that the surveying conducted during these drill campaigns is consistent with the American Bonanza surveying.
- Collect additional density measurements to ensure adequate spatial representation of each lithological unit throughout the deposit.

20.2 QA/QC

AMEC has the following recommendations regarding assaying and QA/QC procedures:

- Discontinue the use of the C-ORE and C-WASTE SRMs. In AMEC’s opinion, the two Copperstone in-house SRMs are not acceptable for use in controlling assay quality. The material for these SRMs is not homogenous and therefore is unlikely to produce a consistent assay grade. This quality is essential in a SRM. SRMs are used to accept or reject the quality (accuracy) of a batch of project samples. If the assay grade of the SRM is not predictable, no decision as to the accuracy of the project samples can be made based on its result.
- Use SRMs with gold grades close to the cutoff grade and average grade of the deposit. AMEC considers SRM NBM-3b to be too high grade in gold to be of much utility. Consideration should also be given to acquiring SRMs with higher levels of copper to monitor the accuracy of the copper assays at grades similar to those expected at Copperstone. SRM grades should target important decision making points for the project.
- Replace the current protocol of inserting four SRMs into each analytical batch with a more industry standard protocol of inserting SRMs, blanks, and duplicates at a regular interval (1 in 20 to 25).

- Closely monitor the results of the QA/QC programs and undertake corrective actions where warranted.
- Improve sample preparation protocols in future programs to accommodate high-grade gold (such as crushing to 95% passing 10 mesh, split 500 to 1,000 grams, pulverize to 95% passing 150 mesh) or consider employing metallic screen assays for visibly mineralized intervals.
- Reassay mineralized intervals of Royal Oak holes for use in future resource estimates, because resampling of core produced in the Royal Oak period of drilling produced poor agreement between original and reassayed core.

20.3 Resource Estimation

AMEC suggest that future resource modeling use an indicator near 0.125 oz/t Au.

20.4 Exploration

AMEC recommends that American Bonanza evaluate additional exploration opportunities with consideration given to extension of existing underground workings to access improved drill platforms.

20.5 Mining

AMEC recommends evaluating the following opportunities with respect to mine planning and design.

- Incorporate additional bulk mining techniques such as blasthole stoping, where possible under the current geotechnical understanding.
- Perform additional design optimization studies to quantity potential development cost reductions.
- Perform labor, materials, and equipment market surveys for current pricing, and solicit quotations from development contractors to validate current cost assumptions and calculations.
- Perform sufficient geotechnical analyses to support a backfill optimization study. The study would include detailed stope geometry and sequencing analysis, and additional fill strength and stope stability evaluations.
- Perform market searches to determine availability of fixed and mobile equipment, and the potential for related cost savings.

- All development costs are based on single heading productivity rates. The opportunity exists to reduce development and production costs by incorporating multiple heading productivity rates.
- Consider purchasing mobile mine equipment in Year -1, allowing the Owner to develop the mine and reduce expenses related to Contractor's margins and equipment rental.
- All equipment costs are assessed as new equipment purchases. The opportunity exists to reduce capital expenditures by purchasing used equipment; although, there could be an associated minor increase in maintenance costs and reduction in availability.

20.6 Processing

AMEC has the following recommendations for process and tails management:

- An assessment of the extent of metallurgical sample coverage of the samples used in the 2005 program should be made in the future. Additional variability test work is recommended to improve confidence in the overall recovery projection.
- Copper is an important issue relative to process selection. Additional work is recommended to better define the relationship between cyanide consumption, flotation and copper mineralization (speciation). This was recommended in earlier programs. Copper speciation should be done on some sample sub-composites to help identify copper mineralization trends. Additional test work will be required to assess the copper bleed and cyanide destruction requirements.
- Further work on gravity is recommended because it appears to have the potential to add 1% to 2% to the overall recovery from gold that may not float well. AMEC also recommends testing be done using an alternate stage grinding/gravity test protocol.
- Flotation optimization potential is indicated and additional rougher kinetic tests are recommended to assess float time and grind requirements and optimize mass pulls. Finer grinding to 200 mesh appears to improve recovery but the results are inconclusive.
- A batch intensive cyanidation tank reactor system could be considered as an alternate to agitated tank leaching, especially if the flotation weight recovery design basis is reduced from 7.5%.
- There is a need to confirm cyanidation of the separate concentrates and also do settling and filtration tests on concentrate.
- Consideration could be given to direct electrowinning in lieu of a Merrill Crowe circuit.

- AMEC recommends further evaluation of the tailings characteristics to determine whether alternate storage concepts, such as in the pit bottom, can be considered. The benefits/drawbacks of split tails stream should also be considered.
- Storage in new facilities should also be evaluated to avoid any liability associated with the existing facility, and possibly improve drain down characteristics and ultimate closure duration.
- The opportunity to optimize the proposed design exists, and can be evaluated, with potential benefits including steeper slope geometry and reduced embankment volumes. The evaluation could include a trade-off related to the benefits of phased construction.

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22.0 DATE AND SIGNATURE PAGE

The undersigned prepared this Technical Report, titled NI 43-101 *Technical Report, Copperstone Property, La Paz County, Arizona,* dated 27 March 2006, in support of the public disclosure of Mineral Resource estimates for the Copperstone Property as of 27 March 2006. The format and content of the report are intended to conform to Form 43-101F1 of National Instrument 43-101 (NI 43-101) of the Canadian Securities Administrators.

Signed and Sealed

William Tilley 27 March 2006

Signed and Sealed

Ed Orbock 27 March 2006

Signed and Sealed

Todd Wakefield 27 March 2006

Signed and Sealed

William Colquhoun 27 March 2006

23.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

Not applicable to this report.

APPENDIX A

List of Claims

List of Copperstone Claims

NAME OF CLAIM	ORIGINAL RECORDATION BOOK	PAGE	PRESENT RECORDATION INSTRUMENT	BLM SERIAL NUMBER (AMC)
Iron Reef # 1-10	1168	69-88		105953-105962
Copperstone # 1-14			95-05841	335231-335244
Formerly:	1128	65-80	86-2300 – 2313	91283-91296
Copperstone # 15-17			95-05841	335245-335247
Formerly:	1129	627-632	86-2314 – 2316	88612-88614
Copperstone # 18-29			95-05841	335248-335259
Formerly:	1131	294-309	86-2317 – 2328	95246-95257
Copperstone # 30-40	1151	145-157	86-2329 – 2339	98423-98433
Copperstone # 41-53	1152	181-205	86-2340 – 2352	98957-98969
Copperstone # 54-57	1152	763-770	86-2353 – 2356	98970-98973
Copperstone # 58-62	1152	771-779	86-2357 – 2361	98974-98978
Copperstone # 63	1152	781	86-2362	98979
Copperstone # 64-65	1173	716-719	86-2363 – 2364	108058-108059
Copperstone # 101-115	1254	76-105	86-2365 – 2379	144884-144898
Copperstone # 116A	1254	107	86-2380	144899
Copperstone # 117-120	1254	109-115	86-2381 – 2384	144900-144903
Copperstone # 122-127	1254	119-129	86-2385 – 2390	144905-144910
Copperstone # 129-131	1254	133-138	86-2391 – 2393	144912-144914
Copperstone # 132-133	1254	139-140	86-2394 – 2395	144915-144916
Copperstone # 134	1254	142	86-2396	144917
Copperstone # 136-139	1254	147-154	86-2397 – 2400	144919-144922
Copperstone # 140-150	1254	155-175	86-2401 – 2411	144923-144933
Copperstone # 151-161	1254	176-197	86-2412 – 2422	144934-144944
Copperstone # 162-171	1276	349-371	86-2423 – 2432	164418-164427
Copperstone # 172A	1276	373	86-2433	164428
Copperstone # 183A	1276	395	86-2434	164439
Copperstone # 184-191	1276	397-410	86-2435 – 2442	164440-164447
Copperstone # 192A	1276	412	86-2443	164448
Copperstone # 210-315	1276	448-658	86-2444 – 2549	164466-164571
Copperstone # 316-328	84-2460-2472		86-2550 – 2562	220648-220660
Copperstone # 329-339	86-4548-4558			260459-260469
CSA #1–51				

APPENDIX B

Composites of Gold Assays Used in Resource Estimates

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
A00-10	333723.62	1045420.25	62.84	480.00	6.00	0.253	-1.000	-1.00
A00-10	333724.00	1045419.93	56.86	486.00	6.00	1.286	-1.000	-1.00
A00-10	333724.34	1045419.56	50.88	492.00	6.00	0.116	-1.000	-1.00
A00-2	332828.84	1047952.75	218.68	660.00	6.00	0.096	-1.000	-1.00
A00-2	332828.71	1047952.62	212.68	666.00	6.00	0.045	-1.000	-1.00
A00-4	332764.12	1047345.12	337.21	540.00	6.00	0.038	-1.000	-1.00
A98-11	332883.87	1047822.87	235.32	642.00	6.00	0.043	-1.000	-1.00
A98-11	332884.18	1047822.00	217.34	660.00	6.00	0.067	-1.000	-1.00
A98-13	332869.28	1047570.81	295.62	582.00	6.00	0.115	-1.000	-1.00
A98-13	332868.93	1047570.50	289.64	588.00	6.00	0.787	-1.000	-1.00
A98-13	332868.62	1047570.12	283.66	594.00	6.00	0.472	-1.000	-1.00
A98-13	332866.28	1047567.81	241.79	636.00	6.00	0.216	-1.000	-1.00
A98-14	332911.65	1047911.75	199.64	678.00	6.00	0.112	-1.000	-1.00
A98-14	332911.65	1047911.75	193.64	684.00	6.00	0.047	-1.000	-1.00
A98-15	332951.53	1047761.18	218.42	660.00	6.00	0.119	-1.000	-1.00
A98-15	332951.06	1047761.43	212.45	666.00	6.00	0.160	-1.000	-1.00
A98-15	332948.31	1047762.93	176.58	702.00	6.00	0.062	-1.000	-1.00
A98-2	332874.43	1047678.87	283.87	594.00	6.00	0.184	-1.000	-1.00
A98-2	332873.93	1047679.12	277.89	600.00	6.00	0.646	-1.000	-1.00
A98-2	332873.40	1047679.31	271.92	606.00	6.00	0.166	-1.000	-1.00
A98-2	332872.90	1047679.50	265.94	612.00	6.00	0.483	-1.000	-1.00
A98-2	332872.40	1047679.68	259.97	618.00	6.00	0.048	-1.000	-1.00
A98-2	332869.31	1047680.93	224.12	654.00	6.00	0.218	-1.000	-1.00
A98-3	332826.81	1047820.81	253.14	624.00	6.00	0.053	-1.000	-1.00
A98-3	332826.93	1047820.43	247.16	630.00	6.00	0.812	-1.000	-1.00
A98-3	332827.03	1047820.06	241.17	636.00	6.00	2.668	-1.000	-1.00
A98-3	332827.15	1047819.68	235.18	642.00	6.00	0.672	-1.000	-1.00
A98-4	332707.34	1047507.87	330.09	546.00	6.00	0.087	-1.000	-1.00
A98-5	332775.59	1047476.56	312.20	564.00	6.00	0.177	-1.000	-1.00
A98-5	332775.59	1047476.62	306.20	570.00	6.00	0.186	-1.000	-1.00
A98-5	332775.59	1047476.75	300.20	576.00	6.00	0.627	-1.000	-1.00
A98-5	332775.59	1047476.87	294.20	582.00	6.00	0.329	-1.000	-1.00
A98-5	332775.59	1047476.93	288.20	588.00	6.00	0.909	-1.000	-1.00
A98-5	332775.59	1047477.06	282.20	594.00	6.00	0.160	-1.000	-1.00
A98-6	333430.21	1047326.37	147.93	732.00	6.00	0.238	-1.000	-1.00
A98-8	333306.21	1047300.37	524.47	354.00	6.00	0.030	-1.000	-1.00
A98-9	332698.40	1046997.68	441.47	432.00	6.00	0.137	-1.000	-1.00
C95-01	334839.50	1045424.00	356.68	570.00	6.00	0.102	-1.000	-1.00
C95-01	334812.46	1045397.00	262.10	672.00	6.00	0.043	-1.000	-1.00
C95-01	334810.87	1045395.37	256.54	678.00	6.00	0.036	-1.000	-1.00
C95-01	334809.31	1045393.81	250.98	684.00	6.00	0.042	-1.000	-1.00
C95-03	333677.09	1046868.93	50.77	828.00	6.00	0.045	-1.000	-1.00
C95-03	333677.09	1046868.93	44.77	834.00	6.00	0.042	-1.000	-1.00
C95-04	333661.59	1046761.37	469.98	426.00	6.00	0.049	-1.000	-1.00
C95-04	333592.59	1046692.37	129.69	780.00	6.00	0.037	-1.000	-1.00
C95-04	333591.40	1046691.18	123.92	786.00	6.00	0.051	-1.000	-1.00
C95-05	333485.62	1046784.50	142.70	762.00	6.00	0.030	-1.000	-1.00
C95-06	333250.75	1046855.31	171.39	750.00	6.00	0.353	-1.000	-1.00
C95-07	334327.90	1046428.50	112.22	768.00	6.00	0.181	-1.000	-1.00
C95-07	334327.90	1046428.50	106.22	774.00	6.00	0.187	-1.000	-1.00
C95-07	334327.90	1046428.50	100.22	780.00	6.00	0.068	-1.000	-1.00
C95-08	333218.81	1047114.68	155.52	720.00	6.00	0.072	-1.000	-1.00
C95-08	333218.81	1047114.68	149.52	726.00	6.00	0.089	-1.000	-1.00
C95-08	333218.81	1047114.68	143.52	732.00	6.00	0.237	-1.000	-1.00
C95-08	333218.81	1047114.68	137.52	738.00	6.00	0.188	-1.000	-1.00
C95-08	333218.81	1047114.68	131.52	744.00	6.00	0.795	-1.000	-1.00
C95-08	333218.81	1047114.68	125.52	750.00	6.00	0.362	-1.000	-1.00
C95-09	334154.71	1046363.00	242.50	636.00	6.00	0.001	-1.000	-1.00
C95-09	334154.71	1046363.00	236.50	642.00	6.00	0.005	-1.000	-1.00
C95-09	334154.71	1046363.00	230.50	648.00	6.00	0.011	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
C95-09	334154.71	1046363.00	224.50	654.00	6.00	0.008	-1.000	-1.00
C95-09	334154.71	1046363.00	218.50	660.00	6.00	0.026	-1.000	-1.00
C95-10	332770.81	1047066.31	298.37	576.00	6.00	0.555	-1.000	-1.00
C95-10	332770.81	1047066.31	292.37	582.00	6.00	3.456	-1.000	-1.00
C95-10	332770.81	1047066.31	286.37	588.00	6.00	2.212	-1.000	-1.00
C95-10	332770.81	1047066.31	280.37	594.00	6.00	1.255	-1.000	-1.00
C95-10	332770.81	1047066.31	274.37	600.00	6.00	1.687	-1.000	-1.00
C95-11	333369.43	1047384.93	482.92	396.00	6.00	0.373	-1.000	-1.00
C95-11	333369.43	1047384.93	476.92	402.00	6.00	0.627	-1.000	-1.00
C95-11	333369.43	1047384.93	470.92	408.00	6.00	0.065	-1.000	-1.00
C95-11	333369.43	1047384.93	464.92	414.00	6.00	0.059	-1.000	-1.00
C95-11	333369.43	1047384.93	458.92	420.00	6.00	0.036	-1.000	-1.00
C95-11	333369.43	1047384.93	164.92	714.00	6.00	2.668	2.320	-1.00
C95-11	333369.43	1047384.93	158.92	720.00	6.00	4.000	3.060	-1.00
C96-16	334030.00	1047520.00	-328.00	1206.00	6.00	0.045	-1.000	-1.00
C96-16	334030.00	1047520.00	-334.00	1212.00	6.00	0.128	-1.000	-1.00
C96-18	333844.31	1046699.68	71.74	810.00	6.00	0.312	-1.000	-1.00
C96-18	333844.06	1046699.00	65.79	816.00	6.00	0.957	-1.000	-1.00
C96-18	333843.81	1046698.31	59.83	822.00	6.00	1.238	-1.000	-1.00
C96-19	332788.96	1047557.00	301.45	576.00	6.00	4.000	-1.000	-1.00
C96-19	332788.65	1047556.87	295.46	582.00	6.00	2.682	-1.000	-1.00
C96-19	332788.31	1047556.81	289.47	588.00	6.00	0.096	-1.000	-1.00
C96-19	332788.00	1047556.68	283.48	594.00	6.00	0.051	-1.000	-1.00
C97-21	333588.62	1047269.56	261.26	618.00	6.00	0.114	-1.000	-1.00
C97-21	333588.62	1047269.56	255.26	624.00	6.00	0.562	-1.000	-1.00
C97-21	333588.62	1047269.56	249.26	630.00	6.00	0.140	-1.000	-1.00
C97-24	332828.21	1047723.18	301.94	576.00	6.00	1.267	-1.000	-1.00
C97-24	332827.90	1047723.06	295.95	582.00	6.00	0.086	-1.000	-1.00
C97-24	332827.62	1047723.00	289.96	588.00	6.00	2.006	-1.000	-1.00
C97-24	332827.31	1047722.87	283.97	594.00	6.00	1.402	-1.000	-1.00
C97-28	333175.00	1047568.00	158.76	726.00	6.00	0.123	-1.000	-1.00
C97-28	333175.00	1047568.00	152.76	732.00	6.00	0.076	-1.000	-1.00
C97-28	333175.00	1047568.00	146.76	738.00	6.00	0.109	-1.000	-1.00
C97-29	333538.25	1047252.93	71.59	810.00	6.00	2.084	-1.000	-1.00
C97-29	333538.81	1047253.93	65.70	816.00	6.00	0.225	-1.000	-1.00
C97-34	332977.78	1047566.00	230.51	648.00	6.00	0.242	-1.000	-1.00
CDH-1	332785.31	1047094.62	274.09	48.00	6.00	0.033	-1.000	-1.00
CDH-1	332790.53	1047097.37	273.04	54.00	6.00	0.036	-1.000	-1.00
CDH-1	332795.75	1047100.18	272.00	60.00	6.00	0.042	-1.000	-1.00
CDH-1	332800.96	1047102.93	270.96	66.00	6.00	0.040	-1.000	-1.00
CDH-10	332759.81	1047103.62	291.96	36.00	6.00	0.058	-1.000	-1.00
CDH-10	332763.18	1047108.43	293.21	42.00	6.00	0.030	-1.000	-1.00
CDH-10	332766.56	1047113.25	294.46	48.00	6.00	0.011	-1.000	-1.00
CDH-10	332769.93	1047118.06	295.70	54.00	6.00	0.117	-1.000	-1.00
CDH-10	332773.28	1047122.87	296.95	60.00	6.00	0.032	-1.000	-1.00
CDH-2	332753.96	1047077.93	286.47	12.00	6.00	0.123	-1.000	-1.00
CDH-2	332759.15	1047080.68	287.72	18.00	6.00	0.180	-1.000	-1.00
CDH-2	332764.31	1047083.43	288.97	24.00	6.00	0.005	-1.000	-1.00
CDH-2	332769.50	1047086.18	290.21	30.00	6.00	0.091	-1.000	-1.00
CDH-2	332774.68	1047088.93	291.46	36.00	6.00	0.041	-1.000	-1.00
CDH-2	332779.87	1047091.75	292.71	42.00	6.00	0.055	-1.000	-1.00
CDH-3	332760.78	1047087.62	289.77	24.00	6.00	0.064	-1.000	-1.00
CDH-3	332765.34	1047091.31	291.01	30.00	6.00	0.036	-1.000	-1.00
CDH-4	332765.40	1047091.37	277.35	30.00	6.00	0.036	-1.000	-1.00
CDH-5	332761.71	1047075.37	289.15	18.00	6.00	0.033	-1.000	-1.00
CDH-5	332818.56	1047089.50	302.13	78.00	6.00	0.056	-1.000	-1.00
CDH-5	332824.21	1047090.93	303.43	84.00	6.00	0.074	-1.000	-1.00
CDH-6	332760.28	1047064.50	286.93	18.00	6.00	0.011	-1.000	-1.00
CDH-7	332761.25	1047053.43	288.05	24.00	6.00	0.003	-1.000	-1.00
CDH-7	332766.09	1047050.06	289.09	30.00	6.00	0.022	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CDH-8	332802.59	1047085.56	287.97	60.00	6.00	0.037	-1.000	-1.00
CR-380	333528.68	1045925.00	563.20	180.00	6.00	0.059	-1.000	-1.00
CR-380	333528.68	1045925.00	557.20	186.00	6.00	0.088	-1.000	-1.00
CR-380	333528.68	1045925.00	551.20	192.00	6.00	0.128	-1.000	-1.00
CR-380	333528.68	1045925.00	545.20	198.00	6.00	0.172	-1.000	-1.00
CR-381	333594.50	1045817.00	460.00	282.00	6.00	0.035	-1.000	-1.00
CR-381	333594.50	1045817.00	454.00	288.00	6.00	0.052	-1.000	-1.00
CR-381	333594.50	1045817.00	448.00	294.00	6.00	0.017	-1.000	-1.00
CR-381	333594.50	1045817.00	442.00	300.00	6.00	0.083	-1.000	-1.00
CR-381	333594.50	1045817.00	436.00	306.00	6.00	0.168	-1.000	-1.00
CR-382	333565.28	1046076.00	509.80	234.00	6.00	0.087	-1.000	-1.00
CR-382	333565.28	1046076.00	503.80	240.00	6.00	0.035	-1.000	-1.00
CR-382	333565.28	1046076.00	485.80	258.00	6.00	0.040	-1.000	-1.00
CR-382	333565.28	1046076.00	479.80	264.00	6.00	0.121	-1.000	-1.00
CR-382	333565.28	1046076.00	473.80	270.00	6.00	0.117	-1.000	-1.00
CR-382	333565.28	1046076.00	437.80	306.00	6.00	0.046	-1.000	-1.00
CR-382	333565.28	1046076.00	431.80	312.00	6.00	0.068	-1.000	-1.00
CRD-03-07	333698.15	1045375.06	114.66	438.00	6.00	0.040	0.100	1.65
CRD-03-08	333715.56	1045331.68	2.39	552.00	6.00	0.030	0.110	0.10
CRD-03-08	333715.12	1045331.43	-3.59	558.00	6.00	0.211	0.160	0.46
CRD-03-08	333714.65	1045331.18	-9.57	564.00	6.00	0.129	0.110	0.32
CRD-03-10	333720.53	1045406.81	82.77	468.00	6.00	1.130	0.120	0.05
CRD-03-11	333801.81	1045376.25	532.50	18.00	6.00	-1.000	-1.000	-1.00
CRD-03-11	333801.81	1045376.25	526.50	24.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333810.15	1045421.87	544.23	6.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333809.87	1045422.31	538.25	12.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333809.62	1045422.75	532.28	18.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333809.37	1045423.18	526.30	24.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333808.06	1045425.50	496.41	54.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333807.81	1045425.93	490.44	60.00	6.00	-1.000	-1.000	-1.00
CRD-03-12	333807.53	1045426.37	484.46	66.00	6.00	-1.000	-1.000	-1.00
CRD-03-13	333777.31	1045414.87	544.00	6.00	6.00	-1.000	-1.000	-1.00
CRD-03-13	333777.31	1045414.87	526.00	24.00	6.00	-1.000	-1.000	-1.00
CRD-03-13	333777.31	1045414.87	520.00	30.00	6.00	-1.000	-1.000	-1.00
CRD-04-01	333797.34	1046812.75	731.43	150.00	6.00	0.045	0.200	0.31
CRD-04-01	333797.34	1046811.87	725.49	156.00	6.00	0.353	0.200	0.33
CRD-04-01	333784.68	1046714.87	73.08	816.00	6.00	0.086	0.230	0.38
CRD-04-01	333784.31	1046713.93	67.17	822.00	6.00	0.983	0.240	0.64
CRD-04-01	333783.96	1046712.93	61.26	828.00	6.00	0.627	0.210	0.36
CRD-04-02	333819.09	1046821.62	40.00	840.00	6.00	2.122	0.220	1.99
CRD-04-02	333819.09	1046821.62	34.00	846.00	6.00	0.169	0.220	1.47
CRD-04-02	333819.09	1046821.62	28.00	852.00	6.00	0.900	0.200	1.54
CRD-04-03	333789.18	1046610.18	152.58	762.00	6.00	0.054	0.200	0.51
CRD-04-03	333789.31	1046608.62	146.79	768.00	6.00	0.047	0.200	0.35
CRD-04-03	333789.43	1046607.06	141.00	774.00	6.00	0.031	0.200	0.49
CRD-04-03	333789.56	1046605.50	135.21	780.00	6.00	0.057	0.200	0.28
CRD-04-03	333789.65	1046603.93	129.42	786.00	6.00	0.022	0.200	0.12
CRD-04-03	333789.78	1046602.37	123.63	792.00	6.00	0.036	0.200	0.42
CRD-04-03	333789.90	1046600.75	117.85	798.00	6.00	0.101	0.200	0.51
CRD-04-05	333907.81	1046642.50	56.19	822.00	6.00	0.112	0.200	0.09
CRD-04-06	333876.71	1046545.93	118.08	768.00	6.00	0.036	0.200	0.19
CRD-04-07	333692.78	1046608.12	182.04	738.00	6.00	0.873	0.200	1.07
CRD-04-07	333692.03	1046606.31	176.37	744.00	6.00	0.364	0.200	0.95
CRD-04-07	333691.25	1046604.50	170.70	750.00	6.00	0.063	0.210	0.18
CRD-04-07	333690.50	1046602.68	165.02	756.00	6.00	0.116	0.200	0.53
CRD-04-07	333689.71	1046600.93	159.35	762.00	6.00	0.108	0.200	0.69
CRD-04-08	333588.87	1046491.93	285.48	708.00	6.00	0.003	0.200	0.01
CRD-04-08	333587.46	1046489.56	280.15	714.00	6.00	0.003	0.200	0.01
CRD-04-08	333586.03	1046487.18	274.83	720.00	6.00	0.003	0.200	0.01
CRD-04-08	333584.62	1046484.81	269.50	726.00	6.00	0.003	0.200	0.01

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CRD-04-08	333583.21	1046482.43	264.17	732.00	6.00	0.004	0.200	0.09
CRD-04-09	333558.31	1046557.81	305.41	672.00	6.00	0.047	0.200	0.44
CRD-04-09	333556.56	1046555.56	300.13	678.00	6.00	0.030	0.200	0.28
CRD-04-09	333554.78	1046553.31	294.86	684.00	6.00	0.037	0.200	0.30
CRD-04-09	333553.03	1046551.06	289.59	690.00	6.00	0.026	0.200	0.18
CRD-04-09	333551.28	1046548.75	284.32	696.00	6.00	0.110	0.200	0.11
CRD-04-09	333549.50	1046546.50	279.05	702.00	6.00	0.153	0.200	0.19
CRD-04-09	333547.75	1046544.25	273.78	708.00	6.00	0.077	0.200	0.19
CRD-04-09	333500.15	1046483.31	131.43	870.00	6.00	0.365	0.200	0.38
CRD-04-09	333498.40	1046481.00	126.16	876.00	6.00	0.512	0.200	1.70
CRD-04-10	333595.50	1046751.81	522.46	396.00	6.00	0.033	0.200	0.13
CRD-04-10	333593.75	1046750.12	516.97	402.00	6.00	0.124	0.200	0.12
CRD-04-10	333516.78	1046659.50	222.25	720.00	6.00	0.045	0.200	0.40
CRD-04-11	333763.59	1046544.25	161.12	738.00	6.00	0.078	0.200	1.12
CRD-04-11	333762.90	1046543.56	155.20	744.00	6.00	0.031	0.200	0.76
CRD-04-11	333762.21	1046542.93	149.28	750.00	6.00	0.189	0.200	0.98
CRD-04-13	333765.81	1046978.87	43.03	846.00	6.00	0.075	0.200	0.22
CRD-04-13	333766.18	1046979.43	37.08	852.00	6.00	0.072	0.200	0.15
CS-106	332695.00	1047778.00	318.00	552.00	6.00	0.032	0.050	0.11
CS-106	332695.00	1047778.00	312.00	558.00	6.00	0.083	0.050	0.12
CS-106	332695.00	1047778.00	306.00	564.00	6.00	0.082	0.050	0.13
CS-106	332695.00	1047778.00	300.00	570.00	6.00	0.082	0.050	0.13
CS-106	332695.00	1047778.00	294.00	576.00	6.00	0.123	0.050	0.09
CS-106	332695.00	1047778.00	288.00	582.00	6.00	0.087	0.050	0.07
CS-115	333176.00	1047385.00	139.00	732.00	6.00	0.041	0.050	0.04
CS-115	333176.00	1047385.00	133.00	738.00	6.00	0.122	0.050	0.08
CS-115	333176.00	1047385.00	127.00	744.00	6.00	0.080	0.050	0.11
CS-115	333176.00	1047385.00	121.00	750.00	6.00	0.059	0.050	0.12
CS-153	332885.40	1046071.00	692.40	180.00	6.00	0.038	-1.000	-1.00
CS-154	332789.40	1045981.00	794.10	78.00	6.00	0.041	-1.000	-1.00
CS-154	332789.40	1045981.00	788.10	84.00	6.00	0.036	-1.000	-1.00
CS-154	332789.40	1045981.00	782.10	90.00	6.00	0.051	-1.000	-1.00
CS-154	332789.40	1045981.00	776.10	96.00	6.00	0.025	-1.000	-1.00
CS-154	332789.40	1045981.00	770.10	102.00	6.00	0.050	-1.000	-1.00
CS-155	332886.81	1045883.00	801.80	72.00	6.00	0.081	-1.000	-1.00
CS-155	332886.81	1045883.00	795.80	78.00	6.00	0.126	-1.000	-1.00
CS-155	332886.81	1045883.00	789.80	84.00	6.00	0.258	-1.000	-1.00
CS-155	332886.81	1045883.00	783.80	90.00	6.00	0.221	-1.000	-1.00
CS-155	332886.81	1045883.00	777.80	96.00	6.00	0.127	-1.000	-1.00
CS-156	333013.00	1046172.00	609.20	264.00	6.00	0.314	-1.000	-1.00
CS-156	333013.00	1046172.00	603.20	270.00	6.00	0.187	-1.000	-1.00
CS-156	333013.00	1046172.00	597.20	276.00	6.00	0.030	-1.000	-1.00
CS-156	333013.00	1046172.00	591.20	282.00	6.00	0.021	-1.000	-1.00
CS-156	333013.00	1046172.00	585.20	288.00	6.00	0.061	-1.000	-1.00
CS-162	332781.68	1046179.00	773.50	96.00	6.00	0.176	-1.000	-1.00
CS-162	332781.68	1046179.00	767.50	102.00	6.00	0.373	-1.000	-1.00
CS-162	332781.68	1046179.00	761.50	108.00	6.00	0.125	-1.000	-1.00
CS-162	332781.68	1046179.00	755.50	114.00	6.00	0.039	-1.000	-1.00
CS-168	333780.50	1044972.00	653.10	234.00	6.00	0.083	-1.000	-1.00
CS-168	333780.50	1044972.00	647.10	240.00	6.00	0.209	-1.000	-1.00
CS-168	333780.50	1044972.00	641.10	246.00	6.00	0.331	-1.000	-1.00
CS-168	333780.50	1044972.00	635.10	252.00	6.00	0.132	-1.000	-1.00
CS-168	333780.50	1044972.00	629.10	258.00	6.00	0.080	-1.000	-1.00
CS-172	334386.09	1044679.00	666.30	216.00	6.00	0.032	-1.000	-1.00
CS-172	334386.09	1044679.00	660.30	222.00	6.00	0.117	-1.000	-1.00
CS-172	334386.09	1044679.00	654.30	228.00	6.00	0.034	-1.000	-1.00
CS-172	334386.09	1044679.00	648.30	234.00	6.00	0.040	-1.000	-1.00
CS-172	334386.09	1044679.00	642.30	240.00	6.00	0.042	-1.000	-1.00
CS-172	334386.09	1044679.00	636.30	246.00	6.00	0.031	-1.000	-1.00
CS-173	334483.90	1044777.00	714.20	168.00	6.00	0.082	-1.000	-1.00

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CS-173	334483.90	1044777.00	708.20	174.00	6.00	0.094	-1.000	-1.00
CS-173	334483.90	1044777.00	702.20	180.00	6.00	0.054	-1.000	-1.00
CS-175	334479.81	1045165.00	603.90	282.00	6.00	0.032	-1.000	-1.00
CS-189	334564.50	1044874.00	721.20	162.00	6.00	0.066	-1.000	-1.00
CS-189	334564.50	1044874.00	697.20	186.00	6.00	0.363	-1.000	-1.00
CS-189	334564.50	1044874.00	691.20	192.00	6.00	0.059	-1.000	-1.00
CS-189	334564.50	1044874.00	685.20	198.00	6.00	0.098	-1.000	-1.00
CS-189	334564.50	1044874.00	679.20	204.00	6.00	0.057	-1.000	-1.00
CS-189	334564.50	1044874.00	673.20	210.00	6.00	0.055	-1.000	-1.00
CS-189	334564.50	1044874.00	667.20	216.00	6.00	0.034	-1.000	-1.00
CS-189	334564.50	1044874.00	661.20	222.00	6.00	0.039	-1.000	-1.00
CS-189	334564.50	1044874.00	655.20	228.00	6.00	0.024	-1.000	-1.00
CS-189	334564.50	1044874.00	649.20	234.00	6.00	0.048	-1.000	-1.00
CS-189	334564.50	1044874.00	643.20	240.00	6.00	0.020	-1.000	-1.00
CS-189	334564.50	1044874.00	637.20	246.00	6.00	0.032	-1.000	-1.00
CS-189	334564.50	1044874.00	631.20	252.00	6.00	0.209	-1.000	-1.00
CS-189	334564.50	1044874.00	625.20	258.00	6.00	0.443	-1.000	-1.00
CS-189	334564.50	1044874.00	619.20	264.00	6.00	0.199	-1.000	-1.00
CS-203	333883.40	1045084.00	577.90	306.00	6.00	0.157	-1.000	-1.00
CS-203	333883.40	1045084.00	571.90	312.00	6.00	0.098	-1.000	-1.00
CS-205	334078.00	1044270.00	762.70	120.00	6.00	0.033	-1.000	-1.00
CS-205	334078.00	1044270.00	756.70	126.00	6.00	0.051	-1.000	-1.00
CS-205	334078.00	1044270.00	726.70	156.00	6.00	0.266	-1.000	-1.00
CS-205	334078.00	1044270.00	720.70	162.00	6.00	0.162	-1.000	-1.00
CS-207	334078.50	1044473.00	731.40	150.00	6.00	0.190	-1.000	-1.00
CS-207	334078.50	1044473.00	725.40	156.00	6.00	0.049	-1.000	-1.00
CS-209	332789.31	1046278.00	637.80	234.00	6.00	0.166	-1.000	-1.00
CS-209	332789.31	1046278.00	631.80	240.00	6.00	0.084	-1.000	-1.00
CS-211	333778.31	1045175.00	648.70	240.00	6.00	0.065	-1.000	-1.00
CS-211	333778.31	1045175.00	642.70	246.00	6.00	0.051	-1.000	-1.00
CS-211	333778.31	1045175.00	636.70	252.00	6.00	0.122	-1.000	-1.00
CS-211	333778.31	1045175.00	630.70	258.00	6.00	0.164	-1.000	-1.00
CS-211	333778.31	1045175.00	624.70	264.00	6.00	0.069	-1.000	-1.00
CS-211	333778.31	1045175.00	618.70	270.00	6.00	0.029	-1.000	-1.00
CS-211	333778.31	1045175.00	612.70	276.00	6.00	0.043	-1.000	-1.00
CS-211	333778.31	1045175.00	606.70	282.00	6.00	0.204	-1.000	-1.00
CS-211	333778.31	1045175.00	600.70	288.00	6.00	0.152	-1.000	-1.00
CS-211	333778.31	1045175.00	594.70	294.00	6.00	0.023	-1.000	-1.00
CS-211	333778.31	1045175.00	588.70	300.00	6.00	0.008	-1.000	-1.00
CS-211	333778.31	1045175.00	582.70	306.00	6.00	0.054	-1.000	-1.00
CS-214	334262.59	1045268.00	606.50	276.00	6.00	0.111	-1.000	-1.00
CS-214	334262.59	1045268.00	600.50	282.00	6.00	0.229	-1.000	-1.00
CS-214	334262.59	1045268.00	594.50	288.00	6.00	0.043	-1.000	-1.00
CS-214	334262.59	1045268.00	588.50	294.00	6.00	0.080	-1.000	-1.00
CS-214	334262.59	1045268.00	582.50	300.00	6.00	0.102	-1.000	-1.00
CS-214	334262.59	1045268.00	576.50	306.00	6.00	0.070	-1.000	-1.00
CS-216	334368.09	1045167.00	589.30	294.00	6.00	0.056	-1.000	-1.00
CS-216	334368.09	1045167.00	583.30	300.00	6.00	0.447	-1.000	-1.00
CS-216	334368.09	1045167.00	577.30	306.00	6.00	0.182	-1.000	-1.00
CS-216	334368.09	1045167.00	571.30	312.00	6.00	0.097	-1.000	-1.00
CS-219	334467.81	1045074.00	578.60	306.00	6.00	0.034	-1.000	-1.00
CS-219	334467.81	1045074.00	572.60	312.00	6.00	0.066	-1.000	-1.00
CS-219	334467.81	1045074.00	566.60	318.00	6.00	0.080	-1.000	-1.00
CS-219	334467.81	1045074.00	560.60	324.00	6.00	0.032	-1.000	-1.00
CS-219	334467.81	1045074.00	554.60	330.00	6.00	0.485	-1.000	-1.00
CS-219	334467.81	1045074.00	548.60	336.00	6.00	0.118	-1.000	-1.00
CS-219	334467.81	1045074.00	542.60	342.00	6.00	0.056	-1.000	-1.00
CS-220	334468.18	1044870.00	737.40	150.00	6.00	0.089	-1.000	-1.00
CS-220	334468.18	1044870.00	731.40	156.00	6.00	0.143	-1.000	-1.00
CS-220	334468.18	1044870.00	725.40	162.00	6.00	0.033	-1.000	-1.00

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CS-220	334468.18	1044870.00	719.40	168.00	6.00	0.105	-1.000	-1.00
CS-220	334468.18	1044870.00	713.40	174.00	6.00	0.134	-1.000	-1.00
CS-220	334468.18	1044870.00	707.40	180.00	6.00	0.213	-1.000	-1.00
CS-220	334468.18	1044870.00	701.40	186.00	6.00	0.100	-1.000	-1.00
CS-220	334468.18	1044870.00	695.40	192.00	6.00	0.162	-1.000	-1.00
CS-220	334468.18	1044870.00	689.40	198.00	6.00	0.127	-1.000	-1.00
CS-220	334468.18	1044870.00	683.40	204.00	6.00	0.096	-1.000	-1.00
CS-220	334468.18	1044870.00	677.40	210.00	6.00	0.227	-1.000	-1.00
CS-220	334468.18	1044870.00	671.40	216.00	6.00	0.199	-1.000	-1.00
CS-221	334564.18	1044973.00	631.10	252.00	6.00	0.030	-1.000	-1.00
CS-221	334564.18	1044973.00	577.10	306.00	6.00	0.123	-1.000	-1.00
CS-221	334564.18	1044973.00	571.10	312.00	6.00	0.325	-1.000	-1.00
CS-221	334564.18	1044973.00	565.10	318.00	6.00	0.412	-1.000	-1.00
CS-221	334564.18	1044973.00	559.10	324.00	6.00	0.171	-1.000	-1.00
CS-222	334281.59	1044672.00	720.70	162.00	6.00	0.623	-1.000	-1.00
CS-222	334281.59	1044672.00	714.70	168.00	6.00	1.087	-1.000	-1.00
CS-222	334281.59	1044672.00	708.70	174.00	6.00	0.238	-1.000	-1.00
CS-222	334281.59	1044672.00	702.70	180.00	6.00	0.044	-1.000	-1.00
CS-222	334281.59	1044672.00	696.70	186.00	6.00	0.287	-1.000	-1.00
CS-223	334383.18	1044774.00	600.70	282.00	6.00	0.066	-1.000	-1.00
CS-223	334383.18	1044774.00	594.70	288.00	6.00	0.108	-1.000	-1.00
CS-224	334569.09	1044773.00	690.40	192.00	6.00	0.033	-1.000	-1.00
CS-224	334569.09	1044773.00	684.40	198.00	6.00	0.053	-1.000	-1.00
CS-224	334569.09	1044773.00	672.40	210.00	6.00	0.152	-1.000	-1.00
CS-224	334569.09	1044773.00	666.40	216.00	6.00	0.068	-1.000	-1.00
CS-224	334569.09	1044773.00	660.40	222.00	6.00	0.125	-1.000	-1.00
CS-224	334569.09	1044773.00	654.40	228.00	6.00	0.212	-1.000	-1.00
CS-224	334569.09	1044773.00	648.40	234.00	6.00	0.107	-1.000	-1.00
CS-224	334569.09	1044773.00	642.40	240.00	6.00	0.040	-1.000	-1.00
CS-224	334569.09	1044773.00	582.40	300.00	6.00	0.214	-1.000	-1.00
CS-225	334669.90	1044877.00	618.60	264.00	6.00	0.037	-1.000	-1.00
CS-225	334669.90	1044877.00	612.60	270.00	6.00	0.064	-1.000	-1.00
CS-225	334669.90	1044877.00	577.10	305.00	5.00	0.070	-1.000	-1.00
CS-226	334472.18	1044667.00	647.80	234.00	6.00	0.069	-1.000	-1.00
CS-226	334472.18	1044667.00	641.80	240.00	6.00	0.423	-1.000	-1.00
CS-233	334281.09	1044575.00	756.70	126.00	6.00	0.171	-1.000	-1.00
CS-233	334281.09	1044575.00	750.70	132.00	6.00	0.152	-1.000	-1.00
CS-233	334281.09	1044575.00	744.70	138.00	6.00	0.052	-1.000	-1.00
CS-233	334281.09	1044575.00	738.70	144.00	6.00	0.058	-1.000	-1.00
CS-233	334281.09	1044575.00	732.70	150.00	6.00	0.234	-1.000	-1.00
CS-233	334281.09	1044575.00	726.70	156.00	6.00	0.624	-1.000	-1.00
CS-233	334281.09	1044575.00	720.70	162.00	6.00	0.234	-1.000	-1.00
CS-233	334281.09	1044575.00	714.70	168.00	6.00	0.062	-1.000	-1.00
CS-236A	332887.00	1046270.00	629.70	240.00	6.00	0.207	-1.000	-1.00
CS-236A	332887.00	1046270.00	623.70	246.00	6.00	0.166	-1.000	-1.00
CS-236A	332887.00	1046270.00	617.70	252.00	6.00	0.080	-1.000	-1.00
CS-236A	332887.00	1046270.00	611.70	258.00	6.00	0.149	-1.000	-1.00
CS-236A	332887.00	1046270.00	605.70	264.00	6.00	0.070	-1.000	-1.00
CS-237	334164.50	1045367.00	615.50	270.00	6.00	0.037	-1.000	-1.00
CS-237	334164.50	1045367.00	609.50	276.00	6.00	0.022	-1.000	-1.00
CS-237	334164.50	1045367.00	603.50	282.00	6.00	0.043	-1.000	-1.00
CS-238	333892.00	1045295.00	532.80	354.00	6.00	0.043	-1.000	-1.00
CS-238	333892.00	1045295.00	526.80	360.00	6.00	0.055	-1.000	-1.00
CS-238	333892.00	1045295.00	520.80	366.00	6.00	0.140	-1.000	-1.00
CS-238	333892.00	1045295.00	514.80	372.00	6.00	0.288	-1.000	-1.00
CS-238	333892.00	1045295.00	508.80	378.00	6.00	0.231	-1.000	-1.00
CS-238	333892.00	1045295.00	502.80	384.00	6.00	0.036	-1.000	-1.00
CS-238	333892.00	1045295.00	499.30	385.00	1.00	0.021	-1.000	-1.00
CS-239	333791.68	1045384.00	562.30	324.00	6.00	0.174	-1.000	-1.00
CS-239	333791.68	1045384.00	556.30	330.00	6.00	0.123	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-239	333791.68	1045384.00	532.30	354.00	6.00	0.048	-1.000	-1.00
CS-239	333791.68	1045384.00	526.30	360.00	6.00	0.139	-1.000	-1.00
CS-242	333488.68	1045684.00	616.90	264.00	6.00	0.048	-1.000	-1.00
CS-242	333488.68	1045684.00	610.90	270.00	6.00	0.045	-1.000	-1.00
CS-242	333488.68	1045684.00	604.90	276.00	6.00	0.008	-1.000	-1.00
CS-242	333488.68	1045684.00	598.90	282.00	6.00	0.036	-1.000	-1.00
CS-244	332686.81	1046281.00	682.10	186.00	6.00	0.095	-1.000	-1.00
CS-244	332686.81	1046281.00	676.10	192.00	6.00	0.003	-1.000	-1.00
CS-244	332686.81	1046281.00	670.10	198.00	6.00	0.008	-1.000	-1.00
CS-244	332686.81	1046281.00	664.10	204.00	6.00	0.073	-1.000	-1.00
CS-250	333882.81	1045179.00	592.80	294.00	6.00	0.144	-1.000	-1.00
CS-250	333882.81	1045179.00	586.80	300.00	6.00	0.119	-1.000	-1.00
CS-250	333882.81	1045179.00	580.80	306.00	6.00	0.130	-1.000	-1.00
CS-250	333882.81	1045179.00	574.80	312.00	6.00	0.124	-1.000	-1.00
CS-250	333882.81	1045179.00	568.80	318.00	6.00	0.205	-1.000	-1.00
CS-250	333882.81	1045179.00	562.80	324.00	6.00	0.085	-1.000	-1.00
CS-252	334278.31	1044465.00	758.00	126.00	6.00	0.036	-1.000	-1.00
CS-252	334278.31	1044465.00	752.00	132.00	6.00	0.059	-1.000	-1.00
CS-252	334278.31	1044465.00	746.00	138.00	6.00	0.051	-1.000	-1.00
CS-252	334278.31	1044465.00	674.00	210.00	6.00	0.057	-1.000	-1.00
CS-252	334278.31	1044465.00	668.00	216.00	6.00	0.082	-1.000	-1.00
CS-252	334278.31	1044465.00	662.00	222.00	6.00	0.051	-1.000	-1.00
CS-254	334373.59	1044568.00	698.90	186.00	6.00	0.062	-1.000	-1.00
CS-256	334346.40	1046043.00	209.40	672.00	6.00	0.033	-1.000	-1.00
CS-256	334346.40	1046043.00	203.40	678.00	6.00	0.067	-1.000	-1.00
CS-256	334346.40	1046043.00	197.40	684.00	6.00	0.058	-1.000	-1.00
CS-257	332647.00	1047330.00	382.00	492.00	6.00	0.032	-1.000	-1.00
CS-257	332647.00	1047330.00	376.00	498.00	6.00	0.032	-1.000	-1.00
CS-258	334349.90	1046244.00	196.30	684.00	6.00	0.041	-1.000	-1.00
CS-258	334349.90	1046244.00	190.30	690.00	6.00	0.183	-1.000	-1.00
CS-258	334349.90	1046244.00	184.30	696.00	6.00	0.141	-1.000	-1.00
CS-258	334349.90	1046244.00	178.30	702.00	6.00	0.105	-1.000	-1.00
CS-258	334349.90	1046244.00	172.30	708.00	6.00	0.069	-1.000	-1.00
CS-258	334349.90	1046244.00	166.30	714.00	6.00	0.035	-1.000	-1.00
CS-258	334349.90	1046244.00	160.30	720.00	6.00	0.014	-1.000	-1.00
CS-258	334349.90	1046244.00	154.30	726.00	6.00	0.096	-1.000	-1.00
CS-258	334349.90	1046244.00	148.30	732.00	6.00	0.049	-1.000	-1.00
CS-258	334349.90	1046244.00	142.30	738.00	6.00	0.038	-1.000	-1.00
CS-258	334349.90	1046244.00	136.30	744.00	6.00	0.014	-1.000	-1.00
CS-259	334673.00	1045167.00	621.20	264.00	6.00	0.085	-1.000	-1.00
CS-259	334673.00	1045167.00	615.20	270.00	6.00	0.324	-1.000	-1.00
CS-259	334673.00	1045167.00	609.20	276.00	6.00	0.235	-1.000	-1.00
CS-261	333196.00	1045086.00	404.40	492.00	6.00	0.040	-1.000	-1.00
CS-261	333196.00	1045086.00	398.40	498.00	6.00	0.117	-1.000	-1.00
CS-261	333196.00	1045086.00	392.40	504.00	6.00	0.042	-1.000	-1.00
CS-264	332595.00	1047485.00	443.50	426.00	6.00	0.079	-1.000	-1.00
CS-264	332595.00	1047485.00	437.50	432.00	6.00	0.080	-1.000	-1.00
CS-264	332595.00	1047485.00	431.50	438.00	6.00	0.082	-1.000	-1.00
CS-264	332595.00	1047485.00	425.50	444.00	6.00	0.080	-1.000	-1.00
CS-264	332595.00	1047485.00	419.50	450.00	6.00	0.079	-1.000	-1.00
CS-267	333985.00	1046892.00	74.00	804.00	6.00	0.147	-1.000	-1.00
CS-267	333985.00	1046892.00	68.00	810.00	6.00	0.215	-1.000	-1.00
CS-267	333985.00	1046892.00	62.00	816.00	6.00	0.042	-1.000	-1.00
CS-269	334563.40	1045080.00	538.00	348.00	6.00	0.088	-1.000	-1.00
CS-269	334563.40	1045080.00	532.00	354.00	6.00	0.308	-1.000	-1.00
CS-269	334563.40	1045080.00	526.00	360.00	6.00	0.501	-1.000	-1.00
CS-270	334665.18	1045076.00	663.50	222.00	6.00	0.053	-1.000	-1.00
CS-270	334665.18	1045076.00	657.50	228.00	6.00	0.035	-1.000	-1.00
CS-270	334665.18	1045076.00	567.50	318.00	6.00	0.011	-1.000	-1.00
CS-270	334665.18	1045076.00	561.50	324.00	6.00	0.010	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-270	334665.18	1045076.00	555.50	330.00	6.00	0.007	-1.000	-1.00
CS-271	334568.00	1045170.00	598.90	288.00	6.00	0.046	-1.000	-1.00
CS-271	334568.00	1045170.00	562.90	324.00	6.00	0.037	-1.000	-1.00
CS-271	334568.00	1045170.00	556.90	330.00	6.00	0.038	-1.000	-1.00
CS-271	334568.00	1045170.00	460.90	426.00	6.00	0.084	-1.000	-1.00
CS-275	333882.81	1045491.00	495.50	390.00	6.00	0.168	-1.000	-1.00
CS-275	333882.81	1045491.00	489.50	396.00	6.00	0.013	-1.000	-1.00
CS-275	333882.81	1045491.00	483.50	402.00	6.00	0.113	-1.000	-1.00
CS-275	333882.81	1045491.00	477.50	408.00	6.00	0.303	-1.000	-1.00
CS-275	333882.81	1045491.00	471.50	414.00	6.00	0.285	-1.000	-1.00
CS-275	333882.81	1045491.00	465.50	420.00	6.00	0.067	-1.000	-1.00
CS-275	333882.81	1045491.00	459.50	426.00	6.00	0.060	-1.000	-1.00
CS-275	333882.81	1045491.00	399.50	486.00	6.00	0.239	-1.000	-1.00
CS-275	333882.81	1045491.00	393.50	492.00	6.00	0.106	-1.000	-1.00
CS-275	333882.81	1045491.00	387.50	498.00	6.00	0.045	-1.000	-1.00
CS-276	333985.00	1044173.00	603.70	282.00	6.00	0.035	-1.000	-1.00
CS-276	333985.00	1044173.00	597.70	288.00	6.00	0.043	-1.000	-1.00
CS-278	333984.59	1044280.00	724.20	162.00	6.00	0.056	-1.000	-1.00
CS-278	333984.59	1044280.00	718.20	168.00	6.00	0.143	-1.000	-1.00
CS-278	333984.59	1044280.00	712.20	174.00	6.00	0.083	-1.000	-1.00
CS-278	333984.59	1044280.00	706.20	180.00	6.00	0.060	-1.000	-1.00
CS-278	333984.59	1044280.00	640.20	246.00	6.00	0.069	-1.000	-1.00
CS-278	333984.59	1044280.00	634.20	252.00	6.00	0.046	-1.000	-1.00
CS-279	332775.00	1046269.00	645.50	228.00	6.00	0.057	-1.000	-1.00
CS-279	332775.00	1046269.00	639.50	234.00	6.00	0.046	-1.000	-1.00
CS-279	332775.00	1046269.00	633.50	240.00	6.00	0.046	-1.000	-1.00
CS-279	332775.00	1046269.00	627.50	246.00	6.00	0.042	-1.000	-1.00
CS-281	334383.00	1045373.00	523.90	360.00	6.00	0.135	-1.000	-1.00
CS-281	334383.00	1045373.00	517.90	366.00	6.00	0.093	-1.000	-1.00
CS-281	334383.00	1045373.00	511.90	372.00	6.00	0.037	-1.000	-1.00
CS-281	334383.00	1045373.00	505.90	378.00	6.00	0.042	-1.000	-1.00
CS-281	334383.00	1045373.00	499.90	384.00	6.00	0.067	-1.000	-1.00
CS-281	334383.00	1045373.00	487.90	396.00	6.00	0.074	-1.000	-1.00
CS-281	334383.00	1045373.00	481.90	402.00	6.00	0.447	-1.000	-1.00
CS-281	334383.00	1045373.00	475.90	408.00	6.00	1.005	-1.000	-1.00
CS-281	334383.00	1045373.00	469.90	414.00	6.00	0.617	-1.000	-1.00
CS-281	334383.00	1045373.00	463.90	420.00	6.00	0.077	-1.000	-1.00
CS-282	334283.00	1045473.00	531.70	354.00	6.00	0.043	-1.000	-1.00
CS-282	334283.00	1045473.00	525.70	360.00	6.00	0.023	-1.000	-1.00
CS-282	334283.00	1045473.00	519.70	366.00	6.00	0.148	-1.000	-1.00
CS-282	334283.00	1045473.00	513.70	372.00	6.00	0.508	-1.000	-1.00
CS-282	334283.00	1045473.00	507.70	378.00	6.00	0.346	-1.000	-1.00
CS-282	334283.00	1045473.00	501.70	384.00	6.00	0.120	-1.000	-1.00
CS-284	334480.00	1045273.00	458.40	426.00	6.00	0.078	-1.000	-1.00
CS-285	333434.50	1046301.00	459.20	414.00	6.00	0.001	-1.000	-1.00
CS-285	333434.50	1046301.00	453.20	420.00	6.00	0.001	-1.000	-1.00
CS-285	333434.50	1046301.00	447.20	426.00	6.00	0.006	-1.000	-1.00
CS-285	333434.50	1046301.00	441.20	432.00	6.00	0.011	-1.000	-1.00
CS-285	333434.50	1046301.00	435.20	438.00	6.00	0.022	-1.000	-1.00
CS-285	333434.50	1046301.00	429.20	444.00	6.00	0.023	-1.000	-1.00
CS-285	333434.50	1046301.00	423.20	450.00	6.00	0.024	-1.000	-1.00
CS-285	333434.50	1046301.00	417.20	456.00	6.00	0.000	-1.000	-1.00
CS-287	334681.00	1045273.00	560.70	324.00	6.00	0.031	-1.000	-1.00
CS-287	334681.00	1045273.00	554.70	330.00	6.00	0.045	-1.000	-1.00
CS-287	334681.00	1045273.00	548.70	336.00	6.00	0.105	-1.000	-1.00
CS-287	334681.00	1045273.00	542.70	342.00	6.00	0.321	-1.000	-1.00
CS-287	334681.00	1045273.00	536.70	348.00	6.00	0.276	-1.000	-1.00
CS-287	334681.00	1045273.00	530.70	354.00	6.00	0.086	-1.000	-1.00
CS-287	334681.00	1045273.00	374.70	510.00	6.00	0.055	-1.000	-1.00
CS-287	334681.00	1045273.00	368.70	516.00	6.00	0.010	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-287	334681.00	1045273.00	362.70	522.00	6.00	0.048	-1.000	-1.00
CS-288	333480.00	1046073.00	542.60	336.00	6.00	0.091	-1.000	-1.00
CS-288	333480.00	1046073.00	536.60	342.00	6.00	0.075	-1.000	-1.00
CS-288	333480.00	1046073.00	530.60	348.00	6.00	0.044	-1.000	-1.00
CS-288	333480.00	1046073.00	524.60	354.00	6.00	0.045	-1.000	-1.00
CS-288	333480.00	1046073.00	518.60	360.00	6.00	0.046	-1.000	-1.00
CS-289	333955.00	1044373.00	680.30	204.00	6.00	0.071	-1.000	-1.00
CS-289	333955.00	1044373.00	674.30	210.00	6.00	0.102	-1.000	-1.00
CS-289	333955.00	1044373.00	668.30	216.00	6.00	0.026	-1.000	-1.00
CS-289	333955.00	1044373.00	662.30	222.00	6.00	0.038	-1.000	-1.00
CS-289	333955.00	1044373.00	656.30	228.00	6.00	0.062	-1.000	-1.00
CS-289	333955.00	1044373.00	650.30	234.00	6.00	0.047	-1.000	-1.00
CS-289	333955.00	1044373.00	644.30	240.00	6.00	0.040	-1.000	-1.00
CS-290	334030.00	1044333.00	808.00	78.00	6.00	0.041	-1.000	-1.00
CS-290	334030.00	1044333.00	802.00	84.00	6.00	0.059	-1.000	-1.00
CS-290	334030.00	1044333.00	796.00	90.00	6.00	0.068	-1.000	-1.00
CS-290	334030.00	1044333.00	718.00	168.00	6.00	0.067	-1.000	-1.00
CS-290	334030.00	1044333.00	712.00	174.00	6.00	0.032	-1.000	-1.00
CS-292	334130.00	1044333.00	668.30	216.00	6.00	0.041	-1.000	-1.00
CS-292	334130.00	1044333.00	662.30	222.00	6.00	0.032	-1.000	-1.00
CS-294	334030.00	1044223.00	789.60	96.00	6.00	0.034	-1.000	-1.00
CS-294	334030.00	1044223.00	741.60	144.00	6.00	0.035	-1.000	-1.00
CS-294	334030.00	1044223.00	735.60	150.00	6.00	0.048	-1.000	-1.00
CS-294	334030.00	1044223.00	729.60	156.00	6.00	0.365	-1.000	-1.00
CS-294	334030.00	1044223.00	723.60	162.00	6.00	0.336	-1.000	-1.00
CS-294	334030.00	1044223.00	717.60	168.00	6.00	0.277	-1.000	-1.00
CS-294	334030.00	1044223.00	711.60	174.00	6.00	0.094	-1.000	-1.00
CS-294	334030.00	1044223.00	708.10	175.00	1.00	0.003	-1.000	-1.00
CS-295	334775.00	1045173.00	493.90	390.00	6.00	0.135	-1.000	-1.00
CS-295	334775.00	1045173.00	487.90	396.00	6.00	0.155	-1.000	-1.00
CS-295	334775.00	1045173.00	481.90	402.00	6.00	0.422	-1.000	-1.00
CS-295	334775.00	1045173.00	475.90	408.00	6.00	0.306	-1.000	-1.00
CS-295	334775.00	1045173.00	469.90	414.00	6.00	0.069	-1.000	-1.00
CS-295	334775.00	1045173.00	361.90	522.00	6.00	0.059	-1.000	-1.00
CS-296	333985.00	1045273.00	505.60	378.00	6.00	0.154	-1.000	-1.00
CS-296	333985.00	1045273.00	499.60	384.00	6.00	0.093	-1.000	-1.00
CS-296	333985.00	1045273.00	493.60	390.00	6.00	0.131	-1.000	-1.00
CS-296	333985.00	1045273.00	487.60	396.00	6.00	0.036	-1.000	-1.00
CS-297	334280.00	1044273.00	639.00	246.00	6.00	0.044	-1.000	-1.00
CS-297	334280.00	1044273.00	633.00	252.00	6.00	0.031	-1.000	-1.00
CS-298	334145.00	1044223.00	745.00	138.00	6.00	0.051	-1.000	-1.00
CS-298	334145.00	1044223.00	739.00	144.00	6.00	0.047	-1.000	-1.00
CS-298	334145.00	1044223.00	733.00	150.00	6.00	0.010	-1.000	-1.00
CS-298	334145.00	1044223.00	727.00	156.00	6.00	0.097	-1.000	-1.00
CS-298	334145.00	1044223.00	637.00	246.00	6.00	0.077	-1.000	-1.00
CS-298	334145.00	1044223.00	631.00	252.00	6.00	0.042	-1.000	-1.00
CS-299	334180.00	1044173.00	687.20	198.00	6.00	0.077	-1.000	-1.00
CS-299	334180.00	1044173.00	681.20	204.00	6.00	0.074	-1.000	-1.00
CS-299	334180.00	1044173.00	675.20	210.00	6.00	0.070	-1.000	-1.00
CS-299	334180.00	1044173.00	573.20	312.00	6.00	0.041	-1.000	-1.00
CS-299	334180.00	1044173.00	567.20	318.00	6.00	0.070	-1.000	-1.00
CS-299	334180.00	1044173.00	561.20	324.00	6.00	0.211	-1.000	-1.00
CS-299	334180.00	1044173.00	555.20	330.00	6.00	0.281	-1.000	-1.00
CS-299	334180.00	1044173.00	549.20	336.00	6.00	0.107	-1.000	-1.00
CS-299	334180.00	1044173.00	543.20	342.00	6.00	0.080	-1.000	-1.00
CS-303	333883.00	1045573.00	458.20	426.00	6.00	0.448	-1.000	-1.00
CS-303	333883.00	1045573.00	452.20	432.00	6.00	0.247	-1.000	-1.00
CS-303	333883.00	1045573.00	446.20	438.00	6.00	0.039	-1.000	-1.00
CS-303	333883.00	1045573.00	416.20	468.00	6.00	0.105	-1.000	-1.00
CS-303	333883.00	1045573.00	410.20	474.00	6.00	0.085	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
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MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-304	334085.00	1044673.00	658.60	204.00	6.00	0.089	-1.000	-1.00
CS-304	334085.00	1044673.00	652.60	210.00	6.00	0.132	-1.000	-1.00
CS-305	332935.00	1046323.00	577.00	294.00	6.00	0.091	-1.000	-1.00
CS-305	332935.00	1046323.00	571.00	300.00	6.00	0.123	-1.000	-1.00
CS-305	332935.00	1046323.00	565.00	306.00	6.00	0.023	-1.000	-1.00
CS-305	332935.00	1046323.00	559.00	312.00	6.00	0.052	-1.000	-1.00
CS-306	333480.00	1045873.00	584.60	294.00	6.00	0.492	-1.000	-1.00
CS-306	333480.00	1045873.00	578.60	300.00	6.00	0.268	-1.000	-1.00
CS-306	333480.00	1045873.00	572.60	306.00	6.00	0.032	-1.000	-1.00
CS-306	333480.00	1045873.00	566.60	312.00	6.00	0.061	-1.000	-1.00
CS-306	333480.00	1045873.00	560.60	318.00	6.00	0.062	-1.000	-1.00
CS-307	332835.00	1046223.00	703.50	168.00	6.00	0.001	-1.000	-1.00
CS-307	332835.00	1046223.00	697.50	174.00	6.00	0.001	-1.000	-1.00
CS-307	332835.00	1046223.00	691.50	180.00	6.00	0.001	-1.000	-1.00
CS-307	332835.00	1046223.00	685.50	186.00	6.00	0.001	-1.000	-1.00
CS-307	332835.00	1046223.00	679.50	192.00	6.00	0.001	-1.000	-1.00
CS-309	334783.00	1044973.00	528.90	354.00	6.00	0.077	-1.000	-1.00
CS-309	334783.00	1044973.00	522.90	360.00	6.00	0.046	-1.000	-1.00
CS-310	332585.00	1046173.00	766.60	102.00	6.00	0.076	-1.000	-1.00
CS-310	332585.00	1046173.00	760.60	108.00	6.00	0.076	-1.000	-1.00
CS-310	332585.00	1046173.00	754.60	114.00	6.00	0.040	-1.000	-1.00
CS-311	334380.00	1045478.00	471.10	414.00	6.00	0.038	0.060	-1.00
CS-311	334380.00	1045478.00	465.10	420.00	6.00	0.041	0.050	-1.00
CS-311	334380.00	1045478.00	459.10	426.00	6.00	0.048	0.040	-1.00
CS-311	334380.00	1045478.00	453.10	432.00	6.00	0.049	0.040	-1.00
CS-311	334380.00	1045478.00	447.10	438.00	6.00	0.051	0.050	-1.00
CS-311	334380.00	1045478.00	441.10	444.00	6.00	0.044	0.060	-1.00
CS-311	334380.00	1045478.00	435.10	450.00	6.00	0.041	0.070	-1.00
CS-311	334380.00	1045478.00	429.10	456.00	6.00	0.412	0.130	-1.00
CS-311	334380.00	1045478.00	423.10	462.00	6.00	0.300	0.120	-1.00
CS-311	334380.00	1045478.00	417.10	468.00	6.00	0.077	0.090	-1.00
CS-311	334380.00	1045478.00	411.10	474.00	6.00	0.048	0.060	-1.00
CS-311	334380.00	1045478.00	405.10	480.00	6.00	0.034	0.040	-1.00
CS-313	334480.00	1045378.00	505.70	378.00	6.00	0.031	-1.000	-1.00
CS-313	334480.00	1045378.00	409.70	474.00	6.00	0.157	-1.000	-1.00
CS-313	334480.00	1045378.00	403.70	480.00	6.00	0.235	-1.000	-1.00
CS-313	334480.00	1045378.00	397.70	486.00	6.00	0.048	-1.000	-1.00
CS-313	334480.00	1045378.00	391.70	492.00	6.00	0.034	-1.000	-1.00
CS-317	334183.00	1045476.00	590.80	294.00	6.00	0.161	0.030	-1.00
CS-317	334183.00	1045476.00	584.80	300.00	6.00	0.238	-1.000	-1.00
CS-317	334183.00	1045476.00	578.80	306.00	6.00	0.346	-1.000	-1.00
CS-317	334183.00	1045476.00	572.80	312.00	6.00	0.332	-1.000	-1.00
CS-317	334183.00	1045476.00	566.80	318.00	6.00	0.207	-1.000	-1.00
CS-317	334183.00	1045476.00	560.80	324.00	6.00	0.123	-1.000	-1.00
CS-317	334183.00	1045476.00	554.80	330.00	6.00	1.496	-1.000	-1.00
CS-317	334183.00	1045476.00	548.80	336.00	6.00	0.120	-1.000	-1.00
CS-317	334183.00	1045476.00	542.80	342.00	6.00	0.050	-1.000	-1.00
CS-318	334285.00	1045573.00	465.20	420.00	6.00	0.111	0.020	-1.00
CS-318	334285.00	1045573.00	459.20	426.00	6.00	0.256	0.100	-1.00
CS-318	334285.00	1045573.00	453.20	432.00	6.00	0.404	0.050	-1.00
CS-318	334285.00	1045573.00	447.20	438.00	6.00	0.044	0.030	-1.00
CS-320	333773.90	1045462.00	540.30	342.00	6.00	0.037	-1.000	-1.00
CS-320	333773.90	1045462.00	534.30	348.00	6.00	0.079	-1.000	-1.00
CS-320	333773.90	1045462.00	528.30	354.00	6.00	0.089	-1.000	-1.00
CS-320	333773.90	1045462.00	522.30	360.00	6.00	0.052	-1.000	-1.00
CS-320	333773.90	1045462.00	516.30	366.00	6.00	0.043	-1.000	-1.00
CS-320	333773.90	1045462.00	486.30	396.00	6.00	0.030	-1.000	-1.00
CS-321	333883.90	1045382.00	500.10	384.00	6.00	0.222	-1.000	-1.00
CS-321	333883.90	1045382.00	494.10	390.00	6.00	0.237	-1.000	-1.00
CS-321	333883.90	1045382.00	488.10	396.00	6.00	0.038	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-321	333883.90	1045382.00	482.10	402.00	6.00	0.032	-1.000	-1.00
CS-322	334185.81	1045675.00	518.50	366.00	6.00	0.125	-1.000	-1.00
CS-322	334185.81	1045675.00	512.50	372.00	6.00	0.131	-1.000	-1.00
CS-322	334185.81	1045675.00	506.50	378.00	6.00	0.144	-1.000	-1.00
CS-322	334185.81	1045675.00	500.50	384.00	6.00	0.085	-1.000	-1.00
CS-322	334185.81	1045675.00	494.50	390.00	6.00	0.056	-1.000	-1.00
CS-322	334185.81	1045675.00	488.50	396.00	6.00	0.077	-1.000	-1.00
CS-322	334185.81	1045675.00	482.50	402.00	6.00	0.054	-1.000	-1.00
CS-323	334388.90	1045668.00	367.80	516.00	6.00	0.104	-1.000	-1.00
CS-323	334388.90	1045668.00	361.80	522.00	6.00	0.074	-1.000	-1.00
CS-325	333781.31	1045690.00	457.00	426.00	6.00	0.091	-1.000	-1.00
CS-325	333781.31	1045690.00	451.00	432.00	6.00	0.382	-1.000	-1.00
CS-325	333781.31	1045690.00	445.00	438.00	6.00	0.069	-1.000	-1.00
CS-325	333781.31	1045690.00	439.00	444.00	6.00	0.164	-1.000	-1.00
CS-325	333781.31	1045690.00	433.00	450.00	6.00	0.212	-1.000	-1.00
CS-325	333781.31	1045690.00	427.00	456.00	6.00	0.050	-1.000	-1.00
CS-325	333781.31	1045690.00	421.00	462.00	6.00	0.035	-1.000	-1.00
CS-326	333679.59	1045786.00	453.40	426.00	6.00	0.049	-1.000	-1.00
CS-326	333679.59	1045786.00	447.40	432.00	6.00	0.055	-1.000	-1.00
CS-326	333679.59	1045786.00	441.40	438.00	6.00	0.032	-1.000	-1.00
CS-327	333579.18	1045886.00	482.20	396.00	6.00	0.049	-1.000	-1.00
CS-327	333579.18	1045886.00	446.20	432.00	6.00	0.049	-1.000	-1.00
CS-327	333579.18	1045886.00	440.20	438.00	6.00	0.109	-1.000	-1.00
CS-327	333579.18	1045886.00	434.20	444.00	6.00	0.053	-1.000	-1.00
CS-329	334387.18	1045280.00	517.50	366.00	6.00	0.046	-1.000	-1.00
CS-329	334387.18	1045280.00	511.50	372.00	6.00	0.031	-1.000	-1.00
CS-330	334579.18	1045278.00	510.90	372.00	6.00	0.001	-1.000	-1.00
CS-331	334779.68	1045274.00	471.60	414.00	6.00	0.265	-1.000	-1.00
CS-331	334779.68	1045274.00	465.60	420.00	6.00	0.394	-1.000	-1.00
CS-331	334779.68	1045274.00	459.60	426.00	6.00	0.121	-1.000	-1.00
CS-331	334779.68	1045274.00	453.60	432.00	6.00	0.088	-1.000	-1.00
CS-331	334779.68	1045274.00	303.60	582.00	6.00	0.055	-1.000	-1.00
CS-331	334779.68	1045274.00	297.60	588.00	6.00	0.130	-1.000	-1.00
CS-331	334779.68	1045274.00	291.60	594.00	6.00	0.048	-1.000	-1.00
CS-332	334776.81	1045069.00	526.20	354.00	6.00	0.030	-1.000	-1.00
CS-332	334776.81	1045069.00	520.20	360.00	6.00	0.043	-1.000	-1.00
CS-332	334776.81	1045069.00	514.20	366.00	6.00	0.223	-1.000	-1.00
CS-332	334776.81	1045069.00	508.20	372.00	6.00	0.162	-1.000	-1.00
CS-332	334776.81	1045069.00	502.20	378.00	6.00	0.041	-1.000	-1.00
CS-332	334776.81	1045069.00	496.20	384.00	6.00	0.055	-1.000	-1.00
CS-332	334776.81	1045069.00	490.20	390.00	6.00	0.062	-1.000	-1.00
CS-332	334776.81	1045069.00	370.20	510.00	6.00	0.032	-1.000	-1.00
CS-332	334776.81	1045069.00	364.20	516.00	6.00	0.192	-1.000	-1.00
CS-332	334776.81	1045069.00	358.20	522.00	6.00	0.140	-1.000	-1.00
CS-332	334776.81	1045069.00	352.20	528.00	6.00	0.035	-1.000	-1.00
CS-333	334581.09	1045474.00	446.90	438.00	6.00	0.043	-1.000	-1.00
CS-335	334187.68	1045870.00	454.00	426.00	6.00	0.033	-1.000	-1.00
CS-335	334187.68	1045870.00	448.00	432.00	6.00	0.040	-1.000	-1.00
CS-335	334187.68	1045870.00	442.00	438.00	6.00	0.055	-1.000	-1.00
CS-335	334187.68	1045870.00	436.00	444.00	6.00	0.033	-1.000	-1.00
CS-335	334187.68	1045870.00	430.00	450.00	6.00	0.022	-1.000	-1.00
CS-335	334187.68	1045870.00	424.00	456.00	6.00	0.089	-1.000	-1.00
CS-335	334187.68	1045870.00	418.00	462.00	6.00	0.093	-1.000	-1.00
CS-335	334187.68	1045870.00	412.00	468.00	6.00	0.101	-1.000	-1.00
CS-335	334187.68	1045870.00	406.00	474.00	6.00	0.122	-1.000	-1.00
CS-335	334187.68	1045870.00	400.00	480.00	6.00	0.133	-1.000	-1.00
CS-335	334187.68	1045870.00	376.00	504.00	6.00	0.116	-1.000	-1.00
CS-335	334187.68	1045870.00	370.00	510.00	6.00	0.163	-1.000	-1.00
CS-335	334187.68	1045870.00	364.00	516.00	6.00	0.142	-1.000	-1.00
CS-335	334187.68	1045870.00	358.00	522.00	6.00	0.099	-1.000	-1.00

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-335	334187.68	1045870.00	316.00	564.00	6.00	0.056	-1.000	-1.00
CS-335	334187.68	1045870.00	310.00	570.00	6.00	0.083	-1.000	-1.00
CS-335	334187.68	1045870.00	304.00	576.00	6.00	0.031	-1.000	-1.00
CS-335	334187.68	1045870.00	298.00	582.00	6.00	0.028	-1.000	-1.00
CS-335	334187.68	1045870.00	292.00	588.00	6.00	0.025	-1.000	-1.00
CS-335	334187.68	1045870.00	286.00	594.00	6.00	0.098	-1.000	-1.00
CS-335	334187.68	1045870.00	280.00	600.00	6.00	0.115	-1.000	-1.00
CS-335	334187.68	1045870.00	274.00	606.00	6.00	0.070	-1.000	-1.00
CS-336	334187.50	1046075.00	374.30	504.00	6.00	0.031	-1.000	-1.00
CS-336	334187.50	1046075.00	368.30	510.00	6.00	0.046	-1.000	-1.00
CS-336	334187.50	1046075.00	362.30	516.00	6.00	0.263	-1.000	-1.00
CS-336	334187.50	1046075.00	356.30	522.00	6.00	0.090	-1.000	-1.00
CS-336	334187.50	1046075.00	350.30	528.00	6.00	0.156	-1.000	-1.00
CS-336	334187.50	1046075.00	344.30	534.00	6.00	0.147	-1.000	-1.00
CS-336	334187.50	1046075.00	338.30	540.00	6.00	0.085	-1.000	-1.00
CS-336	334187.50	1046075.00	332.30	546.00	6.00	0.042	-1.000	-1.00
CS-336	334187.50	1046075.00	326.30	552.00	6.00	0.116	-1.000	-1.00
CS-336	334187.50	1046075.00	320.30	558.00	6.00	0.160	-1.000	-1.00
CS-336	334187.50	1046075.00	314.30	564.00	6.00	0.034	-1.000	-1.00
CS-336	334187.50	1046075.00	248.30	630.00	6.00	0.032	-1.000	-1.00
CS-336	334187.50	1046075.00	242.30	636.00	6.00	0.034	-1.000	-1.00
CS-337	334481.09	1045576.00	266.40	618.00	6.00	0.033	-1.000	-1.00
CS-337	334481.09	1045576.00	260.40	624.00	6.00	0.036	-1.000	-1.00
CS-337	334481.09	1045576.00	254.40	630.00	6.00	0.038	-1.000	-1.00
CS-338	333976.68	1045684.00	347.00	534.00	6.00	0.030	-1.000	-1.00
CS-338	333976.68	1045684.00	341.00	540.00	6.00	0.038	-1.000	-1.00
CS-338	333976.68	1045684.00	335.00	546.00	6.00	0.032	-1.000	-1.00
CS-338	333976.68	1045684.00	317.00	564.00	6.00	0.146	-1.000	-1.00
CS-338	333976.68	1045684.00	313.50	565.00	1.00	0.214	-1.000	-1.00
CS-339	334878.00	1045174.00	306.80	576.00	6.00	0.066	-1.000	-1.00
CS-339	334878.00	1045174.00	300.80	582.00	6.00	0.046	-1.000	-1.00
CS-340	334289.59	1045968.00	214.80	666.00	6.00	0.293	-1.000	-1.00
CS-340	334289.59	1045968.00	208.80	672.00	6.00	0.872	-1.000	-1.00
CS-340	334289.59	1045968.00	202.80	678.00	6.00	0.079	-1.000	-1.00
CS-340	334289.59	1045968.00	196.80	684.00	6.00	0.046	-1.000	-1.00
CS-340	334289.59	1045968.00	193.30	685.00	1.00	0.029	-1.000	-1.00
CS-342	334093.00	1045959.00	364.30	516.00	6.00	0.042	-1.000	-1.00
CS-344	333964.18	1046094.00	196.40	684.00	6.00	0.103	-1.000	-1.00
CS-344	333964.18	1046094.00	190.40	690.00	6.00	0.144	-1.000	-1.00
CS-345	334777.59	1045486.00	339.00	546.00	6.00	0.043	-1.000	-1.00
CS-345	334777.59	1045486.00	333.00	552.00	6.00	0.031	-1.000	-1.00
CS-348	333989.31	1045868.00	288.80	594.00	6.00	0.179	-1.000	-1.00
CS-348	333989.31	1045868.00	282.80	600.00	6.00	0.223	-1.000	-1.00
CS-348	333989.31	1045868.00	276.80	606.00	6.00	0.103	-1.000	-1.00
CS-348	333989.31	1045868.00	270.80	612.00	6.00	0.072	-1.000	-1.00
CS-349	334082.68	1045781.00	461.60	402.00	6.00	0.042	-1.000	-1.00
CS-349	334082.68	1045781.00	455.60	408.00	6.00	0.123	-1.000	-1.00
CS-349	334082.68	1045781.00	449.60	414.00	6.00	0.043	-1.000	-1.00
CS-349	334082.68	1045781.00	395.60	468.00	6.00	0.072	-1.000	-1.00
CS-349	334082.68	1045781.00	389.60	474.00	6.00	0.181	-1.000	-1.00
CS-349	334082.68	1045781.00	383.60	480.00	6.00	0.236	-1.000	-1.00
CS-349	334082.68	1045781.00	377.60	486.00	6.00	0.122	-1.000	-1.00
CS-349	334082.68	1045781.00	371.60	492.00	6.00	0.086	-1.000	-1.00
CS-350	333176.09	1046559.00	475.80	396.00	6.00	0.135	-1.000	-1.00
CS-350	333176.09	1046559.00	469.80	402.00	6.00	0.182	-1.000	-1.00
CS-350	333176.09	1046559.00	463.80	408.00	6.00	0.277	-1.000	-1.00
CS-350	333176.09	1046559.00	457.80	414.00	6.00	0.102	-1.000	-1.00
CS-350	333176.09	1046559.00	421.80	450.00	6.00	0.043	-1.000	-1.00
CS-350	333176.09	1046559.00	415.80	456.00	6.00	0.186	-1.000	-1.00
CS-350	333176.09	1046559.00	409.80	462.00	6.00	0.134	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-351	333080.00	1046675.00	493.00	378.00	6.00	0.030	-1.000	-1.00
CS-351	333080.00	1046675.00	487.00	384.00	6.00	0.189	-1.000	-1.00
CS-351	333080.00	1046675.00	481.00	390.00	6.00	0.268	-1.000	-1.00
CS-351	333080.00	1046675.00	475.00	396.00	6.00	0.235	-1.000	-1.00
CS-351	333080.00	1046675.00	469.00	402.00	6.00	0.170	-1.000	-1.00
CS-351	333080.00	1046675.00	463.00	408.00	6.00	0.039	-1.000	-1.00
CS-351	333080.00	1046675.00	385.00	486.00	6.00	0.161	-1.000	-1.00
CS-351	333080.00	1046675.00	379.00	492.00	6.00	0.132	-1.000	-1.00
CS-351	333080.00	1046675.00	373.00	498.00	6.00	0.074	-1.000	-1.00
CS-351	333080.00	1046675.00	367.00	504.00	6.00	0.042	-1.000	-1.00
CS-352	333886.18	1045771.00	359.60	504.00	6.00	0.048	-1.000	-1.00
CS-354	333780.00	1045876.00	359.00	504.00	6.00	0.015	-1.000	-1.00
CS-354	333780.00	1045876.00	353.00	510.00	6.00	0.002	-1.000	-1.00
CS-354	333780.00	1045876.00	347.00	516.00	6.00	-1.000	-1.000	-1.00
CS-355	334584.68	1045378.00	589.90	294.00	6.00	0.036	-1.000	-1.00
CS-355	334584.68	1045378.00	583.90	300.00	6.00	0.053	-1.000	-1.00
CS-356	334478.59	1045474.00	470.10	414.00	6.00	0.040	-1.000	-1.00
CS-356	334478.59	1045474.00	464.10	420.00	6.00	0.047	-1.000	-1.00
CS-356	334478.59	1045474.00	398.10	486.00	6.00	0.076	-1.000	-1.00
CS-356	334478.59	1045474.00	392.10	492.00	6.00	0.057	-1.000	-1.00
CS-356	334478.59	1045474.00	386.10	498.00	6.00	0.073	-1.000	-1.00
CS-356	334478.59	1045474.00	380.10	504.00	6.00	0.072	-1.000	-1.00
CS-356	334478.59	1045474.00	374.10	510.00	6.00	0.049	-1.000	-1.00
CS-357	334381.18	1045574.00	386.80	498.00	6.00	0.040	-1.000	-1.00
CS-357	334381.18	1045574.00	380.80	504.00	6.00	0.025	-1.000	-1.00
CS-357	334381.18	1045574.00	374.80	510.00	6.00	0.078	-1.000	-1.00
CS-357	334381.18	1045574.00	368.80	516.00	6.00	0.097	-1.000	-1.00
CS-357	334381.18	1045574.00	362.80	522.00	6.00	0.076	-1.000	-1.00
CS-358	334180.31	1045575.00	560.20	324.00	6.00	0.157	-1.000	-1.00
CS-358	334180.31	1045575.00	554.20	330.00	6.00	0.049	-1.000	-1.00
CS-359	333879.18	1045671.00	401.00	462.00	6.00	0.053	-1.000	-1.00
CS-360	334080.50	1045674.00	459.10	426.00	6.00	0.110	-1.000	-1.00
CS-360	334080.50	1045674.00	453.10	432.00	6.00	0.095	-1.000	-1.00
CS-360	334080.50	1045674.00	447.10	438.00	6.00	0.066	-1.000	-1.00
CS-360	334080.50	1045674.00	441.10	444.00	6.00	0.034	-1.000	-1.00
CS-362	334631.18	1044724.00	641.10	222.00	6.00	0.046	-1.000	-1.00
CS-362	334631.18	1044724.00	635.10	228.00	6.00	0.122	-1.000	-1.00
CS-362	334631.18	1044724.00	629.10	234.00	6.00	0.049	-1.000	-1.00
CS-362	334631.18	1044724.00	581.10	282.00	6.00	0.009	-1.000	-1.00
CS-365	334182.59	1045771.00	480.90	402.00	6.00	0.045	-1.000	-1.00
CS-365	334182.59	1045771.00	474.90	408.00	6.00	0.126	-1.000	-1.00
CS-365	334182.59	1045771.00	468.90	414.00	6.00	0.107	-1.000	-1.00
CS-365	334182.59	1045771.00	462.90	420.00	6.00	0.098	-1.000	-1.00
CS-365	334182.59	1045771.00	456.90	426.00	6.00	0.034	-1.000	-1.00
CS-365	334182.59	1045771.00	450.90	432.00	6.00	0.031	-1.000	-1.00
CS-365	334182.59	1045771.00	354.90	528.00	6.00	0.038	-1.000	-1.00
CS-365	334182.59	1045771.00	348.90	534.00	6.00	0.263	-1.000	-1.00
CS-365	334182.59	1045771.00	342.90	540.00	6.00	0.376	-1.000	-1.00
CS-367	334279.09	1045874.00	390.80	492.00	6.00	0.051	-1.000	-1.00
CS-367	334279.09	1045874.00	384.80	498.00	6.00	0.072	-1.000	-1.00
CS-367	334279.09	1045874.00	378.80	504.00	6.00	0.079	-1.000	-1.00
CS-367	334279.09	1045874.00	372.80	510.00	6.00	0.094	-1.000	-1.00
CS-367	334279.09	1045874.00	366.80	516.00	6.00	0.133	-1.000	-1.00
CS-367	334279.09	1045874.00	360.80	522.00	6.00	0.203	-1.000	-1.00
CS-367	334279.09	1045874.00	354.80	528.00	6.00	0.273	-1.000	-1.00
CS-369	334435.81	1046307.00	75.40	804.00	6.00	0.109	-1.000	-1.00
CS-369	334435.81	1046307.00	69.40	810.00	6.00	0.164	-1.000	-1.00
CS-369	334435.81	1046307.00	63.40	816.00	6.00	0.042	-1.000	-1.00
CS-369	334435.81	1046307.00	57.40	822.00	6.00	0.037	-1.000	-1.00
CS-370	334193.31	1046277.00	284.50	594.00	6.00	0.034	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-370	334193.31	1046277.00	278.50	600.00	6.00	0.050	-1.000	-1.00
CS-370	334193.31	1046277.00	272.50	606.00	6.00	0.044	-1.000	-1.00
CS-370	334193.31	1046277.00	266.50	612.00	6.00	0.032	-1.000	-1.00
CS-370	334193.31	1046277.00	242.50	636.00	6.00	0.304	-1.000	-1.00
CS-370	334193.31	1046277.00	236.50	642.00	6.00	0.487	-1.000	-1.00
CS-370	334193.31	1046277.00	230.50	648.00	6.00	0.852	-1.000	-1.00
CS-370	334193.31	1046277.00	224.50	654.00	6.00	0.480	-1.000	-1.00
CS-370	334193.31	1046277.00	218.50	660.00	6.00	0.294	-1.000	-1.00
CS-370	334193.31	1046277.00	212.50	666.00	6.00	0.054	-1.000	-1.00
CS-370	334193.31	1046277.00	206.50	672.00	6.00	0.045	-1.000	-1.00
CS-372	333291.09	1046670.00	344.30	528.00	6.00	0.066	-1.000	-1.00
CS-372	333291.09	1046670.00	338.30	534.00	6.00	0.055	-1.000	-1.00
CS-372	333291.09	1046670.00	332.30	540.00	6.00	0.050	-1.000	-1.00
CS-373	333190.00	1046780.00	271.00	594.00	6.00	0.069	-1.000	-1.00
CS-373	333190.00	1046780.00	265.00	600.00	6.00	0.098	-1.000	-1.00
CS-374	333182.00	1046875.00	272.47	600.00	6.00	0.037	-1.000	-1.00
CS-374	333182.00	1046875.00	266.47	606.00	6.00	0.019	-1.000	-1.00
CS-374	333182.00	1046875.00	260.47	612.00	6.00	0.038	-1.000	-1.00
CS-374	333182.00	1046875.00	254.47	618.00	6.00	0.076	-1.000	-1.00
CS-374	333182.00	1046875.00	248.47	624.00	6.00	0.045	-1.000	-1.00
CS-375	332988.00	1046882.00	320.50	552.00	6.00	0.018	-1.000	-1.00
CS-375	332988.00	1046882.00	314.50	558.00	6.00	0.052	-1.000	-1.00
CS-375	332988.00	1046882.00	308.50	564.00	6.00	0.018	-1.000	-1.00
CS-376	333080.00	1046977.00	290.00	582.00	6.00	0.034	-1.000	-1.00
CS-376	333080.00	1046977.00	284.00	588.00	6.00	0.059	-1.000	-1.00
CS-376	333080.00	1046977.00	278.00	594.00	6.00	0.059	-1.000	-1.00
CS-377	333981.40	1045775.00	360.20	504.00	6.00	0.043	-1.000	-1.00
CS-377	333981.40	1045775.00	354.20	510.00	6.00	0.064	-1.000	-1.00
CS-377	333981.40	1045775.00	348.20	516.00	6.00	0.028	-1.000	-1.00
CS-377	333981.40	1045775.00	342.20	522.00	6.00	0.032	-1.000	-1.00
CS-377	333981.40	1045775.00	318.20	546.00	6.00	0.140	-1.000	-1.00
CS-377	333981.40	1045775.00	312.20	552.00	6.00	0.122	-1.000	-1.00
CS-377	333981.40	1045775.00	306.20	558.00	6.00	0.124	-1.000	-1.00
CS-378	332990.00	1046680.00	561.00	312.00	6.00	0.120	-1.000	-1.00
CS-378	332990.00	1046680.00	555.00	318.00	6.00	0.336	-1.000	-1.00
CS-378	332990.00	1046680.00	549.00	324.00	6.00	0.183	-1.000	-1.00
CS-378	332990.00	1046680.00	543.00	330.00	6.00	0.106	-1.000	-1.00
CS-379	334185.00	1046472.00	187.00	696.00	6.00	0.032	-1.000	-1.00
CS-379	334185.00	1046472.00	181.00	702.00	6.00	0.047	-1.000	-1.00
CS-379	334185.00	1046472.00	175.00	708.00	6.00	0.078	-1.000	-1.00
CS-384	333478.00	1046275.00	413.50	330.00	6.00	0.084	-1.000	-1.00
CS-384	333478.00	1046275.00	407.50	336.00	6.00	0.306	-1.000	-1.00
CS-384	333478.00	1046275.00	401.50	342.00	6.00	0.795	-1.000	-1.00
CS-384	333478.00	1046275.00	395.50	348.00	6.00	0.040	-1.000	-1.00
CS-385	333478.50	1046174.00	484.90	258.00	6.00	0.036	-1.000	-1.00
CS-385	333478.50	1046174.00	478.90	264.00	6.00	0.086	-1.000	-1.00
CS-388	333129.09	1046522.00	557.90	186.00	6.00	0.253	-1.000	-1.00
CS-388	333129.09	1046522.00	551.90	192.00	6.00	0.208	-1.000	-1.00
CS-388	333129.09	1046522.00	545.90	198.00	6.00	0.040	-1.000	-1.00
CS-388	333129.09	1046522.00	455.90	288.00	6.00	0.056	-1.000	-1.00
CS-388	333129.09	1046522.00	449.90	294.00	6.00	0.229	-1.000	-1.00
CS-388	333129.09	1046522.00	443.90	300.00	6.00	0.070	-1.000	-1.00
CS-388	333129.09	1046522.00	437.90	306.00	6.00	0.046	-1.000	-1.00
CS-388	333129.09	1046522.00	431.90	312.00	6.00	0.038	-1.000	-1.00
CS-389	333297.68	1046492.00	478.40	264.00	6.00	0.033	-1.000	-1.00
CS-389	333297.68	1046492.00	472.40	270.00	6.00	0.052	-1.000	-1.00
CS-389	333297.68	1046492.00	466.40	276.00	6.00	0.013	-1.000	-1.00
CS-389	333297.68	1046492.00	460.40	282.00	6.00	0.111	-1.000	-1.00
CS-389	333297.68	1046492.00	454.40	288.00	6.00	0.160	-1.000	-1.00
CS-389	333297.68	1046492.00	448.40	294.00	6.00	0.055	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-389	333297.68	1046492.00	442.40	300.00	6.00	0.290	-1.000	-1.00
CS-389	333297.68	1046492.00	436.40	306.00	6.00	0.072	-1.000	-1.00
CS-389	333297.68	1046492.00	430.40	312.00	6.00	0.221	-1.000	-1.00
CS-389	333297.68	1046492.00	424.40	318.00	6.00	0.280	-1.000	-1.00
CS-389	333297.68	1046492.00	418.40	324.00	6.00	0.085	-1.000	-1.00
CS-389	333297.68	1046492.00	412.40	330.00	6.00	0.029	-1.000	-1.00
CS-389	333297.68	1046492.00	406.40	336.00	6.00	0.132	-1.000	-1.00
CS-389	333297.68	1046492.00	400.40	342.00	6.00	0.036	-1.000	-1.00
CS-389	333297.68	1046492.00	394.40	348.00	6.00	0.046	-1.000	-1.00
CS-389	333297.68	1046492.00	388.40	354.00	6.00	0.031	-1.000	-1.00
CS-394	333556.68	1046188.00	407.00	336.00	6.00	0.033	-1.000	-1.00
CS-394	333556.68	1046188.00	401.00	342.00	6.00	0.127	-1.000	-1.00
CS-394	333556.68	1046188.00	371.00	372.00	6.00	0.119	-1.000	-1.00
CS-394	333556.68	1046188.00	365.00	378.00	6.00	0.057	-1.000	-1.00
CS-395	332626.00	1046223.00	718.80	24.00	6.00	0.032	-1.000	-1.00
CS-395	332626.00	1046223.00	712.80	30.00	6.00	0.039	-1.000	-1.00
CS-396	332726.00	1046324.00	647.20	96.00	6.00	0.031	-1.000	-1.00
CS-396	332726.00	1046324.00	641.20	102.00	6.00	0.046	-1.000	-1.00
CS-397	332622.68	1046314.00	695.40	48.00	6.00	0.035	-1.000	-1.00
CS-400	333129.50	1046424.00	485.50	258.00	6.00	0.137	-1.000	-1.00
CS-400	333129.50	1046424.00	479.50	264.00	6.00	0.096	-1.000	-1.00
CS-406	333527.50	1046026.00	545.60	198.00	6.00	0.081	-1.000	-1.00
CS-406	333527.50	1046026.00	539.60	204.00	6.00	0.031	-1.000	-1.00
CS-406	333527.50	1046026.00	521.60	222.00	6.00	0.080	-1.000	-1.00
CS-406	333527.50	1046026.00	515.60	228.00	6.00	0.035	-1.000	-1.00
CS-406	333527.50	1046026.00	509.60	234.00	6.00	0.218	-1.000	-1.00
CS-406	333527.50	1046026.00	503.60	240.00	6.00	0.082	-1.000	-1.00
CS-407	333329.50	1046423.00	494.80	246.00	6.00	0.036	-1.000	-1.00
CS-407	333329.50	1046423.00	488.80	252.00	6.00	0.274	-1.000	-1.00
CS-407	333329.50	1046423.00	482.80	258.00	6.00	0.243	-1.000	-1.00
CS-407	333329.50	1046423.00	476.80	264.00	6.00	0.032	-1.000	-1.00
CS-407	333329.50	1046423.00	470.80	270.00	6.00	0.071	-1.000	-1.00
CS-407	333329.50	1046423.00	464.80	276.00	6.00	0.501	-1.000	-1.00
CS-407	333329.50	1046423.00	458.80	282.00	6.00	0.097	-1.000	-1.00
CS-407	333329.50	1046423.00	452.80	288.00	6.00	0.075	-1.000	-1.00
CS-407	333329.50	1046423.00	446.80	294.00	6.00	0.062	-1.000	-1.00
CS-407	333329.50	1046423.00	440.80	300.00	6.00	0.130	-1.000	-1.00
CS-407	333329.50	1046423.00	434.80	306.00	6.00	0.142	-1.000	-1.00
CS-407	333329.50	1046423.00	428.80	312.00	6.00	0.510	-1.000	-1.00
CS-407	333329.50	1046423.00	422.80	318.00	6.00	0.703	-1.000	-1.00
CS-407	333329.50	1046423.00	416.80	324.00	6.00	0.185	-1.000	-1.00
CS-407	333329.50	1046423.00	410.80	330.00	6.00	0.095	-1.000	-1.00
CS-407	333329.50	1046423.00	404.80	336.00	6.00	0.034	-1.000	-1.00
CS-408	333179.18	1046473.00	425.00	318.00	6.00	0.056	-1.000	-1.00
CS-408	333179.18	1046473.00	419.00	324.00	6.00	0.037	-1.000	-1.00
CS-410	333232.00	1046525.00	454.50	288.00	6.00	0.122	-1.000	-1.00
CS-410	333232.00	1046525.00	448.50	294.00	6.00	0.227	-1.000	-1.00
CS-410	333232.00	1046525.00	442.50	300.00	6.00	0.257	-1.000	-1.00
CS-410	333232.00	1046525.00	334.50	408.00	6.00	0.257	-1.000	-1.00
CS-410	333232.00	1046525.00	328.50	414.00	6.00	0.223	-1.000	-1.00
CS-411	333028.00	1046523.00	635.80	108.00	6.00	0.094	-1.000	-1.00
CS-411	333028.00	1046523.00	629.80	114.00	6.00	0.075	-1.000	-1.00
CS-412	333572.81	1045977.00	502.20	240.00	6.00	0.030	-1.000	-1.00
CS-413	333526.59	1046124.00	497.60	246.00	6.00	0.089	-1.000	-1.00
CS-413	333526.59	1046124.00	473.60	270.00	6.00	0.177	-1.000	-1.00
CS-413	333526.59	1046124.00	467.60	276.00	6.00	0.047	-1.000	-1.00
CS-414	333554.68	1046252.00	390.30	354.00	6.00	0.073	-1.000	-1.00
CS-414	333554.68	1046252.00	366.30	378.00	6.00	0.040	-1.000	-1.00
CS-414	333554.68	1046252.00	360.30	384.00	6.00	0.187	-1.000	-1.00
CS-414	333554.68	1046252.00	354.30	390.00	6.00	0.324	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-414	333554.68	1046252.00	348.30	396.00	6.00	0.355	-1.000	-1.00
CS-414	333554.68	1046252.00	342.30	402.00	6.00	0.091	-1.000	-1.00
CS-415	333416.81	1046413.00	431.10	312.00	6.00	0.044	-1.000	-1.00
CS-415	333416.81	1046413.00	425.10	318.00	6.00	0.092	-1.000	-1.00
CS-415	333416.81	1046413.00	419.10	324.00	6.00	0.103	-1.000	-1.00
CS-415	333416.81	1046413.00	413.10	330.00	6.00	0.293	-1.000	-1.00
CS-415	333416.81	1046413.00	407.10	336.00	6.00	0.118	-1.000	-1.00
CS-415	333416.81	1046413.00	401.10	342.00	6.00	0.220	-1.000	-1.00
CS-415	333416.81	1046413.00	395.10	348.00	6.00	0.308	-1.000	-1.00
CS-415	333416.81	1046413.00	389.10	354.00	6.00	0.199	-1.000	-1.00
CS-415	333416.81	1046413.00	383.10	360.00	6.00	0.594	-1.000	-1.00
CS-415	333416.81	1046413.00	377.10	366.00	6.00	0.113	-1.000	-1.00
CS-415	333416.81	1046413.00	371.10	372.00	6.00	0.054	-1.000	-1.00
CS-416	333462.90	1046361.00	426.00	318.00	6.00	0.050	-1.000	-1.00
CS-416	333462.90	1046361.00	420.00	324.00	6.00	0.041	-1.000	-1.00
CS-416	333462.90	1046361.00	414.00	330.00	6.00	0.056	-1.000	-1.00
CS-416	333462.90	1046361.00	408.00	336.00	6.00	0.027	-1.000	-1.00
CS-416	333462.90	1046361.00	402.00	342.00	6.00	0.058	-1.000	-1.00
CS-416	333462.90	1046361.00	396.00	348.00	6.00	0.270	-1.000	-1.00
CS-416	333462.90	1046361.00	390.00	354.00	6.00	0.472	-1.000	-1.00
CS-416	333462.90	1046361.00	384.00	360.00	6.00	0.516	-1.000	-1.00
CS-416	333462.90	1046361.00	378.00	366.00	6.00	0.050	-1.000	-1.00
CS-417	333512.00	1046303.00	395.30	348.00	6.00	0.081	-1.000	-1.00
CS-417	333512.00	1046303.00	389.30	354.00	6.00	0.192	-1.000	-1.00
CS-417	333512.00	1046303.00	383.30	360.00	6.00	0.118	-1.000	-1.00
CS-417	333512.00	1046303.00	377.30	366.00	6.00	0.015	-1.000	-1.00
CS-417	333512.00	1046303.00	371.30	372.00	6.00	0.031	-1.000	-1.00
CS-417	333512.00	1046303.00	365.30	378.00	6.00	0.115	-1.000	-1.00
CS-417	333512.00	1046303.00	359.30	384.00	6.00	0.491	-1.000	-1.00
CS-417	333512.00	1046303.00	353.30	390.00	6.00	0.415	-1.000	-1.00
CS-418	333097.81	1046557.00	544.60	198.00	6.00	0.187	-1.000	-1.00
CS-418	333097.81	1046557.00	538.60	204.00	6.00	0.424	-1.000	-1.00
CS-418	333097.81	1046557.00	532.60	210.00	6.00	0.082	-1.000	-1.00
CS-418	333097.81	1046557.00	484.60	258.00	6.00	0.027	-1.000	-1.00
CS-418	333097.81	1046557.00	478.60	264.00	6.00	0.039	-1.000	-1.00
CS-418	333097.81	1046557.00	472.60	270.00	6.00	0.094	-1.000	-1.00
CS-420	332938.81	1046506.00	679.50	66.00	6.00	0.098	-1.000	-1.00
CS-422	333361.40	1046452.00	448.10	294.00	6.00	0.126	-1.000	-1.00
CS-422	333361.40	1046452.00	442.10	300.00	6.00	0.056	-1.000	-1.00
CS-422	333361.40	1046452.00	436.10	306.00	6.00	0.010	-1.000	-1.00
CS-422	333361.40	1046452.00	430.10	312.00	6.00	0.021	-1.000	-1.00
CS-422	333361.40	1046452.00	424.10	318.00	6.00	0.431	-1.000	-1.00
CS-422	333361.40	1046452.00	418.10	324.00	6.00	0.737	-1.000	-1.00
CS-422	333361.40	1046452.00	412.10	330.00	6.00	0.258	-1.000	-1.00
CS-422	333361.40	1046452.00	406.10	336.00	6.00	0.151	-1.000	-1.00
CS-422	333361.40	1046452.00	400.10	342.00	6.00	0.141	-1.000	-1.00
CS-422	333361.40	1046452.00	394.10	348.00	6.00	0.274	-1.000	-1.00
CS-422	333361.40	1046452.00	388.10	354.00	6.00	0.209	-1.000	-1.00
CS-422	333361.40	1046452.00	382.10	360.00	6.00	0.049	-1.000	-1.00
CS-422	333361.40	1046452.00	376.10	366.00	6.00	0.030	-1.000	-1.00
CS-423	333517.18	1046213.00	436.10	306.00	6.00	0.031	-1.000	-1.00
CS-423	333517.18	1046213.00	424.10	318.00	6.00	0.120	-1.000	-1.00
CS-423	333517.18	1046213.00	418.10	324.00	6.00	0.143	-1.000	-1.00
CS-423	333517.18	1046213.00	412.10	330.00	6.00	0.040	-1.000	-1.00
CS-423	333517.18	1046213.00	406.10	336.00	6.00	0.171	-1.000	-1.00
CS-424	333591.40	1046487.00	281.90	594.00	6.00	0.048	-1.000	-1.00
CS-424	333591.40	1046487.00	275.90	600.00	6.00	0.056	-1.000	-1.00
CS-424	333591.40	1046487.00	269.90	606.00	6.00	0.019	-1.000	-1.00
CS-424	333591.40	1046487.00	263.90	612.00	6.00	0.091	-1.000	-1.00
CS-424	333591.40	1046487.00	257.90	618.00	6.00	0.082	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-425	333435.59	1046624.00	357.40	516.00	6.00	0.078	-1.000	-1.00
CS-425	333435.59	1046624.00	351.40	522.00	6.00	0.095	-1.000	-1.00
CS-425	333435.59	1046624.00	345.40	528.00	6.00	0.080	-1.000	-1.00
CS-425	333435.59	1046624.00	339.40	534.00	6.00	0.049	-1.000	-1.00
CS-425	333435.59	1046624.00	333.40	540.00	6.00	0.144	-1.000	-1.00
CS-425	333435.59	1046624.00	327.40	546.00	6.00	0.094	-1.000	-1.00
CS-425	333435.59	1046624.00	267.40	606.00	6.00	0.122	-1.000	-1.00
CS-425	333435.59	1046624.00	261.40	612.00	6.00	0.203	-1.000	-1.00
CS-425	333435.59	1046624.00	255.40	618.00	6.00	0.079	-1.000	-1.00
CS-425	333435.59	1046624.00	249.40	624.00	6.00	0.013	-1.000	-1.00
CS-425	333435.59	1046624.00	243.40	630.00	6.00	0.055	-1.000	-1.00
CS-426	333628.00	1045925.00	469.50	294.00	6.00	0.070	-1.000	-1.00
CS-426	333628.00	1045925.00	463.50	300.00	6.00	0.052	-1.000	-1.00
CS-427	333688.18	1045686.00	485.20	276.00	6.00	0.046	-1.000	-1.00
CS-427	333688.18	1045686.00	479.20	282.00	6.00	0.033	-1.000	-1.00
CS-427	333688.18	1045686.00	455.20	306.00	6.00	0.926	-1.000	-1.00
CS-428	333728.09	1045626.00	506.20	252.00	6.00	0.081	-1.000	-1.00
CS-428	333728.09	1045626.00	500.20	258.00	6.00	0.069	-1.000	-1.00
CS-428	333728.09	1045626.00	494.20	264.00	6.00	0.051	-1.000	-1.00
CS-428	333728.09	1045626.00	488.20	270.00	6.00	0.070	-1.000	-1.00
CS-428	333728.09	1045626.00	482.20	276.00	6.00	0.137	-1.000	-1.00
CS-428	333728.09	1045626.00	476.20	282.00	6.00	0.117	-1.000	-1.00
CS-428	333728.09	1045626.00	470.20	288.00	6.00	0.112	-1.000	-1.00
CS-428	333728.09	1045626.00	464.20	294.00	6.00	0.031	-1.000	-1.00
CS-429	333541.81	1046535.00	247.10	630.00	6.00	0.030	-1.000	-1.00
CS-429	333541.81	1046535.00	241.10	636.00	6.00	0.108	-1.000	-1.00
CS-429	333541.81	1046535.00	235.10	642.00	6.00	0.345	-1.000	-1.00
CS-429	333541.81	1046535.00	229.10	648.00	6.00	0.191	-1.000	-1.00
CS-430	333728.90	1046224.00	273.00	612.00	6.00	0.034	-1.000	-1.00
CS-430	333728.90	1046224.00	249.00	636.00	6.00	0.032	-1.000	-1.00
CS-430	333728.90	1046224.00	243.00	642.00	6.00	0.008	-1.000	-1.00
CS-430	333728.90	1046224.00	237.00	648.00	6.00	0.024	-1.000	-1.00
CS-430	333728.90	1046224.00	231.00	654.00	6.00	0.030	-1.000	-1.00
CS-431	333703.18	1045893.00	421.40	384.00	6.00	0.081	-1.000	-1.00
CS-431	333703.18	1045893.00	415.40	390.00	6.00	0.031	-1.000	-1.00
CS-431	333703.18	1045893.00	409.40	396.00	6.00	0.034	-1.000	-1.00
CS-431	333703.18	1045893.00	403.40	402.00	6.00	0.069	-1.000	-1.00
CS-432	333828.68	1045727.00	407.40	396.00	6.00	0.155	-1.000	-1.00
CS-432	333828.68	1045727.00	401.40	402.00	6.00	0.105	-1.000	-1.00
CS-432	333828.68	1045727.00	395.40	408.00	6.00	0.034	-1.000	-1.00
CS-433	333777.09	1045775.00	430.70	372.00	6.00	0.050	-1.000	-1.00
CS-433	333777.09	1045775.00	424.70	378.00	6.00	0.054	-1.000	-1.00
CS-433	333777.09	1045775.00	418.70	384.00	6.00	0.046	-1.000	-1.00
CS-436	333846.90	1045638.00	442.70	360.00	6.00	0.326	-1.000	-1.00
CS-436	333846.90	1045638.00	436.70	366.00	6.00	0.214	-1.000	-1.00
CS-436	333846.90	1045638.00	430.70	372.00	6.00	0.041	-1.000	-1.00
CS-436	333846.90	1045638.00	424.70	378.00	6.00	0.022	-1.000	-1.00
CS-436	333846.90	1045638.00	418.70	384.00	6.00	0.036	-1.000	-1.00
CS-437	333738.00	1045739.00	443.50	360.00	6.00	0.058	-1.000	-1.00
CS-437	333738.00	1045739.00	431.50	372.00	6.00	0.063	-1.000	-1.00
CS-437	333738.00	1045739.00	425.50	378.00	6.00	0.072	-1.000	-1.00
CS-438	333981.31	1045580.00	419.20	384.00	6.00	0.429	-1.000	-1.00
CS-438	333981.31	1045580.00	413.20	390.00	6.00	0.674	-1.000	-1.00
CS-438	333981.31	1045580.00	377.20	426.00	6.00	0.073	-1.000	-1.00
CS-438	333981.31	1045580.00	371.20	432.00	6.00	0.171	-1.000	-1.00
CS-438	333981.31	1045580.00	365.20	438.00	6.00	0.064	-1.000	-1.00
CS-438	333981.31	1045580.00	359.20	444.00	6.00	0.008	-1.000	-1.00
CS-438	333981.31	1045580.00	353.20	450.00	6.00	0.036	-1.000	-1.00
CS-439	333822.18	1045817.00	335.80	468.00	6.00	0.048	-1.000	-1.00
CS-440	333930.59	1045826.00	318.40	486.00	6.00	0.190	-1.000	-1.00

COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-441	333927.68	1045725.00	359.00	444.00	6.00	0.006	-1.000	-1.00
CS-441	333927.68	1045725.00	353.00	450.00	6.00	0.014	-1.000	-1.00
CS-442	333932.18	1045626.00	413.90	390.00	6.00	0.142	-1.000	-1.00
CS-442	333932.18	1045626.00	407.90	396.00	6.00	1.092	-1.000	-1.00
CS-442	333932.18	1045626.00	365.90	438.00	6.00	0.148	-1.000	-1.00
CS-442	333932.18	1045626.00	359.90	444.00	6.00	0.140	-1.000	-1.00
CS-443	333934.68	1045527.00	467.50	336.00	6.00	0.174	-1.000	-1.00
CS-443	333934.68	1045527.00	461.50	342.00	6.00	0.667	-1.000	-1.00
CS-443	333934.68	1045527.00	455.50	348.00	6.00	0.102	-1.000	-1.00
CS-443	333934.68	1045527.00	407.50	396.00	6.00	0.125	-1.000	-1.00
CS-443	333934.68	1045527.00	401.50	402.00	6.00	0.071	-1.000	-1.00
CS-443	333934.68	1045527.00	395.50	408.00	6.00	0.049	-1.000	-1.00
CS-445	333489.00	1046580.00	351.70	522.00	6.00	0.087	-1.000	-1.00
CS-445	333489.00	1046580.00	309.70	564.00	6.00	0.030	-1.000	-1.00
CS-445	333489.00	1046580.00	303.70	570.00	6.00	0.039	-1.000	-1.00
CS-445	333489.00	1046580.00	297.70	576.00	6.00	0.056	-1.000	-1.00
CS-445	333489.00	1046580.00	291.70	582.00	6.00	0.097	-1.000	-1.00
CS-445	333489.00	1046580.00	285.70	588.00	6.00	0.191	-1.000	-1.00
CS-445	333489.00	1046580.00	279.70	594.00	6.00	0.205	-1.000	-1.00
CS-445	333489.00	1046580.00	273.70	600.00	6.00	0.139	-1.000	-1.00
CS-446	333380.18	1046674.00	278.40	594.00	6.00	0.133	-1.000	-1.00
CS-446	333380.18	1046674.00	272.40	600.00	6.00	0.080	-1.000	-1.00
CS-446	333380.18	1046674.00	266.40	606.00	6.00	0.118	-1.000	-1.00
CS-446	333380.18	1046674.00	260.40	612.00	6.00	0.251	-1.000	-1.00
CS-446	333380.18	1046674.00	254.40	618.00	6.00	0.079	-1.000	-1.00
CS-447	333302.90	1046708.00	651.60	222.00	6.00	0.058	-1.000	-1.00
CS-447	333302.90	1046708.00	321.60	552.00	6.00	0.096	-1.000	-1.00
CS-447	333302.90	1046708.00	315.60	558.00	6.00	0.130	-1.000	-1.00
CS-448	333231.18	1046734.00	328.60	546.00	6.00	0.077	-1.000	-1.00
CS-448	333231.18	1046734.00	322.60	552.00	6.00	0.055	-1.000	-1.00
CS-448	333231.18	1046734.00	316.60	558.00	6.00	0.038	-1.000	-1.00
CS-448	333231.18	1046734.00	310.60	564.00	6.00	0.039	-1.000	-1.00
CS-449	333360.28	1046563.62	372.41	510.00	6.00	0.062	-1.000	-1.00
CS-449	333359.46	1046562.81	366.53	516.00	6.00	0.151	-1.000	-1.00
CS-449	333358.65	1046562.00	360.64	522.00	6.00	0.042	-1.000	-1.00
CS-449	333357.84	1046561.18	354.75	528.00	6.00	0.048	-1.000	-1.00
CS-449	333357.03	1046560.37	348.86	534.00	6.00	0.129	-1.000	-1.00
CS-449	333356.21	1046559.56	342.97	540.00	6.00	0.062	-1.000	-1.00
CS-450	333641.31	1046436.00	233.20	642.00	6.00	0.076	-1.000	-1.00
CS-450	333641.31	1046436.00	227.20	648.00	6.00	0.116	-1.000	-1.00
CS-451	333476.34	1046480.43	401.55	480.00	6.00	0.070	-1.000	-1.00
CS-451	333475.59	1046479.68	395.64	486.00	6.00	0.320	-1.000	-1.00
CS-451	333474.87	1046478.93	389.73	492.00	6.00	0.207	-1.000	-1.00
CS-451	333474.12	1046478.25	383.82	498.00	6.00	0.174	-1.000	-1.00
CS-451	333473.37	1046477.50	377.91	504.00	6.00	0.092	-1.000	-1.00
CS-451	333470.43	1046474.56	354.28	528.00	6.00	0.142	-1.000	-1.00
CS-451	333469.71	1046473.81	348.37	534.00	6.00	0.109	-1.000	-1.00
CS-451	333468.96	1046473.06	342.46	540.00	6.00	0.052	-1.000	-1.00
CS-451	333468.21	1046472.31	336.55	546.00	6.00	0.164	-1.000	-1.00
CS-451	333467.50	1046471.56	330.64	552.00	6.00	0.075	-1.000	-1.00
CS-451	333466.75	1046470.87	324.73	558.00	6.00	0.074	-1.000	-1.00
CS-451	333466.03	1046470.12	318.82	564.00	6.00	0.043	-1.000	-1.00
CS-451	333465.28	1046469.37	312.91	570.00	6.00	0.307	-1.000	-1.00
CS-451	333464.56	1046468.62	307.01	576.00	6.00	0.135	-1.000	-1.00
CS-453	333572.21	1046369.62	305.88	576.00	6.00	0.087	-1.000	-1.00
CS-453	333571.62	1046369.00	299.93	582.00	6.00	0.364	-1.000	-1.00
CS-453	333571.03	1046368.43	293.99	588.00	6.00	0.278	-1.000	-1.00
CS-453	333570.43	1046367.81	288.05	594.00	6.00	0.084	-1.000	-1.00
CS-454	333664.03	1046164.62	318.35	576.00	6.00	0.053	-1.000	-1.00
CS-454	333660.71	1046161.31	288.72	606.00	6.00	0.034	-1.000	-1.00

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CS-454	333660.03	1046160.62	282.80	612.00	6.00	0.034	-1.000	-1.00
CS-455	333664.93	1046062.75	385.40	510.00	6.00	0.053	-1.000	-1.00
CS-455	333664.18	1046062.00	379.49	516.00	6.00	0.037	-1.000	-1.00
CS-455	333663.46	1046061.25	373.58	522.00	6.00	0.139	-1.000	-1.00
CS-469	334578.15	1044676.18	613.99	48.00	6.00	0.034	-1.000	0.01
CS-470	334578.43	1044775.00	656.96	6.00	6.00	0.069	-1.000	0.01
CS-470	334578.43	1044775.00	650.96	12.00	6.00	0.114	-1.000	0.01
CS-470	334578.43	1044775.00	644.96	18.00	6.00	0.101	-1.000	0.01
CS-470	334578.43	1044775.00	638.96	24.00	6.00	0.050	-1.000	0.01
CS-471	334479.53	1044777.25	542.66	120.00	6.00	0.114	-1.000	0.01
CS-471	334479.53	1044777.25	536.66	126.00	6.00	0.004	-1.000	0.00
CS-471	334479.53	1044777.25	530.66	132.00	6.00	0.011	-1.000	0.00
CS-471	334479.53	1044777.25	524.66	138.00	6.00	0.241	-1.000	0.00
CS-471	334479.53	1044777.25	518.66	144.00	6.00	0.205	-1.000	0.00
CS-482	332775.56	1046874.81	493.15	384.00	6.00	0.051	-1.000	-1.00
CS-482	332775.56	1046874.81	487.15	390.00	6.00	0.248	-1.000	-1.00
CS-485	333017.62	1046735.06	530.09	36.00	6.00	0.045	0.050	-1.00
CS-485	333015.84	1046736.81	524.65	42.00	6.00	0.038	0.050	-1.00
CS-485	333014.06	1046738.62	519.22	48.00	6.00	0.108	0.030	-1.00
CS-485	333012.25	1046740.43	513.78	54.00	6.00	0.160	0.000	-1.00
CS-485	333010.46	1046742.25	508.34	60.00	6.00	0.132	0.000	-1.00
CS-485	333008.68	1046744.00	502.90	66.00	6.00	0.745	0.030	-1.00
CS-485	333006.87	1046745.81	497.46	72.00	6.00	0.253	0.010	-1.00
CS-494	332945.37	1046810.62	477.90	426.00	6.00	0.038	-1.000	-1.00
CS-496	332845.28	1046709.12	577.84	330.00	6.00	0.077	-1.000	-1.00
CS-496	332847.21	1046707.25	572.49	336.00	6.00	0.026	-1.000	-1.00
CS-496	332849.12	1046705.31	567.15	342.00	6.00	0.061	-1.000	-1.00
CS-62	333080.00	1046782.00	350.76	516.00	6.00	0.252	0.050	0.02
CS-62	333080.00	1046782.00	344.76	522.00	6.00	0.185	0.050	0.02
CS-62	333080.00	1046782.00	338.76	528.00	6.00	0.052	-1.000	-1.00
CS-64	332881.00	1046783.00	511.57	354.00	6.00	0.080	0.050	0.00
CS-64	332881.00	1046783.00	505.57	360.00	6.00	0.120	0.050	0.00
CS-64	332881.00	1046783.00	499.57	366.00	6.00	0.112	0.050	0.02
CS-64	332881.00	1046783.00	493.57	372.00	6.00	0.076	0.050	0.02
CS-72	332685.00	1046785.00	420.66	444.00	6.00	0.142	0.050	0.61
CS-72	332685.00	1046785.00	414.66	450.00	6.00	0.212	0.050	0.61
CS-72	332685.00	1046785.00	408.66	456.00	6.00	0.122	0.050	0.22
CS-72	332685.00	1046785.00	402.66	462.00	6.00	0.082	0.050	0.17
CS-73	332881.00	1046981.00	318.00	552.00	6.00	0.040	0.050	0.71
CS-73	332881.00	1046981.00	312.00	558.00	6.00	0.088	0.050	0.52
CS-73	332881.00	1046981.00	306.00	564.00	6.00	0.045	0.050	0.38
CS-74	332678.00	1047384.00	384.00	486.00	6.00	0.120	0.050	0.25
CS-74	332678.00	1047384.00	378.00	492.00	6.00	0.275	0.050	0.28
CS-74	332678.00	1047384.00	372.00	498.00	6.00	0.584	0.050	0.33
CS-74	332678.00	1047384.00	366.00	504.00	6.00	0.263	0.050	0.34
CS-74	332678.00	1047384.00	360.00	510.00	6.00	0.103	0.050	0.35
CS-74	332678.00	1047384.00	354.00	516.00	6.00	0.202	0.050	0.24
CS-74	332678.00	1047384.00	348.00	522.00	6.00	0.143	0.050	0.24
CSD-11	334651.81	1044978.00	645.60	234.00	6.00	0.048	-1.000	-1.00
CSD-11	334651.81	1044978.00	639.60	240.00	6.00	0.071	-1.000	-1.00
CSD-11	334651.81	1044978.00	555.60	324.00	6.00	0.038	-1.000	-1.00
CSD-11	334651.81	1044978.00	549.60	330.00	6.00	0.057	-1.000	-1.00
CSD-11	334651.81	1044978.00	543.60	336.00	6.00	0.172	-1.000	-1.00
CSD-11	334651.81	1044978.00	537.60	342.00	6.00	0.042	-1.000	-1.00
CSD-11	334651.81	1044978.00	531.60	348.00	6.00	0.022	-1.000	-1.00
CSD-11	334651.81	1044978.00	525.60	354.00	6.00	0.116	-1.000	-1.00
CSD-11	334651.81	1044978.00	519.60	360.00	6.00	0.231	-1.000	-1.00
CSD-11	334651.81	1044978.00	513.60	366.00	6.00	0.331	-1.000	-1.00
CSD-11	334651.81	1044978.00	507.60	372.00	6.00	0.055	-1.000	-1.00
CSD-12	334178.21	1044119.06	603.21	324.00	6.00	0.067	0.040	0.02

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CSD-12	334175.84	1044116.87	598.15	330.00	6.00	0.096	0.040	0.01
CSD-16	333675.31	1044572.00	722.30	174.00	6.00	0.035	-1.000	-1.00
CSD-16	333675.31	1044572.00	716.30	180.00	6.00	0.046	-1.000	-1.00
CSD-16	333675.31	1044572.00	692.30	204.00	6.00	0.035	-1.000	-1.00
CSD-16	333675.31	1044572.00	686.30	210.00	6.00	0.050	-1.000	-1.00
CSD-18	333881.18	1044388.00	800.80	84.00	6.00	0.030	-1.000	-1.00
CSD-18	333881.18	1044388.00	794.80	90.00	6.00	0.041	-1.000	-1.00
CSD-18	333881.18	1044388.00	764.80	120.00	6.00	0.034	-1.000	-1.00
CSD-18	333881.18	1044388.00	710.80	174.00	6.00	0.176	-1.000	-1.00
CSD-18	333881.18	1044388.00	704.80	180.00	6.00	0.257	-1.000	-1.00
CSD-19	334078.31	1044171.00	750.90	132.00	6.00	0.050	-1.000	-1.00
CSD-19	334078.31	1044171.00	744.90	138.00	6.00	0.111	-1.000	-1.00
CSD-19	334078.31	1044171.00	738.90	144.00	6.00	0.251	-1.000	-1.00
CSD-19	334078.31	1044171.00	732.90	150.00	6.00	0.321	-1.000	-1.00
CSD-19	334078.31	1044171.00	726.90	156.00	6.00	0.105	-1.000	-1.00
CSD-19	334078.31	1044171.00	720.90	162.00	6.00	0.086	-1.000	-1.00
CSD-19	334078.31	1044171.00	714.90	168.00	6.00	0.047	-1.000	-1.00
CSD-21	333877.90	1044975.00	586.60	300.00	6.00	0.042	-1.000	-1.00
CSD-21	333877.90	1044975.00	580.60	306.00	6.00	0.034	-1.000	-1.00
CSD-21	333877.90	1044975.00	574.60	312.00	6.00	0.056	-1.000	-1.00
CSD-21	333877.90	1044975.00	568.60	318.00	6.00	0.051	-1.000	-1.00
CSD-21	333877.90	1044975.00	562.60	324.00	6.00	0.035	-1.000	-1.00
CSD-27	332878.59	1045972.00	748.00	126.00	6.00	0.037	-1.000	-1.00
CSD-30	333096.68	1046384.00	519.70	354.00	6.00	0.059	-1.000	-1.00
CSD-30	333096.68	1046384.00	513.70	360.00	6.00	0.024	-1.000	-1.00
CSD-30	333096.68	1046384.00	507.70	366.00	6.00	0.021	-1.000	-1.00
CSD-30	333096.68	1046384.00	501.70	372.00	6.00	0.082	-1.000	-1.00
CSD-30	333096.68	1046384.00	495.70	378.00	6.00	0.070	-1.000	-1.00
CSD-38	333787.31	1045273.00	601.00	288.00	6.00	0.047	-1.000	-1.00
CSD-38	333787.31	1045273.00	595.00	294.00	6.00	0.170	-1.000	-1.00
CSD-38	333787.31	1045273.00	589.00	300.00	6.00	0.081	-1.000	-1.00
CSD-38	333787.31	1045273.00	583.00	306.00	6.00	0.041	-1.000	-1.00
CSD-38	333787.31	1045273.00	577.00	312.00	6.00	0.041	-1.000	-1.00
CSD-38	333787.31	1045273.00	571.00	318.00	6.00	0.045	-1.000	-1.00
CSD-38	333787.31	1045273.00	565.00	324.00	6.00	0.088	-1.000	-1.00
CSD-38	333787.31	1045273.00	559.00	330.00	6.00	0.109	-1.000	-1.00
CSD-41	332775.31	1046063.00	787.90	84.00	6.00	0.041	-1.000	-1.00
CSD-41	332775.31	1046063.00	781.90	90.00	6.00	0.051	-1.000	-1.00
CSD-41	332775.31	1046063.00	775.90	96.00	6.00	0.034	-1.000	-1.00
CSD-41	332775.31	1046063.00	769.90	102.00	6.00	0.036	-1.000	-1.00
CSD-41	332775.31	1046063.00	763.90	108.00	6.00	0.041	-1.000	-1.00
CSD-41	332775.31	1046063.00	757.90	114.00	6.00	0.066	-1.000	-1.00
CSD-41	332775.31	1046063.00	751.90	120.00	6.00	0.078	-1.000	-1.00
CSD-42	332991.18	1046071.00	658.10	216.00	6.00	0.049	-1.000	-1.00
CSD-42	332991.18	1046071.00	652.60	221.00	5.00	0.038	-1.000	-1.00
CSD-43A	332994.50	1046269.00	594.20	276.00	6.00	0.056	-1.000	-1.00
CSD-43A	332994.50	1046269.00	588.20	282.00	6.00	0.034	-1.000	-1.00
CSD-43A	332994.50	1046269.00	582.20	288.00	6.00	0.079	-1.000	-1.00
CSD-43A	332994.50	1046269.00	576.20	294.00	6.00	0.128	-1.000	-1.00
CSD-43A	332994.50	1046269.00	570.20	300.00	6.00	0.077	-1.000	-1.00
CSD-43A	332994.50	1046269.00	564.20	306.00	6.00	0.057	-1.000	-1.00
CSD-5	334179.68	1044282.00	570.50	312.00	6.00	0.135	0.050	0.29
CSD-5	334179.68	1044282.00	564.50	318.00	6.00	0.170	0.050	0.36
CSD-52	333577.31	1044467.00	821.50	66.00	6.00	0.036	-1.000	-1.00
CSD-52	333577.31	1044467.00	743.50	144.00	6.00	0.030	-1.000	-1.00
CSD-52	333577.31	1044467.00	737.50	150.00	6.00	0.041	-1.000	-1.00
CSD-59	333980.68	1044676.00	664.20	222.00	6.00	0.053	-1.000	-1.00
CSD-59	333980.68	1044676.00	658.20	228.00	6.00	0.089	-1.000	-1.00
CSD-6	332695.68	1046174.00	738.10	132.00	6.00	0.031	0.030	0.08
CSD-6	332695.68	1046174.00	732.10	138.00	6.00	0.070	0.030	0.15

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CSD-6	332695.68	1046174.00	726.10	144.00	6.00	0.061	0.030	0.06
CSD-6	332695.68	1046174.00	720.10	150.00	6.00	0.056	0.030	0.01
CSD-6	332695.68	1046174.00	714.10	156.00	6.00	0.430	0.030	0.03
CSD-6	332695.68	1046174.00	708.10	162.00	6.00	0.297	0.030	0.10
CSD-6	332695.68	1046174.00	702.10	168.00	6.00	0.030	0.020	0.25
CSD-6	332695.68	1046174.00	624.10	246.00	6.00	0.090	0.040	0.02
CSD-6	332695.68	1046174.00	618.10	252.00	6.00	0.421	0.070	0.05
CSD-6	332695.68	1046174.00	612.10	258.00	6.00	0.602	0.090	0.06
CSD-6	332695.68	1046174.00	606.10	264.00	6.00	0.133	0.060	0.02
CSD-67	333085.50	1044977.00	516.90	384.00	6.00	0.039	-1.000	-1.00
CSD-67	333085.50	1044977.00	510.90	390.00	6.00	0.094	-1.000	-1.00
CSD-67	333085.50	1044977.00	504.90	396.00	6.00	0.121	-1.000	-1.00
CSD-67	333085.50	1044977.00	498.90	402.00	6.00	0.291	-1.000	-1.00
CSD-67	333085.50	1044977.00	492.90	408.00	6.00	0.129	-1.000	-1.00
CSD-69	333976.87	1044525.00	729.49	216.00	6.00	0.029	-1.000	-1.00
CSD-7	333275.00	1046975.00	221.00	654.00	6.00	0.001	-1.000	-1.00
CSD-7	333275.00	1046975.00	215.00	660.00	6.00	0.001	-1.000	-1.00
CSD-7	333275.00	1046975.00	209.00	666.00	6.00	0.000	-1.000	-1.00
CSD-7	333275.00	1046975.00	203.00	672.00	6.00	0.001	-1.000	-1.00
CSD-71	334731.59	1045215.00	531.20	354.00	6.00	0.052	-1.000	-1.00
CSD-71	334731.59	1045215.00	525.20	360.00	6.00	0.262	-1.000	-1.00
CSD-71	334731.59	1045215.00	519.20	366.00	6.00	0.143	-1.000	-1.00
CSD-71	334731.59	1045215.00	513.20	372.00	6.00	0.087	-1.000	-1.00
CSD-71	334731.59	1045215.00	507.20	378.00	6.00	0.017	-1.000	-1.00
CSD-71	334731.59	1045215.00	381.20	504.00	6.00	0.032	-1.000	-1.00
CSD-71	334731.59	1045215.00	375.20	510.00	6.00	0.009	-1.000	-1.00
CSD-71	334731.59	1045215.00	369.20	516.00	6.00	0.086	-1.000	-1.00
CSD-71	334731.59	1045215.00	363.20	522.00	6.00	0.118	-1.000	-1.00
CSD-71	334731.59	1045215.00	357.20	528.00	6.00	0.043	-1.000	-1.00
CSD-72	334283.00	1045673.00	426.50	456.00	6.00	0.089	-1.000	-1.00
CSD-72	334283.00	1045673.00	420.50	462.00	6.00	0.119	-1.000	-1.00
CSD-72	334283.00	1045673.00	414.50	468.00	6.00	0.144	-1.000	-1.00
CSD-72	334283.00	1045673.00	408.50	474.00	6.00	0.132	-1.000	-1.00
CSD-72	334283.00	1045673.00	402.50	480.00	6.00	0.118	-1.000	-1.00
CSD-73	334180.50	1045971.00	406.70	474.00	6.00	0.059	-1.000	-1.00
CSD-73	334180.50	1045971.00	400.70	480.00	6.00	0.112	-1.000	-1.00
CSD-73	334180.50	1045971.00	394.70	486.00	6.00	0.137	-1.000	-1.00
CSD-73	334180.50	1045971.00	388.70	492.00	6.00	0.048	-1.000	-1.00
CSD-73	334180.50	1045971.00	382.70	498.00	6.00	0.091	-1.000	-1.00
CSD-73	334180.50	1045971.00	376.70	504.00	6.00	0.066	-1.000	-1.00
CSD-73	334180.50	1045971.00	370.70	510.00	6.00	0.056	-1.000	-1.00
CSD-73	334180.50	1045971.00	340.70	540.00	6.00	0.476	-1.000	-1.00
CSD-73	334180.50	1045971.00	334.70	546.00	6.00	0.090	-1.000	-1.00
CSD-74	333629.40	1045723.00	500.80	360.00	6.00	0.034	-1.000	-1.00
CSD-8	333884.87	1046383.00	91.20	786.00	6.00	0.050	-1.000	-1.00
CSD-8	333884.87	1046383.00	73.20	804.00	6.00	0.062	-1.000	-1.00
CSD-9	332678.00	1047410.00	377.44	492.00	6.00	0.315	0.050	0.29
CSD-9	332678.00	1047410.00	371.44	498.00	6.00	0.191	0.050	0.29
CSD-9	332678.00	1047410.00	365.44	504.00	6.00	0.176	0.050	0.12
CSD-9	332678.00	1047410.00	359.44	510.00	6.00	0.117	0.050	0.12
CSR-100	334240.00	1046142.00	322.80	552.00	6.00	0.270	0.060	0.20
CSR-100	334240.00	1046142.00	316.80	558.00	6.00	0.798	0.060	0.20
CSR-100	334240.00	1046142.00	310.80	564.00	6.00	0.310	0.040	0.15
CSR-100	334240.00	1046142.00	304.80	570.00	6.00	0.066	0.030	0.13
CSR-100	334240.00	1046142.00	298.80	576.00	6.00	0.036	0.030	0.41
CSR-100	334240.00	1046142.00	292.80	582.00	6.00	0.041	0.040	0.53
CSR-100	334240.00	1046142.00	286.80	588.00	6.00	0.050	0.050	0.77
CSR-100	334240.00	1046142.00	280.80	594.00	6.00	0.113	0.040	0.84
CSR-100	334240.00	1046142.00	274.80	600.00	6.00	0.144	0.040	0.87
CSR-100	334240.00	1046142.00	268.80	606.00	6.00	0.070	0.040	0.83

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CSR-100	334240.00	1046142.00	262.80	612.00	6.00	0.057	0.040	0.82
CSR-100	334240.00	1046142.00	256.80	618.00	6.00	0.032	0.040	0.80
CSR-100	334240.00	1046142.00	250.80	624.00	6.00	0.033	0.050	1.27
CSR-100	334240.00	1046142.00	244.80	630.00	6.00	0.034	0.050	1.50
CSR-100	334240.00	1046142.00	238.80	636.00	6.00	0.036	0.050	1.21
CSR-100	334240.00	1046142.00	232.80	642.00	6.00	0.053	0.050	1.27
CSR-100	334240.00	1046142.00	226.80	648.00	6.00	0.086	0.050	1.40
CSR-100	334240.00	1046142.00	220.80	654.00	6.00	0.191	0.060	1.68
CSR-100	334240.00	1046142.00	214.80	660.00	6.00	0.244	0.060	1.82
CSR-100A	334245.00	1046121.00	316.00	558.00	6.00	0.049	-1.000	-1.00
CSR-100A	334245.00	1046121.00	310.00	564.00	6.00	0.044	-1.000	-1.00
CSR-100A	334245.00	1046121.00	304.00	570.00	6.00	0.041	-1.000	-1.00
CSR-100A	334245.00	1046121.00	160.00	714.00	6.00	0.105	-1.000	-1.00
CSR-100A	334245.00	1046121.00	154.00	720.00	6.00	0.151	-1.000	-1.00
CSR-100A	334245.00	1046121.00	148.00	726.00	6.00	0.313	-1.000	-1.00
CSR-100A	334245.00	1046121.00	142.00	732.00	6.00	0.231	-1.000	-1.00
CSR-100A	334245.00	1046121.00	136.00	738.00	6.00	0.067	-1.000	-1.00
CSR-100A	334245.00	1046121.00	130.00	744.00	6.00	0.032	-1.000	-1.00
CSR-100A	334245.00	1046121.00	124.00	750.00	6.00	0.015	-1.000	-1.00
CSR-100A	334245.00	1046121.00	118.00	756.00	6.00	0.050	-1.000	-1.00
CSR-100A	334245.00	1046121.00	112.00	762.00	6.00	0.037	-1.000	-1.00
CSR-110	334869.40	1044976.00	345.10	534.00	6.00	0.078	0.040	0.09
CSR-110	334869.40	1044976.00	339.10	540.00	6.00	0.112	0.040	0.12
CSR-143	333065.18	1044944.00	626.30	276.00	6.00	0.330	-1.000	-1.00
CSR-143	333065.18	1044944.00	620.30	282.00	6.00	0.416	-1.000	-1.00
CSR-143	333065.18	1044944.00	614.30	288.00	6.00	0.588	-1.000	-1.00
CSR-143	333065.18	1044944.00	608.30	294.00	6.00	0.264	-1.000	-1.00
CSR-143	333065.18	1044944.00	602.30	300.00	6.00	0.102	-1.000	-1.00
CSR-143	333065.18	1044944.00	596.30	306.00	6.00	0.053	-1.000	-1.00
CSR-143	333065.18	1044944.00	590.30	312.00	6.00	0.038	-1.000	-1.00
CSR-18	332889.59	1046188.00	655.60	216.00	6.00	0.041	-1.000	-1.00
CSR-18	332889.59	1046188.00	649.60	222.00	6.00	0.037	-1.000	-1.00
CSR-18	332889.59	1046188.00	643.60	228.00	6.00	0.028	-1.000	-1.00
CSR-18	332889.59	1046188.00	637.60	234.00	6.00	0.053	-1.000	-1.00
CSR-18	332889.59	1046188.00	631.60	240.00	6.00	0.065	-1.000	-1.00
CSR-2	333678.81	1044584.00	704.30	192.00	6.00	0.031	-1.000	-1.00
CSR-2	333678.81	1044584.00	698.30	198.00	6.00	0.048	-1.000	-1.00
CSR-2	333678.81	1044584.00	694.30	200.00	2.00	0.048	-1.000	-1.00
CSR-20	334074.50	1044187.00	767.50	114.00	6.00	0.072	0.150	0.81
CSR-20	334074.50	1044187.00	761.50	120.00	6.00	0.072	0.150	0.81
CSR-20	334074.50	1044187.00	755.50	126.00	6.00	0.156	0.600	0.77
CSR-20	334074.50	1044187.00	749.50	132.00	6.00	0.108	0.420	0.53
CSR-20	334074.50	1044187.00	743.50	138.00	6.00	0.012	0.050	0.06
CSR-20	334074.50	1044187.00	737.50	144.00	6.00	0.097	0.050	0.06
CSR-20	334074.50	1044187.00	731.50	150.00	6.00	0.140	0.050	-1.00
CSR-20	334074.50	1044187.00	725.50	156.00	6.00	-1.000	-1.000	-1.00
CSR-20	334074.50	1044187.00	719.50	162.00	6.00	0.076	0.150	0.17
CSR-20	334074.50	1044187.00	713.50	168.00	6.00	0.076	0.150	0.17
CSR-20	334074.50	1044187.00	707.50	174.00	6.00	0.056	0.420	0.21
CSR-20	334074.50	1044187.00	701.50	180.00	6.00	0.046	0.550	0.23
CSR-20	334074.50	1044187.00	677.50	204.00	6.00	0.052	0.080	0.17
CSR-20	334074.50	1044187.00	671.50	210.00	6.00	0.068	0.100	0.22
CSR-20	334074.50	1044187.00	665.50	216.00	6.00	0.040	0.050	0.17
CSR-21	334073.18	1044591.00	692.40	192.00	6.00	0.037	0.050	0.17
CSR-21	334073.18	1044591.00	686.40	198.00	6.00	0.110	0.050	0.17
CSR-21	334073.18	1044591.00	680.40	204.00	6.00	0.063	0.050	0.13
CSR-21	334073.18	1044591.00	674.40	210.00	6.00	0.040	0.050	0.11
CSR-25	333689.81	1045386.00	608.10	276.00	6.00	0.068	0.050	0.20
CSR-25	333689.81	1045386.00	602.10	282.00	6.00	0.079	0.050	0.16
CSR-25	333689.81	1045386.00	596.10	288.00	6.00	0.100	0.050	0.07

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CSR-25	333689.81	1045386.00	590.10	294.00	6.00	0.075	0.050	0.14
CSR-25	333689.81	1045386.00	584.10	300.00	6.00	0.062	0.050	0.18
CSR-28	332887.90	1045978.00	766.10	108.00	6.00	0.029	-1.000	-1.00
CSR-29	332689.09	1046164.00	714.50	156.00	6.00	0.098	0.000	0.01
CSR-29	332689.09	1046164.00	708.50	162.00	6.00	0.067	0.000	0.02
CSR-29	332689.09	1046164.00	624.50	246.00	6.00	0.166	0.000	0.14
CSR-29	332689.09	1046164.00	618.50	252.00	6.00	0.171	0.000	0.10
CSR-29	332689.09	1046164.00	612.50	258.00	6.00	0.182	0.000	0.02
CSR-29	332689.09	1046164.00	606.50	264.00	6.00	0.069	0.000	0.01
CSR-29	332689.09	1046164.00	600.50	270.00	6.00	0.012	0.000	0.01
CSR-29	332689.09	1046164.00	594.50	276.00	6.00	0.030	0.000	0.01
CSR-29	332689.09	1046164.00	588.50	282.00	6.00	0.030	0.000	0.01
CSR-30	332688.68	1046379.00	638.60	228.00	6.00	0.082	-1.000	-1.00
CSR-30	332688.68	1046379.00	632.60	234.00	6.00	0.039	-1.000	-1.00
CSR-33B	334302.68	1044199.00	586.70	294.00	6.00	0.087	-1.000	-1.00
CSR-33B	334302.68	1044199.00	580.70	300.00	6.00	0.129	-1.000	-1.00
CSR-33B	334302.68	1044199.00	575.20	305.00	5.00	0.153	-1.000	-1.00
CSR-47	334287.00	1043983.00	657.00	228.00	6.00	0.030	-1.000	-1.00
CSR-47	334287.00	1043983.00	651.00	234.00	6.00	0.031	-1.000	-1.00
CSR-47	334287.00	1043983.00	645.00	240.00	6.00	0.032	-1.000	-1.00
CSR-47	334287.00	1043983.00	621.00	264.00	6.00	0.030	-1.000	-1.00
CSR-47	334287.00	1043983.00	615.00	270.00	6.00	0.043	-1.000	-1.00
CSR-47	334287.00	1043983.00	585.00	300.00	6.00	0.032	-1.000	-1.00
CSR-51	333488.31	1045780.00	582.70	300.00	6.00	0.013	-1.000	-1.00
CSR-51	333488.31	1045780.00	576.70	306.00	6.00	0.049	-1.000	-1.00
CSR-51	333488.31	1045780.00	571.70	310.00	4.00	0.049	-1.000	-1.00
CSR-52	333488.31	1045798.00	575.90	306.00	6.00	0.085	0.090	0.21
CSR-52	333488.31	1045798.00	569.90	312.00	6.00	0.083	0.090	0.21
CSR-52	333488.31	1045798.00	563.90	318.00	6.00	0.079	0.100	0.21
CSR-52	333488.31	1045798.00	557.90	324.00	6.00	0.048	0.090	0.12
CSR-52	333488.31	1045798.00	551.90	330.00	6.00	0.032	0.080	0.08
CSR-54	333670.37	1046565.00	240.20	636.00	6.00	0.030	0.020	0.93
CSR-54	333670.37	1046565.00	234.20	642.00	6.00	0.056	0.020	0.86
CSR-54	333670.37	1046565.00	228.20	648.00	6.00	0.108	0.030	0.71
CSR-54	333670.37	1046565.00	222.20	654.00	6.00	0.123	0.040	0.73
CSR-54	333670.37	1046565.00	216.20	660.00	6.00	0.130	0.040	0.74
CSR-54	333670.37	1046565.00	210.20	666.00	6.00	0.038	0.030	0.62
CSR-54	333670.37	1046565.00	204.20	672.00	6.00	0.035	0.030	0.58
CSR-54	333670.37	1046565.00	198.20	678.00	6.00	0.030	0.030	0.51
CSR-60	333086.09	1046385.00	527.70	342.00	6.00	0.031	-1.000	-1.00
CSR-60	333086.09	1046385.00	521.70	348.00	6.00	0.088	-1.000	-1.00
CSR-60	333086.09	1046385.00	515.70	354.00	6.00	0.072	-1.000	-1.00
CSR-60	333086.09	1046385.00	509.70	360.00	6.00	0.064	-1.000	-1.00
CSR-60	333086.09	1046385.00	503.70	366.00	6.00	0.134	-1.000	-1.00
CSR-60	333086.09	1046385.00	497.70	372.00	6.00	0.095	-1.000	-1.00
CSR-61	332883.81	1046579.00	683.70	180.00	6.00	0.084	-1.000	-1.00
CSR-70	333893.31	1045985.00	244.90	636.00	6.00	0.044	-1.000	-1.00
CSR-70	333893.31	1045985.00	238.90	642.00	6.00	0.036	-1.000	-1.00
CSR-71	333485.81	1046376.00	402.40	474.00	6.00	0.074	-1.000	-1.00
CSR-71	333485.81	1046376.00	396.40	480.00	6.00	0.097	-1.000	-1.00
CSR-78A	334674.40	1044975.00	633.50	246.00	6.00	0.066	0.000	0.20
CSR-78A	334674.40	1044975.00	627.50	252.00	6.00	0.046	0.000	0.18
CSR-78A	334674.40	1044975.00	543.50	336.00	6.00	0.166	0.010	0.37
CSR-78A	334674.40	1044975.00	537.50	342.00	6.00	0.157	0.010	0.32
CSR-78A	334674.40	1044975.00	531.50	348.00	6.00	0.140	0.010	0.23
CSR-78A	334674.40	1044975.00	525.50	354.00	6.00	0.123	0.010	0.20
CSR-78A	334674.40	1044975.00	519.50	360.00	6.00	0.114	0.010	0.18
CSR-78A	334674.40	1044975.00	513.50	366.00	6.00	0.090	0.010	0.21
CSR-78A	334674.40	1044975.00	507.50	372.00	6.00	0.115	0.010	0.19
CSR-78A	334674.40	1044975.00	501.50	378.00	6.00	0.166	0.010	0.16

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CSR-78A	334674.40	1044975.00	495.50	384.00	6.00	0.059	0.010	0.53
CSR-79	334670.00	1044775.00	573.70	306.00	6.00	0.040	0.000	0.31
CSR-79	334670.00	1044775.00	567.70	312.00	6.00	0.033	0.000	0.27
CSR-79	334670.00	1044775.00	561.70	318.00	6.00	0.019	0.000	0.19
CSR-79	334670.00	1044775.00	555.70	324.00	6.00	0.044	0.000	0.17
CSR-79	334670.00	1044775.00	549.70	330.00	6.00	0.056	0.000	0.16
CSR-79	334670.00	1044775.00	543.70	336.00	6.00	0.033	0.000	0.17
CSR-86	334672.90	1045373.00	429.60	450.00	6.00	0.016	-1.000	-1.00
CSR-87A	334288.00	1044188.00	601.70	276.00	6.00	0.082	0.000	0.08
CSR-87A	334288.00	1044188.00	595.70	282.00	6.00	0.056	0.000	0.06
CSR-87A	334288.00	1044188.00	589.70	288.00	6.00	0.004	0.000	0.03
CSR-87A	334288.00	1044188.00	583.70	294.00	6.00	0.027	0.000	0.05
CSR-87A	334288.00	1044188.00	577.70	300.00	6.00	0.038	0.000	0.06
CSR-87A	334288.00	1044188.00	469.70	408.00	6.00	0.056	0.000	0.01
CSR-87A	334288.00	1044188.00	361.70	516.00	6.00	0.054	0.000	0.01
CSR-87A	334288.00	1044188.00	355.70	522.00	6.00	0.038	0.000	0.01
CSR-88	334475.09	1044568.00	664.10	216.00	6.00	0.044	0.000	0.13
CSR-88	334475.09	1044568.00	658.10	222.00	6.00	0.039	0.000	0.20
CSR-88	334475.09	1044568.00	652.10	228.00	6.00	0.030	0.000	0.33
CSR-89	333956.90	1045464.00	477.70	402.00	6.00	0.073	0.040	0.31
CSR-89	333956.90	1045464.00	471.70	408.00	6.00	0.214	0.040	0.31
CSR-89	333956.90	1045464.00	465.70	414.00	6.00	0.127	0.040	0.36
CSR-89	333956.90	1045464.00	459.70	420.00	6.00	0.084	0.040	0.38
CSR-89	333956.90	1045464.00	423.70	456.00	6.00	0.062	0.040	0.13
CSR-89	333956.90	1045464.00	417.70	462.00	6.00	0.135	0.050	0.23
CSR-89	333956.90	1045464.00	411.70	468.00	6.00	0.282	0.060	0.43
CSR-89	333956.90	1045464.00	405.70	474.00	6.00	0.123	0.040	0.22
CSR-89	333956.90	1045464.00	399.70	480.00	6.00	0.044	0.030	0.12
CSR-9	333895.81	1044376.00	789.80	96.00	6.00	0.033	-1.000	-1.00
CSR-9	333895.81	1044376.00	783.80	102.00	6.00	0.035	0.050	0.17
CSR-9	333895.81	1044376.00	777.80	108.00	6.00	0.039	0.050	0.17
CSR-9	333895.81	1044376.00	747.80	138.00	6.00	0.024	0.050	0.02
CSR-9	333895.81	1044376.00	699.80	186.00	6.00	0.003	0.100	0.11
CSR-9	333895.81	1044376.00	693.80	192.00	6.00	0.004	0.080	0.10
CSR-90	334265.40	1045368.00	574.10	306.00	6.00	0.260	0.070	0.30
CSR-90	334265.40	1045368.00	568.10	312.00	6.00	0.212	0.240	0.33
CSR-90	334265.40	1045368.00	562.10	318.00	6.00	0.115	0.580	0.40
CSR-90	334265.40	1045368.00	556.10	324.00	6.00	0.117	0.230	0.42
CSR-90	334265.40	1045368.00	550.10	330.00	6.00	0.118	0.050	0.43
CSR-90	334265.40	1045368.00	544.10	336.00	6.00	0.332	0.080	0.86
CSR-90	334265.40	1045368.00	538.10	342.00	6.00	0.257	0.070	0.61
CSR-90	334265.40	1045368.00	532.10	348.00	6.00	0.108	0.040	0.10
CSR-90	334265.40	1045368.00	526.10	354.00	6.00	0.047	0.030	0.27
CSR-98	334285.00	1045771.00	448.10	432.00	6.00	0.102	-1.000	-1.00
CSR-98	334285.00	1045771.00	442.10	438.00	6.00	0.276	-1.000	-1.00
CSR-98	334285.00	1045771.00	436.10	444.00	6.00	0.151	-1.000	-1.00
CSR-98	334285.00	1045771.00	430.10	450.00	6.00	0.089	-1.000	-1.00
CSR-98	334285.00	1045771.00	424.10	456.00	6.00	0.091	-1.000	-1.00
CSR-98	334285.00	1045771.00	418.10	462.00	6.00	0.064	-1.000	-1.00
CUDH-03-01	332754.62	1047572.50	313.84	42.00	6.00	0.045	0.100	-1.00
CUDH-03-01	332765.84	1047571.31	317.94	54.00	6.00	0.055	0.100	-1.00
CUDH-03-02	332762.25	1047571.68	306.81	48.00	6.00	0.047	0.120	-1.00
CUDH-03-02	332768.12	1047571.06	307.86	54.00	6.00	0.043	0.110	-1.00
CUDH-03-02	332774.00	1047570.43	308.90	60.00	6.00	0.049	0.150	-1.00
CUDH-03-02	332779.87	1047569.81	309.94	66.00	6.00	0.038	0.100	-1.00
CUDH-03-02	332797.53	1047568.00	313.07	84.00	6.00	0.241	0.100	-1.00
CUDH-03-02	332803.40	1047567.37	314.11	90.00	6.00	0.049	0.140	-1.00
CUDH-03-03	332768.90	1047571.00	297.50	54.00	6.00	0.329	0.100	-1.00
CUDH-03-03	332774.87	1047570.37	297.50	60.00	6.00	0.510	0.110	-1.00
CUDH-03-03	332780.84	1047569.75	297.50	66.00	6.00	0.015	0.170	-1.00

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CUDH-03-03	332786.81	1047569.12	297.50	72.00	6.00	0.022	0.100	-1.00
CUDH-03-03	332792.78	1047568.50	297.50	78.00	6.00	0.035	0.190	-1.00
CUDH-03-03	332798.75	1047567.87	297.50	84.00	6.00	0.113	0.100	-1.00
CUDH-03-03	332816.65	1047565.93	297.50	102.00	6.00	0.073	0.100	-1.00
CUDH-03-03	332822.62	1047565.31	297.50	108.00	6.00	0.439	0.100	-1.00
CUDH-03-03	332828.59	1047564.68	297.50	114.00	6.00	3.031	0.100	-1.00
CUDH-03-03	332834.53	1047564.06	297.50	120.00	6.00	1.761	0.160	-1.00
CUDH-03-03	332840.50	1047563.43	297.50	126.00	6.00	2.089	0.130	-1.00
CUDH-03-03	332846.46	1047562.81	297.50	132.00	6.00	0.293	0.120	-1.00
CUDH-03-03	332852.43	1047562.18	297.50	138.00	6.00	0.243	0.130	-1.00
CUDH-03-03	332858.40	1047561.56	297.50	144.00	6.00	0.266	0.100	-1.00
CUDH-03-03	332864.37	1047560.93	297.50	150.00	6.00	0.033	0.100	-1.00
CUDH-03-04	332774.65	1047570.37	291.03	60.00	6.00	0.616	0.110	-1.00
CUDH-03-04	332780.59	1047569.75	290.51	66.00	6.00	0.232	0.110	-1.00
CUDH-03-04	332786.56	1047569.12	289.99	72.00	6.00	0.229	0.130	-1.00
CUDH-03-04	332857.87	1047561.62	283.71	144.00	6.00	0.163	0.100	0.13
CUDH-03-04	332863.81	1047561.00	283.19	150.00	6.00	0.343	0.100	1.51
CUDH-03-04	332869.78	1047560.37	282.67	156.00	6.00	0.364	0.100	0.11
CUDH-03-04	332875.71	1047559.75	282.14	162.00	6.00	0.045	0.100	0.08
CUDH-03-04	332881.65	1047559.12	281.62	168.00	6.00	0.990	0.100	0.04
CUDH-03-04	332887.59	1047558.50	281.10	174.00	6.00	1.516	0.120	0.03
CUDH-03-04	332893.56	1047557.87	280.57	180.00	6.00	0.301	0.100	0.72
CUDH-03-05	332801.75	1047567.50	271.98	90.00	6.00	0.057	0.110	0.18
CUDH-03-05	332807.53	1047566.93	270.43	96.00	6.00	0.147	0.120	0.23
CUDH-03-05	332813.28	1047566.31	268.88	102.00	6.00	0.012	0.120	0.27
CUDH-03-05	332819.06	1047565.68	267.32	108.00	6.00	0.116	0.100	0.31
CUDH-03-05	332824.81	1047565.12	265.77	114.00	6.00	0.024	0.100	0.80
CUDH-03-05	332830.59	1047564.50	264.22	120.00	6.00	0.079	0.100	1.39
CUDH-03-05	332836.34	1047563.87	262.67	126.00	6.00	0.025	0.110	0.43
CUDH-03-05	332842.09	1047563.31	261.11	132.00	6.00	0.031	0.100	0.16
CUDH-03-06	332756.12	1047597.18	315.89	48.00	6.00	0.069	0.100	0.17
CUDH-03-07	332758.00	1047598.00	306.81	48.00	6.00	0.114	0.100	0.21
CUDH-03-07	332763.37	1047600.43	307.86	54.00	6.00	0.050	0.100	0.24
CUDH-03-09	332785.75	1047610.37	289.46	78.00	6.00	0.048	0.170	0.28
CUDH-03-09	332818.53	1047625.00	286.33	114.00	6.00	0.383	0.250	0.63
CUDH-03-09	332823.96	1047627.43	285.80	120.00	6.00	0.238	0.250	0.45
CUDH-03-09	332829.43	1047629.81	285.28	126.00	6.00	0.005	0.100	0.04
CUDH-03-09	332834.90	1047632.25	284.76	132.00	6.00	0.009	0.130	0.31
CUDH-03-09	332840.34	1047634.68	284.23	138.00	6.00	0.072	0.220	0.45
CUDH-03-09	332845.81	1047637.12	283.71	144.00	6.00	0.058	0.140	0.22
CUDH-03-09	332851.28	1047639.56	283.19	150.00	6.00	0.032	0.170	0.22
CUDH-03-09	332856.75	1047642.00	282.67	156.00	6.00	0.017	0.100	0.25
CUDH-03-09	332862.18	1047644.43	282.14	162.00	6.00	0.122	0.100	0.71
CUDH-03-09	332867.65	1047646.87	281.62	168.00	6.00	0.189	0.100	8.68
CUDH-03-09	332873.12	1047649.31	281.10	174.00	6.00	0.152	0.100	0.15
CUDH-03-09	332878.59	1047651.68	280.57	180.00	6.00	0.024	0.140	0.68
CUDH-03-09	332884.03	1047654.12	280.05	186.00	6.00	0.085	0.110	1.71
CUDH-03-09	332889.50	1047656.56	279.53	192.00	6.00	0.067	0.100	2.80
CUDH-03-10	332779.00	1047590.62	309.94	66.00	6.00	0.040	0.100	0.33
CUDH-03-10	332784.81	1047591.75	310.98	72.00	6.00	0.005	0.100	0.63
CUDH-03-10	332790.59	1047592.87	312.02	78.00	6.00	0.006	0.100	0.07
CUDH-03-10	332796.40	1047594.06	313.07	84.00	6.00	0.014	0.100	0.17
CUDH-03-10	332802.18	1047595.18	314.11	90.00	6.00	0.174	0.100	0.66
CUDH-03-10	332808.00	1047596.31	315.15	96.00	6.00	0.052	0.110	0.34
CUDH-03-10	332813.81	1047597.43	316.19	102.00	6.00	0.041	0.100	4.30
CUDH-03-10	332819.59	1047598.56	317.23	108.00	6.00	0.032	0.100	5.72
CUDH-03-11	332827.06	1047600.00	297.50	114.00	6.00	0.033	0.100	0.48
CUDH-03-11	332832.93	1047601.12	297.50	120.00	6.00	0.133	0.110	0.58
CUDH-03-11	332838.84	1047602.31	297.50	126.00	6.00	0.034	0.100	0.34
CUDH-03-11	332844.71	1047603.43	297.50	132.00	6.00	0.043	0.100	0.30

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CUDH-03-11	332850.62	1047604.56	297.50	138.00	6.00	0.086	0.100	0.77
CUDH-03-11	332856.50	1047605.68	297.50	144.00	6.00	0.018	0.110	0.35
CUDH-03-11	332862.40	1047606.87	297.50	150.00	6.00	0.005	0.110	0.59
CUDH-03-11	332868.28	1047608.00	297.50	156.00	6.00	0.034	0.100	0.11
CUDH-03-12	332785.56	1047591.93	289.99	72.00	6.00	0.039	0.100	0.61
CUDH-03-12	332838.37	1047602.18	285.28	126.00	6.00	0.095	0.100	0.31
CUDH-03-12	332844.25	1047603.31	284.76	132.00	6.00	0.147	0.100	0.63
CUDH-03-12	332850.09	1047604.50	284.23	138.00	6.00	1.633	0.190	1.03
CUDH-03-12	332855.96	1047605.62	283.71	144.00	6.00	0.691	0.100	1.12
CUDH-03-12	332861.84	1047606.75	283.19	150.00	6.00	0.872	0.220	5.71
CUDH-03-12	332867.71	1047607.87	282.67	156.00	6.00	1.014	0.130	1.58
CUDH-03-12	332873.59	1047609.06	282.14	162.00	6.00	0.653	0.110	1.51
CUDH-03-12	332879.43	1047610.18	281.62	168.00	6.00	0.237	0.100	0.90
CUDH-03-12	332885.31	1047611.31	281.10	174.00	6.00	0.070	0.100	0.35
CUDH-03-12	332891.18	1047612.43	280.57	180.00	6.00	0.248	0.100	0.13
CUDH-03-12	332897.06	1047613.62	280.05	186.00	6.00	0.122	0.100	0.05
CUDH-03-12	332902.90	1047614.75	279.53	192.00	6.00	0.074	0.110	0.39
CUDH-03-12	332908.78	1047615.87	279.00	198.00	6.00	0.065	0.110	3.10
CUDH-03-13	332796.40	1047594.06	280.93	84.00	6.00	0.038	0.100	0.44
CUDH-03-13	332802.18	1047595.18	279.89	90.00	6.00	0.061	0.100	0.57
CUDH-03-13	332808.00	1047596.31	278.85	96.00	6.00	0.049	0.100	0.52
CUDH-03-13	332953.00	1047624.50	252.80	246.00	6.00	0.195	0.110	0.13
CUDH-03-13	332958.81	1047625.62	251.76	252.00	6.00	0.183	0.110	1.13
CUDH-03-14	332834.65	1047703.81	281.10	174.00	6.00	0.112	0.100	0.18
CUDH-03-14	332838.87	1047708.06	280.57	180.00	6.00	0.072	0.100	0.19
CUDH-03-14	332843.09	1047712.31	280.05	186.00	6.00	0.199	0.100	0.22
CUDH-03-14	332847.31	1047716.50	279.53	192.00	6.00	0.417	0.100	0.06
CUDH-03-14	332851.56	1047720.75	279.00	198.00	6.00	0.628	0.130	0.66
CUDH-03-14	332855.78	1047724.93	278.48	204.00	6.00	0.302	0.120	0.31
CUDH-03-14	332860.00	1047729.18	277.96	210.00	6.00	0.051	0.110	1.17
CUDH-03-15	332813.87	1047683.06	297.50	144.00	6.00	0.033	0.160	0.16
CUDH-03-15	332818.12	1047687.31	297.50	150.00	6.00	0.212	0.120	0.23
CUDH-03-15	332839.34	1047708.56	297.50	180.00	6.00	0.993	0.120	0.89
CUDH-04-16	332795.65	1047664.87	274.68	120.00	6.00	0.030	0.200	0.07
CUDH-04-16	332799.84	1047669.00	273.64	126.00	6.00	0.003	0.200	0.10
CUDH-04-16	332804.03	1047673.18	272.60	132.00	6.00	0.015	0.200	0.39
CUDH-04-16	332808.18	1047677.37	271.56	138.00	6.00	0.202	0.200	0.68
CUDH-04-16	332812.37	1047681.56	270.52	144.00	6.00	0.332	0.200	1.27
CUDH-04-16	332870.87	1047740.06	255.93	228.00	6.00	0.789	0.200	0.08
CUDH-04-16	332875.06	1047744.25	254.89	234.00	6.00	0.384	0.210	0.12
CUDH-04-16	332879.21	1047748.43	253.85	240.00	6.00	0.020	0.200	0.13
CUDH-04-16	332883.40	1047752.56	252.80	246.00	6.00	0.181	0.200	0.43
CUDH-04-16	332887.59	1047756.75	251.76	252.00	6.00	0.036	0.200	0.32
CUDH-04-16	332904.28	1047773.50	247.59	276.00	6.00	0.032	0.200	0.41
CUDH-04-17	332816.31	1047672.81	297.50	138.00	6.00	0.065	0.200	0.23
CUDH-04-17	332820.78	1047676.87	297.50	144.00	6.00	0.010	0.200	0.35
CUDH-04-17	332825.25	1047680.87	297.50	150.00	6.00	0.099	0.200	0.60
CUDH-04-17	332829.68	1047684.87	297.50	156.00	6.00	0.098	0.200	0.92
CUDH-04-17	332834.15	1047688.87	297.50	162.00	6.00	0.060	0.200	1.85
CUDH-04-17	332838.62	1047692.93	297.50	168.00	6.00	0.133	0.200	2.01
CUDH-04-17	332843.06	1047696.93	297.50	174.00	6.00	0.101	0.200	0.38
CUDH-04-18	332758.18	1047620.50	291.03	60.00	6.00	0.031	0.200	0.00
CUDH-04-18	332762.62	1047624.50	290.51	66.00	6.00	0.078	0.200	0.01
CUDH-04-18	332855.90	1047708.50	279.53	192.00	6.00	0.042	0.200	0.78
CUDH-04-18	332860.37	1047712.50	279.00	198.00	6.00	0.113	0.200	0.76
CUDH-04-18	332864.81	1047716.50	278.48	204.00	6.00	0.061	0.200	2.68
CUDH-04-19	332801.62	1047659.62	274.68	120.00	6.00	0.042	0.200	0.54
CUDH-04-19	332806.03	1047663.56	273.64	126.00	6.00	0.069	0.200	0.15
CUDH-04-19	332858.71	1047711.00	261.14	198.00	6.00	0.328	0.200	2.22
CUDH-04-19	332863.09	1047714.93	260.10	204.00	6.00	0.632	0.200	2.62

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CUDH-04-19	332867.50	1047718.87	259.05	210.00	6.00	0.308	0.200	0.28
CUDH-04-19	332871.87	1047722.87	258.01	216.00	6.00	0.080	0.220	0.08
CUDH-04-19	332876.28	1047726.81	256.97	222.00	6.00	0.010	0.200	0.09
CUDH-04-19	332880.65	1047730.75	255.93	228.00	6.00	0.253	0.250	0.15
CUDH-04-20	332830.00	1047804.25	241.48	258.00	6.00	0.049	0.200	2.77
CUDH-04-20	332832.75	1047809.43	240.24	264.00	6.00	0.056	0.200	1.41
CUDH-04-21	332817.50	1047780.75	264.19	228.00	6.00	0.004	0.200	0.17
CUDH-04-21	332820.31	1047786.00	263.35	234.00	6.00	0.004	0.200	0.43
CUDH-04-21	332823.09	1047791.25	262.52	240.00	6.00	0.003	0.200	0.07
CUDH-04-21	332825.87	1047796.43	261.68	246.00	6.00	0.003	0.200	0.05
CUDH-04-21	332828.65	1047801.68	260.85	252.00	6.00	0.003	0.200	0.05
CUDH-04-22	332809.84	1047766.31	281.86	210.00	6.00	0.053	0.200	0.75
CUDH-04-22	332812.65	1047771.62	281.44	216.00	6.00	0.080	0.200	1.15
CUDH-04-23	332895.68	1047927.75	183.87	408.00	6.00	0.038	0.230	0.90
CUDH-04-23	332898.37	1047932.81	182.21	414.00	6.00	0.142	0.200	1.20
CUDH-04-24	332859.96	1047727.50	259.05	210.00	6.00	0.130	0.200	0.03
CUDH-04-24	332864.12	1047731.68	258.01	216.00	6.00	0.211	0.210	0.06
CUDH-04-24	332868.31	1047735.87	256.97	222.00	6.00	0.075	0.200	0.07
CUDH-04-24	332872.50	1047740.06	255.93	228.00	6.00	0.032	0.200	0.78
CUDH-04-24	332876.68	1047744.25	254.89	234.00	6.00	0.179	0.200	2.02
CUDH-04-24	332880.84	1047748.43	253.85	240.00	6.00	0.005	0.200	1.61
CUDH-04-24	332885.03	1047752.56	252.80	246.00	6.00	0.009	0.200	1.92
CUDH-04-24	332905.90	1047773.50	247.59	276.00	6.00	0.003	0.220	0.47
CUDH-04-25	332791.62	1047659.18	265.27	114.00	6.00	0.040	0.200	0.33
CUDH-04-25	332795.71	1047663.31	263.72	120.00	6.00	0.172	0.200	0.92
CUDH-04-25	332799.81	1047667.37	262.17	126.00	6.00	0.045	0.220	0.72
CUDH-04-25	332894.09	1047761.62	226.45	264.00	6.00	0.111	0.200	0.37
CUDH-04-25	332898.18	1047765.75	224.90	270.00	6.00	0.033	0.200	0.08
CUDH-04-25	332902.28	1047769.81	223.34	276.00	6.00	0.008	0.200	0.16
CUDH-04-25	332906.37	1047773.93	221.79	282.00	6.00	0.023	0.200	0.12
CUDH-04-25	332910.46	1047778.06	220.24	288.00	6.00	0.270	0.200	0.10
CUDH-04-25	332914.56	1047782.12	218.68	294.00	6.00	0.100	0.200	0.06
CUDH-04-25	332918.65	1047786.25	217.13	300.00	6.00	0.437	0.200	0.11
CUDH-04-25	332922.75	1047790.31	215.58	306.00	6.00	0.579	0.200	0.49
CUDH-04-25	332926.87	1047794.43	214.02	312.00	6.00	0.067	0.200	2.30
CUDH-04-25	332930.96	1047798.50	212.47	318.00	6.00	0.139	0.200	4.94
CUDH-04-25	332935.06	1047802.62	210.92	324.00	6.00	0.081	0.200	1.50
CUDH-04-25	332967.84	1047835.43	198.50	372.00	6.00	0.045	0.200	1.35
CUDH-04-25	332971.93	1047839.50	196.94	378.00	6.00	0.034	0.200	0.22
CUDH-04-25	332976.03	1047843.62	195.39	384.00	6.00	0.513	0.200	0.25
CUDH-04-25	332980.12	1047847.68	193.84	390.00	6.00	0.099	0.200	0.60
CUDH-04-25	332984.25	1047851.81	192.28	396.00	6.00	0.065	0.200	0.20
CUDH-04-26	332758.18	1047625.75	274.53	66.00	6.00	0.060	0.200	0.00
CUDH-04-26	332762.21	1047629.75	272.68	72.00	6.00	0.128	0.200	0.00
CUDH-04-26	332851.00	1047718.56	231.89	204.00	6.00	0.231	0.200	0.13
CUDH-04-26	332946.75	1047814.31	183.38	348.00	6.00	1.487	0.220	0.56
CUDH-04-26	332950.62	1047818.18	180.94	354.00	6.00	1.222	0.230	0.79
CUDH-04-26	332954.50	1047822.06	178.50	360.00	6.00	0.033	0.200	1.64
CUDH-04-28	332764.84	1047632.81	303.04	78.00	6.00	0.154	0.200	0.32
CUDH-04-28	332815.90	1047683.31	307.85	150.00	6.00	0.036	0.200	0.17
CUDH-04-29	332790.84	1047644.00	266.82	108.00	6.00	0.482	0.210	0.20
CUDH-04-29	332795.31	1047647.68	265.27	114.00	6.00	0.236	0.220	0.02
CUDH-04-29	332799.81	1047651.37	263.72	120.00	6.00	0.213	0.230	0.01
CUDH-04-29	332804.28	1047655.06	262.17	126.00	6.00	0.091	0.200	0.16
CUDH-04-30	332751.62	1047582.18	312.05	42.00	6.00	0.056	0.210	0.31
CUDH-04-31	332785.59	1047606.62	281.98	78.00	6.00	0.030	0.200	0.19
CUDH-04-31	332791.03	1047608.87	280.93	84.00	6.00	0.013	0.200	0.20
CUDH-04-31	332796.50	1047611.18	279.89	90.00	6.00	0.086	0.200	0.32
CUDH-04-31	332801.96	1047613.43	278.85	96.00	6.00	0.003	0.200	0.32
CUDH-04-31	332807.40	1047615.68	277.81	102.00	6.00	0.003	0.200	0.88

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
CUDH-04-31	332812.87	1047617.93	276.77	108.00	6.00	0.188	0.200	0.77
CUDH-04-31	332818.34	1047620.18	275.73	114.00	6.00	0.125	0.200	0.66
CUDH-04-31	332823.78	1047622.43	274.68	120.00	6.00	0.007	0.200	0.83
CUDH-04-31	332829.25	1047624.75	273.64	126.00	6.00	0.446	0.280	1.28
CUDH-04-31	332910.31	1047658.25	253.71	216.00	6.00	0.276	0.200	0.09
CUDH-04-31	332915.68	1047660.50	252.26	222.00	6.00	0.634	0.200	0.05
CUDH-04-31	332921.06	1047662.75	250.81	228.00	6.00	0.396	0.200	0.08
CUDH-04-31	332926.43	1047664.93	249.36	234.00	6.00	0.015	0.200	0.14
CUDH-04-31	332931.84	1047667.18	247.91	240.00	6.00	0.004	0.200	0.17
CUDH-04-31	332937.21	1047669.43	246.45	246.00	6.00	0.009	0.200	0.12
CUDH-04-31	332942.59	1047671.62	245.00	252.00	6.00	0.037	0.200	0.13
CUDH-04-31	332947.96	1047673.87	243.55	258.00	6.00	0.143	0.200	0.08
CUDH-04-31	332953.34	1047676.12	242.10	264.00	6.00	0.153	0.200	0.05
CUDH-04-31	332958.78	1047678.18	240.58	270.00	6.00	0.289	0.200	0.09
CUDH-04-31	332964.25	1047680.00	238.93	276.00	6.00	0.199	0.200	0.06
CUDH-04-31	332969.71	1047681.87	237.27	282.00	6.00	0.010	0.200	0.03
CUDH-04-31	332975.18	1047683.68	235.62	288.00	6.00	0.016	0.200	0.07
CUDH-04-31	332980.65	1047685.50	233.97	294.00	6.00	0.004	0.200	0.12
CUDH-04-31	332986.12	1047687.31	232.31	300.00	6.00	0.003	0.200	0.12
CUDH-04-31	332991.59	1047689.18	230.66	306.00	6.00	0.003	0.200	0.04
CUDH-04-31	332997.06	1047691.00	229.00	312.00	6.00	0.311	0.200	0.09
CUDH-04-31	333002.53	1047692.81	227.35	318.00	6.00	0.034	0.200	0.13
CUDH-04-32	333183.34	1047546.06	80.26	516.00	6.00	0.047	0.200	0.50
CUDH-04-32	333188.65	1047545.62	77.54	522.00	6.00	1.257	0.550	0.65
CUDH-04-32	333194.00	1047545.25	74.82	528.00	6.00	0.485	0.260	0.43
CUDH-04-32	333199.34	1047544.87	72.09	534.00	6.00	0.072	0.200	0.62
DCU-3	334160.00	1046240.00	323.00	558.00	6.00	0.036	-1.000	-1.00
DCU-3	334160.00	1046240.00	317.00	564.00	6.00	0.032	-1.000	-1.00
DCU-3	334160.00	1046240.00	221.00	660.00	6.00	0.067	-1.000	-1.00
DCU-4	333943.00	1046565.00	86.00	792.00	6.00	0.000	-1.000	-1.00
DCU-8	333760.00	1045350.00	-9.00	552.00	6.00	0.033	-1.000	-1.00
DCU-8	333760.00	1045350.00	-15.00	558.00	6.00	0.884	-1.000	-1.00
DCU-8	333760.00	1045350.00	-21.00	564.00	6.00	0.669	-1.000	-1.00
DCU-8	333760.00	1045350.00	-27.00	570.00	6.00	0.054	-1.000	-1.00
DU4-33	332797.65	1047573.06	279.80	84.00	6.00	0.489	0.200	0.20
DU4-33	332803.53	1047572.87	278.66	90.00	6.00	0.173	0.200	0.31
DU4-33	332915.37	1047570.00	256.89	204.00	6.00	0.053	0.200	0.03
DU4-33	332921.25	1047569.75	255.64	210.00	6.00	0.099	0.200	0.08
DU4-33	332927.12	1047569.50	254.39	216.00	6.00	0.059	0.200	0.12
DU4-33	332932.96	1047569.18	253.15	222.00	6.00	0.170	0.210	0.66
DU4-35	332797.46	1047696.81	296.00	144.00	6.00	0.044	0.200	1.51
DU4-35	332801.03	1047701.62	296.00	150.00	6.00	0.478	0.200	1.40
DU4-35	332804.53	1047706.43	296.00	156.00	6.00	0.353	0.200	1.84
DU4-35	332807.93	1047711.43	296.00	162.00	6.00	0.089	0.200	0.30
DU4-35	332811.34	1047716.37	296.00	168.00	6.00	0.299	0.200	1.39
DU4-35	332814.71	1047721.31	296.00	174.00	6.00	0.120	0.200	0.74
DU4-35	332818.12	1047726.25	296.00	180.00	6.00	0.159	0.200	1.38
DU4-35	332821.53	1047731.18	296.00	186.00	6.00	0.018	0.200	0.72
DU4-35	332824.93	1047736.12	296.00	192.00	6.00	0.040	0.200	1.08
DU4-35	332828.31	1047741.06	296.00	198.00	6.00	0.044	0.200	0.54
DU4-36	332848.12	1047775.31	260.38	240.00	6.00	0.163	0.200	2.07
DU4-36	332851.40	1047780.25	259.34	246.00	6.00	0.181	0.200	2.25
DU4-37	332855.84	1047779.62	238.24	252.00	6.00	0.568	0.240	0.60
DU4-37	332859.71	1047784.00	236.89	258.00	6.00	0.153	0.200	0.27
DU4-37	332886.84	1047814.68	227.45	300.00	6.00	0.147	0.220	0.07
DU4-37	332890.50	1047819.18	225.99	306.00	6.00	0.323	0.270	2.66
DU4-37	332893.93	1047823.87	224.44	312.00	6.00	0.055	0.200	2.25
DU4-39	332779.03	1047594.37	289.68	66.00	6.00	0.268	0.200	0.19
DU4-39	332784.81	1047595.75	289.05	72.00	6.00	0.630	0.200	0.40
DU4-39	332790.62	1047597.18	288.42	78.00	6.00	0.042	0.200	0.15

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DU4-39	332831.25	1047606.93	284.03	120.00	6.00	0.030	0.200	0.13
DU4-39	332837.03	1047608.31	283.40	126.00	6.00	0.209	0.200	1.17
DU4-39	332842.84	1047609.68	282.78	132.00	6.00	0.193	0.200	0.81
DU4-39	332848.65	1047611.06	282.15	138.00	6.00	0.599	0.200	0.87
DU4-39	332854.43	1047612.50	281.52	144.00	6.00	0.022	0.200	0.11
DU4-39	332860.25	1047613.87	280.89	150.00	6.00	0.228	0.200	0.76
DU4-39	332866.03	1047615.18	280.11	156.00	6.00	0.528	0.200	4.49
DU4-39	332871.81	1047616.50	279.17	162.00	6.00	0.414	0.200	2.96
DU4-39	332877.59	1047617.75	278.23	168.00	6.00	0.457	0.200	0.78
DU4-39	332883.40	1047619.06	277.30	174.00	6.00	0.105	0.200	0.07
DU4-39	332889.18	1047620.31	276.36	180.00	6.00	0.128	0.200	0.05
DU4-39	332894.96	1047621.62	275.42	186.00	6.00	0.283	0.200	0.04
DU4-39	332900.75	1047622.87	274.48	192.00	6.00	0.176	0.200	0.27
DU4-40	332795.53	1047594.43	276.03	84.00	6.00	0.051	0.200	0.19
DU4-40	332801.25	1047595.56	274.68	90.00	6.00	0.154	0.200	0.34
DU4-40	332807.00	1047596.75	273.34	96.00	6.00	0.533	0.200	0.07
DU4-40	332812.71	1047597.93	271.99	102.00	6.00	0.166	0.200	0.49
DU4-40	332818.43	1047599.06	270.64	108.00	6.00	0.006	0.200	0.14
DU4-40	332824.15	1047600.25	269.29	114.00	6.00	0.004	0.200	0.12
DU4-40	332829.90	1047601.43	267.94	120.00	6.00	0.850	0.240	0.74
DU4-40	332835.62	1047602.56	266.59	126.00	6.00	0.195	0.200	0.10
DU4-41	332800.40	1047614.75	270.18	96.00	6.00	0.044	0.200	0.19
DU4-41	332805.75	1047617.00	268.63	102.00	6.00	0.035	0.200	0.25
DU4-41	332811.12	1047619.06	266.99	108.00	6.00	0.054	0.200	0.17
DU4-41	332816.53	1047621.06	265.34	114.00	6.00	0.252	0.200	0.26
DU4-41	332821.93	1047623.06	263.69	120.00	6.00	0.041	0.200	0.35
DU4-41	333024.68	1047702.25	196.10	348.00	6.00	0.079	0.200	0.23
DU4-41	333029.93	1047704.43	194.14	354.00	6.00	0.035	0.200	0.14
DU4-41	333035.15	1047706.62	192.19	360.00	6.00	0.199	0.200	0.10
DU4-41	333040.40	1047708.81	190.24	366.00	6.00	0.332	0.210	0.41
DU4-41	333045.65	1047710.93	188.28	372.00	6.00	0.005	0.200	0.67
DU4-41	333050.90	1047713.12	186.33	378.00	6.00	0.098	0.200	0.14
DU4-41	333056.12	1047715.31	184.38	384.00	6.00	0.919	0.200	1.26
DU4-41	333061.37	1047717.43	182.42	390.00	6.00	0.387	0.200	0.10
DU4-41	333066.62	1047719.62	180.47	396.00	6.00	0.062	0.200	0.04
DU4-41	333071.84	1047721.81	178.52	402.00	6.00	0.099	0.200	0.05
DU4-41	333077.06	1047723.93	176.48	408.00	6.00	0.464	0.200	0.11
DU4-41	333082.28	1047726.12	174.43	414.00	6.00	0.172	0.200	0.08
DU4-43	332823.21	1047599.81	255.13	120.00	6.00	0.097	0.200	0.32
DU4-43	332828.71	1047600.93	253.07	126.00	6.00	0.156	0.200	0.30
DU4-43	332834.25	1047602.06	251.02	132.00	6.00	0.087	0.200	0.22
DU4-43	332839.78	1047603.18	248.97	138.00	6.00	0.008	0.200	0.51
DU4-43	332845.31	1047604.31	246.92	144.00	6.00	0.014	0.200	0.20
DU4-43	332850.84	1047605.43	244.87	150.00	6.00	0.031	0.200	0.04
DU4-44	332906.75	1047790.62	169.01	312.00	6.00	0.037	0.200	0.03
DU4-44	332910.37	1047794.56	166.28	318.00	6.00	0.129	0.200	0.01
DU4-45	332710.12	1047718.93	303.23	138.00	6.00	0.138	0.200	0.07
DU4-45	332710.40	1047724.87	303.44	144.00	6.00	0.117	0.200	0.08
DU4-45	332710.65	1047730.87	303.65	150.00	6.00	0.004	0.200	0.19
DU4-45	332710.84	1047736.93	303.65	156.00	6.00	0.239	0.200	0.21
DU4-45	332711.00	1047742.93	303.44	162.00	6.00	0.024	0.200	0.48
DU4-45	332711.15	1047748.87	303.23	168.00	6.00	0.051	0.200	0.20
DU4-45	332711.31	1047754.87	303.02	174.00	6.00	0.024	0.200	0.12
DU4-45	332711.46	1047760.87	302.82	180.00	6.00	0.085	0.200	0.10
DU4-45	332711.62	1047766.87	302.61	186.00	6.00	0.039	0.200	0.07
DU4-47	332657.34	1047754.18	306.94	180.00	6.00	0.034	0.200	0.13
DU4-47	332655.84	1047760.00	307.15	186.00	6.00	0.275	0.200	0.17
DU4-48	332674.93	1047688.87	316.29	114.00	6.00	0.109	0.200	0.53
DU4-50	332732.31	1047552.00	292.11	24.00	6.00	0.481	0.200	0.05
DU4-50	332738.12	1047550.87	291.07	30.00	6.00	0.064	0.200	0.08

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DU4-50	332772.96	1047544.43	284.82	66.00	6.00	0.048	0.200	0.17
DU4-50	332778.78	1047543.37	283.78	72.00	6.00	1.247	0.250	0.27
DU4-50	332784.59	1047542.31	282.73	78.00	6.00	0.005	0.200	0.24
DU4-50	332790.40	1047541.18	281.69	84.00	6.00	0.004	0.200	0.20
DU4-50	332796.21	1047540.12	280.65	90.00	6.00	0.048	0.200	0.15
DU4-50	332802.03	1047539.06	279.61	96.00	6.00	0.039	0.200	0.46
DU4-50	332807.84	1047538.00	278.57	102.00	6.00	0.031	0.200	0.38
DU4-51	332763.37	1047532.75	286.58	60.00	6.00	1.459	0.220	0.19
DU4-51	332768.87	1047530.50	285.64	66.00	6.00	1.387	0.340	0.16
DU4-51	332774.34	1047528.25	284.71	72.00	6.00	0.127	0.200	0.40
DU4-51	332779.81	1047525.93	283.77	78.00	6.00	0.004	0.200	0.25
DU4-51	332785.28	1047523.68	282.83	84.00	6.00	0.074	0.200	0.15
DU4-51	332790.75	1047521.43	281.89	90.00	6.00	0.367	0.200	0.09
DU4-51	332796.25	1047519.18	280.95	96.00	6.00	0.234	0.200	0.20
DU4-51	332801.71	1047516.87	280.01	102.00	6.00	0.129	0.200	0.15
DU4-51	332807.21	1047514.68	279.07	108.00	6.00	0.219	0.200	0.32
DU4-52	332752.53	1047537.56	305.04	48.00	6.00	0.101	0.200	0.16
DU4-52	332758.03	1047535.31	305.98	54.00	6.00	0.166	0.200	0.29
DU4-52	332763.50	1047533.12	306.92	60.00	6.00	0.325	0.200	0.39
DU4-52	332769.00	1047530.87	307.86	66.00	6.00	0.355	0.520	0.32
DU4-52	332817.87	1047509.37	315.72	120.00	6.00	0.056	0.200	0.15
DU4-52	332823.15	1047506.62	316.45	126.00	6.00	0.048	0.200	0.39
DU4-53	332755.62	1047547.62	305.04	48.00	6.00	0.032	0.200	0.05
DU4-53	332761.46	1047546.56	305.98	54.00	6.00	0.153	0.200	0.21
DU4-53	332767.28	1047545.50	306.92	60.00	6.00	0.052	0.200	0.85
DU4-53	332773.12	1047544.43	307.86	66.00	6.00	0.086	0.200	0.61
DU4-53	332778.93	1047543.31	308.79	72.00	6.00	0.106	0.200	0.21
DU4-53	332814.00	1047537.18	314.34	108.00	6.00	0.165	0.200	0.98
DU4-53	332819.90	1047536.50	315.17	114.00	6.00	0.100	0.200	3.92
DU4-54	332772.28	1047470.50	283.72	108.00	6.00	0.064	0.200	0.17
DU4-54	332775.90	1047465.81	282.99	114.00	6.00	0.061	0.200	0.38
DU4-54	332801.25	1047432.75	277.60	156.00	6.00	0.691	0.200	0.18
DU5-56	332781.78	1047550.43	297.63	6.00	6.00	0.304	0.200	0.29
DU5-56	332787.71	1047550.93	296.90	12.00	6.00	0.038	0.200	0.32
DU5-56	332858.90	1047557.18	288.13	84.00	6.00	0.128	0.200	0.84
DU5-56	332864.84	1047557.68	287.40	90.00	6.00	0.840	0.200	0.38
DU5-56	332870.78	1047558.18	286.67	96.00	6.00	0.153	0.200	0.05
DU5-56	332876.68	1047558.75	285.93	102.00	6.00	0.225	0.200	0.24
DU5-56	332882.56	1047559.43	284.86	108.00	6.00	1.975	0.500	0.12
DU5-56	332888.40	1047560.25	283.71	114.00	6.00	2.363	0.330	0.05
DU5-56	332894.25	1047561.00	282.57	120.00	6.00	0.396	0.200	0.09
DU5-57	332781.68	1047548.56	297.63	6.00	6.00	0.053	0.200	0.65
DU5-57	332787.43	1047547.00	296.90	12.00	6.00	0.143	0.200	1.91
DU5-57	332793.18	1047545.43	296.17	18.00	6.00	0.114	0.200	0.45
DU5-57	332862.31	1047528.37	285.74	90.00	6.00	0.033	0.200	0.16
DU5-57	332868.06	1047527.12	284.70	96.00	6.00	1.521	6.100	0.20
DU5-57	332873.84	1047525.81	283.66	102.00	6.00	0.541	0.200	0.05
DU5-57	332879.65	1047524.62	282.61	108.00	6.00	0.428	0.200	0.04
DU5-57	332885.43	1047523.43	281.57	114.00	6.00	0.288	0.220	0.06
DU5-57	332891.21	1047522.25	280.53	120.00	6.00	0.140	0.200	0.17
DU5-58	332781.65	1047548.56	300.52	6.00	6.00	0.125	0.200	0.47
DU5-58	332815.90	1047539.37	306.77	42.00	6.00	0.347	0.200	0.27
DU5-58	332821.62	1047537.81	307.81	48.00	6.00	0.316	0.200	0.28
DU5-58	332827.34	1047536.43	308.82	54.00	6.00	0.741	0.200	0.35
DU5-58	332833.18	1047535.43	309.66	60.00	6.00	0.082	0.200	0.53
DU5-58	332839.06	1047534.43	310.49	66.00	6.00	0.052	0.200	1.03
DU5-58	332844.93	1047533.50	311.33	72.00	6.00	0.047	0.200	0.64
DU5-59	332781.65	1047548.56	296.88	6.00	6.00	0.412	0.330	0.33
DU5-59	332787.31	1047547.00	295.63	12.00	6.00	0.055	0.200	1.42
DU5-59	332792.96	1047545.50	294.38	18.00	6.00	0.066	0.200	1.21

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
DU5-59	332798.65	1047544.00	293.14	24.00	6.00	0.472	0.220	0.40
DU5-59	332804.31	1047542.43	291.89	30.00	6.00	0.040	0.200	0.29
DU5-59	332883.59	1047523.87	271.32	114.00	6.00	0.045	0.200	0.05
DU5-59	332889.25	1047522.62	269.77	120.00	6.00	0.589	0.200	0.05
DU5-59	332894.90	1047521.37	268.21	126.00	6.00	0.021	0.200	0.07
DU5-59	332900.56	1047520.12	266.66	132.00	6.00	0.039	0.200	0.05
DU5-59	332906.18	1047518.87	265.02	138.00	6.00	0.079	0.200	0.01
DU5-59	332911.81	1047517.62	263.37	144.00	6.00	0.434	0.220	0.03
DU5-59	332917.46	1047516.37	261.72	150.00	6.00	1.167	0.220	0.04
DU5-59	332923.09	1047515.12	260.06	156.00	6.00	0.281	0.200	0.08
DU5-59	332928.71	1047513.87	258.41	162.00	6.00	0.139	0.200	0.06
DU5-59	332934.34	1047512.62	256.76	168.00	6.00	0.120	0.200	0.32
DU5-60	332781.56	1047548.56	296.07	6.00	6.00	0.493	0.200	0.21
DU5-60	332787.09	1047547.12	294.22	12.00	6.00	0.290	0.200	0.11
DU5-60	332792.59	1047545.62	292.36	18.00	6.00	0.069	0.200	0.24
DU5-61	332781.21	1047546.25	297.74	6.00	6.00	0.251	0.200	0.24
DU5-61	332786.62	1047543.68	297.22	12.00	6.00	0.019	0.200	0.59
DU5-61	332846.21	1047516.12	290.73	78.00	6.00	0.930	0.200	0.15
DU5-61	332851.62	1047513.68	290.00	84.00	6.00	0.068	0.200	0.09
DU5-61	332857.03	1047511.18	289.27	90.00	6.00	0.429	0.200	0.07
DU5-61	332862.46	1047508.75	288.54	96.00	6.00	0.201	0.200	0.04
DU5-61	332867.87	1047506.25	287.81	102.00	6.00	0.714	0.200	0.09
DU5-61	332873.31	1047503.81	287.08	108.00	6.00	0.274	0.200	0.06
DU5-61	332878.71	1047501.31	286.35	114.00	6.00	0.134	0.200	0.10
DU5-62	332786.62	1047543.68	299.78	12.00	6.00	0.239	0.200	0.69
DU5-62	332792.03	1047541.18	300.31	18.00	6.00	0.150	0.200	0.32
DU5-62	332824.53	1047526.00	303.45	54.00	6.00	0.098	0.200	0.29
DU5-63	332781.12	1047546.25	301.78	6.00	6.00	0.059	0.200	0.36
DU5-63	332823.15	1047526.62	314.18	54.00	6.00	0.083	0.200	1.00
DU5-63	332828.40	1047524.12	315.63	60.00	6.00	0.049	0.200	1.23
DU5-64	332781.12	1047546.25	296.22	6.00	6.00	0.360	0.200	0.08
DU5-64	332786.37	1047543.81	294.67	12.00	6.00	0.423	0.200	0.17
DU5-64	332791.62	1047541.37	293.12	18.00	6.00	0.022	0.200	0.29
DU5-64	332897.09	1047494.12	261.05	138.00	6.00	0.209	0.200	0.06
DU5-64	332902.43	1047492.00	259.30	144.00	6.00	1.766	0.200	0.04
DU5-64	332907.75	1047489.93	257.54	150.00	6.00	1.189	0.200	0.04
DU5-64	332913.09	1047487.81	255.79	156.00	6.00	2.146	0.220	0.04
DU5-64	332918.43	1047485.68	254.04	162.00	6.00	0.920	0.230	0.10
DU5-64	332923.78	1047483.62	252.28	168.00	6.00	0.284	0.200	0.11
DU5-65	332781.06	1047546.31	294.97	6.00	6.00	0.078	0.200	0.08
DU5-65	332786.15	1047543.93	292.92	12.00	6.00	0.173	0.200	0.07
DU5-65	332791.28	1047541.56	290.87	18.00	6.00	0.167	0.200	0.10
DU5-65	333043.37	1047405.62	172.65	330.00	6.00	0.031	0.200	0.01
DU5-65	333047.53	1047402.06	170.21	336.00	6.00	1.026	0.200	0.02
DU5-65	333051.71	1047398.50	167.77	342.00	6.00	1.541	0.200	0.01
DU5-65	333054.50	1047396.12	166.14	344.00	2.00	0.187	0.200	0.00
DU5-66	332780.96	1047545.25	298.50	6.00	6.00	0.074	0.200	0.32
DU5-66	332844.84	1047500.56	298.50	84.00	6.00	0.664	0.200	0.22
DU5-66	332849.78	1047497.12	298.50	90.00	6.00	0.101	0.200	0.71
DU5-67	332785.62	1047542.00	303.33	12.00	6.00	0.190	0.200	0.48
DU5-67	332790.37	1047538.68	304.88	18.00	6.00	0.110	0.200	0.38
DU5-67	332828.65	1047512.37	316.83	66.00	6.00	0.194	0.200	0.25
DU5-68	332780.87	1047545.31	296.22	6.00	6.00	1.308	0.350	0.08
DU5-68	332785.62	1047542.00	294.67	12.00	6.00	1.039	0.310	0.30
DU5-68	332790.37	1047538.68	293.12	18.00	6.00	0.190	0.200	0.41
DU5-68	332937.71	1047444.18	251.48	198.00	6.00	0.075	0.200	0.24
DU5-68	332942.53	1047440.87	250.09	204.00	6.00	0.349	0.200	0.19
DU5-68	332947.15	1047437.37	248.64	210.00	6.00	0.122	0.200	0.11
DU5-69	332815.75	1047521.00	325.62	54.00	6.00	0.060	0.200	0.76
DU5-70	332749.53	1047532.93	309.88	48.00	6.00	0.159	0.200	0.26

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DU5-70	332754.53	1047529.93	311.23	54.00	6.00	0.345	0.200	0.24
DU5-70	332759.50	1047526.87	312.58	60.00	6.00	1.616	0.200	0.37
DU5-70	332779.43	1047514.62	317.98	84.00	6.00	0.123	0.200	0.29
DU5-70	332784.43	1047511.56	319.33	90.00	6.00	1.920	0.200	0.14
DU5-70	332789.40	1047508.50	320.68	96.00	6.00	0.130	0.200	0.21
DU5-70	332809.87	1047497.06	325.77	120.00	6.00	0.043	0.200	1.30
DU5-71	332742.75	1047537.18	317.06	42.00	6.00	0.378	0.200	0.20
DU5-71	332747.46	1047534.25	319.31	48.00	6.00	0.947	0.240	0.46
DU5-71	332752.21	1047531.37	321.55	54.00	6.00	0.120	0.200	0.77
DU5-71	332756.96	1047528.43	323.80	60.00	6.00	0.266	0.200	1.09
DU5-71	332761.71	1047525.56	326.05	66.00	6.00	0.078	0.200	0.72
DU5-71	332766.46	1047522.62	328.30	72.00	6.00	0.356	0.200	1.54
DU5-71	332785.43	1047511.00	337.29	96.00	6.00	0.061	0.200	0.74
DU5-71	332790.15	1047508.12	339.54	102.00	6.00	0.169	0.200	0.16
DU5-72	332752.43	1047499.62	309.98	72.00	6.00	0.218	0.200	0.12
DU5-72	332756.03	1047494.93	311.02	78.00	6.00	0.063	0.200	0.06
DU5-72	332759.62	1047490.25	312.07	84.00	6.00	0.003	0.230	0.37
DU5-72	332763.21	1047485.56	313.11	90.00	6.00	0.090	0.200	0.34
DU5-72	332766.81	1047480.87	314.15	96.00	6.00	0.116	0.200	0.36
DU5-73	332751.62	1047502.18	322.78	72.00	6.00	0.073	0.200	0.48
DU5-73	332755.18	1047497.75	324.64	78.00	6.00	0.712	0.200	0.38
DU5-73	332758.75	1047493.25	326.49	84.00	6.00	0.112	0.200	0.27
DU5-74	332708.59	1047550.06	300.62	6.00	6.00	0.038	0.200	0.08
DU5-74	332730.34	1047482.87	314.55	78.00	6.00	0.034	0.200	0.04
DU5-74	332742.71	1047449.75	321.42	114.00	6.00	0.060	0.200	0.18
DU5-76	332701.59	1047366.37	375.88	204.00	6.00	0.089	0.200	0.54
DU5-76	332701.90	1047360.75	378.03	210.00	6.00	0.099	0.200	2.45
DU5-76	332702.18	1047355.18	380.18	216.00	6.00	0.045	0.200	0.62
DU5-76	332702.46	1047349.56	382.33	222.00	6.00	0.024	0.200	0.16
DU5-76	332702.78	1047344.00	384.48	228.00	6.00	0.060	0.200	0.09
DU5-76	332703.06	1047338.37	386.63	234.00	6.00	0.213	0.200	0.49
DU5-76	332703.37	1047332.81	388.78	240.00	6.00	0.014	0.200	0.76
DU5-76	332703.65	1047327.18	390.93	246.00	6.00	0.020	0.200	0.26
DU5-76	332703.93	1047321.62	393.08	252.00	6.00	0.078	0.200	0.22
DU5-78	332701.09	1047550.18	301.93	6.00	6.00	0.046	0.200	0.17
DU5-78	332698.00	1047384.81	355.70	180.00	6.00	0.688	0.210	0.14
DU5-78	332697.90	1047379.12	357.55	186.00	6.00	1.156	0.200	0.11
DU5-78	332697.62	1047356.31	364.97	210.00	6.00	0.137	0.200	0.22
DU5-78	332697.62	1047350.62	366.82	216.00	6.00	0.055	0.200	1.14
DU5-78	332697.62	1047344.87	368.67	222.00	6.00	0.032	0.200	0.54
F4-1	333701.03	1045409.25	-23.76	576.00	6.00	0.138	0.200	0.03
F4-1	333700.81	1045409.00	-29.76	582.00	6.00	0.206	0.200	0.03
F4-2	333755.12	1045399.43	538.00	12.00	6.00	-1.000	-1.000	-1.00
F4-4	333685.06	1045325.31	104.62	456.00	6.00	0.107	0.200	0.04
F4-4	333684.00	1045324.81	98.73	462.00	6.00	0.049	0.200	0.04
F4-5	333767.68	1045353.31	546.02	6.00	6.00	-1.000	-1.000	-1.00
F4-6	333767.53	1045268.25	-78.98	636.00	6.00	0.032	0.300	0.66
F4-6	333767.53	1045267.50	-84.94	642.00	6.00	0.064	0.220	0.87
F4-6	333767.53	1045266.75	-90.89	648.00	6.00	0.007	0.150	0.13
F4-6	333767.53	1045266.06	-96.85	654.00	6.00	0.073	0.100	1.14
F4-6	333767.53	1045265.31	-102.80	660.00	6.00	0.078	0.100	1.57
F4-6	333767.53	1045264.56	-108.76	666.00	6.00	0.042	0.100	0.49
F4-8	333784.40	1045227.87	16.59	552.00	6.00	0.155	0.200	0.31
F4-8	333784.40	1045227.12	10.64	558.00	6.00	0.115	0.200	0.30
H4-14	333604.62	1046525.06	259.55	714.00	6.00	0.034	0.270	0.43
H4-14	333603.46	1046522.81	254.11	720.00	6.00	0.291	0.250	1.86
H4-14	333602.34	1046520.56	248.68	726.00	6.00	0.172	0.240	1.35
H4-15	333638.53	1046783.06	451.53	450.00	6.00	0.003	0.200	0.03
H4-15	333602.62	1046730.31	96.53	816.00	6.00	0.066	0.200	0.81
H4-15	333602.71	1046730.31	90.53	822.00	6.00	0.580	0.200	0.57

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H4-15	333602.81	1046730.37	84.54	828.00	6.00	0.211	0.200	1.12
H4-15	333602.90	1046730.37	78.54	834.00	6.00	0.076	0.200	1.72
H4-16	333674.53	1046858.31	319.69	570.00	6.00	0.031	0.200	0.07
H4-16	333685.25	1046874.43	50.62	840.00	6.00	0.281	0.200	0.22
H4-16	333685.18	1046874.31	44.62	846.00	6.00	0.434	0.200	0.68
H4-16	333685.12	1046874.18	38.62	852.00	6.00	0.277	0.200	0.16
H4-18	333701.68	1046778.18	426.99	480.00	6.00	0.003	0.200	0.03
H4-18	333673.31	1046718.75	95.63	822.00	6.00	0.075	0.200	0.16
H4-18	333673.40	1046718.43	89.64	828.00	6.00	0.081	0.200	0.15
H4-18	333673.46	1046718.12	83.65	834.00	6.00	0.518	0.200	2.25
H4-19	333698.46	1046782.81	426.99	480.00	6.00	0.063	0.200	0.51
H4-19	333673.00	1046720.56	90.28	828.00	6.00	0.068	0.200	0.26
H4-19	333673.15	1046720.18	84.29	834.00	6.00	0.020	0.200	0.33
H4-19	333673.31	1046719.81	78.31	840.00	6.00	0.211	0.200	0.33
H4-19	333673.46	1046719.43	72.32	846.00	6.00	1.016	0.200	1.36
H4-19	333673.62	1046719.06	66.34	852.00	6.00	0.142	0.200	0.25
H4-20	333624.15	1046990.87	59.53	822.00	6.00	0.102	0.200	4.78
H4-21	333476.18	1046762.87	412.86	522.00	6.00	0.156	0.200	0.08
H4-21	333475.40	1046761.43	407.08	528.00	6.00	0.463	0.200	0.18
H4-21	333454.15	1046720.18	233.17	708.00	6.00	0.194	0.200	0.31
H4-22	333725.75	1046898.37	184.04	702.00	6.00	0.112	0.200	0.04
H4-22	333726.15	1046898.68	178.06	708.00	6.00	0.042	0.200	0.04
H4-22	333736.81	1046902.56	-67.63	954.00	6.00	0.258	0.200	0.04
H4-23	333399.40	1046827.37	465.62	474.00	6.00	0.182	0.200	0.05
H4-23	333398.21	1046825.75	459.96	480.00	6.00	0.054	0.200	0.02
H4-23	333364.59	1046779.25	258.39	690.00	6.00	0.041	0.200	0.10
H4-24	333509.65	1046924.68	103.55	792.00	6.00	0.003	0.200	0.11
H4-24	333510.18	1046924.62	97.57	798.00	6.00	0.003	0.200	0.17
H4-24	333510.71	1046924.56	91.60	804.00	6.00	0.003	0.200	0.00
H4-25	333446.43	1046864.81	150.03	762.00	6.00	0.045	0.200	0.82
H4-25	333446.96	1046864.93	144.05	768.00	6.00	0.108	0.200	1.45
H4-26	333268.81	1046812.93	303.30	648.00	6.00	0.097	0.200	0.22
H4-26	333267.71	1046811.50	297.60	654.00	6.00	0.414	0.200	1.37
H4-26	333266.62	1046810.00	291.89	660.00	6.00	0.267	0.200	0.72
H4-26	333265.50	1046808.50	286.18	666.00	6.00	0.122	0.200	0.23
H4-27	333288.93	1046846.87	259.97	672.00	6.00	0.069	0.200	0.04
H4-27	333288.78	1046846.18	254.01	678.00	6.00	0.031	0.200	1.19
H4-27	333288.65	1046845.43	248.06	684.00	6.00	0.036	0.200	0.38
H4-28	333378.25	1046928.12	102.32	804.00	6.00	0.030	0.200	0.32
H4-30	333652.12	1047106.62	-27.86	912.00	6.00	0.034	0.200	0.97
H4-31	333518.53	1047126.87	128.37	750.00	6.00	0.231	0.200	0.03
H4-31	333526.28	1047130.56	-3.34	882.00	6.00	0.177	0.200	0.04
H4-31	333526.68	1047130.87	-9.32	888.00	6.00	0.042	0.200	0.03
H4-31	333527.06	1047131.18	-15.30	894.00	6.00	0.008	0.200	0.02
H4-31	333527.46	1047131.56	-21.27	900.00	6.00	0.015	0.200	0.03
H4-31	333527.87	1047131.87	-27.25	906.00	6.00	0.073	0.200	0.01
H4-31	333528.28	1047132.18	-33.23	912.00	6.00	0.142	0.200	0.07
H4-33	333475.53	1046730.81	205.27	732.00	6.00	0.006	0.200	0.79
H4-33	333475.15	1046730.06	199.32	738.00	6.00	0.004	0.200	0.10
H4-34	333508.59	1046790.00	138.07	774.00	6.00	0.003	0.200	0.04
H4-35	333572.18	1046879.37	103.36	786.00	6.00	0.031	0.200	0.63
H4-36	333555.59	1047052.25	42.01	858.00	6.00	0.595	0.280	0.65
H4-36	333557.31	1047052.68	36.28	864.00	6.00	1.116	0.370	1.93
H4-36	333559.03	1047053.12	30.55	870.00	6.00	0.023	0.200	0.73
H4-36	333560.71	1047053.62	24.82	876.00	6.00	0.020	0.200	0.48
H4-36	333562.43	1047054.06	19.09	882.00	6.00	0.041	0.200	0.51
H4-36	333564.15	1047054.56	13.36	888.00	6.00	0.194	0.200	0.92
H4-37	333548.06	1047098.00	27.26	858.00	6.00	0.058	0.200	0.17
H4-37	333549.15	1047098.31	21.37	864.00	6.00	0.098	0.200	0.16
H4-38	333455.65	1047087.93	31.99	846.00	6.00	0.036	0.200	0.20

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DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
H4-40	333586.78	1046981.62	44.58	840.00	6.00	0.134	0.200	1.04
H4-40	333587.50	1046981.50	38.62	846.00	6.00	0.050	0.200	2.76
H4-40	333588.25	1046981.43	32.67	852.00	6.00	0.024	0.200	2.55
H4-40	333588.96	1046981.37	26.71	858.00	6.00	0.049	0.200	0.27
H4-42	333938.00	1046669.56	46.71	834.00	6.00	0.150	0.200	0.46
H4-42	333938.25	1046669.12	40.73	840.00	6.00	0.081	0.200	0.25
H4-43	333754.03	1046515.56	186.54	714.00	6.00	0.048	0.200	0.78
H4-43	333753.28	1046514.81	180.63	720.00	6.00	0.013	0.200	1.39
H4-43	333752.56	1046514.06	174.72	726.00	6.00	0.358	0.200	0.42
H4-43	333751.84	1046513.31	168.81	732.00	6.00	1.450	0.200	0.69
H4-43	333751.09	1046512.56	162.91	738.00	6.00	0.057	0.200	0.24
H4-44	333643.40	1047112.18	-17.68	912.00	6.00	0.033	0.200	0.05
H4-44	333644.50	1047113.00	-23.53	918.00	6.00	0.256	0.200	0.05
H4-44	333645.59	1047113.75	-29.38	924.00	6.00	0.026	0.200	0.14
H4-44	333646.65	1047114.56	-35.23	930.00	6.00	0.057	0.200	0.03
H4-45	333936.37	1046783.00	-72.73	954.00	6.00	0.033	0.200	0.02
H4-46	333861.96	1046648.75	79.91	822.00	6.00	0.039	0.200	0.64
H4-46	333861.34	1046647.81	74.02	828.00	6.00	0.133	0.200	0.84
H4-46	333860.75	1046646.81	68.13	834.00	6.00	0.219	0.200	0.61
H4-47	333998.84	1046582.18	74.74	864.00	6.00	0.160	0.410	0.69
H4-47	334004.15	1046577.68	51.79	888.00	6.00	0.342	0.200	0.02
H4-48	333745.75	1046836.56	288.86	594.00	6.00	0.362	0.300	0.14
H4-48	333745.96	1046836.37	282.86	600.00	6.00	0.115	0.220	0.31
H4-48	333751.62	1046830.37	55.03	828.00	6.00	0.083	0.200	0.76
H4-48	333751.65	1046830.25	49.03	834.00	6.00	0.116	0.200	0.38
H4-48	333751.75	1046830.00	43.03	840.00	6.00	0.171	0.200	0.60
H4-49	334125.40	1046176.50	289.22	594.00	6.00	0.053	0.200	0.08
H4-49	334126.40	1046176.43	283.30	600.00	6.00	0.066	0.200	0.38
H4-49	334130.40	1046176.31	259.64	624.00	6.00	0.043	0.200	0.11
H4-49	334131.40	1046176.31	253.72	630.00	6.00	0.036	0.200	0.15
H4-49	334132.40	1046176.25	247.81	636.00	6.00	0.087	0.200	0.27
H4-49	334133.40	1046176.25	241.89	642.00	6.00	0.049	0.200	0.21
H4-50	334348.46	1046200.18	260.46	624.00	6.00	0.190	0.200	0.11
H4-50	334349.06	1046200.00	254.49	630.00	6.00	0.093	0.200	0.15
H4-50	334353.00	1046198.50	212.70	672.00	6.00	0.170	0.200	0.48
H4-50	334353.53	1046198.25	206.73	678.00	6.00	0.011	0.200	0.14
H4-50	334354.03	1046198.00	200.76	684.00	6.00	0.040	0.200	0.61
H4-50	334354.62	1046197.75	194.79	690.00	6.00	0.049	0.200	0.74
H4-50	334355.21	1046197.50	188.82	696.00	6.00	0.027	0.200	0.25
H4-50	334355.78	1046197.31	182.86	702.00	6.00	0.140	0.200	0.19
H4-50	334356.31	1046197.06	176.89	708.00	6.00	0.244	0.200	0.48
H4-50	334356.84	1046196.75	170.92	714.00	6.00	0.116	0.200	0.30
H4-52	333207.31	1047196.18	144.00	750.00	6.00	0.061	0.200	0.08
H4-52	333207.34	1047196.06	138.00	756.00	6.00	0.169	0.200	0.11
H4-53	333585.06	1047183.81	-58.78	936.00	6.00	0.054	0.210	0.05
H4-55	334414.09	1046452.62	60.47	846.00	6.00	0.057	0.200	0.64
H4-55	334414.56	1046451.50	54.60	852.00	6.00	0.058	0.200	1.28
H4-57	334331.68	1046550.18	103.64	792.00	6.00	0.038	0.200	0.22
H4-57	334332.09	1046549.62	97.68	798.00	6.00	0.115	0.200	0.34
H4-58	333539.84	1047189.81	0.54	876.00	6.00	0.003	0.200	0.06
H4-59	333322.43	1047087.68	124.72	768.00	6.00	0.040	0.200	0.52
H4-60	333480.09	1047239.25	73.08	822.00	6.00	0.287	0.240	2.49
H4-61	333426.84	1047034.25	113.28	780.00	6.00	0.072	0.200	0.44
H4-62	333520.40	1047158.43	112.94	774.00	6.00	0.003	0.200	0.09
H4-62	333542.46	1047164.62	-17.05	906.00	6.00	0.042	0.200	0.07
H4-62	333543.50	1047165.00	-22.95	912.00	6.00	0.323	0.200	1.25
H4-62	333544.53	1047165.31	-28.85	918.00	6.00	0.284	0.200	0.24
H4-62	333545.56	1047165.62	-34.75	924.00	6.00	0.122	0.200	0.15
H4-64	333956.50	1046381.25	175.53	720.00	6.00	0.033	0.200	0.25
H4-64	333956.50	1046380.18	169.63	726.00	6.00	0.076	0.200	0.15

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H4-65	334108.59	1046509.87	38.71	846.00	6.00	0.150	0.200	0.02
H4-65	334109.43	1046509.62	32.77	852.00	6.00	0.198	0.200	0.01
H4-66	333607.62	1046588.75	223.84	720.00	6.00	0.077	0.200	1.12
H4-66	333606.65	1046587.00	218.18	726.00	6.00	0.322	0.200	0.75
H4-66	333605.65	1046585.25	212.53	732.00	6.00	0.060	0.200	0.04
H4-67	333528.68	1046624.50	345.33	624.00	6.00	0.138	0.200	0.04
H4-67	333526.87	1046622.56	339.96	630.00	6.00	0.044	0.200	0.05
H4-67	333505.81	1046598.81	275.31	702.00	6.00	0.042	0.200	0.11
H4-67	333504.06	1046596.87	269.93	708.00	6.00	0.366	0.200	0.83
H4-67	333451.62	1046537.50	108.28	888.00	6.00	0.043	0.200	0.82
H4-68	333711.71	1046357.75	257.59	696.00	6.00	0.186	0.200	0.16
H4-68	333710.12	1046356.18	252.03	702.00	6.00	0.299	0.200	0.29
H4-68	333708.50	1046354.56	246.47	708.00	6.00	0.089	0.200	0.15
H4-69	333846.09	1046439.00	175.24	726.00	6.00	0.006	0.200	0.23
H4-69	333845.96	1046437.18	157.33	744.00	6.00	0.025	0.200	0.58
H4-70	333939.43	1046493.87	113.40	774.00	6.00	0.116	0.200	0.14
H4-70	333941.34	1046492.56	95.54	792.00	6.00	0.038	0.200	0.19
H4-71	332873.46	1047167.68	263.85	636.00	6.00	0.003	0.200	0.00
H4-71	332872.31	1047166.93	258.01	642.00	6.00	0.003	0.200	0.00
H4-71	332871.15	1047166.25	252.17	648.00	6.00	0.003	0.200	0.00
H4-72	332988.46	1047274.81	221.77	660.00	6.00	0.111	0.200	0.38
H4-73	333133.78	1047243.50	165.22	726.00	6.00	0.036	-1.000	1.23
H4-74	333245.84	1047300.06	133.29	762.00	6.00	0.099	0.200	1.03
H4-74	333245.96	1047299.93	127.30	768.00	6.00	0.076	0.200	0.58
H4-75	333040.09	1047264.12	193.12	702.00	6.00	0.047	0.200	0.13
H4-77	333580.78	1047256.18	298.35	582.00	6.00	0.047	0.230	0.06
H4-77	333580.62	1047256.00	292.36	588.00	6.00	0.038	0.200	0.03
H4-78	332822.84	1047770.62	284.20	594.00	6.00	0.079	0.200	0.15
H4-79	333605.59	1046597.31	227.66	714.00	6.00	0.082	0.200	0.90
H4-79	333604.53	1046595.62	222.01	720.00	6.00	0.129	0.200	0.91
H4-79	333603.46	1046593.87	216.35	726.00	6.00	0.178	0.200	0.61
H4-79	333602.40	1046592.18	210.70	732.00	6.00	0.107	0.200	0.27
H4-80	332768.40	1047817.31	266.38	612.00	6.00	0.093	0.200	0.99
H4-80	332768.28	1047816.81	260.40	618.00	6.00	0.062	0.200	0.56
H4-80	332768.15	1047816.37	254.41	624.00	6.00	0.812	0.200	0.18
H4-80	332768.03	1047815.87	248.43	630.00	6.00	0.968	0.200	0.08
H4-80	332767.90	1047815.43	242.45	636.00	6.00	0.475	0.200	0.13
H4-83	333176.40	1047037.68	214.60	672.00	6.00	0.066	0.200	0.34
H4-83	333176.21	1047037.12	208.63	678.00	6.00	0.228	0.200	1.14
H4-83	333176.06	1047036.56	202.66	684.00	6.00	0.158	0.200	0.88
H4-83	333175.87	1047036.00	196.69	690.00	6.00	0.049	0.200	1.51
H4-84	333235.78	1047135.68	126.00	750.00	6.00	0.097	0.200	1.01
H4-84	333235.78	1047135.68	120.00	756.00	6.00	0.106	0.200	1.08
H4-84	333235.78	1047135.68	114.00	762.00	6.00	0.125	0.200	2.92
H4-84	333235.78	1047135.68	108.00	768.00	6.00	0.198	0.200	1.70
H4-84	333235.78	1047135.68	102.00	774.00	6.00	0.097	0.200	0.52
H4-85	333395.96	1047426.87	162.39	720.00	6.00	0.442	0.200	0.18
H4-85	333401.65	1047423.93	102.73	780.00	6.00	0.310	0.200	0.13
H4-85	333402.21	1047423.62	96.76	786.00	6.00	0.259	0.200	0.12
H5-100	334337.62	1046155.50	240.87	642.00	6.00	0.032	0.200	2.30
H5-100	334338.18	1046155.75	234.91	648.00	6.00	0.096	0.200	4.83
H5-100	334338.78	1046156.06	228.94	654.00	6.00	0.268	0.200	8.62
H5-100	334339.34	1046156.31	222.97	660.00	6.00	0.096	0.200	2.92
H5-100	334339.93	1046156.56	217.01	666.00	6.00	0.021	0.200	0.78
H5-100	334340.53	1046156.75	211.04	672.00	6.00	0.063	0.200	1.06
H5-100	334341.09	1046157.00	205.07	678.00	6.00	0.122	0.200	0.82
H5-100	334341.68	1046157.25	199.10	684.00	6.00	0.445	0.230	0.70
H5-100	334342.25	1046157.50	193.14	690.00	6.00	0.226	0.210	0.22
H5-101	333369.28	1047317.75	507.08	372.00	6.00	0.003	0.200	0.02
H5-102	334272.62	1046195.31	256.34	654.00	6.00	0.003	0.200	0.07

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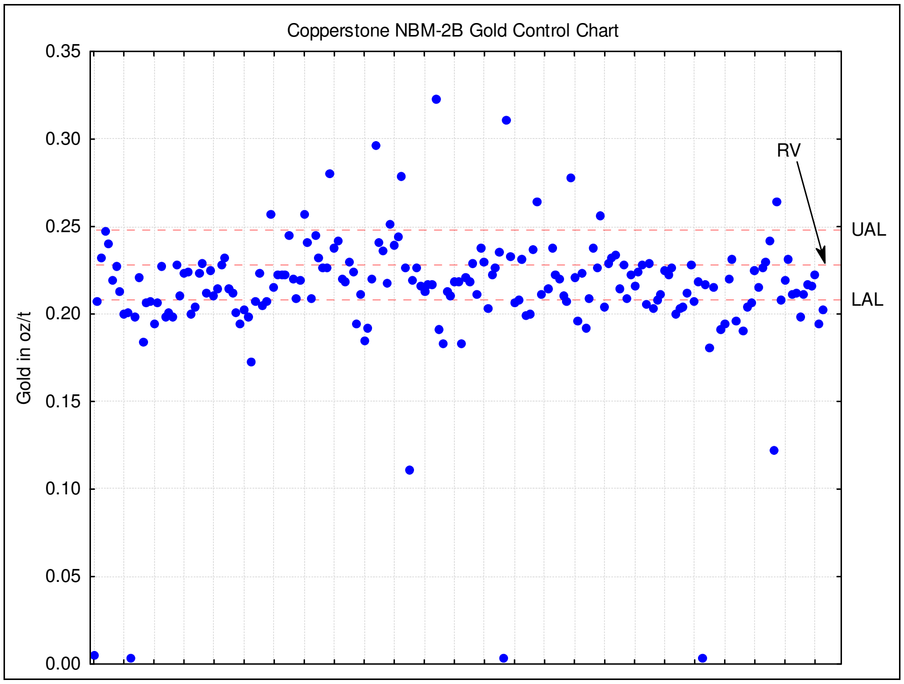
DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
H5-102	334273.25	1046195.31	250.37	660.00	6.00	0.003	0.200	0.12
H5-102	334273.87	1046195.31	244.41	666.00	6.00	0.003	0.200	0.08
H5-102	334274.53	1046195.25	238.44	672.00	6.00	0.003	0.200	0.05
H5-102	334275.15	1046195.25	232.47	678.00	6.00	0.003	0.200	0.02
H5-102	334275.78	1046195.25	226.51	684.00	6.00	0.003	0.200	0.10
H5-102	334276.43	1046195.25	220.54	690.00	6.00	0.003	0.200	0.02
H5-102	334277.06	1046195.25	214.58	696.00	6.00	0.003	0.200	0.03
H5-102	334277.68	1046195.18	208.61	702.00	6.00	0.003	0.200	0.05
H5-102	334278.34	1046195.18	202.64	708.00	6.00	0.003	0.200	0.04
H5-102	334278.96	1046195.18	196.68	714.00	6.00	0.003	0.200	0.05
H5-102	334279.62	1046195.18	190.71	720.00	6.00	0.003	0.200	0.03
H5-102	334280.25	1046195.12	184.75	726.00	6.00	0.003	0.200	0.04
H5-102	334280.87	1046195.12	178.78	732.00	6.00	0.003	0.200	0.03
H5-103	333826.65	1046909.37	155.24	726.00	6.00	0.248	0.200	1.38
H5-103	333826.56	1046909.50	149.24	732.00	6.00	0.154	0.200	0.98
H5-103	333822.09	1046909.43	29.34	852.00	6.00	0.284	0.200	0.04
H5-103	333821.75	1046909.25	23.36	858.00	6.00	0.416	0.200	0.05
H5-106	334167.25	1046337.75	252.70	630.00	6.00	0.141	0.200	0.21
H5-106	334167.87	1046338.06	246.74	636.00	6.00	0.374	0.200	0.15
H5-106	334168.50	1046338.43	240.78	642.00	6.00	0.037	0.200	0.13
H5-106	334169.12	1046338.75	234.83	648.00	6.00	0.021	0.200	0.34
H5-106	334169.75	1046339.06	228.87	654.00	6.00	0.043	0.200	0.39
H5-106	334170.40	1046339.37	222.91	660.00	6.00	0.047	0.200	0.30
H5-106	334171.03	1046339.68	216.95	666.00	6.00	0.034	0.200	0.77
H5-107	333695.43	1047085.18	-78.39	966.00	6.00	0.032	0.200	0.07
H5-109	334430.59	1046283.43	151.08	732.00	6.00	0.172	0.200	0.20
H5-109	334430.81	1046283.75	145.09	738.00	6.00	0.122	0.200	0.23
H5-109	334431.03	1046284.00	139.10	744.00	6.00	0.526	0.200	0.83
H5-110	332767.75	1047886.87	259.90	618.00	6.00	0.155	0.200	0.65
H5-110	332767.78	1047886.87	253.90	624.00	6.00	0.010	0.230	0.20
H5-110	332767.81	1047886.87	247.90	630.00	6.00	0.195	0.210	0.14
H5-110	332767.87	1047886.87	241.90	636.00	6.00	0.090	0.200	0.14
H5-111	332710.87	1047845.25	295.37	582.00	6.00	0.003	0.200	0.55
H5-111	332710.78	1047845.25	289.37	588.00	6.00	0.005	0.200	0.71
H5-111	332710.71	1047845.31	283.37	594.00	6.00	0.003	0.200	0.34
H5-111	332710.62	1047845.31	277.37	600.00	6.00	0.004	0.200	0.33
H5-111	332710.56	1047845.37	271.37	606.00	6.00	0.003	0.200	0.19
H5-111	332710.46	1047845.43	265.37	612.00	6.00	0.003	0.200	0.07
H5-112	332765.96	1047742.43	607.50	270.00	6.00	-1.000	-1.000	-1.00
H5-119	334178.81	1046146.06	281.76	600.00	6.00	0.131	0.200	0.40
H5-121	333413.03	1047171.87	99.17	780.00	6.00	-1.000	-1.000	-1.00
H5-121	333416.25	1047171.87	21.23	858.00	6.00	-1.000	-1.000	-1.00
H5-121	333416.50	1047171.87	15.24	864.00	6.00	-1.000	-1.000	-1.00
H5-88	333376.84	1047308.31	508.49	372.00	6.00	0.112	0.200	0.07
H5-88	333377.59	1047308.25	502.53	378.00	6.00	0.170	0.200	0.05
H5-93	333437.90	1047453.87	478.10	402.00	6.00	0.165	0.200	0.73
H5-93	333437.90	1047454.31	472.11	408.00	6.00	0.003	0.200	0.60
H5-93	333437.90	1047454.75	466.13	414.00	6.00	0.290	0.200	0.15
H5-93	333437.90	1047455.12	460.14	420.00	6.00	0.194	0.200	0.12
H5-95	333866.50	1046799.87	-30.77	912.00	6.00	0.003	0.200	0.07
H5-96	333521.50	1047070.56	39.47	840.00	6.00	0.139	0.200	0.24
H5-96	333521.53	1047070.37	33.47	846.00	6.00	0.065	0.200	0.09
H5-96	333521.59	1047070.12	27.48	852.00	6.00	0.022	0.200	0.47
H5-96	333521.62	1047069.87	21.48	858.00	6.00	0.035	0.200	0.33
H5-99	333478.59	1047233.68	76.98	804.00	6.00	0.016	0.200	0.11
H5-99	333485.00	1047242.06	-0.31	882.00	6.00	0.168	0.200	0.17
H5-99	333485.53	1047242.75	-6.25	888.00	6.00	0.250	0.200	0.14
H5-118	334269.75	1046065.93	377.02	510.00	6.00	1.535	0.270	1.29
H5-118	334269.68	1046065.18	371.07	516.00	6.00	0.795	0.220	0.40
H5-118	334269.59	1046064.43	365.12	522.00	6.00	0.066	0.200	0.08

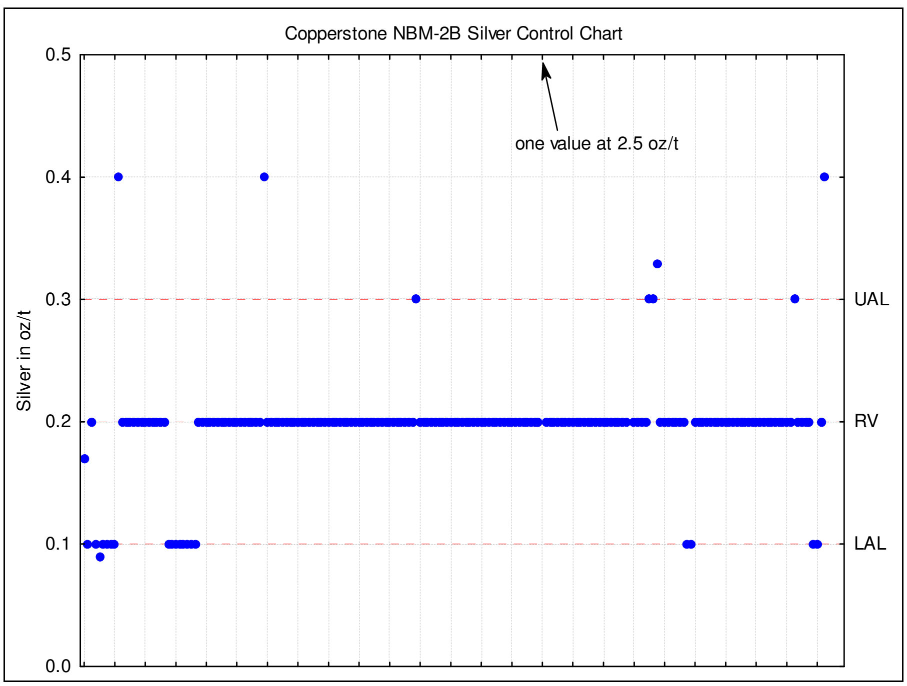
COPPERSTONE PROJECT, ARIZONA, AMERICAN BONANZA
DRILL HOLE COMPOSITES USED IN 2006 RESOURCE CALCULATIONS
MEASUREMENTS ARE IN IMPERIAL UNITS

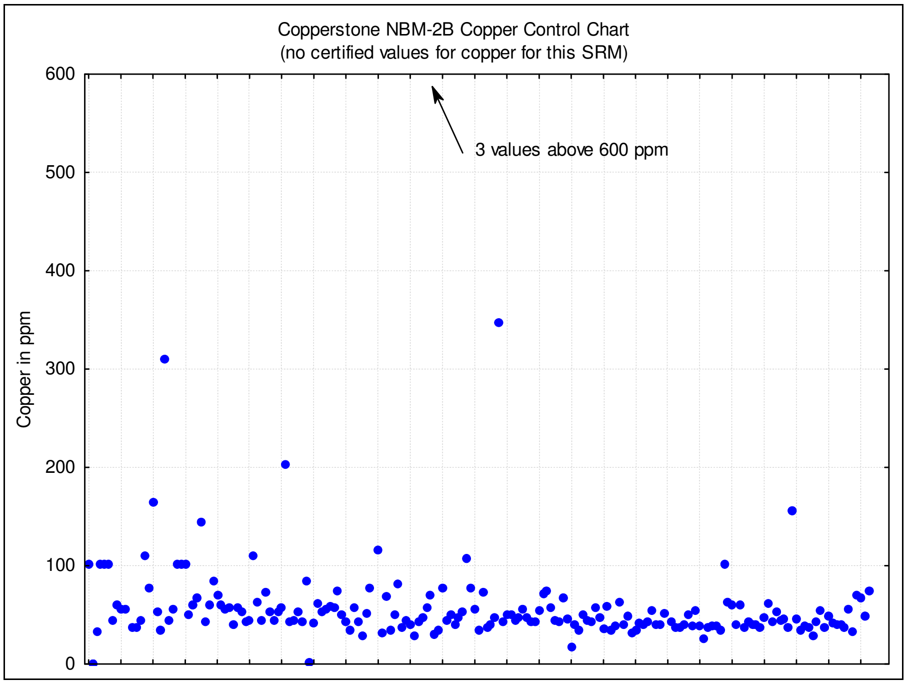
DH ID	EASTING (ft.)	NORTHING (ft.)	-TO- (ft.)	ELEV. (ft.)	LENGTH (ft.)	AU (opt)	AG (opt)	CU (%)
H5-118	334269.53	1046063.68	359.16	528.00	6.00	0.039	0.200	0.05
H5-118	334269.43	1046062.93	353.21	534.00	6.00	0.012	0.200	0.06
H5-118	334269.37	1046062.18	347.26	540.00	6.00	0.082	0.200	0.14
H5-118	334269.28	1046061.43	341.30	546.00	6.00	0.009	0.200	0.29
H5-118	334269.18	1046060.68	335.35	552.00	6.00	0.054	0.200	0.41
H5-118	334268.53	1046054.87	287.72	600.00	6.00	0.205	0.200	2.14
H5-118	334268.43	1046054.12	281.76	606.00	6.00	0.282	0.200	0.16
H5-118	334268.37	1046053.37	275.81	612.00	6.00	0.059	0.200	0.39
H5-158	333597.93	1046559.25	254.26	708.00	6.00	0.049	0.200	0.45
H5-158	333595.96	1046557.18	248.96	714.00	6.00	0.076	0.200	0.85
H5-158	333594.03	1046555.18	243.67	720.00	6.00	0.072	0.200	0.39
H5-158	333592.09	1046553.12	238.37	726.00	6.00	0.249	0.200	1.31
H5-155	333548.56	1046620.50	254.94	702.00	6.00	0.031	0.200	0.50
H5-155	333547.06	1046618.37	249.51	708.00	6.00	0.071	0.200	0.06
H5-155	333545.56	1046616.31	244.09	714.00	6.00	0.041	0.200	0.03
H5-155	333544.09	1046614.18	238.66	720.00	6.00	0.054	0.200	0.16
H5-155	333542.59	1046612.12	233.24	726.00	6.00	0.039	0.200	0.25
H5-155	333501.00	1046553.56	81.37	894.00	6.00	-1.000	-1.000	-1.00
H5-156	333590.65	1046672.81	211.67	720.00	6.00	0.115	0.200	0.10
H5-156	333589.87	1046671.31	205.91	726.00	6.00	0.051	0.200	1.27
H5-156	333589.12	1046669.87	200.15	732.00	6.00	0.167	0.200	0.72
H5-156	333588.34	1046668.37	194.39	738.00	6.00	0.396	0.200	1.51
H5-156	333587.56	1046666.87	188.62	744.00	6.00	0.088	0.200	0.31
H5-156	333586.81	1046665.37	182.86	750.00	6.00	0.076	0.200	0.36

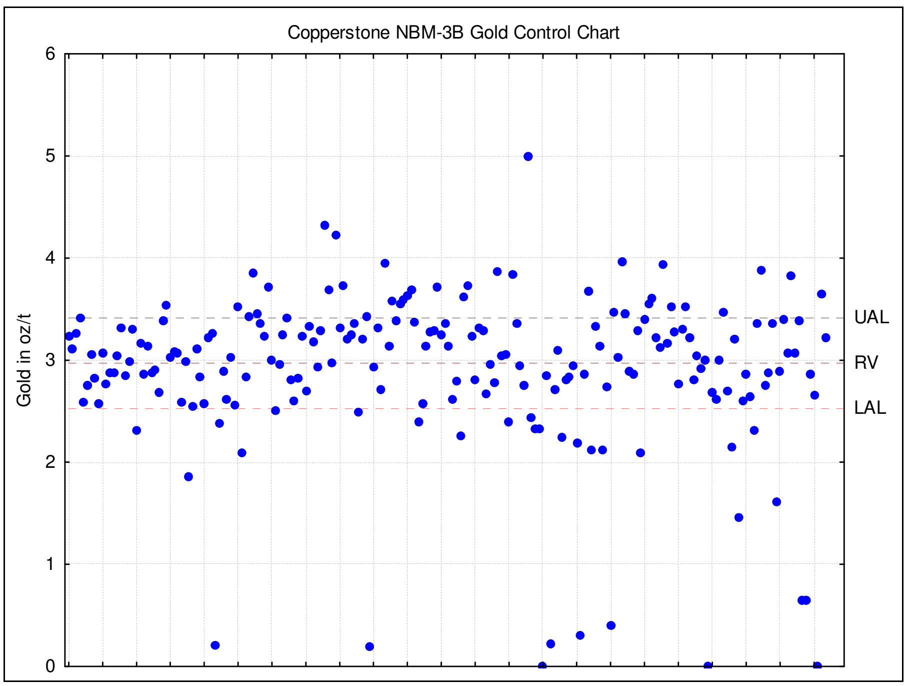
APPENDIX C

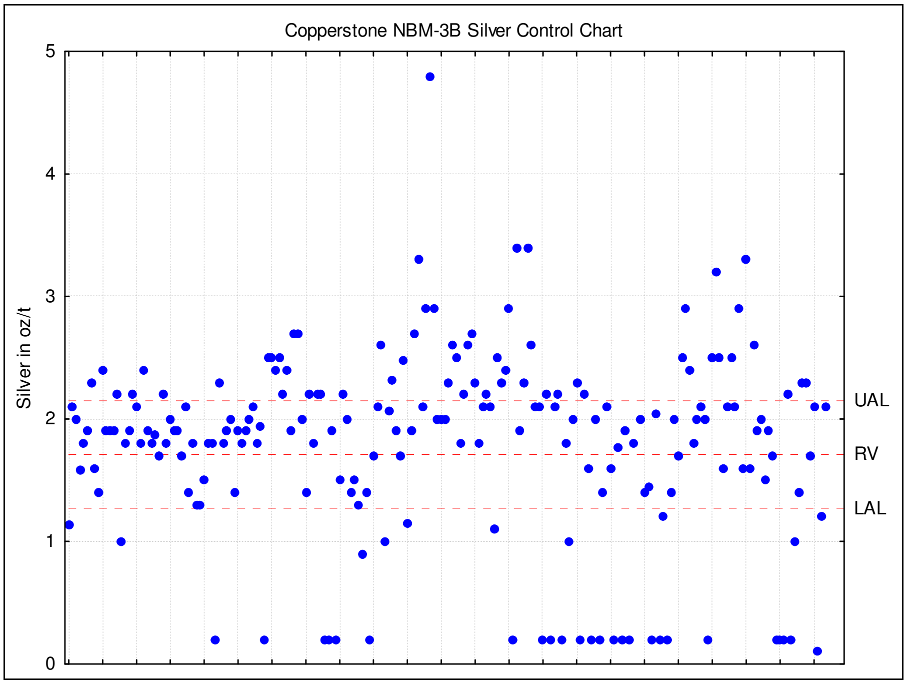
Control Charts for Standard Reference Materials


Copperstone NBM-2B Gold Control Chart
Gold in oz/t
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
RV
UAL
LAL

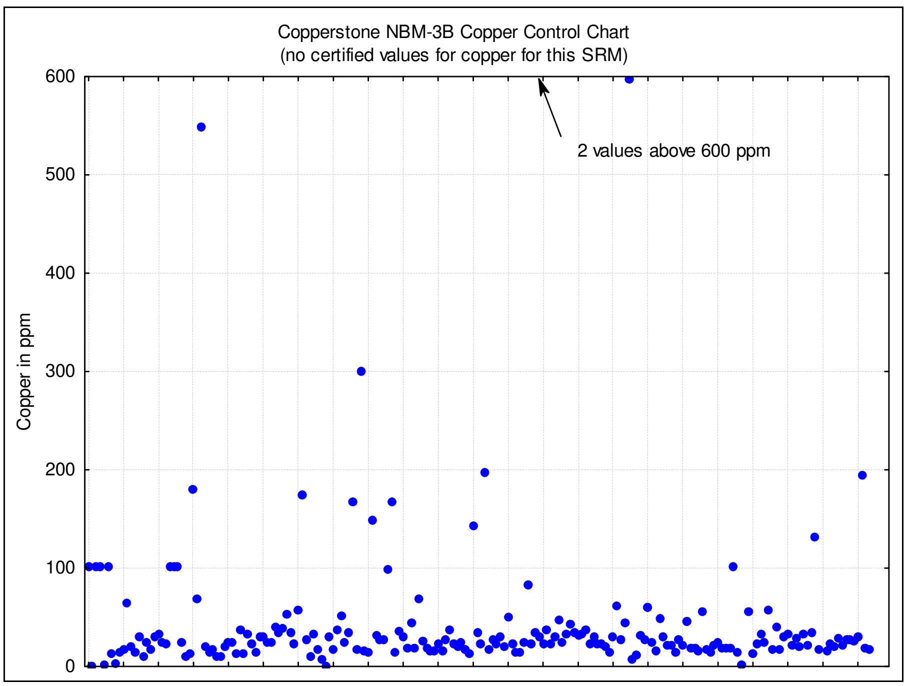

Copperstone NBM-2B Silver Control Chart
Silver in oz/t
0.5
0.4
0.3
0.2
0.1
0.0
one value at 2.5 oz/t
UAL
RV
LAL


Copperstone NBM-2B Copper Control Chart
(no certified values for copper for this SRM)
3 values above 600 ppm
Copper in ppm
0
100
200
300
400
500
600

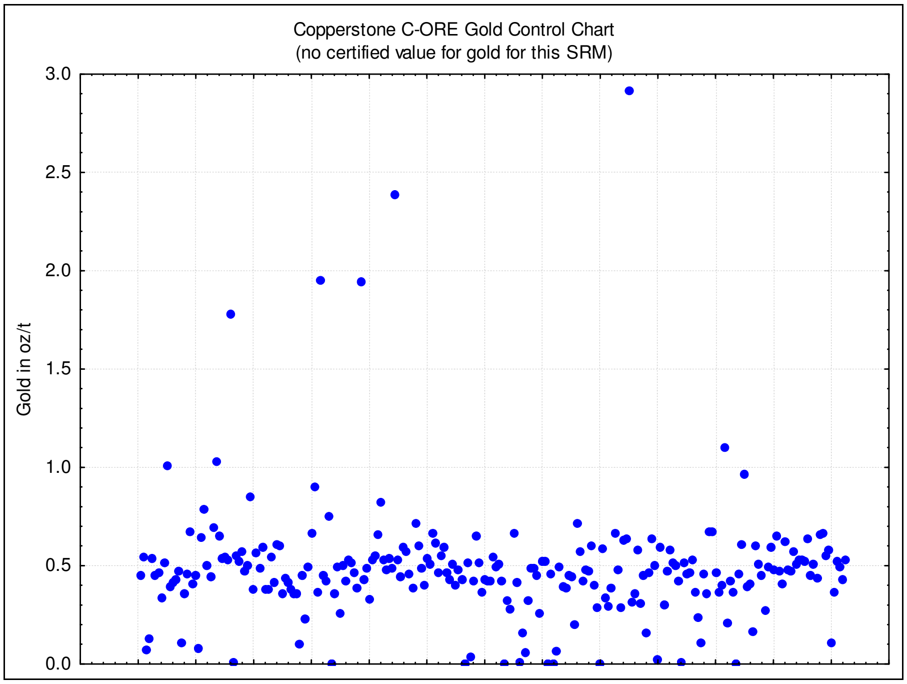

Copperstone NBM-3B Gold Control Chart
Gold in oz/t
0
1
2
3
4
5
6
UAL
RV
LAL



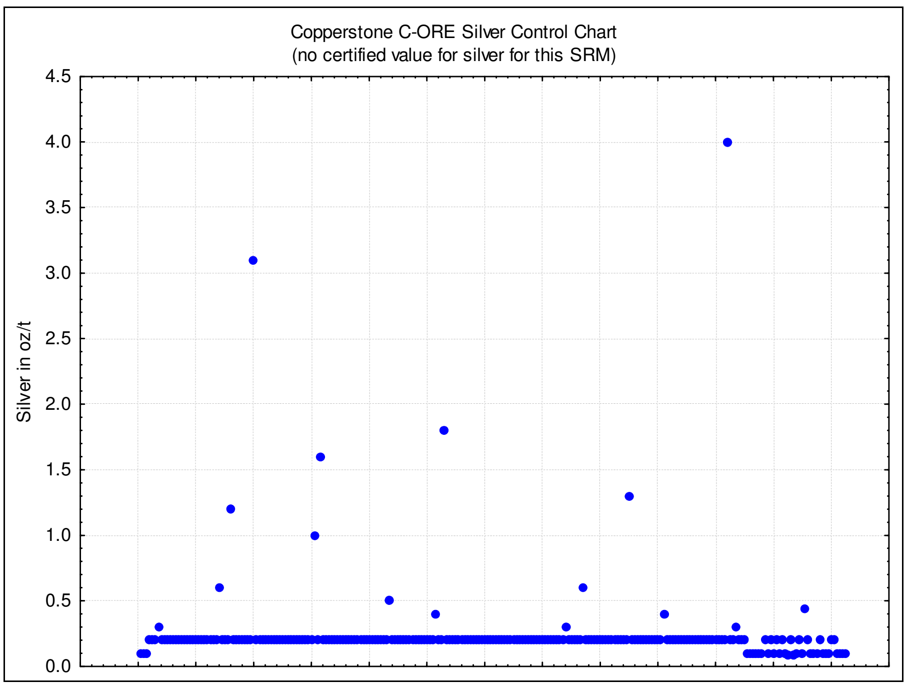
Copperstone NBM-3B Silver Control Chart
Silver in oz/t
0
1
2
3
4
5
UAL
RV
LAL



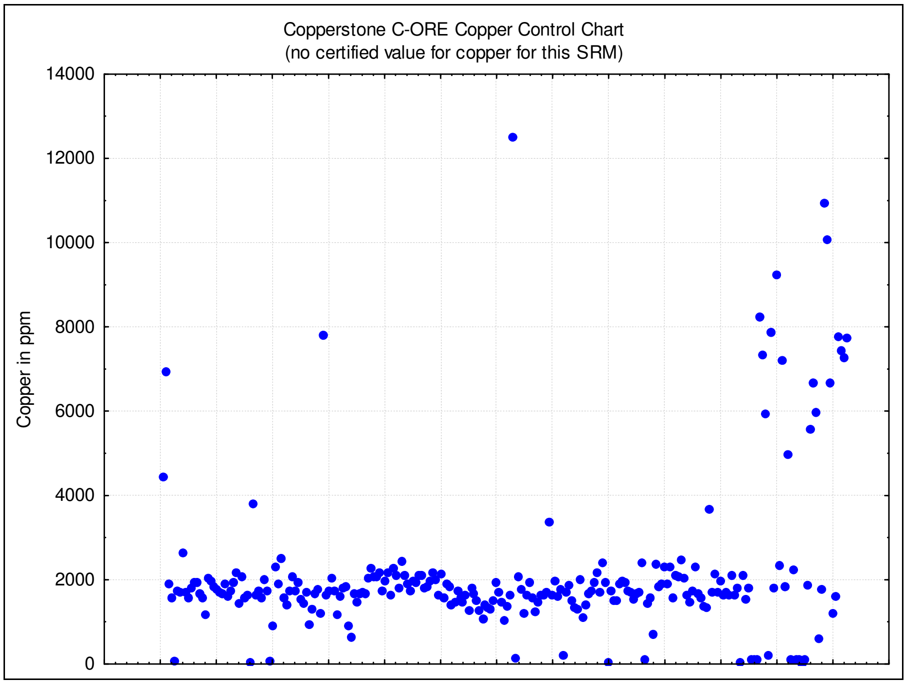
Copperstone NBM-3B Copper Control Chart
(no certified values for copper for this SRM)
Copper in ppm
0
100
200
300
400
500
600
2 values above 600 ppm



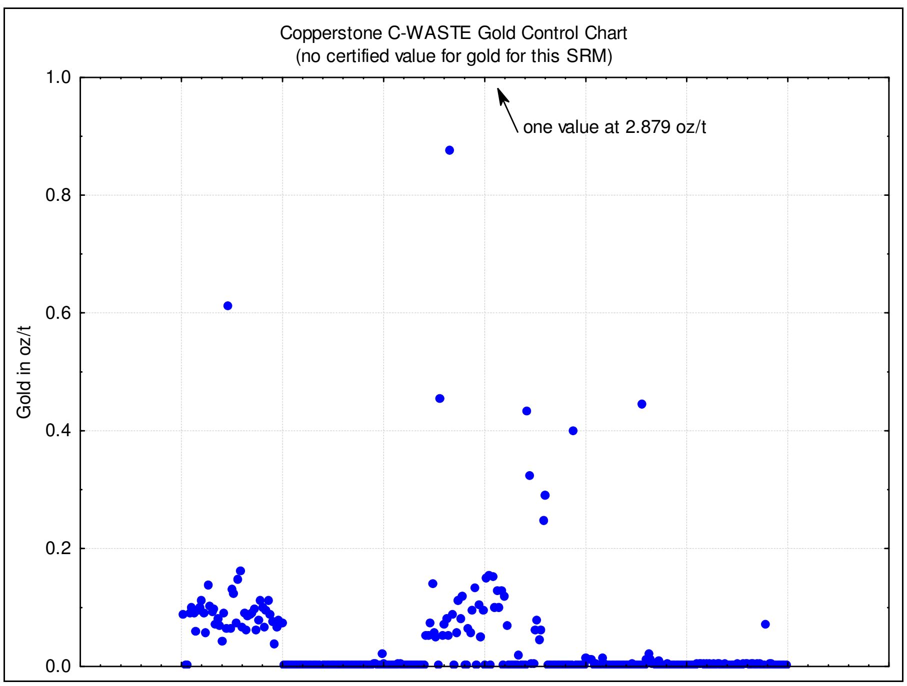
Copperstone C-ORE Gold Control Chart
(no certified value for gold for this SRM)
Gold in oz/t
3.0
2.5
2.0
1.5
1.0
0.5
0.0



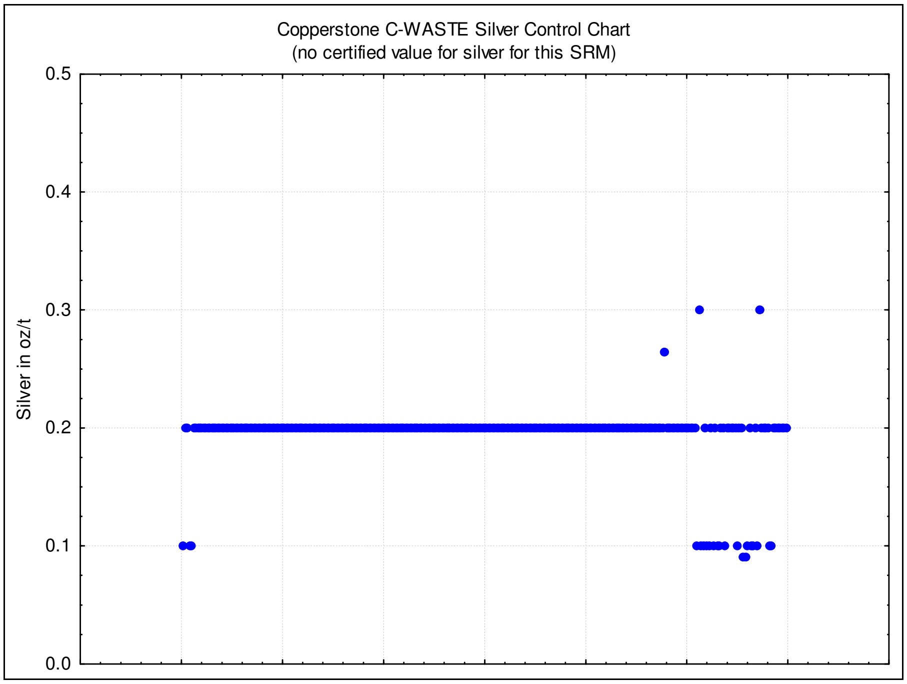
Copperstone C-ORE Silver Control Chart
(no certified value for silver for this SRM)
Silver in oz/t
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

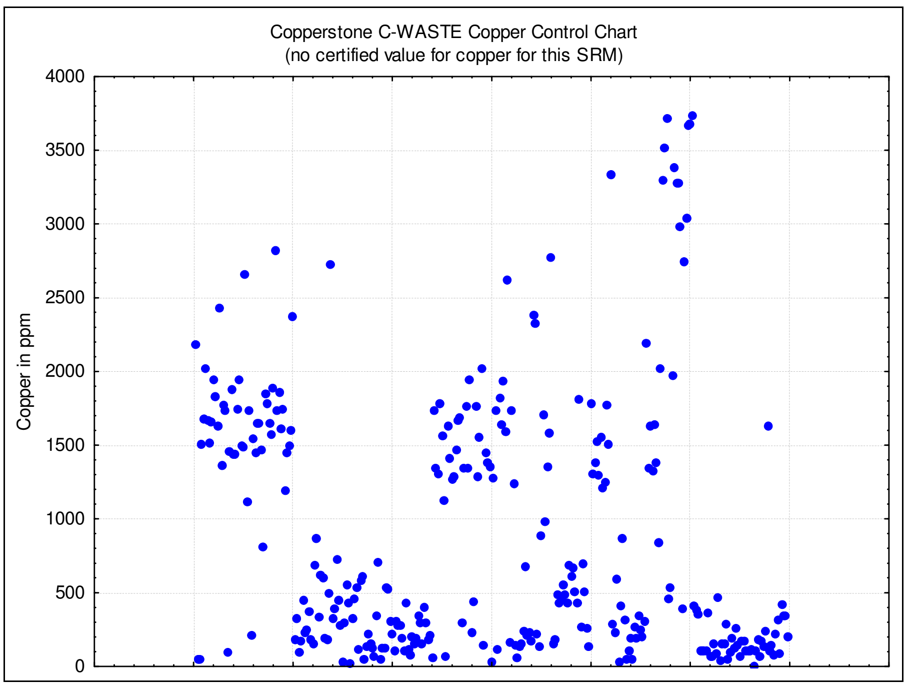


Copperstone C-ORE Copper Control Chart
(no certified value for copper for this SRM)
Copper in ppm
14000
12000
10000
8000
6000
4000
2000
0

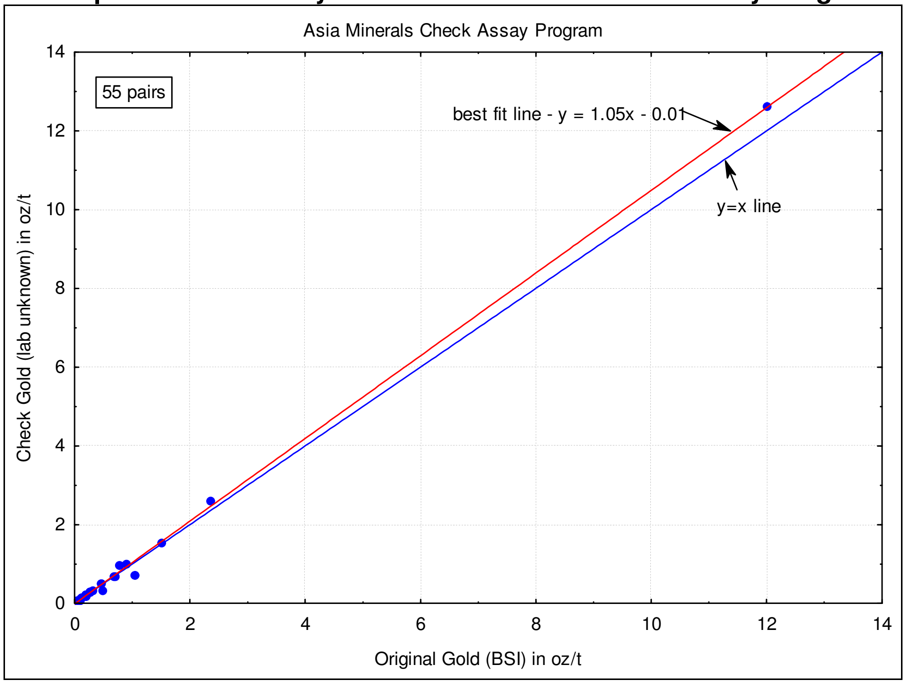


Copperstone C-WASTE Gold Control Chart
(no certified value for gold for this SRM)
Gold in oz/t
one value at 2.879 oz/t
1.0
0.8
0.6
0.4
0.2
0.0

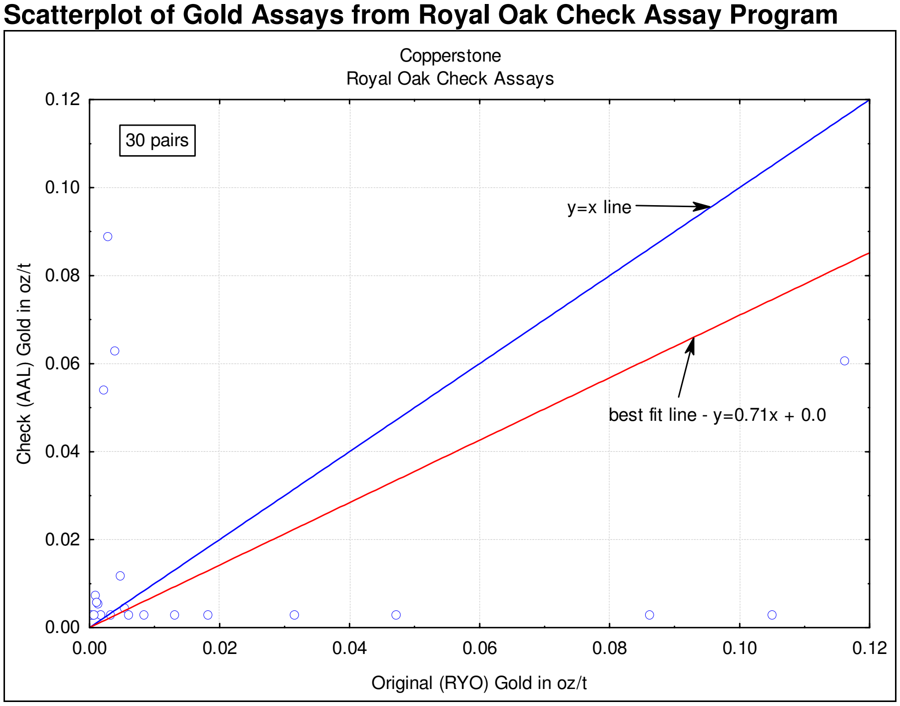

Copperstone C-WASTE Silver Control Chart
(no certified value for silver for this SRM)
Silver in oz/t
0.5
0.4
0.3
0.2
0.1
0.0


Copperstone C-WASTE Copper Control Chart
(no certified value for copper for this SRM)
Copper in ppm
4000
3500
3000
2500
2000
1500
1000
500
0

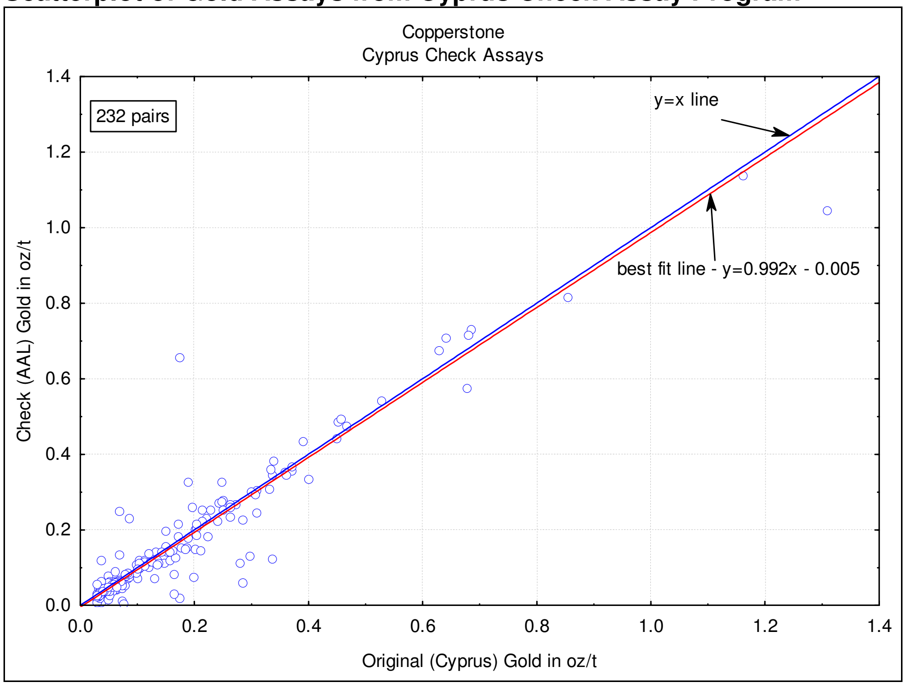
Scatterplot of Gold Assays from Asia Minerals Check Assay Program



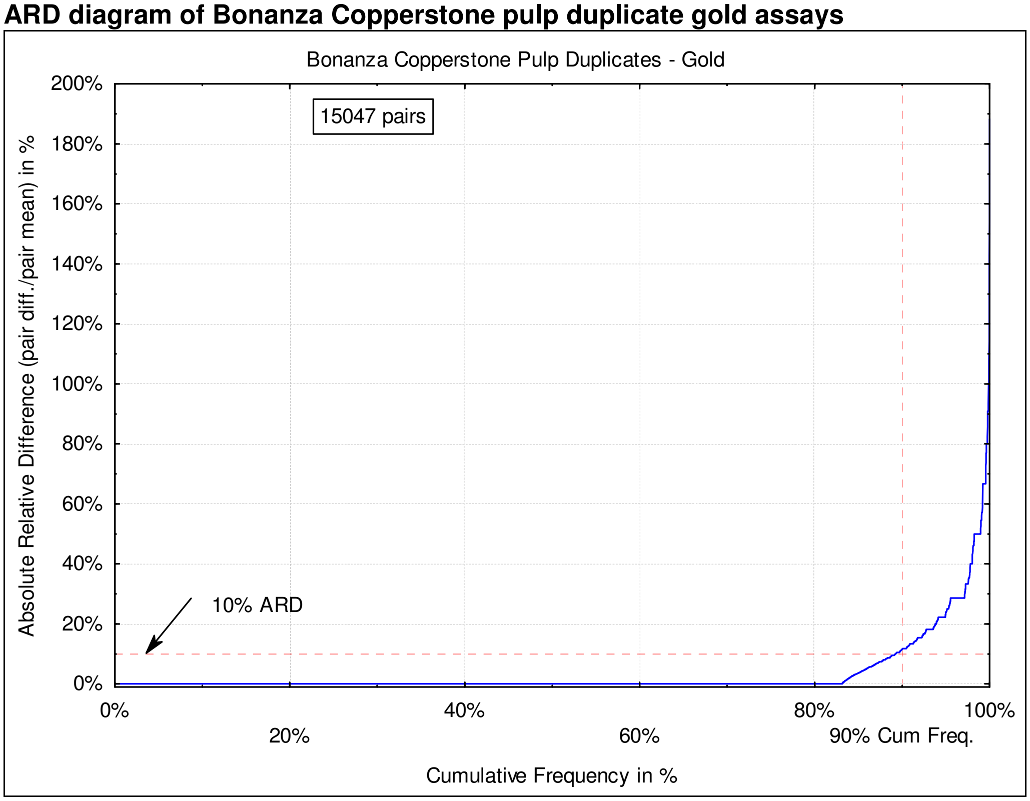
Scatterplot of Gold Assays from Royal Oak Check Assay Program



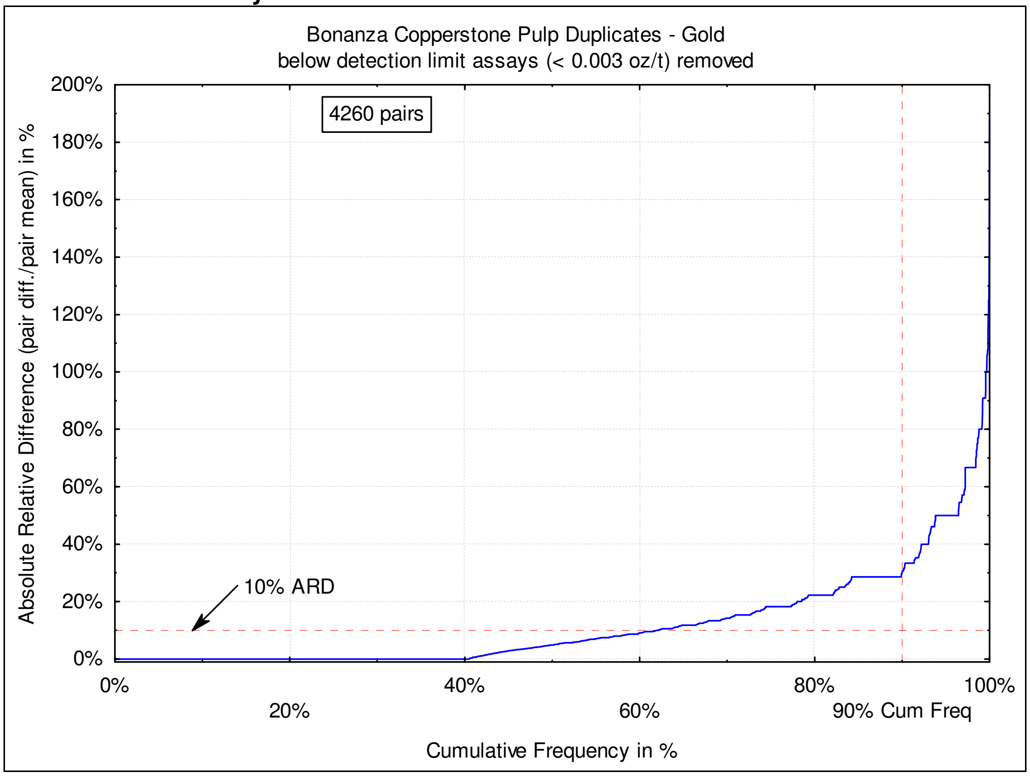
Scatterplot of Gold Assays from Cyprus Check Assay Program



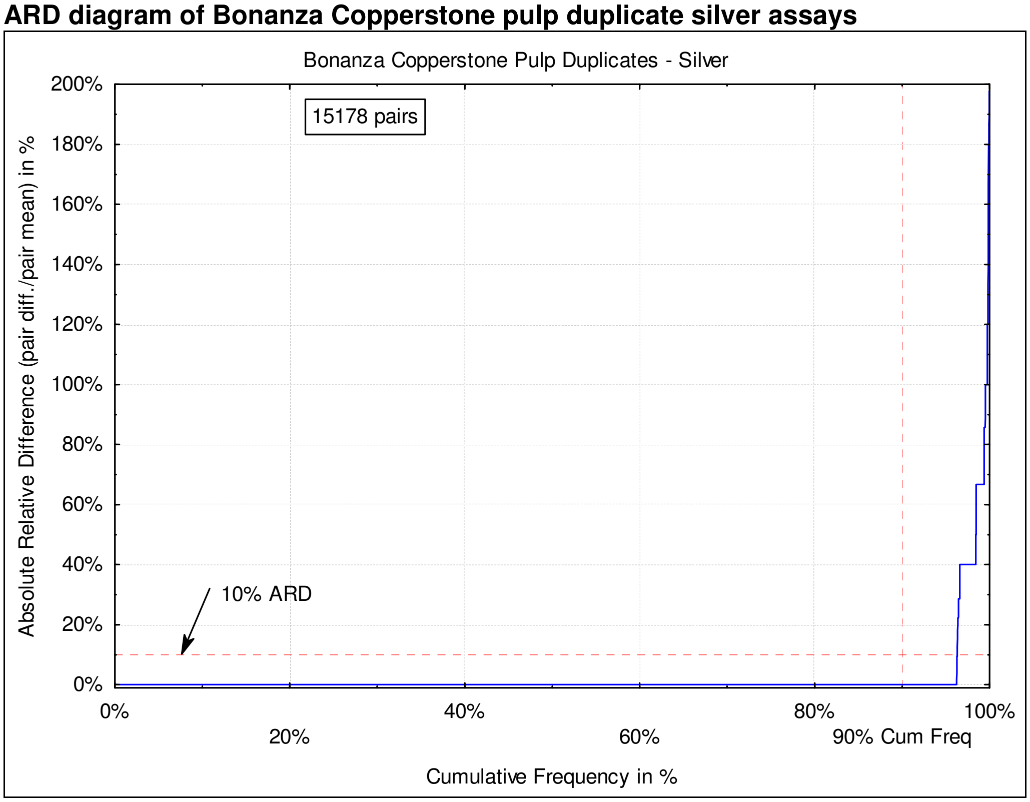
ARD diagram of Bonanza Copperstone pulp duplicate gold assays



ARD diagram of Bonanza Copperstone pulp duplicate gold assays with the below detection limit assays removed



ARD diagram of Bonanza Copperstone pulp duplicate silver assays



ARD diagram of Bonanza Copperstone pulp duplicate silver assays with the below detection limit assays removed