MINE DEVELOPMENT ASSOCIATES
MINE ENGINEERING SERVICES

GEOLOGICAL REPORT

FOR THE

COPPERSTONE GOLD PROPERTY

La Paz County, Arizona, U.S.A.

Prepared for

American Bonanza Gold Mining Corp.

October 26, 2000

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1.0 SUMMARY

Mine Development Associates ("MDA") was requested by American Bonanza Gold Mining Corporation ("BZA") to complete a qualifying report on the Copperstone Project, La Paz County, Arizona. MDA visited the property, took samples, reviewed published and unpublished reports, and reviewed and modified the exploration plan. Most of the data addressed in this report was presented to MDA by BZA and/or was done by previous workers. MDA believes the data to be reliable, but has not made a rigorous analysis of the procedures or results. If and when the data or procedures might misrepresent the situation in MDA's opinion, it is so stated.

The Copperstone Project is an advanced-stage gold exploration project, situated on public lands of the United States under the administrative jurisdiction of the US Bureau of Land Management. The project is located approximately 80 air miles west-northwest of the major city of Phoenix.

Geology consists of Triassic sedimentary rocks, Jurassic volcanic rocks, and Miocene breccias and basalt flows. These units are cut by the north-northwest trending, moderately dipping Copperstone fault. Most gold and copper mineralization is structurally controlled, occurring along the Copperstone Fault in silica-hematite-chlorite veins, veinlets and replacement bodies. The exploration concept utilized for the property is detachment style mineralization, similar to a number of other known metal systems in the region.

During the period between 1980 and 1993, Cyprus Minerals Corporation ("Cyprus") developed and operated commercial open pit mining and ore processing operations on the property that resulted in the production of 514,000 ounces of gold. The Cyprus operations at Copperstone were discontinued in May of 1993.

Mineral tenure and operating rights on the property are comprised of 284 contiguous unpatented lode mining claims covering a surface area of approximately 2,200 hectares. The mining claims are owned or controlled by the Patch Living Trust ("PLT"), subject to agreements in effect with Royal Oak Mines (USA) Inc. ("RYO"), and Asia Minerals Corporation ("Asia").

Asia acquired a 25% interest in the property from Arctic Precious Metals Inc. *(d/b/a* RYO) in 1998 and formed a joint venture whereby Asia could earn an additional 55% interest. Asia continued exploring the area with drilling, surface mapping, and geochemical sampling. In October 2000, Asia Minerals Corporation changed its name to American Bonanza Gold Mining Corporation.

MRDI-Canada and Golder Associates conducted scoping level studies for Asia in February 1999. The scoping study included resource estimations for four zones of gold mineralization occurring down-dip and on-strike of mineralization exposed in the Cyprus open-pit. MRDI also evaluated potential costs and technical requirements for the underground mine development of the C and D mineralized zones, using their resource estimate as a basis for determining the amount of minable material; MRDI did not state a formal reserve.

Since February 1999, Asia has completed additional surface drilling in defined target areas and detailed mapping and sampling in the north portion of the open pit, and initiated a metallurgical scoping evaluation on select drill samples. In September of 2000, Asia retained mining contractor Centennial Development Corporation ("CDC") to construct a decline to provide access to underground exploration drill sites.

The Copperstone Project has the potential for continued discovery and development of economic concentrations of gold mineralization. The Copperstone property has a productive history of open pit mining, but the principal gold targets being addressed in the current exploration program will most prudently be defined, and ultimately exploited, by underground methods, though continued surface drilling will still be required. The comprehensive technical database that has resulted from past mining operations and exploration programs on the property is a considerable asset to the current project.

The primary focus of the current exploration effort is to establish underground access in order to conduct delineation and exploration drilling to better define the resource and reduce the risks associated with it. The proposed exploration program will also allow for near term bulk sampling and/or production, if warranted. The proposed plan consists of drifting approximately 2000 ft (~600 m) at –15%, followed by diamond drilling approximately 2200 meters in 100 holes. The program is summarized in Table 1.1.

Advantages to this proposed program include better access for close-spaced delineation drilling of the resource, suitable locations to perform drilling to partially investigate extensions of the deposit, and in addition, it will provide BZA with a means to access to the mineralization for either bulk sampling or production, if warranted.

Table 1.1 Proposed Exploration Plan and Budget

Phase 1 (C-Zone)

Cost	Description
$0	Drift to C-Zone (costs prepaid by BZA).
$112,000	Six 60 m , thirty 15 m, and one 30 m hole (850 m total at $130 per meter drilling and sample costs).
$27,000	Geologist (three man months).
$4,000	Technician (one man month).
$143,000	**Phase 1 Total**

Phase 2 (D-Zone)

Cost	Description
$250,000	Drift to D-Zone: 275 m (900 ft) of drifting at $656/m*, construct drill stations, and contingencies.
$176,000	Six 60 m core holes along strike, fifty 15 m core holes across strike, two 30 m core holes across strike, and one 150 m hole to evaluate the faulted northern strike extension of the Copperstone Fault, (Total = 1340 m at $130/m drill and sample costs).
$27,000	Geologist (three man months).
$8,000	Technician (two man months).
$461,000	**Phase 2 Total**
$604,000	**Project Total**

* BZA costs (CDC is driving decline for direct costs, and splitting costs with BZA)

2.0 INTRODUCTION AND TERMS OF REFERENCE

This geologic report was prepared at the request of American Bonanza Gold Mining Corporation ("BZA"). The report's purpose is to comply with disclosure and reporting requirements set forth in the Canadian Venture Exchange ("CDNX") Corporate Finance Manual, National Instrument 43-101, Companion Policy 43-101CP, and Form 43-101F1.

The scope of this study included a review of pertinent technical reports and data in possession of BZA relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, and interpretations. Each scope element was addressed in the context of the company's target concepts, recent results, and proposed activities.

The author's mandate was to comment on substantive public or private documents and technical information listed in the *Reference* section. The mandate also required an on-site inspection, and preparation of an independent qualifying report containing the author's observations, conclusions and recommendations. A total of 10 man-days were required to complete the mandate, including a site inspection that was conducted October 9 and 10, 2000.

Currency, units of measure, and conversion factors used in this report include:

Linear Measure

1 inch	= 2.54 centimeters
1 foot	= 0.3048 meter
1 yard	= 0.9144 meter
1 mile	= 1.6 kilometers

Area Measure

1 acre		= 0.4047 hectare
1 square mile	= 640 acres	= 259 hectares

Capacity Measure (liquid)

1 US gallon	= 4 quarts	= 3.785 liter

Weight

1 short ton	= 2000 pounds	= 0.907 tonne
1 pound = 16 oz	= 0.454 kg	= 14.5833 troy ounces

Assay Values	percent	grams per metric ton (g/t)	troy ounces per short ton (opt)
1%	1%	10,000	291.667
1 gm/tonne	0.0001%	1	0.0291667
1 oz troy/short ton	0.003429%	34.2857	1
10 ppb			0.00029
100 ppm			2.917

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

$1 US = $1.5138 CN (rate October 19, 2000)
$1 CN = $0.6606 US (rate October 19, 2000)

Glossary of terms

"High grade" or "bonanza" in this report refers to gold grades generally exceeding about 17 g Au/t (0.5 oz Au/t).

Frequently used acronyms and abbreviations

AA	Atomic Absorption Spectrometry
Asia	Asia Minerals Corporation (subsequently, American Bonanza Gold Mining Corp.)
Au	Gold
As	Arsenic
Ba	Barium
BLM	US Bureau of Land Management (Also: BLM Service Group, a corporate entity unrelated to the US Government)
BZA	American Bonanza Gold Mining Corp. (previously, Asia Minerals Corporation)
CDC	Centennial Development Corporation
CHL	Chlorite (Chl)
CIP	Carbon-in-Pulp
CRIT	Colorado River Indian Tribes
CSC	Continental Silver Company
Cu	Copper
DDH	Diamond Drill Hole (cored) drilling method
Fe	Iron
ICP	Inductively Coupled Plasma
ISO	International Standards Organization
LST	Limestone
Ma	Million years before present
Mn	Manganese
MSB	Monolithic sedimentary breccia
MRDI	MRDI-Canada, a Division of H.A. Simons Ltd.
opt	ounces per ton
oz/t	ounces per ton (oz/ton)
PLT	Patch Living Trust
PHY	Phyllite
QLP	Quartz latite porphyry
QTZ	Quartzite
RQD	Rock quality data
RVC	Reverse Circulation Drilling Method
RYO	Royal Oak Mines (USA) Inc.
Sb	Antimony
SLT	Chlorite-schist or Siltstone
SRM	Standard Reference Material
TW	True Width

3.0 PROPERTY DESCRIPTION AND LOCATION

3.1 Location and Setting

The Copperstone Gold property is located in La Paz County, Arizona, on public lands administered by the United States Bureau of Land Management ("BLM"). The property is situated within Sections 18-22 of Township 6 North, Range 19 West and Sections 1, 2, 11-14, 22-27 of Township 6 North, Range 20 West (Gila & Salt River Meridian). Lands of the Colorado River Indian Tribes reservation bound the property on the west. The average surface elevation of the property is approximately 250 meters above mean sea level. The location of the Copperstone property is illustrated in Figure 3.1.

The Copperstone property includes certain on-site buildings, a water system, power lines, roadways and other support facilities that were conveyed to PLT upon closure of the Cyprus mining operations. The location of mineralized zones, mine workings, tailings ponds, and other features relative to the property boundary are shown in Figure 3.2. All work presently contemplated by BZA will be conducted entirely on the existing mining claims. There are sufficient and suitable areas on the current property to locate support facilities for any future mining and processing operations.

3.2 Mining Claim Description

The property includes a total of 284 contiguous unpatented lode mining claims, comprised of 274 "Copperstone" claims and 10 "Iron Reef" claims (Figure 3.3 and Appendix 1). The mining claims cover an area of approximately 2200 hectares. BZA states that record title to 275 of the unpatented claims vests in the PLT, subject to the agreements described in this section. Record title to the nine remaining unpatented claims (Copperstone 101-109 inclusive) is held jointly by PLT and Cyprus Mineral Park Corporation. The latter claims are also subject to the described agreements.

3.3 Agreements and Encumbrances

According to BZA, the property and operating rights of BZA are subject to a 1995 lease/contract agreement between PLT and Arctic Precious Metals, Inc., *d/b/a* Royal Oak Mines (USA) Inc. and a 1998 joint venture agreement between Arctic and Asia.

Under the 1995 lease agreement, annual advance royalty payments of $30,000 are payable to PLT over the 10-year (renewable) term of the agreement. The annual advance royalties are credited against the following sliding scale gross production royalty to PLT. The production royalty is paid on the basis of all gold refined and/or sold from the property.

Royalty (GPR)	Avg. LME Gold Price (monthly/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

The 1998 Copperstone Joint Venture agreement between RYO and Asia conveyed a 25% interest and management responsibilities for the joint venture to Asia. Under the venture agreement, Asia may increase its interest to 40% by funding additional exploration of $ 3.0 million and delivering a feasibility study prior to July 31, 2001. Asia may increase its participating interest in the venture to 80% by making an additional payment of approximately $1.0 million to RYO prior to July 31, 2006. In June 2000, Asia initiated actions to acquire all of the RYO right, title and interest in the Copperstone Joint Venture. When completed, the acquisition will dissolve the joint venture and relieve BZA of certain payment and work obligations other than those conditioned on the underlying lease/contract with PLT.

In July 2000, Asia entered into a joint venture agreement with CDC for purposes of completing underground exploration development (see *Exploration* section for details of the program). Under the venture agreement, CDC is driving a decline at cost, and BZA is paying 50% of this cost. Certain proceeds from test mining, milling and refining, if any, will be distributed evenly between Asia and CDC, after payment of the PLT production royalty and paydown of certain project-related third-party obligations.

Annual claim maintenance fees payable to the US BLM total $28,400. Each of the 284 mining claims have active status on BLM records, and the required BLM maintenance fees have been paid through the current assessment period ending September 1, 2001. La Paz County assesses real and personal property taxes of approximately $800 per year for existing buildings and improvements on the property. These and other relevant direct or indirect obligations of BZA for the property are summarized in Table 3.1.

Table 3.1 American Bonanza Obligation Summary - Copperstone Project

Party I	Party II	Instrument	Date	Term	Payee	Payment Obligation	Work Requirement
USA	PLT	Unpatented mining claims	1 Sep, annually	N/A	BLM	$28,400/yr *	N/A
La Paz County, AZ	PLT	Property taxes		N/A	La Paz County	$800 /yr *	N/A
PLT	RYO	Lease	12 June, 1995	10 yr renewable	PLT	$30,000/yr * plus production royalty	$1,000,000 by 6/12/01(this obligation has been satisfied).
RYO 75% 60% 20%	Asia 25% 40% 80%	Joint Venture	5 Aug, 1998	Until terminated	Arctic	$1,000,000 by 7/31/03 or $1,000,000+ interest by 7/31/06	$1,500,000 by 7/31/00 $3,000,000 by 7/31/01 Feas. Study by 7/31/01
Asia	CDC	Joint Venture	1 July 2000	16 months	N/A	$275,000 for Phase I	N/A

** Note: per agreements, obligations flow to American Bonanza Gold Mining Corp.*

3.4 Environmental Liabilities

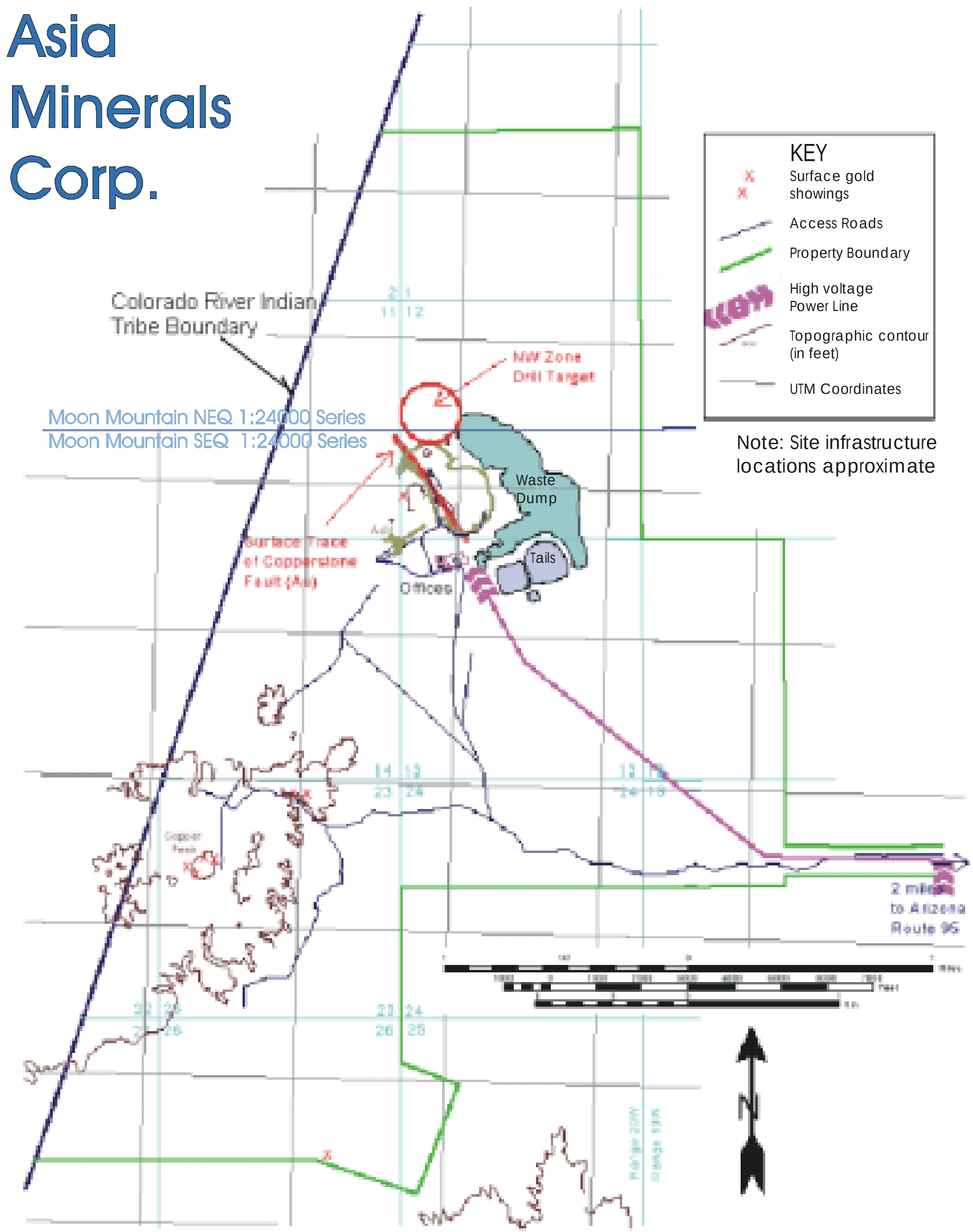
Cyprus is in the final stage of required post-closure monitoring of solution discharge from its reclaimed heap leach and tailings sites. According to the lease contract between PLT and RYO, Cyprus maintains responsibility for reclamation of disturbance and environmental impacts that occurred as the result of their operations at Copperstone. Conditions of the 1995 lease/contract with PLT included the posting of a $70,000 bond for the eventual removal and reclamation of the existing power line serving the property. The bond remains in effect as an obligation/asset of the Copperstone Joint Venture. BZA presently has no non-mitigated environmental matters or outstanding environmental liabilities on the property.

3.5 Permitting

As the operator, Asia filed a Notice of Intent to conduct mining activities on 7 mining claims situated in Section 12, T6N, R20W. On July 7, 2000, the BLM approved the application and Asia's plan to construct a 2,000 ft (600 m) decline. The decline will be used to conduct delineation and exploration drilling, and, if warranted, extract up to 50,000 tons of material for bulk testing. On July 26, 2000, the Arizona Department of Environmental Quality approved the proposed underground exploration activity and granted Asia an exemption from an Aquifer Protection Permit. There are no additional regulatory permits required to conduct the presently proposed exploration activities at the Copperstone property

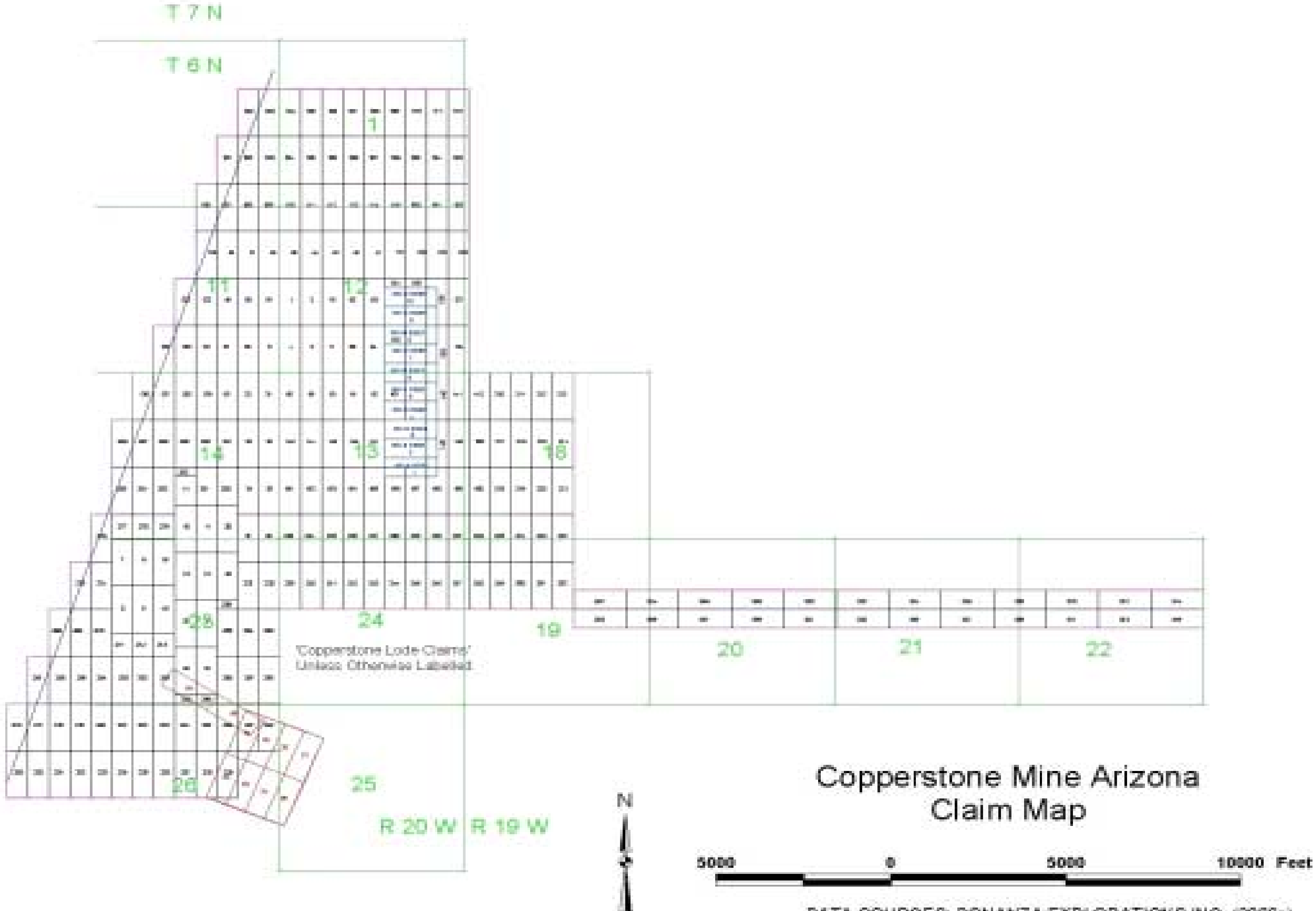
Figure 3.1 Copperstone Mine Location Map

Figure 3.2 Copperstone Property, La Paz Co, Arizona



DATA SOURCES: ASIA MINERALS UNPUBLISHED MAP (1998)

Figure 3.3 Copperstone Mine Claim Map



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

4.1 Accessibility

The Copperstone property is located 15 kilometers north of the community of Quartzite, AZ and 40 kilometers south of the La Paz county seat of Parker, AZ. The property is accessible by passenger vehicle and is approximately a 2-hour drive west-northwest from the major city of Phoenix, AZ. The Copperstone project area is conveniently accessed by 6.4 kilometers of gravel road from Arizona State Route 95. Existing highway and site-access roads are well maintained and suitable for the transport of all major project components. A main line of the Santa Fe Railroad passes within 24 kilometers to the north of the property.

4.2 Climate

The region is one of the driest in the United States, with average annual precipitation of less than 10 cm. Climactic conditions in the area are classified as hot, dry desert with maximum and minimum temperature extremes of 49ºC (120°F) and -7ºC (20°F), respectively. The area enjoys a year-round operating season. Winter temperatures are typically mild; however, the average daily temperature for the months of April to October is 41ºC (105°F).

4.3 Local Resources and Infrastructure

The area contains only sparse vegetation, typical of arid southwestern desert biomes. Water resources in the region are derived from seasonal precipitation and surface recharge to the regional groundwater aquifers. Process water for the project is pumped from on-site wells, and potable water is trucked to the site.

Cyprus conducted commercial mining operations on the site during the period 1986 to 1992. Significant infrastructure components remain operational, including shop and office buildings, haulage roadways, commercial power, water, and communication systems.

Surface rights are sufficient for all contemplated future mining operations. Mining personnel are available from the region. Potential tailing storage sites, potential waste disposal areas, and potential processing plant sites are all available on site. Many of these potential facilities could be located on previously disturbed lands, presumably allowing expedited permitting.

4.4 Physiography

The project is favorably situated in an area of arid sandy desert terrain. Topographic relief is relatively flat, with surface elevations ranging between 220 meters and 275 meters above mean sea level. Small knolls and northeast trending longitudinal sand dunes characterize the native surface of the project area.

5.0 HISTORY

BZA presented the project history to MDA. MDA feels that it fairly represents the project history as stated in independent reports by other workers. The location of drill holes by company is shown in Figure 5.1

5.1 Pre-Asia Minerals History

Continental Silver Company ("CSC") first explored the Copperstone property as a copper prospect in 1968. CSC conducted exploration trenching and drilled 6 widely spaced rotary drill holes on the property (Salem, 1993). In 1975, Newmont Gold Company leased the property from CSC, conducted a surface geophysical survey, and drilled a single hole to test for porphyry copper mineralization (McCartney, 1998). The original mining claims of CSC lapsed in 1980. Dan Patch, Trustee for the PLT, located 63 "Copperstone" claims on the property in March of 1980 and subsequently leased the claims to Cyprus.

Cyprus obtained a 100% working interest in the original Copperstone claims from PLT, purchased the Iron Reef claim group from W. Rhea, and located additional Copperstone claims to expand the property to the current 284 claims. Cyprus proceeded to outline broad areas of gold mineralization on the property. Over 400 reverse circulation (RVC) drill holes and 70 diamond drill holes (DDH) were completed during drill campaigns conducted between 1980 and 1985. Results of the drilling justified Cyprus to conduct baseline economic studies, metallurgical test work and financial analyses, leading to mine design and construction in 1986.

Further definition drilling was conducted within boundaries of a planned open pit design during 1986, which expanded the drill hole database to 73 DDH and 496 RVC holes. Also in 1986, a decline was driven from the surface to intercept the defined mineral deposit at an elevation approximately equal to the contemplated open pit floor. With a change in mining plans, the decline was abandoned short of target, and the portal was later covered by waste rock from the open pit. In October of 1987, Cyprus commissioned an on-site 2500 ton/day carbon-in-pulp ("CIP") milling facility and commenced commercial mining operations. A heap leaching operation, which treated low-grade ore from the mine was operated concurrently. Cyprus' open pit mining and/or processing operations continued at Copperstone until 1993.

In December 1993, economic limits of the open pit mine were reached as the in-pit blast hole drilling encountered the groundwater table. Per conditions of the original operating permits, open pit mining was halted and remaining surface ore stockpiles were processed. Upon completion of milling operations in May of 1993, Cyprus removed the majority of the mining and mill equipment. During the operating life of the Copperstone Mine, Cyprus produced approximately 514,000 ounces of gold from processing 5.6 million tons of CIP mill ore grading 0.089 oz/ton and 1.2 million tons of heap leach ore grading approximately 0.03 oz/ton. (Ackermann, 1998)

Cyprus terminated its agreement with PLT in 1994, subject to certain reclamation and closure obligations that survived termination of the agreement. Cyprus continues to conduct limited solution discharge monitoring at the site of past heap leach operations. Monitoring will continue for an indeterminate period pending final approval of compliance with federal and state requirements under Cyprus' approved reclamation and closure plan.

In 1993, Santa Fe Pacific Gold Corporation ("Santa Fe") leased the Copperstone property from PLT and completed 3,800 meters of RVC drilling in 17 exploration drill holes. Santa Fe investigated seven exploration targets; one drill hole (DCU-8) intersected significant gold mineralization beneath the open pit (Santa Fe, 1994). Santa Fe's drill program is summarized in Table 5.1. Santa Fe terminated its agreement with PLT in August of 1994.

Table 5.1 Santa Fe Drill Program - Hole Locations, Drill Targets, & Significant Results
(Asia, 1998)

Hole ID	Location / Results
DCU-1, 2	Tests around CS-143 (40'@ 0.268 opt Au) on the SW side of the pit.
DCU-3, 4	Tested a deep portion of the Copperstone fault NE of the pit (CS-100 area)
DCU-5, 6	Tested a shallow IP chargeability high ½ mile SW of the pit.
DCU-7, 9-11, 13, 14	Tested a large gradient array IP anomaly one mile SW of the pit.
DCU-8	A deep (1000') vertical test from within the pit. Possible footwall parallel to Copperstone fault from 500' to 565'. Includes 15'@ 0.646 opt Au.
DCU-12, 15, 16	Tested a large gradient array IP anomaly ½ mile NE of the pit, on edge of waste dumps.
DCU-17	Exploration hole on State Lease Section 7

In 1995, RYO leased the property from PLT and, during the period 1995-97, drilled an additional 35 exploration drill holes totaling 8,625 meters. Typically, the RYO drill holes were pre-collared with RVC, with the final several hundred feet completed with diamond core drilling. The RYO program focused on deeper extensions of mineralization in the Copperstone Fault, to the north and east of the open pit. Several high-grade intersections in the central D-Zone outlined a possible underground mining target north of the pit and at an elevation below the pit floor. (McCartney, 2000).

Based on the results of their drill program, RYO estimated and reported a gold resource (undiluted; no classification given) of 2.62 million tons at a grade of 0.231 oz Au/t containing 606,036 ounces of gold (Table 5.2). RYO also reported that the geological resource figures included a new zone on the northwest margin of the Copperstone deposit, containing a diluted, minable reserve (10% dilution at nil grade) of 454,639 tons at 0.486 oz Au/t (Royal Oak, 1998; Table 5.3).

MDA has not examined the basis for the RYO resource and reserve calculations and makes no statement regarding the accuracy or inaccuracy of the calculations. The RYO information may or may not be in accordance with the categories set forth in Sections 1.3 and 1.4 of National Instrument 43-101. None of the conclusions and recommendations made in this report are based solely on the RYO resource and reserve statements.

Table 5.2 Copperstone "Resource" – as stated by Royal Oak (June 1997)*

Block	Area (sq ft)	Au Grade (opt)	Thickness True Width (ft)	Tonnage (tons)	Contained Au Ounces
A	197,968	0.149	12.34	222,084	33,091
B	390,625	0.168	15.60	553,977	93,068
C	951,815	0.216	13.43	1,162,080	251,009
D	401,875	0.335	17.00	683,188	228,868
			Total Ave. Grade Ave. True Width (weighted)	2,621,329 0.231oz/ton 14.70 ft	606,036

**Criteria considered for resource calculation: 150 ft area of influence around the resource block*
Tonnage Factor = 12 cu ft/ton, except Block D (TF=10)
Assays cut to 1.0 oz/ton
True width represents 80% of core length

Table 5.3 Copperstone "Reserves" – as stated by Royal Oak (1998)

Block	Tons	Ounces Au	Grade (opt)
Block C	1,162,080	251,009	0.216
Block D	683,188	228,868	0.335
Total (C & D)	1,845,268	479,877	0.260
Mine Block	**574,040**	**307,111**	**0.535**
Remainder Blocks C+D	1,271,228	172,766	0.136
Mine Block Residual Res.	160,731	85,991	0.535
Blocks C & D+ Residual	**1,431,959**	**258,757**	**0.181**
Block A	222,084	33,091	0.149
Block B	553,977	93,068	0.168
1997 Mineralized Material (undiluted)	**2,208,020**	**384,916**	**0.174**
Minable Tonnage (undiluted)	413,309	221,120	0.535
Original Resource (undiluted)	2,621,329	606,036	0.231
1997 Diluted (10%) Minable Reserve	**454,639**	**221,120**	**0.486**

Note: MDA has not examined the basis for the RYO resource and reserve calculations and makes no statement regarding the accuracy or inaccuracy of the calculations. The RYO information may or may not be in accordance with the categories set forth in Sections 1.3 and 1.4 of National Instrument 43-101. None of the conclusions and recommendations in this report are based solely on the Royal Oak resource and reserve statements.

Golder Associates Inc. (Golder) performed preliminary hydrologic conductivity tests (falling head and packer tests) in 1997. They concluded that the bulk hydrologic conductivity of the rocks was fairly low ($1.4x10^{-5}$ to $9.1x10^{-7}$ cm/second) and that inflows into subsequent underground workings at the site should be minor (Golder, 1997).

5.2 Asia Minerals Activity

In August of 1998, Asia entered into a joint venture agreement with RYO to explore and develop the Copperstone property. During Sept-Oct 1998, Asia completed a 15-hole drill program in the C and D-

Zones (drill holes A98-1 to 15). A total of 3350 meters of drilling were completed, of which 900 meters were diamond cored. A cluster of relatively high-grade intersections was obtained through the central part of the D-Zone (Figure 5.2).

In September 1998, Asia retained MRDI Canada a division of H.A. Simons Ltd. (MRDI) and Golder to assist in a scoping level evaluation of the high-grade mineralized zones to the northwest of the Cyprus open-pit. The MRDI study was completed in February of 1999. It included a preliminary resource estimate (Table 5.4) that incorporated the results of the Asia drilling and was based upon a geologic model provided by Asia. MRDI concluded that there is exploration potential to increase the geological resources 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). MDA has made a preliminary review of the MRDI estimate and discusses it in Section 16.

Table 5.4 Preliminary Resource Estimates* (as estimated by MRDI,1999)

C and D Zones	Classification	Tons	Au oz/ton	Au Ounces
Capped		2,085,900	0.340	708,700
Uncapped		2,085,900	0.580	1,209,800
Capped		**Tons**	**Au oz/ton**	**Au Ounces**
C Zone	Indicated	478,400	0.194	92,700
	Inferred	696,700	0.323	225,000
	Total	1,175,100	0.270	317,700
D Zone	Indicated	413,800	0.466	193,000
	Inferred	497,000	0.398	198,000
	Total	910,800	0.430	391,000
	Indicated	892,200	0.320	285,700
Total	Inferred	1,193,700	0.354	423,000
	Total	2,085,900	0.340	708,700

*Basic Parameters: Inverse distance weighting to the 3rd power block model
Gold grades capped at 2.5 oz/ton in C Zone and 4.7 oz/ton in D Zone
A 0.00 opt Au block cutoff grade was used for global geological resource estimate

From February through March 2000, Asia conducted additional RVC and core drilling on the property (holes A00-1 through 11). A total of 2,490 meters in 11 holes were completed. The drill holes were designed to further evaluate the projected strike extent of the D-Zone, with one follow-up exploration hole testing the DCU-8 target area. The best result was from Hole A00-10 in the DCU-8 area, which intersected 0.943 Au oz/ton over 10.5 feet.

The holes testing the northern strike extent of the D-Zone did not encounter significant mineralization. Asia has interpreted that the Copperstone Fault is offset by a cross fault in this area because substantial and abrupt changes in the thickness and elevation of the stratigraphy occur north of the D-Zone high grade intercepts. In this area, the volcanic stratigraphy is locally faulted out, and where present, is offset up to 60 meters vertically relative to the stratigraphy in the D-Zone.

In June 2000, Asia entered into a joint venture agreement with underground mining contractors CDC (a US subsidiary of BLM Services Group) to conduct underground development and exploration. In September 2000, work commenced on the first of a two-stage program to drive a 2,000 ft (~600 m) long exploration decline into the D-Zone area from a portal location near the north floor of the Copperstone open pit (Figure 5.2). The decline is designed to further evaluate zones of high-grade mineralization located along the Copperstone Fault to the northwest of the open pit. The decline is also intended to provide access and underground drilling stations for future close-spaced delineation drilling of known areas of mineralization, as well as for exploration drilling (see *Exploration* section for additional details).

Metallurgical tests on a 30-kilogram composite sample are in progress. Bond Ball Mill Work Index, whole ore cyanidation, kinetic leach, thickener sizing, and pulp viscosity tests are being performed by McClelland Laboratories, Inc in Reno, Nevada.

Figure 5.1 Copperstone Drill Holes by Company

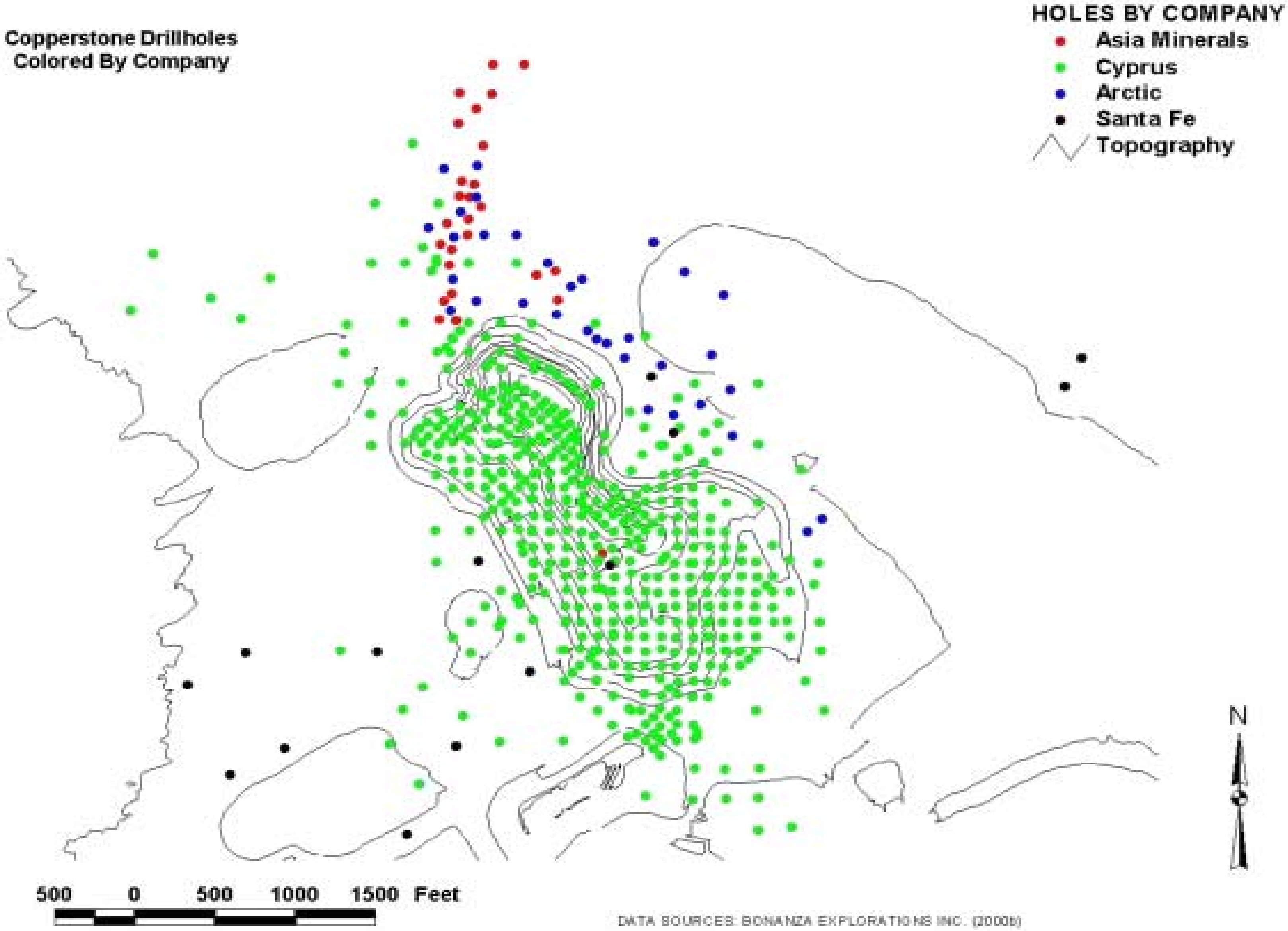
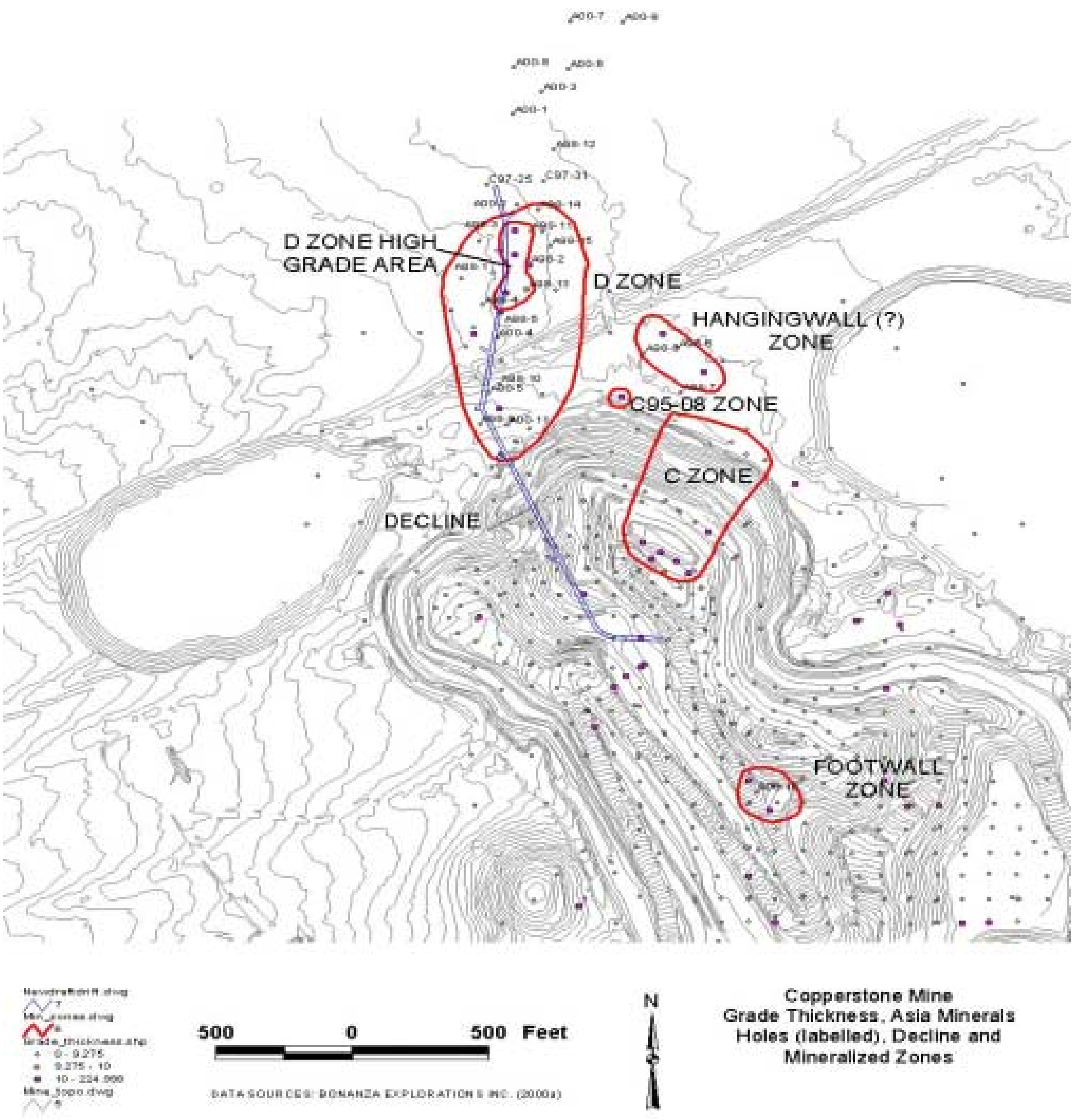


Figure 5.2 Copperstone Grade Thickness, Asia Minerals' Holes, Decline, and Mineralized Zones



6.0 GEOLOGICAL SETTING

6.1 Regional Geology

Western Arizona is located within the Tertiary-age Basin and Range structural province of SW North America. The geology of the area is strongly influenced by major mid-Tertiary age detachment faults which separate "lower plate" Precambrian to Tertiary aged metamorphic and intrusive rocks from "upper plate" Triassic to Tertiary aged volcanics. Such Cordilleran metamorphic core complex - detachment systems are associated with large-scale crustal extension.

Upper plate rocks above the detachment surface deform mainly by brittle fracturing and are cut by normal and listric faults. The normal and listric faults bound small half-graben basins and merge tangentially into, or are cut by, the basal detachment fault. Lower plate rocks deform in a more ductile fashion and typically develop mylonitic fabrics.

High angle "basin and range" type faults cut the detachment systems and are related to the same Tertiary age extensional events. (McCartney, 1999)

Table 6.1 Principle Geological Events Affecting the Copperstone Region

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

6.2 Local Geology

The Moon Mountain (Copper Peak) detachment fault is exposed in the Dome Mountains approximately 2.5 kilometers south of the Copperstone property. The detachment fault strikes easterly and dips at a shallow angle to the NNE. The upper plate is comprised of sedimentary and volcanic rocks of Mesozoic and Tertiary age. The immediate upper plate rocks are mostly Jurassic quartz latite porphyry (138 to 205 Ma). Outcrops of carbonate rocks and quartzite also occur in the upper plate near the detachment fault along the western property boundary. The lower plate rocks are predominantly foliated granitic intrusives (the Copper Peak Granite). The Copper Peak granite is assigned a Tertiary age; it intrudes Jurassic volcanics and is cut by a younger hornblende-biotite granite dated as Early Miocene (20.8 +/-3.2 Ma; Knapp, 1989). At the Copperstone Mine, only upper plate rocks are exposed, and deep drill holes (*e.g.*, DCU-08) did not penetrate the detachment or mylonitic lower plate lithologies.

Table 6.2 Stratigraphic Units in the Upper Plate of the Moon Mountain Detachment

Age	Correlative with:	Lithology
Tertiary		Basalt Flows
Tertiary		Monolithic Sedimentary Breccia
Jurassic	Planet Wash Volcanics?	Quartz Latite Porphyry (volcanics).
Triassic	Buckskin Formation	Marble, Quartzite, Chlorite Schist, Phyllite (sediments)

A Cretaceous-age thrust and fold episode (the Maria Fold and Thrust Belt) effected parts of the Moon Mountains prior to the onset of extensional tectonism. Evidence of this tectonic episode extends easterly from the Big Maria Mountains in California to the Harquahala Mountains in Arizona. Low angle faults in the Valenzuela area south of Copperstone are interpreted as thrusts of this episode (McCartney, 1999).

6.3 Copperstone Property Stratigraphy

Small outcrops of Jurassic quartz latite porphyry with Au-bearing amethystine veins and secondary Cu minerals within the current pit area led to the mine discovery. Sand overburden surrounds these outcrops, averaging about 76 meters thick in the areas overlying D zone, and may increase up to 305 meters thick in the north and east parts of the property. The discovery outcrops occurred along a shallow bedrock ridge that extends north from the Copper Peak area and continues to the NE of the open pit.

The stratigraphic sequence at the pit is interpreted as an upper plate sequence of Triassic sediments, Jurassic volcanics and Miocene breccias and basalt flows (Table 6.3).

Table 6.3 Detailed Stratigraphy, Copperstone Pit Area (McCartney, 1999)

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 brecciated and mineralized interval about 15 meters thick is developed. A minimum thickness of 275 meters 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 massive 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.
		Chlorite schist or siltstone (SLT). This unit typically occurs at the quartzite-marble transition or interbedded within the marble.
		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 meters 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.

A general geologic map of the Copperstone mine area is presented in Figure 6.1.

Basalt

Early Miocene in age, these flows vary in composition from vesicular to amygdaloidal olivine basalt to andesite. Several generations of these flows may be present.

Monolithic Sedimentary Breccias (MSB)

These breccias are composed entirely of fragments up to cobble size derived from the Jurassic age QLP, and are locally developed in the hanging wall of the Copperstone fault. Large rafts of non-brecciated QLP may locally be present. The poorly sorted breccia fragments are set in a non-foliated matrix of hematite, sericite and clay. The unit can be identified by the random orientations of fabric in adjoining QLP fragments and non-foliated matrix.

MSB is interpreted as a sub-aerial sedimentary unit of Miocene age, (a mélange or chaotic sedimentary breccia?), associated with basin fill. It may have formed during development of regional detachment systems with shedding of sediments by erosion off of the uplifted areas overlying metamorphic core complexes.

Quartz Latite Porphyry (QLP)

Jurassic in age, this unit was the principal ore host in the pit where it occurs in both the hanging wall and footwall of the Copperstone Fault. A minimum of 275 meters thickness is indicated in the drilled area. Phenocrysts of quartz, K-feldspar, plagioclase, biotite, and magnetite are characteristic of the unit. These rocks are massive to laminate and are interpreted as volcanic flows. Welded textures are common. Aligned platy minerals such as sericite, chlorite, and biotite define a well-developed schistosity, and in surface exposures this unit dips 30-50^{o} to the SW.

Metasediments

These rocks are correlated to the Triassic age Buckskin Formation and are interpreted as products of a typical fining-upward sedimentary cycle. A sequence of quartzite, chlorite schist (siltstone) and marble (limestone) is the predominate host for mineralization in the high-grade portion of the D-Zone. The sequence occurs in the subsurface to the north of the pit. The significance of this package as an ore host had not been recognized at the time of the Cyprus operation. The package is exposed in the north end of the pit, but rapidly thins to the south. Large thickness changes occur across NW faults and the unit appears to be bounded on the SE by the NE fault that separates C and D Zones.

The marble or limestone (LST) occurs at the top of the metasediments and is composed of calcite with minor siderite-ankerite. It is weakly recrystallized. Minor quartz grains as well as silica replacements occur in the LST. The unit is interpreted as a sedimentary limestone unit on the basis of its weak bedding features, interbeds of silty material, and the relationship to an underlying quartzite-siltstone sequence in a fining-upward pattern.

The chlorite schist or siltstone (SLT) is composed of chlorite, quartz, muscovite, biotite, and magnetite. There is evidence of a sedimentary or epiclastic origin. This unit typically occurs at the quartzite-marble transition or interbedded within the marble.

The quartzite (QTZ) is generally present at the base of the meta-sediment package. It is primarily quartz grains with minor biotite and chlorite. It is commonly recrystallized and foliated. Various geologists have interpreted it as a silicified carbonate, metamorphosed siliciclastic, and a recrystallized chert. In hand specimen it is hard to differentiate from intensely silicified marble, but it typically does not have any acid reaction.

Phyllite (PHY)

This Triassic age unit is the oldest exposed unit in the upper plate sequence of the mine area. A 90 meter thickness was intersected in drill hole CS-9. It is a chloritic to calcareous phyllite with thin carbonate and quartz veinlets. Local micro-folding is observed, and local pink silica-sericite alteration is developed. Phyllite only occurs below the meta-sediments or QLP/MSB in the north part of the pit, in the D and C-Zone drill holes, and in DCU-08 (McCartney, 1999).

6.4 Copperstone Property Structures

Santa Fe geologists noted that “mineralization was controlled by a braided system of high and low angle faults with the best assays corresponding to zones of intense and repeated brecciation” (Santa Fe, 1994). The final Cyprus geological model identified discrete fault controls to mineralization, such as the low angle Copperstone Fault and steeper NW, NE and possible WNW faults. The following principle structural elements have been identified at Copperstone (McCartney, 1999):

Copperstone Fault

The Copperstone Fault is the principle gold-copper hosting structure. Most gold mineralization occurs in a breccia zone related to the fault. The fault zone strikes 320^o and cuts volcanic rocks in the south and central parts of the pit where it dips at $40\text{-}45^o$ NE. In the NW fringe of the deposit, the mineralized structure dips at about 25^o to the NE, and here it cuts the meta-sediment unit as well as volcanics. The Copperstone Fault and associated mineralization are offset by steep NW and NE faults.

During early Cyprus exploration the fault was interpreted as a conformable inter-formational volcanic breccia along the contact between quartz latite welded tuff unit and massive quartz latite footwall rocks (Cyprus, 1984). It was later re-interpreted as a listric splay fault related to the Moon Mountain Detachment Fault at depth (Salem, 1993). Although the tectonic textures and mineralization/ alteration assemblages support the listric fault model, listric faults are not usually conformable.

Fault gouge, multi phase breccia textures, shear fabric, and intense fracture sets are characteristic of the Copperstone structure. Thickness of the breccia zone exposed in the open pit ranged from 15 to 60 meters.

The distribution of gold mineralization in D-Zone suggests that the Copperstone Fault is gently refracting across a structurally complex sedimentary sequence. Locally, the upper fringe of the D-Zone lies along a siltstone-carbonate contact. Farther down plunge it transgresses up to and follows the carbonate-volcanic contact. This structural interpretation predicts that the zone will enter the hanging wall volcanics farther down dip to the east.

Where mineralization occurs at the upper limestone contact, a strong fault at the contact or several meters into the volcanics is observed. However where the fault and associated mineralization enters the limestone it becomes obscure and is indicated only by re-healed breccia textures. The pervasive Fe-oxide replacement commonly obscures defining evidence of the structure. Numerous intervals of massive to semi-massive specularite replacement and mineralization, and gouge or brecciated intervals in the limestone suggest that there is more than one branch of the fault. Parallel ore zones showing this pattern were also mapped in the Cyprus bench plans for the C-Zone.

NW and WNW Faults

Cyprus mapped several mineralized NW faults having dips of 80^0 or steeper, in the pit area. A closely related set of WNW faults may also control mineralization locally.

Two NW faults have been interpreted in the upper part of the D-Zone, where they are offset by a later NE trending cross fault. Significant changes in thickness and internal stratigraphy of the metasediment unit, as well as displacements of formational contacts, were observed across these faults. Systematic changes in stratigraphic position and average grade of the significant gold intersections within each fault block were observed.

NE Faults

These relatively late faults with steep dips may also influence hanging wall alteration and gold mineralization. A prominent NE fault offsets the mineralized zone at the south end of the pit, and can be observed in the pit wall above the second ramp switchback. This fault dips steeply NW, and contains angular QLP fragments in a poorly consolidated sandy gouge over an approximately 15-meter thickness. The mineralized Copperstone fault is offset about 90 meters in a left- lateral sense across this fault.

Other NE trending faults, including one between the C- and D-Zones, were interpreted by Cyprus. The metasedimentary unit is not well developed to the southeast of this fault, although phyllite occurs on both sides.

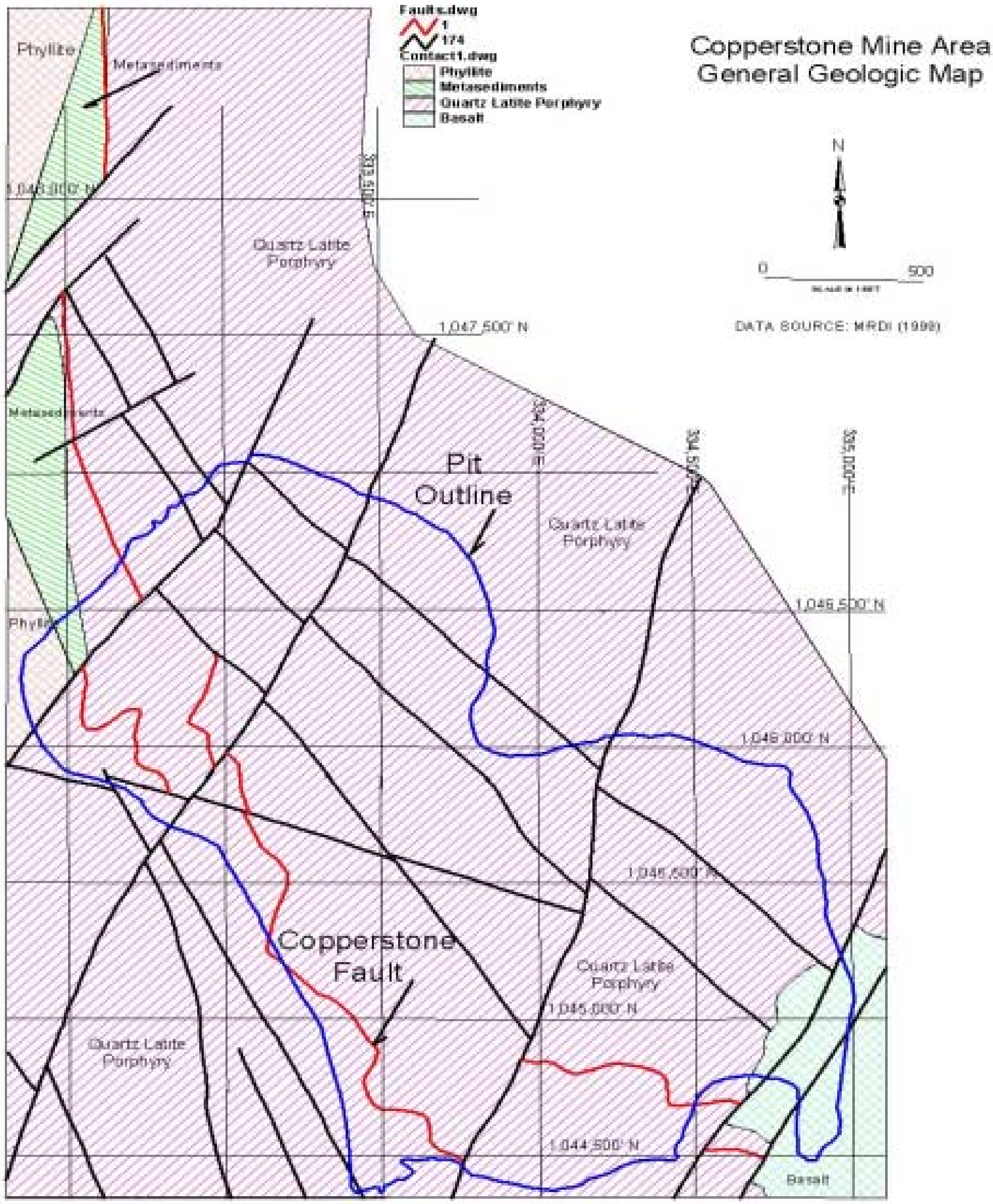
Cataclastic Breccia Unit in Holes A98-12 and C97-25

A massive breccia occurs over most of the length of drill holes A98-12 and C97-25 at the north end of the drill grid, at the down plunge limit of D-Zone. A review of the C97-31 log indicates similar material in quartz latite porphyry, extending from the sediment contact upwards. The internal structure is interpreted as a cataclastic zone. Although a NE fault is projected into this area, the cataclastic facies is too extensive to be easily explained as a major fault.

Detailed logging of the fragment and matrix compositions in drill hole C98-12 revealed that the sediment-volcanic contact can be traced into the breccia without significant displacement. Above the contact, monolithic volcanic fragments occur in a non-calcareous sandy volcanic-derived gouge matrix.

Below the contact heterolithic limestone, quartz and specularite bearing fragments occur with a calcareous clay rich gouge. The upper contact of the phyllite is also traceable into the breccia without apparent displacement. Although the morphology of the cataclastic unit is not clear, it could be a breccia pipe rather than a large fault zone. (McCartney, 1999)

Figure 6.1 Copperstone Mine Area General Geologic Map



7.0 DEPOSIT TYPES

7.1 Exploration Target Concept

The principal mineral deposits targeted under the current Copperstone exploration program are high-grade gold concentrations ("bonanza" ore shoots) within the detachment fault-hosted gold-copper mineralization. Ore shoots typically occur as fissure veins, breccia fillings or replacements associated with the coincidence of favorable host lithologies (formational breccias and reactive metasediments) and mineralizing solutions channeled through the detachment and high angle fault system. BZA's current targets occur both down-plunge and along strike of mineral zones on the Copperstone Fault, and along cross-cutting structures mined during prior open pit operations. The higher grade bonanza style mineral zones are more spatially confined than those mined previously at Copperstone, and are expected to be most efficiently delineated and exploited by underground methods.

7.2 The Model for Detachment Fault Hosted Gold Deposits (McCartney, 2000)

Hydrothermal mineralization associated with detachment faults can produce economic mineral deposits of gold, copper and iron-manganese. Mineralization can occur within the following geologic settings:

- Along the principle detachment fault zone,
- Replacing reactive (calcareous) or porous units adjoining the fault,
- In hanging wall 'gash' veins,
- In breccias associated with hanging wall listric faults,
- In veins within fold axes, and
- In chloritic breccias.

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.

In addition to Copperstone, other significant gold mines and mineralized systems associated with low angle detachment faults occur in the region. Examples of other gold mines with similar host settings include the Mesquite, American Girl, and Picacho Mines in California. Copper deposits related to detachment faulting include Swansesa, Planet, Mineral Hill, Owlhead, and Ponatoc, all in Arizona. Iron and manganese deposits of the detachment type also occur in Arizona and eastern California.

8.0 MINERALIZATION

8.1 Mineralized zones

RYO identified four mineralized zones below the elevation of the base of the pit, including the C- and D-Zones (refer back to Figure 5.2). All of these zones were interpreted as occurring along the Copperstone Fault (Royal Oak, 1998). More detailed geological study by Asia Minerals in C- and D-Zones largely confirms this interpretation. Significant mineralization at the down dip fringe of the Royal Oak C-Zone has been reclassified as the Hanging Wall Zone. However, it is possible that the Copperstone Fault, or a splay off the fault, penetrates the quartz latite and controls this mineralization. Two D-Zone intervals in the extreme NW end of the open pit have been re-interpreted as a conjugate west-dipping structure (McCartney, 1999).

Additional mineralization occurs along NW trending amethyst-quartz-specular hematite veins cutting the quartz latite in the open pit area. These structures locally contain encapsulated native gold. The mineralization may be partly controlled by the NW fault set mentioned above.

8.2 Alteration

In general, alteration consists of fracture/open space fillings and replacements of hematite along with silica, chrysocolla, malachite, calcite, siderite, manganese oxides, adularia, sericite, and magnetite. Barite and fluorite are more abundant in the SE end of the pit, and a zonation of gangue minerals is suggested. Alteration varies with host rock type as described below.

The oldest Miocene basalt flows are cut by mineralized amethyst-quartz-specularite veins to the SW of the pit.

Hematization is well developed in the monolithic sedimentary breccia unit, as are quartz and specularite veins and open space fillings. Significant gold mineralization often occurs in this unit where it forms the hanging wall of the Copperstone fault.

The quartz latite porphyry contains brecciated and mineralized intervals about 15 meters thick where cut by the Copperstone Fault in the central and southern parts of the pit. Sericite-silica alteration occurs as bleached zones in the quartz latite.

In the D-Zone, the carbonate metasedimentary unit contains intervals of massive specular hematite +/- manganese oxide and chrysocolla. Nodular replacement textures consisting of specularite clots in carbonate are common. The nodular replacements are transitional to the semi-massive and massive Fe-oxide zones. Where the carbonate is brecciated, banded open space fillings of quartz-specularite occur. Open space fillings of fluorite, barite, siderite and calcite have also been observed (Salem, 1993). The mineralization and brecciation observed in the unit is related to the Copperstone Fault, which is inferred on the basis of gouge and micro-breccia textures often observed in the sediments or the overlying volcanics within a few feet of the contact.

The quartzite metasedimentary unit is characterized by vein and stockwork stringer mineralization, rather than by the massive replacement and open space fill type typical of the carbonate unit.

8.3 Petrographic Studies

Salem (1993) completed petrographic studies of alteration and hydrothermal mineral assemblages, and described the alteration/mineralization sequence given in Table 8.1.

Table 8.1 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

The above petrographic classifications of Salem (1993) attempted to describe the mineralization and alteration within the context of a detachment fault related hydrothermal model, whereby gold was introduced with a Fe-Mn oxide dominated detachment fault hydrothermal assemblage. More recently, this model has been challenged by geologists at the Mesquite Mine and elsewhere, and models that introduce the gold (+chlorite-silica) as a later stage event superimposed on earlier detachment assemblages are gaining favor. The interpreted source of the gold in these models is from the footwall, utilizing high angle structures that intersect the detachment structure. The steep controlling structures are tight in the footwall but blossom out into “flower structures” near the detachment surface. Because of the vertical drilling utilized at Copperstone, such a model is difficult to verify (McCartney, 1999).

8.4 Gold Distribution

Petrographic examinations of the gold at Copperstone were conducted and described by Salem (1993) and Hazen Research (1995). The gold commonly occurs as native particles, with 80% as flakes ranging from 4 to 40 micron size. Coarser gold up to 150 micron has occasionally been noted in thin section and in gravity concentration tests conducted on floatation concentrate. Hazen Research (1995) reported similar grain size distributions from its petrographic examination. In thin section, gold is generally encapsulated in amethyst, quartz or calcite. In gravity concentrate, gold was mostly free with some encapsulated in quartz and Fe-oxide.

In the D-Zone, visible gold occurs more frequently, suggesting a coarser size distribution may be present. Visible gold observed in drill core from D-Zone is hosted by chlorite and silica alteration. No detailed petrographic studies have been conducted on the D-Zone gold mineralization.

8.5 Copper Content and Mineralogy

Copper minerals are common constituents of the Copperstone mineral system. Chrysocolla with minor malachite and azurite are the dominant copper minerals observed on the property. Chrysocolla has been interpreted as a primary hydrothermal mineral (Salem, 1993). Only traces of chalcopyrite were found associated with gold mineralization in the pit. Salem (1993) observed replacement of chalcopyrite by covellite along its borders, indicating that secondary oxidation has occurred.

A summary compilation of all the available Cu assays from Cyprus drilling is shown in Table 8.2. A weighted average of about 0.32 % Cu is indicated for holes where Cu analyses were obtained (McCartney, 1999). No geochemical analyses for copper were conducted during the RYO drilling program.

Table 8.2 Cu in Significant Cyprus Au Drill Intercepts by Zone (McCartney, 1999)

Zone	Hole	From (ft)	To (ft)	Interval (ft)	Au (opt)	Cu (%)
A	CS-78	330.0	380.0	50.0	0.137	0.23
A	CS-79	300.0	340.0	40.0	0.043	0.21
B	CS-98	420.0	460.0	40.0	0.118	0.28
B	CS-98	430.0	460.0	30.0	0.152	0.29
B	CS-100	550.0	600.0	50.0	0.226	0.48
C	CS-54	630.0	680.0	50.0	0.065	0.53
C	CS-54	640.0	660.0	20.0	0.106	0.73
C	CS-115	730.0	770.0	40.0	0.056	0.14
D	CSD-9	489.5	535.0	45.5	0.110	0.25
D	CSD-9	489.5	508.0	18.5	0.243	0.20
D	CS-64	350.0	370.0	20.0	0.112	0.01
D	CS-72	440.0	460.0	20.0	0.115	0.41
D	CS-73	540.0	570.0	30.0	0.043	0.54
D	CS-74	480.0	520.0	40.0	0.243	0.29
D	CS-106	550.0	580.0	30.0	0.093	0.11
			Total	524.0	**Average**	**0.32**

An average of 0.96 % copper is present in the significant D-Zone gold intersections drilled by Asia in 1998. This is substantially higher than copper contents observed during prior drilling. Summary results from ICP copper analyses from Asia drill samples are presented in Table 8.3.

Table 8.3 Cu in Significant Asia Au Drill Intercepts by Zone (McCartney, 1999)

Zone	Hole	From (ft)	To (ft)	Interval (ft)	Au (opt)	Cu (%)	Cu/Au
D	A98-1	550.5	554.0	3.5	0.028	0.37	13.1
D	A98-2	592.8	613.0	20.2	0.452	0.84	1.9
D	A98-3	623.7	637.0	13.3	4.905	2.24	0.5
D	A98-4	538.5	546.2	7.7	0.086	0.30	3.5
D	A98-5	553.0	591.0	38.0	0.380	0.34	0.9
C	A98-6	727.0	729.0	2.0	0.712	0.78	1.1
D	A98-9	427.0	430.5	3.5	0.231	0.35	1.5
D	A98-11	636.3	658.1	21.8	0.037	1.85	50.4
D	A98-13	578.5	592.9	14.4	0.571	0.22	0.4
D	A98-14	675.6	679.0	3.4	0.279	4.40	15.8
D	A98-15	656.3	666.6	10.3	0.172	0.80	4.7
			Total	138.1	**Ave**	**0.96**	

8.6 Other Elements

Production records for the Copperstone Mine indicate a relatively high gold-to-silver ratio. Historically, the silver content in the recovered doré averaged about 3.0%, relative to gold (Ackermann, 1998). Trace element analyses by ICP during the 1998 drilling by Asia indicated minor amounts (not of economic interest) of silver at Copperstone. No significant quantities of arsenic, antimony, mercury or other deleterious elements were noted, perhaps due to the lack of sulfide minerals. No significant carbon minerals were observed at Copperstone. The gold mineralization on the property often has high levels of Fe and Mn due to the common association with massive or semi massive Fe-oxide and Mn-oxides. Ba was commonly enriched in areas of gold mineralization in the pit due to the local presence of barite. Elevated barium trace element values also occur in the C-Zone and D-Zone.

9.0 ASIA MINERALS' EXPLORATION

9.1 Summary

Asia's work at Copperstone to date has consisted primarily of exploration drilling and initiating the driving of a decline. Limited geologic mapping and surface sampling in the open pit has been conducted to support the drilling and underground development. All work has been conducted by, or was under the direct supervision of, Asia personnel. Reputable and qualified contractors have been retained by Asia to conduct actual drilling and underground development work. Quality control measures applied during the execution of the work are described in subsequent sections titled *Drilling*, *Sampling Method and Approach*, *Sample Preparation and Security*, and *Data Corroboration*. Assay results from Asia's drilling and surface sampling programs are given in Appendices 2 through 4.

9.2 Asia Work Completed to Date

In Sept-Oct 1998, Asia completed a 15-hole drill program in the C-Zone, D-Zone, and projected extensions of the D-Zone (drill holes A98-1 to 15, Figure 9.1). A total of 3,347 meters of drilling were completed, of which 898 meters was core, and the remainder, RVC. A cluster of high to moderate grade mineralized intercepts was obtained through the central part of the D-Zone in holes A98-2, 3, 5, and 13. A high-grade intercept was also obtained in hole A98-6 in the C-Zone.

In Feb-March 2000, Asia conducted an additional RVC and core drilling program to investigate the projected strike extent of the D-Zone, and evaluate previously drilled mineralization intersected in hole DCU-8 (drill holes A00-1 through 11, Figure 9.1, in pocket). A total of 11 holes were completed for 2490 meters. Drill hole A00-10 expanded the dimensions of the high-grade mineralization in the DCU-8 area.

The exploration drilling for the northern extension of the D-Zone did not encounter significant mineralization. BZA has interpreted that the Copperstone Fault is offset by a cross fault in this area because substantial and abrupt changes in the thickness and elevation of the stratigraphy occur north of the D-Zone high grade intercepts. In this area, the volcanic stratigraphy is locally faulted out, and where present is offset up to 60 meters vertically relative to the in the D-Zone.

Table 9.1 lists all significant gold intercepts obtained to date from Asia's drilling at the Copperstone property.

Table 9.1 Summary of Significant Asia Drill Intercepts (McCartney, 2000)

Hole	#	Type	From	To	Thickness* (ft)	Au g/t	Au oz/t	Target	Cu (%)
A98	1	core	550.5	554.0	3.5	.959	0.028	D-Zone	0.37
A98	2	core	592.8	613.0	20.2	15.495	0.452	D-Zone	0.84
A98	3	core	623.7	637.0	13.3	169.69	4.905	D-Zone	2.24
A98	4	core	538.5	546.2	7.7	2.948	0.086	D-Zone	0.30
A98	5	core	553.0	591.0	38.0	13.027	0.380	D-Zone	0.34
A98	6	core	727.0	729.0	2.0	24.4	0.712	C-Zone	0.78
A98	9	core	427.0	430.5	3.5	7.919	0.231	D-Zone Extension	0.35
A98	11	core	636.3	658.1	21.8	1.268	0.037	D-Zone	1.85
A98	13	core	578.5	592.9	14.4	19.575	0.571	D-Zone	0.22
A98	14	core	675.6	679.0	3.4	9.564	0.279	D-Zone	4.40
A98	15	core	656.3	666.6	10.3	5.896	0.172	D-Zone	0.80
A00-	1	RVC	345.0	355.0	10.0	0.588	0.017	D-Zone Extension	n/a
A00-	2	Core	657.6	661.0	3.4	8.171	0.238	D-Zone	n/a
A00-	4	Core	535.0	549.4	14.4	1.045	0.030	D-Zone Extension	n/a
A00-	5	Core	589.2	592.0	2.8	0.938	0.027	D-Zone Extension	n/a
A00-	6	RVC	550.0	555.0	5.0	2.107	0.061	D-Zone Extension	n/a
A00-	7	RVC	500.0	520.0	20.0	0.744	0.022	D-Zone Extension	n/a
A00-	9	RVC	715.0	720.0	5.0	1.011	0.029	D-Zone Extension	n/a
A00-	9	RVC	930.0	940.0	10.0	1.659	0.048	D-Zone Extension	n/a
A00-	9	RVC	1100.0	1105.0	5.0	0.855	0.025	D-Zone Extension	n/a
A00-	10	Core	479.0	489.5	10.5	32.338	0.943	DCU-8 Zone	n/a
A00-	11	RVC	305.0	310.0	5.0	1.420	0.041	D-Zone Extension	n/a
A00-	11	RVC	485.0	490.0	5.0	0.816	0.024	D-Zone Extension	n/a

Note: Thickness indicated is drill interval thickness from near-vertical drill holes.

In July 2000, surface structural mapping was conducted by Asia personnel within the Copperstone pit. The purpose of the mapping was to ascertain the thickness and configuration of the Copperstone fault, determine RQD characteristics in the footwall, and identify potential weak zones in the open pit high wall. The mapping allowed evaluation of alternative sites for constructing the portal for the underground development work described below.

In July 2000, channel sampling in the lower level pit walls was initiated by Asia to determine the grade and thickness of the exposed portion of the C-Zone mineralization, and other structures thought to contain gold mineralization. Table 9.2 lists significant results from channel samples in the pit wall. The stated lengths are calculated true thickness of the mineralized structures.

Table 9.2 Significant Channel Results from Pit Sampling (from BZA)

Channel Sample No.	Channel Length		Sample Grade	
	feet	meters	oz/ton	grams/tonne
1	5.5	1.7	0.579	19.85
2	14.8	4.5	0.227	7.78
3	10.3	3.1	0.527	18.07
6	8.5	2.6	0.762	26.13
8	6.0	1.8	0.267	9.15
9	5.0	1.5	0.380	13.03
10	2.5	0.8	0.149	5.11
11	4.0	1.2	0.290	9.94
11	4.0	1.2	0.141	4.83

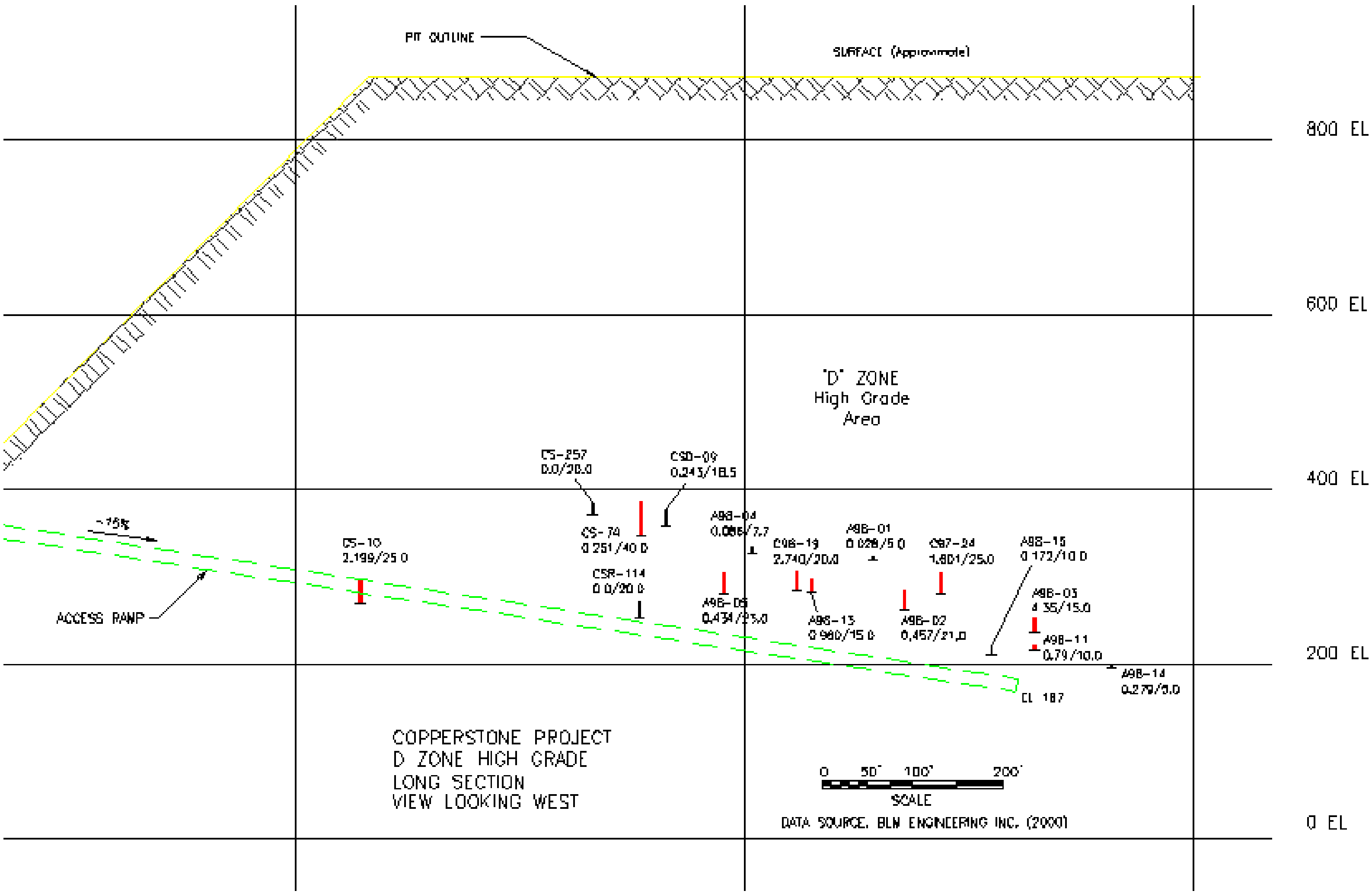
Channels 1, 2, and 3 were from the up-dip exposure of the C-Zone. A fourth channel sample (number 7) from the C-Zone had no significant gold. Channel 6 extends about 9 meters to channel 9, and occurs in the same stratigraphic position. Channel 8 is the first documented significant mineralization in a moderately dipping EW structure at Copperstone.

BZA is presently driving an underground exploration decline into the C95-10 area and proximal to the high grade intercepts of the D-Zone (see Figure 9.2). On September 13, 2000, mobilization of mining equipment to the Copperstone site had been completed and construction of the decline portal sets commenced. Work is currently proceeding on advancing the planned 600 meter long, 4.6 by 4.6 meter underground access at a 12°-15º decline. The decline is designed to provide access for C95-10 and D-Zone delineation drilling (Table 9.3) and exploration drilling; the approved permit also allows the extraction of a bulk sample of up to 50,000 tons, if deemed appropriate.

Table 9.3 Targeted Drill Intercepts for Drift Access and Definition Drilling (from BZA)

Target Area	Defining Drill hole No.	Drill Interval (meters)	Drill Intercept (meters)	Ave. Gold Grade (oz/ton)
Stage 1	C95-10	175.3 to 182.9	7.6	2.54
Stage 2 (D-Zone)	CS-74	149.3 to 152.4	3.1	0.57
	CSD-9	149.2 to 150.4	1.2	0.66
	A98-5	170.1 to 176.4	6.3	0.91
	C96-19	173.7 to 176.8	3.1	5.34
	A98-13	177.6 to 180.8	3.2	0.75
	A98-2	180.7 to 186.9	6.2	0.45
	C97-24	173.7 to 180.0	6.3	2.00
	A98-3	190.1 to 194.2	4.1	4.91

Figure 9.2 Copperstone Project D-Zone High-Grade Long Section



10.0 DRILLING

10.1 Summary

During Sept-Oct 1998, Asia completed a 15-hole drill program in the C- and D-Zones (A98-1 to 15). A total of 3350 meters of drilling was completed, of which 2450 meters were by RVC and 900 meters were diamond cored. In February and March 2000, Asia Minerals conducted a second RVC and core drilling program. A total of 11 holes (A00-1 to 11) were completed for 8,169 feet (2,490 meters). Typically, the upper portions of the drill holes were completed by RVC drilling and the deeper principal target zones were drilled by diamond coring methods.

Locations of drill holes were defined on the established Copperstone mine survey grid, using the original Cyprus benchmarks. Drill hole collar locations were surveyed by Bill Lemme, a professional engineer and Arizona registered surveyor. Mr. Lemme was formerly employed as a surveyor for the Cyprus mining operations and conducted surveys on the property for RYO. The drilling contractor under supervision of Asia performed downhole surveys at regular intervals. A standard single shot camera survey tool provided acceptable accuracy in measuring both dip and azimuth attitudes.

In addition to samples collected for analysis (discussed in section titled *Sampling Method and Approach*), all RVC and core intervals were logged as described below. The logging followed consistent methods of description.

As MDA was not present during any of the drill campaigns at Copperstone, all descriptions of drilling practices, sample collection, and data documentation are based solely on information provided by, and conversations with, BZA personnel.

10.2 Reverse circulation drilling and logging

The Lang Division of Boart Longyear drilling contractors, based in Salt Lake City, Utah drilled the RVC holes. Boart Longyear is a well-established and respected international drilling contractor.

The Asia exploration holes were oriented vertical to minimize drill hole instability issues while drilling through the 60 or more meters of unconsolidated surface sand in the area. The surface overburden was drilled using standard tricone bits. No samples were collected until bedrock was reached.

At the overburden/bedrock interface, RVC drilling methods were initiated using conventional downhole hammers and bits. The RVC holes were 16.5 cm in diameter, and samples were collected at 1.5 meter intervals.

Character sample suites of drill cuttings were retained for each RVC sample interval. Representative reference samples were collected by passing a hand sieve through the sample cyclone stream during each sample interval. After homogenization, a subset of the collected material was inserted by funnel into standard 10-compartment partitioned RVC chip trays. The sample trays were numbered and indexed at the drill site. All drill chip reference sets are stored on site in the project field office.

The RVC chip characterization samples were examined with a binocular microscope and information logged by Asia personnel. Geologic information was documented according to a standardized logging template in which color, key minerals and percentages, alteration, and rock type were recorded systematically for each 1.5 meter interval.

10.3 Core drilling and logging

The Boart Division of Boart Longyear based at Peoria, Arizona was the contractor employed by Asia for drilling the core holes on the property. The drilling contractors are respected professionals and methods and equipment were consistently at or above industry standards. BZA reports that all drill rod lubricants and drill additives in contact with the drill holes were certified chemically inert in key metals (Au and Cu) used for geochemical interpretations.

HQ size drill core (6.4 cm in diameter) was collected by standard diamond impregnated drill bits, metal alloy core barrel and wire-line methods. Drill cores were placed into standard waxed cardboard core boxes (3 meters/box) at the drill, and wood footage indicator blocks were placed at the end of each core barrel pull interval. Each core box was permanently labeled with appropriate “Hole ID” and “from/to” interval lengths. A lid was affixed upon filling each box.

Prior to core logging and splitting, geotechnical data was collected for all core holes (logs were completed for all core holes), including RQD data, interval recovery percentage, and other parameters. These measurements were systematically recorded on a standardized geotechnical log form.

The core surface was brushed/washed with water to remove drilling mud and photographed prior to logging. Drill core was logged for lithology, mineralization, alteration, and structural features according to a standardized logging template and recorded by Asia personnel on a standardized geology log form. Geology codes and observations were marked on the core using permanent yellow or blue wax china markers. Key mineral observations to be preserved for the reference archive portion of the core were circled or X-marked with red china marker.

11.0 SAMPLING METHOD AND APPROACH

MDA has no first-hand knowledge of the sampling procedures used by Asia, though after review of the data and consultation with Asia and BZA personnel, it appears that the sampling performed by Asia followed consistent methods of sample collection, transportation, and storage, and was done in accordance with standard industry practices. BZA reported that the samples remained in sole custody of the Asia geologist on site until shipped to the analytical lab.

11.1 Summary

Two geologists conducted the sampling program. The first 2/3 of the 2000 program was under the supervision of Graham Kelsey. The last 1/3 of the 2000 program (including surface sampling), and all of the 1998 program, was under the supervision of Ian McCartney. Mr. Kelsey is a geological consultant to Asia and was the former Chief Geologist at the Copperstone Mine for Cyprus. He has over 20 years experience in gold and base metal exploration, much of that in Arizona. Mr. McCartney, presently a geological consultant to Asia, is a P.Eng. in Canada with over 20 years international experience in gold and base metal exploration.

Asia recognized that the occurrence of samples containing relatively high gold values might materially impact the accuracy and reliability of sample results. However, the use of core drilling and appropriate sample preparation and analytical protocols (see 'Routine Follow-up for Elevated Gold in Drill Samples' discussion under *Sample Preparation and Security* section) were employed by Asia to maintain the integrity of the gold analyses.

11.2 Reverse Circulation Drill Cuttings

BZA describes the RVC drilling and sampling below:

> *The contractor's RVC drill rigs were well equipped with high volume/pressure compressors and air-cyclone sample collection equipment standard to the industry. The drill column was regularly air-purged by the drill operator during the sampling routine. Standard care was taken to minimize sample contamination from the drill column, collection and field-splitting equipment. The cyclone-splitter unit was periodically washed with a pressurized water hose to remove residual material. Samples were air-dried on site prior to shipping to the lab.*
>
> *The RVC samples were collected at 1.5 meter intervals, and split at the drill site using a cyclone/rotating cone splitter unit. A member of the contractor's drill crew was trained and assigned the sampling function. When drill chip returns were sufficient, the splitting equipment was adjusted to deliver a minimum of 7.26 kilograms per 1.5 meters to the sample port.*
>
> *The sample was initially collected in a cleaned 22 liter plastic bucket, then transferred into pre-numbered porous cloth bags with hole ID and from-to footage permanently*

marked on both the exterior of the bag and a sample card affixed to the bag. The RVC sample splits had an average weight of approximately 13 kilograms.

11.3 Drill Core

BZA describes the RVC drilling and sampling below:

Core sample intervals were determined by the on-site Asia geologists on the basis of lithologic, alteration, or mineral abundance contacts where observed. The objective in determining sample boundaries was to characterize the geological association of gold. The maximum core sample interval was 1.8 meters, the minimum interval was 0.6 meter. Sample interval boundaries and interval depth designations were permanently marked on each sample segment with a red china marker prior to sawing.

Core samples and inserted coarse reference samples were assigned sequential series of numbers that are independent of hole number or footage, using standard triplicate lab tag booklets.

Duplicate assay tags were inserted in the core boxes at the downhole end of each sample interval. Only the pre-numbered sequential sample ID sequence was indicated on the assay tags. Coarse reference standards were slotted into the sample sequence after suspected highly-mineralized intervals using the sequential number system.

The triplicate assay tag retained in the sample booklet was filled out with relevant Hole ID, sample interval and geology code(s). The sample ID, and sample interval was also entered on the corresponding geologic log form.

Drill core was sawed in half utilizing a conventional rock saw and water-cooled diamond impregnated blade. The saw blade and core-carriage were pressure sprayed and cleaned of rock fragments between each sample interval. After sawing a sample interval, one assay ticket was taken from the core box and inserted with one-half of the core in a sample bag. The half core retained for the reference archive was systematically returned to the core box with the duplicate tag positioned at the end of each sample interval. Attempts were made to either retain or re-label prior core markings for the archive cores.

Visible gold, where observed in only one-half of the core pair, was retained with the archive/reference core portion.

The outside of each laboratory sample bag was labeled with permanent magic marker to indicate only the sample number. Sample bags were immediately and permanently sealed with lock ties.

11.4 Coarse Reference Material From Copperstone Drill Cores

As a quality assurance measure, BZA reports that Asia geologists routinely inserted coarse barren reference material into the drill sample series following drill samples with observed visible gold or following intervals of suspected high-grade mineralization. The barren standards allowed monitoring for possible contamination, and grade smearing from the laboratory's sample prep equipment during processing of high-grade drill samples.

Barren core reference material was prepared on-site by selecting intervals of an existing drill core exhibiting a minimum of 6 meters of continuous assays below the lab's Au detection limit of 5 ppb. Reference material was visually inspected by Asia geologists and prepared from barren, non-fractured, unaltered, sulfide-free, and uncontaminated half-cores from drill intercepts in unmineralized hanging wall geological units. Selected coarse standard material was broken into small pieces and homogenized on a cleaned concrete slab. The coarse barren material was then placed in clean unmarked sample bags of the same type used to submit drill core samples to the analytical lab.

The coarse, barren standard material was documented and inserted into sample series by Asia personnel. The coarse standards were inserted at irregular intervals, and submitted with the assay lab shipments per the previously described protocol. Results are described in the *Data Corroboration* Section.

11.5 Surface Sampling

Select continuous rock chip sampling of the pit wall was conducted in areas of known mineralization, defined from pre-production drilling, level (bench) assays of Cyprus, and geologic mapping of the pit walls. The sampling focused on structural zones in the northern half of the pit, including the C-Zone and adjacent areas of mineralization or alteration.

Samples were collected by an experienced geologist using a flat chisel-type rock hammer and hand-held chip collection device. Sample quality and representation was considered to be acceptable and conformable with industry standards for the intended purposes of geochemical investigation.

Maximum sample width was about 3 meters across the structural fabric, minimum sample width was 0.6 meters. Generally, variations in Cu-oxide, specularite, or chlorite-silica contents were the parameters used to establish the sampling interval.

Sample tags were prepared at each sample site describing sampled dimensions, estimated true width, host and wall rock types, and alteration. Depending on the safety characteristics at the sample sites, sample lines were occasionally non-linear or staggered. The documented thickness recorded was based on true thickness rather than sample length. Although an effort was made to collect volumetrically representative continuous chip samples, variable hardness and fracturing characteristics of sampled material could cause disproportionate representation within an individual sample interval.

The terrain surface and direction of sampling was usually not conducive to a tarp-type sample catcher. A crude glove-type sample catcher was employed below the hammer, and chips transferred directly into heavy mil plastic bags. Each bag was double labeled with sample ID using a permanent marker. A heavy paper tag with sample ID and a sequential number system was also inserted inside each bag. Each completed sample bag was sealed with a lock tie at the sample site. An aluminum metal tag was inscribed with the sample number and permanently affixed to the pit walls at each sample site. The sample lines were clearly marked with white and yellow survey paint.

Grid locations of sample channels were plotted on a detailed terrain model of the pit benches by scaling to known control points.

12.0 SAMPLE PREPARATION AND SECURITY

12.1 Summary

MDA believes that appropriate sample security, sample preparation, and sample quality assurance procedures were employed by Asia and by known and reputable analytical labs employed by Asia. Each of the primary sample preparation facility, principal analytical lab, and umpire laboratories acted as independent operations. Beyond normal service-client relations, the sample preparation and analytical laboratories utilized are in no way associated with employees, officers or directors of BZA.

Based on the data provided by BZA, it is this author's opinion that the sampling methodology, security, analytical procedures, and quality assurance practices exercised by Asia were both adequate and conducted in compliance with standard industry practices, in context with the present stage of evaluation and intended use of the information.

Assay results from Asia's drilling and surface sampling programs are given in Appendices 2 through 4.

12.2 Drill Sample Security

MDA had no direct involvement with Asia's sample security measures, but believes that they were effective if performed as represented. All samples remained in the custody of Asia geologists until shipped to the analytical laboratory. All access to drill core logging, sample preparation and storage facilities by other than Asia personnel was recorded; including the holes and intervals possibly accessed and examined in each instance. The on-site geologist maintained a standard log form for this purpose.

All drill core was stored in a sealed and locked shipping container on site. During logging, drill core was returned to the container for overnight storage.

Shipping from the project site to the lab was by USF Bestway, a lab-designated commercial carrier. The samples were picked up from the project site on 1.3 x 1.3x1 meter crib pallets, supplied by the analytical lab, and delivered directly to the sample preparation facility. Chain of custody control was documented through standard bills of lading, as well as MRDI-recommended chain of custody forms.

12.3 Surface Sample Security

Surface rock chip samples were collected, labeled, catalogued, and sealed by Asia's on-site geologists. Surface samples were transported and delivered directly to the receiving department of the analytical lab by the Asia geologist.

12.4 Analyses of Drill Samples

In 1998, Asia utilized Intertek Testing Services (Bondar Clegg) as the principal analytical laboratory for all Copperstone project drill sample analyses. In 2000, Bondar Clegg was also used, but the lab was no longer affiliated with Intertek. Initial sample prep was conducted at the Bondar Clegg sample preparation facility in Reno, NV. Sample pulps were then forwarded directly by the prep facility to the Bondar Clegg analytical lab in Vancouver for analyses. Trace element ICP geochemical analyses were conducted at the Skyline-Actlabs facility in Tucson, Arizona. Both Bondar Clegg and Skyline-Actlabs are reputable and industry-respected commercial analytical service organizations that operate on an international scale. Lab procedures, including any variations to the lab's routine procedures, are summarized below.

Primary Preparation Facility - Bondar Clegg - Sparks, Nevada (ISO certified)

- Samples were dried in stainless steel trays (sample tags remained with sample in drying equipment);
- The total sample was crushed to 95% -10 mesh (about 2 mm). Bondar Clegg's normal process was crushing to 75% -10 mesh.
- Crushed material was reduced with a riffle splitter to separate a nominal 1 kilogram for *large pulp* prep procedure;
- Rejects from step 2 were stored at the lab for future work;
- The 500 gram subset was pulverized to 90% passing -150 mesh using a shatter box type pulverizer);
- A nominal 250-gram subset of pulp was sent for analysis;
- Remaining pulps were stored for future work.

Primary Analytical Facility - Bondar Clegg, Vancouver, BC (ISO certified)

- Re-homogenization of the nominal 250-gram pulp received from the preparation section;
- A two-assay ton (~58.3 gram) charge was weighed from the 250-gram pulp and subjected to standard fire assay with an atomic absorption finish;
- All values over the range of AA reliability (+10 ppm Au) were re-assayed using two-assay ton fire assay with a gravimetric finish.

12.5 Routine Follow-up of Elevated Gold In Drill Samples

Metallic screen or "screen fire" analyses are considered one of the most accurate methods of assaying samples containing significant amounts of particulate or coarse gold. Asia utilized metallic screen analyses for all sample intervals considered significant by the site geologists. Selection of significant intervals for metallic screen analyses was generally determined by the presence of high-grade mineralization in the routine assays. At the geologist's discretion, sample intervals were submitted for screen fire analyses if warranted to assist in interpretation or confirm results from earlier drilling programs. When submitting sample intervals for screen fire analyses, the entire sample sequence was submitted, including internal zones of both high and low-grade material. All metallic screen analyses of Asia samples were conducted at the Bondar Clegg facilities. Results of the metallic screen assays are given in Appendix 5. In summary, the screen fire procedures employed by Bondar Clegg were as follows:

- A large, nominal 1000 gram, pulp was prepared per normal sample prep protocols;
- A 500 gram pulp was weighed and wet-sieved through a 150 mesh screen with the plus and minus 150 mesh material segregated and dried;
- After homogenization, a two-assay ton split of the minus150 mesh fraction was fire assayed;
- The entire plus150 mesh fraction was weighed and fire assayed;
- The two fractional assays were combined by weight-averaging to determine the reported assay.

12.6 Other Elements Analyzed - Drill Samples

Thirty (30) element ICP scans were performed on a subset of the mineralized samples, including all samples within significant intervals. This scan included, among others, the following elements which were considered of greatest interest to Asia geologists: Cu, Ag, Fe, Mn, As, and Sb.

12.7 Analysis of In-Pit Samples

All in-pit samples were prepared and assayed at Skyline-Actlabs of Tucson, AZ. Skyline is a reputable international analytical services group. The Tucson lab is registered under the State of Arizona's Mines and Minerals Standards Proficiency Program, participates in the CANMET round robin standards program, and is presently undergoing certification under ISO guide 25.

The laboratory procedures for crushing, pulverizing and primary assaying were similar to those followed by the primary Bondar Clegg lab. A large pulp prep (1000 gram) pulp was prepared followed by fire assay with AA finish on a 2-assay ton (50.0 gm) charge. Samples with values over the 10-ppm upper limit of AA detection limit were re-assayed using 2-assay ton fire assay with gravimetric finish.

12.8 Use of Standards and Blanks

Asia monitored the commercial lab's sample preparation and analytical performance by inserting "blind" coarse blanks, reject duplicates, core shed reference samples and CANMET Standard Reference Material in to the sample stream. The QA/QC protocols applied generally conformed to those recommended to Asia by MRDI (1999). Control samples inserted by Asia comprised approximately 5% of the sample stream through each of the major components in the primary lab's sample preparation and analyses flow sheet. Appropriate material (coarse pre-crush blanks, duplicate rejects, certified standard pulps, etc.) was utilized for quality assurance throughout the prep and assay procedures. The reference materials were inserted with no unique identifiers that would differentiate them from other materials in the sample prep/analytical stream.

A 120-gram split of every 20^{th} process pulp was prepared and submitted to the qualified umpire laboratory. The primary preparation facility was also responsible for inserting blind pulp blanks and Asia's SRM's into sample batches submitted for umpire assay. The analytical protocols of the umpire lab were the same as those used at the primary lab.

13.0 DATA CORROBORATION

13.1 Summary

The primary sample preparation facility, principal analytical lab and umpire laboratories utilized for data corroboration each acted as independent operations. Beyond normal service-client relations, the preparation and analytical laboratories utilized are in no way associated with any employees, officers or directors of BZA. No affiliate, employee, officer, or director of BZA conducted any part of the corroboration sample preparation/submission procedure.

13.2 Data Corroboration - Drill Samples

Asia's primary lab was the Bondar-Clegg facility in Vancouver, B. C. American Assay Laboratories, located in Reno, Nevada was used as the umpire lab. American Assay is a reputable facility and participates in a full ISO certification program.

Asia instituted the corroboration program recommended by MRDI (1999). The primary lab's preparation facility was responsible for preparing coarse reject duplicates (1 in 20), coarse (pre-crush) blanks (1 in 20) and for inserting client supplied standard reference material (1 in 25) into the process sample stream. The standard reference material used was CCRMP gold ore MA-1b with a certified value of 0.497 +/- 0.008 oz/t gold. Following insertion of the quality control samples, a new sequential number sequence was applied to ensure no unique identifiers for QA-QC materials would appear in the submitted sample ID sequence as received by the analytical facility.

The primary analytical facility was requested to report the results of its own internal (non-client) QA/QC sample checks for all batches. These included standard pulp and blank duplicate analyses.

A 120-gram split of every 20th process pulp was submitted to the umpire laboratory. In addition, all samples within significant drill sample intervals were submitted to the umpire lab, including any internal low-grade samples within the interval. All quality assurance samples were prepared and delivered to the umpire lab by the primary lab's Reno preparation facility. The primary preparation facility was also responsible for inserting pulp blanks (1 in 20) and client SRM (1 in 20) into the batches for the umpire lab. The samples were renumbered in a similar fashion to the renumbering employed for the primary analytical facility. The assay procedures used at the umpire lab were the same as those of the primary lab.

Due to budgetary constraints, no check assays were submitted to the umpire lab during the 2000 drill program.

13.3 Summary of Corroboration Results - Drill Samples

The ability to consistently produce acceptable results in the analytical end of the primary and umpire lab's flow sheet was monitored with certified standards and blanks (SRM). The mean of the SRM assay values during Asia's program was 0.508 opt Au versus the certified value of 0.497 +/- 0.008 opt Au. The relative difference was +2% during the 1998 drilling program . The SRM analysis reported an acceptable relative difference consistently below 5%. Only one of the standard blank pulps submitted, reported a value in excess of twice the lab's lower detection limit of 5 ppb (MRDI, 1999).

Results of the lab's internal monitoring via periodic repeat analyses of pulp duplicates and (non-client) standard blanks were also well within acceptable tolerances.

Coarse reference material and duplicate reject analyses were used to confirm the integrity of the sample preparation protocols and monitor performance of the primary lab. Concern regarding potential contamination of sample prep equipment from processing high-grade Copperstone samples was mitigated by intentionally inserting coarse blanks into the sample stream following suspected high-grade sample intervals. When discrepancies in the analyses of the coarse sample blanks were indicated, they were investigated and resolved to Asia's satisfaction by the primary laboratory. Given the inherent variance of Asia's coarse reference material, comparative analyses of coarse blanks and duplicates conducted by the primary lab reported relative variance within acceptable limits.

Sample pulps, standards and blanks submitted for analyses at the umpire facility reported very high correlation (correlation coefficient of 0.99) of primary and umpire lab results. Relative variance for the sample population (92 samples of varied grades) submitted for umpire analyses was well within industry standards. Scatter plots for the primary and umpire lab comparisons are given in Appendix 6, as are histograms for all of Asia's drill sample results.

13.4 Data Corroboration: In-Pit Samples

The small sample population, anticipated inherent variance in the sampling method, and the intended use of the Asia surface samples did not warrant extensive data corroboration or statistical review. The laboratory's internal standards and duplicate assay results were monitored and documented. Standard internal QC performed by the laboratory included pulp duplicate analysis, blanks, and SRM's.

The limited corroborative data available for the Asia surface samples did not indicate any problems in the analyses conducted. The few comparative sample analyses indicated both expected and acceptable limits of relative variance.

None of the surface samples were submitted to an umpire laboratory and no resource estimates have been based on the surface sample data.

13.5 Authors Data Corroboration

MDA took seven samples while at the Copperstone site. BZA requested that MDA not take any of the core that had only ¼ remaining. Since almost all of the core reviewed could not be sampled, MDA was severely restricted in the number of core check samples that could be taken. However, MDA reviewed ten holes and found that the core was substantially the same as described in the drill logs. Mineralization observed in the drill core visually corresponded to intervals of anomalous gold values assays.

In the end, three samples of half core were found and sampled. No pertinent RVC drill cuttings or rejects were found, so MDA could not check for these. However, one sample of four 3-meter long interval samples was taken. And finally, MDA took three duplicate samples of the pit channel samples. All results are given in Table 13.1.

Table 13.1 MDA Check Sample Results

MDA No.	Hole/Channel	From (ft)	To (ft)	Asia Au opt	MDA Au opt	Comments
SR-CS-01	A00-10	474	479	0.003	0.012	½ split of remaining ½ split (¼)
SR-CS-02	A00-10	479	485	1.504	1.765	½ split of remaining ½ split (¼)
SR-CS-03	A98-5	558	563	0.205	0.294	½ split of remaining ½ split (¼)
SR-CS-04	CS-74	480	520	0.251	0.142	Small amounts from each lith sample
SR-CS-05	IM-00-4	N/A	N/A	0.823	0.286	Duplicate in-pit channel sample
SR-CS-06	IM-00-10	N/A	N/A	0.578	0.406	Duplicate in-pit channel sample
SR-CS-07	IM-00-15	N/A	N/A	0.939	1.471	Duplicate in-pit channel sample
Mean				0.615	0.625	
Maximum				1.504	1.765	
Minimum				0.003	0.012	

The sampling was not meant to validate sample precision, but rather verify the presence and order of magnitude of gold grades. The results are substantially the same as those presented by BZA.

14.0 MINERAL PROCESSING AND METALLURGICAL TESTING

To date, only preliminary characterization and scoping-level metallurgical studies have been or are being conducted on high-grade gold mineralization from BZA's primary target areas.

14.1 Preliminary Testing

Preliminary cyanidation testing was conducted in 1999 at the Resource Development Inc. facility in Denver, CO. The two composite samples were selected from core intervals within the "Hanging Wall" and D-Zone mineralization (Table 14.1 below). The characterization-level testing on the two samples is not considered conclusive. However, it provided insight regarding the level of potential cyanide consumption associated with copper minerals that commonly accompany the gold mineralization at Copperstone. The 24-hour leach test results indicated that the Hanging Wall sample consumed a minor amount of cyanide (0.004 kg/mt of feed), while cyanide consumption in the D-Zone sample was significantly higher (1.085 kg/mt). Although both samples contained copper, the D-Zone sample contained approximately five times more copper than the Hanging Wall sample. The amount of cyanide-soluble copper in the D-Zone sample was similarly high, suggesting that the presence of soluble copper minerals that locally accompany gold mineralization will consume cyanide. MDA feels additional test work is required to better define the relationship between cyanide consumption and copper mineralization.

Table 14.1 Preliminary Cyanidation/Leaching Studies (Resource Development Inc, 1999)

(A) 1000 gr "Hanging Wall" Sample

Parameter*	Au	Ag	Cu	Extraction % (per calculated head grade)			
				time	Au	Ag	Cu
Recovery (%)	82.7	27.0	5.2	2 hours	12.3	4.4	2.1
Calc. Head (g/mt)	11.36	1.37	510	4 hours	32.7	7.8	3.3
Actual Head (g/mt)	7.42	< 2	476	6 hours	45.0	12.4	4.3
Tail assay (g/mt)	1.97	<2	483	24 hours	82.7	27.0	5.2
Cyanide consumption: 0.004 kgNaCN/tonne							
Lime Added: 0.531 kg CaO/tonne feed							

(B) 1000 gr "D-Zone" Sample

Parameter*	Au	Ag	Cu	Extraction % (per calculated head grade)			
				time	Au	Ag	Cu
Recovery (%)	91.2	48.9	15.6	2 hours	26.5	24.7	9.7
Calc. Head (g/mt)	19.09	1.96	2419	4 hours	57.1	38.3	12.0
Actual Head (g/mt)	26.40	< 2	2656	6 hours	70.0	43.6	13.2
Tail assay (g/mt)	1.68	<2	2042	24 hours	91.2	48.9	15.6
Cyanide consumption: 1.085 kg NaCN/tonne							
Lime Added: 0.564 kg CaO/tonne feed							

**Note: both tests were conducted on P80~150 mesh grind, ~ 1.00 gr/l NaCN conc., 40% solids*

14.2 Current Testing

Metallurgical scoping tests are presently in progress at McClelland Laboratories in Reno, NV on a 30-kilogram (64 pound) composite of representative D-Zone mineralized material. The composite was prepared with the objective of obtaining a composite gold grade of >1.0 oz/ton, copper content of >0.5%, and representative host rock/chemical reactivity characteristics of silicified limestone. Surplus reject material remaining from the assay lab's initial sample prep procedure for drill hole intervals that intersected the D-Zone mineralization was used. The original bags were double bagged, and the appropriate sample numbers relabeled on the outside bag. These were placed in large "rice" bags and shipped to McClelland. McClelland prepared the composite used for the test work. Table 14.2 summarizes the drill sample intervals blended to prepare the composite submitted for metallurgical test work.

Table 14.2 D-Zone Met. Composite Components (McClelland Labs test work)

Hole	From (ft)	To (ft)	Length (ft)	% Core Recovery	Geologic Character	Au (oz/ton)	Cu (%)	Approx Weight (lbs)
A98-2	592.8	596.4	3.6	100	Spec., CuOx	0.905	0.49	8.6
A98-2	596.4	602.0	5.6	99.6	Spec., CuOx	0.473	0.90	11.8
A98-2	606.3	609.6	3.3	79.7	Spec., CuOx	0.676	1.51	4.1
Sub-total / Ave.			**12.5**			**0.658**	**0.86**	**24.5**
A98-3	623.7	628.7	5.0	100	MSB	1.036	0.17	8.3
A98-3	632.0	637.0	5.0	93.6	SLT, Spec., Bx	12.010	3.80	2.3
Sub-total / Ave.			**10.0**			**3.417**	**0.954**	**10.6**
A98-5	568.0	573.0	5.0	89.1	LST, SIL/? Spec, Chl	0.483	0.30	4.9
A98-5	573.0	578.0	5.0	89.5	LST, SIL/? Spec, Chl	0.770	0.43	6.7
Sub-total / Ave.			**10.0**			**0.649**	**0.38**	**11.6**
A98-13	582.7	586.6	3.9	97	LST, Spec ,Chl	0.329	0.08	7.2
A98-13	586.6	589.1	2.5	94.5	LST, VG, Chl, MASS	2.359	0.10	5.1
A98-13	630.5	634.0	3.5	-	LST, SIL, Spec, CuOx	0.359	0.29	4.7
Sub-total / Ave.			**9.9**			**0.946**	**0.16**	**17.0**
Estimated Composite Sample Total / Average						**1.193**	**0.60**	**63.7**

The McClelland test work will include determination of the Bond Ball Mill Work Index, whole-ore cyanidation tests on P80~200 mesh material, kinetic leach tests on gravity concentrate of P80~270 mesh material, kinetic cyanide leach tests on gravity concentrate tails, and thickener sizing and pulp viscosity tests.

15.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

The gold resource is located in tabular, occasionally bifurcating, sheeted zones hosted and controlled by the Copperstone Fault. The fault strikes 335^o, and dips generally about 40^o to 45^o northeast in the south and central pit area and around 25^o northeast in the northwest pit and D zone areas. Locally, the Copperstone Fault has steep dips, but can also get as shallow as 15^o. The structural deformation caused by the Copperstone Fault is the control on both location and grade of the mineralization. Any model must therefore utilize these aspects of geology to estimate the location, grade, and distribution of gold in the system. Pertinent geologic characteristics include intensity and style of deformation, host rock competence, intensity of alteration and associated mineralogy, as well as structural offsets and changes in orientation.

15.1 Methodology

The most recent resource estimate was done by MRDI (MRDI Canada, Scoping Study Report, 1999), an independent consultant, on behalf of Asia. MRDI performed data analysis and made recommendations for a QA/QC program. The modeling began with the mineralized zones defined by Asia; the zones were essentially cross sectional polygons drawn around and between mineralized drill hole intercepts. These zones included only C and D zones, which were broken down into two and three sub-zones, respectively. All the zones are substantially the same geologically, but are distinguished because of their spatial separation. These outlines were later slightly modified by MRDI and were considered by MRDI to "reflect the constraints imposed by geology, structure, and assays".

The zones were used to tag assays and to code the model blocks. Once tagged, MRDI composited samples within these zones to 5 ft lengths. Compositing honored the mineralized zone boundaries constructed by Asia. No minimum length restrictions were placed on the compositing routine, though the shorter samples are lower grade by a significant amount, thus placing a conservative bias into the estimate.

MRDI studied the gold grade distributions by zone, which formed the basis for capping the highest grades. MRDI capped outlier grades to 4.7 oz Au/t in the D zone and 2.5 oz Au/t in the C zone. A total of 3.5% of the samples were capped.

The block model is composed of blocks sized at 10.7 m (35 ft) by 4.6 m (15 ft) by 1.524 m (5 ft). Tonnage factor used for the zones was 10.7 ft^3/ton.

Variography (correlograms) was performed on the composite data. The 3D correlograms did not produce interpretable results, so most work was done with 2D correlograms. Still the results were found to be inconclusive and, possibly significantly, affected by the drill spacing. MRDI chose not to perform kriging estimation because of the lack of supporting data.

Estimation was restricted to blocks within the defined zones and from composites within the defined zones. MRDI used inverse distance cubed (ID^3) with no minimum composite length requirements. A two-pass approach was done, the first with a longer range of 1,000 ft to fill the zones and the second with a shorter range of 34 m (110 ft) to obtain better local estimation and for use in the Indicated classification. MRDI used the capped composite grades for the Indicated and Inferred resource definition, but also performed an estimate with the grades uncapped for comparison purposes only.

15.2 Resource

MRDI only estimated the C and D zones; their results are given in Table 15.1. The table was modified by MDA to adapt to the requirements of the CDNX. MDA has not listed the uncapped resource because it was done for comparative purposes only and, in MDA's opinion, probably overstates the presently defined resource. MRDI did not classify any material as Measured.

Table 15.1 Copperstone Resource as Estimated by MRDI

Zone	Tons	Au Grade (oz/ton)	Au Ounces
		Indicated	
C	478,400	0.194	92,700
D	413,800	0.466	193,000
Total	892,200	0.320	285,700
		Inferred	
C	696,700	0.323	225,000
D	497,000	0.398	198,000
Total	1,193,700	0.354	423,000

RYO estimated a resource for the A and B zones, but as these are neither the objective of this program nor reviewed by MDA, they are mentioned only for completeness. The A zone is located below the extreme southeast corner of the open pit and measures about 200 m (650 ft) by 76 m (250 ft) in plan. The outcrop of A-Zone within the pit is now beneath a waste rock pile. RYO calculated a "geological resource" of 222,084 tons grading 0.149 oz Au/t, containing 33,000 oz Au (RYO, 1997). The B Zone outcrops on the north flank in the central part of the open pit and measures about 230 m (750 ft) by 106 m (350 ft) in plan. The outcrop of B-Zone is exposed at the base of and immediately south of the prominent nose in the east pit wall. RYO calculated a geological resource of 553,977 tons grading 0.168 oz Au/t, containing 93,000 oz Au (RYO, 1997).

15.3 Minability

No reserves have been delineated at Copperstone, as detailed drilling and engineering studies have yet to be completed. However, mining, metallurgy, and infrastructure issues at Copperstone should allow for the exploitation of the ore, if and once it is defined. No negative impacts are expected or known to exist from environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues. Much of this has been addressed in a scoping study by MRDI.

The MRDI report states that mining of the C and D zones clearly must be as an underground operation and could be at a rate of 450 to 550 tons per day. MRDI envisions access in a 4 m (13 ft) by 4 m (13 ft) decline with a 13% grade located in the footwall about 21 m (70 ft) from the Copperstone Fault. They also felt that drift and fill stoping, utilizing a paste backfill, would be the most effective method of ore extraction, with access driven from the footwall ramp.

To date, preliminary metallurgical characterization suggests that recoveries of close to 90% can be expected for gold. The association of copper with the gold may cause some problems, but as the recoveries for Cyprus' production was also close to 90%, no impassable barriers are anticipated.

15.4 Discussion

MDA's opinion, in light of the 2000 drill results and the methodology used in resource estimation, is that the presently defined gold resource in the C and D zones could be overstated. MDA does not have an opinion of the RYO estimates on A and B zones because they were not reviewed nor are the focus of this program. MDA believes a substantial and defensible estimate of Measured and Indicated resources requires both detailed geology and infill drilling, both of which are planned and should be successful. At that point, there should be the ability to better define location, grade, and distribution of gold.

16.0 INTERPRETATIONS AND CONCLUSIONS

Work conducted to date at the Copperstone Project indicates that there remains potential for continued discovery and development of high-grade gold mineralization. The Copperstone property has a productive history of open pit mining and, importantly, contains a regional, gold-bearing structure. This regional structure and the style of mineralization, which has no known depth constraints to mineralization, could contain additional resources. This conclusion remains valid in spite of the partially negative results obtained by Asia in their 2000 drill program. Although those results along the northwest strike extent of the D-Zone encountered no significant mineralization, the existing geologic interpretation suggests that the Copperstone Fault was not encountered in these drill holes. The project continues to have the original objective of quality high grade drill targets. Asia's drilling has provided an increased definition of the high grade shoots.

16.1 Principle Targets

The principal gold targets being addressed in the current program are the high grade intercepts of the D-Zone, and the area around hole C95-10 that lies approximately 120 meters to the south. BZA and MDA feel that the resource estimate has sufficient risk associated with it such that a definition drill program is not only prudent, but also necessary prior to any substantial resource or reserve estimate and exploitation. Regardless of any possible failings of the resource estimate, the mineralized zone (with locally spectacular grades) is worthy of exploration. Definition drilling will most prudently be done by underground methods.

16.2 Additional targets

Including the D-Zone and the ore mined from the pit, the Copperstone Fault is known to be mineralized over a strike length of 1200 meters, a vertical extent of 200 meters, and a downdip extent of 600 meters. Additionally, it appears that sub-parallel structures well into the hanging wall and footwall of the Copperstone Fault contain unexplored occurrences of high grade mineralization.

In addition to the high grade intercepts of the D-Zone, C95-10 area, and up-dip portion of the C zone, three other partially delineated high- to moderate-grade zones have been identified on the property. All are valid drill targets and are summarized below.

C95-08 Area

Within the downdip portion of the C-Zone target area, RYO core hole C95-08 pierced the Copperstone Fault zone between 216 and 227 meters beneath the surface (Figure 9.1). The drill hole contained an intersection averaging 0.43 oz Au/t over 6.4 meters (from 221 to 227.4 meters). Significant tonnages of Measured and Indicated material could be defined in this area.

Hanging Wall Zone

Three significant high-grade gold intersections exist in an area approximately 200 meters northeast of where surface exposures of C-Zone mineralization occur in the open pit. Initial interpretations considered the intercepts to represent down-dip extensions of the Copperstone Fault and C-Zone mineralization. However, BZA now interprets the mineralization as possibly occurring on a sub-parallel structure in the hanging wall of the Copperstone Fault. Significant intercepts are summarized in Table 16.1 (refer to Figure 9.1, in pocket).

Table 16.1 Significant Gold Intercepts in the Hanging Wall (?) Zone

Zone	Hole # (sample type)	Drill Interval (meters)	Thickness (meters)	Au (oz/t)
1998 HANGING WALL-3 (formerly RYO C-Zone)	C95-11 (core)	216.4 to 219.5	3.1	21.50
1998 HANGING WALL-1	C95-11 (RVC)	118.9 to 128.0	9.1	0.23
1998 HANGING WALL-2	C95-11 (RVC)	161.5 to 164.6	3.1	0.13
1998 HANGING WALL-3 (formerly RYO C-Zone)	C97-29 (core)	245.3 to 248.4	3.1	1.45
1998 HANGING WALL-3	A98-6 (core)	221.6 to 222.2	0.6	0.71

Drill hole C95-11 penetrated three distinct intervals of gold mineralization. The mineralized intervals (designated "Hanging Wall 1, 2, and 3") are interpreted as being controlled by three distinct host structures, each of which remains untested to the north where the zones are projected to be intersected by a northeast-trending fault. Drill hole C97-29 also penetrated the Hanging Wall-3 mineralization and indicates the mineralization remains open to the south, as well as both up and down dip. Additional drilling is warranted in this area.

Footwall Zone

Santa Fe drill hole DCU-08 and Asia drill hole A00-10 encountered high-grade mineralization in what is believed to be a distinct mineralized structure in the footwall of the Copperstone Fault zone. A possible interpretation leaves open the possibility of parallel structures or splays off of the Copperstone Fault beneath and to the southwest of the open pit. Table 16.2 summarizes the drill intercepts, and the drill holes are shown on Figure 9.1 (in pocket).

Table 16.2 Footwall Parallel Structures - Significant Intercepts

Hole #	Drill Intercept (meters)	Thickness (meters)	Au grade (oz/ton)	Au Grade (g/t)
DCU-08	167.6 to 172.2	4.6	0.646	22.15
A00-10	146.0 to 149.2	3.2	0.943	32.34

17.0 RECOMMENDATIONS

A two-stage drilling and drifting plan is recommended for the Copperstone project. This project would only be valid if it is completed in its entirety, as neither stage is dependent upon the other and the second stage is the most important. The first stage includes close-spaced underground drilling around the high-grade gold intersection in drill hole C95-10. The second stage is the delineation drilling of D zone and drilling along the strike extent of the Copperstone Fault, with the goal of identifying new zones of high-grade mineralization. Both stages include some exploration drilling. All drilling should be core and at least NQ in size.

It is critical to the project that additional geologic cross sections of all areas involved in both phases of drifting and drilling incorporate statistical analyses of the gold and copper grades with the geologic data.

BZA has translated nearly all pertinent Copperstone technical data into Vulcan™ mine planning software. Three-dimensional modeling will allow BZA to refine the exploration targets discussed above. Significant surface data being processed includes geology, blast hole assays, topography, and sample data. Subsurface data include drill data, mapping and sampling data from the advancing underground workings, and extrapolations of the surface data. Three-dimensional modeling assists in visualizing the deposit, as well as conceptualizing an exploration plan.

17.1 Phase I

Phase I of the proposed program initially consists of advancing the decline to the vicinity of hole C95-10. Exploration drilling would be conducted from underground drill stations on or adjacent to the decline in the C95-10 area and drilling along the strike extent. The Phase I costs are detailed in Table 18.1 below. A representative cross section is illustrated in Figure 18.1.

Table 18.1 Phase I Recommended Work Program and Budget

Cost	Description
0	Drift to C95-10 area (costs prepaid by BZA*).
$112,000	Six 60 m, thirty 15 m, and one 30 m hole (850 m total at $130 per meter drilling and sample costs).
$27,000	Geologist (three man months).
$4,000	Technician (one man month).
$143,000	**Total**

** According to BZA*

17.2 Phase II

Phase II of the program will consist of extending the decline to the vicinity of the D-Zone. It is recommended that Phase II be completed regardless of the results of Phase I drilling. Exploration drilling during Phase II would consist of close-spaced drilling in the D-Zone from underground drill stations in or near the decline. Drilling would also explore the strike extent of the Copperstone Fault to identify other zones of high grade mineralization. Additional drilling to the northwest of the D-Zone would target the fault-displaced northern extent of the Copperstone Fault. The Phase II costs are detailed in Table 18.2 below. A representative cross section is provided in Figure 18.2.

Table 18.2 Phase II Recommended Work Program and Budget

Cost	Description
$250,000	Drift to D-Zone: 275 m (900 ft) of drifting at $656/m*, construct drill stations, and contingencies.
$176,000	Six 60 m core holes along strike, fifty 15 m core holes across strike, two 30 m core holes across strike, and one 150 m hole to evaluate the faulted northern strike extension of the Copperstone Fault (Total = 1340 m at $130/m drill and sample costs).
$27,000	Geologist (three man months).
$8,000	Technician (two man months).
$461,000	**Total**

** BZA costs (CDA is driving decline for direct costs, and splitting costs with BZA)*

The advantage to the recommended program is that it will yield good access to very near the high-grade intercepts of the D-Zone and C95-10, and could, if justified, be used for bulk sampling and production.

18.0 REFERENCES

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19.0 CERTIFICATE OF QUALIFIED PERSON

I, Steve Ristorcelli, of Gardnerville, Nevada do hereby certify:

1. That I am employed at Mine Development Associates, a Consulting Engineering Firm, whose address is 210 South Rock Blvd., Reno, Nevada 89502.

2. That I am a registered Professional Geologist in the States of California (#3964), and Wyoming (#153) and a Certified Professional Geologist (#10257) with the Association of Professional Geologists.

3. That I am a graduate of Colorado State University (1977) with a Bachelor of Science degree in Geology and the University of New Mexico with a Masters of Science degree in Geology (1980).

4. That I have no material interest, direct or indirect, in the property discussed in this report or in the securities of Bonanza Explorations Inc., Asia Minerals Corporation, or American Bonanza Gold Mining Corp.

5. That I have practiced my profession continuously since 1977.

6. That as of the date of this certificate, I am not aware of any material fact or material change with regard to the property that would make the report misleading.

7. That this report on the Copperstone Project is based on a two-day site visit (October 9-10, 2000) and on a review of published and unpublished information.

8. I have written this report as an independent geologist.

9. Mine Development Associates and its employees have prepared this report for American Bonanza Gold Mining Corp. It is based almost entirely on data provided by American Bonanza Gold Mining Corp. Mine Development Associates disclaims all liability for the underlying data. Mine Development Associates does not accept responsibility for the interpretations and representations made in this report where they were a result of erroneous, false, or misrepresented data. Mine Development Associates disclaims any and all liability for representations or warranties, expressed or implied, contained in, or for omissions from, this report or any other written or oral communications transmitted or made available to any interested party when done without written permission or when they are inconsistent with the conclusions and statements of the report.

____

Steven Ristorcelli
Registered Professional Geologist
October 26, 2000

20.0 CONSENT OF QUALIFIED PERSON

To whom it may concern:

I, Steven J. Ristorcelli, do hereby consent to American Bonanza Gold Mining Corp. using my report entitled "*Geological Report For The Copperstone Gold Property, La Paz County, Arizona, U.S.A.*" and dated October 26, 2000 in a Prospectus or for filing with regulatory bodies as deemed necessary. Excerpts from this report can only be used, however, with the writer's written permission.

October 26, 2000

Steven J. Ristorcelli,
Registered Professional Geologist

APPENDIX 1: LIST OF COPPERSTONE CLAIMS

APPENDIX 2: 1998 COPPERSTONE DRILLHOLE ASSAYS

APPENDIX 3: 2000 COPPERSTONE DRILLHOLE ASSAYS

APPENDIX 4: 2000 COPPERSTONE SURFACE SAMPLE ASSAYS

APPENDIX 5: COPPERSTONE METALLIC SCREEN ASSAYS

APPENDIX 6: SCATTER PLOTS AND HISTOGRAMS FOR COPPERSTONE ASSAYS

APPENDIX 7: UNPUBLISHED REFERENCES CITED IN TEXT

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