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ASH PEAK EXPLORATION

John A. McKenney  
Geologist

July 1989  
A.F. Budge (Mining) Limited

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## APPENDICES

- Appendix 1      Economic Evaluation of Ash Peak Silver Vein Target  
                  (J.W. Norby Memo, May 11, 1989)
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## ILLUSTRATIONS

- Plate 1          Plan Map
- Plate 2          Drill Section

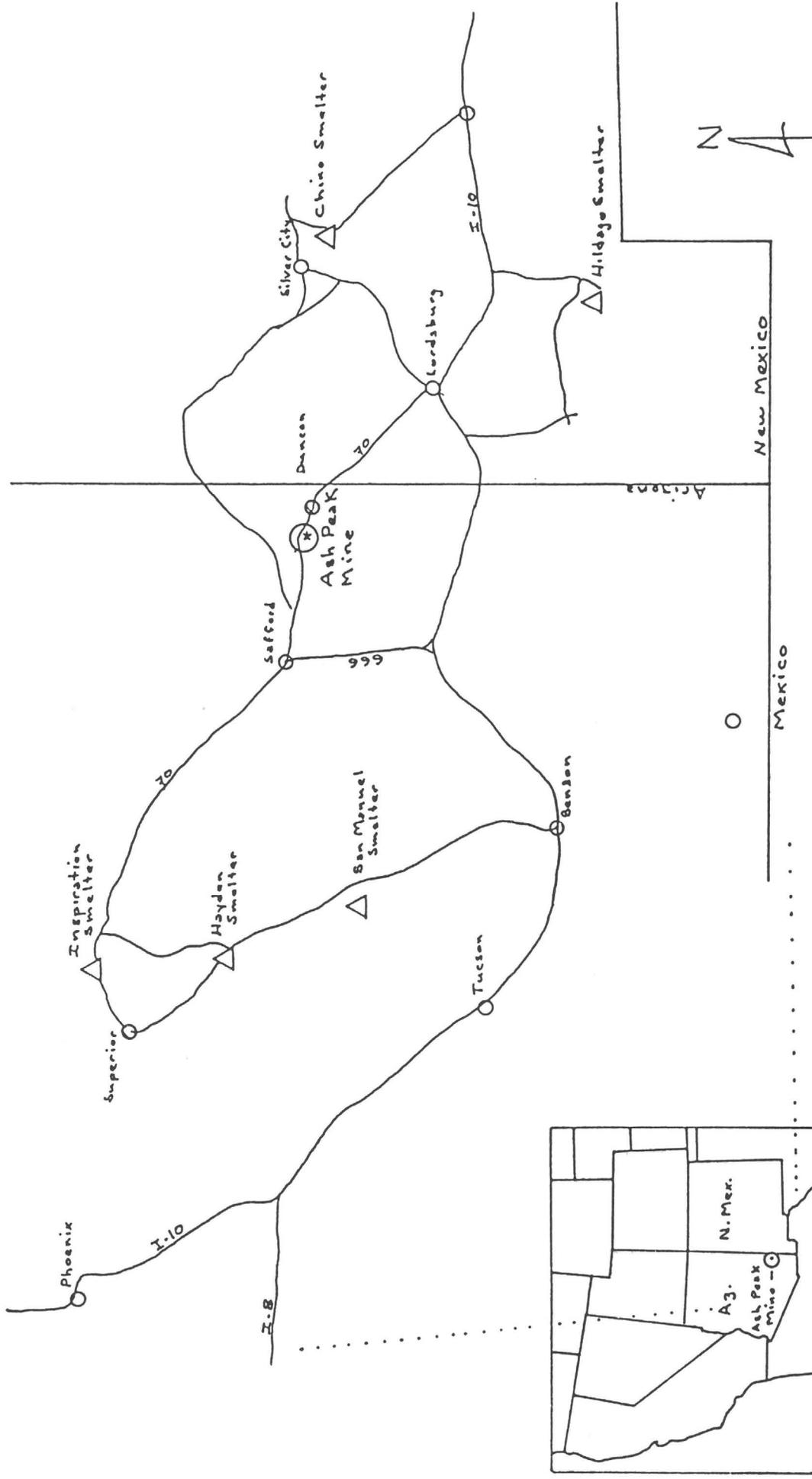
### Summary

Upon acquiring an option-to-purchase agreement on the Ash Peak silver-silica flux mine located in southeastern Arizona (fig. 1), A. F. Budge (Mining) Limited, spent \$ 139,405 on a two hole diamond drill exploration program. The primary objective of this program was to test for the presence of large tonnage manto type silver-zinc-lead-copper-gold ore grade mineralization at depth.

Two diamond drill holes (1201 and 2564 ft.) and a relatively shallow (600 ft.) underground chip sampling program were completed. The intersection of the Ash Peak fault/vein system with favorable lime-bearing sedimentary host rocks, an increase in metal values and alteration intensity (argillization, silicification and pyritization) with depth were the critical criteria sought.

The results of this exploration program were: 1) no favorable sedimentary host rock was encountered in either of the drill holes, 2) an uneconomically thick sequence (at least 2400 ft.) of volcanic rock exists on the Ash Peak property, 3) the Ash Peak vein system decreases in width, intensity of alteration and mineralization tenor with depth beneath the Hardy shaft.

These exploration results combined with the great expense of further, deeper exploration and the negative economic conclusions of exploring and developing the silver vein system at Ash Peak (Appendix 1) dictate that no further expenditures of time or money be recommended on this project.



Location Map

Fig. 1



## Introduction

The Ash Peak mine is located in Greenlee County, southeast Arizona (figure 1). Known mineralization on the property consists of 5-50 ft. wide silver-silica veins within a 6000 ft. long, 100 ft. wide, northwest trending structure traversing Oligocene (28 million year old) volcanic rocks (Plate 1). Production from the vein system commenced in 1899 and has totalled approximately 400,000 tons grading an average 8.3 ounces of silver and 0.03 ounces of gold per ton (Quin, 1988). Canamin Resources Ltd. (Canamin), North Vancouver, British Columbia, currently controls the property and is developing the Shamrock vein system in the middle of the structure. Ore is shipped to the Phelps Dodge Hidalgo smelter in New Mexico as flux. The designed mining rate is 100 tons per day but the mine ran out of developed ore reserves June 14, 1989.

An economic evaluation of developing a silver-silica vein reserve (Appendix 1) suggests this target is uneconomic based on historic grades and tonnages and a \$6.00 per ounce silver price. However, a deep replacement (manto style) poly-metallic deposit in Cretaceous limey and silty sediments underlying the volcanic section as suggested by Karnie (1986), a geological consultant to Ash Peak Mines, offers an economically viable target. Budge deemed the potential value of this target worth the high risk exploration.

### Option Agreement

On March 7, 1989, with an initial cash payment of \$50,000, Budge entered into a six month option agreement with Canamin to acquire a 50% joint venture interest in the Ash Peak property. Budge agreed to spend \$100,000 in exploration, mining and/or development during the option period. This option could be extended another six months with an additional cash payment of \$75,000. The total purchase price of the 50% interest is \$1,075,000, which can be reduced by as much as \$175,000 in exploration expenditures.

### Geology

The Ash Peak property occurs in the Peloncillo Mountains which consist entirely of Tertiary volcanic rocks. The Ash Peak vein system is hosted by a thick sequence of shallowly dipping (10-15°) northwest), dominantly amygdaloidal andesite flows (2400 ft. thick found by drilling program). Overlying the drilled andesite flow section is a nearly 1000 ft. thick section of interlayered rhyolite and andesite tuffs preserved at Ash Peak, south of the drill hole. This concentration of tuffs suggests that the Ash Peak area may have been a volcanic center or vent (Morrison, 1965), and therefore would have the locally thickest volcanic section.

The Ash Peak fault/vein system is a consistent and predictable structure trending northwest and dipping 80° southwest and is from a

few feet to 100 ft. wide. One to three near vertical veins have been mined from the Commerce, Shamrock and Hardy shafts. A long section depicting the workings (figure 2) shows an 800 ft. long (vertical lengths), 800-1200 ft. wide vein system with a periodicity of approximately 1800 ft. The trends of well defined vein tops and poorly defined vein bottoms suggest a 10° northwest rake to the entire Ash Peak vein set. The veins consist of chalcedonic silica with intensely brecciated and silicified wall rocks. Several stages of brecciation have occurred. The main vein minerals are chalcedony, quartz, black calcite, amethyst, rhodochrosite, argentite, pyrite and gold. Argentite is the primary silver bearing mineral. Base metals are also present in trace amounts in burgundy colored sphalerite, galena, chalcopyrite and copper oxides.

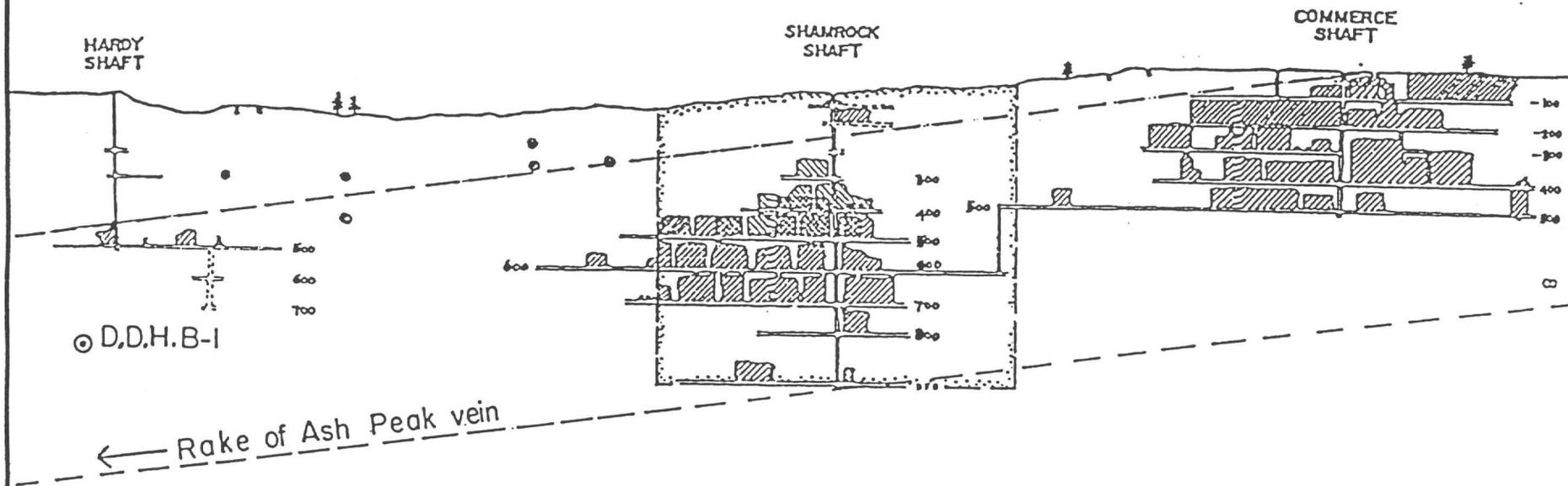
Near Morenci, Arizona (20 miles north of Ash Peak), and in the Black Mountains (20 miles east of Ash Peak), the volcanic section is underlain by up to 1500 ft. of Cretaceous/Tertiary non-marine (not limey) sediments which are in turn underlain by up to 700 ft. of Cretaceous Colorado Formation marine shale, sandstone, limestone and conglomerate. The marine derived Colorado Formation provides the most favorable (lime-bearing) beds for manto-type mineralization. Unfortunately this formation can not be projected into the Ash Peak area with certainty.

# ASH PEAK MINE, ARIZONA

A.F. BUDGE (MINING) LTD.

N.W.

S.E.



© D.D.H. B-1

FIG. 2



© D.D.H. B-2

### Exploration Objectives

Budge's ultimate exploration objective at the Ash Peak property was to locate economic high-grade silver-zinc-lead-copper-gold manto style replacement mineralization in permissive lime-bearing sediments underlying the volcanic section which hosts silver-silica vein mineralization. The first step in evaluating this target type is to determine if the favorable sedimentary section is present at an economic depth. Secondly, a test for increased vein base metal content or wall rock silicification (manto characteristics) might indicate a nearby (deeper) manto deposit.

### Exploration Plan

A deep diamond drill test (B-2) of the Ash Peak vein system (approximately 2000 ft. down-dip) was decided upon in order to test for favorable sediments at an economic depth and to test for increased base metal content or silicification at depth. The northwestern portion of the vein system, below the Hardy shaft, was chosen as the target because the vein mineralization rakes to the northwest (is deeper in that direction). A shallower, relatively inexpensive pilot hole (B-1) was drilled prior to the expensive deep test in order to: 1) confirm the local dip of the Ash Peak vein, 2) gain experience with the critical drill hole curvature, 3) obtain a relatively shallow vein geochemical signature for comparison with a deeper intersection, and 4) test the Hardy vein system within the center of the northwest rake

of the entire Ash Peak vein set. Also, vein mineralization in the accessible Shamrock portion of the Ash Peak vein system was sampled at different depths to provide additional base metal content versus depth information.

#### Mining Claims

Five lode mining claims were located April 15, 1989, along and contiguous with the southwest boundary of the Ash Peak patented and unpatented mining claims (Plate 2) in order to control the drill pad and any discovered manto-type mineralization. The claims were recorded on April 26 in the Greenlee County courthouse, Clifton, Arizona. To remain valid they need to be perfected in the field and recorded with the BLM by July 15.

#### Drill Results

A two hole NQ diamond drill program (3765 total feet) was completed between April 3 and May 17, 1989, at the Ash Peak property. The drill logs are included as Appendices 2 and 3, assay results are tabulated in Appendix 4, and drill results are summarized in Appendices 5 and 6. Drill holes are shown in the plan on Plate 1 and in section on Plate 2.

The first hole, B-1 (-70°, N40W, 1201 ft.), successfully penetrated the Ash Peak vein structure 860 ft. down-dip from the Hardy Shaft head frame. Drill hole B-1 intersected two veins, the first of which contains 6 true feet grading 5.72 OPT Ag, 0.025 OPT Au, 0.160% zinc, 754 ppm lead, 170 ppm copper, <2 ppm arsenic, 4 ppm antimony and 0.21% manganese. The second vein was intersected 31 true feet footwall to the first and it contains 4.2 true feet grading 1.36 OPT Ag, 0.006 OPT Au, 0.150% zinc, 421 ppm lead, 213 ppm copper, 10 ppm arsenic, <2 ppm antimony and 0.039% manganese.

The second hole (B-2) drilled beneath B-1 and penetrated the Ash Peak vein structure 2080 ft. down-dip from the surface. Drill hole B-2 intersected a vein zone consisting of two small veins and sheared wall rock with a total true width of 2.5 ft. grading 0.059 OPT Ag and ND (no detectable) Au, 364 ppm zinc, 72 ppm lead, 452 ppm copper, ND arsenic, 2 ppm antimony, ND bismuth, 701 ppm molybdenite and 701 ppm manganese.

#### Shamrock Mine Results and Metal Trend Interpretation

Thirty-five samples were collected from the Shamrock Mine. These were collected from the following locations: eleven chip samples from accessible levels of the Shamrock Mine, ten grab samples of current mine run ore from the 200-300 ft. stope, four samples from a long hole between the 500-600 ft. levels and ten samples from past smelter shipments. These were assayed for silver, gold, zinc, lead, copper, arsenic, antimony, bismuth, molybdenite and manganese.

The results from this sampling are shown on Plate 1. Silver, zinc, lead and copper show a distinct increase in value with depth (within the Shamrock Mine). Gold, molybdenite, arsenic, antimony and manganese show either no change or a decrease in value with depth. No detectable bismuth was found at any level. These trends are highly influenced by the four high grade long hole samples taken between the 500-600 ft. levels.

By comparison the geochemical data from the drilling shows a marked decrease in all elements (silver, gold, zinc, lead, copper and manganese) beneath the Hardy shaft. No arsenic or bismuth was detected in either drill hole.

These results indicate a favorable increase in metal values with depth in the Shamrock Mine. The strong influence of the high grade samples below the 500 foot level and the shallowness of the deepest sample (600 ft.) precludes a prediction of continuation of this trend deeper. The decrease in all metal and trace element values beneath the Hardy shaft dictate no further exploration for manto type mineralization be continued in this area.

Exploration Expenditures

A total of \$139,405 was spent exploring the Ash Peak property, fulfilling the option work commitment. Expenditures break down as follows:

Drilling	\$ 105,698
Geologist	12,977
Expenses	7,992
Assay	6,873
Legal	4,206
Survey Camera	1,187
Field Supplies	249
Miscellaneous	154
Water	<u>69</u>
Total	\$ 139,405

## Conclusions and Recommendations

Drill holes B-1 and B-2 both penetrated the Ash Peak vein system at or near their projected intercepts confirming a consistent 80° southwest dip to a depth of 2400 ft. Drill hole B-2 found that the volcanic sequence on the Ash Peak property is at least 2400 ft. thick. No favorable sedimentary host rock was located within this possible economic depth. The significant decrease in mineralization tenor, vein width and intensity of alteration (argillization, silicification and pyritization) at depth are not indicative of a nearby manto type deposit beneath the Hardy shaft.

The sampling program within the Shamrock Mine was too limited and relatively shallow (600 ft.) to clearly define geochemical trends indicating manto type mineralization in that area. The relative position of the Shamrock Mine along the strike of bedding from the Hardy shaft indicates that any favorable sedimentary host rocks are at least 2400 ft. beneath the surface at the Shamrock Mine.

Considering the following: 1) the uneconomic thickness of volcanic cover over any possible manto target, 2) the strong decrease in precious and base metal content, alteration intensity and vein width with the depth beneath the Hardy shaft, 3) the great expense of deeper exploration (possibly beneath the Shamrock shaft), and 4) the uneconomic conclusions of exploration and development of the Shamrock silver-silica vein system (Appendix 1), no further expenditures of time or money are recommended on this project.

References Cited

Karnie, K.T., 1986; Preliminary Report Of Investigations: Ash Peak Mines; Unpublished report, 9p.

Morrison, R.B., 1965; Geologic Map of the Duncan and Canador Peak Quadrangles, Arizona and New Mexico; US Geological Survey Map I-442.

Quin, S.P., 1988; Ash Peak Mine Summary; Unpublished report to Canamin Resources, 28p.

## A.F. Budge (Mining) Limited

TO: A.F. Budge  
R.R. Short  
C.A. O'Brien  
D.A. Allen

DATE: May 11, 1989

COPIES: J.A. McKenney  
File

FROM: J.W. Norby

SUBJECT: ECONOMIC EVALUATION OF ASH PEAK SILVER VEIN TARGET  
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If no basement sedimentary rocks (capable of hosting higher grade manto mineralization) are located within an economic depth in drill hole B-2, then the remaining exploration target at Ash Peak is the silver vein system. Within the vein trend, the Shamrock Mine area would be the best place to concentrate exploration because it has the best developed known silver vein, a possible reserve, and the most workings. A 1988 evaluation by J.R. Woodcock, P.E. suggests that a possible reserve of about 250,000 tons grading an estimated 5.5 oz silver/ton exists at the Shamrock Mine within the area of previous development above the 975 ft level. He further states that based on historical production (1916 - present), silver grades expected for much of the future mining will vary between 4 and 8 oz silver/ton. Unfortunately, historical gold grades have never averaged above the 0.03 oz gold/ton smelter cut-off grade.

Considering that the smelter pays \$18/ton for silica flux and 75% of silver value, 5.5 and 8 oz silver/ton grades are equivalent to 0.110 and 0.138 oz gold/ton grades, respectively, at Wednesday's quotes. Intuitively, these gold equivalents suggest the grade is one-half to one-third of that needed to comfortably project a profitable underground operation. To confirm this initial reaction, cost vs. recoverable value calculations were run for 1) the quarter million ton possible reserve above the 975 ft level and 2) an as yet undiscovered half million ton orebody between the 975 and a hypothetical 2000 ft level (Apc 1 and 2). These orebodies would loose an estimated \$3.4 and \$7.7 million, respectively. Not included in those calculations are the initial \$1 million buy-in and a \$150,000 debt repayment to Southern Gold Resources Limited. The economic estimates include conservative \$30-35/ton mining costs.

Another consideration is that it would be extremely difficult to develop a reserve large and rich enough to justify a mill. Therefore, Ash Peak will probably continue to be a flux mine, subject to the whims of smelter contracts.

Appendix 1. Net Value Calculation for Shamrock Mine Possible Reserve above the 975 ft level.

Assumptions

250,000 tons  
5.5 oz silver/ton  
0.015 oz gold/ton  
\$6/oz silver  
75% smelter payment for silver  
no smelter payment for gold  
\$18/ton smelter payment for flux (silica)  
\$2/ton + 6.25% of metal value royalty  
\$5/ton crushing  
\$14/ton shipping  
\$30/ton mining

Recoverable Value

250,000 tons x 5.5 oz Ag/ton x 75% x \$6/oz Ag	=	\$ 6,187,500
250,000 tons x \$18/ton flux	=	4,500,000
-----		
Total Recoverable Value		\$10,687,500

Costs (underground costs estimated by R.R. Short)

250,000 tons x \$5 crushing/ton	=	\$ 1,250,000
250,000 tons x \$14 shipping/ton	=	3,500,000
250,000 tons x \$2/ton + (6.25% x \$6,187,500)	=	886,718
250,000 tons x \$30/ton mining	=	7,500,000
Shaft Rehabilitation	=	500,000
Level Rehabilitation	=	300,000
Drill Confirmation of Reserves	=	125,000
-----		
Total Costs		\$14,061,718

Net Value

(-\$3,374,218)

Appendix 2. Net Value Calculation for Hypothetical Shamrock Mine Reserve between 975 and 2000 ft Levels.

Assumptions

Same as in Appendix 1, with the following exceptions:

500,000 tons  
8 oz silver/ton  
\$35/ton mining costs (deeper)

Recoverable Value

500,000 tons x 8 oz Ag/ton x 75% x \$6/oz Ag	=	\$18,000,000
500,000 tons x \$18/ton flux	=	9,000,000
-----		
Total Recoverable Value		\$27,000,000

Costs (underground costs estimated by R.R. Short)

500,000 tons x \$5/ton crushing	=	\$ 2,500,000
500,000 tons x \$14/ton shipping	=	7,000,000
500,000 tons x \$2/ton + (6.25% x \$18,000,000)	=	2,170,000
500,000 tons x \$35/ton mining	=	17,500,000
1000 ft shaft x \$2500/ft	=	2,500,000
2500 ft development drift x \$250/ft	=	625,000
Secondary escapeway bean hole raises	=	250,000
Stope development	=	1,000,000
Equipment capital	=	250,000
Exploration (10 surface holes)	=	500,000
(30 underground holes)	=	400,000
-----		
Total Costs		\$34,695,000

Net Value

(-\$7,695,000)



APPENDIX 2

DRILL HOLE B-1

Collar Location: 380 ft 544°W from Hardy Shaft.  
(or 20ft. Northwest of 540° W  
drill section at point 380ft from  
Hardy Shaft).

Azimuth: N40°E at collar

Inclination: -70° at collar

Date Started: April 3, 1989

Date Completed: April 15, 1989

Collared by: Don White

Logged by: J. W. Norby

Core size: NQ (1 9/16 inch diameter)

Drill contractor: SDS Drilling Company  
P.O. Box 796  
Sparks, NV 89432  
Calvin Shatto, Manager

Total depth: 1201 feet



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 1</u> Sheet <u>2</u> of <u>12</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min.	Run/recov %	BOX	Sample #
100				97'-121' Amygdaloidal Andesite - brown, strong hematite from 105'-107' Massive, minor shear @ 109' perpendicular to core amygdaloids generally aligned 35° to core.				
110					None			
120				121-144.0' Massive Andesite (green) decreasing amygdaloids to 127', then massive green Andesite, 1/4" & 1/2" calcite veinlet @ 123.5'-124'.				
130					Minor Calcite Veinlets		100	
140								
150				144.0'-171.0' Brown Amygdaloidal - Andesite, contact gradational, wk shear @ 146'-151'. Mod to strong hematite replacement 146'-150', wk brecciation w/calcite veining 147'-150', mod/strong shear @ 149' @ 55°, wk hematite throughout, magnetic.				-144.4 #1906
160					Major Calcite Veinlets			-150-
170				171.0'-184' Green Amygdaloidal Andesite Contact sharp @ 20° to core, 20% - 1 mm to 8 mm calcite-filled amygdales, becoming gradationally more massive down section, to massive green andesite @ 184'.				
180					None			
190				184-204.2" Massive green Andesite 2% chalcedony & calcite amygdales, 1 mm - 3 mm.				
200					None			

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE	Shoot		DRILLING		Analyses
				B-1	3	of	12	Run / recov	Sample #
				DESCRIPTION			Ft. Run / recov	BOX	
							%		
200				204.2'-214' Multiple tuffs & amygdaloidal Andesite flows, contacts sharp & planar 65° - 70° to core, strong argillic alteration in andesite @ 207'-209.7', w/hematite/limonite, minor calcite & Qtz			very minor Calcite/Qtz & Argillic Alteration		-206.5 #1907
210				214'-227' Green Amygdaloidal Andesite 15°-20° amygdaloids 1-15 mm sub-rounded to elliptical becoming massive Andesite @ +/-218 to 228, varying minor hematite.			None	100	-210.3
220				227-250 Green massive Andesite-magnetic fine grained, hard, massive, minor hematite, 1-2% .5-1 mm chalcedony, vesicles, strong hematite 246-250.					
230				250-261.2 Amygdaloidal Green Andesite 20% 5-15 mm amygdales - elliptical, strong hematite 250-254, mod. Brecciation @ 253', 255.5', 258, 259-260, w/calcite/silica/pyrolusite?			S.O <sub>2</sub> /CaCO <sub>3</sub> in BX		-253-
240				261.2-305 Massive Green Andesite 2% amygdales 2-10 mm, rounded/irregular, decreasing down section, minor calcite veinlets 1 mm - 3 mm @ 275'/280 @ 15°-50° to core.			None	100	-261-
250									
260									
270									
280									
290									
300									

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B-1 Sheet 4 of 12		DRILLING			Analyses
				DESCRIPTION		Fl. Min	Run/recov %	BOX	Sample #
300									
310				305-345 Green Amygdaloidal Andesite contact fractured & gradational over 8" @ 65° to core. 25-30% open & calcite/SiO <sub>2</sub> filled amygdales 1 mm - 35 mm elliptical, generally 65° to core but variable, wkly bx 313-314, SiO <sub>2</sub> filling very green (chlorite?) @ 314-315, mod argillic alteration 315-316, becoming hard Andesite 317-322, increasing hematite & argillite alteration & pyrite @ 322-331.5 calcite vein filling in mod bx 325-331, hard green Andesite 331-335, wk hematite 335-341.	Minor Calcite			-312.2 #1908	
320					Pyrite/calcite Argillic Alt.				-317.2
330									-325- #1909
340						None			-330
360				345-422 Massive Green Andesite gradational contact into massive Andesite, wkly bleached w/1-2% pyrite @ 368-369, mod hematite & wkly frac. @ 372, amygdaloidal 372-376, 10 mm calcite unlet @ 385, very tuffaceous 369-372, minor calcite @ 391. Fault w/ abundant gravel/clay @ 419-422 @ 60° to core.	Minor pyrite				
370									
380						None			
390									
400						Minor Calcite Veinlets			

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 1		Sheet 5 of 12		DRILLING		Analyses
				DESCRIPTION		Ft. Min	Run/recov %	BOX	Sample #	
400										
410										-413-
420										#1910
										-419.5-
										-422-
										#1912
										-427-
430										
440										
460										
470										
480										
490										
500										

422-455.8 Brown Amygdaloidal Andesite  
 15% 2-8 mm amygdales, open & calcite/  
 chalcedony filled, mod hematite, wkly  
 fractured, wk bx @ 434-435 w/decreasing  
 vesicles down section.

455.8-757' Green Amygdaloidal Andesite  
 fairly massive, fine grained w/3%  
 calcite/chalcedony amygdales .5 mm-4 mm  
 subrounded becoming more massive  
 down section.

None

100

None

100

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 1		Sheet 6 of 12		DRILLING		Analyses
				DESCRIPTION		Fl: Min	Run/recov %	BOX	Sample #	
500										
510								None	100	
520				Weak shear @ 515, 2", increasing amygdales @ 514 - up to 20%, 3-15 mm, elliptical, calcite, SiO <sub>2</sub> /chlorite filled minor calcite veinlet @ 528 & 532, mod hematite 532-537. Wk to mod Bx w/calcite/SiO <sub>2</sub> filling from 548.8-556 mod hematite.						
530										
540								Minor Calcite SiO <sub>2</sub> /hematite		
560				Wk Bx 561-562, minor calcite.						-549- #1913 -554-
570										
580				575-602 Massive Green Andesite Subtle mottled texture w/hematite splotches (fine grained, few vesicles), grading to banded hematite replacement.					100	
590								None		
600										

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILLING		Analyses		
				DRILL HOLE <u>B-1</u> Shoot <u>7</u> of <u>12</u>	DESCRIPTION	Run/recov %	BOX	Sample #
600				602-689.5 Green Amygdaloidal Andesite gradational contact, fine grained pyrite & calcite (&chlorite) in vesicles, 10-15% amygdales 2-10 mm, elliptical, becoming more massive down section to 615, then increasing vesicles, fluorite/calcite veinlet @ 615, mod hematite @ 617-620, tight shear w/minor gouge & calcite @ 620.5 & 621 @ 20° & 50°. Mod-strong Bx @ 624-626, 628-6299, 631-632, 636-637 w/calcite filling @ 50° +/- to core, massive Andesite from 632-639, minor calcite veinlets @ 645, 650.5-651.5 @ 30°.	Minor Pyrite			
610					Minor calcite			
620					Minor fluorite			
630					Calcite in fractures			
640					Minor Calcite			-634- #1914 -639-
650					Minor calcite			
660				Wk Bx, minor shearing with calcite veinlets & limonite alt. @ 662-667 Andesite fairly massive w/<2% amygdales	Limonite			
670				669- Minor calcite filled frac. & veinlets.				
680								-680- #1915
689.5				688.7-689.5 Baked Andesite @ contact. Red, oxidized.				-685- #1916 -689.5
690		Rhy tuffs/and frags		689.5-739.7 Fragmental Rhyolite tuff. Breccia (volcanic). Well layered.				#1917 -695-
700								#1918 -700-



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 1</u> Sheet <u>9</u> of <u>12</u>		DRILLING		Analyses
				DESCRIPTION	Fl.	Run/recov %	BOX	Sample #
800								#1940 -805
810				811-855 More carbonate veins. 5-10% 1-3 mm calcite veinlets. Dominant 25-35° angle to core axis. This broken up crosscutting orthogonal calcite veinlets.				#1941 -810 #1942 -815
820								#1943 -820 #1944 -825
830								#1945 -830 #1946 -835
840								#1947 -840 #1948 -845 #1949 -850
								#1950 -855
		BX		855.0-858.7 Vein Margin Breccia. 3 mm-3 cm angular Andesite fragments in and rk flour matrix				#1951 -858.7
860				858.7-871.9 Ash Peak Vein. Banded, crustiform, 28° angle to core, Qtz vein 3-5% white and black calcite. Cherry red hematite, grass green (malachite), blue green and aqua (turquoise) CuOx. Steel gray <u>argentite</u> bands and 1-5 mm clots (1-2%). Solution jugs filled with Qtz xtls, coated w/MnOx. 1% pyrite, minor chalcopyrite and trace galena.		#1952 #1953 #1954		-860.7 -862.3 -864.7
870						#1955 #1956 #1957 #1958		-867.3 -869.2 -871.9 -875.0
880				871.9-938.0 <u>Quartz-Carbonate veined Andesite (non-amygdaloidal)</u> . Med brown, faintly magnetic. Locally 5-10% red-brown 1 mm dots.				#1959 -880
890				Qz-Carb veined throughout (10%) Local black calcite - other white calcite. Also soft waxlike white vein material. <u>This interval does not appear silver-bearing.</u>				#1960 -885 #1961 -890
900								#1962 -895 #1963 -900

S  
A  
W

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 1 Sheet 10 of 12		DRILLING			Analyses
				DESCRIPTION		Fl. Min.	Run/recov %	BOX	Sample #
900									#1964 -905
910									#1965 -910
920									#1966 -915 #1967 -920
930							100		#1968 -925 #1969 -930
940		BX		938.0-944.0 Breccia. 938.0-942.4 And. dominated, veined w/Qtz veins and vein fragments. 942.4-944.0 Vein and Andesite fragments in Andesite rock flour matrix.					#1970 -935 #1971 -938 #1972 -942.4
		VN							#1973 -944.0
		BX		944.0-945.9 Vein (Footwall?) Red (hem) and yellow Qtz, vuggy, blk carb, <1% CuOx Trace py, Argentite. 15% Carb.					#1974 -945.9
950				945.9-947.3 Breccia. Andesite frags in Quartz vein matrix.					#1975 -947.3 #1976 -950
960				952-1071 Massive Green Andesite mod. sheared @ 5° to core axis from 950-980 abundant calc/Qtz veinlets, tr. MnO <sub>2</sub> , minor hematite 5% blk calcite, Bx (mod) from 982.5-985. Strongly sheared, abundant gravel 992-996. 1% white soapy min. Gray FeOx alt.					#1977 -955
970									#1978 -960 #1979 -965
980									#1980 -970 #1981 -985
990									#1982 -980
1000									

Calcite veinlets

S  
A  
W

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 1</u> Shoot <u>11</u> of <u>12</u>		DRILLING		Analyses
				DESCRIPTION		Fl. Min	Run/recov %	BOX
1000				Massive green Andesite very competent w/minor wk shears w/calcite @ 15° to core, & 5°.	None			
1010								
1020					Min 95 Calc/SiO2 + Argelite?			
1030				Bonded SiO <sub>2</sub> /Calcite, 1/2" veinlets @ 1027-1029 w/tr chalcopyrite.	SiO <sub>2</sub> /Calc Chalcopyrite	100		
1040								
1050								
1060								
1070				1071-1096.5 Basaltic Andesite. Gray-green, massive. 1-2% 1-2 mm calcite and green carbonate veinlets (not mineralized). Not magnetic.				
1080								
1090								
1100				1096.5-1154.5 Massive to finely amygdaloidal Andesite.				

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 1		Sheet 12 of 12		DRILLING		Analyses
				DESCRIPTION		Fl.	Run/recov %	X B O	Sample #	
1100				1096.5-1116 Brown-gray, oxidized, FeOx dots, 2% veinlets of waxy white mineral and calcite.						
1110				1116-1121 Gray-green, fresh						
1120				1121-1130 Brown-gray, slight oxidation.						
1130				1130-1136 Gray-green, fresh						
1140				1136-1143 Brown-gray, ox.						
1150				1143-1154.5 Gray-green, fresh.						-1145
										#1983
										-1150
										#1984
				1154.5-1201 Purple-red amygdaloidal Andesite. Grass green mineral along with calcite as vesicle filling and as fine veinlets.						-1154.5
1160										#1985
										-1160
										#1986
										-1165
1170										#1987
										-1170
										#1988
										-1175
1180										#1989
										-1180
										#1990
										-1185
-1190				1187.6 0.3' carbonate-green mineral vein @ high angle to core.						#1991
										-1190
				Sample Boxes 123-128.						#1992
										-1195
1201				BOTTOM OF HOLE AT 1201						#1993
										-1201

APPENDIX 3

DRILL HOLE B-2

Collar location: 958' S45°E from Hardy Shaft

Azimuth: N45°E @ collar

Inclination 68° @ collar

Date started: April 21, 1989

Date completed May 17, 1989

Collared by: John McKenney and John Norby

Logged by: John McKenney

Core size: NQ (1 9/16" diameter)

Drill contractor: SDS Drilling Co.  
P.O. Box 796  
Sparks, NV 89432  
Calvin Shatto, Manager

Total depth: 2564'

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Shoot <u>1</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min	Run/recovery %	Sample #	
0				0.0'-25' Red-brown amygdaloidal Andesite. Hole cased to 10' no core recovery. 10'-21' broken core. 0-25% rounded (minor elliptical) vesicles filled w/white/blk calcite, non-magnetic. Bedrock at or near surface. Lower contact gradational over 2".				
10						2/1.8	12	
						2/0.5	14	
20						7/4.5	21	
25				25'-62' Green, fine grained Andesite. Hematite banding @ 37', 55° to core axis. Minor carb./Chalcedony stringers @ 35°-65° to core. Very competent. Splotchy hematite from 42'-52', wk hematite banding @ 30° to core @ 53'. .5-1% vesicles <.1 mm. Magnetic (weak).				
30						9/8.8	30	
						2/1.8	32	
40						10/10	42	
						100%		
50						10/10	52	
						100%		
60						6/6	58	
						100%		
62				62'-69' Brown-green amygdaloidal Andesite. Upper contact irregular (not intrusive) over 4". Lower contact brecciated w/carb. @ +/-50° to core. Vesicles 2-15mm elliptical @ 50° to core. Fractured/gravel 66'-67'. Non-magnetic. 69'-79' Massive green-red Andesite hematite alteration may be due to degree of fracturing. Minor carb & green mine strgs @ 30°-50° to core. Magnetitic. Lower contact irregular (possible dike). 79'-106' Red-green amygdaloidal Andesite 20-30% elliptical vesicles 3mm-15mm @ 50° to core axis. Frac. w/gravel.				
70						7/7	65	
						100%		
79						8/7.5	73	
						100%		
80						10/10	83	
						100%		
90						10/10	93	
						100%		
92.5				92.5'-93' @ 40° to core. Calcite filled vesicles lower contact very gradational.				
						10/10	103	
						100%		



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>3</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION		Fl. Min	Run/recov %	Sample #
200								
210				208-225 Green/brown massive Andesite, magnetic. Hematite alt. splotchy & @ 45° to core. Lower contact gradational.		6/6 100%	208	
						6/6 100%	214	
						2/2 100%	216	
						2/2 100%	218	
220				225-2556 Red/brown amygdaloidal Andesite. Mod to strongly sheared/abundant gravel 225-231 @ 40° +/- to core. Rounded to elliptical vesicles filled w/hematite clay, carb/SiO <sub>2</sub> & open @ varying orientations. Mod to strongly sheared from 244-246, abundant gravel/minor gauge @ 60° to core. Fractured & cemented w/carb/MnO <sub>2</sub> @ 45° to core from 256-259. Lower contact gradational thru Bx zone.		7/6.3	225	
230						5/5 100%	230	
240						5/5 100%	235	
250						10/10 100%	245	
260				256-268 Green amygdaloidal Andesite. 5% rounded to elliptical vesicles filled w/green chalcedony +/- 80° to core. Lower contact gradational. Magnetic.		10/9.8	255	
270				268-280 Red amygdaloidal Andesite. Lower contact gradational wkly to med sheared/Bx from 268-270. Vesicles 5mm-25mm carb filled @ 45°-50° to core. Non-magnetic. Lower contact gradational		10/10 100%	265	
280				280-303 Green massive Andesite. 10-20% green min filled vesicles 1-3mm. Red hematite from 288-303 (separate flow. Contact @ 45°)		10/10 100%	275	
290						10/10 100%	285	
						10/10 100%	295	
300						10/10 100%	305	

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 2		Sheet 4 of 26		DRILLING		Analyses
				DESCRIPTION		Ft. Min	Run/recov %	Sample #		
300				303-321 Red amygdaloidal Andesite. Upper contact gradational strongly sheared 303-305 @ 30° to core. Strong gravel. Minor gouge. Sharp planar (30° to core) contact w/chilled margin @ 310 w/green amygdaloidal Andesite which grades back to red Andesite. Lower contact gradational.	None	0/10	100	315		
320				321-355 Massive Andesite decreasing oxidized vesicles <1mm to massive green Andesite strongly fractured w/mod gravel & minor gouge from 331-335 @ 45° to core & hematitic from 330-340. Mod brecciated & cemented w/calcite/SiO <sub>2</sub> & <1/2% black min. Argentite? MnO <sub>2</sub> ? From 336-340 minor vesicular flows near lower contact.	calcite/SiO <sub>2</sub> Ag <sub>2</sub> S - MnO <sub>2</sub> ?	8/8	100%	323		
330						2/2	100%	325		
340						7/7	100%	332		
350				355-365 amygdaloidal Andesite. Upper contact strongly fractured & mod brecciated w/trace Ag <sub>2</sub> S?-MnO <sub>2</sub> ? Lower contact gradational.	calcite/SiO <sub>2</sub> tr. Ag <sub>2</sub> S? - MnO <sub>2</sub>	9/9	100%	351		
360				365-394 Massive green Andesite. Very competent, lower contact sharp & planar & fractured @ 30° to core. Red-brown last 2'.		1/1	100%	352		
370						0/10	100%	362		
380						6/6	100%	368		
390				394-420 Red/Green amygdaloidal Andesite. Bleached w/tr blk min & strongly frac 396-399.	Tr. Black MnO <sub>2</sub>	3/3	100%	371		
400						0/10	100%	381		
						0/10	100%	391		

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B 2</u> Shoot <u>5</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. min	Run/recov %	Sample #	
400				394-420 Red-green amygdaloidal Andesite Round to elliptical vesicles 1mm-10mm. When elliptical, oriented 80° to core. Lower contact very gradational.		10/10 100%	401	
410						10/10 100%	411	
420				420-446 Green massive Andesite. Weakly amygdaloidal w/green filled vesicles <.5mm. Minor larger vesicles (<1.2% 5mm) calcite filled.		10/10 100%	421	
430						10/10 100%	431	
440						10/10 100%	441	
450				446-602 Amygdaloidal Andesite strongly oxidized upper contact (top 3') hematite/limonite, contact apparently @ 45°? Variable unit grading from strongly to very weakly (massive) amygdaloidal. Hematite content wk to mod - very variable. Generally competent w/only weak minor fracturing @ 30°-45° to core. Vesicle elliptical +/- 45° to core.		10/10 100%	451	
460						10/10 100%	461	
470						4/4 100%	465	
480						10/10 100	475	
490						10/10 100%	485	
						9/9 100%	494	

None  
Strong Ox



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>7</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION		Fl. Min	Run/recov %	Ft
600				602-623 Massive green Andesite. Upper contact gradational. 5% fine grained hematite vesicles <.1mm magnetic. Lower contact sharp & irregular.			0/10 100%	608
610							0/10 100%	618
620				623-629.5 Felsic Lithic tuff. Interbedded lower contact. Fine grained base, coarsening upsection to fragmental Rhyolite med grained 1-4mm sub-rounded to angular clasts of K-feldspar, white feldspar, Qtz & bk fragments. tr of fine grained ox. pyrite?		None	0/10 100%	628
630							0/10 100%	638
640				629.5-714 Green amygdaloidal Andesite. Massive 634-636 10% large elliptical calc. vesicles 5-20mm @ 70° to core. Pale green, tuffaceous & pyritic 642-660, fine grained, 5% vesicles 660-667. Pale green, tuffaceous & pyritic 675-679. Fractured w/calc. vein @ 80° to core @ 677-677.8.		primary pyrite	0/10 100%	648
650							0/10 100%	658
660							9/9 100%	662
670							1/1 100%	668
680				Massive green 677-695. 5% vesicles <5mm. Banded calcite/SiO <sub>2</sub> veinlet @ 681 1.5" @ 70° to core, tr Blk min & brn min		Tr Blk min. calcite SiO <sub>2</sub>	0/10 100%	678
690						& Brn min.	0/10 100%	688
700				695-701. 10%-15% elongate (3-15mm) vesicles @ 70° to core, med hematite alt.		--	0/10 100%	698

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B-2</u> Sheet <u>8</u> of <u>26</u>		DRILLING			Analyses
				DESCRIPTION		Fl. Min	Run/recov %	Ft	Sample #
700						Minor calcite	0/10 100%	703	
710				714-733 Massive green Andesite. Upper contact gradational. 2" calc/SiO <sub>2</sub> veinlets @ 706 & 709 @ 50° to core.			0/10 100%	713	
720							0/10 100%	723	
730				733-753 Brown amygdaloidal Andesite. Upper contact sharp @ 50° to core. Mod. FeOx., becoming less Ox & mod. green down section & more massive. Lower contact gradational.			0/10 100%	733	
740							0/10 100%	743	
750				753-771 Massive green Andesite. Lower contact sharp & planar @ 75° to core.		None	0/10 100%	753	
760							0/10 100%	763	
770				771-794.4 Fragmental Rhyolite Lithic tuff breccia lower contact sharp & planar @ 75° to core.			0/10 100%	773	
780				771.0-772.0 Strong Ox 772-775 Coarse grained fragmental 772-782 Fine-med grained Air-fall tuffs.					
780				782-791 Med-Coarse grained fragmental			0/10 100%	783	
790				791-793 fine-med grained tuff'			0/10 100%	793	
800				793-794.4 Coarse grained fragmental.			0/10 100%	803	
				794.4-862.5 Andesitic Pyroclastic Bx			0/10 100%		



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>10</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. Min	Run/recov %	Ft	Sample #
900				862.5 Massive, green, fine grained Andesite, very competent.0				
910						10/10 100%	913	
920				924-926 Wk micro shears @ 85° to core.	None	10/10 100%	923	
930						10/10 100%	933	
940				943-945 Wkly brecciated w/calcite/SiO <sub>2</sub> filling @ 15° to core.	minor calcite	2/2 100%	935	
950						10/10 100%	945	
960						10/10 100%	955	
970				970-972 Brecciated w/calcite @ 15°.		10/10 100%	965	
980					None	9/9 100%	974	
						11.7 70%	975	
990						10/10 100%	985	
1000						10/10 100%	995	
						10/10 100%	1005	

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>11</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min	Run/recovery %	Sample #	
1000				862.5 Massive Green fine grained Andesite, minor shears @ 15-25°				
1010								
1020								
1030				1025-1038 Mod to strongly fractured w/abundant gravel, no gouge & soapy min @ 25-30° to core high angle fracture below @ 15° w/calc unit.				
1040								
1050				Massive/Boring				
1060								
1070								
1080								
1090				Wkly frac. 1081-1093				
1100								

None

10/10	1015	100%
10/10	1025	100%
10/10	1035	100%
8/8	1043	100%
10/10	1053	100%
9/9	1062	100%
10/10	1072	100%
9/9	1081	100%
5/5	1086	100%
7/7	1093	100%
10/10	1103	100%





DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>14</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min	Run/recov %	Ft Sample #	
1300				862.5- Massive green Andesite, fine grained diabasic texture throughout. 1275-1353 Minor chlorite filled fracture w/chlorite growing perpendicular to fracture boundary tr specter hematite grains in RK matrix generally massive throughout.	None	2/2 100%	1304	
1310					None	8/8 100%	1312	
1320				1324.5 Small, irregular, med grained dike +/- 1/2" @ small angle to core axis w/3mm specter hematite grains 2%.	tr. spec hematite	11/11 100%	1323	
1330					None	10/10 100%	1333	
1340					None	10/10 100%	1343	
1350				1348-1351 1/2" calcite veinlet/fracture @ 15° to core, tr spec. hematite. Minor med grained dikes @ 70° & 40° to core w/spec. hematite.	tr. spec. hematite	10/10 100%	1353	
1360				1363-1366 Hematite (red) bands 1/2" wide @ 30° to core.	None	10/10 100%	1363	-1365- #1410
1370				Up to 3% gray metallic specter hematite (1mm) in fine grained ground mass throughout wk chlorite alteration, possibly green chlorite along fractures Could be Vanadium?	None	10/10 100%	1373	-1369
1380					None	10/10 100%	1383	
1390					None	10/10 100%	1393	
1400					None	5/5 100%	1398	

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>15</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min	Run/recov %	Fl. T	Sample #
1400				862.5 - Massive green Andesite. 1383-1500 Generally massive/competent throughout w/tight chlorite filled fractures @ 0-30° to core throughout fine grained w/1-2% spec. hematite grains <.5mm dia.		7/7 100%	1405	
1410						10/10 100%	1415	
1420						8/8 100%	1423	
1430						10/10 100%	1433	
1440				Massive, competent, fine grained, 1-2% spec. hematite throughout groundmass		9/9 100%	1442	
1450						10/10 100%	1452	
1460						10/10 100%	1462	
1470						10/10 100%	1472	
1480						10/10 100%	1482	-1477 #1411 -1481
1490						10/10 100%	1492	
1500						10/10 100%	1502	

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>16</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. Min	Run/recov. %	Sample #	
1500				862.5-1617 Massive green Andesite				
1510				1500-1525 Massive, green, 1% fine grained spec. hematite throughout (fine grained) groundmass. Minor chlorite fracture @ 0-30° to core.			10/10 100%	1512
1520				tr.-1% spec. hematite throughout groundmass.			10/10 100%	1522
1530				1526-1534.5 Mod. sheared w/green chlorite slickensided clay along shears @ 20° to core.			7/7 100%	1529
1540				1537-1541 fine/med grained sill of same comp as rock @ 70° to core, sharp, planar contacts.			3/3 100%	1532
1550							2/2 100%	1534
1560				1552-1591 Minor thin, red hematite bands @ 70° to core.				-1537 #1412 -1541
1570				Weak flow banding @ 40°-60° to core, Cryptocrystalline.			10/10 100%	1544
1580				Small 2" med grained flow @ 40° to core.				
1590				Increasing discernible flow or tuff beds @ 70° to core.			10/10 100%	1554
1600								
							10/10 100%	1564
							10/10 100%	1574
							10/10 100%	1584-1584
							10/10 100%	1594
							10/10 100%	1604

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B -2</u> Sheet <u>17</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. Min	Run/recov %	Sample #	
1600								
1610				1606-1612 Fracture @ 0° to core which offsets beds 1/4", fracture filling of cold hematite & yellowish clay alternating fine-med grained flows @ 70° to core.		10/10 100%	1614	
1620				1617 Very fine grained gray-green Andesite/Dacite. Same composition as previous unit but very fine grained 1-2% opaque min (hematite?) in groundmass, felsic, gray-green. Upper contact, sharp & planar @ 70°. Hard, competent.		10/10 100%	1624	
1630								-1628 #1418 -1630
1640				1637-1643 1/4-1/2" calcite veinlet @ 10° to core w/gray & green clay & tr gray metallic min (Argentite?).		1/11 100%	1635	
1650				1644-1654 1/4" Felsic dikes w/tr metallic (black) min @ 50° to core.		7/7 100%	1642#1419	-1641 -1643
1660						3/3 100%	1645	-1644 #1418 -1650
1670						10/10 100%	1655	
1680				Massive, hard		10/10 100%	1665	
1690						10/10 100%	1675	
1700				1676.5-1680.5 Si/calc veinlet 1/4-1/2" @ 0-5° to core. Fracture runs through core from 1660-1725, becomes brecciated & irregular @ 1714-1725.		10/10 100%	1685	
						5/5 100%	1690	
						5/5 100%	1695	
						10/10 100%	1705	

1-2% gray metallic min. Galena?  
 Calcite-----None

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 2		Sheet 18 of 26		DRILLING		Analyses
				DESCRIPTION		Ft. min	Run/recovery %	Ft	Sample #	
1700				1617- Very fine grained massive Gray-green Andesite				10/10	1715	
								100%		
1710								10/10	1725	
								100%		
				rock is weakly Bx 1713-1725 & frac @ 0°-15° offset small felsic dikes 1/4" in a reverse sense				10/10	1735	
1720								100%		
				Massive, hard				9/9	1744	
								100%		
								10/10	1754	
								100%		
				1734-1741 1/4" felsic dikes, 1/2' @ 40° to core						#1419
1740								10/10	1764	
								100%		-1733
								10/10	1774	
								100%		
				Massive, hard				10/10	1784	
								100%		
				1756 calcite veinlets @ 40° to core subtle bedding @ 60°				5/5	1789	
								100%		
1760								4/4	1793	
								100%		
								10/10	1803	
								100%		-1767
										#1420
1770				Massive, hard						-1771
1780										
				1785-1809 core fractured @ 0-15° to core, groundmass nearly aphanitic w/ 1-2% copper colored mica						
1790										
1800										

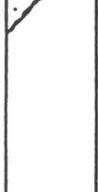
Calc. veinlets

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>19</u> of <u>26</u>		DRILLING		Analyses		
				DESCRIPTION	Ft. Min	Run/recovt %	Ft	Sample #		
1800				1617-1977.5 Massive, fine grained. Gray Andesite, very fine grained, crystalline rock w/ 1-2% copper/red mica & .5% opaques		5/5	1809			
						100%				
1810						7/7	1815			
						100%			-1813 #1421	
						0/10	1825			
						100%			-1817	
1820					1819-1825.5 fractured @ 5° to core, blocky ground, pale green, slickensided clay on fractures 1825-1851 hard-competent	None	0/10	1835		
							100%			
1830							0/10	1845		
							100%			
1840				1851-1859 fractured @ 5° to core, blocky ground		9/9	1854			
						100%				
						0/10	1864			
						100%			-1843 #1422	
						0/10	1874	-1847		
				1859-1874 native, wk, calcite veinlets @ 5° & 40° to core, rock becomes wkly porphyritic @ 1860 w/flow banding @ 60°-70° to core, multiple flows/ beds are distinguishable	minor calcite	0/10	1884			
1860						100%				
						0/10	1894			
				1873-1886 si/calc veinlet 1/2" @ 0-5° to core w/ appetite & .5% blk metallic min. & possible sphalerite, blocky ground		9/9	1903			
						100%				
1870				1889-1906 SiO <sub>2</sub> /calc veinlet 1/8"-1/4" @ generally 5°-10° to core w/ up to 20% blk metallic min (MnO <sub>2</sub> )? pale green clay, tr. appetite rock is wkly reactive to HCl due to calcite along micro-shears	SiO <sub>2</sub> /calc blk metallic min & Sphalerite			-1874 #1431 -1876		
1880										
					up to 20% blk metallic. (MnO <sub>2</sub> ) in 1/8-1/4" veinlet				-1889 #1432 -1891 -1894 #1433 -1898	





DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>22</u> of <u>26</u>		DRILLING		Analyses	
				DESCRIPTION	Ft. Min	Run/recov. %	Ft	Sample #	
2100				-2115 Gray/Brown Trachy Andesite Amygdaloidal. slickensides chlorite shears @ 15° & 35° w/pale green clay, comes in & out of core throughout entire section (2100- )		10/10	2115	#1440 -2103 #1441	
							100%		-2107
2110							5/6	2224	#1442
							100%		-2111
					2115-2155 Gray/Green massive & amygdaloidal Trachy Andesite		5/5	2126	#1443
2120							100%		#1444
							7/7	2133	#1445
							100%		#1446
2130							7/7	2140	#1447
							100%		#1448
						7/7	2147	#1449	
						4/4	2151	#1450	
2140						100%		#1451	
						4/4	2155	#1452	
						100%		#1453	
				2149.7-2155 strongly sheared cholerically @ 0°-30° to core, slickensided, abundant gravel		4/4	2159	#1454	
						100%		#1455	
				2155- Amygdaloidal & massive cholerically Green Andesite, sharp, irregular upper contact @ 50°, no trachy, texture small, 2-8 mm elongate, chlorite vesicles @ 40° to core		10/10	2169	#1456	
2160						100%		#1457	
						9/9	2178	#1458	
						100%		#1459	
				Massive green 2167-2169		7/7	2185	#1460	
						100%		#1461	
2170				Gray Amygdaloidal 2169-2179 rock sheared & cholerically @ 0-45° to core		10/10	2195	#1462	
						100%		#1463	
				2179- Massive Green, 2181 to 2185.6 small calcite stress fractures @ 40°, tr. of pyrite in rock		10/2	2205	#1464	
2180						20%		#1465	
				2185.6 Ash Peak Vein, sharp, irregular contact @ 50° to core				#1466	
								#1467	
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								#1642	

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE B - 2		Sheet 22 A of 26		DRILLING		Analyses
				DESCRIPTION		Fl.	Run / recov %	Ft	Sample #	
2184				Massive Green Andesite with < .5% very fine grained pyrite-disseminated. Chlorite & calcite alteration.	min					
2185				Silicified white, beige, vein Bx, with angular clasts of Beige (Kspar pink) volcs. partially assimilated into vein. Mod. reactive to HCl. .5-1% fine grained disseminated pyrite, and fine grained wispy blk min along micro-shears Tr. Ag <sub>2</sub> S. No Amethyst, Cu						
2186				Green, chloritized wall rock w/ 1% pyrite Hematite, red zone w/.5-1% disseminated pyrite						
2187				Green, chloritized, Bx wallrock w/1% pyrite, silicified						
2188				Milky white, Beige Vein Bx. highly silicified w/1-1.5% pyrite grains, disseminated. Wispy black sulfides along micro shears, traces of Ag <sub>2</sub> S?, Mn. sub-rounded to subangular clasts of beige, silicified, porphyritic volcs. throughout. Sharp contacts. No Cn, no amethyst. Weakly reactive to HCl. Tr. galena						
2189										
2190										
2191										

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>22</u> of <u>26</u>		DRILLING		Analyses					
				DESCRIPTION	Ft.	Run/recov %	Sample #						
2191				Silicified, F.W. Bx. w/ Brecciated clasts of purple porphyritic volcs in a green volcanic-like matrix. .5-1% pyrite grains throughout. Limonite & hematite clay on fractures									
2192													
2193													
2194													
2195													
2195									 10' of 10' core recovery				
2197													
2198													
2199													

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B -2</u> Sheet <u>22 c</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. min	Run/recov %	Sample #	
2199				<p>Only 2' of 10' of core was recovered. This 2' consisted of chloritized, &amp; silicified volc. Bx same as on both sides of this zone. 1/4"-1/2" Qtz stringers w/minor amethyst &amp; traces of sulfides in strgs. &amp; disseminated pyrite through wall rock. Strong limonite hematite along fractures.</p>				
2200								
2201								
2202								
2203								
2204								
2205			<p>2' of 10' core recovery</p>					
2206			<p>Silicified F.W. Bx.</p>					

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>23</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. Min	Run/recov %	Sample #	
2200				2191.7-2458 Gray/Purple, Green silicified porphyritic Andesite F.W. Bx: strong Limonite along fractures 1%-2% pyrite disseminated throughout. Strongly Brecciated, purple, angular clasts of Andesite w/5% white, feldspar laths 1-3 mm. Numerous milky white qtz strgs. dominantly @ 5-30° to core. Strgs carry trace to .5% wispy blk sulfides & pyrite grains. Mod. chlorite alteration Brecciation generally decreases down section, sericite (mod) in units, tr. MnO <sub>2</sub>	Silicified, pyrite, Blk sulfides		2195	#1468
						10/2	2205	#1469
2210						20%		#1470
						9/9	2214	#1471
						100%		#1472
2220						10/10	2224	#1473
						100%		#1474
						10/10	2234	#1475
2230						100%		#1476
						6/6		#1477
						100%		#1478
2240						10/10	2261	#1479
						100%		#1480
						6/6	2277	#1481
						100%		#1482
2260			8/8	2285	#1483			
			100%		#1484			
			10/10	2295	#1485			
			100%		#1486			
2270			9/9	2304	#1487			
			100%		#1488			
2280					#1489			
					#1490			
2290					#1491			
					#1492			
2300								

Primary pyrite & secondary MnO<sub>2</sub> & tr Galena & tr appetite in strngs 1/4" @ 5° to core

Green, anastomizing silica veinlets w/ 1-2% cubic pyrite throughout entire zone

White qtz strgs cut & enclose older green silica strgs. Increasing appetite alteration in strgs & in feldspar laths. Mod chlorite alteration, 1 1/2% pyrite

2292- Mod Brecciation, silicification

Pyrite



DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B - 2</u> Sheet <u>25</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Ft. Min	Run/recov %	Sample #	
2400				2191.7-2458 Gray-green porphyritic Andesite. 2402-2413 Wkly fractured @ 5° to core.		10/10 100%	2402	
2410				2413-2442 Generally massive, minor fractures & a few 1/8-1/4" calcite strings @ 5-30° to core. Tr pyrite in groundmass w/tr opaques.		10/10 100%	2412	
2420						1/1 100%	2413	
2430						0/10 100%	2423	
2440				Minor SiO <sub>2</sub> green strgs @ 30°.		0/10 100%	2433	
2450				2442-2456 Fractured blocky ground, minor brecciation & calcite Si strgers @ 30° to core & latite dikes (minor), med argillic alteration.		0/10 100%	2443	
2460				2458-2466 Dense, very fine grained, reworked bedded tuff, sharp, planar contact @ 80° to core.		0/10 100%	2453	
2470				2458-2462 Massive, dense. hard, apparent bedding (lamenar flow?). 2462-2464 Fractured & Bx @ 0-5° to core @ 60° to core.		10/10 100%	2463	#1505
2480				2466-2468 Red, highly Bx & intruded by green, grainy latite w/.5% opaque. 2466-2478 Volcanic Bx w/gradational contacts, coarse @ top, mod sized clasts 1/16"-3/4" @ bottom.	Minor calcite	10/10 100%	2473	#1506
2490				2478-Dense charcoal gray to maroon ultra fine grained, wkly porphyritic Andesite 0-15% white feldspar laths 1mm-4mm +/- 30° to core, minor calcite strgs @ 40°.		10/10 100%	2483	#1507
2500				2486-2493 Fractured @ 5-30° w/calcite strgs.		8/8 100%	2493	#1508

DEPTH	ELEV.	UNIT	GRAPHIC LOG	DRILL HOLE <u>B-2</u> Sheet <u>26</u> of <u>26</u>		DRILLING		Analyses
				DESCRIPTION	Fl. min	Run/recov %	Sample #	
2500				2478-2529 Maroon, wkly porphyritic, fine grained Andesite, thin lamellar flow banding? @ 85° to core.		8/8 100%	2501 #1509	
2510				Mod chlorite along fractures @ 40° to core.		10/10 100%	2511	
2520				Small, grainy pyrite clots in 1/8" calcite/SiO <sub>2</sub> stringers @ 2518		9/9 100%	2520 #1510	
2530				2529- Red amygdaloidal porphyritic Andesite, contact sharp & irregular @ 80°.		4/4 100%	2524	
2540				2541-2543 1/8" calcite strg @ 30° to core 2540-2546 1/8" SiO <sub>2</sub> /calc strg w/blk calcite & 1% pyrite @ 5° to core & dendritic MnO <sub>2</sub> .		10/10 100%	2534 #1511	
2550				2554-2565 Strongly amygdaloidal w/ rounded to elongate vesicles @ 40° to core.		10/10 100%	2544 #1512	
2560				2555-2557 Brecciated w/calcite filling vesicles filled w/green clay (celadonite?).		10/10 100%	2554 #1514	
2564			E.O.H.	END OF HOLE @ 2564'		10/10 100%	2564 #1515	
2570								
2580								
2590								
2600								

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/13/89	1905	Ash Peak D.D.H. B-1	91-95' altered Amg. And. hematite, limonite minor slickensides, chlorite	0	ND	154	21	95						
04/13/89	1906	B-1	144.4-150 massive, weakly fractured w/ calcite/ quartz veinlets	0	ND	154	21	95						
04/13/89	1907	B-1	206.5-210.3 Argillic altered baked Amg. And.	0	0	44	17	77						
04/13/89	1908	B-1	312.2-317.2 weakly fractured Amg. Brn. And. w/ CaCO <sub>3</sub> veinlets and chlorite (?) alterations and limonite	ND	ND	38	14	72						
04/13/89	1909	B-1	325-330 Brn. Amg. And. moderate Bx. w/CaCO <sub>3</sub> veins argillic altered baked, abundant hematite	ND	0	72	11	64						
04/13/89	1910	B-1	415-419.5 Massive green And.	ND	ND	36	24	87						
04/13/89	1911	B-1	419.5-422 highly fractured gougy fault zone	ND	0	60	28	65						
04/13/89	1912	B-1	422-427 Brn. Amg. And.	ND	ND	33	24	72						
04/13/89	1913	B-1	549-554 Grn. Amg. And. weak to moderate fractures w/ calc/SiO <sub>2</sub>	ND	0									
04/13/89	1914	B-1	634-639 Grn. amg. And. w/ abundant CaCO <sub>3</sub>	ND	ND	22	31	83						
04/13/89	1915	B-1	680-685 Massive Green And.	ND	0	44	23	98						
04/13/89	1916	B-1	685-689.5 Massive Grn. And. weak hematite	ND	ND	55	32	104						
04/13/89	1917	B-1	689.5-695 Baked contact (And.) and	ND	ND	51	38	60						

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION fragmental Rhy.	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/13/89	1918	B-1	695-700 Fragmental Rhy. tuff	ND	0	33	29	54						
04/13/89	1919	B-1	700-705 Fragmental Rhy.	ND	0	34	14	38						
04/13/89	1920	Ash Peak D.O.H. B-1	705-710 Fragmental Rhy. tuff	ND	ND	26	22	35						
04/13/89	1921	B-1	710-715 Fragmental Rhy. tuff	ND	ND	29	27	24						
04/13/89	1922	B-1	715-720 Fragmental Rhy. tuff	ND	ND	28	23	28						
04/13/89	1923	B-1	720-723 Rhy.	ND	0	38	20	26						
04/13/89	1924	B-1	723-727 Rhy., minor Qtz. vein	ND	0	51	28	40						
04/13/89	1925	B-1	727-733 Rhy.	ND	0	44	38	41						
04/13/89	1926	B-1	733-737 Rhy.	ND	0	40	41	39						
04/13/89	1927	B-1	737-739.7 And. w/ Qtz. veining	ND	ND	72	40	32						
04/13/89	1928	B-1	739.7-745 Brn. Amg. And. w/ Qtz. veins	0	0	86	47	96						
04/13/89	1929	B-1	745-750 Amg. And. w/ Qtz veins	0	0	104	33	80						
04/13/89	1930	B-1	750-755.3 Amg. And. w/ Qtz/calcite veins	0	0	62	62	94						
04/13/89	1931	B-1	Fault w/ Qtz. veinlet	ND	0	33	58	220						
04/13/89	1932	B-1	653.1-766 Massive And. Brn.	0	0	30	16	90						

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/13/89	1933	B-1	766-770 Massive And. minor Qtz.	ND	0	44	14	99						
04/13/89	1934	B-1	770-775 Massive And.	ND	0	28	21	92						
04/13/89	1935	Ash Peak D.O.H. B-1	775-780 Massive And.	ND	ND	31	22	90						
04/13/89	1936	B-1	780-785 Massive And.	ND	ND	44	12	100						
04/13/89	1937	B-1	785-790 Massive And.	0	ND	52	11	104						
04/13/89	1938	B-1	790-795 Massive And. w/Qtz. carb. veinlets	ND	ND	50	18	108						
04/13/89	1939	B-1	795-800 Massive And.	0	ND	54	12	102						
04/13/89	1940	B-1	800-805 Massive And.	ND	ND	50	15	88						
04/13/89	1941	B-1	805-810 Massive And.	0	ND	71	38	104						
04/13/89	1942	B-1	810-815 Massive And.	ND	ND	75	40	89						
04/13/89	1943	B-1	815-820 Massive And.	0	ND	61	27	128						
04/13/89	1944	B-1	820-825 And. and gouge	0	0	71	55	148						
04/13/89	1945	B-1	825-830 Massive And.	0	0	56	72	212						
04/13/89	1946	B-1	830-835 Massive And. w/ leached Amethyst veinlets	0	0	84	76	146						
04/13/89	1947	B-1	835-840 Massive And.	ND	0	42	58	138						

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/13/89	1948	B-1	840-845 Fractured And. w/ Qtz/calc veining	ND	0	44	33	120						
04/13/89	1949	B-1	845-850 Massive And.	ND	0	61	28	86						
04/13/89	1950	Ash Peak D.O.H. B-1	850-855 Massive And.	ND	0	53	41	101						
04/14/89	1951	B-1	855-858.7 vein margin Bx.	ND	1	44	140	101		ND				
04/14/89	1952	B-1	858.7-860.7 Ash Peak vein	0	27	191	880	.284%				ND	ND	.14%
				0	27					ND				
04/14/89	1953	B-1	860.7-862.2 Ash Peak vein	0	6									
				0	6	101	1200	.302%		ND		ND	ND	.024%
04/14/89	1954	B-1	862.7-864.7 Ash Peak vein	0	1									
				0	1	162	1010	.182%		ND		ND	ND	.028%
04/14/89	1955	B-1	864.7-867.2 Ash Peak vein	0	1									
				0	0	120	724	.134%		ND		ND	ND	.028%
04/14/89	1956	B-1	867.2-869.2 Ash Peak vein	0	1									
				0	1	48	360	.091%		ND	8	ND	ND	.025%
04/14/89	1957	B-1	869.2-871.9 Ash Peak vein	0	2									
														.020%

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
				0	2	348	462	180		ND	12	ND	ND	.026%
04/14/89	1958	B-1	871.9-875 Qtz/carb veined And.	0	0	44	112	.019% 162		ND	10	ND	ND	.072%
				0	1									
04/14/89	1959	B-1	875-880 And.	ND	0									
				ND	0	50	134	.018% 175		ND	16	ND	ND	.073%
04/14/89	1960	B-1	880-885 And. w/ Qtz./calc veins	ND	0	32	82	163						
04/14/89	1961	B-1	885-890 Massive And.	ND	0	30	81	134						
04/14/89	1962	B-1	890-895 and. Bx. w/ Qtz./ calcite veins	0	2	55	99	197						
04/14/89	1963	B-1	895-900 Massive And. weak Bx. w/ Qtz.	ND	0	54	70	154						
04/14/89	1964	B-1	900-905 Massive And.	ND	0	40	64	127						
04/14/89	1965	B-1	905-910 Weakly sheared And.	ND	0	32	53	154						
04/14/89	1966	B-1	910-915 Weakly sheared And.	0	0	64	85	160						
04/14/89	1967	B-1	915-920 Weakly sheared And.	ND	0	102	79	138						
04/14/89	1968	B-1	920-925 And. Bx. w/ Qtz. calc.	0	0	76	66	110						
04/14/89	1969	B-1	925-930 Weakly sheared And.	ND	0	64	54	118						

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/14/89	1970	B-1	930-935 Weakly Bx. And.	ND	0	72	88	158						
04/14/89	1971	Ash Peak D.D.H. B-1	935-938 Bx. And.	ND	0	55	102	162						
04/14/89	1972	B-1	938-942.4 veined Bx.	ND	0									
				NO	0	74	161	.033% 284		18	NO	NO	NO	.052%
04/14/89	1973	B-1	942.4-944 Bx.	0	1									
				0	1	144	244	.144%		10	NO	NO	NO	.03%
04/14/89	1974	B-1	944-945.9 F.W. vein	0	2									
				0	2	208	596	.133%		12	3	NO	NO	.033%
04/14/89	1975	B-1	945.9-947.3 F.W. vein	0	1									
				0	1	518	948	.201%		9	NO	NO	NO	.087%
04/14/89	1976	B-1	947.3-950 Bx.	0	0									
				NO	0	127	348	.054% 492		7	NO	NO	NO	.089%
04/14/89	1977	B-1	950-955 And., minor shears w/ Qtz./ calc.	ND	0	70	218	265						
04/14/89	1978	B-1	955-960 Weakly Bx. And.	ND	0	102	202	384						
04/14/89	1979	B-1	960-965 And.	ND	0	80	161	354						

## APPENDIX 4

DATE	SAMPLE LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
04/14/89	1980 B-1	965-970 And.	NO	NO	62	92	222						
04/14/89	1981 Ash Peak D.O.H. B-1	970-975 And.	NO	0	61	62	105						
04/14/89	1982 B-1	975-980 And.	NO	0	84	144	222						
	1983 B-1	1145-1150 Gray, Green, Fresh Andesite	NO	NO	71	17	83						
04/21/89	1984 B-1	1150-1154.5 Gray, Green And.	NO	NO	70	15	79						
04/21/89	1985 B-1	1154.5-1160 Purple, red Ang. And.	NO	0	48	21	84						
04/21/89	1986 B-1	1160-1165 Purple, red Ang. And.	NO	NO	28	24	85						
04/21/89	1987 B-1	1165-1170 Purple, red Ang. And.	NO	NO	20	20	72						
04/21/89	1988 B-1	1170-1175 Ang. And.	NO	NO	34	7	91						
04/21/89	1989 B-1	1175-1180 Ang. And.	NO	NO	26	13	83						
04/21/89	1990 B-1	1180-1185 Ang. And.	NO	0	27	11	95						
04/21/89	1991 B-1	1185-1190 Carbonate, green min. vein	NO	NO	38	12	86						
04/21/89	1992 B-1	1190-1195 Carbonate, green min. vein	NO	NO	35	10	94						
04/21/89	1993 B-1	1195-1201 Carbonate, green min. vein	NO	NO	28	14	97						
04/29/89	1994 Ash Peak #2 Decline	Ash Peak vein @ bottom of #2 decline, @tz./ chalcedony/ carb./ amethyst, abundant	0	2	76	30	23	3	NO	13	NO		>1000

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
			blk. min. At very end of decline @ 100' level											
04/29/89	1995	Ash Peak	A.P. vein @ 100' level shaft station. Poor sample, bad conditions	0	9	112	165	140	3	ND	8	ND		718
04/29/89	1996	Ash Peak	A.P. vein @ 200' level	0	1	50	24	17	6	ND	12	ND		>1000
04/29/89	1997	Ash Peak	H.W. vein, 200' level, highly ox., crushed talcix and soapy, Amethyst	0	2	128	211	52	5	ND	3	ND		>1000
04/29/89	1998	Ash Peak	H.W. vein, 200' level, Qtz./ w/Amethyst Blk. min. Good looking	0	48	582	896	>1000	10	ND	15	ND		537
04/29/89	1999	Ash Peak	Ash Peak vein, 300' level near shaft, looks poor	0	0	38	30	7	5	ND	10	ND		850
04/29/89	2000	Ash Peak	Ash Peak vein, 350' level, north of shaft. looks low grade	0	2	61	85	65	4	ND	15	ND		687
04/29/89	1401	A.P.	Ash Peak vein, 350' level, Banded SiO2 just north of shaft	0	2	52	102	66	6	ND <5	7	ND <2		>1000
04/29/89	1402	A.P.	Hanging Wall vein, 500' level, @ reported 73 oz.Ag. Looks fair.	0	5	11	129	108	11	ND <5	8	ND		368
04/29/89	1403	A.P.	Ash Pack Vein @ shaft sta, 500' level	0	3	93	187	354	8	ND <5	11	ND		354
04/29/89	1404	A.P.	Grab sample of ore being mined on 200'-300' level	0	4	81	49	51	10	ND <5	8	ND		390
05/09/89	1405	A.P.	H.W. vein from 200'-300' slope. Mine run (-10 mesh)	0	4	146	227	216	5	ND	3	ND		>1000

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/09/89	1406	A.P.	H.W. vein, 200'-300' slope. Mine run, <10 mesh	0	485	137	217	196	5	NO	9	NO		>1000
05/09/89	1407	A.P.	H.W. vein, 200'-300' slope. Mine run, 1/4"-3/4"	0	7	124	112	125	8	NO	10	NO		963
05/09/89	1408	A.P.	H.W. vein, 200'-300' slope. Mine run 1/4"-3/4" mesh	0	6	158	187	169	7	NO	17	NO		>1000
05/09/89	1409	B-Z 1269-1271	Fine grained Andesite (diabase) w/ 2-3% spec hematite (?) in groundmass, chlorite filled fractures			49	31	27	4	NO	---	---		---
05/09/89	1410	B-Z 1365-1369	Diabasic And. w/hematite bands and 1% fine grained spec. hematite, white fibrous min/ w/ chl./calc. in fractures	0	NO	32	30	24	3	NO	---	---		---
05/09/89	1411	B-Z 1477-1481	Fine grained, massive green And.	0	NO	71	16	29	4	NO	---	---		---
05/09/89	1412	B-Z 1537-1541	And. dike	0	NO	57	15	27	3	NO	---	---		---
05/09/89	1413	A.P.	H.W. vein from 200'-300' slope. Mine run 10 mesh	0	5	128	191	209	NO	NO	10	NO		>1000
05/09/89	1414	A.P.	H.W. vein from 200'-300' slope. Mine run, 1/4"-3/4"	0	6	129	116	164	5	NO	4	NO		980
05/11/89	1415	B-Z 1580-1584	Massive, green and w/ thin hematite bands	0	NO	143	21	34	3	NO	---	---		---
05/11/89	1416	B-Z 1629-1633	Very fine grained, massive And.	0	NO	172	20	30	4	NO	---	---		---

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/11/89	1417	B-Z 1641	1/4"-1/2" silcalc. Unlt. w/ epidote, amethyst, hematite 1-2% blk metallic min galena (?), nice looking	NO	0	1000	18	62	<3 NO	NO	2	NO		992
05/11/89	1418	B-Z 1647-1651	Fine grained And. w/ 1/8" felsic dikes w/ tr. blk metallic min.	0	NO	59	17	41	3	NO	NO	NO		711
05/11/89	1419	B-Z 1733-1737	Massive gray, green And. w/ small felsic dikes	NO	0	31	18	36	NO	NO	---	---		---
05/11/89	1420	B-Z 1767-1771	Massive gray-green And.	NO	NO	55	16	32	NO	NO	---	---		---
05/11/89	1421	B-Z 1813-1817	Fine grained And. w/ copper colored mica	NO	0	88	16	34	4	NO	---	---		---
05/11/89	1422	B-Z 1843-1847	Fine grained massive gray And.	NO	NO	109	19	43	5	NO	---	---		---
05/11/89	1423	A.P.	H.W. vein, 200'-300' slope. Mine run 10 mesh	0	4	98	118	127	3	NO	12	NO		>1000
05/11/89	1424	A.P.	H.W. vein, 200'-300' slope. Mine run 10 mesh	0	4	118	133	145	6	NO	9	NO		>1000
05/11/89	1425	A.P.	H.W. vein, 200'-300' slope. Mine run, 1/4"-3/4"	0	5	132	88	126	5	NO	8	NO		942
05/11/89	1426	A.P.	H.W. vein, 200'-300' slope. Mine run, 1/4"-3/4"	0	5	534	871	>1000	10	NO	6	NO		>1000
05/12/89	1427	A.P.	Boart's L.H. from 500'-600' level in H.W. vein 0'-24'	0	10	662	694	>1000	6	NO	7	<2		901
05/12/89	1428	A.P.	Boarts L.H. from 500' to 600' level in	0	24	633	673	>1000	8	NO	6	NO		889

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/12/89	1429	A.P.	Boarts L.H. from 500' to 600' level in H.W. vein 44'-64'	0	10	302	429	>1000	3	NO	4	NO		968
05/12/89	1430	A.P.	Boarts L.H. from 500' to 600' level in H.W. vein 64'-90'	0	8	359	780	>1000	5	NO	5	NO		>1000
05/12/89	1431	A.P. B-Z	1874'-1876' SiO <sub>2</sub> /calc/epidote 1/16" veinlet w/ soft blk metallic min .5-1%	NO	0	697	19	27	4	NO	NO	NO		932
05/12/89	1433	B-Z	1894-1896 SiO <sub>2</sub> /calc/epidote veinlet 1/8" w/ up to 20% blk, shiny, soft, metallic min	NO	0	1000	20	22	6	NO	NO	NO		924
05/12/89	1434	B-Z	1915-1919 Massive And., minor calcite stringers	NO	NO	82	20	27	6	NO	---	---		---
05/12/89	1435	B-Z	1945-1949 Massive And.	NO	0	74	22	21	4	NO	---	---		---
05/12/89	1436	B-Z	1991-1996 Red/brn Amg. And w/calc. stringers	NO	0	19	20	31	NO	NO	---	---		---
05/12/89	1437	B-Z	2006'-2010' Red, massive And.	NO	NO	22	15	22	3	NO	---	---		---
05/12/89	1438	B-Z	2043-2047 Red/brn Amg. And.	NO	NO	18	19	27	NO	NO	---	---		---
05/12/89	1439	B-Z	2060-2064.4 Red/brn Amg. And. w/calc/SiO <sub>2</sub> stringers w/ 5% very fine grained sulfide in green SiO <sub>2</sub>	NO	0	15	21	29		NO	---	---		---
05/13/89	1440	B-Z	2099-2103 Gray/brn trachy And.	NO	NO	33	18	40	NO	NO	---	---		---
05/13/89	1441	B-Z	2103-2107 Gr/brn trachy And.	NO	NO	82	12	27	3	NO	---	---		---

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/13/89	1442	B-Z	2107-2111 Grn/brn trachy And	NO	NO	74	10	31	3	NO	---	---		---
05/13/89	1443	B-Z	2111-2115 Trachy And.	NO	NO	34	7	29	3	NO	---	---		---
05/13/89	1444	B-Z	2115-2119 Trachy And., chloritized	NO	NO				NO	NO	---	---		---
05/13/89	1445	B-Z	2119-2123 And., chloritized	NO	NO	55	8	34	NO	NO	---	---		---
05/13/89	1446	B-Z	2123-2127 Trachy And.	NO	0	37	7	31	NO	NO	---	---		---
05/13/89	1447	B-Z	2127-2131 Trachy And.	NO	NO	74	8	33	NO	NO	---	---		---
05/13/89	1448	B-Z	2131-2135 Trachy And.	NO	0	>1000	11	91	NO	NO	---	---		---
05/13/89	1449	B-Z	2135-2139 Trachy And.	NO	NO	51	6	26	NO	NO	---	---		---
05/13/89	1450	B-Z	2139-2143 Trachy And.	NO	0	50	13	28	NO	NO	---	---		---
05/13/89	1451	B-Z	2143-2147 Trachy And.	NO	NO	74	13	36	NO	NO	---	---		---
05/13/89	1452	B-Z	2147-2151 Trachy And.	NO	NO	62	16	35	4	NO	---	---		---
05/13/89	1453	B-Z	2151-2155 Trachy And.	NO	0	60	17	36	3	NO	---	---		---
05/13/89	1454	B-Z	2155-2159 Amp. And.	NO	NO	35	19	37	NO	NO	---	---		---
05/13/89	1455	B-Z	2159-2163 Massive Grn. And.	NO	NO	52	15	36	NO	NO	---	---		---
05/13/89	1456	B-Z	2163-2167 Grn. And.	NO	NO	37	16	38	4	NO	---	---		---
05/13/89	1457	B-Z	2167-2171 Strongly chloritized And.	NO	NO	66	17	35	NO	NO	---	---		---

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/13/89	1458	B-Z	2171-2175 Amg. Gray And	NO	NO	26	18	31	NO	NO	---	---		---
05/13/89	1459	B-Z	2175-2179 Gray And	NO	NO	20	17	30	NO	NO	---	---		---
05/13/89	1460	B-Z	2179-2183 Massive Green And. w/calcite stress fractures	NO	0	46	19	34	NO	NO	NO	---		820
05/13/89	1461	B-Z	2183-2185 Sheared, Grn. And.	NO	NO	29	11	41	3	NO	NO	NO		983
05/14/89	1462	B-Z	2185-2185.7 H.W. And	NO	NO	33	25	187	3	NO	NO	NO		>1000
05/14/89	1463	B-Z	2185.7-2186.7 H.W. vein (1')	NO	NO	21	33	17	6	NO	NO	NO		>1000
05/14/89	1464	B-Z	2186.7-2188.3 Intervein, altered And. (1.6')	0	0	106	56	55	3	NO	3	NO		>1000
05/14/89	1465	B-Z	2188.3-2190.3 Ash Peak vein (2')	NO	0	562	83	339	5	NO	2	NO		404
05/14/89	1466	B-Z	2190.3-2191.7 Ash Peak vein (1.4')	NO	0	>1000	101	>1000	5	NO	2	NO		570
05/14/89	1467	B-Z	2191.7-2195 F.W. Bx.	NO	NO	40	46	49	4	NO	5	NO		814
05/14/89	1468	B-Z	2195-2205 F.W. Bx. (only 2' recovery)	NO	NO	102	114	97	5	NO	NO	NO		826
05/14/89	1469	B-Z	2205-2207 F.W. Bx.	NO	0	39	35	34	5	NO	4	NO		811
05/14/89	1470	B-Z	2207-2211 F.W. Bx.	NO	0	40	31	45	5	NO	NO	NO		782
05/15/89	1471	B-Z	2211-2215 F.W. And.	NO	NO	28	24	42	4	NO	NO	NO		803
05/15/89	1472	B-Z	2215-2219 F.W. And.	NO	0	33	19	36	4	NO	2	NO		766
05/15/89	1473	B-Z	2219-2223 F.W. And.	NO	NO	29	22	33	5	NO	NO	NO		682

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/15/89	1474	B-Z	2223-2227 F.W. And.	NO	NO	50	24	25	10	NO	2	NO		795
05/15/89	1475	B-Z	2227-2231 F.W. And.	NO	NO	44	50	53	5	NO	3	NO		894
05/15/89	1476	B-Z	2231-2235 F.W. And.	NO	0	82	201	147	8	NO	NO	NO		676
05/15/89	1477	B-Z	2235-2239 F.W. And.	NO	NO	71	94	113	6	NO	NO	NO		687
05/15/89	1478	B-Z	2239-2243 F.W. And.	NO	NO	44	33	34	6	NO	NO	NO		795
05/15/89	1479	B-Z	2243-2247 F.W. And.	NO	NO	52	26	40	5	NO	NO	NO		780
05/15/89	1480	B-Z	2247-2251 F.W. And.	NO	0	36	34	31	3	NO	NO	NO		732
05/15/89	1481	B-Z	2251-2255 F.W. And.	0	0	61	43	27	39	NO	2	NO		721
05/15/89	1482	B-Z	2255-2259 F.W. And.	NO	NO	34	30	24	5	NO	3	NO		590
05/15/89	1483	B-Z	2259-2263 F.W. And.	NO	0	31	34	29	3	NO	5	NO		632
05/15/89	1484	B-Z	2263-2267 F.W. And.	NO	0	29	35	26	6	NO	NO	NO		661
05/15/89	1485	B-Z	2267-2271 F.W. And.	NO	NO	35	40	21	8	NO	3	NO		634
05/17/89	1486	B-Z	2271-2275 F.W. And.	NO	NO	36	33	27	4	NO	3	NO		645
05/17/89	1487	A.P. O.D.H. B-Z	2275-2279 F.W. And.	NO	NO	37	23	38	3	NO	NO	NO		655
05/17/89	1488	B-Z	2279-2283 F.W. And. 1/2% pyrite	NO	0	28	19	27	NO	NO	NO	NO		562

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/17/89	1489	B-2	2283-2287 F.W. And.	NO	0	30	22	33	NO	NO	NO	NO		551
05/17/89	1490	B-2	2287-2291 F.W. And.	NO	NO	28	21	31	NO	NO	NO	NO		601
05/17/89	1491	B-2	2291-2295 Silicified F.W. And.	NO	0	30	27	39	4	NO	NO	NO		571
05/17/89	1492	B-2	2295-2299 Silicified F.W. And.	NO	NO	32	33	58	3	NO	NO	NO		530
05/17/89	1493	B-2	2299-2303 Silicified F.W. And.	NO	NO	32	27	41	NO	NO	NO	NO		455
05/17/89	1494	B-2	2303-2307 F.W. And.	NO	NO	36	34	50	4	NO	NO	NO		606
05/17/89	1495	B-2	2307-2311 Silicified F.W. And.	NO	NO	30	29	42	NO	NO	NO	NO		437
05/17/89	1496	B-2	2311-2315 F.W. And.	NO	0	33	21	24	4	NO	NO	NO		373
05/17/89	1497	B-2	2315-2319 F.W. And.	NO	NO	42	25	35	4	NO	NO	NO		619
05/17/89	1498	B-2	2319-2323 Argillic altered F.W. And.	NO	0	61	41	44	5	NO	NO	NO		634
05/17/89	1499	Ash Peak D.O.H. B-2	2323-2327 Argillic altered F.W. And.	NO	NO	44	43	55	5	NO	NO	NO		498
05/17/89	1500	B-2	2327-2331 Argillic altered F.W. And.	NO	0	60	46	79	5	NO	NO	NO		520
05/18/89	1501	B-2	2348-2352 Silicified F.W. Bx, 1% pyrite	NO	0	31	45	33	5	NO	NO	NO		652
05/18/89	1502	B-2	2364-2366 Silicified F.W. And.	NO	0	65	213	36	4	NO	NO	NO		462
05/18/89	1503	B-2	2382-2386 Open, vuggy silicified F.W. And. Bx.	NO	NO	66	67	125	4	NO	NO	NO		576
05/18/89	1504	B-2	2390-2394 Silicified F.W. And. Bx.	NO	0	55	116	111	4	NO	NO	NO		758

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
05/18/89	1505	B-2	2458-2461.5 Dense, very fine grained bedded tuff?	NO	NO	45	12	38	3	NO	NO	NO		>1000
05/18/89	1506	B-2	2461.5-2464 Dense, gray, fine grained w/ calcite/SiO2 stringers	NO	NO	44	10	28	NO	NO	NO	NO		>1000
05/18/89	1507	B-2	2464-2468 Volcanic Bx., tuff	NO	0	22	8	30	NO	NO	NO	NO		>1000
05/18/89	1508	B-2	2483-2487 Maroon, fine grained, porphyritic weak And.	NO	NO	29	6	24	NO	NO	NO	NO		943
05/18/89	1509	B-2	2497-2501 Maroon And. tuff w/ calcite stringers	NO	NO	15	10	27	NO	NO	NO	NO		>1000
05/18/89	1510	B-2	2516-2520 Maroon And. w/ calcite stringers 1/16"-1/8" w/pyrite clots in stringers	NO	NO	44	11	26	NO	NO	NO	NO		834
05/18/89	1511	Ash Peak D.D.H. B-2	2530-2534 Amg. And., maroon, grn clay vesicles	NO	NO	8	5	28	NO	NO	NO	NO		>1000
05/18/89	1512	B-2	2544-2546 Amg. And. w/ 1/8" Qtz. stringers w/ 1-2% pyrite/limonite in stringers (interesting)	NO	NO	12	9	29	NO	NO	NO	NO		964
05/18/89	1513	B-2	2541-2543 Amg. And. w/ SiO2/ calc. stringers w/ strong MnO2(?), resembles Zn2S in color	NO	NO	7	7	27	NO	NO	NO	NO		>1000
05/18/89	1514	B-2	2554-2558 And. Bx. w/ calcite cement	NO	NO	47	5	26	NO	NO	NO	NO		935
05/18/89	1515	B-2	2560-2560.5 Calcite, MnO2 and sulfides along small fracture	NO	NO	9	8	27	NO	NO	NO	NO		915
	104-124F	100'-200' slope	Past smelter shipment	4	.03%	173	220	20	0	9	596	<10	<.001%	2907

## APPENDIX 4

DATE	SAMPLE	LOCATION	DESCRIPTION	Au	Ag	Cu	Pb	Zn	Mo	As	Sb	Bi	Ba	Mn
	125-130F	100'-200' slope	Past smelter shipment	4	.015%	120	209	20	0	4	788	<10	<.001%	2256
	APC-1	100'-200' slope	Past smelter shipment	3	.043%	107	155	30	0	4	702	<10	<.001%	1302
	APC-2	100'-200' slope	Past smelter shipment	4	.02%	133	155	20	0	4	702	<10	<.001%	1302
	APF-1	100'-200' slope	Past smelter shipment	4	.012%	133	192	10	0	7	787	<10	<.001%	2558
	APF-2	100'-200' slope	Past smelter shipment	4	.013%	120	178	20	0	7	638	<10	<.001%	1721
	APC-3	100'-200' slope	Past smelter shipment	4	.03%	133	148	20	0	6	447	<10	<.001%	1302
	APC-4	100'-200' slope	Past smelter shipment	4	.031%	107	178	20	0	7	574	<10	<.001%	1349
	APC-5	100'-200' slope	Past smelter shipment	4	.019%	107	155	20	0	8	532	<10	<.001%	1270
	1C-7C	100'-200' slope	Past smelter shipment	5	.012%	107	182	20	0	1	638	<10	<.001%	1419

# Certificate of Analysis

CERTIFICATE NO. 89-172-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Au		Ag		Ash Rich mine		
		Oz/T	Oz/T					
13190	1401	0.07	1.94			350'	level	APV
13191	1402	0.024	5.11			500'	ho	HWV
13192	1403	0.011	2.94			500'		APV
13193	1404	0.008	3.98	Underlyed		200-300'	Storage	HWV M.D. Schlotman
13194	1405	0.012	3.85	Finic		"		HWV
13195	1406	0.013	4.85	10 mesh		"	"	"
13196	1407	0.015	6.71	Course		"	"	"
13197	1408	0.013	6.47	"		"	"	"
<del>13198</del>	<del>1409</del>	<del>---</del>	<del>---</del>	<del>B-2</del>		<del>B-2</del>		
13199	1410	0.001	ND			1365	1369	
13200	1411	0.001	ND			1477	1481	
13201	1412	0.001	ND			1537	1541	
13202	1413	0.013	4.95	Shovel		HWV	200-300' 10 mesh	Finic
13203	1414	0.012	5.72	"		"	"	Course
13204	1415	0.001	ND			1530	1534	
13205	1416	0.001	ND			1629	1633	
13206	1417	ND	0.03			1641	1643	
13207	1418	0.001	ND			1647	1651	
13208	1419	ND	0.06			1733	1737	
13209	1420	ND	ND			1767	1771	

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

  
*Marvin D. Schlotman*  
 12210  
 MARVIN D. SCHLOTMAN  
 STATE OF IDAHO  
 U.S.A.

Total Charge \$ \_\_\_\_\_

ND (Nona Detected)

# Certificate of Analysis

CERTIFICATE NO. 89-172-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Au	Ag				
				Oz/T	Oz/T				
13190	1401			0.07	1.94				350' level APV
13191	1402			0.024	5.11				500' level HWV
13192	1403			0.011	2.94				500' level APV
13193	1404			0.008	3.98	Unleached	200-300'	Stoppe	HWV M <sub>2</sub> Run
13194	1405			0.012	3.85	Fine	"		HWV
13195	1406			0.013	4.85	Finest	"	"	"
13196	1407			0.015	6.71	Course	"	"	"
13197	1408			0.013	6.47	"	"	"	"
<del>13198</del>	<del>1409</del>			<del>0.011</del>	<del>6.71</del>	<del>B-2</del>	<del>B-2</del>		
13199	1410			0.001	ND		1365	1369	
13200	1411			0.001	ND		1477	1481	
13201	1412			0.001	ND		1537	1541	
13202	1413			0.013	4.95	Shredded	HWV	200-300'	Fine
13203	1414			0.012	5.72	"	"	"	Course
13204	1415			0.001	ND		1530	1534	
13205	1416			0.001	ND		1629	1633	
13206	1417			ND	0.03		1641	1643	
13207	1418			0.001	ND		1647	1651	
13208	1419			ND	0.06		1733	1737	
13209	1420			ND	ND		1767	1771	

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ \_\_\_\_\_

ND (None Detected)

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_



*Marvin D. Schloatman*  
 Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-111-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Cu	Pb	Zn	Mn
		ppm	ppm	ppm	ppm
13190	1401	52	102	66	>1000
13191	1402	105	129	108	368
13192	1403	93	187	354	354
13193	1404	81	49	51	390
13194	1405	146	227	216	>1000
13195	1406	137	217	196	>1000
13196	1407	124	112	125	963
13197	1408	158	187	169	>1000
13198	1409	49	31	27	-
13199	1410	32	30	24	-
13200	1411	71	16	29	-
13201	1412	57	15	27	-
13202	1413	128	191	209	>1000
13203	1414	129	116	164	980
13204	1415	143	21	34	-
13205	1416	172	20	30	-
13206	1417	1000	18	62	992
13207	1418	59	17	41	711
13208	1419	31	18	36	-
13209	1420	55	16	32	-

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

12	Cu, Pb Zn&Mn	@ \$ 6.50	:	\$ 78.00
8	Cu, Pb, Zn	@ \$ 5.50	:	\$ 44.00
		@ \$	:	\$
		@ \$	:	\$

Total Charge \$ 122.00

ND (None Detected) :



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-172-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As			
				ppm	ppm			
13190	1401			7	ND < 5			
13191	1402			8	ND < 5			
13192	1403			11	ND < 5			
<del>13193</del>	<del>1404</del>			<del>8</del>	<del>ND &lt; 5</del>			
13194	1405			3	ND < 5			
13195	1406			9	ND < 5			
13196	1407			10	ND < 5			
13197	1408			17	ND < 5			
13198	1409			-	ND < 5			
13199	1410			-	ND < 5			
13200	1411			-	ND < 5			
13201	1412			-	ND < 5			
13202	1413			10	ND < 5			
13203	1414			4	ND < 5			
13204	1415			-	ND < 5			
13205	1416			-	ND < 5			
13206	1417			2	ND < 5			
13207	1418			ND < 2	ND < 5			
13208	1419			-	ND < 5			
13209	1420			-	ND < 5			

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.:

12 Sb, As @ \$ 7.50 : \$ 90.00

8 As @ \$ 3.75 : \$ 30.00

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ 120.00

ND (None Detected)



# Certificate of Analysis

CERTIFICATE NO. 89-172-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Mo	Bi		
				ppm	ppm		
13190	1401			6	ND < 2		
13191	1402			11	ND < 2		
13192	1403			8	ND < 2		
13193	1404			10	ND < 2		
13194	1405			5	ND < 2		
13195	1406			5	ND < 2		
13196	1407			8	ND < 2		
13197	1408			7	ND < 2		
13198	1409			4	-		
13199	1410			3	-		
13200	1411			4	-		
13201	1412			3	-		
13202	1413			ND < 3	ND < 2		
13203	1414			5	ND < 2		
13204	1415			3	-		
13205	1416			4	-		
13206	1417			ND < 3	ND < 2		
13207	1418			3	ND < 2		
13208	1419			ND < 3	-		
13209	1420			ND < 3	-		

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

12	Mo, Bi	@ \$ 5.00	:	\$ 60.00
8	Mo	@ \$ 3.50	:	\$ 28.00
		@ \$	:	\$
		@ \$	:	\$

Total Charge \$ 88.00

ND (None Detected) ;



*Marvin D. Schlotman*

Registered Assayer

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-173-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Au	Ag				
				Oz/T	Oz/T				
13210	1421			ND	0.01			1813	1817
13211	1422			ND	ND			1843	1847
13212	1423			0.012	4.26	10 mesh	minerals	2-300	HWV
13213	1424			0.012	4.25	"	"	"	"
13214	1425			0.013	5.43	Coarse	"	"	"
13215	1426			0.013	4.59	"	"	"	"
13216	1427			0.023	9.78	Bound by mud	"	5-600	HWV
13217	1428			0.035	23.63	"	24-44ft	"	"
13218	1429			0.020	9.58	"	44-64	"	"
13219	1430			0.020	7.65	"	64-90	"	"
13220	1431			ND	0.19		1974	1876	
13221	1432			ND	0.01		1889	1891	
13222	1433			ND	0.26		1894	1896	
13223	1434			ND	ND		1915	1919	
13224	1435			ND	0.01		1945	1949	
13225	1436			ND	0.01		1991	1996	
13226	1437			ND	ND		2006	2010	
13227	1438			ND	ND		2043	2047	
13228	1439			ND	0.01		2060	2064	
13229	1440			ND	ND		2099	2103	

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_



ND (None Detected)

Total Charge \$ \_\_\_\_\_

# Certificate of Analysis

CERTIFICATE NO. 89-173-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Cu	Pb	Zn	Mn		
				ppm	ppm	ppm	ppm		
13210	1421			88	16	34	-		
13211	1422			109	19	43	-		
13212	1423			98	118	127	>1000		
13213	1424			118	133	145	>1000		
13214	1425			132	88	126	942		
13215	1426			534	871	>1000	>1000		
13216	1427			662	694	>1000	901		
13217	1428			633	673	>1000	889		
13218	1429			302	429	>1000	968		
13219	1430			352	780	>1000	>1000		
13220	1431			1000	24	30	>1000		
13221	1432			697	19	27	932		
13222	1433			1000	20	22	924		
13223	1434			82	20	27	-		
13224	1435			74	22	21	-		
13225	1436			19	20	31	-		
13226	1437			22	15	22	-		
13227	1438			18	19	27	-		
13228	1439			15	21	29	-		
13229	1440			33	18	40	-		

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

<u>Cu, Pb</u>					
11 Zn&Mn	@ \$ 6.50:	\$ 71.50			
9 Cu, Pb, Zn	@ \$ 5.50:	\$ 49.50			
	@ \$ :	\$			
	@ \$ :	\$			

Total Charge \$ 121.00

ND (None Detected) :



Registered Assayer

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-173-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As			
				ppm	ppm			
13210	1421			-	ND < 5			
13211	1422			-	ND < 5			
13212	1423			12	ND < 5			
13213	1424			9	ND < 5			
13214	1425			8	ND < 5			
13215	1426			6	ND < 5			
13216	1427			7	ND < 5			
13217	1428			6	ND < 5			
13218	1429			4	ND < 5			
13219	1430			5	ND < 5			
13220	1431			ND < 2	ND < 5			
13221	1432			ND < 2	ND < 5			
13222	1433			ND < 2	ND < 5			
13223	1434			-	ND < 5			
13224	1435			-	ND < 5			
13225	1436			-	ND < 5			
13226	1437			-	ND < 5			
13227	1438			-	ND < 5			
13228	1439			-	ND < 5			
13229	1440			-	ND < 5			

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

11 Sb&As @ \$ 7.50 : \$ 82.50  
 9 As @ \$ 3.75 : \$ 33.75  
 @ \$ : \$  
 @ \$ : \$

Total Charge \$: 116.25

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-173-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Mo	B1				
		ppm	ppm				
13210	1421	4	-				
13211	1422	5	-				
13212	1423	3	ND < 2				
13213	1424	6	ND < 2				
13214	1425	5	ND < 2				
13215	1426	10	ND < 2				
13216	1427	6	ND < 2				
13217	1428	8	ND < 2				
13218	1429	3	ND < 2				
13219	1430	5	ND < 2				
13220	1431	ND < 3	ND < 2				
13221	1432	4	ND < 2				
13222	1433	6	ND < 2				
13223	1434	6	-				
13224	1435	4	-				
13225	1436	ND < 3	-				
13226	1437	3	-				
13227	1438	ND < 3	-				
13228	1439	ND < 3	-				
13229	1440	ND < 3	-				

**STATEMENT OF CHARGES. INVOICE WILL FOLLOW.**

11	Mo, B1	@ \$ 5.00 :	\$ 55.00
9	Mo	@ \$ 3.50 :	\$ 31.50
		@ \$ _____ :	\$ _____
		@ \$ _____ :	\$ _____

Total Charge \$ 86.50

ND (None Detected)



Registered Assayer

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-174-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Au		Ag				
		Oz/T	Oz/T	Oz/T	Oz/T			
13230	1441	ND	ND			2103	2107	
13231	1442	ND	ND			2107	2111	
13232	1443	ND	ND			2111	2115	
13233	1444	ND	ND			2115	2119	
13234	1445	ND	ND			2119	2123	
13235	1446	ND	0.01			2123	2127	
13236	1447	ND	ND			2127	2131	
13237	1448	ND	0.08			2131	2135	
13238	1449	ND	ND			2135	2139	
13239	1450	ND	0.01			2139	2143	
13240	1451	ND	ND			2143	2147	
13241	1452	ND	ND			2147	2151	
13242	1453	ND	0.01			2151	2155	
13243	1454	ND	ND			2155	2159	
13244	1455	ND	ND			2159	2163	
13245	1456	ND	ND			2163	2167	
13246	1457	ND	ND			2167	2171	
13247	1458	ND	ND			2171	2175	
13248	1459	ND	ND			2175	2179	
13249	1460	ND	0.01			2179	2183	

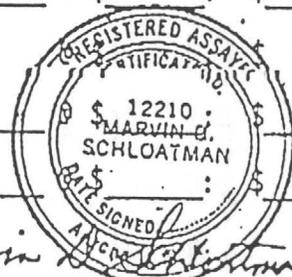
STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ \_\_\_\_\_

ND (None Detected)

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_



*Marvin G. Schloatman*

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-174-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Cu	Pb	Zn	Mn		
				ppm	ppm	ppm	ppm		
13230	1441			82	12	27	-		
13231	1442			74	10	31	-		
13232	1443			34	7	29	-		
13233	1444			50	8	30	-		
13234	1445			55	8	34	-		
13235	1446			37	7	31	-		
13236	1447			74	8	33	-		
13237	1448			>1000	11	91	-		
13238	1449			51	6	26	-		
13239	1450			50	13	28	-		
13240	1451			71	13	36	-		
13241	1452			62	16	35	-		
13242	1453			60	17	36	-		
13243	1454			35	19	37	-		
13244	1455			52	15	36	-		
13245	1456			37	16	38	-		
13246	1457			66	17	35	-		
13247	1458			26	18	31	-		
13248	1459			20	17	30	-		
13249	1460			46	19	34	820		

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

- Cu, Pb					
1	Zn&Mn	@ \$ 6.50	:	\$ 6.50	
19	Cu, Pb, Zn	@ \$ 5.50	:	\$ 104.50	
		@ \$	:	\$	
		@ \$	:	\$	

Total Charge \$ 111.00

ND (None Detected)



*Marvin O. Schloatman*  
Registered Assayer

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-174-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As				
				ppm	ppm				
13230	1441			-	ND < 5				
13231	1442			-	ND < 5				
13232	1443			-	ND < 5				
13233	1444			-	ND < 5				
13234	1445			-	ND < 5				
13235	1446			-	ND < 5				
13236	1447			-	ND < 5				
13237	1448			-	ND < 5				
13238	1449			-	ND < 5				
13239	1450			-	ND < 5				
13240	1451			-	ND < 5				
13241	1452			-	ND < 5				
13242	1453			-	ND < 5				
13243	1454			-	ND < 5				
13244	1455			-	ND < 5				
13245	1456			-	ND < 5				
13246	1457			-	ND < 5				
13247	1458			-	ND < 5				
13248	1459			-	ND < 5				
13249	1460			ND < 2	ND < 5				

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

1	Sb, As	@ \$ 7.50	:	\$ 7.50					
19	As	@ \$ 3.75	:	\$ 71.25					
		@ \$	:	\$					
		@ \$	:	\$					

Total Charge \$ 78.75

ND (None Detected)



*Marvin O. Schloatman*  
Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-174-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

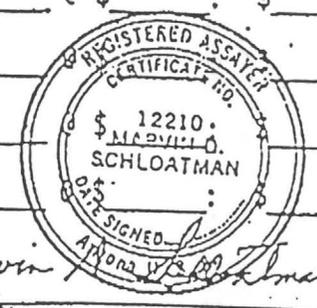
MSRD NO.	SAMPLE IDENTIFICATION			Mo	Bi				
				ppm	ppm				
13230	1441			3	-				
13231	1442			3	-				
13232	1443			3	-				
13233	1444			ND < 3	-				
13234	1445			ND < 3	-				
13235	1446			ND < 3	-				
13236	1447			ND < 3	-				
13237	1448			ND < 3	-				
13238	1449			ND < 3	-				
13239	1450			ND < 3	-				
13240	1451			ND < 3	-				
13241	1452			4	-				
13242	1453			3	-				
13243	1454			ND < 3	-				
13244	1455			ND < 3	-				
13245	1456			4	-				
13246	1457			ND < 3	-				
13247	1458			ND < 3	-				
13248	1459			ND < 3	-				
13249	1460			ND < 3	ND < 2				

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

1 Mo, Bi @ \$ 5.00 : \$ 5.00  
 19 Mo @ \$ 3.50 : \$ 66.50  
 @ \$ : \$  
 @ \$ : \$

Total Charge \$ 71.50

ND (None Detected)



*Marvin A. Schloatman*  
 Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-175-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Au		Ag				
		Oz/T	Oz/T	Oz/T	Oz/T			
13250	1461	ND	ND			2183	2185	
13251	1462							
13252	1463							
13253	1464							
13254	1465							
13255	1466							
13256	1467							
13257	1468	ND	ND			2195	2205	
13258	1469	ND	0.04			2205	2207	
13259	1470	ND	0.17			2207	2211	
13260	1471	ND	ND			2211	2215	
13161	1472	ND	0.07			2215	2219	
13262	1473	ND	ND			2219	2223	
13263	1474	ND	ND			2223	2227	
13264	1475	ND	ND			2227	2231	
13265	1476	ND	0.01			2231	2235	
13266	1477	ND	ND			2235	2239	
13267	1478	ND	ND			2239	2243	
13268	1479	ND	ND			2243	2247	
13269	1480	ND	0.01			2247	2251	

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

	@ \$	:	\$	
	@ \$	:	\$	
	@ \$	:	\$	
	@ \$	:	\$	

@ \$ : \$

@ \$ : \$

@ \$ : \$

@ \$ : \$

REGISTERED ASSAYER  
CERTIFICATE NO.  
12210  
MARVIN D.  
SCHLOATMAN  
STATE OF NEVADA  
U.S.

SIGNED  
Marvin D. Schloatman

Total Charge \$: \_\_\_\_\_

ND (None Detected)

# Certificate of Analysis

CERTIFICATE NO. 89-175-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Cu	Pb	Zn	Mn
		ppm	ppm	ppm	ppm
13250	1461	29	11	41	983
13151	1462	33	25	187	>1000
13252	1463	21	33	17	>1000
13253	1464	106	56	55	>1000
13254	1465	562	83	339	404
13255	1466	>1000	101	>1000	570
13256	1467	40	46	49	814
13257	1468	102	114	97	826
13258	1469	39	35	34	811
13259	1470	40	31	45	782
13260	1471	28	24	42	803
13261	1472	33	19	36	766
13262	1473	29	22	33	682
13263	1474	50	24	25	795
13264	1475	44	50	53	894
13265	1476	82	201	147	676
13266	1477	71	94	113	687
13267	1478	44	33	34	795
13268	1479	52	26	40	780
13269	1480	36	34	31	732

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

Cu, Pb	@ \$ 6.50	:	\$ 130.00
20 Zn&Mn	@ \$	:	\$
	@ \$	:	\$
	@ \$	:	\$

Total Charge \$ 130.00

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-175-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As			
				ppm	ppm			
13250	1461			ND < 2	ND < 5			
13151	1462			ND < 2	ND < 5			
13252	1463			ND < 2	ND < 5			
13253	1464			3	ND < 5			
13254	1465			2	ND < 5			
13255	1466			2	ND < 5			
13256	1467			5	ND < 5			
13257	1468			ND < 2	ND < 5			
13258	1469			4	ND < 5			
13259	1470			ND < 2	ND < 5			
13260	1471			ND < 2	ND < 5			
13261	1472			2	ND < 5			
13262	1473			ND < 2	ND < 5			
13263	1474			2	ND < 5			
13264	1475			3	ND < 5			
13265	1476			ND < 2	ND < 5			
13266	1477			ND < 2	ND < 5			
13267	1478			ND < 2	ND < 5			
13268	1479			ND < 2	ND < 5			
13269	1480			ND < 2	ND < 5			

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

20	Sb, As	@ \$ 7.50	:	\$ 150.00
_____		@ \$ _____	:	\$ _____
_____		@ \$ _____	:	\$ _____
_____		@ \$ _____	:	\$ _____

Total Charge \$ 150.00

ND (None Detected)

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

REGISTERED ASSAYER  
CERTIFICATE NO. 12210  
MARTIN G. SCHLOATMAN  
BY SIGNATURE  
112200

Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-175-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Mo	Bi			
				ppm	ppm			
13250	1461			3	ND < 2			
13151	1462			3	ND < 2			
13252	1463			6	ND < 2			
13253	1464			3	ND < 2			
13254	1465			5	ND < 2			
13255	1466			5	ND < 2			
13256	1467			4	ND < 2			
13257	1468			5	ND < 2			
13258	1469			5	ND < 2			
13259	1470			5	ND < 2			
13260	1471			4	ND < 2			
13261	1472			4	ND < 2			
13262	1473			5	ND < 2			
13263	1474			10	ND < 2			
13264	1475			5	ND < 2			
13265	1476			8	ND < 2			
13266	1477			6	ND < 2			
13267	1478			6	ND < 2			
13268	1479			5	ND < 2			
13269	1480			3	ND < 2			

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

20	Mo, Bi	@ \$ 5.00	:	\$ 100.00
_____		@ \$ _____	:	\$ _____
_____		@ \$ _____	:	\$ _____
_____		@ \$ _____	:	\$ _____

Total Charge \$ 100.00

hard-08



Registered Assayer

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC**

CERTIFICATE NO. 89-176-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION	Au		Ag			
		Oz/T	Oz/T	Oz/T	Oz/T		
13270	1481	0.001	0.03			2255	2255
						↓	↓
13271	1482	ND	ND			2255	2259
13272	1483	ND	0.01			2259	2263
13273	1484	ND	0.01			2267	2267
13274	1485	ND	ND			2267	2271
13275	1486	ND	ND			2271	2275
13276	1487	ND	ND			2275	2275
13277	1488	ND	0.02			2279	2283
13278	1489	ND	0.01			2283	2287
13279	1490	ND	ND			2287	2291
13280	1491	ND	0.01			2291	2295
13281	1492	ND	ND			2295	2299
13282	1493	ND	ND			2299	2303
13283	1494	ND	ND			2303	2307
13284	1495	ND	ND			2307	2311
13285	1496	ND	0.01			2311	2315
13286	1497	ND	ND			2315	2319
13287	1498	ND	0.01			2319	2323
13288	1499	ND	ND			2323	2327
13289	1500	ND	0.01			2327	2331

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ + \_\_\_\_\_ : \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_



*Marvin S. Schulman*  
Registered Assayer

Total Charge \$ \_\_\_\_\_

ND (None Detected)

# Certificate of Analysis

CERTIFICATE NO. 89-176-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

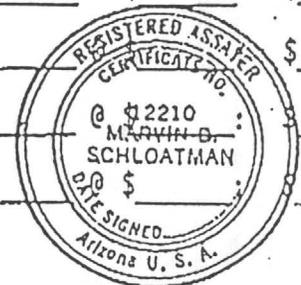
MSRD NO.	SAMPLE IDENTIFICATION			Cu	Pb	Zn	Mn		
				ppm	ppm	ppm	ppm		
13270	1481			61	43	27	721		
13271	1482			34	30	24	590		
13272	1483			31	34	29	632		
13273	1484			29	35	26	661		
13274	1485			35	40	21	634		
<del>13275</del>	<del>1486</del>			<del>26</del>	<del>33</del>	<del>27</del>	<del>645</del>		
13276	1487			37	23	38	655		
13277	1488			28	19	27	562		
13278	1489			30	22	33	551		
13279	1490			28	21	31	601		
13280	1491			30	27	39	571		
13281	1492			32	33	58	530		
13282	1493			32	27	41	455		
13283	1494			36	34	50	606		
13284	1495			30	29	42	437		
13285	1496			33	21	24	373		
13286	1497			42	25	35	619		
13287	1498			61	41	44	634		
13288	1499			44	43	55	498		
13289	1500			60	46	79	520		

**STATEMENT OF CHARGES. INVOICE WILL FOLLOW.**

20 Cu, Pb @ \$ 6.50 : \$ 130.00  
 Zn&Mn @ \$ : \$  
 @ \$ : \$  
 @ \$ : \$

Total Charge \$ 130.00

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-176-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As				
				ppm	ppm				
13270	1481			2	ND < 5				
13271	1482			3	ND < 5				
13272	1483			5	ND < 5				
13273	1484			ND < 2	ND < 5				
13274	1485			3	ND < 5				
13275	1486			3	ND < 5				
13276	1487			ND < 2	ND < 5				
13277	1488			ND < 2	ND < 5				
13278	1489			ND < 2	ND < 5				
13279	1490			ND < 2	ND < 5				
13280	1491			ND < 2	ND < 5				
13281	1492			ND < 2	ND < 5				
13282	1493			ND < 2	ND < 5				
13283	1494			ND < 2	ND < 5				
13284	1495			ND < 2	ND < 5				
13285	1496			ND < 2	ND < 5				
13286	1497			ND < 2	ND < 5				
13287	1498			ND < 2	ND < 5				
13288	1499			ND < 2	ND < 5				
13289	1500			ND < 2	ND < 5				

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

20 Sb, As @ \$ 7.50 : \$ 150.00  
 @ \$ : \$  
 @ \$ : \$  
 @ \$ : \$

ND (None Detected)



Registered Assayer

Total Charge \$ 150.00

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-176-E

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Mo	B1			
				ppm	ppm			
13270	1481			39	ND < 2			
13271	1482			5	ND < 2			
13272	1483			3	ND < 2			
13273	1484			6	ND < 2			
13274	1485			8	ND < 2			
13275	1486			4	ND < 2			
13276	1487			3	ND < 2			
13277	1488			ND < 3	ND < 2			
13278	1489			ND < 3	ND < 2			
13279	1490			ND < 3	ND < 2			
13280	1491			4	ND < 2			
13281	1492			3	ND < 2			
13282	1493			ND < 3	ND < 2			
13283	1494			4	ND < 2			
13284	1495			ND < 3	ND < 2			
13285	1496			4	ND < 2			
13286	1497			4	ND < 2			
13287	1498			5	ND < 2			
13288	1499			5	ND < 2			
13289	1500			5	ND < 2			

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

20 Mo, B1 @ \$ 5.00 : \$ 100.00  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ 100.00

ND (None Detected)

# Certificate of Analysis

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

CERTIFICATE NO. 89-177-E

PROJECT NO. 1122

DATE 5-23-89

MOON NO.	SAMPLE IDENTIFICATION	As						
		Oz/T	Oz/T					
							2348	2352
13290	1501	ND	0.01	✓			2364	2366
13291	1502	ND	0.01	✓			2382	2386
13292	1503	ND	ND	✓			2390	2394
13293	1504	ND	0.03	✓			2458	2461.5
13294	1505	ND	ND	✓			246.5	2464
13295	1506	ND	ND	✓			2464	2468
13296	1507	ND	0.01	✓			2483	2487
13297	1508	ND	ND	✓			2497	2501
13298	1509	ND	ND	✓			2516	2520
13299	1510	ND	ND	✓			2530	2534
13300	1511	ND	ND	✓			2544	2546
13301	1512	ND	ND	✓			2541	2543
13302	1513	ND	ND	✓				
13303	1514	ND	ND				2554	2558
13304	1515	ND	ND				2560	2560.5
13305	1994	0.008	1.57			#2 Debris	~100L	APV
13306	1995	0.023	8.66			Sluff	100x	"
13307	1996	0.006	1.19				200L	"
13308	1997	0.010	2.44				200L	HWU
13309	1998	0.188	48.16				200L	"

STATEMENT OF CHARGES, INVOICE WILL FOLLOW.

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ \_\_\_\_\_

ND (None Detected)

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

# Certificate of Analysis

CERTIFICATE NO. 89-177-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Cu	Pb	Zn	Mn		
				ppm	ppm	ppm	ppm		
13290	1501			31	45	33	652		
13291	1502			65	213	36	462		
13292	1503			66	67	125	576		
13293	1504			55	116	111	758		
13294	1505			45	12	38	>1000		
13295	1506			44	10	28	>1000		
13296	1507			22	8	30	>1000		
13297	1508			29	6	24	943		
13298	1509			15	10	27	>1000		
13299	1510			44	11	26	834		
13300	1511			8	5	28	>1000		
13301	1512			12	9	29	964		
13302	1513			7	7	27	>1000		
13303	1514			47	5	26	935		
13304	1515			9	8	27	915		
13305	1994			76	30	23	>1000		
13306	1995			112	165	140	718		
13307	1996			50	24	17	>1000		
13308	1997			128	211	52	>1000		
13309	1998			582	896	>1000	537		

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

Cu, Pb  
 20 Zn&Mn @ \$ 6.50 : \$ 130.00  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ 130.00

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-177-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Sb	As				
				ppm	ppm				
13290	1501			ND < 2	ND < 5				
13291	1502			ND < 2	ND < 5				
13292	1503			ND < 2	ND < 5				
13293	1504			ND < 2	ND < 5				
13294	1505			ND < 2	ND < 5				
13295	1506			ND < 2	ND < 5				
13296	1507			ND < 2	ND < 5				
13297	1508			ND < 2	ND < 5				
13298	1509			ND < 2	ND < 5				
13299	1510			ND < 2	ND < 5				
13300	1511			ND < 2	ND < 5				
13301	1512			ND < 2	ND < 5				
13302	1513			ND < 2	ND < 5				
13303	1514			ND < 2	ND < 5				
13304	1515			ND < 2	ND < 5				
13305	1994			13	ND < 5				
13306	1995			8	ND < 5				
13307	1996			12	ND < 5				
13308	1997			3	ND < 5				
13309	1998			15	ND < 5				

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

20 Sb, As @ \$ 7.50 : \$ 150.00  
 @ \$ : \$  
 @ \$ : \$  
 @ \$ : \$

Total Charge \$ 150.00

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-156-D

MOUNTAIN STATES  
R & D INTERNATIONAL, INC.

PROJECT NO. 1122

DATE 4-20-89

MSRD NO.	SAMPLE IDENTIFICATION	Au	Ag	Cu	Pb	Zn
		Oz/T	Oz/T	ppm	ppm	ppm
9621	1905	0.001	ND	154	21	95
9622	1906	ND	ND	84	24	80
9623	1907	0.001	0.01	44	17	77
9624	1908	ND	ND	38	14	72
9625	1909	ND	0.02	72	11	64
9626	1910	ND	ND	36	24	87
9627	1911	ND	0.02	60	28	65
9628	1912	ND	ND	33	24	72
9629	1913	ND	0.01	24	33	74
9630	1914	ND	ND	22	31	83
9631	1915	ND	0.02	44	23	98
9632	1916	ND	ND	55	32	104
9633	1917	ND	ND	51	38	60
9634	1918	ND	0.06	33	29	54
9635	1919	ND	0.04	34	14	38
9636	1920	ND	ND	26	22	35
9637	1921	ND	ND	29	27	24
9638	1922	ND	ND	28	23	28
9639	1923	ND	0.04	38	20	26
9640	1924	ND	0.10	51	28	40

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

Fire Assay ---  
 20 Au&Ag @ \$ 10.00 : \$ 200.00  
 20 Cu, Pb, Zn \$ 5.50 : \$ 110.00  
 @ \$ : \$  
 @ \$ : \$

Total Charge \$ 310.00

ND (None Detected)



*Marvin O. Schlotman*  
Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-157-D

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 4-20-89

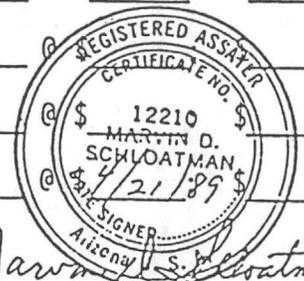
MSRD NO.	SAMPLE IDENTIFICATION			Au	Ag	Cu	Pb	Zn	
				Oz/T	Oz/T	ppm	ppm	ppm	
9641	1925			ND	0.04	44	38	41	
9642	1926			ND	0.01	40	41	39	
9643	1927			ND	ND	72	40	32	
9644	1928			0.002	0.42	86	47	96	
9645	1929			0.001	0.10	104	33	80	
9646	1930			0.001	0.14	62	62	94	
9647	1931			ND	0.05	33	58	220	
9648	1932			0.001	0.12	30	16	90	
9649	1933			ND	0.15	44	14	99	
9650	1934			ND	0.03	28	21	92	
9651	1935			ND	ND	31	22	90	
9652	1936			ND	ND	44	12	100	
9653	1937			0.001	ND	52	11	104	
9654	1938			ND	ND	50	18	108	
9655	1939			0.001	ND	54	12	102	
9656	1940			ND	ND	50	15	88	
9657	1941			0.001	ND	71	38	104	
9658	1942			ND	ND	75	40	89	
9659	1943			0.002	ND	61	27	128	
9660	1944			0.001	0.07	71	55	148	

STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

Fire Assay  
 20 Au&Ag @ \$ 10.00 : \$ 200.00  
 20 Cu, Pb, Zn @ \$ 5.50 : \$ 110.00  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ 310.00

ND (None Detected)



*Martin D. Schloatman*  
 Registered Assayer

# Certificate of Analysis

MOUNTAIN STATES  
R & D INTERNATIONAL, INC.

CERTIFICATE NO. 89-158-D

PROJECT NO. 1122

DATE 4-20-89

MSRD NO.	SAMPLE IDENTIFICATION	As	Au	Ag	Cu	Pb	Zn	Sb
		ppm	Oz/T	Oz/T	ppm	ppm	ppm	ppm
9661	1945		0.001	0.07	56	72	212	
9662	1946		0.001	0.13	84	78	146	
9663	1947		ND	0.08	42	58	138	
9664	1948		ND	0.01	44	33	120	
9665	1949		ND	0.04	61	28	86	
9666	1950		ND	0.16	53	41	101	
9667	1951 Duplicate	ND < 2	ND	0.87	44	148	161	ND < :
9668	1952	"	0.128	27.08	191	880	>1000	"
9669	1953	"	0.112	26.84	101	1200	>1000	"
9670	1954	"	0.06	5.59	162	1010	>1000	"
9671	1955	"	0.002	5.57	120	724	>1000	"
9672	1956	"	0.002	0.60	48	360	>1000	8
9673	1957	"	0.002	0.56	348	462	180	12
9674	1958	"	0.005	0.54	44	112	162	10
9675	1959	"	0.004	0.48	50	134	175	16
9676	1960		0.013	1.29	32	82	163	
9677	1961		0.012	1.23	30	81	134	
9678	1962		0.020	2.04	55	99	197	
9679	1963		0.017	2.11	54	70	154	
9680	1964		0.001	0.51	40	64	127	
			0.001	0.41				
			ND	0.32				
			ND	0.29				
			ND	0.23				
			ND	0.39				
			0.007	2.07				
			ND	0.19				
			ND	0.16				

**STATEMENT OF CHARGES. INVOICE WILL FOLLOW.**

Fire Assay  
 29 Au&Ag @ \$ 10.00 : \$ 280.00  
 20 Cu, Pb, Zr @ \$ 5.50 : \$ 110.00  
 9 As, Sb @ \$ 7.50 : \$ 67.50  
 @ \$ : \$

Total Charge \$ 457.50  
 mard-08

ND (None Detected)



Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-159-D

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 4-20-89

MSRD NO.	SAMPLE IDENTIFICATION	As	Au	Ag	Cu	Pb	Zn	Sb
		ppm	Oz/T	Oz/T	ppm	ppm	ppm	ppm
9681	1965		ND	0.01	32	53	154	
9682	1966		0.001	0.21	64	85	160	
9683	1967		ND	0.03	102	79	138	
9684	1968		0.001	0.15	76	66	110	
9685	1969		ND	0.09	64	54	118	
9686	1970		ND	0.11	72	88	158	
9687	1971		ND	0.16	55	102	162	
9688	1972 Duplicate	18	ND	0.33	74	161	284	ND < 2
9689	1973	10	0.004	1.09	144	244	>1000	ND < 2
9690	1974	12	0.015	2.17	208	596	>1000	3
9691	1975	9	0.003	1.45	518	948	>1000	ND < 2
9692	1976	7	0.002	1.40	127	348	492	ND < 2
9693	1977		ND	0.32	70	218	265	
9694	1978		ND	0.36	102	202	384	
9695	1979		ND	0.24	80	161	354	
9696	1980		ND	0.09	62	92	222	
9697	1981		ND	0.02	61	62	105	
9698	1982		ND	0.02	84	144	222	

**STATEMENT OF CHARGES. INVOICE WILL FOLLOW.**

23 Fire Assay Au&Ag @ \$10.00 : \$230.00      78 Prep @ \$5.00 : \$390.00  
18 Cu, Pb, Zn @ \$5.50 : \$99.00  
5 As&Sb @ \$7.50 : \$37.50  
30' x @ \$5.00 : \$150.00 (Core Sawing)

Total Charge \$ 906.50

ND (None Detected)

msrd-03



*Marvin D. Schlotman*  
 Registered Assayer

# Certificate of Analysis

CERTIFICATE NO. 89-177-E

**MOUNTAIN STATES  
R & D INTERNATIONAL, INC.**

PROJECT NO. 1122

DATE 5-23-89

MSRD NO.	SAMPLE IDENTIFICATION			Mo	B1				
				ppm	ppm				
13290	1501			5	ND < 2				
13291	1502			4	ND < 2				
13292	1503			4	ND < 2				
13293	1504			4	ND < 2				
13294	1505			3	ND < 2				
13295	1506			ND < 3	ND < 2				
13296	1507			ND < 3	ND < 2				
13297	1508			ND < 3	ND < 2				
13298	1509			ND < 3	ND < 2				
13299	1510			ND < 3	ND < 2				
13300	1511			ND < 3	ND < 2				
13301	1512			ND < 3	ND < 2				
13302	1513			ND < 3	ND < 2				
13303	1514			ND < 3	ND < 2				
13304	1515			ND < 3	ND < 2				
13305	1994			3	ND < 2				
13306	1995			3	ND < 2				
13307	1996			6	ND < 2				
13308	1997			5	ND < 2				
13309	1998			10	ND < 2				

### STATEMENT OF CHARGES. INVOICE WILL FOLLOW.

20 Mo, B1 @ \$ 5.00 : \$ 100.00  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

\_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_  
 \_\_\_\_\_ @ \$ \_\_\_\_\_ : \$ \_\_\_\_\_

Total Charge \$ 100.00

ND (None Detected)











## A.F. BUDGE (MINING) LIMITED

TO: A.F. Budge  
R.R. Short  
C.A. O'Brien  
D.A. Allen

DATE: May 10, 1989

COPIES: File

FROM: J.W. Norby  
J.A. McKenney

SUBJECT: ASH PEAK DRILL PROGRAM UPDATE

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A two hole core drill program at Ash Peak is designed to follow the relatively low grade Ash Peak silver vein system (5.5 - 8 oz silver/ton historical and current production grades) down-dip through relatively unprospective volcanic host rock to underlying and more prospective (reactive) sedimentary rocks. If these sediments are limestone or contain limey or silty beds, then relatively rich silver - base metal manto ore (finger like replacements out into the surrounding sediments) is possible in the vicinity of the vein. Depth to these sediments is a significant economic consideration and the favorable composition of these sediments can not be projected into the Ash Peak area from regional geologic maps with certainty.

The first hole, B-1, was designed to intersect the vein at relatively shallow depth in order to 1) confirm the local dip of the vein, 2) obtain a relatively shallow vein geochemical signature for comparison with a deeper intersection, and 3) gain experience with the critical drill deviation. B-1 (-70 degrees, N40E) was collared April 3, 1989 and completed April 15 at a depth of 1201 feet. The Ash Peak Vein was intersected 860 feet down-dip from the surface (beneath the Hardy Shaft headframe), confirming an 80 degree southwest dip. The intersection is 6.0 true feet thick and grades 5.72 oz silver/ton and 0.025 oz gold/ton, which is uneconomic. The hanging wall portion of the vein is of higher tenor containing 1.8 true feet grading 16.26 oz silver/ton and 0.019 oz gold/ton. The vein also contains a weighted average 0.160 % zinc, 754 ppm lead, 170 ppm copper, 4 ppm antimony, <2 ppm arsenic, and 0.021 % manganese. A second, thin silver vein with marginal breccias was intersected 31 true feet footwall to the Ash Peak vein. This footwall vein-breccia package is 4.2 true feet wide and grades 1.36 oz silver/ton and 0.006 oz gold/ton (0.150 % zinc, 421 ppm lead, 213 ppm copper, <2 ppm antimony, 10 ppm arsenic, and 0.039 % manganese). Drilling costs for B-1 totalled \$31,000 or \$26.09/foot. Assay costs were \$2,603.

The second hole, B-2 (-68 degrees, N44E), was collared April 21 and is at 1800 feet as of this writing. It is designed to intersect the vein at a depth more than twice that of B-1, and to test for underlying sediments within an economic depth. At

May 10, 1989

the current angle (-74 degrees) the vein intercept is projected to be at 2100-2200 foot drill depth (2050 feet down-dip from the surface). The hole will be continued to approximately 2500 feet (2380 feet below the surface) primarily to test for underlying sediments containing manto mineralization, and secondarily to test for parallel veins.

This two hole deep drill program will satisfy the \$100,000 minimum expenditure requirement of the six month option period ending September 7, 1989. An additional \$75,000 payment is required to extend the option another six months. If no basement sediments are intersected within the 2380 foot section tested by B-2, then additional deeper drill tests are not recommended because the target would be at an uneconomic depth. Exploration of the silver vein system is also not recommended based on its historically low grade. An economic evaluation of the development and mining of a silver vein reserve at Ash Peak suggests a negative cash flow. This evaluation is detailed in a separate forthcoming memo.



MEMO

To: A.F. Budge  
R. Short  
C. O'Brien  
D. Allen  
J. Norby

Date: May 21, 1989

Copies: File

From: John McKenney

Subject: Ash Peak Drill Program Update

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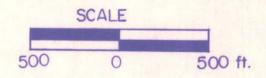
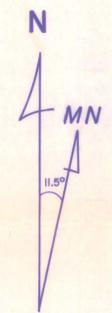
A two hole diamond drill program at Ash Peak was completed on May 17, 1989. The purpose of the second hole, D.D.H. B-2 was to test the continuity and tenor of the Ash Peak vein system at approximately 2,000' below the surface and, more importantly, to search for favorable sedimentary rocks that could host major silver/base metal/manto type ore deposits. Hole B-2 was begun on April 21, 1989, and completed on May 17, 1989. The hole was drilled 2,564' at an average angle of 72.5°. This represents a vertical penetration of 2,444' below the collar of the hole. A hanging wall vein of the Ash Peak structure was penetrated at 2,185.7' and had a true width of 0.42'. A second and final vein was penetrated at 2,186.3' and had true width of 1.43'. A weak to moderately brecciated and silicified footwall zone of 44' (true width) was then penetrated. Eight feet of core (3.4' true width) of this footwall zone was lost due to unavoidable drilling problems. Assay results from this hole are expected by the end of this week. The hole bottomed in volcanic rock. No potentially favorable sedimentary host rocks were encountered. A summary report will follow this memo after all assay results are received.

PLATE I





Ash Peak Geochemical Data from Shamrock Mine												
Shaft Level	Vein	Au OPT	Ag OPT	Cu ppm	Pb ppm	Zn ppm	Mo ppm	As ppm	Sb ppm	Bi ppm	Ba ppm	Mn ppm
100'	Ash Peak	.008	1.57	76	30	23	3	ND	13	ND		>1000
100'	Ash Peak	.023	8.66	112	165	140	3	ND	8	ND		718
100'-200'	H.W.	.012	3.77	.03%	173	220	20	9	596	ND	ND	2907
100'-200'	H.W.	.012	3.57	.015%	120	209	20	4	788	ND	ND	2256
100'-200'	H.W.	.020	3.37	.043%	107	155	30	4	702	ND	ND	1302
100'-200'	H.W.	.020	3.79	.02%	133	155	20	4	702	ND	ND	1302
100'-200'	H.W.	.012	3.68	.012%	133	192	10	7	787	ND	ND	2558
100'-200'	H.W.	.022	3.91	.013%	120	178	20	7	638	ND	ND	1721
100'-200'	H.W.	.03	3.92	.03%	133	148	20	6	447	ND	ND	1302
100'-200'	H.W.	.014	3.92	.031%	107	178	20	7	574	ND	ND	1349
100'-200'	H.W.	.015	4.48	.019%	107	155	120	8	532	ND	ND	1279
100'-200'	H.W.	.018	4.85	.012%	107	182	20	1	638	ND	ND	1419
200'	Ash Peak	.006	1.19	50	24	17	6	ND	12	ND		>1000
200'	Ash Peak	.010	2.44	128	211	52	5	ND	3	ND		>1000
200'	H.W.	.188	48.16	582	896	>1000	10	ND	15	ND		537
200'-300'	H.W.	.008	3.98	81	49	51	10	ND	8	ND		390
200'-300'	H.W.	.012	3.85	146	227	216	5	ND	3	ND		>1000
200'-300'	H.W.	.013	4.85	137	217	196	5	ND	9	ND		>1000
200'-300'	H.W.	.015	6.71	124	112	125	8	ND	10	ND		963
200'-300'	H.W.	.013	6.47	158	187	169	7	ND	17	ND		>1000
200'-300'	H.W.	.013	4.95	128	191	209	ND	ND	10	ND		>1000
200'-300'	H.W.	.012	5.72	129	116	164	5	ND	4	ND		980
200'-300'	H.W.	.012	4.26	98	118	127	3	ND	12	ND		>1000
200'-300'	H.W.	.012	4.25	118	133	145	6	ND	9	ND		>1000
200'-300'	H.W.	.013	5.43	132	88	126	5	ND	8	ND		942
200'-300'	H.W.	.013	4.59	534	871	>1000	10	ND	6	ND		>1000
300'	Ash Peak	.003	0.49	38	30	7	5	ND	10	ND		850
350'	Ash Peak	.012	2.44	61	85	65	4	ND	15	ND		687
350'	Ash Peak	.070	1.94	52	102	66	6	ND	7	ND		>1000
300'	H.W.	.024	5.11	105	129	108	11	ND	8	ND		368
300'	Ash Peak	.011	2.94	93	187	354	8	ND	11	ND		354
300'-324'	H.W.	.023	9.78	662	694	>1000	6	ND	7	ND		901
324'-344'	H.W.	.035	23.63	633	673	>1000	8	ND	6	ND		889
344'-566'	H.W.	.020	9.58	302	429	>1000	3	ND	4	ND		968
364'-590'	H.W.	.020	7.65	359	780	>1000	5	ND	5	ND		>1000



- PLATE I -

**A.F. Budge (Mining) Limited**

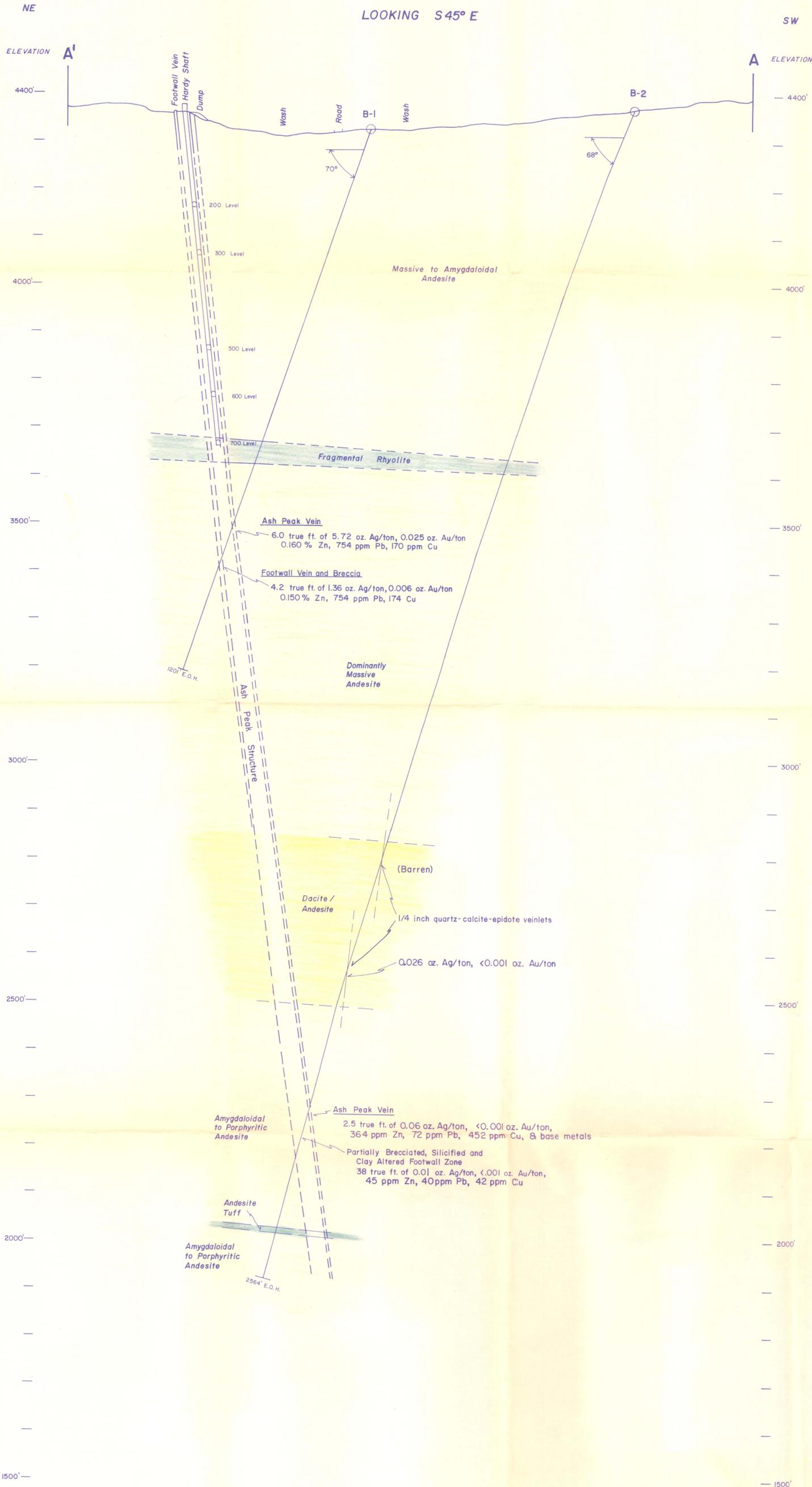
**ASH PEAK PROJECT**  
**PLAN MAP**

Sections 2, 3, 10, 11 T8S, R30E G&SRM  
Graham & Greenlee Counties, Arizona

SCALE 1" = 500'	BY: JA McKenney	DATE: 6/89
Contour Interval = 40'	JW Norby	DRAFTING: G.H.

N45°E CROSS SECTION THROUGH HARDY SHAFT

LOOKING S45° E



NO VERTICAL EXAGGERATION

-PLATE 2-

A. F. Budge (Mining) Limited			
ASH PEAK DEEP DRILL PROGRAM			
CROSS SECTION OF DRILL HOLES			
Section 3, T8S, R30E			
Greenlee County, Arizona			
SCALE:	V: 1"=100'	BY: JA McKenney	DATE: 6/89
	H: 1"=100'	JW Norby	DRAFTING: G.H.