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January 20,1984

DMEA Ltd, Suite F.
4203 North Brown Avenue
Scottsdale,Arizona 85251

Re : MINING PROPERTY.

Att : Mr Ben F. Dickerson

RECEIVED JAN 2 1 1984

Dear Mr Dickerson :

I am the sole owner of a group of 25 unpatented mining claims,the Big Ruth Group located in Yavapai County,Arizona. These claims cover a potential gold deposit whose surface extent greater than 1,000 feet by 5,000 feet. Copies of data on file at the Arizona Department Resources on my property for inspection and convenience if you so desire.

Enclosed is a data package,I have assembled on the property for your convenience,copies of maps showing sample locations and the sample descriptions are enclosed.

The purchase price,lease terms,& etc are open at the present time. I would be happy to show you the property at your convenience,please feel free to contact me with any questions or to discuss my property.

Sincerely :

William J. Hagerty

William J. Hagerty
WJH/s
cc; crl

William J. Hagerty
101 N.32nd Street,Space 30B
Phoenix,Arizona 85034
Phone 602/244-8500

RONALD D. KARVINEN
CONSULTING GEOLOGIST

4625 E. BROADWAY • SUITE 119-C
TUCSON, ARIZONA 85711

BUS. (602) 327-7729
RES. (602) 297-1675

January 6, 1975

TO:

FROM: Ronald D. Karvinen

SUBJECT: Garfias Wash Property

U.S.G.S. Garfias Mountain Quad (7-1/2')

LOCATION: White Picacho Mining District
Yavapai County, Arizona.
Sections 9, 10, 11, 14, 15, and 16,
T. 7 N., R. 2 W.

The property consists of a sulfide system trending east-west with dimensions of 3 by 1-1/2 miles.
Host rocks are Cretaceous volcanics (mostly rhyolites and andesites) overlying a Precambrian schist. A few basic post-mineral dikes are also present.

Most striking is the pervasive nature of the hydrothermal alteration-mineralization within the system. The alteration is predominantly phyllic or quart-zericite. Sulfide content, mostly pyrite, ranges up to as much as 10% of the rock, mostly as disseminations. Sulfides are evident in all of the more deeply incised drainages.

Iron oxides or limonites after copper sulfides are scarce, but these features could be masked by the high ratio of pyrite to any other sulfides that might have been present. The foregoing is not to say this is a porphyry copper prospect as such, though one should think of vertical zonation as he examines the property.

The size of the system is impressive as is the character of the pyrite wherever observed, i.e., the disseminated crystals of pyrite do not have the bright, brassy appearance as exhibited when they are barren. In other words, the pyrites could be auriferous, cupriferous or otherwise enriched.

To best grasp the feel for rock types and mineralization intensities, one should traverse both the Bitter Creek and Garfias Wash drainages.

January 6, 1975

Note that a cube 500 feet on a side contains in excess of 10,000,000 tons. Given the size of this sytem, it becomes evident that more than 400 of these cubes could be placed within the surface traces of the zone. In other words, one could easily overlook an area this size which could contain gold assays of 0.05 oz/ton which at today's prices could become a viable "porphyry gold" deposit.

As described in our personal communications of January 2nd last, the possibility of commercial gold accumulation would seem to be in the soil mantle as found within the sulfide system. These accumulations would be the product of the residual concentration of heavy minerals while normal erosion ensues.

The foregoing conclusion is based on assays of numerous samplings of the bedrock, however, one must remain aware of the 500 foot cube aforementioned.

A conservative estimate allows for 5,000,000 tons of residual soil material and if bulk sampling of the soils in the system can verify grades of .02 Au and 0.15 Ag, further work is warranted.

Attached is a map roughly outlining the area of interest.

Respectfully submitted,

Ronald D. Karvinen

RDK:jp

MAGNETOMETER STUDY

OF THE

HOT SPRINGS AREA CLAIM GROUP

YAVAPAI COUNTY, ARIZONA

INTRODUCTION

The services of Carpenter Development, Inc., consulting geologists/geophysicists, were retained to conduct a magnetometer survey of the Hot Springs area claim group located in Yavapai County, Arizona. All data was gathered along predetermined data lines in the general area.

This claim group is located in Section 10, T 7N, R 2 W of Yavapai County, Arizona. No topographic maps of the area were available, however, detailed aerial photo coverage was furnished as a base for the laying out of survey data gathering points and survey lines. Figure 1 shows the general layout of the claims and the area of study for this report.

DATA PROCEDURES

Data was gathered in the field by a continuous recording process in which both magnetic and radiometric instruments operated simultaneously. Data stations were spaced at approximately 1320' intervals. The data gathering technique is a combination of new data reduction techniques with old gathering principals. By combining the two techniques it is possible to locate previously hidden mineralization zones.

Both the magnetic and radiometric systems are instrumented for instant recording of all data and have designed and modified for operation from moving vehicles.

The system utilized for this work are custom built geophysical apparatus based on the primary design functions of the Sharpe Magnetometer and precision radiation simulation equipment. All equipment has been custom re-designed and transistorized for the specific uses to which it has been placed.

The nature of the sensing systems are such that true magnetic north orientation of the equipment is not necessary. The magnetic portion of the system is designed to give the relative magnetic variations of the total vertical magnetic field rather than an absolute value for the vertical field. Since these data are acquired for the purpose of economic evaluation and exploration work, it is not necessary that the absolute value for the vertical intensity be measured, only the relative changes of same, which are significant when determining mineralization zones and potential economics of a mineral deposit.

All data was brought back to the Phoenix Office, and necessary corrections for terrain, diurnal variations, and instrument corrections were applied before data was reduced through computerized technique formulas for plotting.

RESULTS OF STUDY

Vertical Magnetics

The results of the Magnetic portion of the survey are presented in Figure 2. This is a plot of the residual vertical force magnetics as computed from the field data with all of the regional effects removed.

Examination of Figure 2 indicates that there are two large anomalous areas in the general area of the claim group. The highest residual reading of 800 gammas in the western portion of the claim group is significant and it is felt that the 600 gamma residual anomaly in the eastern section is also of importance. Because of the nature of

the distribution of the anomaly, it is felt that this anomaly represents some type of disseminated mineralization, as opposed to veins or dikes in the area.

This disseminated mineralization could be a sulfide body at depth or some other type of metalic ore occurance. It is felt by this writer that the anomaly represents a disseminated mineralized zone at a depth greater than 300'. If the zone were shallower than 300', and highly mineralized it is felt that the residual anomaly in this particular area would have been considerably higher than is evidenced at this point. It is felt that anything below the 200 gamma anomaly line would be insignificant with respect to ore deposition or mineralization at any depth practical to mining.

Radiometric Data

Residual Radiation data as accumulated in the area is plotted in Figure 3. This data was acquired in order to maintain a check on the region to determine if high radiation was found associated with any of the mineralization. It can be seen by a study of this figure that little radiation was evidenced in the region. There is no general pattern which can be attributed to mineralization in the region which has any association with high radiation activity.

CONCLUSIONS AND RECOMMENDATIONS

After a study of the data the following conclusions may be derived from this study:

1. There is indication of a disseminated mineralized zone underlying the major portions of the claim area.
2. The heaviest concentration of this mineralized zone is located in the western half of the claims with an equally good zone located in the eastern half.
3. The rock appears to be mineralized at a depth greater than 300'.
4. There is no significant radiation activity associated with these zones which would aid in determining depth or extent of the area.

5. No major faults were evidenced in the data gathered, however it is possible that numerous minor faults exist in the region.

IT IS THEREFORE RECOMMENDED, that this property be more fully examined by a core drilling with at least one core hole extending to 500 feet in the vicinity of the 800 gamma residual anomaly in the western portion and the 600 gamma residual anomaly in the eastern portion.

It is possible that low grade disseminated sulfide ores may be wide spread in this area and these two core holes would certainly give an accurate indication of this existance.

If the core holes show reasonable mineralization to be of commercial value, it is then recommended that a detailed core drilling program be laid out in conjunction with a detailed assay program for proving up the extent of mineralization on the property.

Respectfully Submitted,

CARPENTER DEVELOPMENT, INC.

Gene C. Carpenter

Gene C. Carpenter
Registered Geologist

DATE Sept. 2, 1980

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Big Ruth Calims

Date May 5, 1974

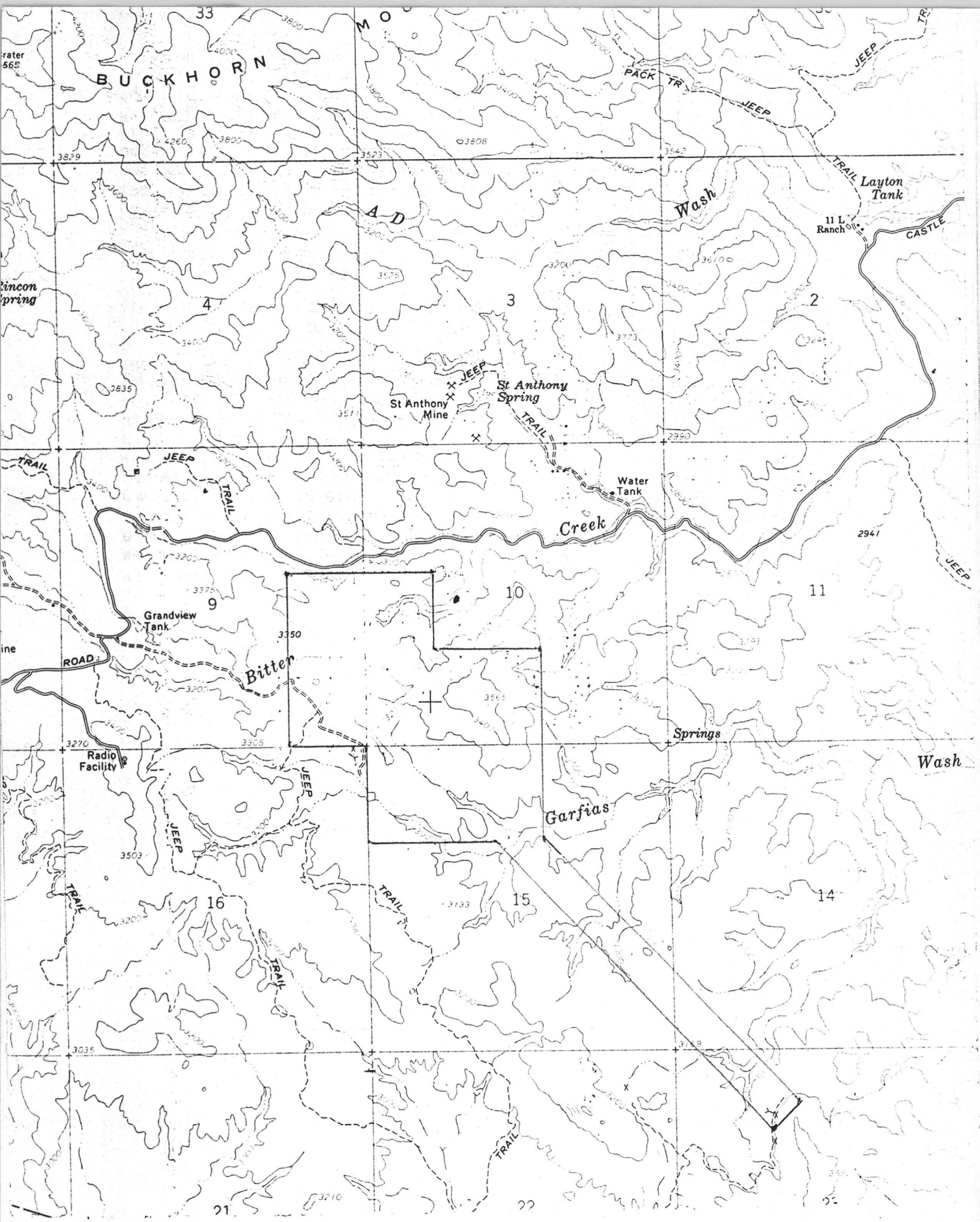
District White Pichacho

Engineer Glen Walker

Subject: MIne Visit

Accompanied William Hagerty to his ~~14~~ 24 unpatented Big Ruth claims in Section 9, 10, 14 and 15 T7N R2W. Here an extensive outcrop of sheared andesite crops out. This formation extends from a ¼ mile south of the Castle Hot Springs road to more than a mile in a S 25-30°E direction. It is in excess of 1000 feet wide. For the most part it is porphyritic but in small areas it is felsitic and everywhere hematitic. Along the northeast side and roughly parallel to the outcrop a shear zone 15-20 feet wide contains Cu and Au mineralization which is 6" - 3' thick. An excavation 35 feet long and 14 feet deep partially uncovers the vein where it is at least 3 feet wide and assays 10.65% Cu and 2.65 oz Au/ton. The mineralization here is highly oxidized and porous containing a great deal of hematite, pyrolusite with some copper carbonates.

The vein strikes N45W and dips about 70° to the southwest. Approximately 200 feet to the southeast of this excatation another smaller one reveals 8" - 1 foot of good mineralization assaying 1.055 oz. Au per ton. Here the vein matter strikes N25°W and dips steeply to the southwest and has the general appearance of that in the larger pit. About 200 feet further southeast along the shear zone a very small dig has been made which doesn't disclose the full width of the mineralization, however, material from this hole panned Au. It was suggested that Mr. Hagerty cut trenches at intervals of about 50 feet between the two larger pits and sample the vein matter uncovered. He stated that he was in contact with Homestake Mining Company, Lead, South Dakota and that they were sending a geologist to examine the property in 2 to 3 weeks. It was suggested that the amount of mineralization presently available for examinationg wasn't impressive and that an examination by a major company should be delayed until considerably more additional work was done.



BIG RUTH T 7N - R 2 W GARFIAS

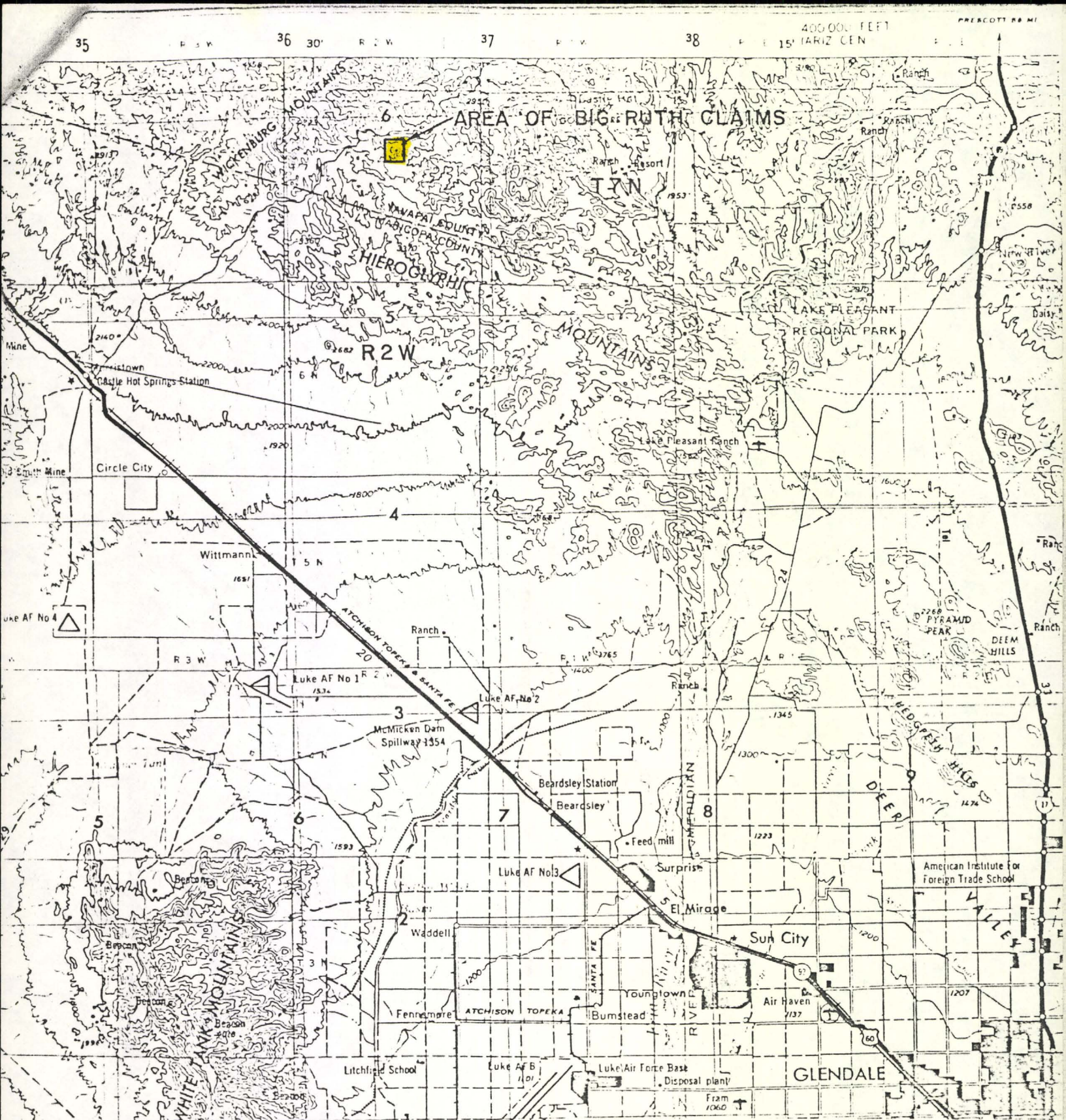
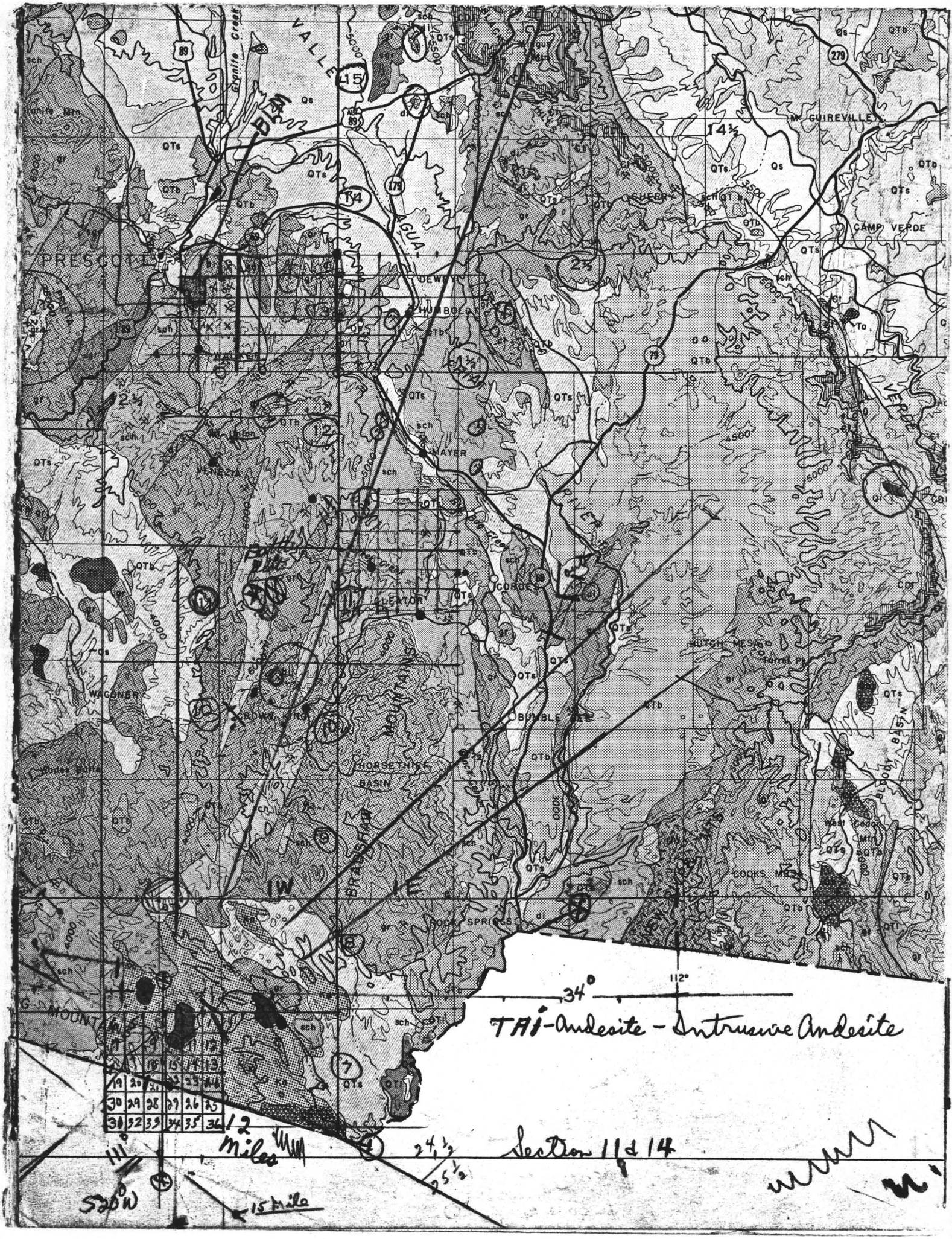


FIGURE 1

Location map showing Generalized outline of Big Ruth Claims, T7N, R2W, Yavapai County, Arizona


PRESCOTT
CHINO VALLEY
Granite Creek
Williamson Valley
AGUA FRIA
MAYER
HUMBOLDT
DEWEY
CAMP VERDE
MC GUIREVILLE
VERDE
CLEATOR
CORDES
JUNCTION
WAGONER
BUMBLE BEE
HORSETHIEF BASIN
BRADSHAW MOUNTAINS
HUTCH MESA
COOKS MESA
SPRUCE
34°
112°
TAi-Andesite - Intrusive Andesite
12 Miles
15 Miles
Section 11 & 14


PHOENIX
SALT
MESA
TEMPE
BUCKE
SALT
RIVER
CASA
GRANDE
AJO

Table 1 Page 1

GEOCHEMICAL SAMPLE DATA SHEET

DATE 8/8/83 SAMPLER JRL, TNT AREA White Picacho Mining District PLOTTED Garfias Mtn. 7½'Q PROJECT Big Ruth Claims

SAMPLE NO.	SAMPLE TYPE	LOCATION GENERAL—SAMPLE SITE	SAMPLE DESCRIPTION FIELD NAME	TEXTURE	COLOR	ASSAY DATA (ppm) Au/Ag	As/Hg	Sb/Cu	Pb/Zn	REFER. FIELD NOTES	REMARKS
BR-001	R V SS S W (D)	Big Ruth	Qtz-rich Intermediate Volcanic			.45 / <.2	264 / .75	<1 / 410	<5 / 102		coarsely prophyritic possible qtz latite. mod hmt on weathered surfaces wk argillic alt'n of feldspars
BR-002	R V SS S W (D)	Big Ruth	Vein Rock			.95 / .3	129 / 4.30	<1 / 118	36 / 25		chalcedony, vuggy textures, druzy qtz crustification in minor amount minor limonite, hmt, MnOx rare CuOx stains
BR-003	(R) V SS S W D	Big Ruth	Andesite			.17 / .2	777 / 1.00	<1 / 105	<5 / 28		Strly bleached, argillized and strly stained w/earthy, clay-rich hmt.
BR-004	(R) V SS S W D	Big Ruth	Rhyolite			.53 / .2	602 / 1.50	<1 / 25	13 / 127		moderate argillic alt'n and red hmt staining on fract's.
BR-005	(R) V SS S W D	Big Ruth	Vein Rock			.07 / <.2	377 / .80	<1 / 9300	5 / 30		Presumed fault contact between rhyolitic and upthrown qlp. Minor Cu Ox on fract. Mod hmt stains, wk/mod arg. alt.
BR-006	(R) V SS S W D	Big Ruth	Rhyolite			.07 / <.2	317 / .57	<1 / 138	<5 / 90		Flow-banded Rhyolite, modly argillized w/ moderate hmt on fracts.
BR-007	(R) V SS S W D	Big Ruth	Vein Rock			.86 / 1.6	182 / 1.82	<1 / 86	539 / 12		Silica vein 1-2' Wide at contact betw near vert. flow-banded rhyolite and strly limonitic, bleached rhyolite tuff.
BR-008	(R) V SS S W D	Big Ruth	Vein Rock			.04 / .5	135 / .68	<1 / 22	14 / 35		Silica vein bearing f.g. arsenopyrite (≤3%). Intrudes into pebble conglomerate rock
BR-009	(R) V SS S W D	Big Ruth	Vein Rock			.08 / 3.2	135 / .94	<1 / 530	81 / 17		1-2' wide at NE contact betw andesite (prophyllitic alt) and limonitic, bleached rhyolite
BR-010	(R) V SS S W D	Big Ruth	Rhyolite			.10 / .3	199 / .30	<1 / 30	6 / 22		moderately argillized mod/strong limonite and wk hematite oxides in fractures, rare sulfides assoc/w silica-filled vu
BR-011	(R) V SS S W D	Big Ruth	Rhyolite			.06 / .3	283 / .84	<1 / 35	14 / 69		Moderate argillic alteration, surface Fe Ox stains

R = Rock V = Vegetation
SS = Stream Sediment D = Dump
S = Soil W = Water

GEOCHEMICAL SAMPLE DATA SHEET

White Picacho

DATE 8/8/83 SAMPLER JRL, TNT AREA Mining District PLOTTED Garfias Mtn. 7½'Q PROJECT Big Ruth Claims

SAMPLE NO.	SAMPLE TYPE	LOCATION GENERAL—SAMPLE SITE	SAMPLE DESCRIPTION FIELD NAME	TEXTURE	COLOR	ASSAY DATA (ppm) Au/Ag	As/Hg	Sb/Cu	Pb/Zn	REFER. FIELD NOTES	REMARKS
BR-012	(R) V SS S W D	Big Ruth	Rhyolite			.03 / .5	273 / 3.05	<1 / 23	101 / 310		Moderate argillic alteration, surface Fe Ox stains
2376	(R) V SS S W D	Big Ruth	Breccia			.08 / .1	256 / .12	<1 / 290	<5 / 390		Flat-lying intensely Fe Ox-stained breccia, >50% angular to rounded schist silica fragments, in bright red matrix of hmt - limonite-Mn Ox.
2377	(R) V SS S W D	Big Ruth				.08 / .4	107 / .03	<1 / 49	9 / 17		Rock strly leached, vuggy.
	R V SS S W D										No Description
	R V SS S W D										
	R V SS S W D										
	R V SS S W D										
	R V SS S W D										
	R V SS S W D										
	R V SS S W D										
	R V SS S W D										

R = Rock V = Vegetation

SS = Stream Sediment D = Dump

S = Soil W = Water

TABLE 2

Precious, Trace, and Base Metal Assay Data from 14 rock chip and dump samples on the Big Ruth claims, Yavapai County, Arizona

Gold
No. of samples: 14
Range: .03-.95 ppm Au
Average of vein samples: .40 ppm Au
Average of altered rock samples: .17 ppm Au

Copper
No. of samples: 14
Range: 22-9300 ppm Cu
Average (excluding hi-grade sample of 9300 ppm Cu): 143 ppm Cu

Zinc
No. of samples: 14
Range: 12-390 ppm Zn
Average: 91 ppm Zn

Antimony
No. of samples: 14
Range: all <1 ppm Sb
Average: <1 ppm Sb

Silver
No. of samples: 14
Range: <.2-3.2 ppm Ag
Average of vein samples: 1.1 ppm Ag
Average of altered rock samples: .2 ppm Au

Lead
No. of samples: 14
Range: <5-539 ppm Pb
Average: 59 ppm Pb

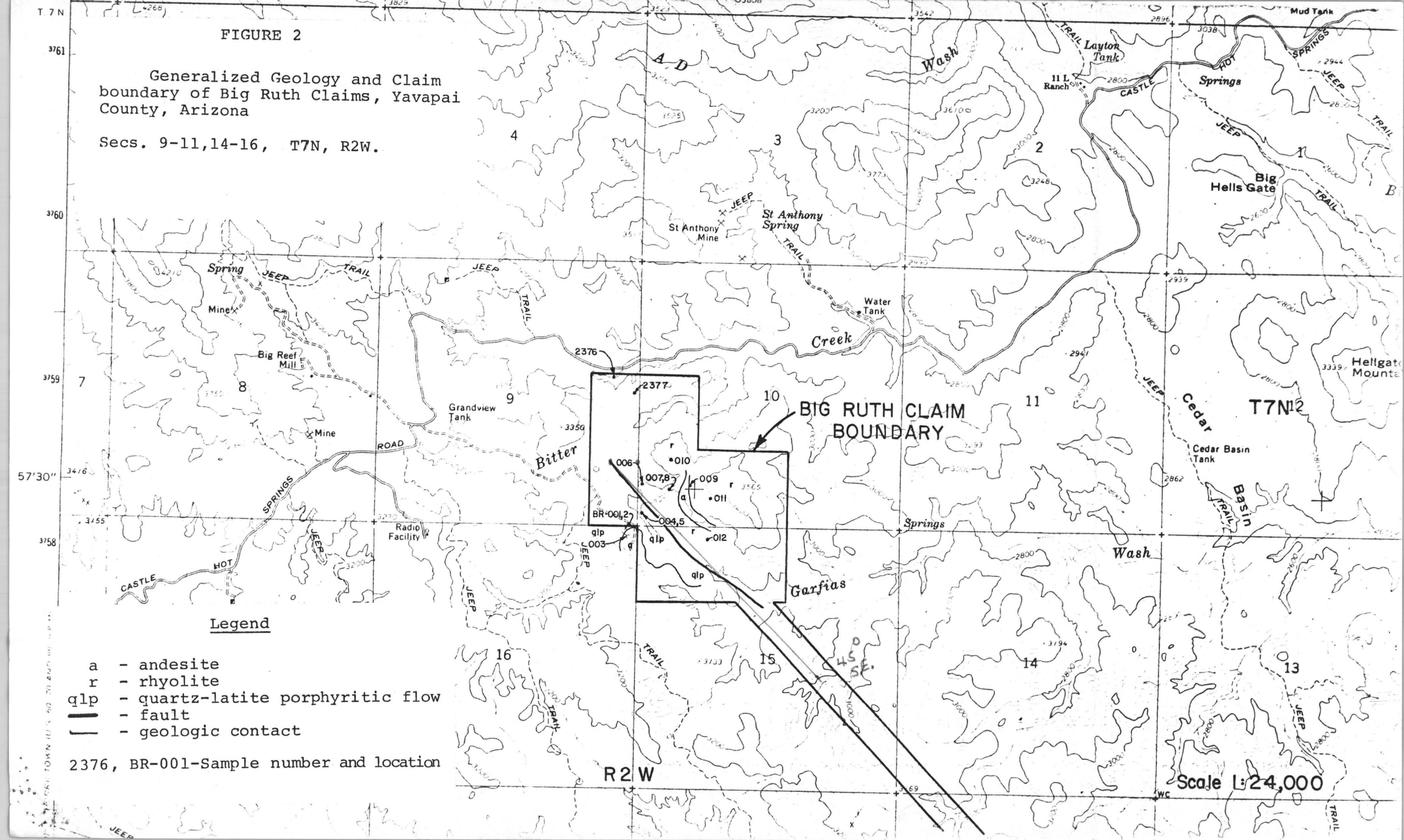
Arsenic
No. of samples: 14
Range: 107-777 ppm As
Average: 288 ppm As

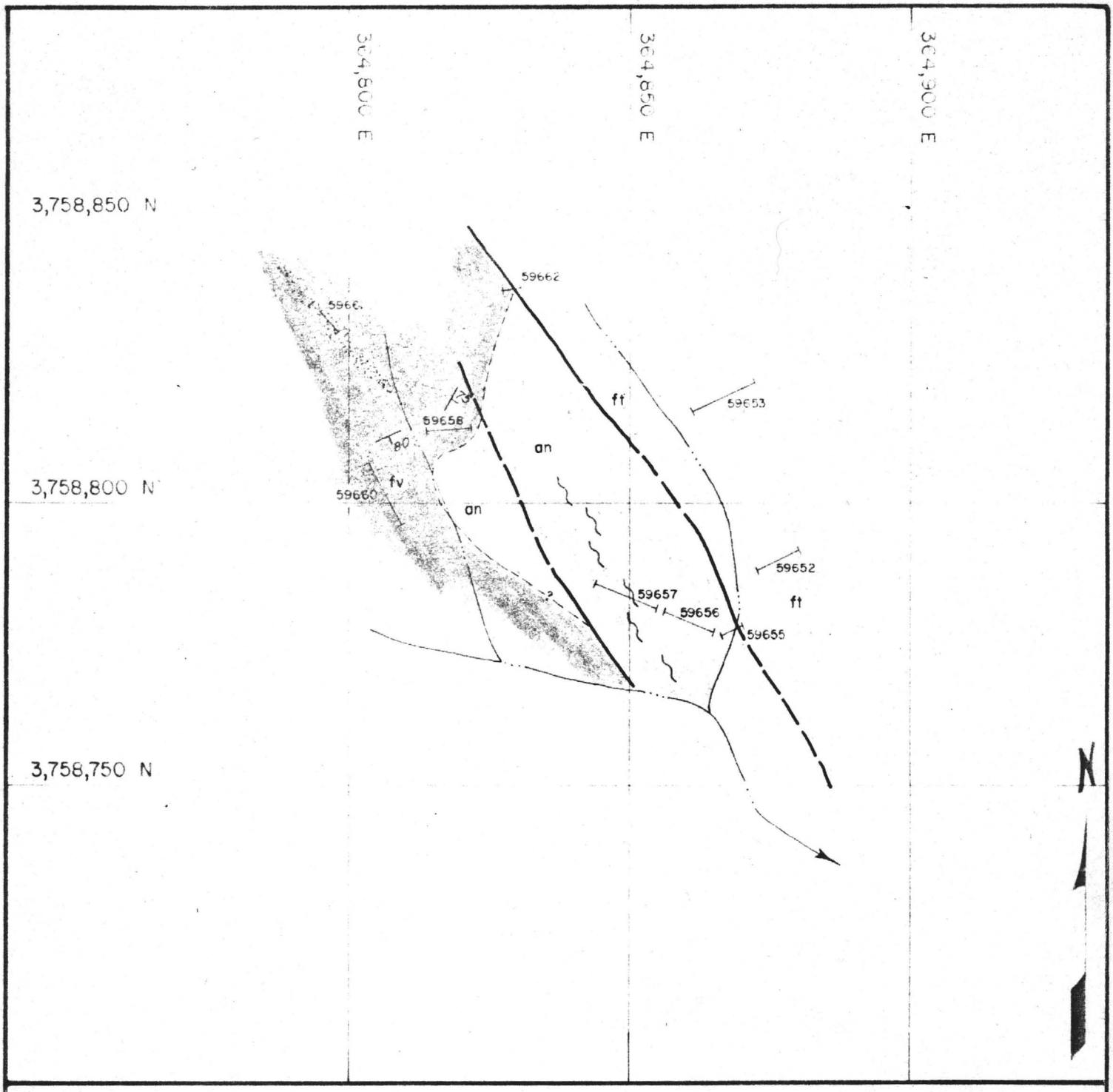
Mercury
No. of samples: 14
Range: .03-4.30 ppm Hg
Average: 1.19 ppm Ag

FIGURE 2

Generalized Geology and Claim boundary of Big Ruth Claims, Yavapai County, Arizona

Secs. 9-11,14-16, T7N, R2W.





EXPLANATION

an — LIMONITE STAINED ANDESITE TO LATITE

ft — LIMONITE STAINED FELSIC TUFF (?)

fv — LIMONITE & HEMATITE STAINED FLOW-BANDED FELSIC & INTERMEDIATE VOLCANIC ROCK

PERVASIVE SILICIFICATION

NOTE: FOR COMPLETE EXPLANATION SEE FIGURE

Figure 2.

Geologic Sketch Map

Of The

Big Ruth Claims

Scale : 1 : 1,000

Date : July 1983
Oct 1983

365,000 E

365,100 E

3,758,400 N

3,758,300 N

ft

54351

54350

qtz/py

54352

54340

al

54341

54339

54343

54346

60

54344

54345

qlp

54347

54349

184 meters South of map boundary to sample 54348 located in crumbly Hematite stained Latite

N

EXPLANATION

al — HEMATITE STAINED ANDESITE TO LATITE

ft — LIMONITE STAINED PYRITIC FELSIC TUFF

qlp — PORPHYRITIC QUARTZ LATITE

QUARTZ-PYRITE VEIN

FAULT

DUMP

MAIN SHEAR ZONE

ROAD

CONTACT

STREAM BED

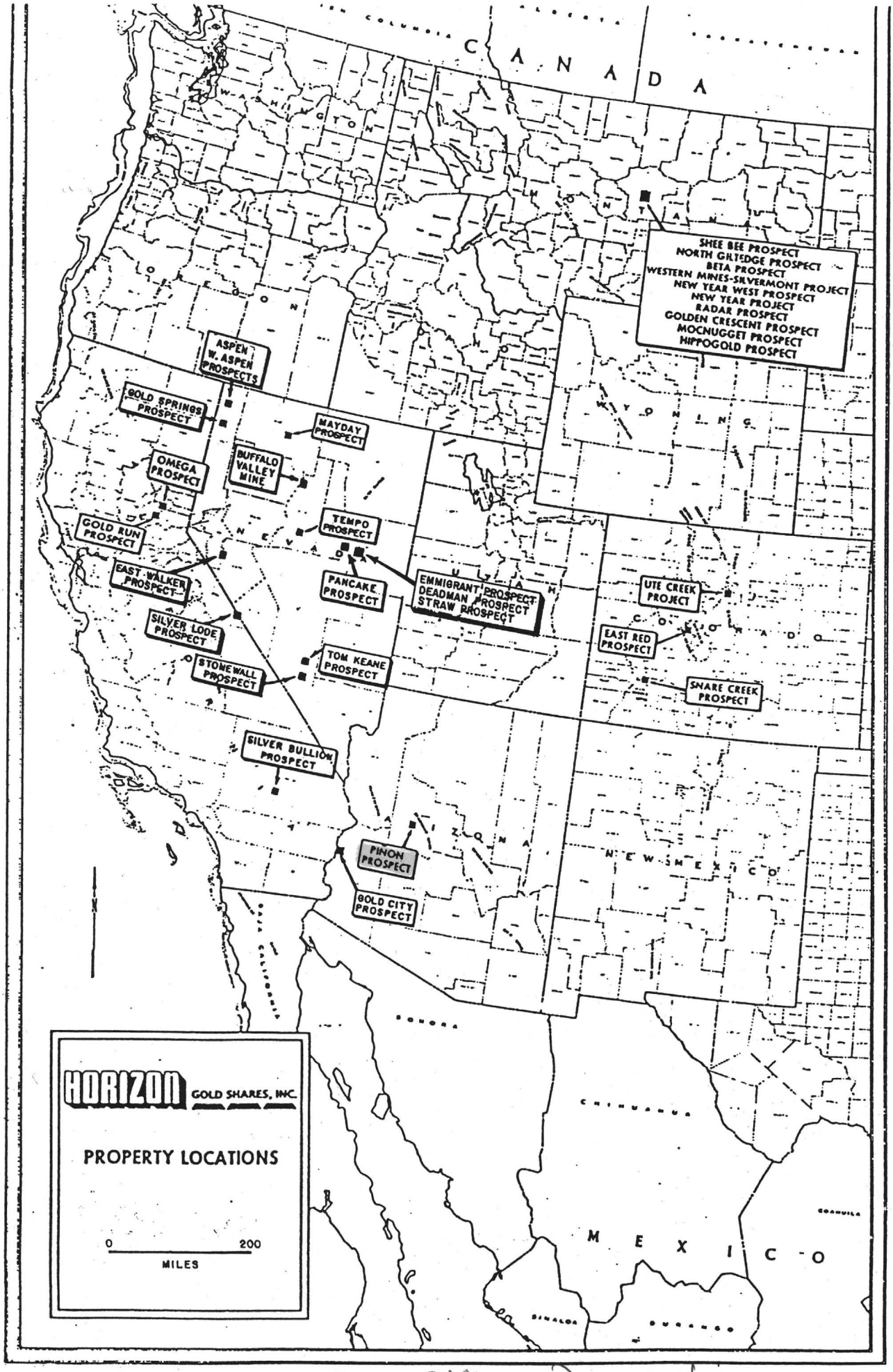
60 — STRIKE & DIP OF FOLIATION

CHANNEL SAMPLE

TRENCH

ROCK SAMPLE

Figure 3.
Geologic Sketch Map
Of The
Big Ruth Claims
Scale : 1 : 1,000
Date : July 1983



Yavapi County, AZ = Piñon Prospect

Piñon Prospect: In Part. Original found in 1.1.23

HORIZON GOLD SHARES, Inc. - LAND POSITION 1984

PROJECT NAME	HORIZON NET	TARGET	METAL	EXP STAGE*	STATE	COUNTY	ACREAGE
ASPEN	100%	2.0 mm @ 0.10 oz/ton Au	Au	9	NEVADA	WASHOE	180
BETA	100%	200 k @ 0.13 oz/ton Au	Au	9	MONTANA	FERGUS	80
BUFFALO VALLEY	100%	400,000 tons @ 0.074 oz/ton Au	Au	1	NEVADA	LANDER,HUMBOLDT	3,160
DEADMAN	50%	5.0 mm @ 0.065 oz/ton Au	Au	5	NEVADA	WHITE PINE	1,960
EAST RED	100%	3.0 MM TONS @ 0.08 oz/ton Au	Mo, Au	5	COLORADO	CHAFFEE	940
EAST WALKER	100%	1.0 mm tons @ 0.065 oz/ton Au	Au	7	NEVADA	LYON	720
EMMIGRANT SPRING	50%	1.0 mm @ 0.065 oz/ton Au	Au	5	NEVADA	WHITE PINE	920
GOLD CITY	50%	2.0 mm tons @ 0.05 oz/ton Au	Au	5	ARIZONA	LA PAZ	1,140
GOLD RUN	100%	1.0 mm cu yd @ 0.01 Au	Au	9	CALIFORNIA	PLACER	640
GOLD SPRINGS	100%	2.0 mm @ 0.10 oz/ton Au	Au	9	NEVADA	WASHOE	300
GOLDEN CRESCENT	100%	750 k @ 0.09 oz/ton Au	Au	10	MONTANA	FERGUS	300
HIPPO	100%	1.0 mm @ 0.08 oz/ton Au	Au, Ag	10	MONTANA	FERGUS	400
MAYDAY	50%	2.0 mm tons @ 0.065 oz/ton Au	Au	8	NEVADA	HUMBOLDT	1,280
MOCNUGGET	100%	300 k @ 0.09 oz/ton Au	Au	6	MONTANA	FERGUS	360
NEW YEAR	100% (8% NSR)	750 k @ 0.10 oz/ton Au	Au	3	MONTANA	FERGUS	710
NEW YEAR WEST	100%	500 k @ 7.5 oz/ton Ag, 0.05 oz/ton Au	Au,Ag	6	MONTANA	FERGUS	204
NORTH GILTEDGE	100% (8% NSR)	500 k @ 0.10 oz/ton Au	Au	6	MONTANA	FERGUS	80
OMEGA	100%	10 mm cu yds @ 0.01 oz/ton Au	Au	4	CALIFORNIA	NEVADA	184
PANCAKE	50%	1.0 mm @ 0.06 oz/ton Au	Au	5	NEVADA	WHITE PINE	380
PINON	100%	1.5 mm tons @ 0.08 Au	Au	5	ARIZONA	YAVAPAI	4,340
RADAR	100%	2.0 mm @ 0.08 oz/ton Au	Au	5	MONTANA	FERGUS	2,200
SHEE BEE	100%	300 k @ 4 oz/ton Ag, 0.05 oz/ton Au	Ag, Au	8	MONTANA	FERGUS	80
SILVER BULLION	50%	500 k @ 5 oz/ton Ag	Ag	6	CALIFORNIA	SAN BERNARDINO	640
SILVER LODE	50%	200,000 tons @ 10 oz/ton Ag	Ag	9	CALIFORNIA	MONO	240
SNARE CREEK	50%	3-5 mm .08 Au 2% Cu 5 Ag 6% PbZn	Au, Ag, Pb, Zn, Cu	2	COLORADO	SAN JUAN,HINSDALE	2,200
STONEWALL	50%	3-5 mm tons @ 8 oz/ton Ag	Ag	4	NEVADA	NYE	1,600
STRAW	50%	2.0 mm tons @ 0.06 oz/ton Au	Au	6	NEVADA	WHITE PINE	1,760
TEMPO	50%	1.0 mm @ 0.10 oz/ton Ag	Au	5	NEVADA	LANDER	500
TOM KEANE	50%	500,000 tons @ 0.06 oz/ton gold	Au	5	NEVADA	NYE	480
UTE CREEK	100% (sale option)	200 k tons @ 20 oz/ton Ag	Au, Ag, Cu, Pb, Zn	3	COLORADO	CLEAR CREEK	150
WEST ASPEN	100%	2.0 mm @ 0.10 oz/ton Au	Au	9	NEVADA	WASHOE	280
WESTERN MINES-SILVERMONT	100%	750 k tons @ 4.0 oz/ton Ag, 0.03 oz/ton Au	Ag, Au	3	MONTANA	FERGUS	780
						Total:	29,188

*

EXPLORATION STAGE

1. Contains significant economic proven reserves, extensive data base, preliminary feasibility complete

2. Contains significant marginal reserves, extensive data base, preliminary feasibility complete

3. Contains significant commercial grade drill intercepts with minimal indicated reserves, strong potential for enlargement to commercial deposit

4. Contains at least one "discovery" hole, moderate data base with well supported geologic concept

5. Detailed geology, with well supported conceptual model, structured geochem sampling, minimal drilling

6. Detailed geology complete, conceptual model supported by geochem, no drilling

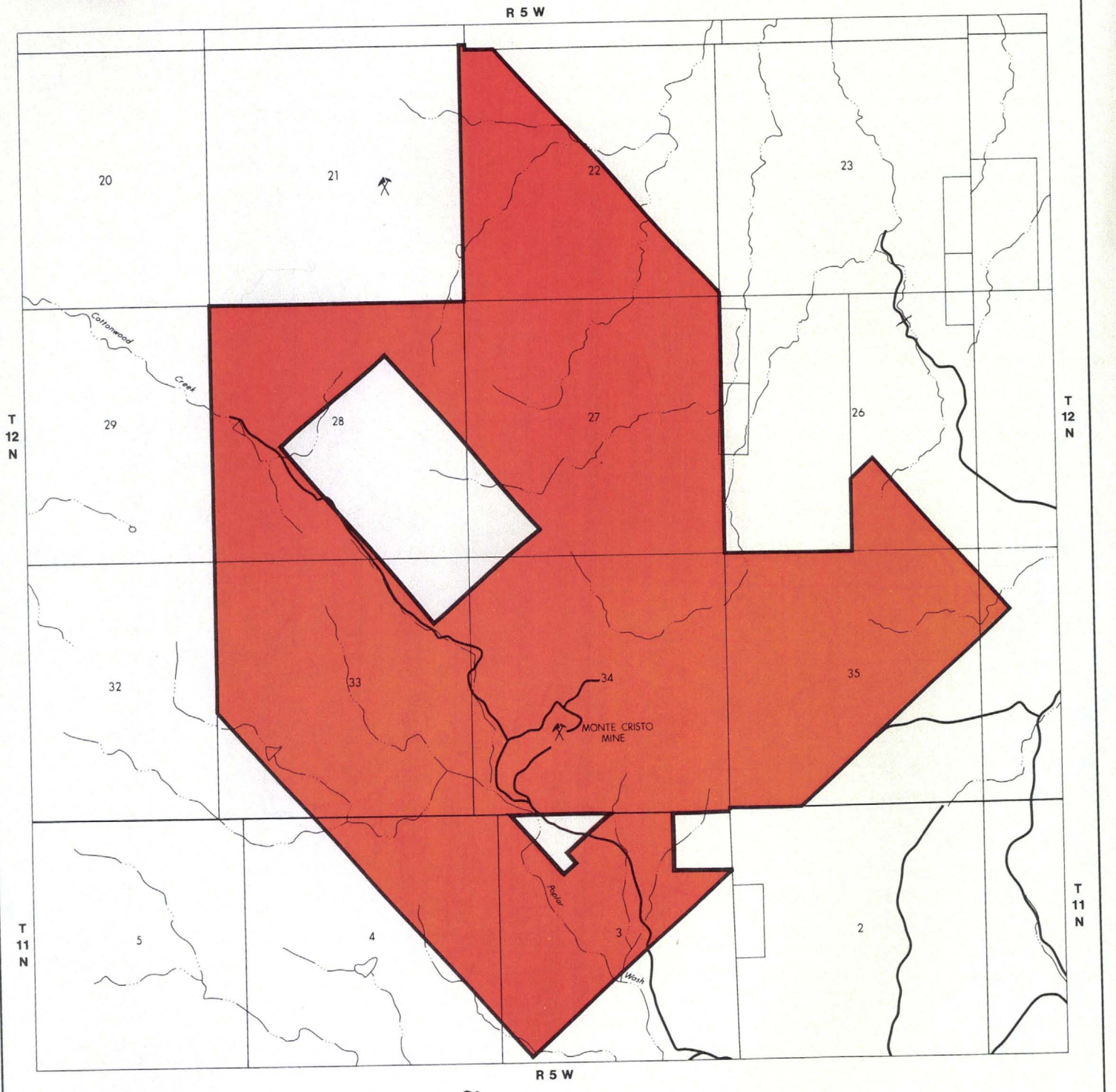
7. Preliminary geology complete, random gechem, preliminary model, data from prior work

8. Preliminary geology complete, random geochem, no other data

9. Preliminary field reconnaissance random sampling

10. Acquired on geologic concept, minimal or non-existent data base, little or no prior activity

HORIZON GOLD SHARES, INC.



PIÑON PROSPECT

YAVAPI COUNTY, ARIZONA

HORIZON UNPATENTED LODE CLAIMS

N

OLD MINE

UNPAVED ROADS

0 1/4 1/2 1 Mile

Drafted by Terra Graphics, Inc.

OMEGA	100%	10 mm cu yds @ 0.01 oz/ton Au	Au	CALIFORNIA	NEVADA		184 4	Large primary Tertiary channel gravels over 100' thick. Excellent bedrock characteristics and low environmental exposure.	Former large scale placer au mine. Abundant resources remain. Bulk sampling and drilling under HGS supervision 1982. Determined profitable at large scale.	Submit application for permit to mine. Raise funds necessary for equipment lease. Commence operations mid-1985.	
PANCAKE	50%	1.0 mm @ 0.06 oz/ton Au	Au	NEVADA	WHITE PINE		380 5	Alligator Ridge type disseminated gold mineralization developed along high angle faults in Missippian Chainman Shale. Property interior to Amselco property with 2.0 MM tons @ 0.056 Au drilled and along same structure.	Geologic mapping, over 200 soil geochemical samples and one drill hole.	Additional close-spaced soil geochemical sampling and reverse circulation drilling.	
PINON	100%	1.5 mm tons @ 0.08 Au	Au	ARIZONA	YAVAPAI		4,340 5	Large area of silicic and k-spar alteration near contact of Precambrian igneous and metamorphic rocks with broad areas of highly anomalous gold values up to +4.0 oz per ton.	Several small mines are present. Widespread Au mineralization in soil and surface rock. Exxon drilled the property and released the data to HGS.	More extensive surface rock and soil sampling are needed. Trenching in the high grade areas is recommended along with angle hole drilling on a closer spacing than that completed by Exxon.	
RADAR	100%	2.0 mm @ 0.08 oz/ton Au	Au	MONTANA	FERGUS		2,200 5	Highly altered intusive environment with adjacent skarn mineralization. Possible Pegasus-type target.	Abundant mapping and sampling by Exxon with two deep drillholes containing anomalous gold and copper values.	Additional rock chip sampling, detailed geologic mapping and reverse circulation rotary drilling.	
SHEE BEE	100%	300 k @ 4 oz/ton Ag, 0.05 oz/ton Au	Ag, Au	MONTANA	FERGUS		80 8	Immediately south of Warm Springs fault in Upper Madison Limestone near Crystal Peak intrusive. Local high-grade silver occurences in breccia zones.	Adjacent to Collar Gulch mine. Ag geochemical soil anomaly identified by HGS.	Follow-up soil sampling. Further mapping, rock chip sampling.	
SILVER BULLION	50%	500 k @ 5 oz/ton Ag	Ag	CALIFORNIA	SAN BERNARDINO		640 6	Quartz-carbonate-barite-silver mineralization developed in wide (+35 feet) shallow dipping vein.	Prospect pits, shallow shafts. Four claims staked by Horizon predecessors. VLF geophysical survey, underground mapping	Additional surface and underground sampling ang follow-up reverse circulation drilling.	
SILVER LODE	50%	200,000 tons @ 10 oz/ton Ag	Ag	CALIFORNIA	MONO		240 9	Disseminated silver mineralization developed in carbonate host along high angle faults. Mineralized zones characterized by local brecciation and iron-oxide gossans.	Prospect pits, short adits. 12 claims staked by Horizon's predecessor. Limited rock chip sampling and local geologic mapping.	Geologic reconnaissance along trend of mineralization and additional rock chip sampling. Follow-up with reverse circulation drilling.	
SNARE CREEK	50%	3-5 mm .08 Au 2% Cu 5 Ag 6% PbZn	Au, Ag, Pb, Zn, Cu	COLORADO	SAN JUAN, HINSDALE		2,200 2	Near southern margin of Silverton-Lake City inter-caldera fault zone. Property covers major inter-caldera radial structure traceable over 4 miles. Structure consistantly over 8' wide with zones up to 100' in width. Prior drilling indicates 300,000-500,000 tons of complex sulfide (precious + base metal) mineralization with potential for +3,000,000 tons.	Several small mines. Three miles of major inter-caldera structure staked by HGS in 1981. Sampling indicates large vein target at depth. Includes 0.50 million tons drilled reserves on main structure.	Major surface rock sampling program is required. Either large scale drilling with helicopter support or reopen old tunnel driven from valley. Bulk sampling to confirm gold grade.	
STONEWALL	50%	3-5 mm tons @ 8 oz/ton Ag	Ag	NEVADA	NYE		1,600 4	Quartz-calcite-silver mineralization developed in wide (up to 65 feet) and extensive veins (at least 35 individual veins) up to 8,000 feet in length associated with ring fractures in resurgent Stonewall caldera.	Claims staked by Horizon predecessors. Regional and local geologic mapping and random geochemical sampling.	More detailed geologic mapping. Additional geochemical sampling and follow up reverse circulation drilling. Fluid inclusion petrographic studies helpful.	
STRAW	50%	2.0 mm tons @ 0.06 oz/ton Au	Au	NEVADA	WHITE PINE		1,760 6	Disseminated gold mineralization (Alligator Ridge type) developed in Mississippian Pilot Shale with associated jasperoids along high-angle faults.	Claims staked by Horizon predecessors. Very limited geochemical sampling.	Additional geochemical sampling and follow-up reverse circulation drilling.	
TEMPO	50%	1.0 mm @ 0.10 oz/ton Ag	Au	NEVADA	LANDER		500 5	Disseminated gold mineralization and associated quartz flooding of Roberts Mountain Formation in thrust window, cut by high-angle faults.	Regional geologic mapping and random rock chip and grid soil geochemical sampling. Ten reconnaissance drill holes and pad construction for proposed drill holes completed.	Detailed geologic mapping and additional close-spaced grid geochemical sampling. follow-up reverse circulation drilling.	
TOM KEANE	50%	500,000 tons @ 0.06 oz/ton gold	Au	NEVADA	NYE		480 5	Disseminated gold mineralization in silicified zone with envelopes of argillic alteration. Property located at east end of Goldfield district.	Deep inclined shaft over 4 levels, limited production. Reconnaissance drilling and 6 drill holes on Tom Keane structure. Detailed geologic mapping and sampling of Tom Keane shaft area.	Detailed geologic mapping over remainder of claims. Underground sampling of Tom Keane shaft and reconnaissance sampling of addtional claims.	Santa Fe (Pending)
UTE CREEK	100% (sale option)	200 k tons @ 20 oz/ton Ag	Au, Ag, Cu, Pb, Zn	COLORADO	CLEAR CREEK		150 3	In a heavily mineralized zone of precious metal vein deposits associated with Tertiary granite intrusions. Cecil-Argo vein subparallel to very rich Lamartine vein, has yielded high grade silver (up to 200 oz/ton) in the past. Outcrop of calcareous rock on property is very favorable host.	Numerous small rich Ag, Au mines in 1880-1905. HGS mapping and sampling indicates multiple vein targets at depth. Heap leach of dumps constructed by HGS in 1980.	Reopen old Wallace portal and sample. Drill angle holes from surface. Drive decline below old workings and drill. Perform heap leaching operation as prices permit.	
WEST ASPEN	100%	2.0 mm @ 0.10 oz/ton Au	Au	NEVADA	WASHOE		280 9	Tertiary volcanic hot spring environment with anomalous Au and Ag values. Near Tennneco holding being prepared for drilling.	Limited reconnaissance geology and rock chip sampling.	Additional detailed mapping and rock chip and soil grid geochemistry to be followed by reverse circulation rotary drilling.	
WESTERN MINES-SILVERMONT	100%	750 k tons @ 4.0 oz/ton Ag, 0.03 oz/ton	Ag, Au	MONTANA	FERGUS		780 3	Widespread zone of high grade silver sulphide and sulphosalt replacement in karst type structures in top of Madison Limestone. Apparent interconnection of occurrences to produce large Ag, Au anomalies.	Numerous small mines. Sampled and drilled by Coastal, HIMCO. Some high grade surface ore intersections. Sampled by HGS. Widespread high grade Ag mineralization.	Close up open geochemical soil anomalies on Silvermont and drill. Follow-up previous drilling. Further soil and rock geochemical sampling on Western property. Define drill targets and drill.	


N
AU
PG
P28
TG
AU
5
PG
TG
PG
TG
ROAD
AU
PG
TG
AU
P6
5
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P4
P3
AU
TANK
P5
PG
DY
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P25
P22
P7
P23
P24
AZ
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P8
P26
P10
P12
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P17
AU
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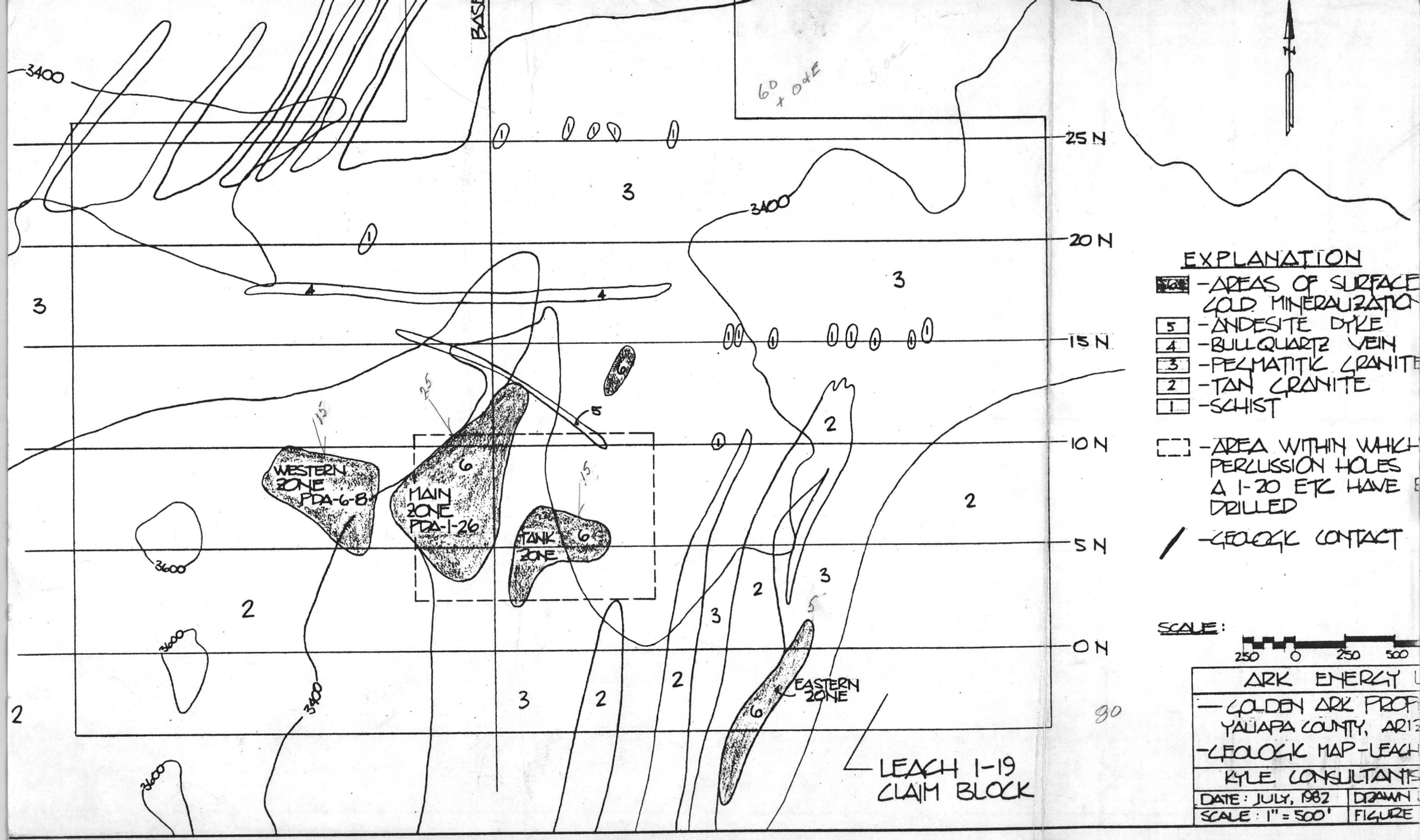
P21
TGf
P20
TGf


3400
25 N
20 N
15 N
10 N
5 N
0 N
3
2
1
4
5
6
WESTERN ZONE PDA-6-8
MAIN ZONE PDA-1-26
TANK ZONE
EASTERN ZONE
3600
LEACH 1-19 CLAIM BLOCK
EXPLANATION
-AREAS OF SURFACE GOLD MINERALIZATION
-ANDESITE DYKE
-BULL QUARTZ VEIN
-PEGMATITIC GRANITE
-TAN GRANITE
-SCHIST
-AREA WITHIN WHICH PERCUSSION HOLES A 1-20 ETC HAVE BEEN DRILLED
-GEOLOGIC CONTACT
SCALE:
250 0 250 500
ARK ENERGY
-GOLDEN ARK PROP
YAVAPAI COUNTY, ARIZ
-GEOLOGIC MAP-LEACH
KYLE CONSULTANTS
DATE: JULY, 1982
SCALE: 1" = 500'
DRAWN
FIGURE

M E M O

TO: Ben F. Dickerson, III, Carole A. O'Brien

FROM: Don White

DATE: March 10, 1986

SUBJECT: New Golden Aster submittal

The writer was asked to visit the New Golden Aster claim group to provide recommendation on its development potential. The property is a block of unpatented lode claims and mill sites covering most of Section 27 and Lehmann Mountain, T9N R2W, Yavapai County, Arizona.

The property was brought to the attention of the reader by the claim owner, John P. Johnson, who also provided a short report, location and claim maps, and precious metal assay data from 63 samples collected, assayed, and reported by Nicholas H. Carouso. Carouso's sample data is dated April 18, 1982, shortly after the time the access road was dozed from the Wagoner-Crown King road. Carouso was apparently an early partner with Johnson in the property acquisition, evaluation, and promotion.

The writer visited the property for one day, March 5, 1986. Access requires some time by virtue of the rough terrain, particularly the last 4.6 miles from the Wagoner-Crown King road to the property. It is about one hour from Kirkland Junction to the claims. The road roughness is attributable to the granite batholith terrain for several miles to the north of the claims, and to the granite and pegmatite dike dominated terrain of Lehmann Mountain.

The purpose of the visit was to evaluate the possibility of expanding the tonnage from the narrow veins to something worthy of open pit production. The various types of potential were thought to be:

1) The major 2 or 3 veins could be connected or associated with a network of smaller mineralized veins as in a stockwork or griesen system.

2) The country rock between the major veins could be altered and mineralized, even in the absence of veining, to carry grades thruout open pitable thicknesses on the hillside.

3) The main veins could blossom with depth to substantially greater thicknesses.

None of these situations seem to occur. The Rattlesnake vein was the main object of the writer's attention because it is the most continuously exposed vein as a result of old workings. It strikes NW across a steep NE facing hillside and dips SW into the slope. It would fast become inaccessible by open pit methods. It is a fairly clean vein in that it contains few offshoots or branches. It does undulate in thickness and have some small parallel veins but all are substantially smaller and fit within the reported 18-inch to 6-foot thickness. In fact, even in the most intensely worked area, the upper of the three levels approached by adits, the veins nowhere spanned more than 3 feet in aggregate.

Ben F. Dickerson, III, Carole A. O'Brien
March 10, 1986
New Golden Aster submittal

While the country rock either side of the Rattlesnake vein has been altered, it is not veined, and, as evidenced by Carouso's sampling, is not mineralized. He took a substantial number of wall rock, pegmatite, and altered schist samples. Invariably, gold and silver were not detectable or so low grade that their inclusion as mill feed or on a leach pile could not be considered. [Examples of this are Carouso's samples NGA - 100, 102, 103, 104, 105, 106, 107, 109, 117, 121, 160, 161, 162.] The writer believes, on the basis of what is reported and what is visible, that the mineralization is confined to the veins, almost always less than two feet in thickness, and quite sharply bounded.

The likelihood of thickening of the veins at depth is not great. The parallel pegmatite dikes, granite and gneissic amphibolite schist are all seen to march over each ridge for a half mile to the E without changing their parallel, sheet-like geometry. They are all cut off abruptly to the NW by a later intrusive. Furthermore, if there is any trend in the area of the old workings, it is for decreasing thickness from the hilltop stope to the second and third level adits to the NW on the Rattlesnake vein.

On the basis of these observations, the writer offers the following revised estimates:

Rattlesnake vein tonnage and grade

	Carouso estimate	White estimate
Strike length (feet)	1500	500
Dip dimension (feet)	200	50
Thickness (feet)	40	5
Grade (Au, oz/t)	.25	.5
Tonnage (short tons) (d = 12 ft^3/ton)	1,000,000	10,000
Contained ounces Au	250,000	5,000

While the vein system does continue over the strike length and dip dimension represented by Carouso, the likelihood of it being mineralized and accessible to open pit mining is poor. Most crucial, the decreased thickness and increased grade of this vein that I feel are more reasonable estimates, put it in the realm of a small underground mine and out of consideration for an open pit. If it has potential in the future it will be as a very low tonnage, medium grade, underground mine.

Feb. 23/1986

86,798.0

$14.39 gas in Wickenburg
12.0 gal

brkft $15.60 plus tip

923.4 turnoff from 6 ?

943.5 Cherry Creek

946.3 X-road

947.8 1st windmill

949.2 2nd

949.6 X-roads

954.2

4.6

DMEA Ltd.
Mineral Exploration Advice

Ben F. Dickerson III
Registered & Certified Geologist
Carole A. O'Brien
Certified Geologist

7340 E. Shoeman Lane
Suite 111 "B" (E)
Scottsdale, AZ 85251
(602) 945- 4630
Telex: 75-1739

April 7, 1986

John P. Johnson
8211 North 1st Avenue
Phoenix, AZ 85021

Re: New Golden Aster

Dear Mr. Johnson:

As I mentioned to you on the telephone recently, the New Golden Aster prospect which you submitted to us in February, does not appear to fit our client's needs.

I am enclosing a copy of the report written by Donald C. White. Please understand that this is one opinion by a geologist. It may or may not represent an accurate appraisal of the property. I also enclose the assay results from the two samples which were taken.

Thank you for bringing this opportunity to our attention.

Sincerely,

Carole A. O'Brien

Carole A. O'Brien

encls.

IRON KING ASSAY INC.

19-Mar-

LAB JOB #: MSC00515

Client name: DMEA Ltcd.

Billing address: 7340 E. Shoeman Lane
Suite 111-B-E
Scottsdale, AZ 85251

Phone number: 778-3140

No. Samples:
Date Received: 3-8-86
Submitted by: Don White

INVOICE ATTACHED

ANALYTICAL REPORT

Client ID MSC00515	Lab ID	Fire Assay Au oz/ton	Ag oz/ton
101	1 Rattlesnake Vein	0.158	0.05
102	2 Altered Wall Rock	0.027	<.01

New Golden Aster prospect

REGISTERED ASSAYER CERTIFICATE NO. 4415 ROBERT G. CROOK Date Signed 3-19-86 ARIZONA, U.S.A.

Mileage to "New Golden Aster"

Highway 89 from Wickenburg to Congress and Yarnell, through Peeples Valley

0.0 Turnoff on Wagoner-Crown King Road; south

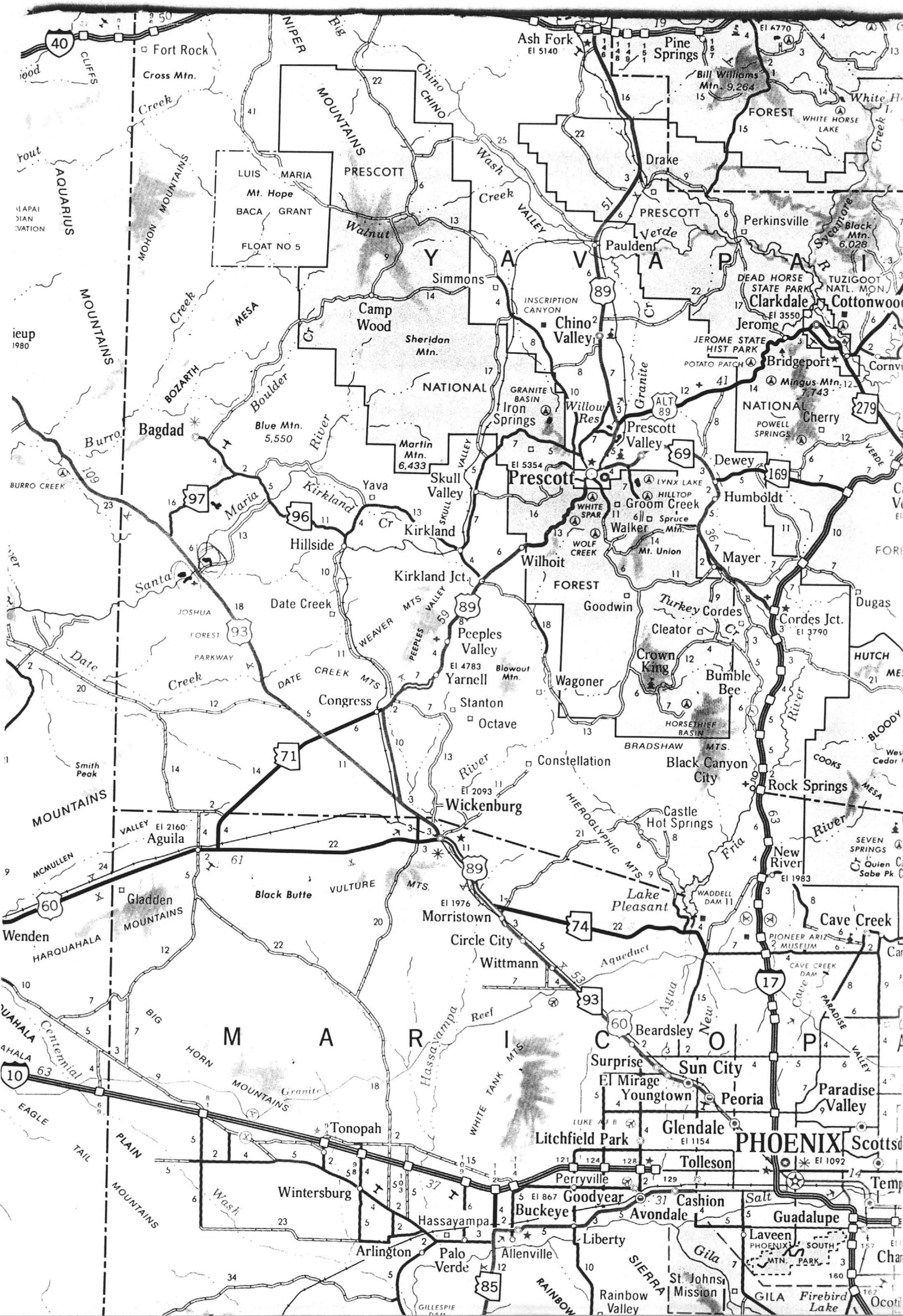
20.1 Cross Cherry Creek south of Wagoner

24.4 1st windmill on north side of road

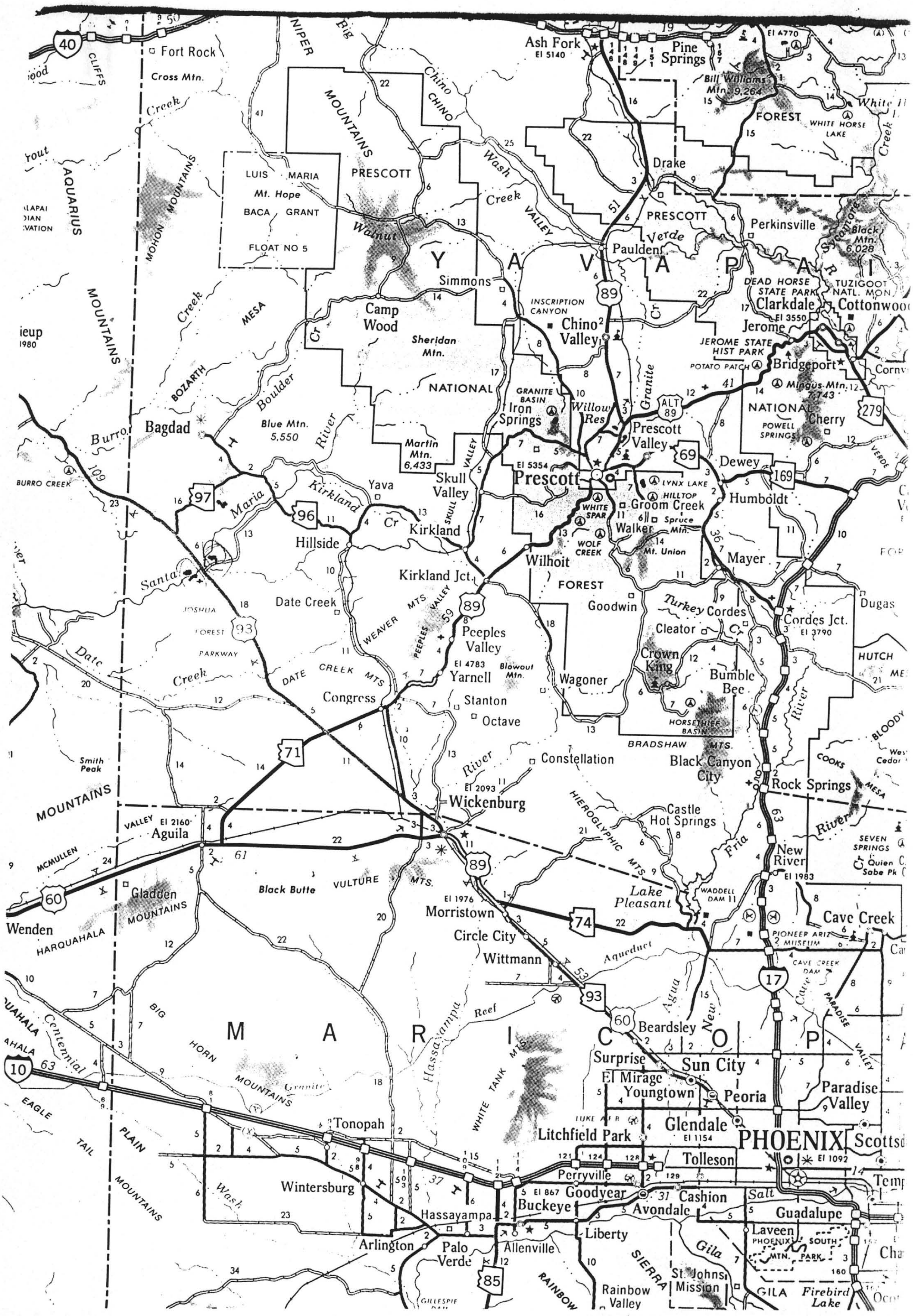
25.8 2nd windmill

26.2 cross roads; take first road to south

30.8 "New Golden Aster"



Ash Fork
Pine Springs
Bill Williams Mtn. 9,264
Drake
Paulden
Perkinsville
Clarkdale
Cottonwood
Jerome
Bridgeport
Chino Valley
Prescott Valley
Prescott
Dewey
Humboldt
Groom Creek
Walker
Mayer
Cordes Jct.
Cordes
Cleator
Crown King
Bumble Bee
Black Canyon City
Rock Springs
New River
Cave Creek
Lake Pleasant
Castle Hot Springs
Constellation
Wagoner
Wickenburg
Congress
Stanton
Octave
Yarnell
Peeples Valley
Kirkland Jct.
Kirkland
Skull Valley
Hillside
Yava
Bagdad
Camp Wood
Simmons
Iron Springs
Wilhoit
Goodwin
Date Creek
Aguila
Wenden
Morristown
Circle City
Wittmann
Beardsley
Surprise
Sun City
El Mirage
Youngtown
Peoria
Glendale
Paradise Valley
PHOENIX
Scottsdale
Tolleson
Litchfield Park
Perryville
Goodyear
Cashion
Avondale
Buckeye
Guadalupe
Laveen
Liberty
Allenville
Palo Verde
Arlington
Hassayampa
Wintersburg
Tonopah
Rainbow Valley
St. Johns Mission
Y A V A P A I
M A R I C O P
PRESCOTT NATIONAL FOREST
BRADSHAW MTS.
WHITE TANK MTS.
BIG HORN MOUNTAINS
VULTURE MTS.
HIEROGLYPHIC MTS.
WEAVER MTS.



Ash Fork
El 5140
Pine Springs
Fort Rock
Cross Mtn.
CLIFFS
Bill Williams Mtn. 9,264
FOREST
WHITE HORSE LAKE
White Horse
Creek
AQUARIUS
MOHON MOUNTAINS
MOUNTAINS
LUIS MARIA
Mt. Hope
BACA GRANT
FLOAT NO 5
PRESCOTT
MOUNTAINS
Chino
CHINO
Wash
VALLEY
Walnut
Creek
Drake
PRESCOTT
Perkinsville
Verde
Paulden
Black Mtn. 6,028
Sycamore
Y A V A P A I
Simmons
DEAD HORSE STATE PARK
TUZIGOOT NATL. MON.
Clarkdale
Cottonwood
El 3550
Jerome
JEROME STATE HIST PARK
POTATO PATCH
Bridgeport
Cornville
Mingus Mtn. 7,743
NATIONAL
Cherry
POWELL SPRINGS
INSCRIPTION CANYON
Chino Valley
Camp Wood
Sheridan Mtn.
Cr
Creek
MESA
Bagdad
BOZARTH
Boulder
Blue Mtn. 5,550
River
NATIONAL
GRANITE BASIN
Iron Springs
Willow Res
Granite
Prescott Valley
Dewey
Martin Mtn. 6,433
VALLEY
El 5354
Prescott
LYNX LAKE
HILLTOP
WHITE SPAR
Groom Creek
Spruce Mtn.
Walker
Mt. Union
WOLF CREEK
Humboldt
Burro
BURRO CREEK
Kirkland
Maria
Yava
Skull Valley
SKULL
Kirkland
Hillside
Wilhoit
Mayer
Santa
Kirkland Jct.
FOREST
Goodwin
Turkey Cr
Cordes
Cordes Jct.
El 3790
Dugas
JOSHUA FOREST PARKWAY
Date Creek
WEAVER MTS.
PEEPLES VALLEY
Peeples Valley
El 4783
Yarnell
Blowout Mtn.
Cleator
Crown King
Bumble Bee
HUTCH
Date Creek
DATE CREEK MTS
Congress
Stanton
Octave
Wagoner
HORSETHIEF BASIN
BRADSHAW MTS.
Black Canyon City
Smith Peak
River
El 2093
Wickenburg
Constellation
HIEROGLYPHIC MTS
Rock Springs
COOKS MESA
MOUNTAINS
VALLEY
El 2160
Aguila
Castle Hot Springs
Fria
River
SEVEN SPRINGS
Quien Sabe Pk
MCMULLEN
New River
El 1983
Black Butte
VULTURE MTS.
Lake Pleasant
WADDELL DAM
Gladden
HARQUAHALA MOUNTAINS
Wenden
El 1976
Morristown
Cave Creek
PIONEER ARIZ. MUSEUM
Circle City
Wittmann
Aqueduct
CAVE CREEK DAM
PARADISE VALLEY
Beardsley
Agua
New
BIG HORN MOUNTAINS
M A R I C O P A
Hassayampa
Reef
WHITE TANK MTS
Surprise
Sun City
El Mirage
Youngtown
Peoria
Paradise Valley
Centennial
EAGLE TAIL
PLAIN
MOUNTAINS
Tonopah
LUKE A F B
Litchfield Park
Glendale
El 1154
PHOENIX
El 1092
Scottsdale
Tolleson
Perryville
Tempe
Wintersburg
Wash
El 867
Goodyear
Buckeye
Cashion
Avondale
Salt
Guadalupe
Hassayampa
Liberty
Gila
Laveen
PHOENIX SOUTH MTN. PARK
Arlington
Palo Verde
Allenville
SIERRA
RAINBOW
St. Johns Mission
Rainbow Valley
GILA
Firebird Lake
GILLESPIE DAM

Golden Aztec

RECEIVED FEB 12 1986

Feb. 10, 1986

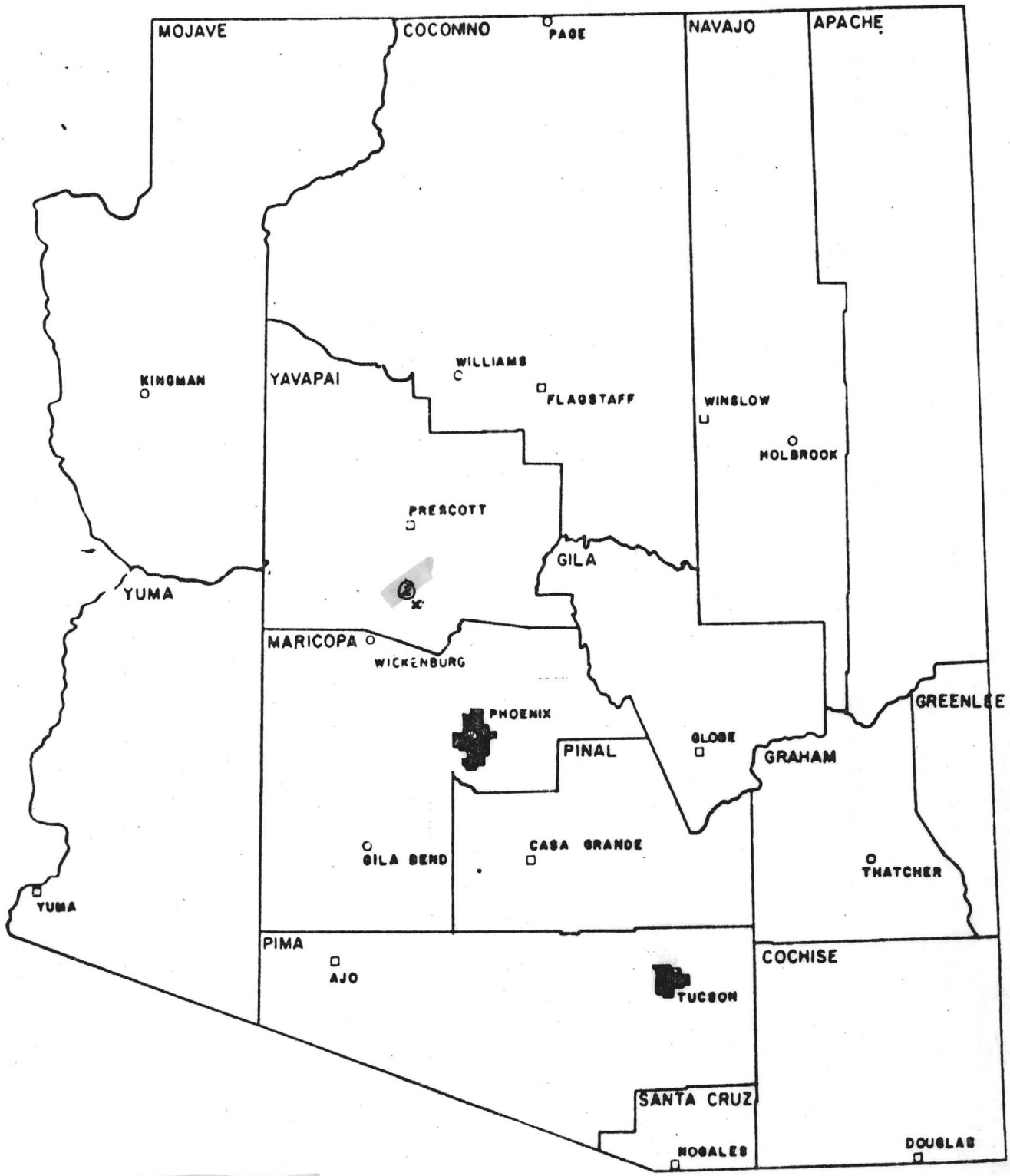
Carol O'Brien
DEMA Ltd.

Here are some reports on the "New Golden Aztec".
If you have any questions or any intrest, please call me.

Thank you,

JOHN P. JOHNSON
8211 N. 1st AVE
PHX, ARIZ. 85021
602-943-1952

ARIZONA



② NEW GOLDEN ASTER

SCALE IN MILES
0 10 20 50

FIGURE 1
LOCATION MAP-ARIZ

SCALE	DATE 3-85	APPROVED	
H 1" = 40MI.	DRAWN BY: EHB		
V	CHECKED:		
	PATCH:		FILE:

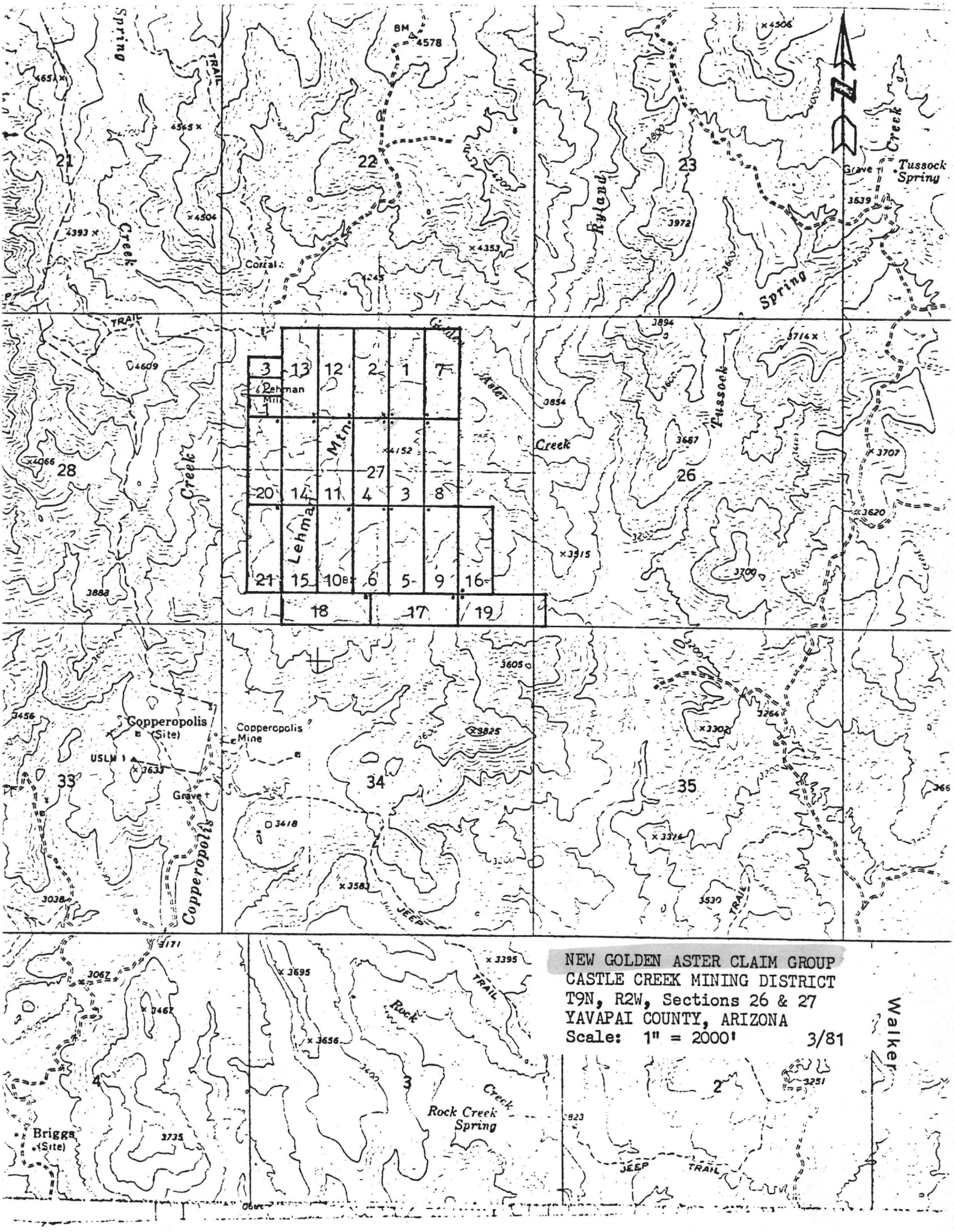

NEW GOLDEN ASTER CLAIM GROUP
CASTLE CREEK MINING DISTRICT
T9N, R2W, Sections 26 & 27
YAVAPAI COUNTY, ARIZONA
Scale: 1" = 2000'
3/81
N
Lehman Mtn.
Lehman Mill
Golden Aster
Tussock Creek
Ryland Spring
Tussock Spring
Castle Creek
Copperopolis (Site)
Copperopolis Mine
Copperopolis
Rock Creek Spring
Rock Creek
Briggs (Site)
Walker
Corral
Grave
JEEP TRAIL
TRAIL
BM 4578
3 13 12 2 1
2 14 11 4 3 8
21 15 10 6 5 9 16
18 17 19
27
28
26
34
35
33
3
4
2

EXHIBIT "A"

NEW GOLDEN ASTER MINING CLAIMS

The New Golden Aster unpatented mining lode claims situated in Sections 26 and 27, Township 9N, Range 2W, G&SRM, Castle Creek Mining District, Yavapai County, Arizona, and are recorded in the Official Records of Yavapai County, Arizona, as follows:

CLAIM	DATE LOC.	DATE REC.	BOOK	PAGE	BLM SERIAL	DOC. No.
No. 1	1/5/80	1/18/80	1273	412-413	AMC 94507	2118
No. 2	1/5/80	1/18/80	1273	414-415	AMC 94508	2119
No. 3	1/5/80	1/18/80	1273	416-417	AMC 94509	2120
No. 4	1/5/80	1/18/80	1273	418-419	AMC 94510	2121
No. 5	12/16/80	12/29/80	1348	146-147	AMC 119345	41213
No. 6	12/16/80	12/29/80	1348	148-149	AMC 119346	41214
No. 7	12/16/80	12/29/80	1348	150-151	AMC 119347	41215
No. 8	12/16/80	12/29/80	1348	152-153	AMC 119348	41216
No. 9	12/16/80	12/29/80	1348	154-155	AMC 119349	41217
No. 10	12/16/80	12/29/80	1348	156-157	AMC 119350	41218
No. 11	12/16/80	12/29/80	1348	158-159	AMC 119351	41219
No. 12	12/16/80	12/29/80	1348	160-161	AMC 119352	41220
No. 13	3/17/81	3/24/81	1369	596-597	AMC 126959	10492
No. 14	3/17/81	3/24/81	1369	598-599	AMC 126960	10493
No. 15	3/29/81	4/3/81	1372	87-88	AMC 126961	11751
No. 16	3/11/81	3/16/81	1367	137-138	AMC 125989	9270
No. 17	3/11/81	3/16/81	1367	139-140	AMC 125990	9271
No. 18	3/11/81	3/16/81	1367	141-142	AMC 125991	9272
No. 19	3/11/81	3/16/81	1367	143-144	AMC 125992	9273
No. 20	3/22/81	3/24/81	1369	600-601	AMC 126962	10494
No. 21	3/29/81	4/3/81	1372	89-90	AMC 126963	11752
NEW GOLDEN ASTER MILL SITES						
No. 1	3/22/81	3/24/81	1369	602-603	AMC 126956	10495
No. 2	3/22/81	3/24/81	1369	604-605		10496
No. 3	3/22/81	3/24/81	1369	606-607		10497
Corrected Mill Site Locations:						
No. 2	3/22/81	4/3/81	1372	91-92	AMC 126957	11753
No. 3	3/22/81	4/3/81	1372	93-94	AMC 126958	11754

NEW GOLDEN ASTER MINE

PRELIMINARY REPORT

INTRODUCTION

THE NEW GOLDEN ASTER mine, consists of twenty-one (21) unpatented lode mining claims and three (3) mill sites, situated in the Castle Creek Mining District, Township 9 North, Range 2 West, Sections 26 & 27, G&SRM, Yavapai County, Arizona.

The mine is at an altitude of approximately 4000 feet on a ridge about 1 1/8 miles north of Copperopolis, and is accessible by road from the Wagoner and Crown King road. The road, approximately 4 miles in length, from the Wagoner road to the mine was completed in April 1982 at the expense of the owners.

In the early days, some ore was treated in a 5-stamp mill on Spring Creek, a short distance west of the mine. The three New Golden Aster Mill Sites cover the old mill sites area.

The property has the potential of being worked as an open pit type operation, at least for several benches.

HISTORICAL INFORMATION

A report obtained from the Arizona Department of Mineral Resources, Phoenix, Arizona, written by Mr. Jonathan Gordon, dated June 1, 1926, described the testing of a 50 ton lot of ore, an analysis of this lot assayed 87.25% silica, 0.3% alumina, 6.8% iron, 1.85 oz/ton gold and 0.55 oz/ton silver, and which gave results as follows:

	oz/ton gold
Heads	1.85
Tails	0.14
Recovery	92%

TESTING CONDITIONS

Pulp: 100 mesh
Solution: 5.3 lb NaCN
Cyanide consumption: 1 lb, NaCN/ton
Lime consumption: 7.7 lb CaO per ton
Leaching time: 72 hours

By amalgamation and cyanidation a recovery of 93% was obtained.

However, recent laboratory testing with the newly developed Ammonium Thiosulfate process, indicates that the ore from the New Golden Aster mine, can be processed with comparable recoveries and in a fraction of the time (less than 2 hours) that the cyanide process requires, and with the added benefit of a non-toxic reagent system.

The same report also states that the original Golden Aster (Lehman) claim group consisted of 15 unpatented lode claims, and that two prominent veins were evident, the Rattlesnake, which was actively worked, and the Kerrigan. The Rattlesnake vein was traceable for 1400 feet along the strike with a width of from 18 inches to 6 feet. The Kerrigan vein 600 feet west of the Rattlesnake was traceable along the strike for 1500 feet, with widths of from 18 inches to 4 feet. Mr. Gordon, also mentioned that numerous quartz outcrops were found on the claims, all of them showing values in gold.

This same report records 41 assorted samples, underground and dump, which give an unweighted average of 1.92 oz/ton gold, and even deleting two high grade samples, one a hand-picked sample assaying 7.60 oz/ton gold, and a 4" streak sample assaying 12.80 oz/ton gold, the unweighted average is 1.50 oz/ton gold.

In 1926, development consisted of 600 feet of drifts with 75 feet of approaches and 50 feet of winzes. Subsequent development work increased this to approximately 1000 feet of underground workings.

It should be mentioned that in the old report, it was stated that the No. 3 adit, which is caved at present, was started in the hanging wall to the west of the vein, but cuts the vein at 30 feet from the portal, showing an aggregate width of 6.5 feet with an average value of 1.894 oz/ton gold. This will be confirmed as soon as the portal of No. 3 adit is cleared and safe for inspection and sampling.

The report also states that there is sufficient water within 1500 feet of the workings to supply mill and camp.

SAMPLING AND ASSAY RESULTS

Preliminary sampling in the accessible workings was conducted by the owners and also by unbiased interested parties, to obtain judgement samples and to confirm historical data, gave an unweighted average of 0.565 oz/ton gold for 12 samples taken underground on the Rattlesnake vein system. The range of values were from .03 to 3.9 oz/ton gold.

Recent sampling, during the access road building in April of this year, in the rattlesnake vein system and adjacent areas, gave an unweighted average of 0.35 oz/ton gold for 26 samples.

Two major veins were mentioned in the Gordon report, however, there is evidence that a third parallel vein exists southwest of the Rattlesnake vein. Also the Kerrigan vein appears to be northeast of the Rattlesnake vein system.

During the surveying of the claim group, it was noted that on the southern slope of Lehman Mt. an early day prospect cut was examined and sampled. The quartz from this cut gave assay values of 0.26 oz/ton gold, and 1.6 oz/ton silver, with some copper mineralization. The cut was near the southern end of claim No. 10. Also, approximately 3000 feet south of the main NEW GOLDEN ASTER mine proper, near the southern portion of claim No. 9, there is a narrow vein, 4-6 inches wide which strikes east and west, of argentiferous galena ore that gives assay values of 4.6, 21.0 and 27.0 oz/ton silver. This structure appears to have the potential of greater widths and depth.

An extensive sampling program is currently underway to evaluate all potential mineralized zones on the property. The new road to the mine, completed in April 1982 allows the use of drills and other excavation equipment in the sampling program.

GEOLOGY

The prevailing rock is Yavapai schist, with some inclusions of granite and numerous dikes of pegmatite. The deposit consists of closely spaced, parallel, branching veins that strike northwesterly, and dip approximately 25 to 30 degrees west, which range from a few inches to several feet in width. They appear to occupy the dilated interfaces of the foliation of the schist, and were most likely mineralized by the major vein systems. Their filling is massive glassy quartz with limonite and a little tourmaline. From the historical data, it appears that the gold is free milling.

To the west, north and east, there are extensive intrusives (?) and flows of rhyolite. A large rhyolite plug (?) to the west and in contact with the Yavapai schist, gave an assay of 0.012 oz/ton gold and 14 PPM molybdenum. It is possible that rhyolite plug was the mineralizing source for the NEW GOLDEN ASTER vein systems.

SUMMARY

The NEW GOLDEN ASTER mine, offers the potential of being a moderate sized gold and silver producer. The topography favors an open pit type of operation, at least for several benches. The deposit crops out near the top of the ridge and dips to the west with a slightly steeper dip than the slope of the ridge.

A preliminary Very Low Frequency, Electromagnetic Geophysical survey was conducted on a portion of the claim No. 1, and indicated an interesting conductive structural high. A detailed survey is contemplated for the near future to assist in developing a drilling, or excavation program.

Water is available approximately 1500 feet to the west on the three (3) NEW GOLDEN ASTER MILL SITES, located on Spring Creek.

A road to the mine is now completed and gives ready access to the property.

It is premature, at this time, to estimate ore reserves. However, in order to convey an order of magnitude to the potential ore reserves, an attempt will be made. Assuming that the Rattlesnake vein which appears to be about 1500 feet long, has an economically minable width of 40 feet and a depth of 200 feet, this would give 1,000,000 tons of potential ore, based on 12 cubic feet per ton density. Again, assuming a grade of 0.25 oz/ton gold, a gold recovery of 90%, and a spot price for gold at $450 per ounce, we would have a gross dollar potential of $101,250,000. This is not considering the other vein systems, and the numerous gold-bearing quartz outcrops. Also, the depth of 200 feet is probably conservative.

If the assumptions are correct, the property certainly appears to have an excellent chance of being an economically feasible producer of gold.

Nicholas H. Carouso (Prescott)
Not registered

SAMPLING OF NEW GOLDEN ASTER

N.H. CAROUSO AND R. ST.PIERRE

GEO-ANALYTICAL LABORATORY

NGA #100, drill hole sample of siliceous schist taken during road building on eaast side of NGA ridge. Gold: ND; Silver: ND

NGA #101, random chip sample of #4 Adit dump. Gold: ND; Silver: ND

NGA #102, chip sample of pegmatite crossing the road south of Mill Site saddle. Gold: ND; Silver: ND

NGA #103, sugary quartz on road south of #1 Adit. Gold: ND; Silver: ND

NGA #104, "Ed's Special", sample from road bed to #1 Adit. Gold: ND; Silver: ND

NGA #105, sample of schist on road to #1 Adit. Gold: Tr; Silver: 0.28 oz/t

NGA #106, random chip sample of pegmatite at #3 Adit cut. Gold: Tr; Silver: 0.48 oz/t

NGA #107, sample of Kerrigan (?) breccia. Gold: ND; Silver: ND

NGA #108, 2 foot thick, slightly dipping quartz vein, approx. between the apex and #1 Adit. Gold: 0.124 oz/t; Silver: 0.836 oz/t

NGA #109, altered schist near the west end of #1 Adit, 14" across schist not quartz visible. Gold: ND; Silver: 0.012 oz/t

NGA #110, about 6' north of #109, a quartz vein 6" to 12", and possibly dips under #109. Gold: 0.058; Silver: 0.178 oz/t 1'

NGA #111, schist on footwall of #110, across about 4'. Gold: 0.122 oz/t; Silver: 0.318 oz/t 4'

NGA #112, across a 1' thick quartz vein about the center of #1 Adit, on the roof. Gold: 0.538; Silver: 0.420 oz/t 1'

NGA #113, on north side of roof a quartz vein that goes from 1 1/2" to 4". Gold: 0.080 oz/t; Silver 0.180 oz/t 0.1

NGA #114, on east end of the north side of the central pillar, near the floor, the sample is about 12" across the quartz, however, the vein appears to be thicker. Gold: 0.036 oz/t; Silver 0.224 oz/t

NGA #115, across about 4' of schist, between #112 and #114, small quartz stringers were omitted. Gold: 0.168 oz/t; Silver 0.492 oz/t

NGA #116, two square foot area of quartz on roof of #1 Adit. Gold: 0.160 oz/t; Silver: ND

NGA #117, 7' chip/channel sample from roof to floor across wall south of central pillar, mainly schist. Gold: ND; Silver: ND

NGA #118, 3' sample along 2" quartz vein on the south wall, west of the central pillar. Gold: 0.822 oz/t; Silver: 1.018 oz/t

NGA #119, 8' chip/channel sample on north side of central pillar, paralleling Bob Franks #2 sample. Gold: 0.838 oz/t; Silver: 0.734 oz/t

NGA #120, quartz outcrop, just to the north of #1 Adit, outside and dipping into the adit, sampled about 4' across the outcrop. Gold: 0.636 oz/t; Silver: 0.444 oz/t

NGA #121, on the road about 1/2 way between #2 and #3 Adits, sampled pegmatite in the middle of the road. Gold: ND; Silver: 0.66 oz/t

NGA #122, composite of small dump on south side of #2 level. Gold: 0.936 oz/t; Silver: 1.384 oz/t

NGA #123, composite of dump on north side of #2 level. Gold: 0.80 oz/t; Silver: 1.12 oz/t

NGA #124, composite of dump on west side of #2 level. Gold: 0.018 oz/t; Silver: 0.922 oz/t

NGA #125, sampled along iron-stained quartz vein with tourmaline on the road about 100' north of #121. Gold: 0.636 oz/t; Silver: 0.384 oz/t

NGA #126, random sampling about 30' north of #125, near road outcrop. Gold: ND; Silver: 0.06 oz/t

NGA #127, sampled same quartz stringer along the road as #125, but to the north. Gold: 0.156 oz/t; Silver: 0.424 oz/t

NGA #128, sampled about 6' of a siliceous pegmatite bearing approx. N25E about 100' north of road outcrop. Gold: 0.10 oz/t; Silver: 0.44 oz/t

NGA #129, a 60' chip sample along the Kerrigan vein (broken vein material from Dozer work). Gold: 0.018 oz/t; Silver: 0.362 oz/t

NGA #130, random sample of area just below the steep part of road on the east side of NGA ridge, where much dark quartz/tourmaline outcrops. Gold: 0.52 oz/t; Silver: 0.60 oz/t

NGA #131, across Rattlesnake vein on the road east of Apex. Gold: 0.066 oz/t; Silver: 0.094 oz/t

NGA #132, across same area, but sampled mainly the hematite/tourmaline portion. Gold: 0.484 oz/t; Silver: 0.856 oz/t

NGA #133, composite of dump on east side just where road turns to west. Gold: 0.26 oz/t; Silver: 0.64 oz/t

Note: NGA #134 to #153 are drill holes on the Rattlesnake vein and the drill locations are covered by a plat.

Drill Hole #	Footage	Gold oz/t	Silver oz/t
#134	0-6	0.048'	0.612
#135	0-4	0.018	0.762
	4-6	0.038	0.902
#136	0-4	0.022	0.598
	4-6	0.098	0.922
#137	0-4	0.038	0.982
	4-6	0.050	0.990
#138	0-4	0.066	0.414
	4-6	0.076	0.204
#139	0-4	0.132	0.308
	4-6	0.072	0.348
#140	0-5	0.060	0.280
#141	0-4	0.080	0.280
	4-6	0.150	0.310
#142	0-4	0.110	0.310
	4-6	ND	ND

#143	0-4	0.080	0.040
#144	0-5	ND	0.040
#145	0-4	0.140	0.320
	4-6	0.082	0.378
#146	0-4	0.310	0.270
	4-6	0.108	0.492
#147	0-4	ND	1.040
	4-6	ND	0.220
#148	0-4	0.020	0.160
	4-6	0.012	0.368
#149	0-4	0.038	ND
	4-6	0.036	ND
#150	0-4	0.042	ND
	4-6	0.038	ND
#151	0-4	0.008	0.112
#152	0-4	0.018	ND
	4-6	0.022	ND
#153	0-4	ND	ND
	4-6	ND	0.160

NGA #154, chip sample taken on west side of arch #1 Adit, by John Johnson. Gold: 0.144: Silver: ND

NGA #155, three foot chip sample of quartz vein on north west side of #1 Adit. Gold: 0.098; Silver: 0.262

NGA #156, random chip sample north side of Rattlesnake vein, near the location monuments. Gold: 0.396; Silver: 0.284

NGA #157, quartz that came up from blast on south side of Rattlesnake vein, appears to be same vein as #156. Gold: 0.496; Silver: 0.204

NGA #158, random sample of small veinlets along road on east side of NGA ridge and about 80 feet north of the Rattlesnake vein. Gold: 0.498; Silver: 0.462

NGA #159, random sampling of Kerrigan vein, near top of ridge. Gold: 0.056; Silver: 0.964

NGA #160, sample of black (altered Tourmaline?) on west road bank, about 100 feet north of #2 Adit. Gold: ND; Silver: 0.01

NGA #161, random chip sample of portal of East Drift of Rattlesnake vein. Gold: 0.014; Silver: 0.206

NGA #162, a segragated sample of Tourmaline to determine if the Tourmaline carries precious metals. Gold: ND; Silver: ND

April 18, 1982

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Ms. Mona Johnson
8211 North 1st Avenue
Phoenix, Arizona 85021

Date February 4, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
9881-A	NG/A:						
	#1	0.05					
	#2	0.03					
	#3	0.50					
	#4	0.06					
	#5	3.9					
	#6	0.14					

NGA #1, East Adit 75 feet from portal, 12 inch quartz vein.

NGA #2, 4" quartz vein #1 adit, outside of portal.

NGA #3, 90 feet from portal #2 adit, quartz vein in roof, Copper and Hematite.

NGA #4, Left crosscut 90' from portal, #2 adit.

NGA #5, 10" quartz vein in adit #1 at portal.

NGA #6, Random sampling from tailings at adit #1.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
Certificate No. 6258
Claude Eugene McLean, Jr.
Date Signed 2/4/81
Arizona, U.S.A.

DJK

MONITOR GEOCHEMICAL LABORATORY INC.

(702) 738-3236

744 South Fifth Street
P.O. Box 1901
Elko, Nevada 89801

F.M.C.
DENVER
PATENTS

Certificate of Analysis

AUG 24 1981

Inv. #5236

Client: F. M. C. Corporation
D. Krasowski

Date: August 19, 1981
Client Order No.:

Analytical Methods: Au - Fire Assay

CC:

SAMPLE #	Fire Au(oz/ton)
101-K-121601	.050
121602	.656
121603	.042
121604	.018
121605	.014
121606	.400
121607	.018
121608	13.500
121609	.010
121610	1.810

Joseph D. Koch
Manager

* Greater than 1000 ppm reported as percent (Assay)
** Break in numerical sequence

INTERMOUNTAIN ANALYTICAL SERVICES

3314 POLELINE

(208) 237-3300

POCATELLO, IDAHO 83201

File

F.M.C.
DENVER
DATE REC'D.
AUG 3 1981

CERTIFICATE OF ANALYSIS

Date Submitted: 7/3/81

Submitted By: FMC - Krasowski

General Description: Rock & Soil

Results Needed By (Date): 40101-K

LAB NO.	SPECIFIC DESCRIPTION	OZ/T Au	OZ/T Ag	PPM As	PPM Sb
001773		Y	T	-17	-
121601		0.061	-0.1	-14	-5
121602		0.080	0.2	-14	-5
121603		0.023	-0.1	42	-5
121604		0.017	-0.1	20	-5
121605		0.020	0.2	30	10
121606		0.342	0.4	42	-5
121607		0.015	-0.1	-14	-5
121608		+3.00	0.7	70	-5
121609		0.007	-0.1	17	-5
121610		2.21	1.0	250	20

LAB NO.	SPECIFIC DESCRIPTION	OZ/T Au	OZ/T Ag	PPM As	PPM Sb	PPM Mo

	001773	Y	T	-17	-	
	121601	0.061	-0.1	-14	-5	3
	121602	0.080	0.2	-14	-5	7
	121603	0.023	-0.1	42	-5	8
	121604	0.017	-0.1	20	-5	4
	121605	0.020	0.2	30	10	5
	121606	0.342	0.4	42	-5	10
	121607	0.015	-0.1	-14	-5	-2
	121608	+3.00	0.7	70	-5	3
	121609	0.007	-0.1	17	-5	-2
	121610	2.21	1.0	250	20	4

INV # 1267

Date Reported: 7/31/81

Analyst:

Certificate #:

3314 POLELINE

INTERMOUNTAIN ANALYTICAL SERVICES
(208) 237-3300
POCATELLO, IDAHO 83201

Dennis

CERTIFICATE OF ANALYSIS

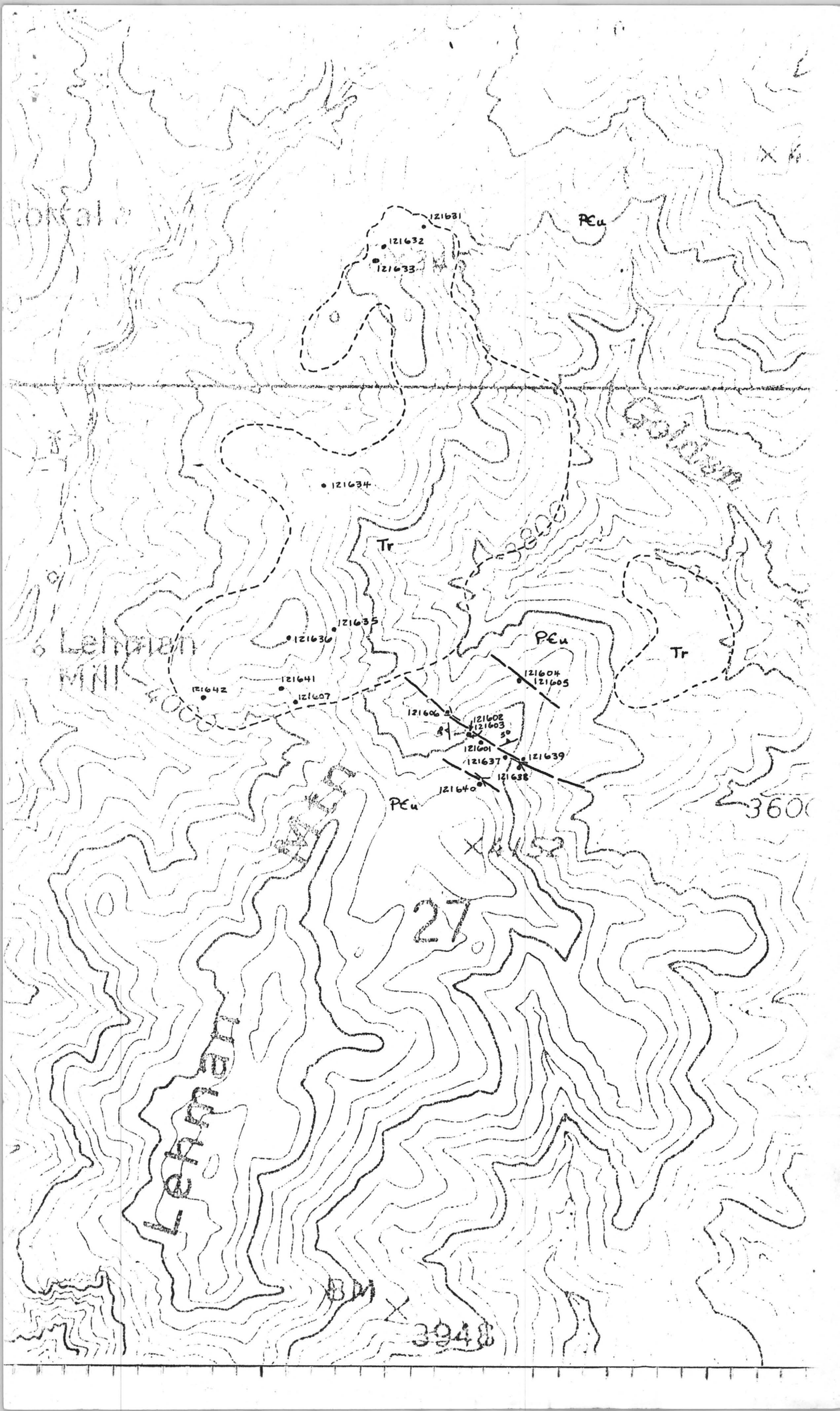
Date Submitted: 8/17/81
Submitted By: FMC - Krasowski
General Description: Rock & drillcuttings
Results Needed By (Date): 40101-K

F.M.C. DENVER TE REC'D SEP 15 1981

LAB NO.	SPECIFIC DESCRIPTION	OZ/T Au	OZ/T Ag		
	121631	1	1		
	1632	0.001			
	1633	0.001			
	1634	1			
	1635				
	1636	1	0.1		
	1637	0.054	1		
	1638	0.233			
	1639	0.075			
	1640	0.230			
	1641	-0.001			
	121642	-0.001	—		

INV# 1297

Certificate #: 81-09-0417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121633
PEu
121634
Tr
3800
121635
121636
Lehman
Mill
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121607
PEu
Tr
121604
121605
121606
121602
121603
121601
121637
121639
121638
121640
PEu
3600
27
BM
3948

VERY LOW FREQUENCY ELECTROMAGNETIC SURVEY
THE NEW GOLDEN ASTER MINING CLAIM GROUP
CASTLE CREEK MINING DISTRICT
YAVAPAI COUNTY, ARIZONA

GEO-PROCESSING, INC.

Nicholas H. Carouso

Nicholas H. Carouso
President

August 22, 1984

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VERY LOW FREQUENCY ELECTROMAGNETIC SURVEY
THE NEW GOLDEN ASTER MINING CLAIM GROUP
CASTLE CREEK MINING DISTRICT
YAVAPAI COUNTY, ARIZONA

INTRODUCTION

A Very Low Frequency Electromagnetic Geophysical survey was conducted by Nicholas H. Carouso, President of Geo-Procesing, Inc., on the New Golden Aster unpatened lode mining claim group on August 22, 1984, as an ongoing economic evaluation study and also as partial fulfillment of the annual assessment work required by law.

Two lines were run which correlated well with the known geology and indicated conductive structural highs which should be tested by drilling.

VERY LOW FREQUENCY ELECTROMAGNETIC SURVEY

PRINCIPLE OF OPERATION

The U.S. Navy VLF-transmitting stations operating for communications with submarines at sea, have a vertical antenna system. The antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. The instrument used for this type of survey, the EM-16, is simply a sensitive receiver covering the frequency bands of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage of electromagnetic response. The remaining signal in this coil is finally balanced out by a measured percentage of signal from the other coil (horizontal coil), after being shifted (electronically) by 90 degrees. This coil is normally parallel to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation Pi/2-signal from the horizontal coil is a measure of the quadrature vertical signal. In other words, the vertical real-component (Inphase reading) indicates the structure and the Quadrature indicates how conductive the structure is.

VLF EM GEOPHYSICAL INTERPRETATION

The plats of VLF EM geophysical survey lines and a plat with overlay of the survey lines are included in the APPENDIX of this report.

LINE 16, indicated that the known mineralized structures which outcrop and have a bearing of approximately North 60 deg. West are conductive highs as they couple well with Station NLK, however it appears that the structure south of the Rattlesnake vein is possibly stronger and also

couples with Station NAA. This indicates that possibly an intersection of the northwesterly bearing structures by a northeasterly structure exists here. A drill hole near Station 5N would be an interesting venture as it is near the proposed intersection.

LINE 17, confirms that on the main New Golden Aster ridge, the mineralized structures have mainly a northwesterly bearing.

CONCLUSIONS

This current Very Low Frequency Electromagnetic Geophysical survey correlates well with the geology and indicates a favorable target for a drilling program.

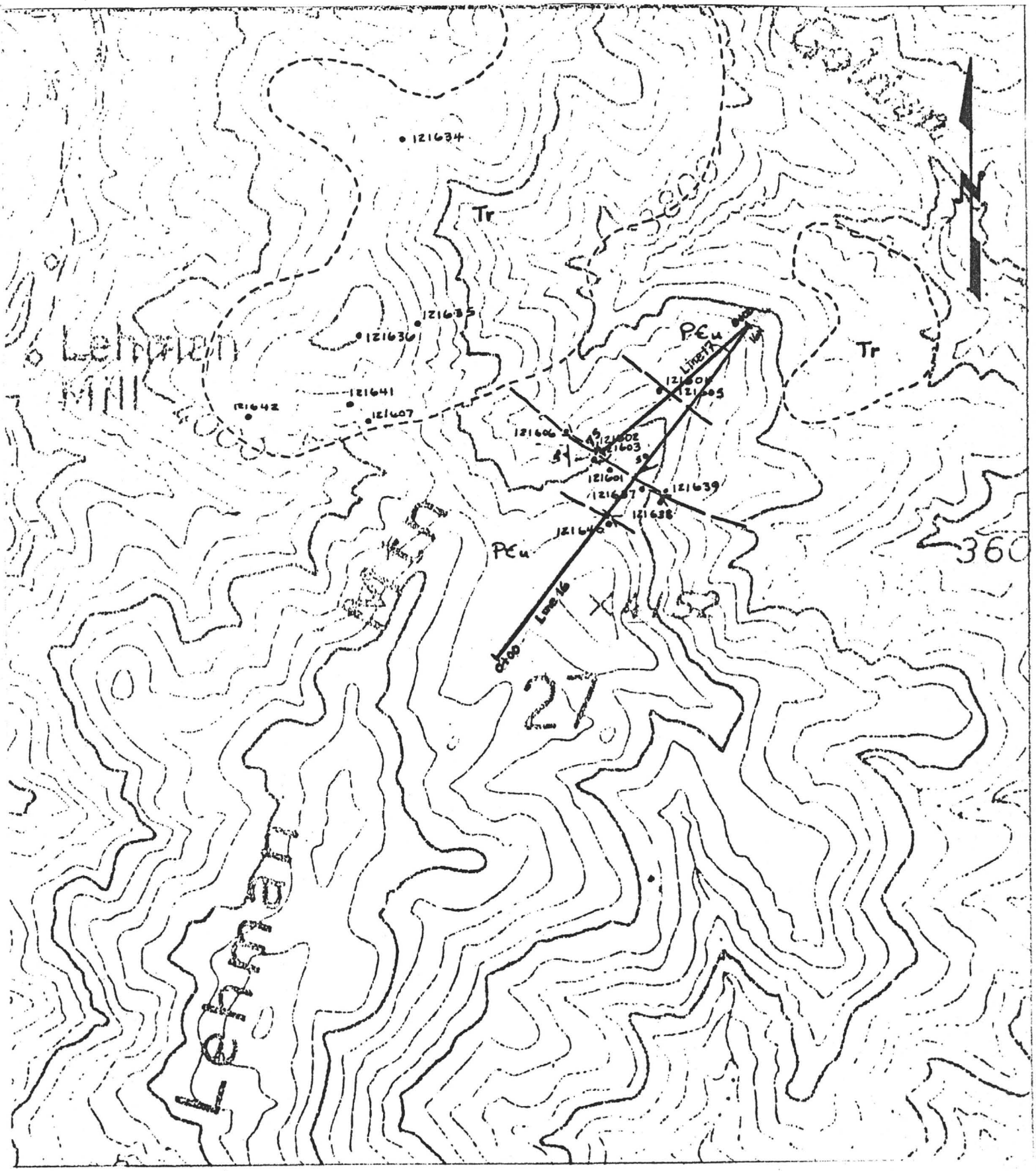
PROFESSIONAL QUALIFICATIONS

Nicholas H. Carouso, President, of Geo-Processing, Inc., an Arizona Corporation, which is a mining and metallurgical consulting firm, is qualified to supervise and conduct the above reported geophysical study as he holds a Master of Science Degree from the Department of Mineral Technology (Mining), College of Engineering, University of California, Berkeley, California; he attended The Mackay School of Mines, University of Nevada, Reno, in graduate studies; and also was enrolled in graduate studies at the College of Mines, Department of Mining and Geological Engineering, University of Arizona, Tucson, Arizona, in a PhD program in Geological Engineering. He has over 35 years years of mining experience conducting numerous economic mining evaluations in the western U.S. and Alaska, and is a member of the American Institute of Mining and Metallurgical Engineers.

This report was prepared by,

Nicholas H Carouso

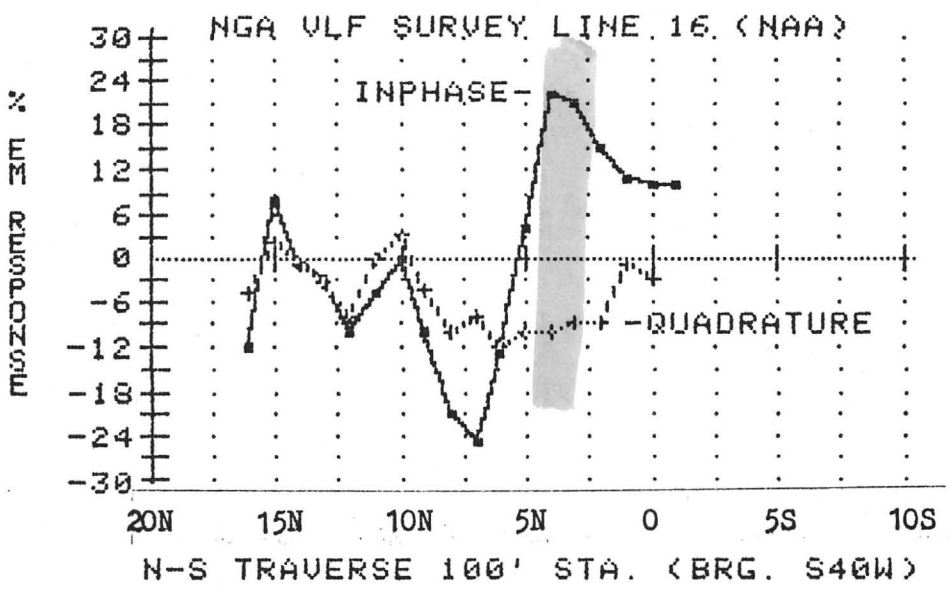
Nicholas H. Carouso



NEW GOLDEN ASTER MINING CLAIM GROUP AREA

Castle Creek Mining District,
Yavapai County, Arizona

VLF EM OVERLAY
Scale: 1" = 500' 8-22-84


NGA VLF SURVEY LINE 16 (NAA)
INPHASE
QUADRATURE
% FIELD STRENGTH
30
24
18
12
6
0
-6
-12
-18
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20N
15N
10N
5N
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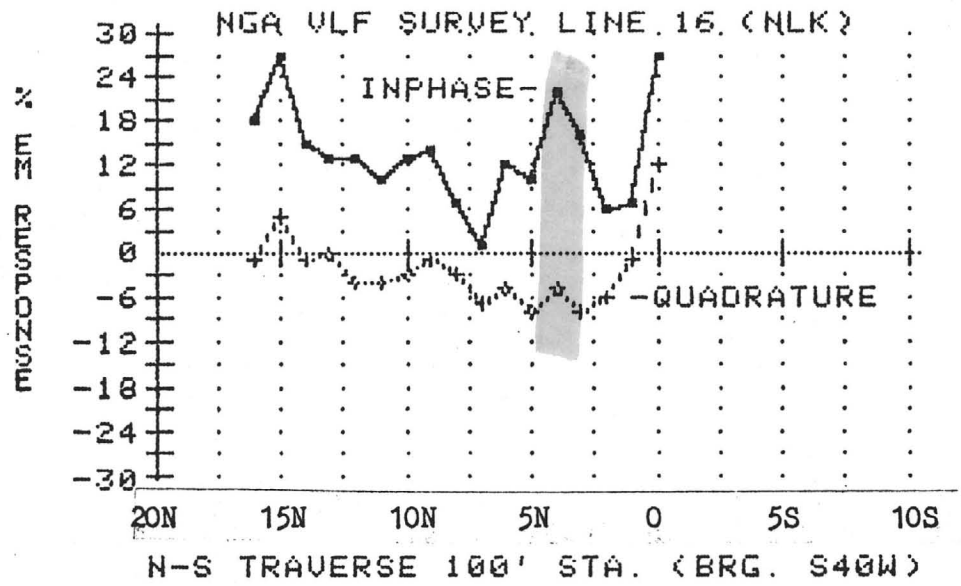
5S
10S
N-S TRAVERSE 100' STA. (BRG. S40W)


NGA VLF SURVEY LINE 16 (NLK)
INPHASE
QUADRATURE
PERCENT RESPONSE
30
24
18
12
6
0
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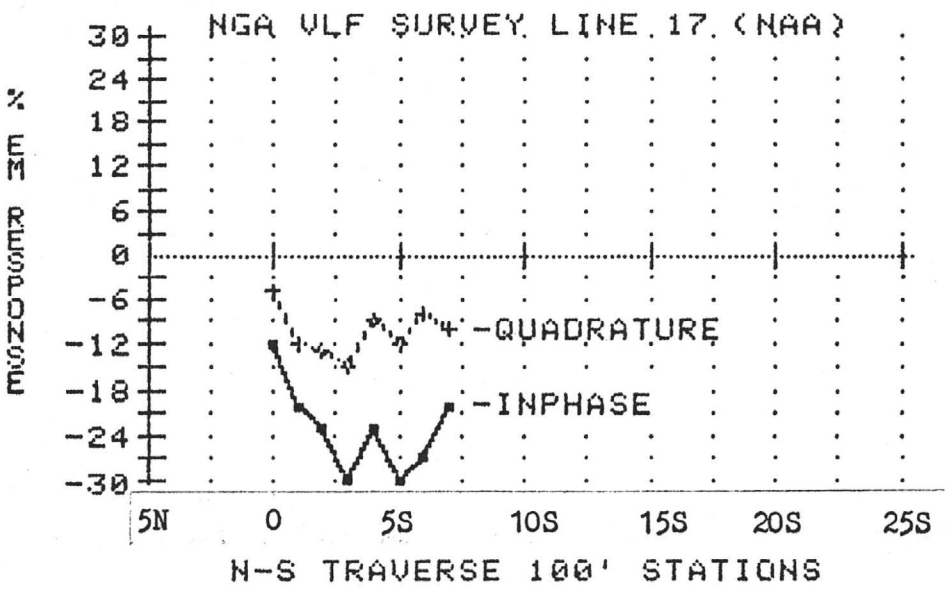
N-S TRAVERSE 100' STA. (BRG. S40W)


NGA VLF SURVEY LINE 17 (NAA)
30
24
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-24
-30
PERCENT FIELD
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-INPHASE
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5S
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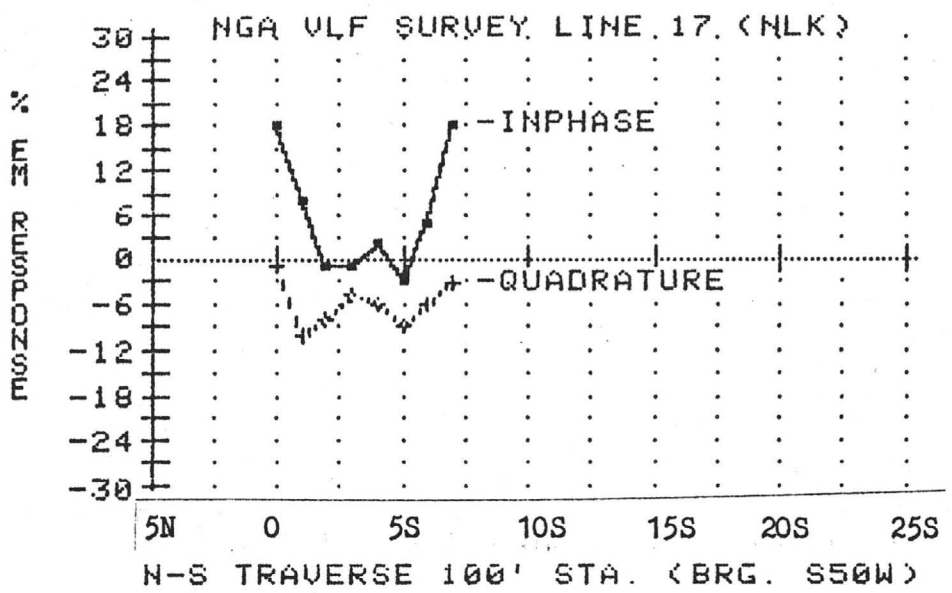
15S
20S
25S
N-S TRAVERSE 100' STATIONS


NGA VLF SURVEY LINE 17 (NLK)
30
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0
-6
-12
-18
-24
-30
% EM RESPONSE
-INPHASE
-QUADRATURE
5N
0
5S
10S
15S
20S
25S
N-S TRAVERSE 100' STA. (BRG. S50W)

roads that lead from Wickenburg, Wagoner, and the Castle Hot Springs highway.

This region is made up mainly of Yavapai schist and Bradshaw granite, locally intruded by dikes of diorite and rhyolite-porhpyry and largely mantled on the south by volcanic rocks. It has been deeply and intricately dissected by the southeastward-flowing drainage system of Castle Creek. As the elevation ranges from about 2,500 to generally less than 4,000 feet, the streams carry water only occasionally, and desert vegetation prevails.

The ore deposits, which occur only in the pre-Cambrian rocks, have been grouped by Lindgren[83] as follows: Pre-Cambrian gold-quartz veins, represented by the Golden Aster or Lehman deposit; post-Tertiary gold-copper veins, exemplified by the Swallow, Whipsaw, Jones, and Copperopolis properties; and lead veins. Lindgren states that the total production of the district, including rich ore shipped and ore treated in the Lehman and Whipsaw mills, probably amounts to less than $500,000.

GOLDEN ASTER OR LEHMAN MINE

The Golden Aster mine is at an altitude of about 4,200 feet on a granite ridge about 1⅛ miles north of Copperopolis. It is accessible by road and trail from Wagoner and by trail from Copperopolis.

During the early days, this deposit was owned by Gus Lehman. Later, it was acquired by E. C. Champie. Some ore was treated in a 5-stamp mill on Spring Creek, a short distance west of the mine. For the past several years, a small production has been made. About 40 tons of ore was shipped in 1932-1933.[84] Early in 1934, three men were employed.

Here, the prevailing rock is granite, with some inclusions of schist and dikes of pegmatite. The deposit consists of closely spaced, parallel, branching veins that strike N. 10° W., dip 25° W., and range from a few inches to 2 feet in width. Their filling is massive, glassy quartz with limonite and a little tourmaline. Coarse free gold is locally present.

The mine is opened by about 1,000 feet of tunnels and raises.

BLACK ROCK DISTRICT

ORO GRANDE MINE

The Oro Grande property of fifteen claims in southern Yavapai County is about a mile east of the Hassayampa River and 4½ miles by road north of Wickenburg.

This deposit is reported to have been prospected in a small way for copper and silver during the seventies. In 1900, it was acquired by G. B. Upton and associates who, during the following three years, sank a 340-foot shaft, did a few thousand feet of de-

[83] Lindgren, W., work cited, pp. 183-84.
[84] Oral communication from Joe Stockdale.

ECONOMIC POTENTIAL

of the

ALVERADO GOLD MINE
YAVAPAI COUNTY, ARIZONA

by

H. MASON COGGIN, PE & LS

APRIL 20, 1982

prepared for

DYDAR RESOURCES

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INTRODUCTION

The Alverado Gold Mine, located about 65 miles northwest of Phoenix, Arizona has a unique potential for economic development as a moderately sized gold producer.

This report will outline the potential economics and risks of reentering and operating the property either as an underground gold mine and/or a surface heap leaching operation.

The property, it's location, geology and workings have been previously described by John Chronic a Geologist for Scarth Petroleum in March of 1981. This report will not attempt to duplicate that work but is intended as a companion thereto.

CONCLUSIONS AND RECOMMENDATIONS

Exploring and developing this property has two chances for a successful venture at present metal prices and under existing technology.

The first opportunity is a small underground mining operation feeding a 100 ton per day mill using rubber tired equipment and employing sandfill for ground support. This operation would provide annual cash flows averaging $461,691 for a period of well over 10 years.

The second possibility is a heap leach producing $1.128 MM in before tax cash flows over a 12 month period. The initial investment would be less than $300,000.

As with any mining venture there is risk. The risks involve the amount and availability of the estimated reserve, the grade of material to be mined and the applicability of the proposed mining method to the deposit. The previous operators have eliminated the risks usually associated with an exploration program. They had an acceptable recovery method. They did recover gold in paying quantities and the mine is developed. Had it not been for the Gold Mine Closing order of 1942 they would have continued operations until the reserves were exhausted.

What is needed to eliminate or quantify the risks is an initial investment of $500,000. These funds would be used to dewater the existing shaft, verify the old assays, determine how much of the reported reserves are available for mining and analyze the various surface heap leaching potentials.

The property is a sleeper. It is sitting unoperated between two current producers with similar histories and similar geology. It would have been developed along with its neighbors but for litigation and underfinancing.

Little information is available from the last operator who worked the property from about 1934 to 1941 when it was closed by the Gold Mine Closing Order of 1941. The mine was apparently a profitable producer at that time. The operators were able to pay off two government loans of $500,000 within a short period of time. The U. S. Government at that time was passing out loans primarily to strengthen a struggling economy.

The biggest question in evaluation of this property is determining what effect the development and exploration of the 1940 operation may have had on the reserves which were projected before they commenced operations.

The only known map of the underground operations in 1938 shows that the main shaft was deepened to the 13th level and that each level was drifted, but that no new stoping was done. This work was obviously a well organized effort of exploration and development. Whether or not they had actually stoped out any of the developed reserves can only be determined by dewatering the shaft and resampling the new levels.

Upon evaluation of the information thus obtained an additional investment of $1.310 MM will be required to construct a 100 ton per day mill and initiate the mining operation.

The shaft has recently been dewatered to the 8th level without any stoping of the vein being found. The check sampling done at that time checked well with the 1907 Neill results.

The heap leach potential of the surface mine dumps and the shallow open-pittable outcrops has not been determined. Test work to determine the best way to operate the heap leach potential will be developed in the initial $500,000 program.

In view of the high potential of this property I recommend initiation of the program starting with dewatering and sampling as soon as possible.

RESERVE CALCULATIONS

The 1907 Neill map is the basis of the reserve calculation in Appendix A. The map consists of a sampling and mapping program. It included all of the vein that was exposed at the time of Neill's examination.

Each sample was given an area of influence according to its width, the distance to the next sample and the distance to the next level above or below. The grade of the assay was then divided by a tonnage factor of 12.5 cubic feet per ton and multiplied by the volume of influence. The individual results were then weighted to provide weighted averages of grades and widths.

The resulting total of this estimate was 143,438 tons at 0.26 ounces of gold per ton. The average width was 3.57 feet.

This reserve estimate included all of the areas sampled from the 1907 map. There is no way to determine how much of this reserve may have been mined. It can be assured however that at least those reserves above the 800 level are still intact. Charles Moore, a employee of Scarth reported no mining above that level from his 1980 dewatering to that level. He did not dewater below that level due to lack of funding. It is also known that the 1940 operations extended the shaft and developed several levels below the 9th level. Exactly how far this work was continued is unknown. The surface expression of the vein also goes beyond the limits of the developed workings. If these areas are explored there is a considerable chance of expanding reserves.

The entire sampled area, which probably represents all of the exposed vein in the workings, was used for estimating reserves to reflect the proposed mining method which will be a rapid mining system without selectivity.

The proposed system will mine the entire vein to an average width of six feet. Diluting the calculated reserve to this width yield the following results:

Fully diluted reserves:
241,000 tons at 0.18 ounces of gold per ton.

PROPOSED MINING METHODS

Because of the low grade nature of the fully diluted reserves; the proposed mining method is designed for high efficiency low cost production. It is a method of overhand stoping on sandfill with rubber tired load haul dump equipment. The LHD's will store the mined materials in a muck bay and dump directly into a single skip for hoisting.

Each round blasted will be six feet wide, eight feet long and will extend eight feet up the vein. One round will contain approximately 30 tons. To maintain a mill feed rate of 100 tons per day on the basis of a seven day week the mine will have to produce 140 tons of ore per day on a five day per week basis. An additional capacity of 40 tons per day should be provided to allow exploratory drifting and handling of occasional waste.

Drilling and Blasting: Six rounds per day will be required to sustain the tonnage. Two drillers and two helpers will be necessary. Drilling will be with jacklegs and stopers. Blasting will be with prill and conventional electrical caps. The cost for this is estimated at $800 per day or about $4.40 per ton.

Mucking: All materials will be handled from the face to the muck bay with small rubber tired loaders with a bucket capacity of one ton. The average load haul dump time with a one way tram of 100 feet will be about 5.5 minutes. The mucking efficiency with this equipment is then 11 tons per hour. For an eight hour efficiency this equates to about 50 tons per shift. The balance of the shift will be involved in loading skips and moving the machines. With four LHD operators the cost of mucking is estimated at $800 per day or $4.40 per ton.

Sandfilling: Back filling a stope with sand fill will require at least two days in preparation. Preparation involves building a bulkhead to contain the sandfill, hanging the fill line and connecting the system. For a stope length of 200 feet the average lift will require 800 tons of sand fill. This can be delivered in one day if 800 tons of sand fill storage are available. The state of the art in sand filling requires that the mill tailings be deslimed through a cyclone, agitated mechanically and delivered to the stope through a schedule 80 steel pipe. The sands are transported to the workings at 50% solids. This will add about 100 gallons per minute to the mine pumping requirements. The last foot of sand fill normally receives about one sack of type II portland cement per yard. This provides a firm footing for the LHD's. The filled sections are filled to within a foot or two of the back. This provides an additional free face for blasting operations. The cost of sand filling is estimated at $2.00 per ton.

Dilution: the calculated dilution for the above described method is 61%. Thus the grade of 0.26 ounces per ton will be diluted with wall rock to and overall grade of 0.18.

Hoisting: One hoistman and a toplander will be required to hoist ore, men, materials and maintain the pumps, compressors and other equipment. The hoist should have the capacity to hoist a maximum load of 10 tons at a maximum rope speed of 900 feet per minute. The federal mine inspectors (MSHA) have arbitrarily started to enforce the 100 times rope diameter ratio for all mine hoists and sheaves. This will no doubt deplete the used equipment market of all large diameter hoisting equipment. A search for suitable equipment should be started as soon as the project receives its initial funding to insure that this equipment will be available. The hoisting skip should have a 3 ton capacity and designed so that it is self dumping and can be loaded by the LHD's.

Cycle time for hoisting is estimated as follows:

loading	1.00 min
hoisting	2.00
dumping	0.10
return and spotting	2.00
total trip time----------	5.10---------
hoisting time for 200 tons	5.67 hours
hoisting costs will be about	$2.00 per ton

Ventilation: To control fumes an estimated 50 cubic feet per second is required for each horsepower of diesel powered equipment operating in the mine. At 35 horsepower for each LHD this calculates to 7000 cfm of fresh air. A single stationary fiberglass ventilation pipe with tee's at each station and auxiliary fans should satisfy this requirement. Head loss for the system is estimated at a total of 8 inches of water gauge.

Working Places: The operating cycle for each stope is estimated as follows:

per 800 ton lift	
drilling and blasting	6.67 days
mucking	3.37
sandfilling	8.00
smoke time	3.37
Total ----------	21.41days -------

To sustain 180 tpd in production 5 stopes are required. This is equivalent to 3 levels being operated at the same time.

Required Tonnage: The required tonnage to support the 100 ton per day mill which has been proposed for this operation is summarized as follows:

Mill tonnage	100 tons per day
Mill schedule	36500 tons per year
Mine schedule	5 days per week
Mine tonnage	150 tons per day

Supervision: The staff for the entire operation is estimated as follows:

1 General superintendent
1 Staff Engineer with capabilities in geology and metalurgy
1 Bookeeper,warehouseman, safety engineer and medic
1 secretary

Annual cost of keeping this staff will be about $200,000 per year or about $0.28 per ton on the mining cost and a like amount on the milling cost.

TABLE 1

ALVERADO GOLD MINE

SUMMARY OF COSTS

ITEM	COST /TON	ANNUAL
DRILLING AND BLASTING	4.40	160600
MUCKING	4.40	160600
SAND FILLING	2.00	73000
HOISTING	0.50	18250
SUPERVISION	0.28	10220
MISCL.	5.42	197830
TOTAL MINING COST	17.00	620500
MILLING	30.00	1095000
G&A	1.00	36500
TOTAL OPERATING COSTS	48.00	1752000

ANNUAL REVENUES

36500 TONS PER YEAR

0.18 OUNCES PER TON

0.97 RECOVERY

6570 OUNCES PER YEAR

400 GOLD PRICE ESTIMATE

2628000 ANNUAL SALES

MILLING OPERATIONS

The mill will work 24 hours per day on a 365 day per year basis. At least two men should be on shift at all times. To meet this requirement 5 mill operators and five mill labors will be rotated through a five day per week schedule through holidays and vacations. The mill operation will be continuous stoping only for breakdowns and scheduled maintaince. The electrician and mechanic will be assigned to the mill although they will have mine responsibilities as well as the mill. Major repairs to the equipment will be farmed out to shops and facilities in Phoenix. The size of the operation will not support the shop facilities necessary to replace engines or reline ball mills.

The previous operators of the property apparently operated a counter current decantation mill on the property. The old tailings dump represents material which has been scraped away from a rotary filter. This type of filter was commonly used in counter current decantation to recover the last bit of pregnate solution from the pulp. The resulting tailings were too dry to move through a slurry line and were apparently moved from the filter by a slusher.

This type of operation has been replaced today by the carbon in pulp system. It is more economical to construct and operate that the CCD and has a higher recovery.

At this time there has not been sufficient work on the Alverado materials to determine the optimum flow sheet for milling. This work will be undertaken as part of the initial investment. The costs used in the attached estimates are intended to represent general costs and are not intended to be a detailed estimate.

CAPITAL COSTS

Capital costs can not be estimated at this time. Lack of information that can only be acquired through the dewatering and samlpling program is needed to design and specify the required equipment. Capital costs which have been used in the attached economic analysis are best guess estimates based on simillar operations in the authors experience.

ECONOMIC ANALYSIS UNDERGROUND POTENTIAL

The following analysis of the underground economic potential is intended to show the possible cash flows of the project under varying conditions of gold prices and operating costs.

The first sets of tables and charts show the base case economics at $400 gold and a $48 operating cost. Since metal price and operating costs are the most likely values to change radically over the next few months. Several different scenarios have been used to represent ranges in metal price from $300 to $600 per ounce and from $30 to $70 per ton in operating costs.

Tables one through eight and figures 1 through 10 show these results in relation to the base case. In each case the other variables are held constant at the base case and only the variable being examined is allowed to change.

The figures which are presented as a graphic representation of the effects of each variable show only the cash flow line of each case. Both the annual cash flows and the accumulated cash flows are shown. The sensitivity of the project to each variable can easily be examined in each figure.

Table 10 shows a summary of the projected cash flows from the sensitivity analysis.

HEAP LEACHING

It is estimated that as much as 50,000 tons of old dump materials and 30,000 tons of surface outcrop may contain sufficient values to be heap leached at a profit. Preliminary sampling of these materials indicates that the grades are high enough to make this an attractive target. More sampling and some test work will be required to refine an estimate of this potential.

Heap leaching, especially in relatively frost free areas such as this, is an economical method of treating some low grade ores with low risk, low cost and quick returns.

The process consist of circulating a cyanide solution through a dump which has been placed on an impervious pad and winning the leached values from the solution either by zinc precipitation or carbon adsorption.

Recoveries are greatly enhanced by crushing the materials and agglomerating the fines. Even under optimum conditions the best recovery that can be expected is about 60% although recoveries as high as 90% have been reported. In the following economic forecast 60% recovery has been used.

The method of treatment considered for this study consist of preparing one 10,000 ton pad which will be leached and moved within one month. This pad will then be reloaded and cycled for the next month. Initially the materials will be mined from the outcropping veins, crushed to about minus one half inch and the fines agglomerated.

The pad will be located in or near the old tailings so that these materials can be used in pad construction. The initial would cover an area approximately 100 by 200 feet with a slope of about one percent so that the solution will return to a pregnate solution pond at the bottom of the pad. A fresh water pond and a barren solution pond will be constructed to facilitate the operation of the heap. The pad and pond liner will be a 20 mil PVC material to contain the solutions. This material is available from Water Saver of Denver, Colorado.

The recovery system should be a carbon adsorption plant which is either constructed or purchased locally. The writer is presently involved in Bimetals Recovery Systems, Inc. a very young manufacturing company which manufactures a portable carbon adsorption plant. It is trailer mounted and contains the necessary equipment to adsorb the values, strip the carbon and electrowin on steel wool. A copy of the brochure on this equipment is attached (see appendix B).

The following is a summary of the heap leaching potential:

Estimate of materials:

	tons	ounces per ton
old mine dumps	50,000	0.05 gold
surface outcrops	30,000	0.20

Capital Requirements for the first pad.	
site prep.	$12,000
liners	30,000
recovery plant	30,000
crushing & placing	30,000
chemicals	25,000
mining	30,000
30 days of operating	30,000
contingencies	15,000
Total for the first pad	$202,000
for the next two pads	
mining	$30,000
crushing & placing	30,000
chemicals	25,000
operating	30,000
contingencies	25,000
total for the 2nd & 3rd pads	140,000
for the last five pads	
crushing & placing	$30,000
chemicals	25,000
operating	30,000
contingencies	25,000
total for pads 6 to 10	$110,000

The costs of mining, crushing and agglomerating can be controlled by contracting this work out to local contractors who are both equiped and qualified for this job.

Table 9 shows the proforma of the heap leaching potential.

TABLE 2

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

400 GOLD PRICE

BASE CASE

depletion base incorrect all these are wrong except those w/ 50% limit

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	24966000
ROYALTY			-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-1872450
OPER COST			-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1.752E7
NIBT			557355	557355	557355	557355	557355	557355	557355	557355	557355	557355	5573550
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			-191328	-191328	-191328	-191328	-191328	-191328	-191328	-191328	-191328	-191328	-1913275
TAXABLE I			191328	191328	191328	191328	191328	191328	191328	191328	191328	191328	1913275
TAX @ 50%			-95664	-95664	-95664	-95664	-95664	-95664	-95664	-95664	-95664	-95664	-956638
NIAT			95664	95664	95664	95664	95664	95664	95664	95664	95664	95664	956638
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			191328	191328	191328	191328	191328	191328	191328	191328	191328	191328	1913275
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	-38309	461691	461691	461691	461691	461691	461691	461691	461691	961691	2806913
												NPV AT 20	-219643
												IDCFROI=	16.17

TABLE 3

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

300 GOLD PRICE

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			1872450	1872450	1872450	1872450	1872450	1872450	1872450	1872450	1872450	1872450	18724500
ROYALTY			140434	140434	140434	140434	140434	140434	140434	140434	140434	140434	140433B
OPER COST			-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1.752E7
NIBT			260884	260884	260884	260884	260884	260884	260884	260884	260884	260884	2608838
DEPREC			1122	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-157117B
DEPLETION			-131003	-43092	-43092	-43092	-43092	-43092	-43092	-43092	-43092	-43092	-518830
TAXABLE I			131003	43092	43092	43092	43092	43092	43092	43092	43092	43092	518830
TAX @ 50%			-65501	-21546	-21546	-21546	-21546	-21546	-21546	-21546	-21546	-21546	-259415
NIAT			65501	21546	21546	21546	21546	21546	21546	21546	21546	21546	259415
DEPREC			-1122	174700	174700	174700	174700	174700	174700	174700	174700	174700	157117B
DEPLETION			131003	43092	43092	43092	43092	43092	43092	43092	43092	43092	518830
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	-304618	239338	239338	239338	239338	239338	239338	239338	239338	739338	539423
												NPV AT 20	-892449
												IDCFROI=	-1.76

TABLE 4

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

500 GOLD PRICE

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			3120750	3120750	3120750	3120750	3120750	3120750	3120750	3120750	3120750	3120750	31207500
ROYALTY			-234056	-234056	-234056	-234056	-234056	-234056	-234056	-234056	-234056	-234056	-2340563
OPER COST			-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1.752E7
NIBT			1134694	1134694	1134694	1134694	1134694	1134694	1134694	1134694	1134694	1134694	1134693B
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			-468113	-468113	-468113	-468113	-468113	-468113	-468113	-468113	-468113	-468113	-4681125
TAXABLE I			491881	491881	491881	491881	491881	491881	491881	491881	491881	491881	4918813
TAX @ 50%			-245941	-245941	-245941	-245941	-245941	-245941	-245941	-245941	-245941	-245941	-2459406
NIAT			245941	245941	245941	245941	245941	245941	245941	245941	245941	245941	2459406
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			468113	468113	468113	468113	468113	468113	468113	468113	468113	468113	4681125
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	388753	888753	888753	888753	888753	888753	888753	888753	888753	1388753	7077531
500 $ GOLD												NPV AT 20	1023721

TABLE 5

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

600 GOLD PRICE

BASE CASE

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			3744900	3744900	3744900	3744900	3744900	3744900	3744900	3744900	3744900	3744900	37449000
ROYALTY			-280868	-280868	-280868	-280868	-280868	-280868	-280868	-280868	-280868	-280868	-2808675
OPER COST			-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1752000	-1.752E7
NIBT			1712033	1712033	1712033	1712033	1712033	1712033	1712033	1712033	1712033	1712033	17120325
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			-561735	-561735	-561735	-561735	-561735	-561735	-561735	-561735	-561735	-561735	-5617350
TAXABLE I			975598	975598	975598	975598	975598	975598	975598	975598	975598	975598	9755975
TAX @ 50%			-487799	-487799	-487799	-487799	-487799	-487799	-487799	-487799	-487799	-487799	-4877988
NIAT			487799	487799	487799	487799	487799	487799	487799	487799	487799	487799	4877988
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			561735	561735	561735	561735	561735	561735	561735	561735	561735	561735	5617350
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	724234	1224234	1224234	1224234	1224234	1224234	1224234	1224234	1224234	1724234	10432338
600 $ GOLD												NPV AT 20	2000453

TABLE 7

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

400 GOLD PRICE !!!!!!!!

40$/TON OPERATING $!!!!!!!

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	24966000
ROYALTY			-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-1872450
OPER COST			-1424000	-1424000	-1424000	-1424000	-1424000	-1424000	-1424000	-1424000	-1424000	-1424000	-1.424E7
													0
NIBT			885355	885355	885355	885355	885355	885355	885355	885355	885355	885355	8853550
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			-374490	-374490	-374490	-374490	-374490	-374490	-374490	-374490	-374490	-374490	-3744900
													0
TAXABLE I			336165	336165	336165	336165	336165	336165	336165	336165	336165	336165	3361650
TAX @ 50%			-168083	-168083	-168083	-168083	-168083	-168083	-168083	-168083	-168083	-168083	-1680825
													0
NIAT			168083	168083	168083	168083	168083	168083	168083	168083	168083	168083	1680825
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			374490	374490	374490	374490	374490	374490	374490	374490	374490	374490	3744900
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	217273	717273	717273	717273	717273	717273	717273	717273	717273	1217273	5362725

400 $ GOLD NPV AT 20 524466

OPER COST 40

TABLE 7

ALVERADO GOLD MINE

UNDERGROUND PROFORMA

400 GOLD PRICE !!!!!!!!

$60 /TON OPERATING COSTS !!!!!!!

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	24966000
ROYALTY			-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-1872450
OPER COST			-2136000	-2136000	-2136000	-2136000	-2136000	-2136000	-2136000	-2136000	-2136000	-2136000	-2.136E7
NIBT			173355	173355	173355	173355	173355	173355	173355	173355	173355	173355	1733550
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			0	0	0	0	0	0	0	0	0	0	0
TAXABLE I			-673	-673	-673	-673	-673	-673	-673	-673	-673	-673	-6725
TAX @ 50%			0	0	0	0	0	0	0	0	0	0	0
NIAT			-336	-336	-336	-336	-336	-336	-336	-336	-336	-336	-3363
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			-673	-673	-673	-673	-673	-673	-673	-673	-673	-673	-6725
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	-326309	173691	173691	173691	173691	173691	173691	173691	173691	673691	-73088

400 $ GOLD NPV AT 20 -1058138

OPER COST 60

TABLE 8
ALVERADO GOLD MINE

UNDERGROUND PROFORMA

400 GOLD PRICE !!!!!!!!

70$/TON OPERATING $!!!!!!!

YEARS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	TOTAL
LAND COST	-30000	-30000											-60000
EXPLORATI	-250000	0											-250000
MINE COST	-250000	-250000											-500000
MILL COST		-1000000											-1000000
GROSS INC			2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	2496600	24966000
ROYALTY			-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-187245	-1872450
OPER COST			-2136000	-2136000	-2492000	-2492000	-2492000	-2492000	-2492000	-2492000	-2492000	-2492000	-2.421E7
NIBT			173355	173355	-182645	-182645	-182645	-182645	-182645	-182645	-182645	-182645	-1114450
DEPREC			-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-174700	-1747000
DEPLETION			0	0	0	0	0	0	0	0	0	0	0
TAXABLE I			-1345	-1345	-357345	-357345	-357345	-357345	-357345	-357345	-357345	-357345	-2861450
TAX @ 50%			0	0	0	0	0	0	0	0	0	0	0
NIAT			-1345	-1345	-357345	-357345	-357345	-357345	-357345	-357345	-357345	-357345	-2861450
DEPREC			174700	174700	174700	174700	174700	174700	174700	174700	174700	174700	1747000
DEPLETION			0	0	0	0	0	0	0	0	0	0	0
WORK CAP			-500000									500000	0
CASH FLOW	-530000	-1280000	-326645	173355	-182645	-182645	-182645	-182645	-182645	-182645	-182645	317355	-2924450

400 $ GOLD NPV AT 20 -1717888

OPER COST 70

APPENDIX A

Alverado Reserve Calculations

The attached reserve was calculated from the 1907 Neill's map of the Alverado Mine in Yavapai County, Arizona. The total reserve from this source was 143,000 tons carrying 0.26 ounces per ton of gold and averaging 3.57 feet in width. There is an additional 140,000 tons of material that was either unsampled or just beyond the workings. Since 1907 the mine was deepened and ther may have been some mining of these reserves. The only known map of the mine after that time was a sketch in 1938 that shows that the mine was extended to the 13th level but no mining of the 1907 reserve was indicated.

The last 26 pages of Mason Coggin's Report are not included for the sake of brevity. Such pages are foot by foot reserve computations based on assay values from the Neill map. The total of these computations result in the above stated reserves. These pages are available upon request.

THORN PEAK QUADRANGLE
ARIZONA – YAVAPAI CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3353 II (BAGDAD 1:62 500)

ARK ENERGY LTD.
810-475 W. HASTINGS
VANCOUVER B.C.

ROAD TO LEACH CLAIMS

13 LEACH CLAIMS 20-32

19 LEACH CLAIMS 1-19

JOE CLAIMS 1-5

MUD 1-3

DOUGBOY MINE

RISE 1-6

35 c 1
1-19
20-32
Mud 1-3

TIP-1-20

1-42 PAN CLAIMS

79 W.S. CLAIMS

Gibson Ranch

Bridle

Quail Spring

Pastore Tank

Moonshine Spring

Fort Basin Tank

Whitecap Peak

Twin Tanks

Tindsley Spring

Thorn Peak Tank

Thorn Peak

Cowboy Wash

Crosby Mountain

Dry Tank

Rock Tank

Billy Spring

Deer Spring

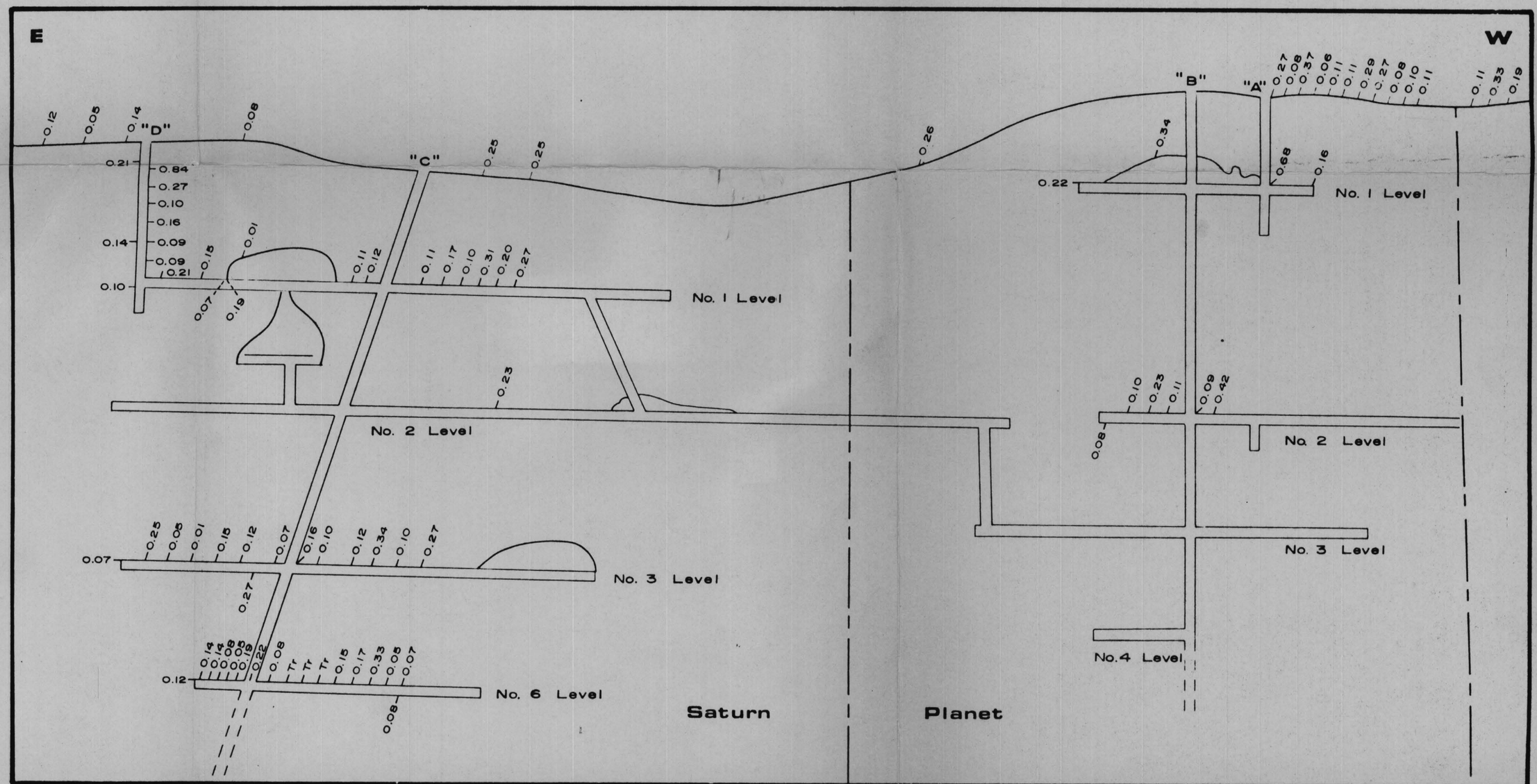
Willow Spring

River Tank

Santa Maria River

(MALPAIS MESA NE) 3352 I NE

1 270 000 FEET



Scale 1" = 100'

100 50 0 100

SCARTH OIL & GAS CO.

ALVARADO GOLD MINE

Yavapai County, Arizona

DISTRIBUTION OF GOLD VALUES IN MOORE'S 1980 SAMPLING PROGRAM

March, 1981 Figure 8

E

W

"D"

"C"

"B"

"A"

see inset below

No. 1 Level

No. 2 Level

No. 3 Level

No. 4 Level

No. 5 Level

No. 6 Level

No. 7 Level

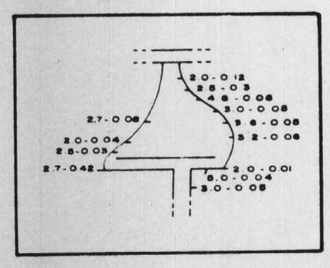
No. 8 Level

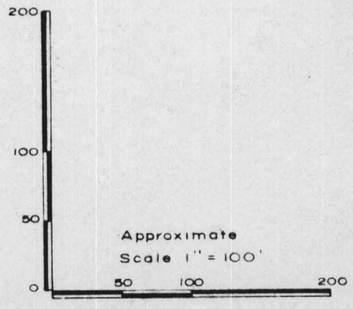
No. 9 Level

No. 10 Level

Saturn

Planet





LEGEND

4.2 - 0.42

unit thickness in feet — oz. of gold per ton of ore

SCARTH OIL & GAS CO.

ALVARADO GOLD MINE

Yavapai County, Arizona

DIAGRAMMATIC LONGITUDINAL SECTION IN PLANE OF ORE-BEARING UNIT, SHOWING 1907 NEILL SAMPLE LOCATIONS

March, 1981

Figure 4

E

W

"D"

"C"

"B"

"A"

No. 1 Level

No. 1 Level

No. 2 Level

No. 2 Level

No. 3 Level

No. 3 Level

No. 4 Level

No. 5 Level

No. 6 Level

No. 7 Level

No. 8 Level

No. 9 Level

No. 10 Level

Saturn

Planet

LEGEND

- 1.0 & over oz/ton
- 0.5 to 0.99
- 0.25 to 0.49

200
100
50
0

Approximate Scale 1" = 100'

50 100 200

SCARTH OIL & GAS CO.

ALVARADO GOLD MINE
Yavapai County, Arizona

DISTRIBUTION OF HIGHER VALUE ASSAYS FROM 1907 NEILL SAMPLING PROGRAM

March, 1981

Figure 7