PRINTED: 11/20/2001

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: LONESOME PINE & ESTHER GROUPS

ALTERNATE NAMES:
COPPER SPRINGS
AQUA VERDE

GILA COUNTY MILS NUMBER: 81

LOCATION: TOWNSHIP 1 S RANGE 14 E SECTION 14 QUARTER E2
LATITUDE: N 33DEG 20MIN 30SEC LONGITUDE: W 110DEG 54MIN 10SEC
TOPO MAP NAME: PINAL RANCH - 7.5 MIN

CURRENT STATUS: DEVEL DEPOSIT

COMMODITY:
COPPER SULFIDE
COPPER OXIDE
MOLYBDENUM
TUNGSTEN
LEAD

BIBLIOGRAPHY:
ADMMR LONESOME PINE GROUP & ESTHER GROUP FILE

11/13/92

ARIZONA COPPER RESERVES

COMPILED BY

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

PROPERTY:

LONESOME PINE GROUP

ALSO KNOWN AS - COPPER SPRINGS, ESTHER GROUP

OPERATOR\OWNER:

Corn, Russ
8425 E.Desert Steppes Dr.
Tucson, AZ 85710
602-298-1770

LOCATION INFORMATION:

TOWNSHIP 1 S RANGE 14 E SECTION 14
COUNTY - Gila AZMILS - 81
DESCRIPTION - 5 miles south of Inspiration.

ORE TYPE AND RESERVE INFORMATION:

Sulfide - 20 MILLION TONS AT 0.4% Cu (a)

RESERVE INFO - (a) Possible tonnage of partially tested chalcocite/oxide zone.

SUMMARY

COPPER SPRINGS CANYON, SUMMIT MINING DISTRICT, GILA COUNTY, ARIZONA

General

The Copper Springs Canyon prospect has potential for a substantial tonnage of open-pit, readily-leachable, oxide copper and chalcocite mineralization in a self-leaching chalcocite blanket and adjacent down-slope zone of oxide copper mineralization. The prospect is part of a large porphyry copper alteration system located approximately five miles south of Inspiration that was not thoroughly evaluated by previous exploration efforts. The alteration-mineralization system consists of a concentrically zoned pattern of pyritic-phyllic and potassic alteration covering an area of approximately five square miles. The pattern has been disrupted by faulting with a large area of high-sulfide, pyritic-phyllic alteration juxtaposed against low-sulfide potassic alteration.

Location

Sections 13, 14, 15, 22, 23, 24, T1S, R14E, Sec 14, T1S, R14½E, Summit Mining District, Gila County, Arizona.

Land

There are three groups of unpatented claims covering most of the mineralized area.

1. Lonesome Pine & Ester group of 20 claims - Santa Anna Mining Co.
2. Turdy group of 46 claims - Ed Dannenhauer, A.B. Walker, Charlotte & Buster Sanders
3. Aqua Verde group of 30 claims - Richard Ahern & Russell M. Corn.

Previous Exploration

Previous exploration includes five churn drill holes, drilled in 1948, five or six widely-spaced holes drilled by Bear Creek in the late 1950's, seven shallow holes drilled by Kerr-McGee in 1964 and several holes drilled by Cities Service in the late 1960's. This drilling is concentrated on a limited part of the alteration system, and was carried out prior to the recent advances in heap leaching and SX-EW technology. Available data on this drilling includes N.P. Peterson's (USGS Bull. 1141-H) summary of the churn drilling, and composite assay logs for the Kerr-McGee drill holes. Although drill hole locations are not definitely known, this data indicates the presence of widespread sub-economic primary copper mineralization and a chalcocite blanket 40 to 50 feet thick averaging approximately .40% copper in the area of high-pyrite phyllic alteration.

Exploration Potential

Copper mineralization of economic interest at Copper Springs Canyon occurs as a readily leachable chalcocite blanket and adjacent, downslope oxide copper mineralization that have not been evaluated by previous drilling. Limited data suggests a tonnage potential in excess of 20 million tons at .40% Cu for the chalcocite blanket. The blanket has migrated laterally and down-slope to be precipitated as both chalcocite and oxide copper minerals at lower elevations. The downslope movement of soluble copper should have resulted in a greater concentration of copper at lower elevations, with increased thickness and grade in the lower part of the chalcocite enriched zone and oxide copper minerals in the adjacent area of little or no pyrite. The potential of leachable chalcocite and oxide copper mineralization in this more favorable zone has not been tested by previous drilling.

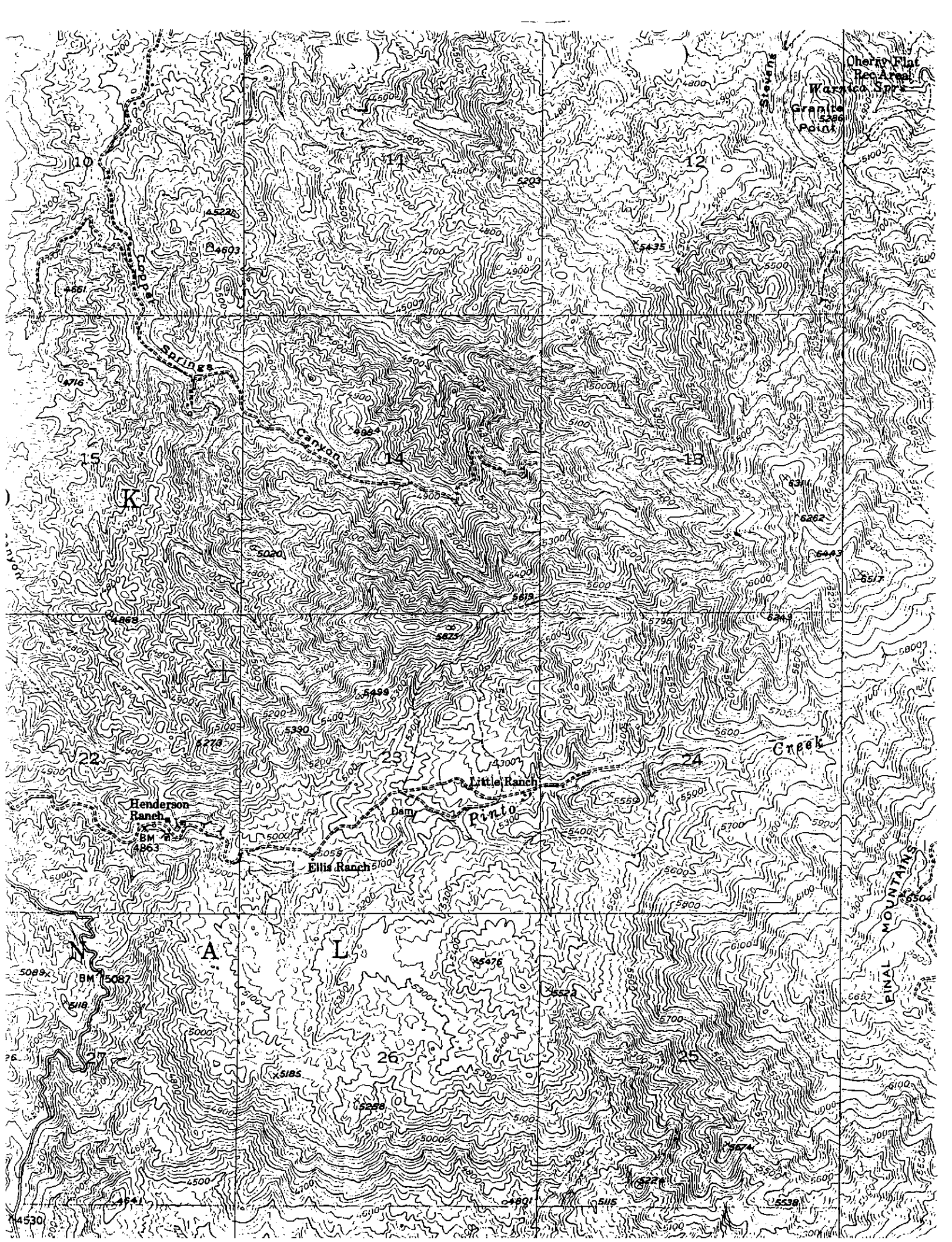
Prepared by: Russell M. Corn

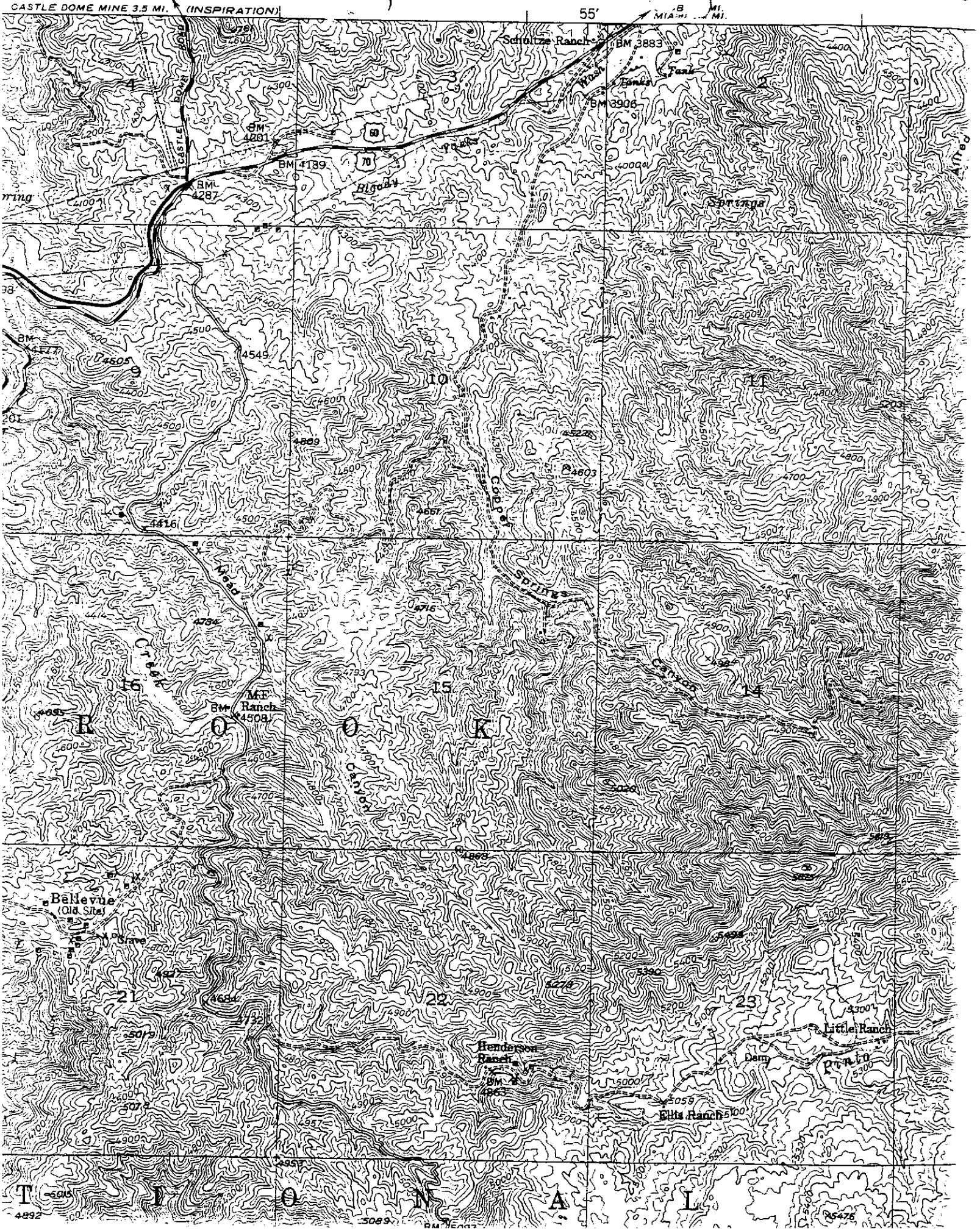
September 26, 1990

8425 E. DESERT STEPPES DR.

TUCSON, AZ 85710

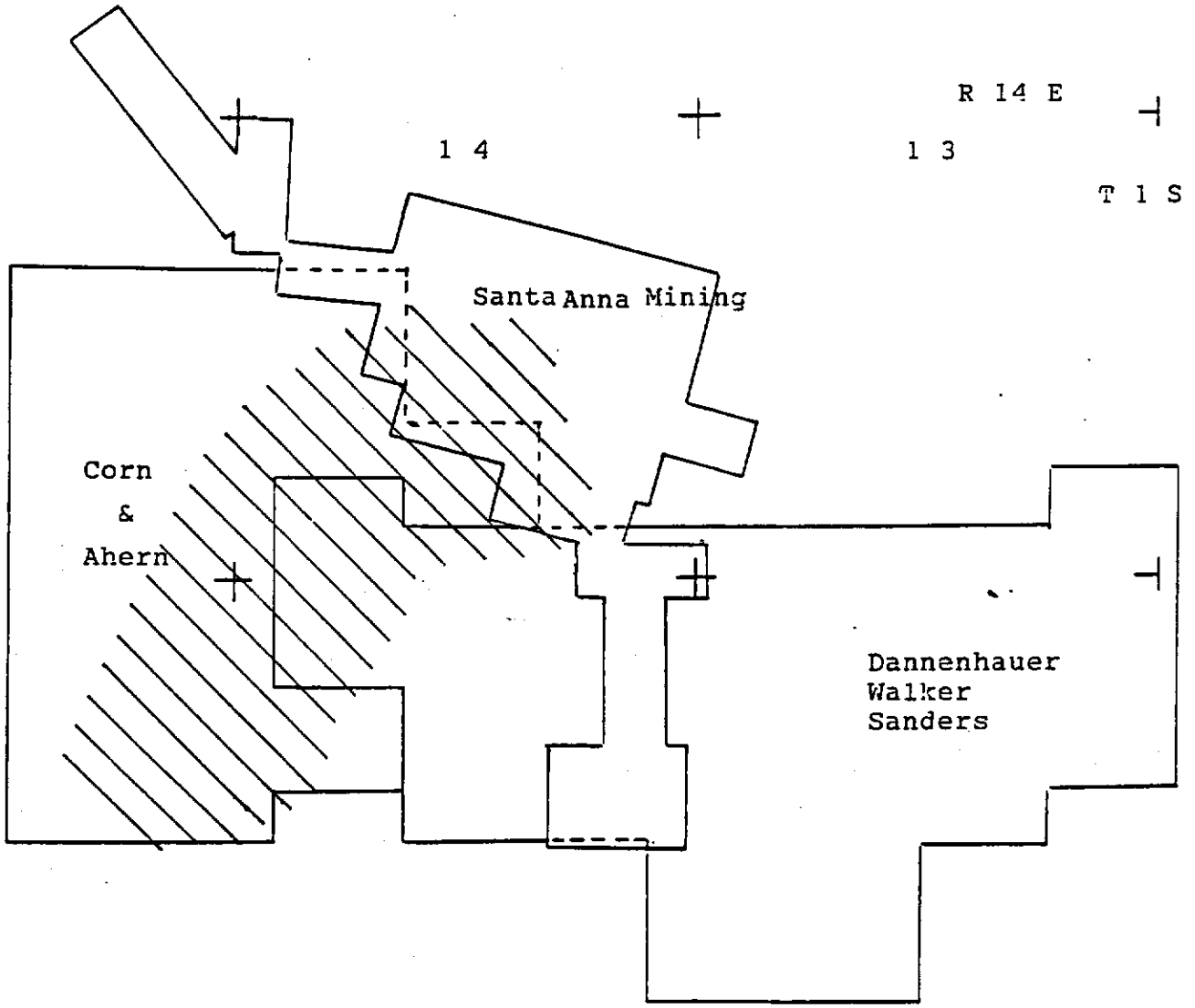
298-1770


Cherry Flat Rec Area
Warnica Spr.
Granite Point
5286
Stevens
Cooper
Springs
Canyon
Henderson Ranch
BM 4863
Ellis Ranch
Little Ranch
Dam
Pinto
Creek
FINAL MOUNTAINS
BM 5087
10
11
12
13
14
15
22
23
24
25
26
27
K
A
L
N

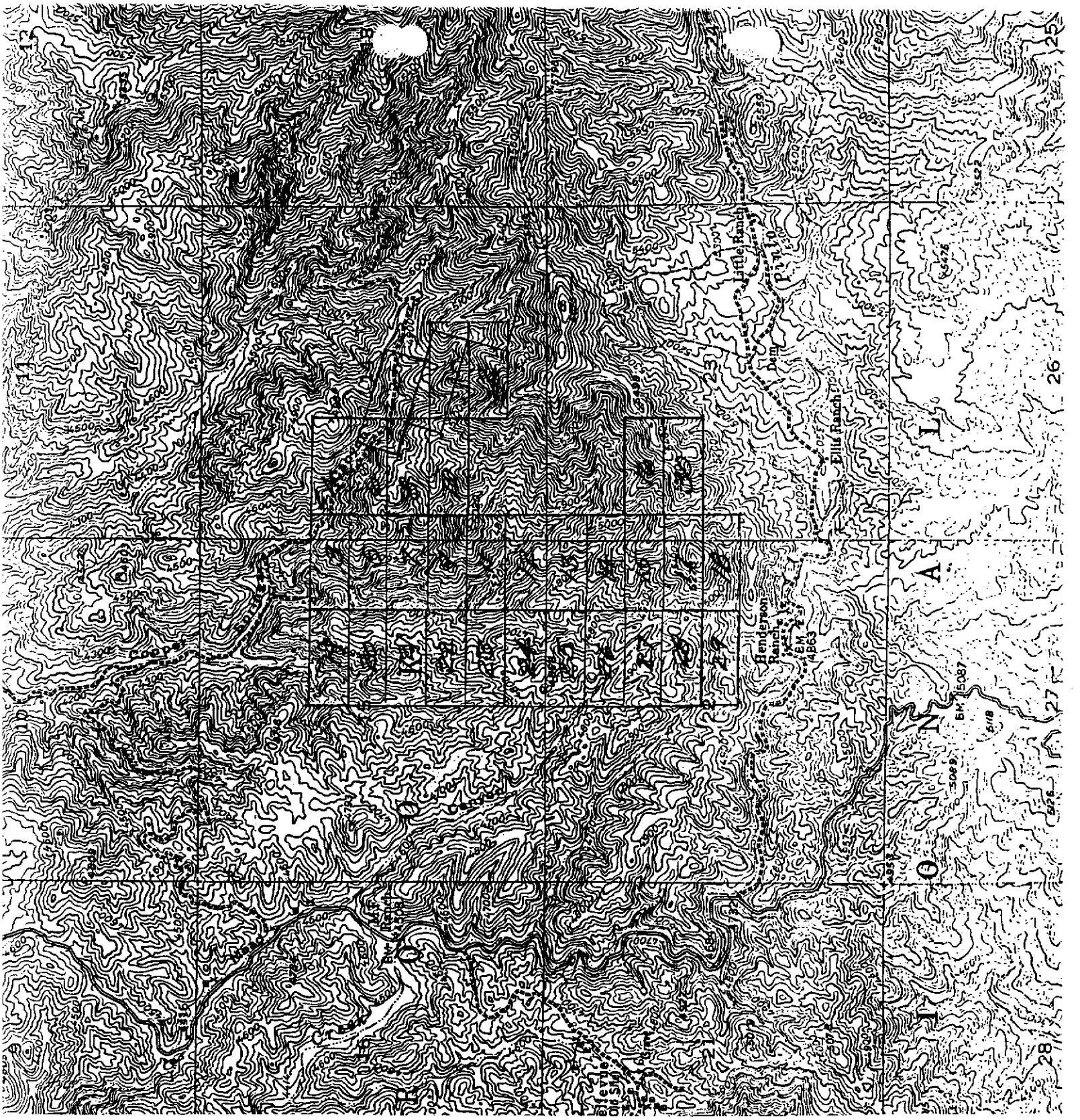

CASTLE DOME MINE 3.5 MI.
(INSPIRATION)
55'
Schultze Ranch
BM 3883
BM 3906
Tanks
Peak
Wash
BM 4201
BM 4139
BM 4287
Bloody
Springs
Allred
4549
4505
4416
4609
4603
4661
4716
4734
Copper
Spring
Canyon
Wash
MF
Ranch
(4508)
Bellevue
(Old Site)
Grave
Henderson
Ranch
BM 4863
Ellis Ranch
Little Ranch
Dam
Pinto
R 10 K
T 15 N
A L
4 3 2 1
9 10 11
16 15 14
21 22 23

LAND MAP

COPPER SPRINGS CANYON, GILA COUNTY, ARIZONA



General Area of Favorable Potential
for Leachable Copper Mineralization



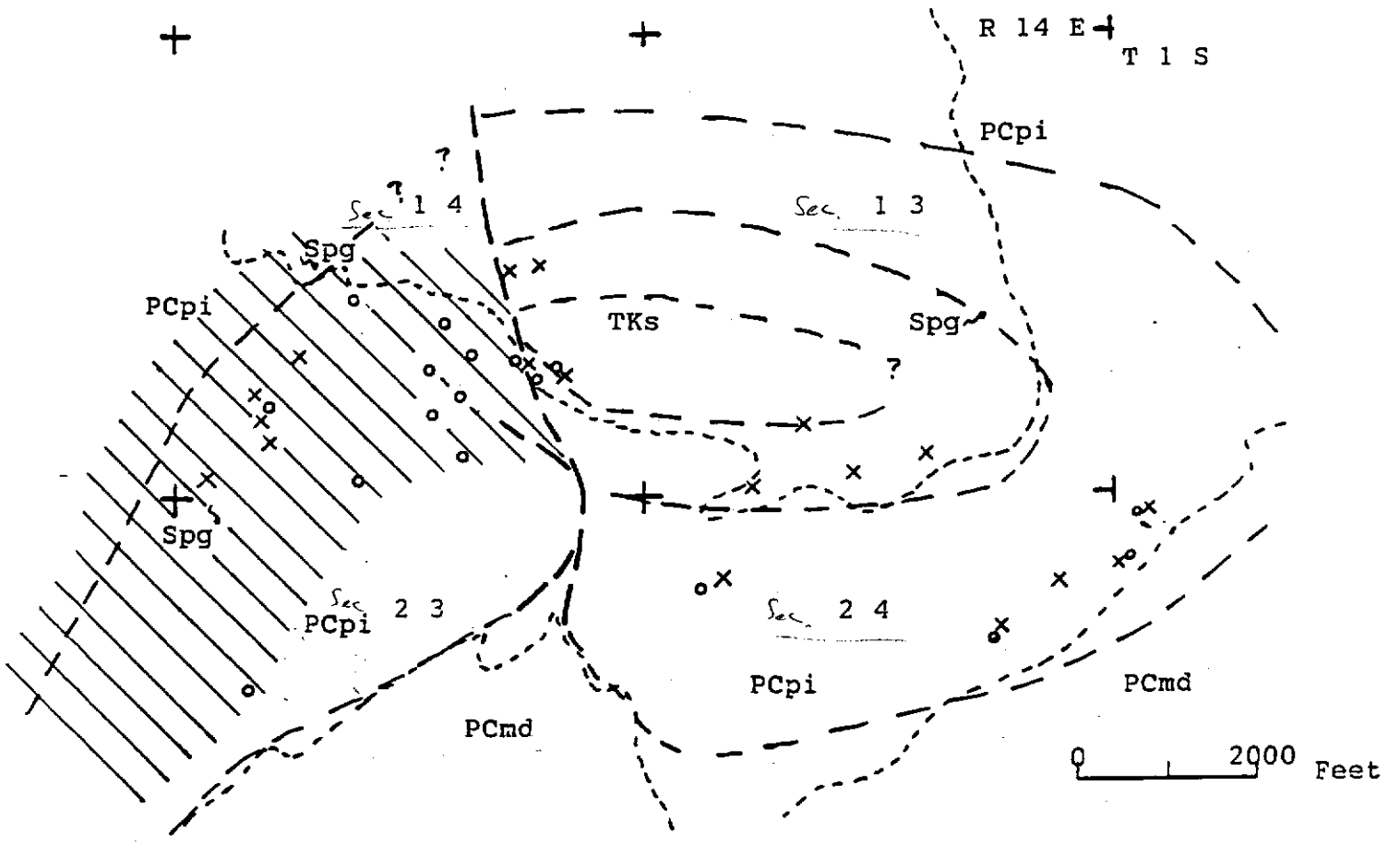
Map of Aqua Verde Claims

Copper Springs Canyon

Summit Mining District, Gila County, Arizona

GEN[illegible]IZED ALTERATION PATTERN [illegible]

COPPER SPRINGS CANYON, GILA COUNTY, ARIZONA



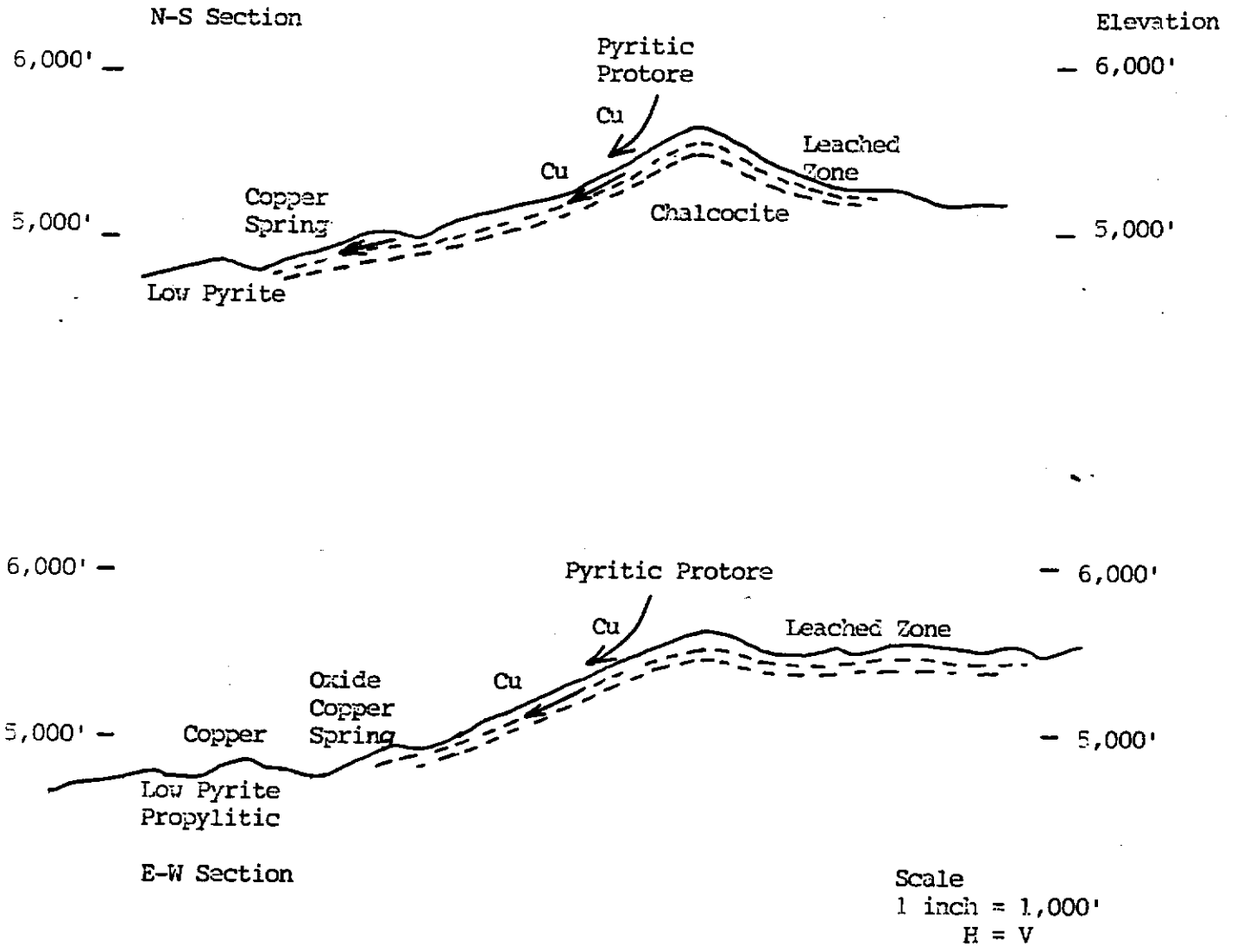
ALTERATION

- Low sulfide Potassic
- Potassic - Phyllic zone of numerous quartz-sericite-K feldspar veinlets
- High sulfide Phyllic-Pyritic
- Low sulfide Phyllic-pyritic

General Area of Favorable Potential for Leachable Copper Mineralizaion

- ° Drill Hole
- X Oxide copper occurrence
- Spg Copper spring
- Tks Schultze granite
- PCpi Pinal Schist
- PCmd Madera diorite

R.M. Corn
April, 1990

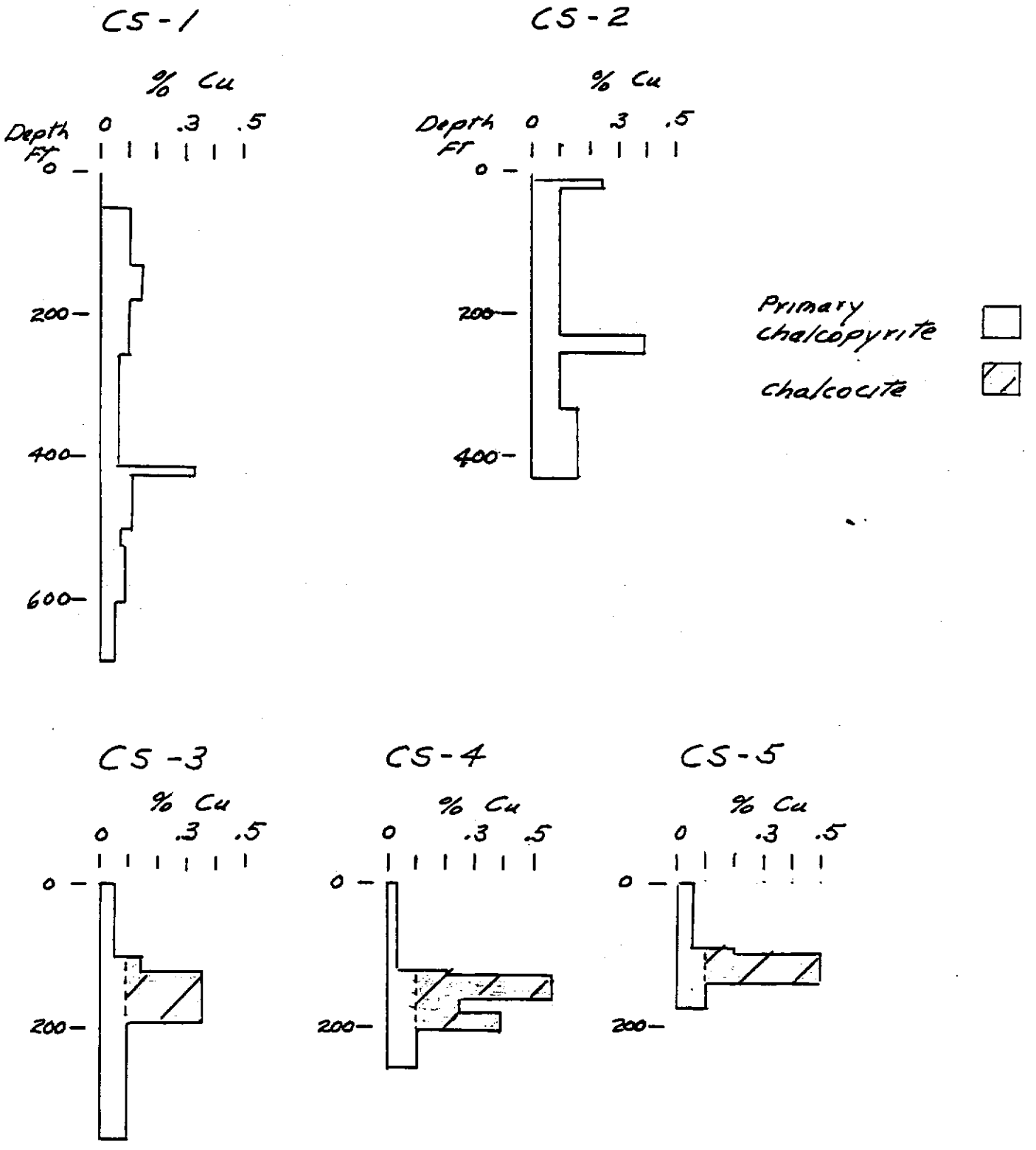


Sections Through Pyritic Protore

At Copper Springs Canyon

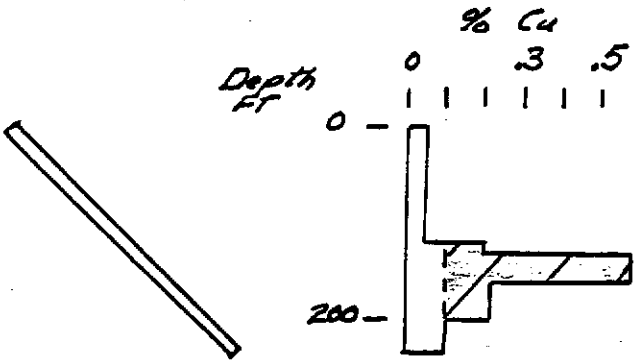
Illustrating Copper Migration

Chalcocite Enrichment and Oxide Copper Mineralization

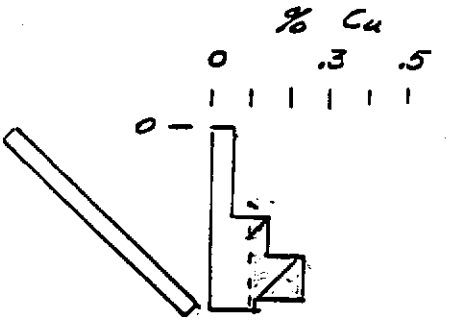


Chalcocite Mineralization and Copper Values
Kerr-McGee Drill Holes
Copper Springs Canyon, Gila County, Arizona

CS - A6



CS - A7



KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-1
Spudded 1-8-64
Completed 2-17-64
Total Depth 692 feet
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle Vertical
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									not assayed
50	50								
125	75	.10	nil	.20	.0005	.36	trace	3.5	$1.49
173	48	.13	nil	.20	.0005	.36	trace	2.6	$1.67
253	80	.10	nil	none	.0005	.30	none	2.7	$0.99
412	159	.06	nil	none	.001	.20	none	2.5	$0.65
421	9	.33	nil	none	none	.30	.02	2.4	$3.07
501	80	.11		.	.003	.10	none	2.9	$0.87
526	25	.06			none	.25	trace	2.3	$0.69
605	79	.08			none	.20	none	2.5	$0.74
692	87	.05	.05	none	none	.25	none	2.4	$0.74
									692 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-2
Spudded 2-18-64
Completed 3-2-64
Total Depth 429.8 feet
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle Vertical
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									
									not assayed
10	10								
20	10	.23				.20	trace		$1.64
30	10	.09				.20	trace		$0.80
40	10	.10				.10	trace		$0.73
232.4	192.4	.09	.05	.04	.002	.30	nil		$1.18
252	19.6	.34				.10	nil		$2.17
330	78	.09	.05	nil	.002	.24	trace	3.4	$1.02
429.7	99.7	.16			.001	.26	trace	2.3	$1.33
									429.7 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-3
Spudded 3-7-64
Completed 3-13-64
Total Depth
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle Vertical
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									
									not assayed
1.3	1.3								
110	108.7	.05			.001	trace	trace	2.2	$0.33
130	20	.14				trace	trace	2.2	$0.84
195	65	.35	.05	nil	.001	trace	nil	4.6	$2.24
300	105	.08	trace	nil	.001	trace	nil	2.0	$0.51
359.5	59.5	.08			.004	trace	nil	2.4	$0.59
									359.5 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs
Hole Number CS-4
Spudded 3-17-64
Completed
Total Depth
Driller J. Jones
Logged By R.C.B.

County Gila State
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle Vertical
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									
									not assayed
1									
130	129	.04			.01	trace	trace	3.2	$ .52
135	5	.20			.003	trace	trace		$1.28
165	30	.56	trace	nil	.01	trace	.01	3.2	$3.99
185	20	.24			.005	.02	.005	2.2	$1.78
210	25	.39			.0075	trace	trace	2.1	$2.55
260	50	.10			.001	trace	trace	2.3	$ .63
									260 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-5
Spudded 3-28-64
Completed 4-3-64
Total Depth 175.3 feet
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle Vertical
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									not assayed
2	2								
98	96	.05			.002	trace	trace	2.8	$ .36
105	7	.19			.005	trace	trace		$1.28
141	36	.49			.002	.02	trace	2.5	$3.03
175.3	34.3	.10			.001	trace	trace	2.2	$ .63
									175.3 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-A6
Spudded 4-6-64
Completed 4-20-64
Total Depth 325.2 feet
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle 45°
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									not assayed
2.7									
170	167.3	.05			.011	tr	tr	3.1	$ .61
185	15	.19			.014	.02	tr	3.1	1.56
230	45	.57			.004	tr	tr		3.53
280	50	.21			.009	tr	tr	3.2	1.51
325.2	45.2	.10			.004	tr	tr	2.6	.71
									325.2 is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

KERR-McGEE OIL INDUSTRIES, INC.

Assay Log

District Copper Springs - Miami
Hole Number CS-A7
Spudded 4-20-64
Completed 4-30-64
Total Depth 263.9'
Driller J. Jones
Logged By R.C.B.

County Gila State Arizona
Claim Sec T. R.
Elevation
Hole Size
Core Size BX
Hole Angle 45°
Collar Coords. N.
E.

Gross Value in Sulfide Minerals*

Hole Depth	Interval	%Cu	%Zn	%Pb	% Mo	oz.Ag	oz.Au	U_3O_8 ppm	Gross Value
0									
									not assayed
21							Not Valid		
135	114	.06			.003	trace	.055	3.0	$2.37
190	55	.15			.005	trace	.006	4.1	$1.25
255	65	.23			.005	trace	.003	3.8	$1.63
263.9	8.9	.11							$ .66
									263.9' is end of hole

* Gross value calculated from copper 30¢ per pound; lead 10.5¢ per pound; zinc 11.5¢ per pound; molybdenum $1.40 per pound; silver $1.30 per ounce; and gold $35.00 per ounce.

Copper Springs
Gila Co., Az

Table

Mineralized Intervals Intersected by the Drill Holes

Collar Elev.	T.D.	Intervals	Foot-age	Content (%Cu)	Mineral	Classification	Rock	Obs.
220'	187'	155-185	30	0.114	Chalcocite coating pyrite	N.C.	Schist	Oxide & sulphide zone.
262'	146'	-	-	-	-	N.C.	Schist all oxide zone	No Cu values abv. 0.1%
448'	205	-	-	-	-	N.C.	Schist oxide & sulph. zones	No values above 0.1%
334'	205'	-	-	-	-	N.C.	Schist	One isolated val. >0.1% Cu. Ox. & Sulph. z
152'	105'	-	-	-	-.	N.C.	Schist all oxide zone	No values >0.1% C
101'	159'	-	-	-	-	N.C.	Schist oxide & sulph. zones	No values >0.1% C
504'	210'	180-190 175-195	10 20	0.34 0.22	Malachite	N.C. G.I.	Schist	All oxide zone
741'	210'	105-135 145-210 170-210	30 65 40	0.19 0.19) 0.23)	Malachite, tenorite {Chalcocite, (coating pyrite) {Chalcopyrite	N.C. G.I.	Granite	Oxide & Sulph. z
720'	103'	-	-	-	-	N.C.	Schist	No Cu value >0.1% oxide zone
493'	110'	-	-	-	-	N.C.	Schist &diabase	Oxide & sulph. zo
103'	35'	-	-	-	-	N.C.	Schist	Oxide & sulph. zo
132'	268'	15-85 152.5-203.0 166.2-187.4 211.2-240.0	70 50.5 21.2 28.8	0.13 0.30 0.40 0.42	Malachite, tenorite {Chalcocite {Chalcopyrite	G.	Schist	Oxide & sulph. zo

Table I (cont'd.)

ollar Elev.	T.O.	Intervals	Foot-age	Content (%Cu)	Mineral	Classification	Rock	Obs.
		135.0-234.5	99.5	0.22	Chalcocite			
130'	248.7'	178.0-216.0	38	0.29	Chalcocite, minor	G.	Schist	Oxide & Mix ox-su
		196.0-216.0	20	0.31	Chalcopyrite, bornite			
144.4	120'	56.5-73.0	16.5	0.21	Chalcopyrite	N.C. G.I.	Granite	Sulphide zone onl
733'	132'	95-128	33	0.09	Tenorite, Chalcocite (weak)	N.C.	Granite	Mineralization at oxide-sulphide
218+	70	-	-	avg.		N.C.	Granite	Oxide & sulphide
247'	140			20 ppm				
825'	146	-	-	avg. 100 ppm		N.C.	Granite	Oxide & sulphide
670'	148'	-	-	avg. 200 ppm		N.C.	Granite	Oxide & mixed oxi sulphide zone
		115-155	40	0.13	tenorite (ox.zone)			
830'	311'	175-195	20	0.15	ten.&malachite (ox.zone)	N.C.	Schist	oxide &mix. ox-su
		205-292.6	87.6	0.13)				sulph. & chalcc
		224.7-237.7	13.0	0.23)	chalcocite zone	G.I.		zones.
428'	333.8	246.8-255.0	9.2	0.28	chalcocite zone	N.C.	Schist	ox., & mix. ox.su sulph. &chalcoc (weak) (zones)
965'	142.0'	100.3-108.9	8.6	0.13	chalcocite zone (weak)	N.C.	Schist	ox., & sulphide z
		45 - 75	30	0.17	Cu oxide zone			
040'	286.1'	177.2-257.7	80.5	0.31)	chalcocite; cuprite	G.	Schist	ox., &mix. ox-sul
		177.3-202.2	25	0.44)	in chalcocite zone			zones
150'	223'	136.2-199.7	63.5	0.21	Chalcocite, chalcopyrite	N.C. G.I.	Schist	ox., mix. ox-sulp zones. Chalcoc zone.
147	225.6	25 - 42.7	17.7	0.17	Malachite			ox., mixed ox-sulp
		69.6-193.0	123.4	approx. 0.20	Chalcopyrite	N.C.	Schist	sulph. zones. No chalcocite zon

Table I (cont'd.)

Collar Elev.	T.D.	Intervals	Foot-age	Content (%Cu)	Mineral	Classification	Rock	Obs.
5821'	297.0'	150-283	123'	0.14	Chalcocite	G.I.	Schist	oxide; mix. ox-s and sulph. zo Chalcocite z
4750.3'	155.0	55- 65	10	0.10	Chalcocite	N.C.	Schist	ox.; mix. ox-s and sulph. zo Weak chalcocit
4883.1'	136.8'	70- 75	5	0.13	Malachite	N.C.	Schist	ox., mix. ox-sul and sulph. zon N chalcocite.
5160'	296.7'	60-110	50	0.20	Chalcocite	N.C.	Schist	ox.; mix ox-sulp and sulph. Cha cite zone.
5726'	102.3'	-	-	avg. <150 ppm	-	N.C.	Granite	ox.; mix ox-sulp sulph. zones.
5013'	219.5'	40- 50	10	0.13	Cu oxides	N.C.	Schist	Three zones and v chalcocite zone

The classification is an arbitrary qualitative estimation of the mineralization in the drill hole.
N.C. - non-commercial (very poor)
G. - good mineralization
G.I. - good indication of mineralization

Table II*

Mineralized Intervals Intersected by the Kerr-McGee Drilling Program

Drill Hole	Thickness (ft.)	% Copper	Elevation of bottom of Enriched Blanket (ft)
KM-1	9	0.33	5,209
KM-2	19.6	0.34	5,403
KM-3	65	0.35	5,050
KM-4	80	0.40	4,980
KM-5	41	0.45	4,929
KM-A6	78 (vertical)	0.35	4,982
KM-A7	63 (vertical)	0.22	5,090

*From Fitzgerald (1964)