



CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

The following file is part of the Walter E. Heinrichs, Jr. Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

RECONNAISSANCE MAGNETIC SURVEY
MAYER AREA, YAVAPAI COUNTY, ARIZONA

For
Inspiration Consolidated Copper Company

April 1966

By
Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
CONCLUSIONS AND RECOMMENDATIONS	1
INTERPRETATION	2
DeSoto Mine	
BlueBell Mine	
Binghampton & Copper Queen Mines	
Stoddard Mine	
Figure 1	Magnetic Vertical Intensity Contour Plan DeSoto Mine
2	Magnetic Profile DeSoto Mine
3	Magnetic Profile BlueBell Mine
4	Magnetic Profile Copper Queen & Binghampton Mines
5	Magnetic Profile Stoddard Mine

IN MAP POCKET:

Magnetic Survey Location Index - Mayer Area



Wesleyan University

20% DISCOUNT

INTRODUCTION

At the request of Mr. Hugh Olmstead of Inspiration Consolidated Copper Company, Heinrichs Geoexploration Company conducted several reconnaissance magnetic profiles in the Mayer Area, Yavapai County, Arizona. Areas covered were the DeSoto, BlueBell, Stoddard, Binghamton and Copper Queen Mines in the interim April 6-8, 1966.

Magnetic data were obtained using a Jalander fluxgate type magnetometer to measure the vertical component of the earth's field. Magnetic observations were taken at station intervals of 100' along the lines. All data are relative and were reduced to an arbitrary datum level within each area. Nine lines were run, plus additional detail work at the DeSoto Mine, resulting in a total of 318 stations.

The data are presented as profiles, plus a contoured plan for the DeSoto area.

Geox personnel on this survey were Ronald Palmer, magnetometer operator, and Gary Blacharski, field assistant. Report compilation and drafting by Tucson Geox staff supervised by John P. Matthews, Jr., geophysicist, and Chris S. Ludwig, sr. geophysicist.

CONCLUSIONS AND RECOMMENDATIONS

The areas of interest all seem to lie within a northeast-southwest trending band of silicification within the Yavapai Schist starting from the DeSoto Mine to the south to the Binghamton to the north. Apparently, this silicified zone was a favorable environment for the introduction of relatively high grade replacement deposits of copper. All the known deposits have had some surface expression which led to their discovery. It was the purpose of this survey to see if these mineralized zones could be found by magnetic methods.

Of the four main areas surveyed, the two showing definite magnetic expression were the DeSoto and BlueBell Mines, while the other two showed almost no relief. It is of interest to note that the magnetic anomalies are also over the two areas of greatest known past production. Several samples of ore rock were collected from the DeSoto and BlueBell Mines in the course of the survey. Measurements made on these samples in our lab indicate fairly high magnetic susceptibility. Because of this relationship between magnetic susceptibility and metallization, the use of further magnetics in this area is definitely recommended. However, because the introduction of magnetite is fairly common in metamorphism, the relationship between metallization and magnetite may be only coincidental. The lack of magnetic features should not rule out an area for further work.

INTERPRETATION

DeSoto Mine (Fig. 1 & 2)

Lines 1 and 2 were run on a bearing of about $N20^{\circ}E$, parallel and about 500' apart. Several short lines were also run north and east of the mine on roads. Two magnetic features are evident on Line 1, located at about 1500 and 2200 NE. On Line 2 similar magnetic highs are located near 600 and 1000-1400 NE. This suggests somewhat dike-like features striking roughly east-west and probably outcropping at or near surface. This east-west trend is also apparent in the contoured plan map, although the limited data may be misleading. The large magnetic relief seen both on the profiles and the plan map indicate many small near surface magnetic features.

BlueBell Mine (Fig. 3)

Two parallel lines were run over this property on a bearing of $S55^{\circ}E$ and about 500' apart. The magnetic character of these lines is almost identical and again suggests two or more dike-like features trending $N30^{\circ}E$. These features probably outcrop at or near the surface.

Binghampton and Copper Queen Mines (Fig. 4)

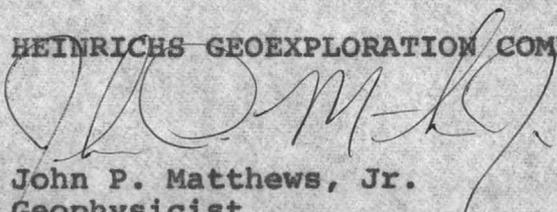
Three lines were run over this area; Lines 1 and 3 on a bearing of $N30^{\circ}W$, Line 2 on a bearing of $N15^{\circ}W$. These lines were almost totally lacking in magnetic expression with less than 200 gamma relief over the entire area, indicating only background values.

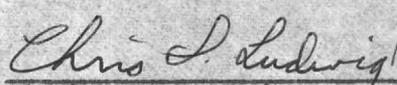
Stoddard Mine (Fig. 5)

Two lines were run across this prospect, both in an east-west direction. As with the Binghampton and Copper Queen Areas, the magnetics are essentially flat over the surveyed areas.

Respectfully submitted,

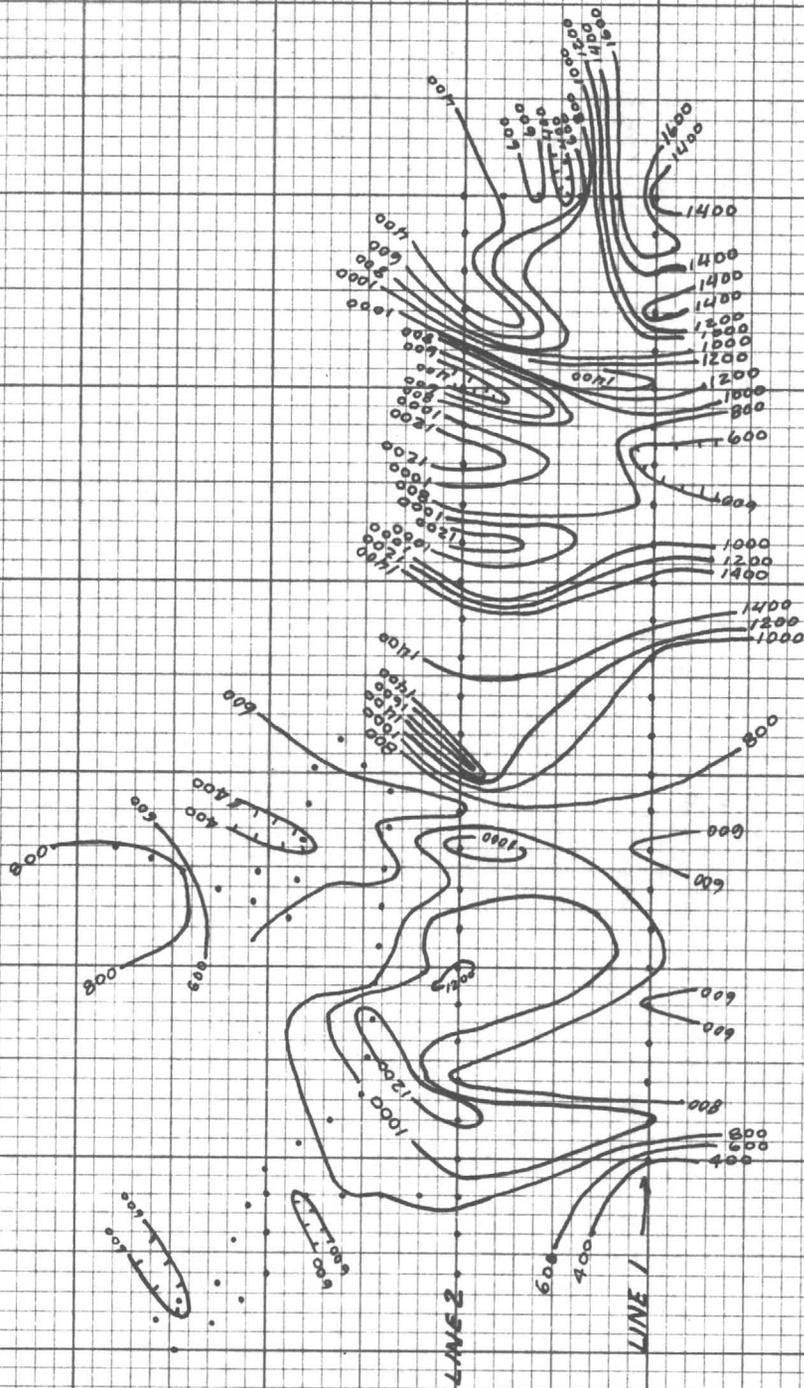
HEINRICHS GEOEXPLORATION COMPANY


John P. Matthews, Jr.
Geophysicist

APPROVED: 
Chris S. Ludwig, Sr. Geophysicist

APPROVED: 
E. Grover Heinrichs, Vice President

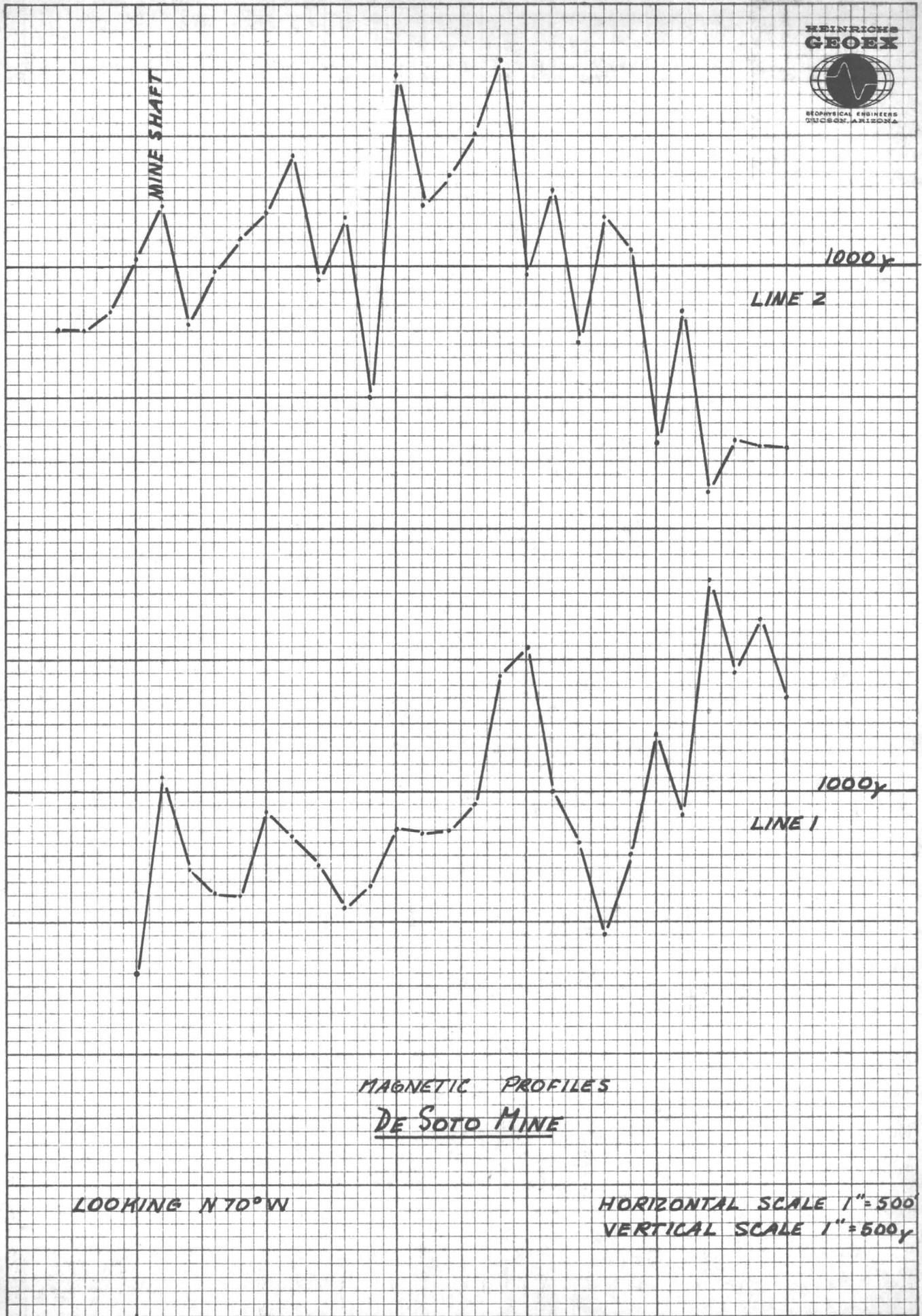
HEINRICHS GEOEXPLORATION COMPANY



MAGNETIC VERTICAL INTENSITY
CONTOUR PLAN
 DE SOTO AREA

1" = 500'
 CONTOUR INTERVAL 200y

KE TO WHICH 0782
 7 X 10 INCHES
 MADE IN U.S.A.
 KEUFFEL & ESSER CO.

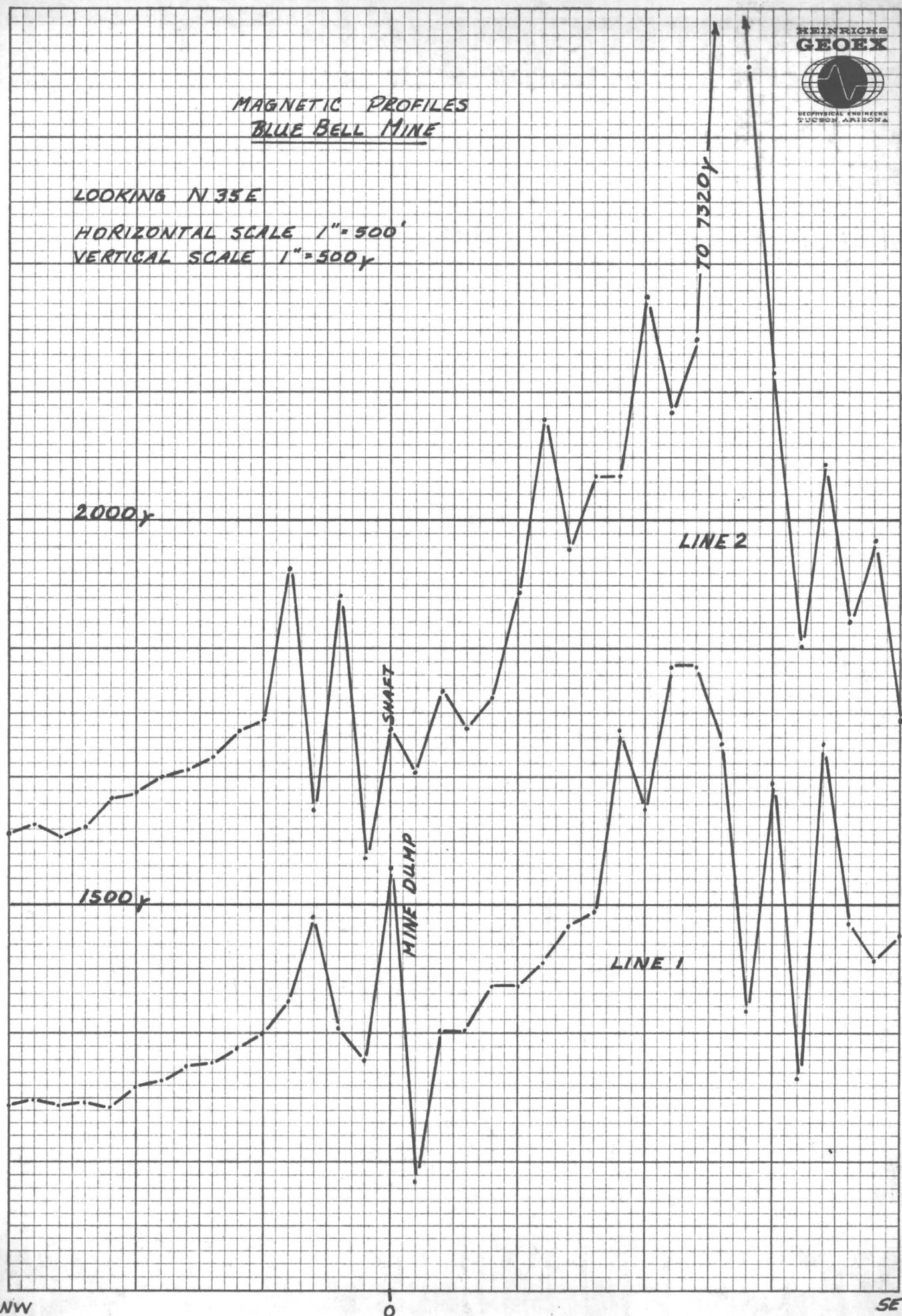


KEUFFEL & ESSER CO.
7 X 10 INCHES
MADE IN U.S.A.
40-0782



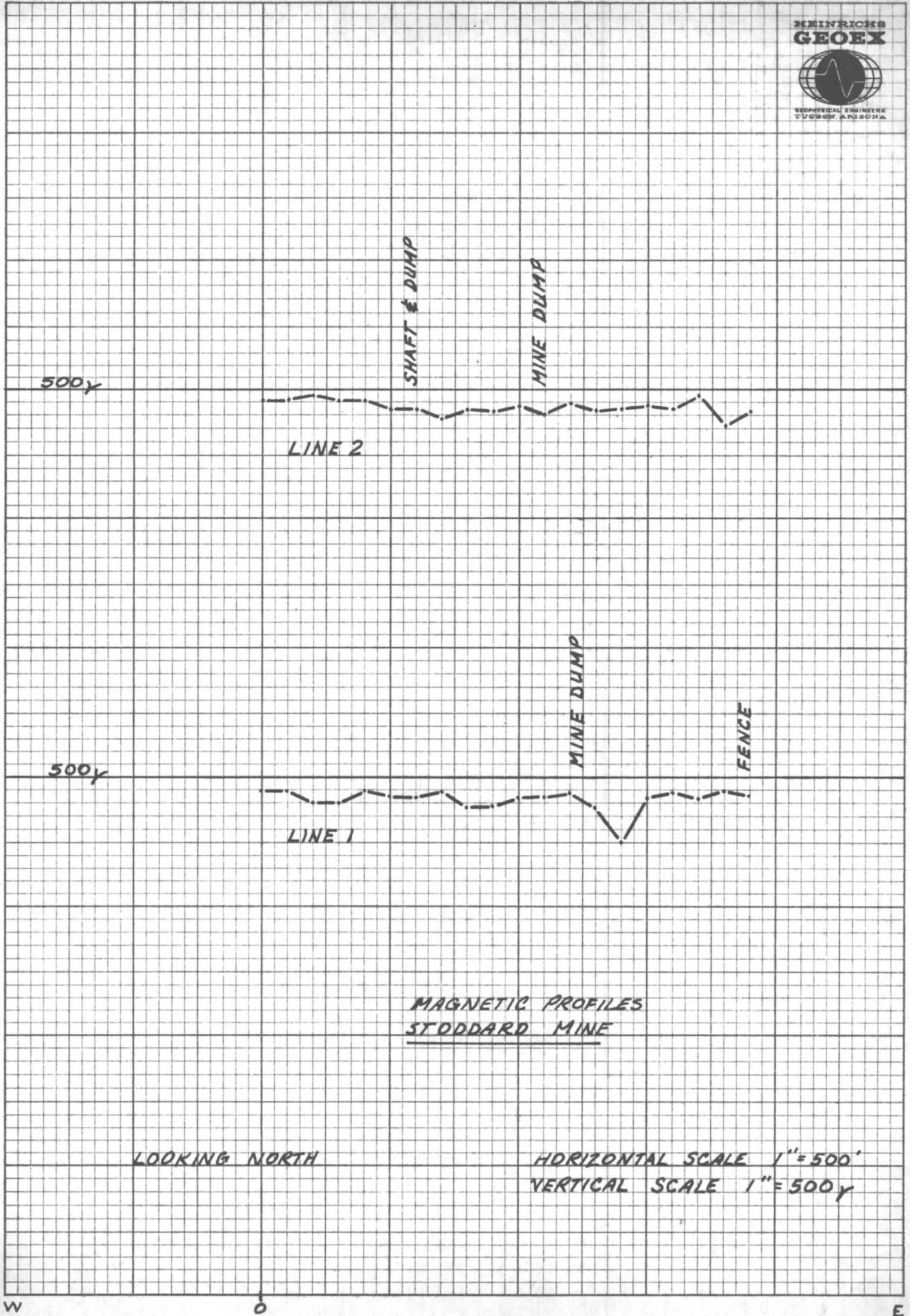
MAGNETIC PROFILES
BLUE BELL MINE

LOOKING N 35 E
HORIZONTAL SCALE 1" = 500'
VERTICAL SCALE 1" = 500γ



10 TO T CH 782
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

FIG. 3



MAGNETIC PROFILES
STODDARD MINE

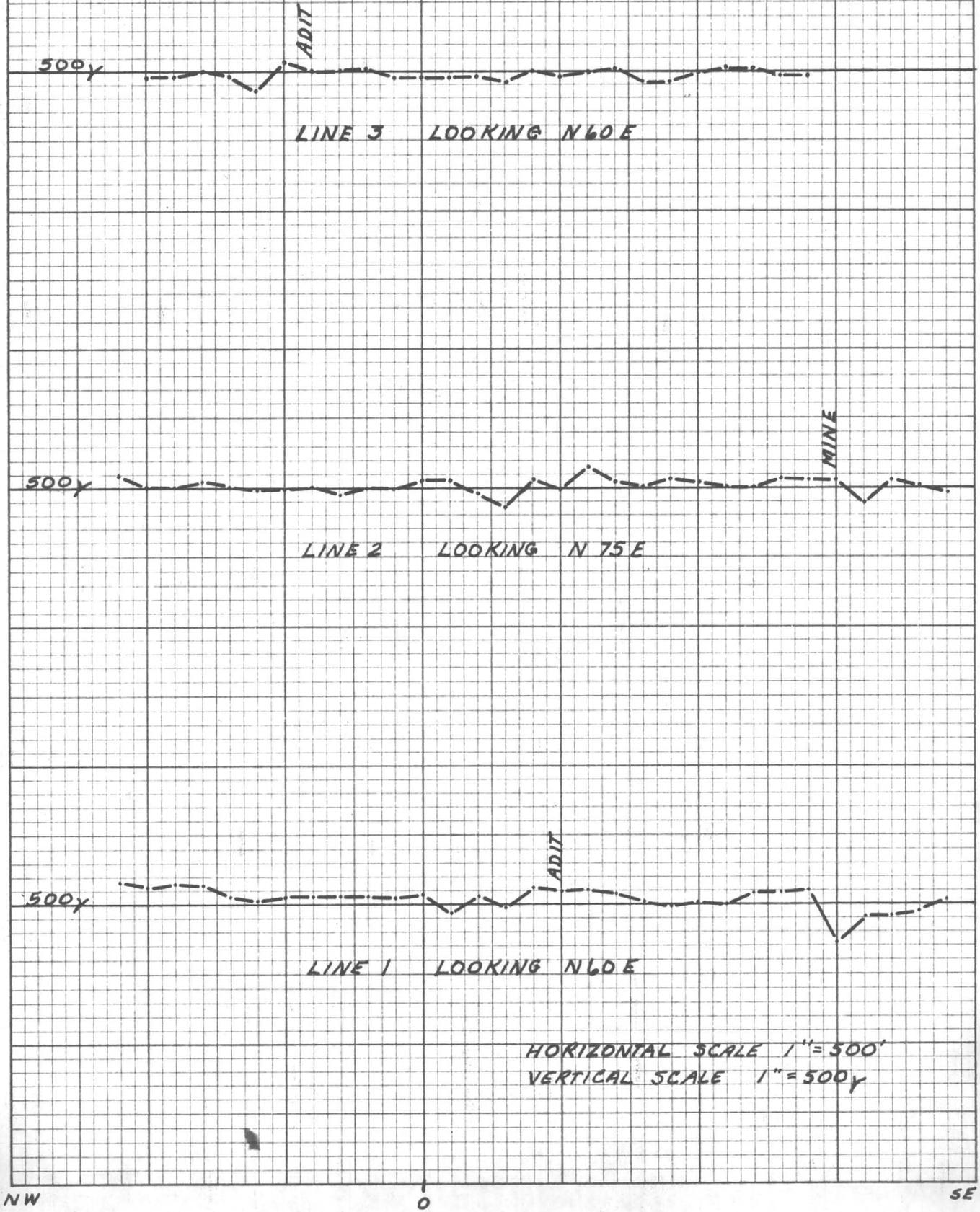
LOOKING NORTH

HORIZONTAL SCALE 1" = 500'
VERTICAL SCALE 1" = 500γ

10 TO THE
7 X 10 INCHES
KEUFFEL & ESSER CO.
782
MADE IN U.S.A.

MAGNETIC PROFILES

COPPER QUEEN & BINGHAMPTON MINES



100 TO 1 INCH
7 X 10 INCHES
MADE IN U.S.A.
KEUFFEL & ESSER CO.

FIG 4

Magnetic Survey for INSPIRATION Con. Copper Co.

April 1966

Starting at Desoto Mine
dump. Strike of structure is
appx. $N 70^{\circ} W$. Mag lines
will run $N 20^{\circ} E - S 20^{\circ} W$

Starting at dump even with
mine shaft.

Sta	Scale	Read	Remarks	
0	+ 1	30		
1 NE	+ 11	106		
2	"	70		
3	"	62		
4	"	60		
5	"	93		
6	"	83		
7	"	71		
8	"	55		
9	"	64		
10	"	86		
11	"	84		
12	"	85		
13	"	95		
14	"	144		iron stain rock
15	"	155		OC with pyrite
16	"	100		iron stain
17	"	80		pyrite
18	"	45		612 iron stain
19	"	76		some pyrite
20	"	122	108	

Desoto Mine

P. 2

sta	scale	READ		REMARK
21 NE	+1	92	-108	iron stain
22	"	180	↑	" "
23	"	140		" "
24	"	165		" "
25	"	135		" " pyrite

Heading WEST TO N. END LINE 2

1 W	+2	126		ridge iron stains
2	+1	30		" "
3	+1	69		
4	+1	42		
5	+1	31		

S. N. END LINE 2

24	+1	32		
23	+1	34		
22	+1	15		
21	+2	84		
20	+1	33		
19	+1	107		
18	+1	120		
17	+1	72		
16	+1	130	-108	
15	+1	98	-208	
14	+1	180		
13	+1	152		
12	+1	137		
11	+1	125		

Desoto Mine P 3

sta	scale	Read	
10	115	179	-208
9	+1	52	↑
8	+1	128	
7	+1	92	
6	+1	145	
5	+1	123	
4	+1	114	
3	NI	1000	
2	+1	80	
1	+1	125	
0	+1	105	

South

mine shaft

15	+1	85	↓
2		78	
3		180	

cop. of ides

W. to S, LINE 3 From Sta 1-Line 2

1 W	+1	93	-308
2		83	↓
3		83	
4		59	
5		75	

Deso to Mine P.4

Line 35.

Sta Scale Read

25	+1	78	-308	CLIFF at south edge of prop. so I am walk. roads to get more coverage. could get one more profile and then would be off prop.
35	"	76	-308	

Starting at 35 - line 3

Sta	Scale Read	Direct.	Remarks
		570 W.	
1	+1	79	-308
2		89	↑
3		66	↓
4		79	N10 W
5		↘ 550 E ↘	Turn
6		70	E
7		69	N40 E
8		67	↓
9		75	↓
10		72	N70 E
11		85	↓
12		90	-308
13		116	N20 E
14		135	-408
15		80	"

Desoto Mine

Sta	Scale	Read	
16	+1	78	-408
17	↓	70	
18		146	
19		65	
20		60	
21		78	N 25 W
22		80	
23		62	S 60 W
24		56	S 30 W
25		42	W
26		50	
27		68	
28		47	N 50 W
29		50	
30		85	
31		85	
32	84	↓	
Base	+1	58	

Blue Bell Mine

20' wide dike running N35°E disseminated oxides show on surface. Will run 2 lines across feature at N55°W.

There are 2 shafts approx 500' apart. Will run across both shafts.

Sta Scale Read Remarks
from S.W. SHAFT

B	-1	14	
0	+1	165	o
1W	"	90	
2	"	102	
3	"	146	
4	"	112	
5	"	100	
6	"	95	
7	"	89	
8	"	88	
9	"	82	
10	"	80	
11	"	72	
12	"	74	
13	"	73	
14	"	75	
15	"	72	

Starting N35 E to line 2

1	"	73	
2	"	78	
3	"	75	
4	"	79	

BLUE BELL MINE

P.2

STA.	SCALE	READ	COMMENT
	+1		N35E
5	+1	78 + 108	S 55E ON LINE 2
14	+1	81	↑
13	"	76	
12	"	81	
11	"	92	
10	"	94	
9	"	99	
8	"	101	
7	"	107	
6	"	116	
5	"	121	
4	"	181	
3	+2	86	
2	+1	170	
1	"	68	
0	"	119	BESIDE SHAFT
			S55E
1	+1	100	↓
2	"	134	
3	"	118	
4	"	130 + 108	
5	"	170 + 208	
6	"	238	
7	"	188	
8	"	216	
9	"	215	
10	+2	95	
11	+1	240	

Blue Bell Mine

P3

STA	SCALE	READ	Remarks
12	+2	90° +208	
13	+3	730	↑
14	+2	1250	
15	+2	850	
16	+1	1480	
17	+1	2200	
18	"	1580	
19	"	1900	
20	"	1200	
		S.W.	
1	+1	192	
2	"	137	
3	"	108	↓
4	"	126 +208	
5	"	135 +308	
19	"	1250	Line 1
18	"	1400	
17	"	2100	
16	+2	800	
15	+1	1950	
14	"	1000	
13	"	2100	
12	"	2100	
11	"	2400	
10	"	1850	
9	"	2150	
8	"	1450	
7	"	1400	
6	"	1250	
5	"	1150	↓

Blue Bell Mine

Sta	Scale	Read.	Remarks
4	+1	1150	+308
3	"	98	↓ MINE DUMP
2	"	98	
1	"	40	
Base	-1	17	

Copper & Queen

BINGHAMPTON

PI

STA. SCALE READ COMMENTS

- LINE 1 - head S 30° E
also base

0 +1 540

1 " 470

2 " 530

3 " 490

4 " 560

5 " 550

6 " 550

7 " 540

8 " 510

9 " 490

10 " 510

11 " 500

12 " 540

13 " 540

14 " 560

15 " 360

16 " 450

17 " 450

18 " 480

19 " 520

ADIT

- N 60 E TO LINE 2 -

1 +1 50

2 " 50

3 " 50

4 " 53

5 " 62

6 " 54

7 " 58

Binghampton & Copper Queen

P. 2

STA.	SCALE	READ	COMM.
8	+1	500	N76E
	"	N. 15 W.	LINE 2
18	"	523	
17	"	559	
16	"	46.	
15	"	550	MINE
14	"	550	
13	"	550	
12	"	520	BY MILL
11	"	520	
10	"	530	
9	"	550	
8	"	520	
7	"	530	
6	"	600	
5	"	510	
4	"	540	
3	"	450	
2	"	520	
1	"	540	
		1 N	
0	+1	55	
1N	"	520	
2	"	520	
3	"	500	
4	"	530	
5	"	520	
6	"	520	
7	"	530	
8	"	540	



Bing Hampton
&
Copper Queen Mines

P.3

STA.	SCALE	READ	COMM.
BASE	+1	520	HEAD.N.
1	"	520	
2	"	530	
3	"	530	
4	"	530	
5	"	520	
6	"	510	○
7	"	520	
8	"	570	
9	"	570	
10	"	560	
"	"	570	
Base		520	

Binghamton
 &
 Copper Queen Mine

P. 3

STA.	SCALE	READ	COMM.
9	+1	530	
10		570	
11		570	
		530 E.	
1		500	
2		500	
3		520	
4		500	
5		450	
6		550	BY ADIT
7		520	
8		520	
9		530	
10		500	
11		500	
12		500	
13		500	
14		480 S.	
15		520	
16		500	
17		510	
18		530	
19		480	
20		480	
21		510	
22		530	525 E
23		520	
24		500	
25		500	



Stoddard Mine

PI

STA. SCALE READ E. HEAD LINE 1

B-0 + 1 450

1 " 450

2 " 400

3 " 400

4 " 450

5 " 420

6 " 420

7 " 440

8 " 380

9 " 390

10 " 420

11 " 420

12 " 440

13 " 380

14 " 250

15 " 420

16 " 440

17 " 420

18 " 440

19 " 430

1 " 350

2 " 380

3 " 380

4 " 410

5 " 390

6 " 420

- 18 + 1 360

17 " 480

16 " 430

15 " 440



MINE DUMP
STACK

FENCE LINE

S. HEADING -

W. HEAD -

Stoddard Mine

P2

SHA.	SCALE	READ	COMM.
14	+1	430	
13	"	430	
12	"	450	BELOW MINE DUMP
11	"	400	ON MINE DUMP
10	"	440	
9	"	410	
8	"	410	
7	"	390	
6	"	420	MINE SHAFT / DUMP
5	"	420	
4	"	460	
3	"	460	
2	"	470	
1	"	460	
0	"	460	
Base	+1	460	

Starting at Binghampton
Mine heading $S 30^{\circ} E$

It looks like the mines are
working on vein structures that
are running in a easterly-westerly
direction. Will run 5 lines across
these veins, one across each mine,
one between and one on each
side.

20
4/79



Inspiration Consolidated Copper Company

INSPIRATION, ARIZONA

March 22, 1966

Heinrichs Geoexploration Company
Post Office Box 5671
Tucson, Arizona



Dear Grover:

The areas on which we want to make our original reconnaissance magnetic work are as follows:

On the Mt. Union Quadrangle, 15 min. series
De Soto Mine - located in the southeast corner
of section 31, T11N, R1E. The mine is about
1 mile northeast of Peck Spring.

On the Mayer Quadrangle, 15 min. series
Binghamton Mine and the Copper Queen Mine
about $\frac{1}{4}$ mile southeast of Binghamton Mine,
section 6, T12N, R2E.

Stoddard Mine, section 17, T12N, R2E and
another mine 0.7 mile northeast of the Stoddard.

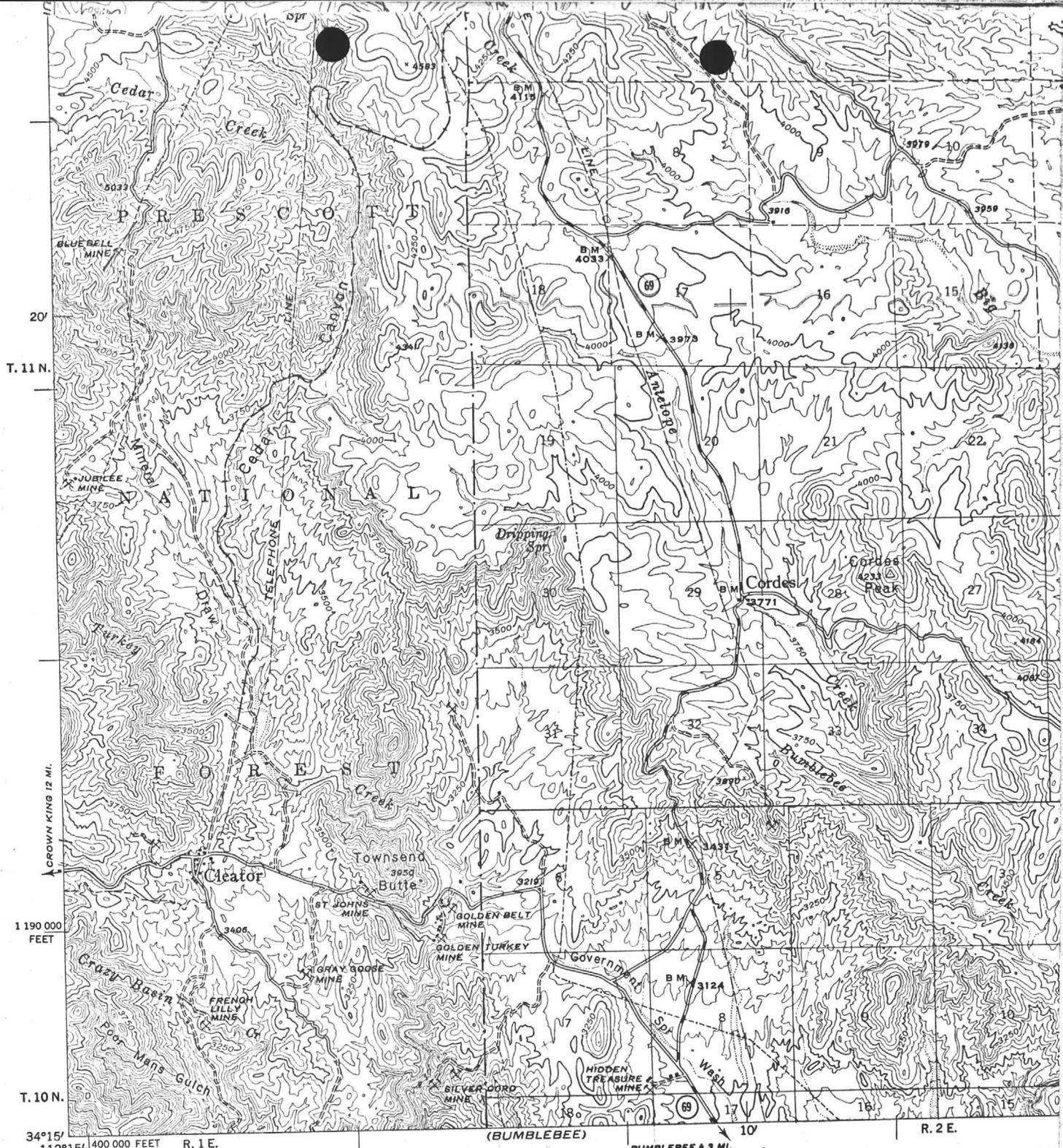
Blue Bell Mine, section 15, T11N, R1E. This
is on the road to the De Soto and probably along
the same structure, which should be checked.

We have no land holdings in any of this area and do
not know the land status so I hope you won't run into any
difficulties. Bert and I are planning to go to the area
either Thursday or Friday but don't let this delay your
plans.

Sincerely yours,

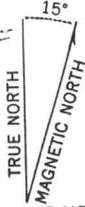
Hugh W. Olmstead
Mining Geologist

HWO/EJ

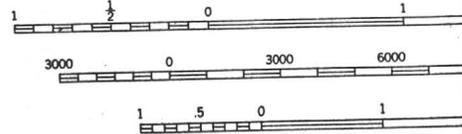


Mapped by the U.S. Forest Service
 Edited and published by the Geological Survey
 Control by U.S. Forest Service, USGS and USC&GS
 Topography from aerial photographs by KEK plotter
 Aerial photographs taken 1946. Field check 1947
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Arizona coordinate system,
 central zone
 No distinction is made between dwellings,
 barns, commercial and industrial buildings.
 Dashed land lines indicate approximate location

32 claims
 J.E. Faulkner
 2939 E
 St. John's



APPROXIMATE MEAN DECLINATION, 1947



CONTOUR DATUM IS

THIS MAP COMPLIES WITH
 FOR SALE BY U.S. GEOLOGICAL SURVEY

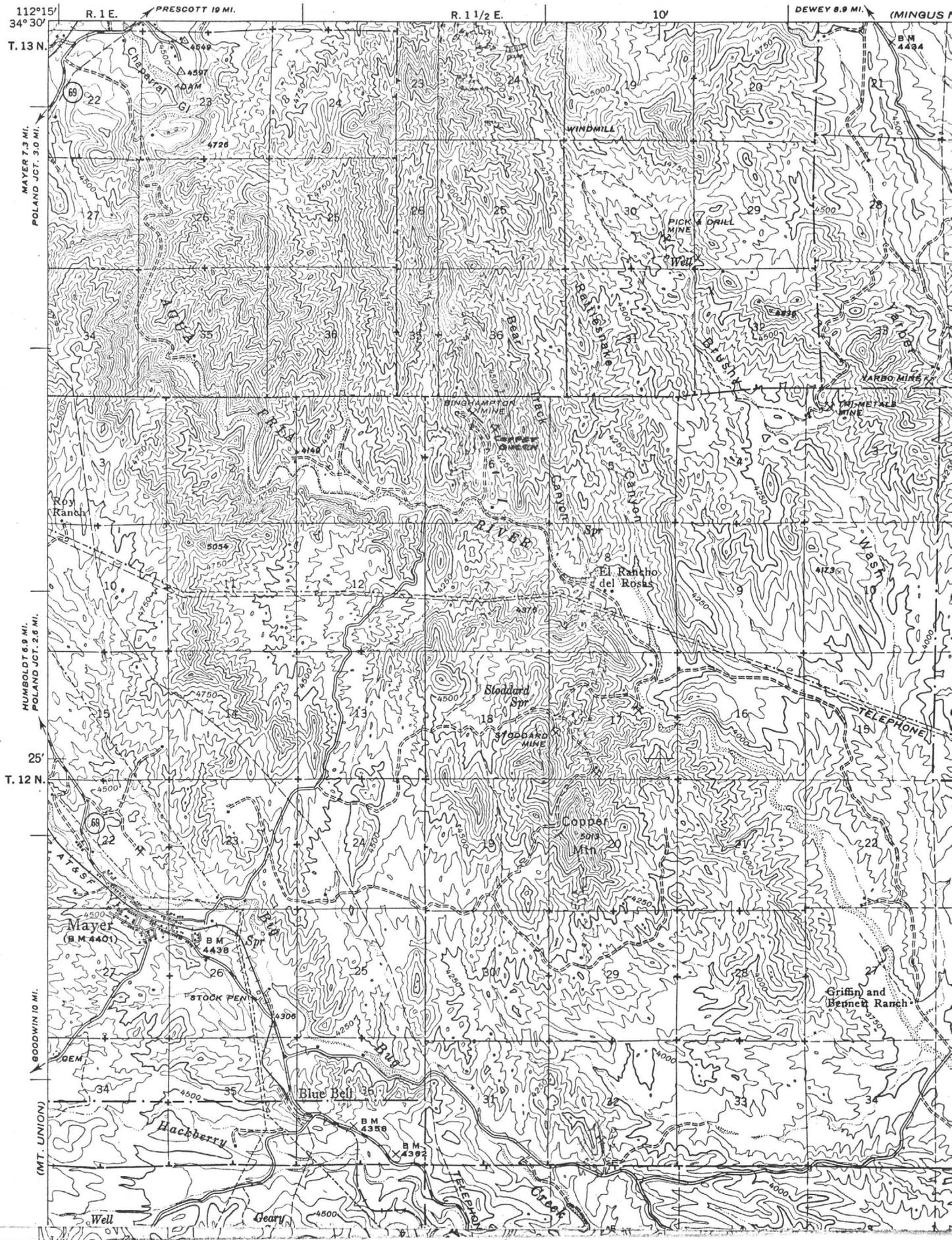
MAYER QUADRANGLE

(PRESCOTT)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MAYER
QUADRANGLE

UNITED STATES
DEPARTMENT OF THE INTERIOR
FOREST SERVICE



112°15' 34°30'

T. 13 N.

MAYER 7.3 MI.
POLAND JCT. 3.0 MI.

HUMBOLDT 6.9 MI.
POLAND JCT. 2.6 MI.

T. 12 N.

GOODWIN 10 MI.
(MT. UNION)

R. 1 E. PRESCOTT 19 MI.

R. 11 1/2 E.

10'

DEWEY 8.9 MI. (MINGUS)

WINDMILL

PICK MINE

DRILL

WELL

ROY RANCH

STOCK PEN

Blue Bell

Hackberry

Well

Gearry

4726

5094

4500

4300

4250

4000

3000

2000

1000

6000

5000

4500

4000

3500

3000

2500

2000

1500

1000

500

0

27

26

25

24

23

22

21

20

19

18

17

16

15

14

13

12

11

10

9

8

7

6

5

4

3

2

1

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

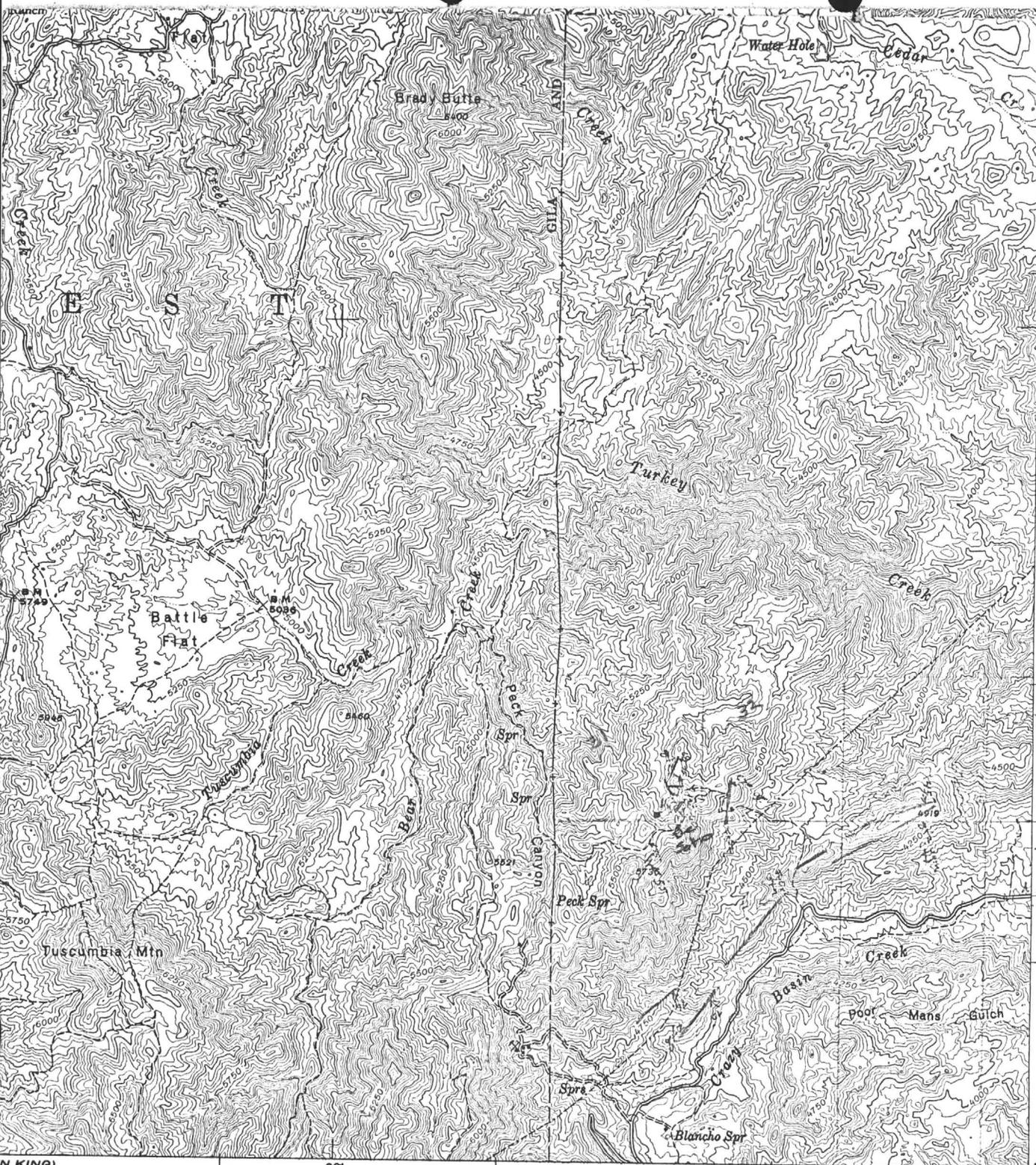
96

97

98

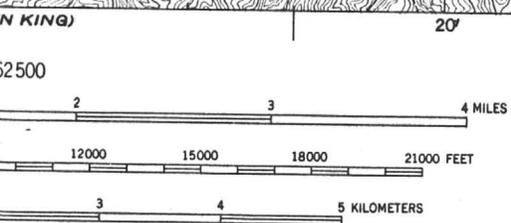
99

100



February, 1966
 De Soto Mine
 Smelter payment
 to (10% Royalty)
 Sherwood B.
 Owens
 6521 Shepard
 Hills Drive
 Tucson, Ariz.
 Operators:
 BROYLES,
 WISEMAN &
 COLLINS
 CROWN KING
 ROUTE
 Bumblebee
 ARIZ.

CLEARING 12 MI.
 6.0 MI. TO ARIZONA 68
 19.7 miles



VAL 50 FEET
 SEA LEVEL

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS		DRY WEATHER ROADS	
Heavy-duty	—+ LANE 16 LANE	Improved dirt	=====
Medium-duty	—+ LANE 16 LANE	Unimproved dirt	=====
Loose-surface, graded, or narrow hard-surface		- - - - -	
U. S. Route		State Route	

MT. UNION, ARIZ.
 N3415—W11215/15

EDITION OF 1949

MAP ACCURACY STANDARDS
 COLORADO OR WASHINGTON 25, D. C.

(BUMBLEBEE)

Desoto Mine

Ran 2 profile lines and around roads. Direction of lines are on profile maps and also in field notes. Started line 1 at entrance to mine and went in a northerly direction appx $\frac{1}{2}$ mile. Line 2 is located 500' in a westerly direction from line 1. The roads are located west of line 2 and are plotted on contour maps. Also directions are in field notes.

Bless Bell Mine

Ran 2 lines in a easterly-westerly direction. Starting at shaft to the south and called it line 1. Line 2 is located 500' northerly and runs across mine shaft to the north. Directions are on profile maps and in field notes.

Binghampton & Copper Queen Mines

Ran 3 lines across mining area. Started at mill dump on west side of Binghampton mine and went in a northerly-southerly direction. Line 1 is on the west side, line 2 is 800' appx. to the east of line 1 and line 3 runs from north end of line 2 in a southerly direction appx. $\frac{1}{2}$ mile. Directions are on profile maps and in field notes.

Stoddard Mine.

Ran 2 lines in a easterly-westerly direction. Line 1 starts at Stoddard spring shown on Topo map and runs easterly. Line 2 is 600' in a easterly direction from line 1. Directions are shown on profile map and in field notes.

T 13 N

T 12 N

T 11 N

R 1 E R 1 1/2 E R 2 E

GILA AND SALT RIVER MERIDIAN

BINGHAMPTON MINE

LINES 1 2 * COPPER QUEEN MINE

LINE 1
LINE 2
* STODDARD MINE

MAYER

BLUE BELL MINE
LINE 2
LINE 1

LINES 2 1
DE SOTO MINE AREA

R 1 E R 2 E



HEINRICH'S GEOEXPLORATION CO.
POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703

MAGNETIC SURVEY LOCATION INDEX
MAYER AREA
YAVAPAI COUNTY, ARIZONA
FOR

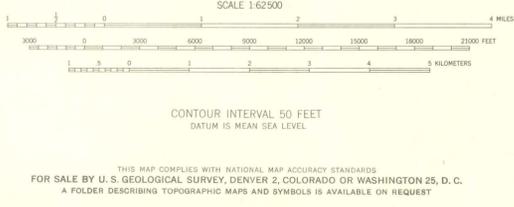
INSPIRATION CONSOLIDATED
COPPER COMPANY

Scale 1: 62,500

Date APRIL 1966

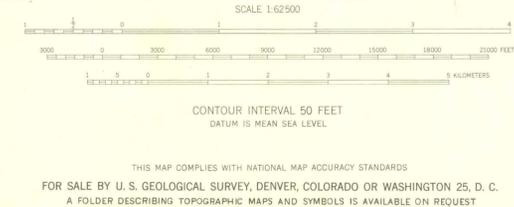


Mapped by the U.S. Forest Service
Edited and published by the Geological Survey
Control by U.S. Forest Service, USGS and USC&GS
Topography from aerial photographs by KEK plotter
Aerial photographs taken 1946 Field check 1947
10,000-foot grid based on Arizona coordinate system,
central zone
No distinction is made between dwellings,
barns, commercial and industrial buildings.
Dashed land lines indicate approximate location
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue



ROAD CLASSIFICATION
HARD-SURFACE ALL WEATHER ROADS OF
Heavy-duty **LANE ROAD** Imp.
Medium-duty **LANE ROAD** Unim.
Loose-surface, graded, or narrow hard-surface
U. S. Route State Route

Mapped by the U.S. Forest Service
Edited and published by the Geological Survey
Control by U.S. Forest Service, USGS and USC&GS
Topography from aerial photographs by KEK plotter
Aerial photographs taken 1946. Field check 1947
10,000-foot grid based on Arizona coordinate system,
central zone
No distinction is made between dwellings,
barns, commercial and industrial buildings.
Dashed land lines indicate approximate location



ROAD CLASSIFICATION
HARD-SURFACE ALL WEATHER ROADS DRY WEATHER ROADS
Heavy-duty **LANE ROAD** Improved dirt
Medium-duty **LANE ROAD** Unimproved dirt
Loose-surface, graded, or narrow hard-surface
U. S. Route State Route

MT. UNION, ARIZ.
N3415-W11215/15
1947

MAYER, ARIZ.
N3415-W11200/15
1947

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST