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602-771-1601
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inquiries@azgs.az.gov

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MAGNETIC SURVEY
(Vertical Intensity)

ARLIE CLAIM GROUP

PIMA MINING DISTRICT
Pima County, Arizona

1962 - 1963 Assessment Work

for
MRS. L. B. EMMONS

COPY

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

INTRODUCTION

On August 31, 1963, a magnetic survey was conducted by Mr. J. W. Marlatt and Mr. F. W. Heinrichs, employees of Heinrichs Geoexploration Company on the Arlie Claims located in Section 22, T 17 S, R 13 E, G.S.R.B & M. Pima County Arizona for Mrs. L. B. Emmons of Sahuarita, Arizona.

The magnetic survey consisted of five profiles located as shown on the plan map. The claims were traversed by three east-west lines and by two north-south lines on either end of the claim group. It was found necessary to extend some of the profiles beyond the claim group in order to gain a geophysical interpretive lever over outcrop and other structures known to exist in the area.

CONCLUSIONS AND RECOMMENDATIONS

No economic mineral potential is reflected by the magnetic work. If any mineral potential does exist it is likely to be very deep.

A suggestion for future assessment work would be to start a drill hole and case it then each year deepen it until 2,000 ft. depth is attained. This could take several years, stretched out. Two years' assessment work at a time can be done, continuously by starting late in August of a given assessment year and extending work into September. If no mineral is found for

discovery and patent proceedings; the hole could be pump tested and possibly used for a water well.

INTERPRETATION

Line 1 was traversed west to limestone outcrop. Values are lower at outcrop and for ½ mile east. It is assumed that some limestone is buried in this vicinity and it is an area of shallower alluvium. Minor variations on other parts of the line have little significance and the magnetic picture is about what one would expect in the area.

Line 2 was run north far enough to show that the Arlie Claims are a structurally higher block than lies under Section 15 to the north.

The highest magnetic readings were observed in the northwest corner of Arlie 1. If this high is on the edge of a magnetic build-up then there is some possible relationship to the outcropping hills in the south~~east~~west corner of Section 15. The alluvium would be shallowest at the northwest corner of the claims, although still quite deep.

The south~~west~~east corner of the claim group should be best for water to obtain maximum yield. The alluvium depth is likely quite variable in the area. An educated guess would put the limits at from 500' to 1,000' more or less.

For affidavit of labor requirements, Heinrichs Geoexploration Company certifies that no less than $350.00 was spent on a geophysical survey of the Arlie 1 thru 5 claims for a part of the annual assessment obligation.

Respectfully submitted,

HEINRICHS GEOEXPLORATION CO.

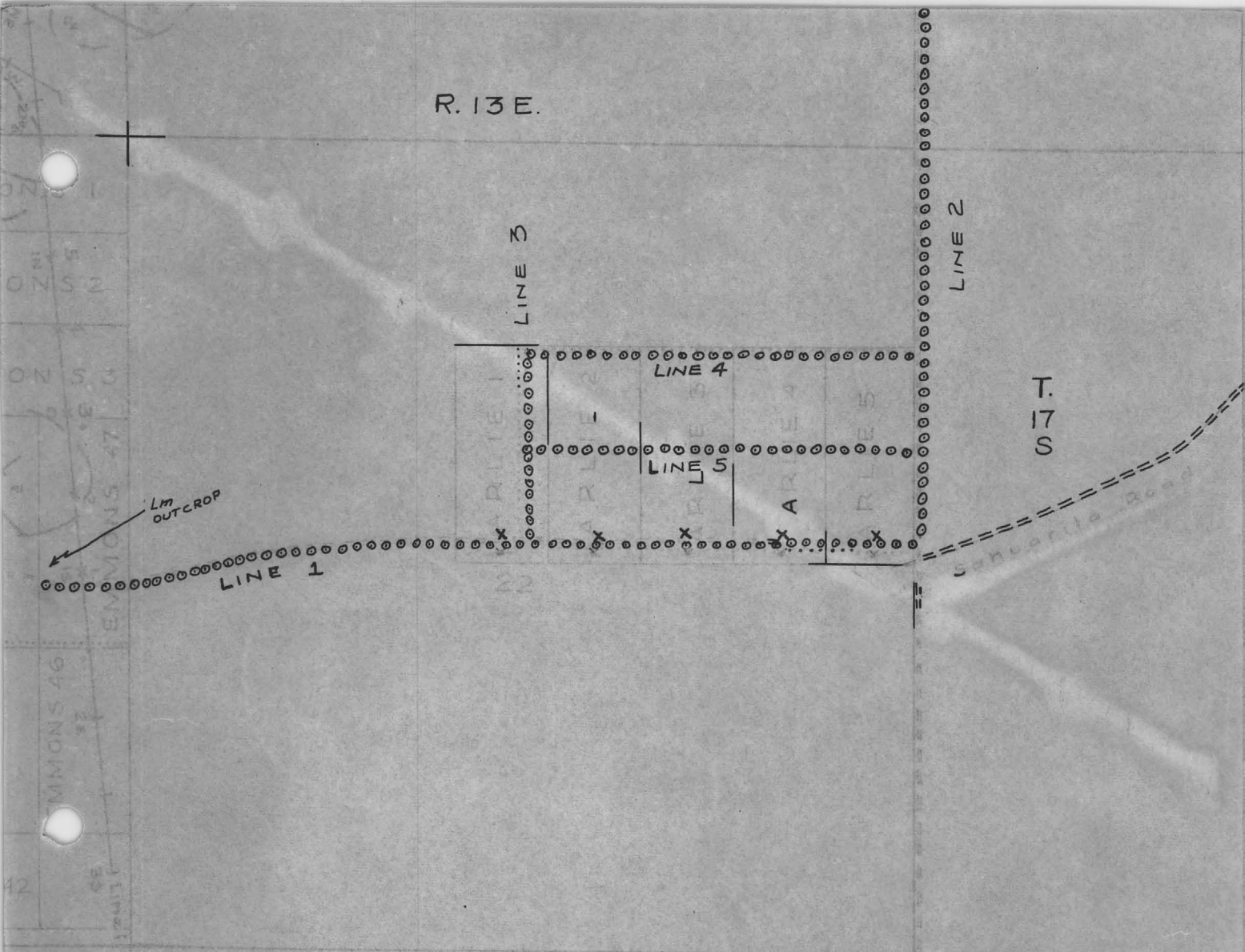
J. W. Marlatt

J. W. Marlatt
Senior Geologist

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E.
HEINRICHS, JR.
DEC. 31, 19
ARIZONA, U. S. A.

COPY

September 17, 1963
P. O. Box 5671
Tucson, Arizona



INFORMATION

⊙ Magnetic Station

× Location Pit

=== Road

LOCATION MAGNETIC SURVEY
ARLIE CLAIM GROUP
Sec. 22, T 17 S, R 13 E
PIMA MINING DISTRICT

for
MRS. L. B. EMMONS

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

Scale: 1" = 1,000'

August & September 1963

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E.
HEINRICHS, JR.
DEC. 31, 19__
ARIZONA, U.S.A.

VARLIE 1
VARLIE 5
VARLIE 3
VARLIE 4
VARLIE 2
55
Saphalita Road
LA SUMMIT
DE SUMMIT
Line 1
Line 2

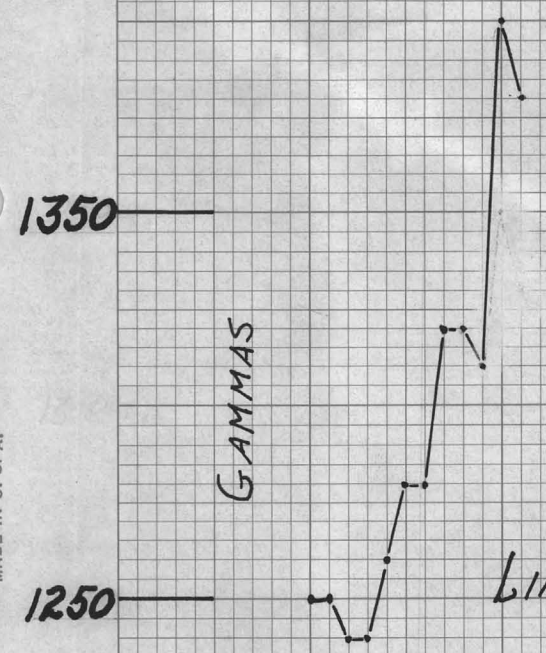
MAGNETIC SURVEY
Arlie Claim Group
Pima Mining District

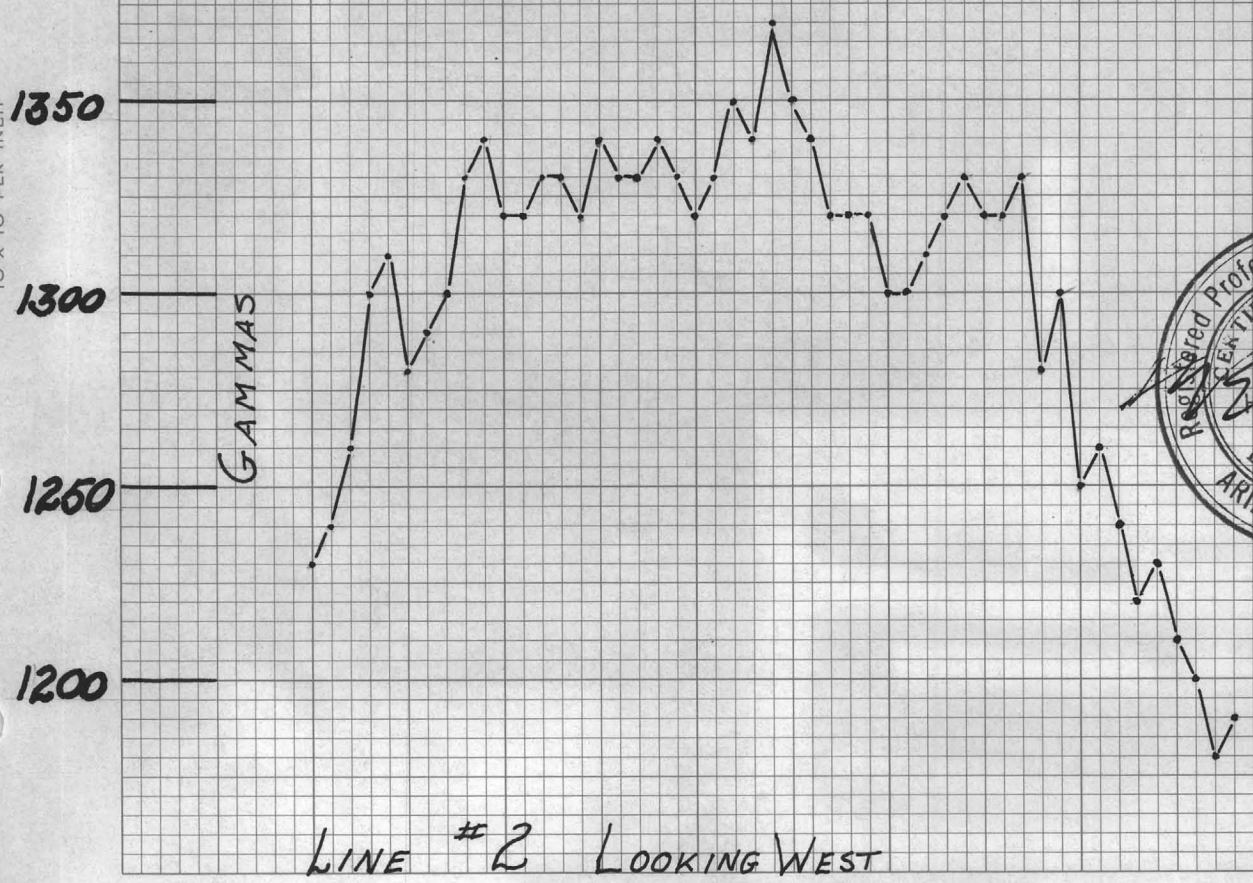
for
MRS. L. B. EMMONS

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

Horizontal Scale: 1" = 1,000'
Vertical Scale: 1" = 50 gammas

August 1963





Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS
DEC. 31, 1963
ARIZONA, U. S. A.

EUGENE DIETZGEN CO.
MADE IN U. S. A.
NO. 340R-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

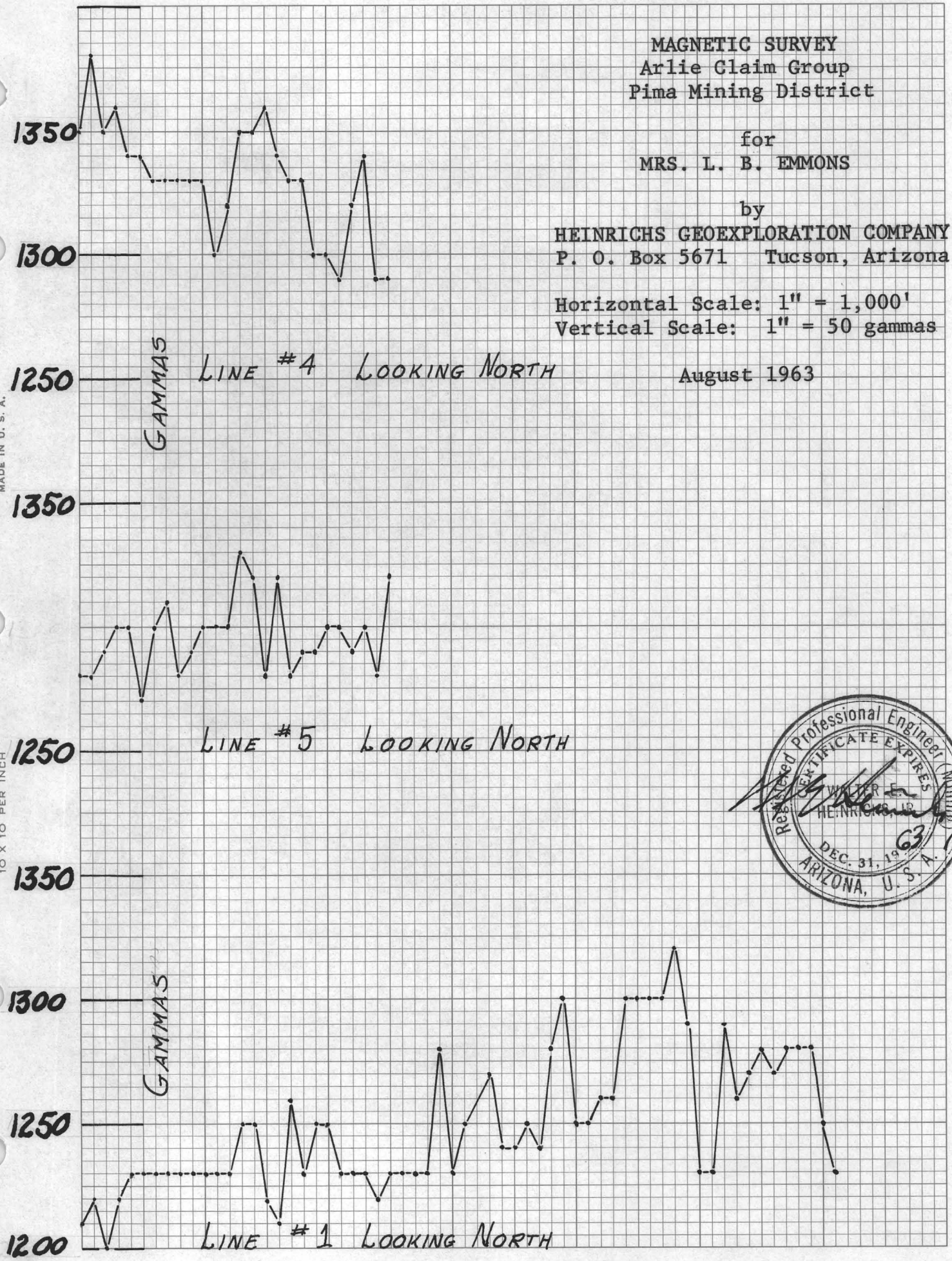
MAGNETIC SURVEY
Arlie Claim Group
Pima Mining District

for
MRS. L. B. EMMONS

by
HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

Horizontal Scale: 1" = 1,000'
Vertical Scale: 1" = 50 gammas

August 1963



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EUGENE DIETZGEN CO.
MADE IN U. S. A.
NO. 340R-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

Inquiry

Emmons, F. Mrs.

Ritley Lawyer 3/21/66

claims # 48/49/50

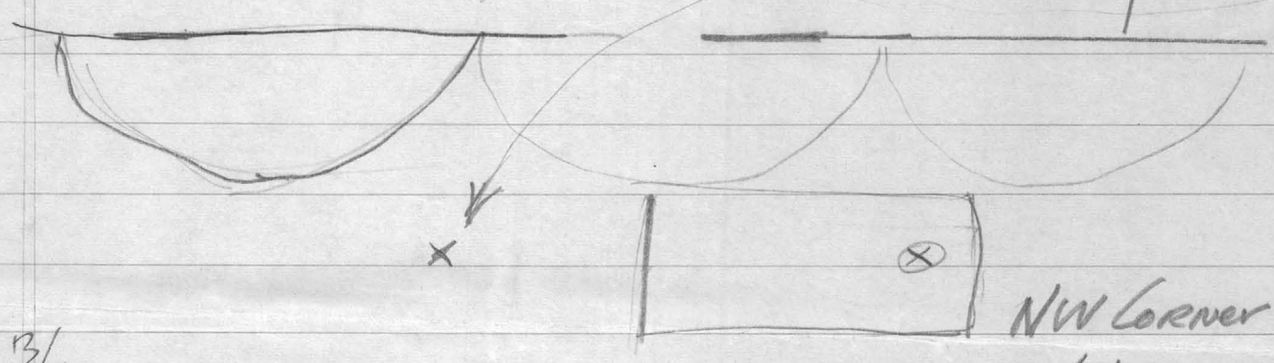
40 acres

660 wide
2638.13

2 E-W claims

$400 - $450

Westerly
Morrow Placer
BK 2483/656



1 3/4

1200
3
3600

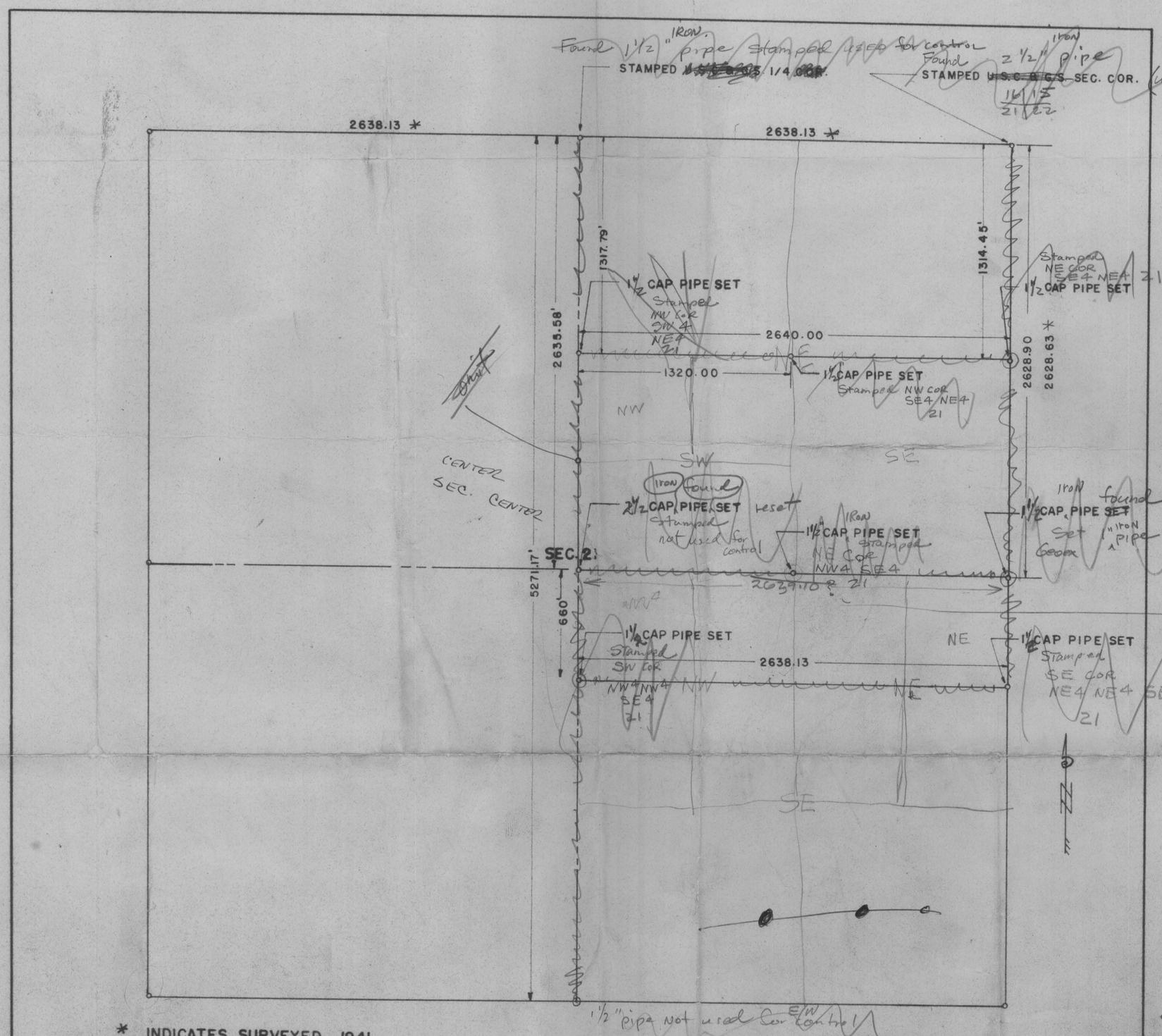
16' long

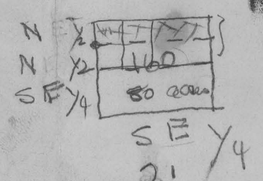
$1,800
$3,000

245 1085

1 comm. 400' - 1200'

pulse camera



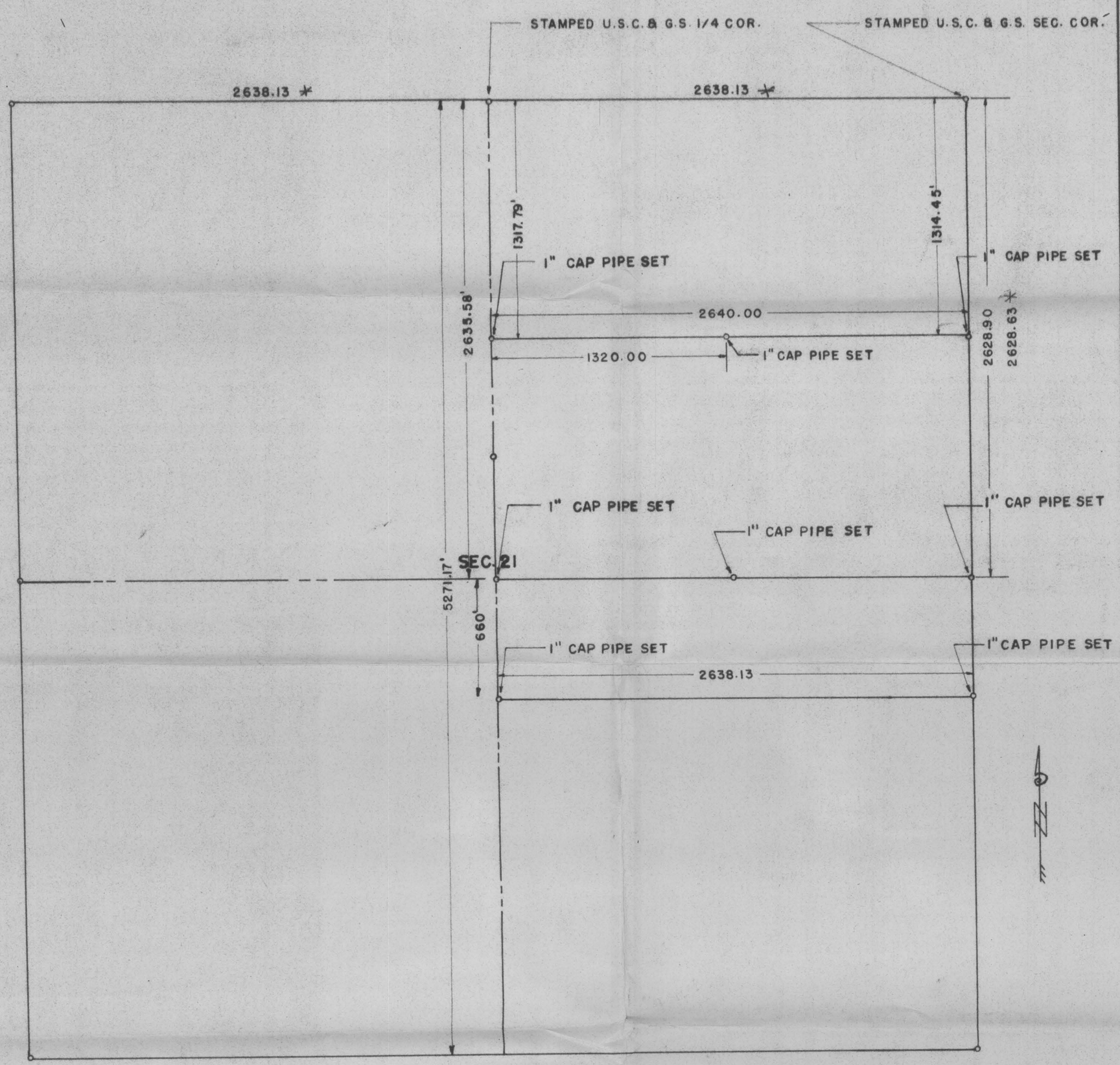


* INDICATES SURVEYED 1941
BY
T. N. STEVENS

— · — LINE surveyed by Geoex using existing control

TRANSIT CHAIN SURVEY
FOR
MRS. L. B. EMMONS
SEC. 21, T. 17 S., R. 13 E.
PIMA CO., ARIZONA
BY
HEINRICHS GEOEXPLORATION CO.
SCALE 1" = 500' AUGUST 1964

66
-12
132
16
7.92



* INDICATES SURVEYED 1941
BY
T. N. STEVENS

TRANSIT CHAIN SURVEY
FOR
MRS. L. B. EMMONS
SEC. 21, T. 17 S., R. 13 E.
PIMA CO., ARIZONA
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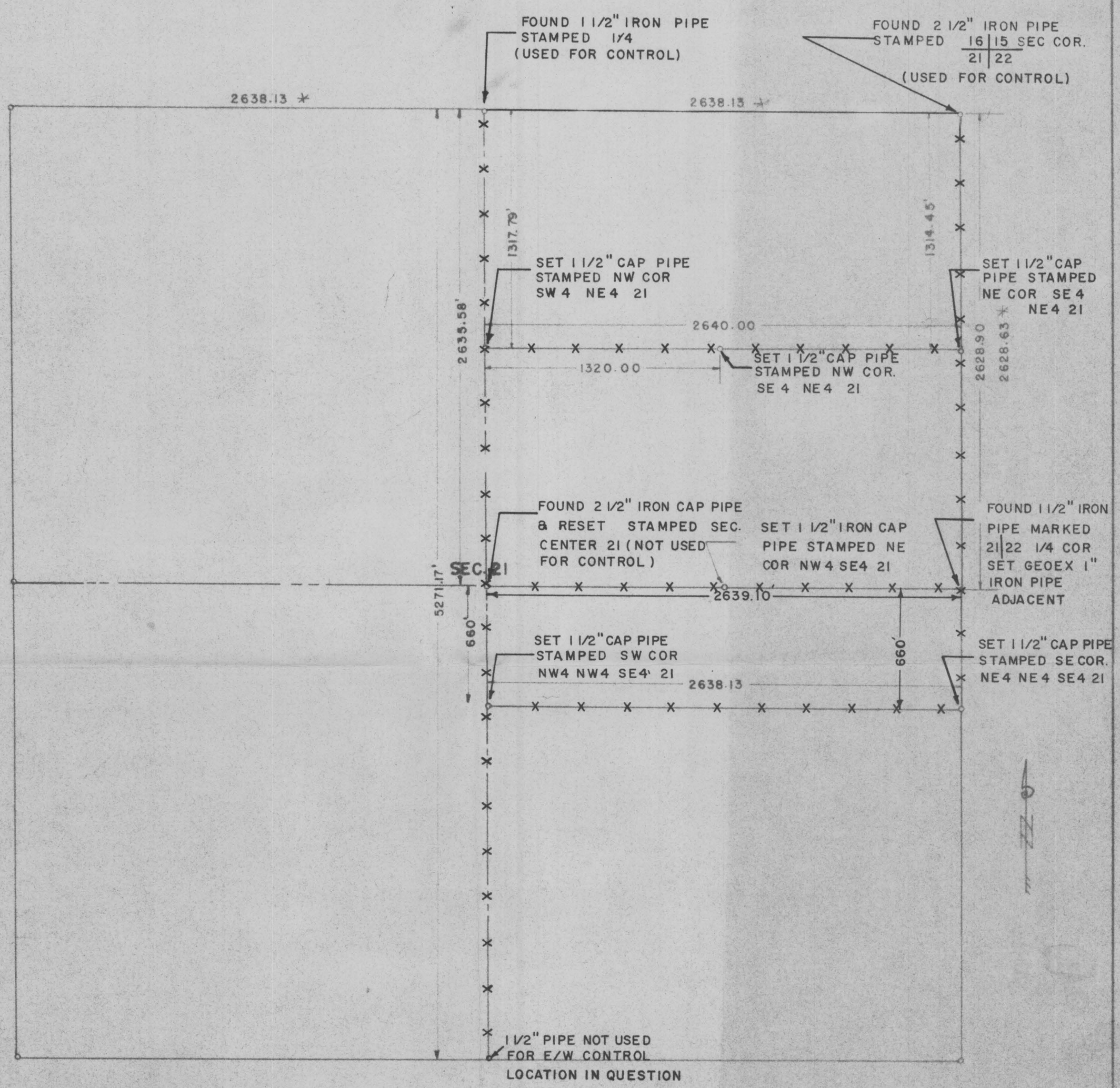
SCALE 1" = 500' AUGUST 1964

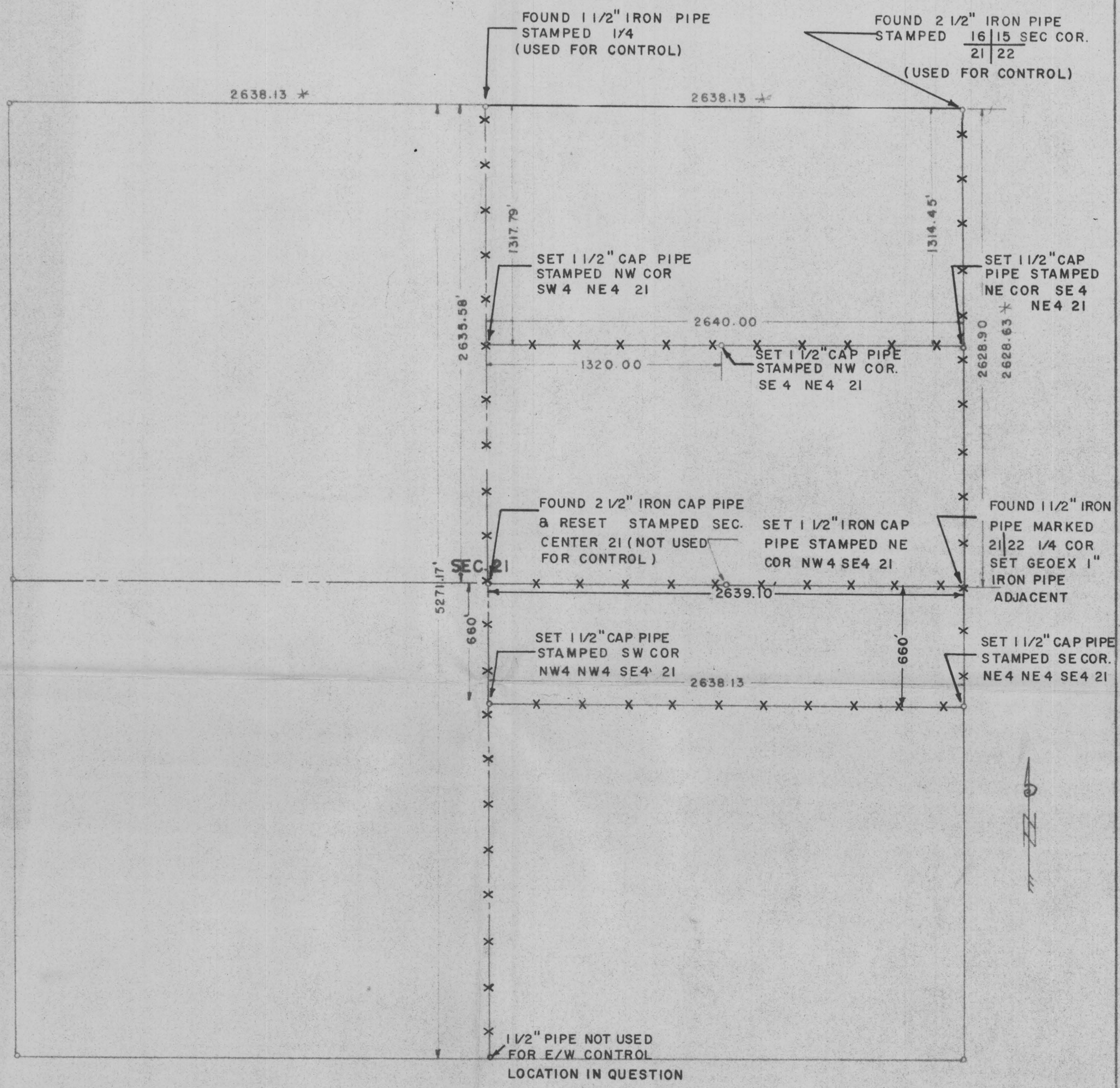


* INDICATES SURVEYED 1941
BY
T. N. STEVENS

X X X LINE SURVEYED BY GEOEX USING EXISTING CONTROL

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER P. HEINRICHS, JR.
DEC. 31, 19 64
ARIZONA, U. S. A.

TRANSIT CHAIN SURVEY
FOR
MRS. L. B. EMMONS
SEC. 21, T. 17 S., R. 13 E.
PIMA CO., ARIZONA
BY
HEINRICHS GEOEXPLORATION CO.
SCALE 1" = 500' AUGUST 1964



* INDICATES SURVEYED 1941
BY
T. N. STEVENS

X X X LINE SURVEYED BY GEOEX USING EXISTING CONTROL

Registered Professional Engineer (Mining) CERTIFICATE EXPIRES DEC. 31, 1964 WALTER P. HEINRICHS, JR. ARIZONA, U.S.A.

TRANSIT CHAIN SURVEY
FOR
MRS. L. B. EMMONS
SEC. 21, T. 17 S., R. 13 E.
PIMA CO., ARIZONA
BY
HEINRICHS GEOEXPLORATION CO.
SCALE 1" = 500' AUGUST 1964

September 10, 1964

Mrs. L. B. Emmons
P. O. Box 1748
Tucson, Arizona

Dear Mrs. Emmons:

Enclosed is our billing in the amount of $397.12.

Under separate cover I am mailing the map by T. N. Stevens, two blue line copies and a sepia print of our survey plat. It is unfortunate that you have felt dissatisfied with our work, especially since you expressly understood we undertook the work as a favor because you could find no one else, even though it was an extreme inconvenience to us. As you may remember, I agreed to undertake the job as an in-between-other-jobs basis and had requested a detailed outline in writing of exactly what you wanted done. This you never provided and as a result, the crew, as you first verbally requested, was surveying the N½N½NE¼, Sec. 21, T 17 S, R 13 E instead of the N½N½SE¼ of said section.

In addition other misunderstandings developed as the work progressed such as you later wanted 2½ inch capped pipe monuments and an additional E-W line surveyed dividing the NE¼ into two equal parcels. Neither of these requests were discussed in your initial phone call and this created additional problems.

I trust the enclosed maps and this letter will clarify our position. If you have any questions, please let me know.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

EGH:jh
Enclosure

E. Grover Heinrichs
Vice President

2741.20 from Quarter
Cor 21-16 To Center
of Sec 21 -

1869.97 from 1/4 21-28 to So.
Survey Line Making So.
Half of Section 2529.97'
Long: Section 15527.17' Long

2035' from 1/4 21-16 To
Capped Iron pipe Stamped
"PLACER NW"
FM

2628.
1314.45
West Side

INDUCED POLARIZATION SENDER NOTES

Project: _____ Line: _____ Date: _____

Send	1000	950	= 1000									
Receive			950 ~~9800~~									
Time												
Range												
Current												
Send												
Receive												
Time												
Range												
Current												

660.25 FROM SEC COR 21/22
To Lead capped PIPE "SE DAWN"

1969.95' to NE ARLIE from Sec Cor

2628.90 to 1/4 COR +.23 closure

EAST SIDE

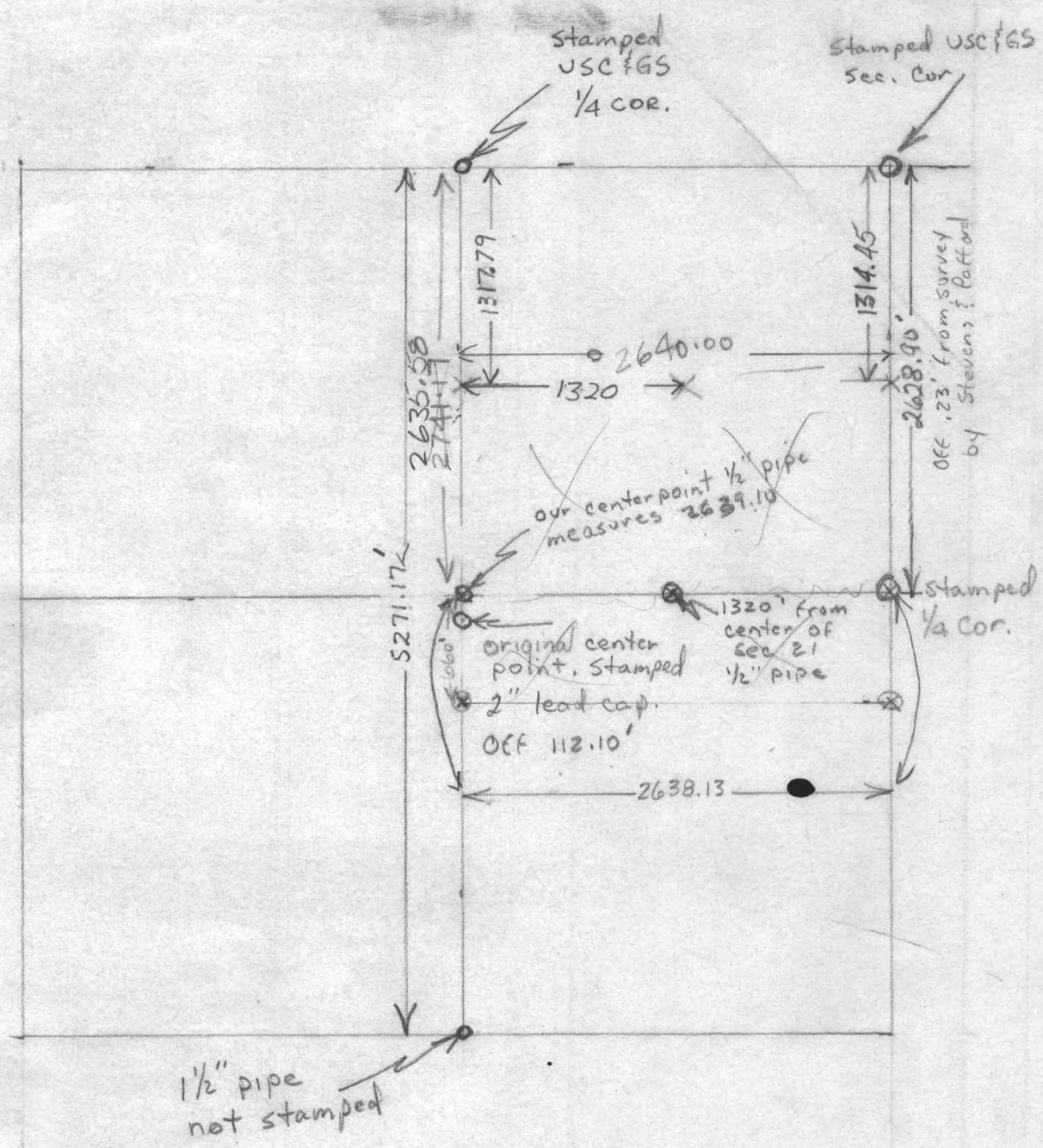
2741.17

1370.08

Sec. 21 for Emmons

August 1964

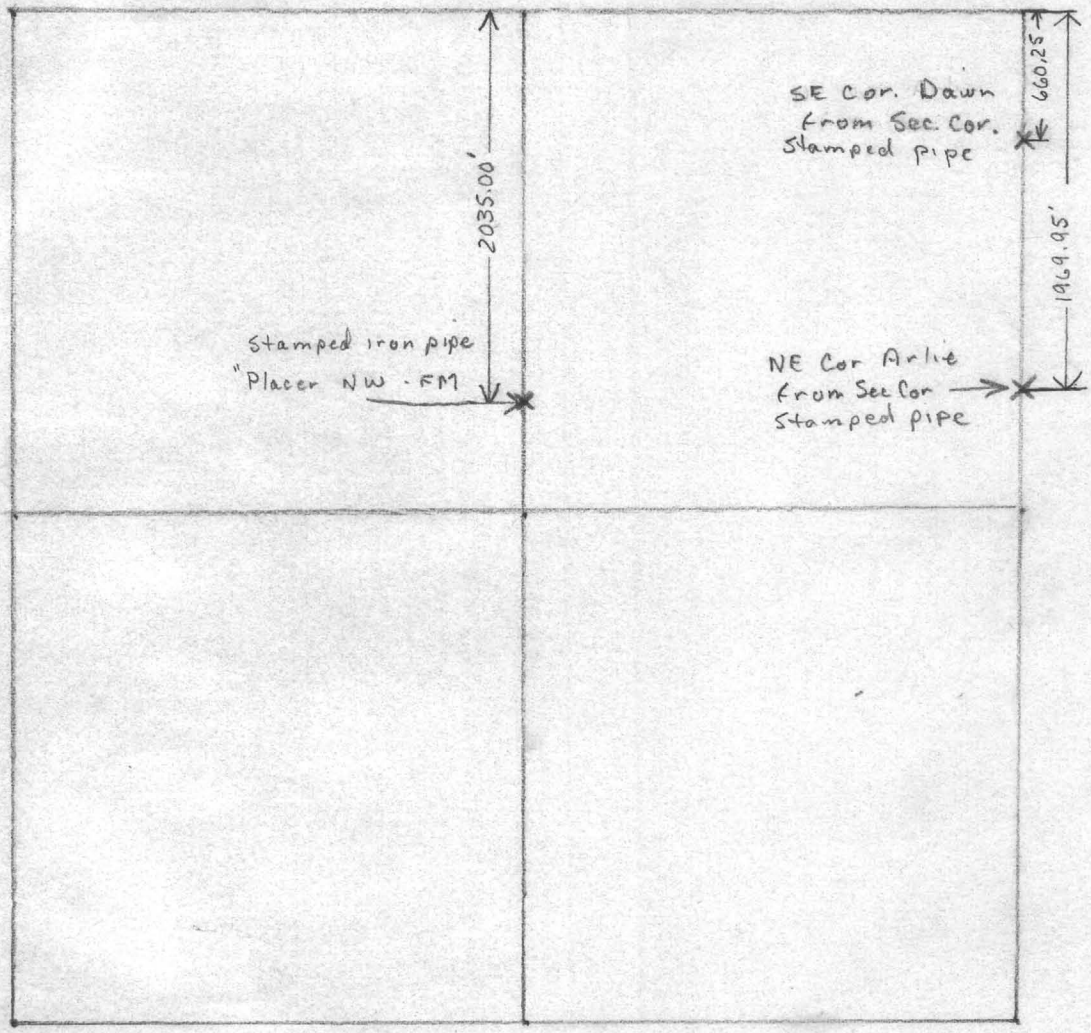
D.A.
R.P.
D.M.



all points indicated were chained by D. Anderson, R. Palmer.

Red indicates points set by crew. Points set 200' apart on line in red.

Claim Corners we passed



Transit Chain Survey
for
Mrs. L. B. Emmons
Sec. 21, T.17 S., R.13E.
Pima Co. ARIZONA

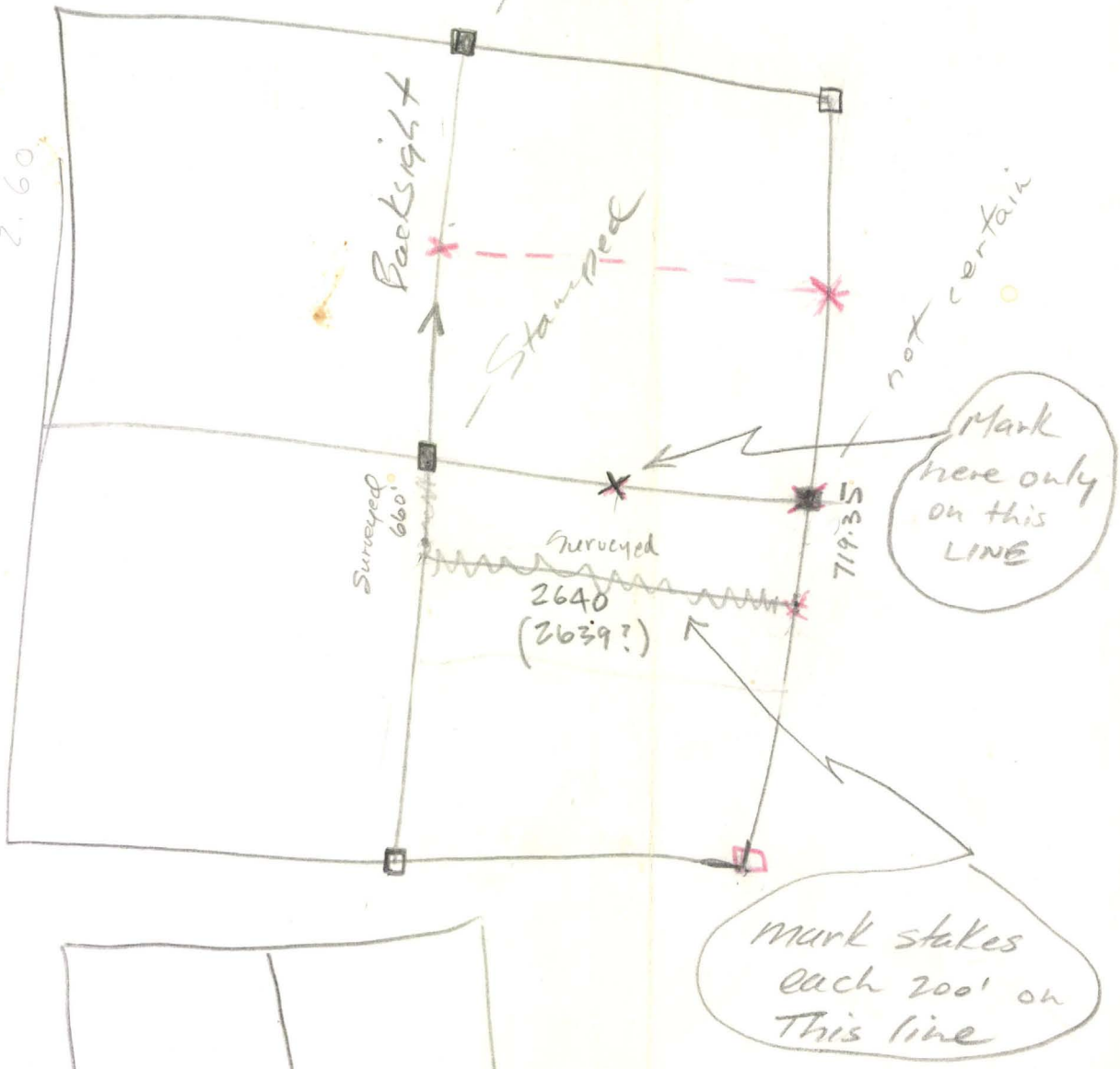
by
HEINRICHS Geoexploration Co.

Scale 1" = 500'
DATE Aug. 1964

Mrs. Emmons 8/20/64

To be surveyed

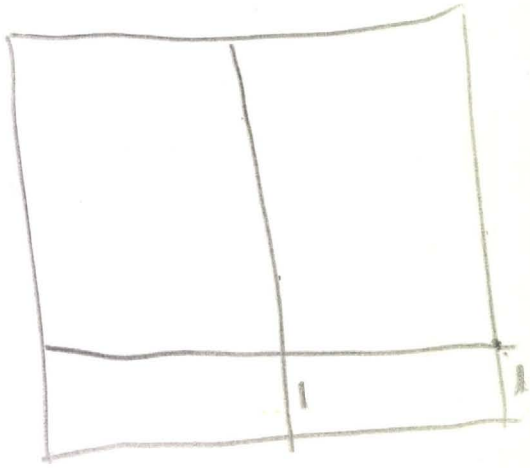
☐ Located & set by Stevens & Pafford.



2628.63
5257.26
5262.4
5.15
2.60

5262
2631

2628.90 2055
660 660
1948.70 2695



1873

Emmons
ARLIE CLAIMS

Aug. 31, 1963

Salander Survey

J. W. M. & F. Heinrichs.

ORIGINAL COPR. 1910 BY J. C. PARKER
MK.REG. U.S. PAT. OFF.
LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.
42

LINE 1 - west from
SE COR ARLIE 5

Sta.	Scale	Read.		Info.
0	+1	125	1230	9:30
1+00W		127	1250	
2+00W		130	1280	
3 W		130	1280	
4 W		130	1280	
5 W		129	1270	
6 W		130	1280	
7 W		129	1270	
8 W		128	1260	
9 W		131	1290	
10 W		125	1230	9:37
11 W		125	1230	
12 W		131	1290	
13 W		134	1320	
14 W		132	1300	
15 W		132	1300	
16 W		132	1300	
17 W		132	1300	
18 W		126	1260	
19 W		128	1260	
20 W		127	1250	9:45
21 W		127	1250	
22 W		132	1300	
23 W		130	1280	
24 W		126	1240	
25 W		127	1250	
26 W		126	1240	
27		126	1240	
28		129	1270	
29		127	1250	
30		125	1230	9:50

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ORIGINAL COPR. 1910 BY J. O. PARKER

TR. MK.REG. U.S. PAT. OFF.

31 W	130	1280		
32 W	125	1230		
33 W	125	1230		
34 W	125	1230		
35 W	125	1230		
36 W	124	1220		
37 W	125	1230		
38 W	125	1230		
39	125	1230		
40	127	1250	10:00	
41 W	127	1250	↓ from	
42 W	125	1230	here on	
43	128	1260	on road	
44	123	1210		
45	124	1220		
46	127	1250		
47	127	1250		
48	125	1230		
49	125	1230		
50	125	1230	10:05	
51	125	1230		
52	125	1230		
53	125	1230		
54	125	1230		
55	125	1230		
56	125	1230		
57	124	1220		
58	122	1200		
59	124	1220		
2N	123	1210	on LS. hill	
0	123	1230	10:35	

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

Line 2
Tool

Sta	Scale	Read		
0	1:1	123	1230	10:45
1 N		124	1240	
2 N		126	1260	
3 N		130	1300	
4 N		131	1310	
5 N		128	1280	
6		129	1290	
7		130	1300	
8		133	1330	
9		134	1340	
10		132	1320	10:50
11		132	1320	
12		133	1330	
13		133	1330	
14		132	1320	
15		134	1340	
16		130	1300	
17		133	1330	
18		133	1330	
19		134	1340	
20		133	1330	11:00
21		132	1320	
22		133	1330	
23		135	1350	
24		134	1340	
25		137	1370	cattle grazed
26		135	1350	
27		134	1340	
28		132	1320	
29		132	1320	
30		132	1320	11:05

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31		130	1300		
32		130	1300		
33		131	1310		
34		132	1320		
35		133	1330		
36		132	1320		
37		132	1320		
38		133	1330		
39		128	1280		
40		130	1300		
41		125	1250	11:10	
42		126	1260		
43		124	1240		
44		122	1220		
45		123	1230		
46		121	1210		
47		120	1200		
48		118	1180		
49		119	1190	11:20	
0		122	1230	11:40	

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Line 3 Head from 25 w/ Line #1

Stn	Scale	Head		
0 N		125	1250	1:05
1 N		125	1250	
2 N		124	1240	
3		124	1240	
4		126	1260	
5		128	1280	
6		128	1280	
7		132	1320	
8		132	1320	
9		131	1310	
10		135	1350	1:15
11		133	1330	
12		140	1400	
13		138	1380	

Line 4 1:20

26	125	1350	
25	128	1380	
24	125	1350	
23	126	1360	
22	124	1340	
21	124	1340	
20	123	1330	
19	123	1330	
18	123	1330	
17	123	1330	
16	123	1330	1:25
15	130	1300	
14	132	1320	
13	135	1350	
12	135	1350	

Two head failure

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11	136	1360		
10	134	1340		
9	133	1330		
8	133	1330		
7	130	1300		
6	130	1300	1:35	
5	129	1290		
4	132	1320		
3	134	1340		
2	129	1290		
1	129	1290	SHOULD BE #1	
	Line 5 Met			
1 W	132	1320	1:45	
2	128	1280		
3	130	1300		
4	129	1290		
5	130	1300		
6	130	1300		
7	129	1290		
8	129	1290		
9	128	1280		
10	132	1320	1:50	
11	128	1280		
12	132	1320		
13	133	1330		
14	130	1300		
15	130	1300		
16	130	1300		
17	129	1290		

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

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TR. MK.REG. U.S. PAT. OFF.

18	128	1280		
19	131	1310		
20	130	1300	2:00	
21	127	1270		
22	130	1300		
23	130	1300		
24	129	1290		
25	128	1280		
26	128	1280	2:05	

LEFAX, PHILADELPHIA 7, PA., MADE IN U.S.A.

shows in the northwest corner of Arlic #1. If a high is truly building in this vicinity it possibly is related to outcropping hills in the southwest corner of sec. 15. Thus alluvium would be shallowest, but still deep, at the N.W. corner of the claims.

The southeast corner of the claims should be best for water wells - maximum yield on the claims

Alluvium depths probably are variable. A guess at limits - 500' to 1000', more or less.

No mineral potential is reflected by magnetic work. Probably none anyhow unless very deep.

Suggestion for future assessment work - start a drill hole and case it. Each year deepen it until 2000' depth is attained. This will take several years. Two years at a time can be done by doing it at end August - first Sept. If no mineral found, can be used as a water well.

To do - prepare a map & data for affidavit, and another map & letter report for Mrs. Emmons & bill her for $350.00.

Jim.

1963

Emmons assessment work
Geoex to do & bill $350.00
The rest has been done by road work.
5 ARLIE claims in Sec. 22.

A Salander survey was run on Aug 31 and former data in files to be used for rest. 5 profiles were run and have been plotted in pencil. A trial, color plot shows that contouring would be useless.

Interpratation of data.

Line 1 was run west to limestone outcrop. Values are lower at outcrop & for a 1/2 mile east. Assume some limestone buried in this vicinity and therefor less depth of alluvium.

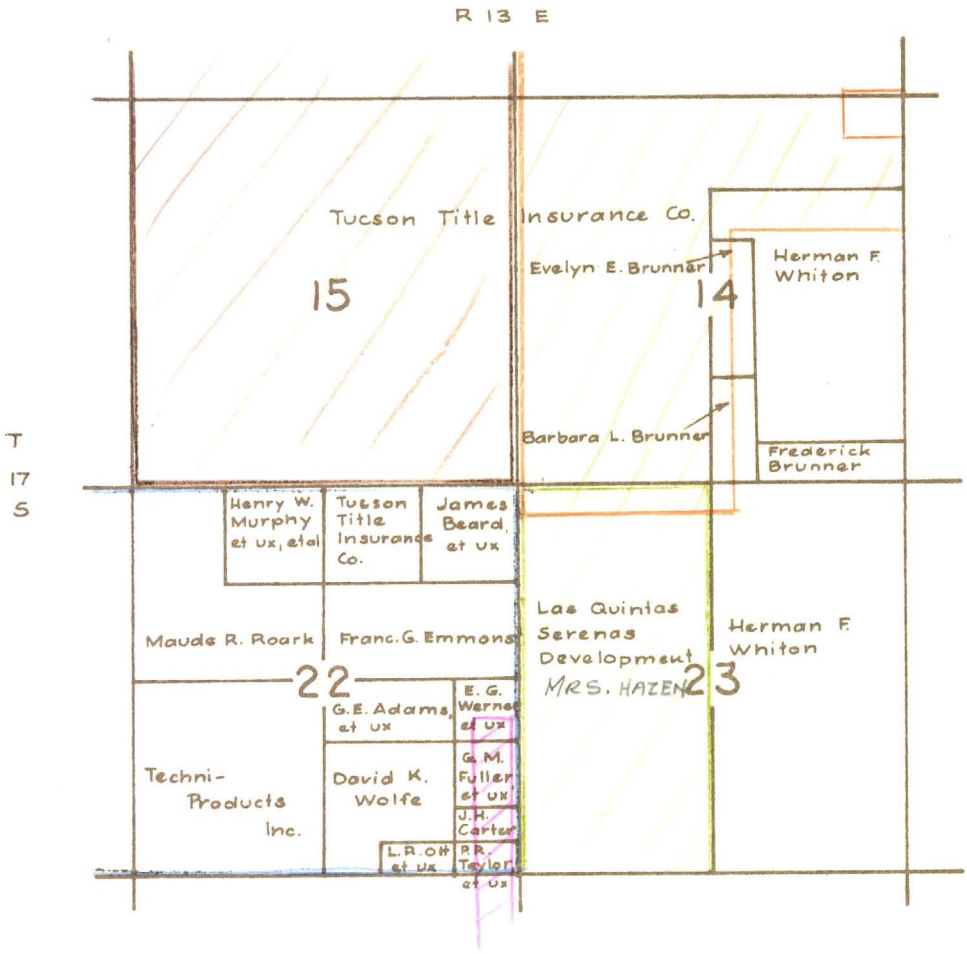
In general there is the usual minor variations in readings that are always gets in alluvium containing talus.

Line 2 was run north far enough to show that the Arlie claims are on a structurally higher block than lies under section 15 to the north.

The highest area (magnetically)

(over)

MARY Claim Group
Land Status



Mineral Land Status

Las Quintas Serenas Group (Placer)
Ben L. Johnson, et al - Jul. 60

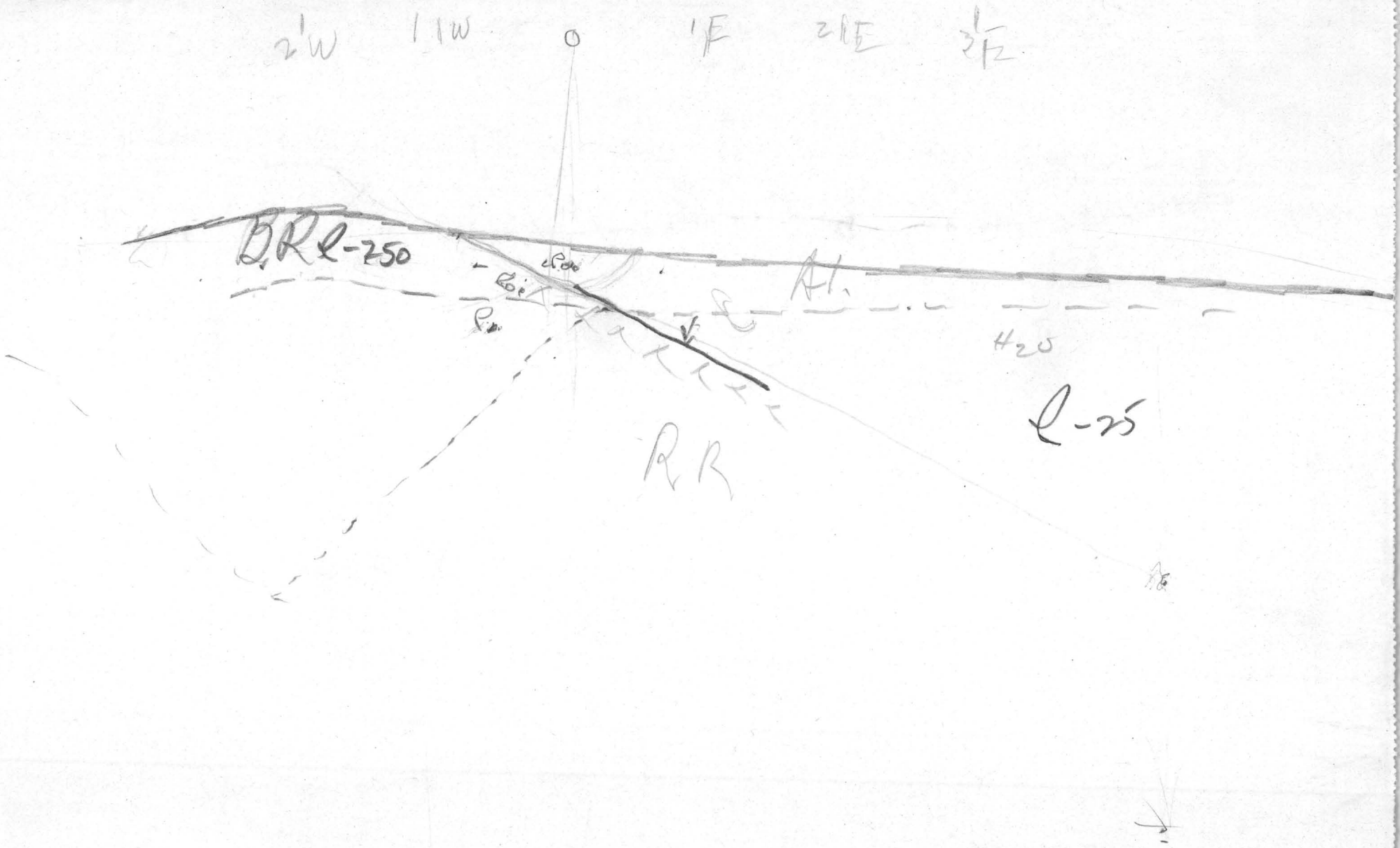
Bear Creek Mining Co.
(Emmons Group, 1956)

Vernon B. Smith

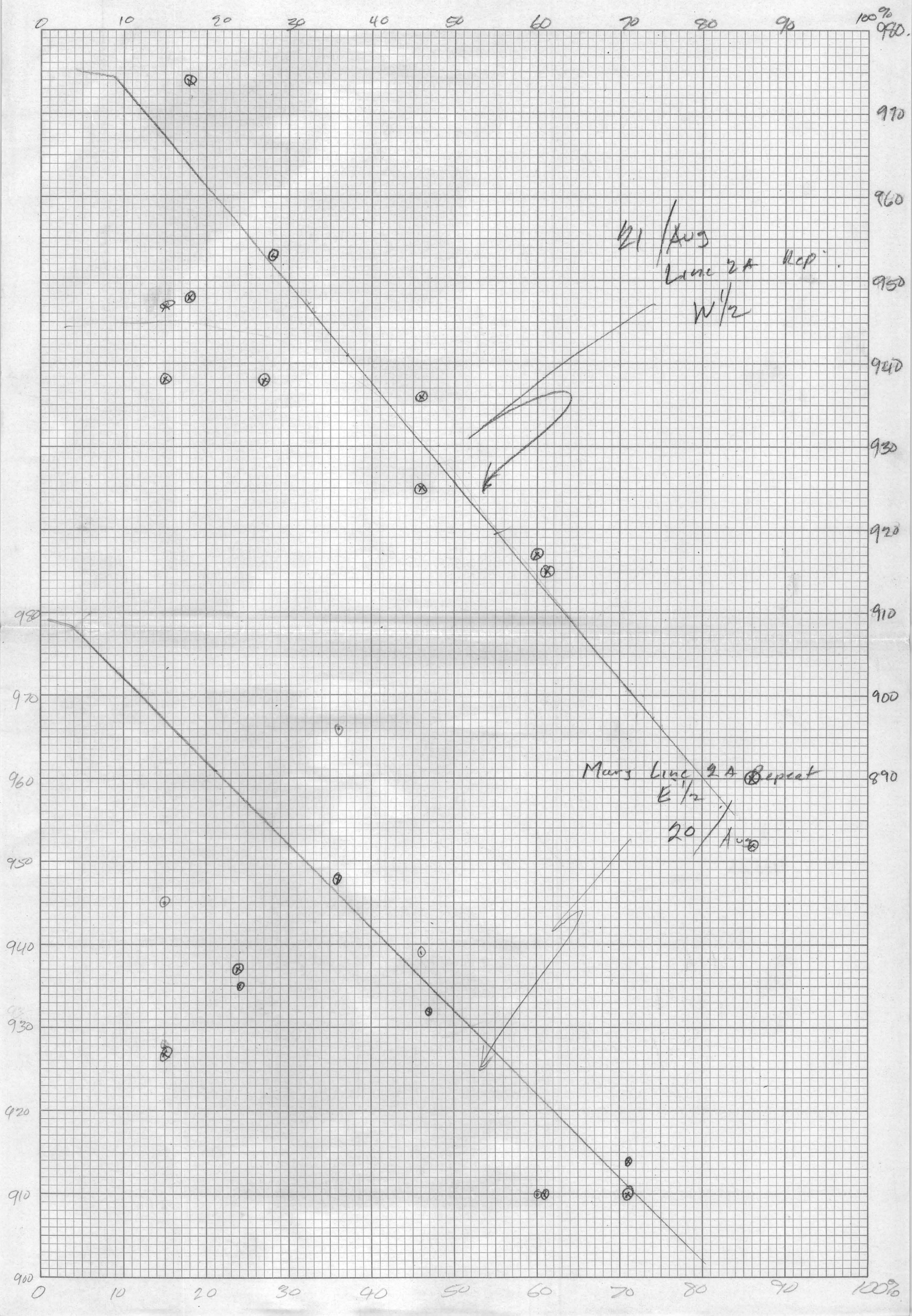
Walter Y. Fish, Jan. 61

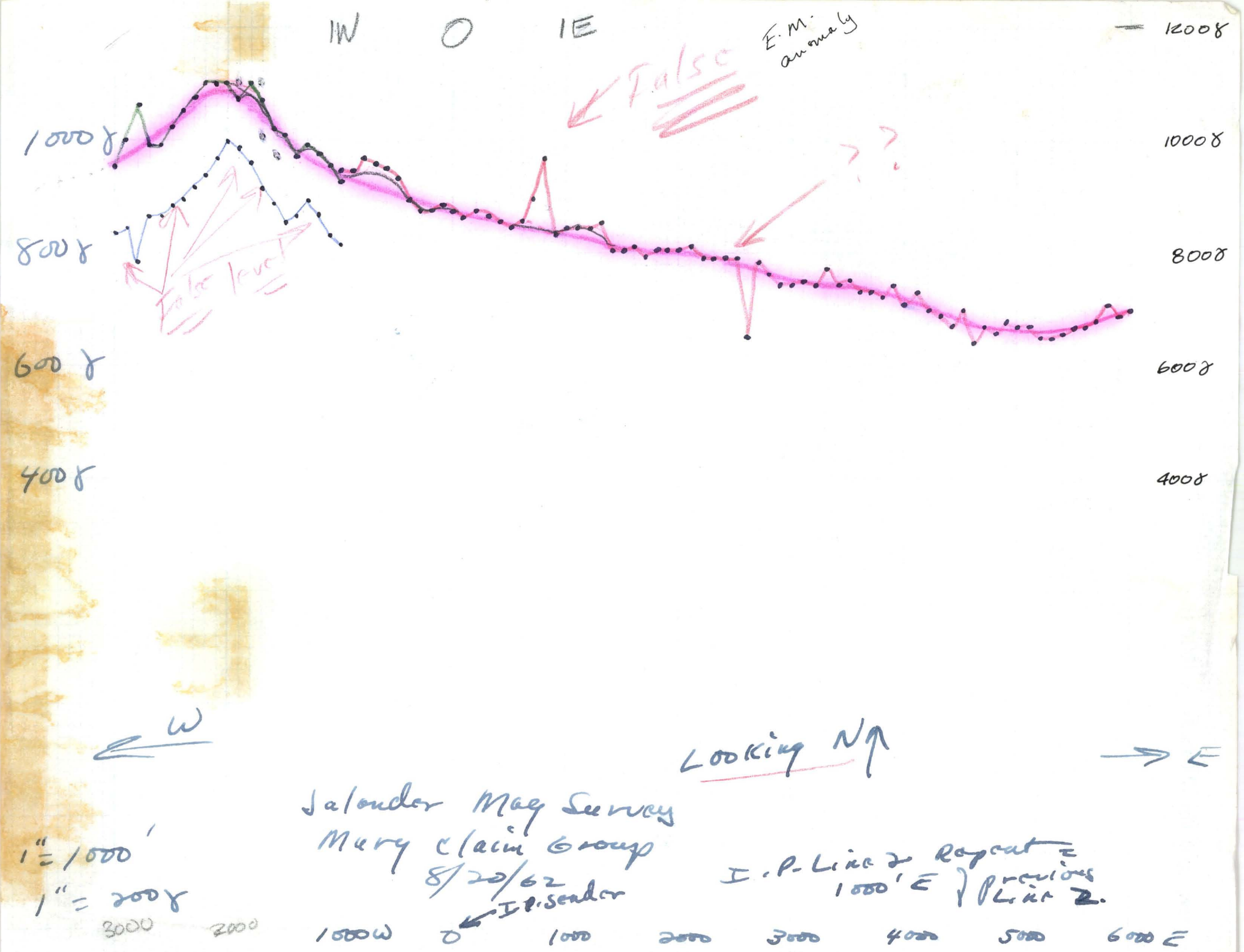
~~W. & Edwards, Sevits, C.G.~~
Woolsey, Smith, Fieldman
SANDRA CLAIMS 11/28/62

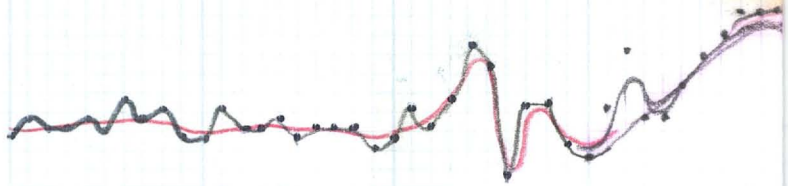
NORTH
Scale 1" = 1000'
15
1300
1400
1500
.1560
.1635
.1700
.1600
.1540
.1510
.1480
.1470
.1425
.1345
.1490
.1450
.1430
.1410
.1400
.1370
.1350
.1315
.1260
.1456
.1440
.1415
.1430
.1390
.1400
.1430
I.P.
sendar
15
14
21
22
Pima County, Arizona
Sec 15, T17S - R13E
for
INSPIRATION CON. COPPER CO.
by
Heinrichs Geoexploration Co.
Scale 1" = 1000
C.I. 25 gammas
Aug 1962
Lorah in Map
Scale
SILVER BELL
Peak Quadrangle
Salander Mag. coverage
in vicinity of sendar
on I. P. Line 2 Repeat
Aug. 21-22, 1962
All values raised 600 gammas
to conform to MoMag values.

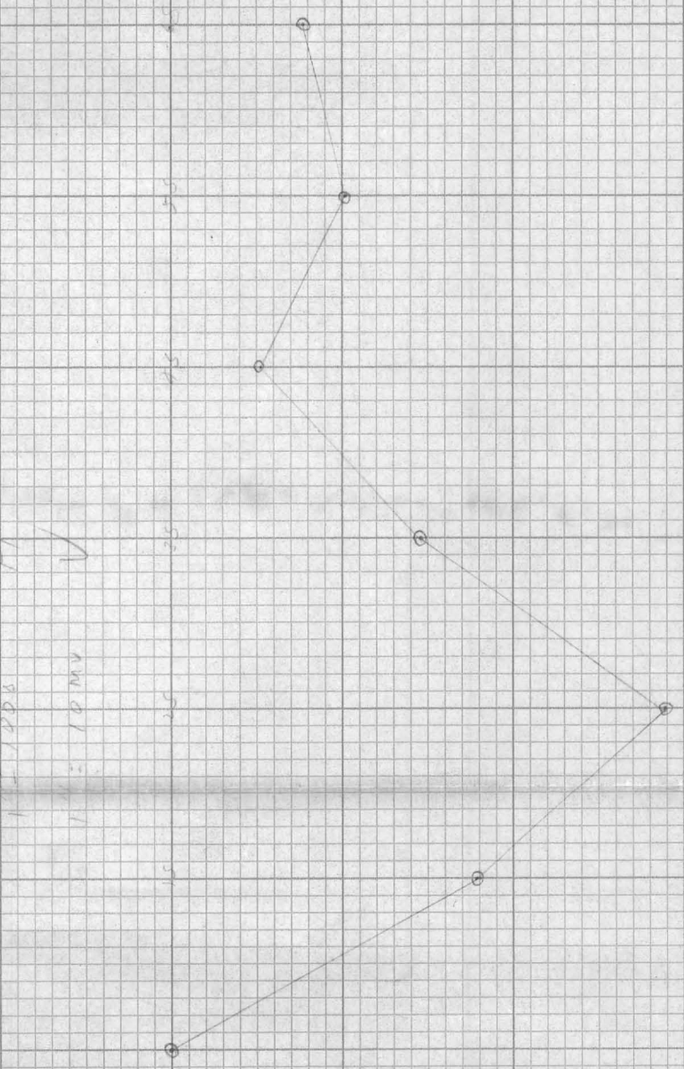

2'W
1'W
0
1'E
2'E
3'E
D.R ℓ-250
At.
H2O
ℓ-25
R.R

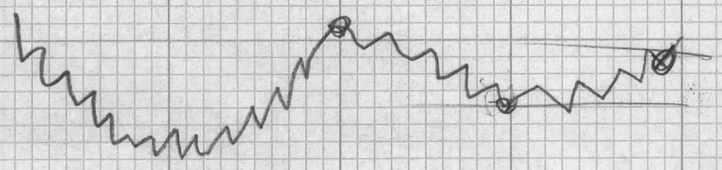
K+E 10 X 10 TO THE INCH 359-5DLG
KEUFFEL & ESSER CO. MADE IN U.S.A.



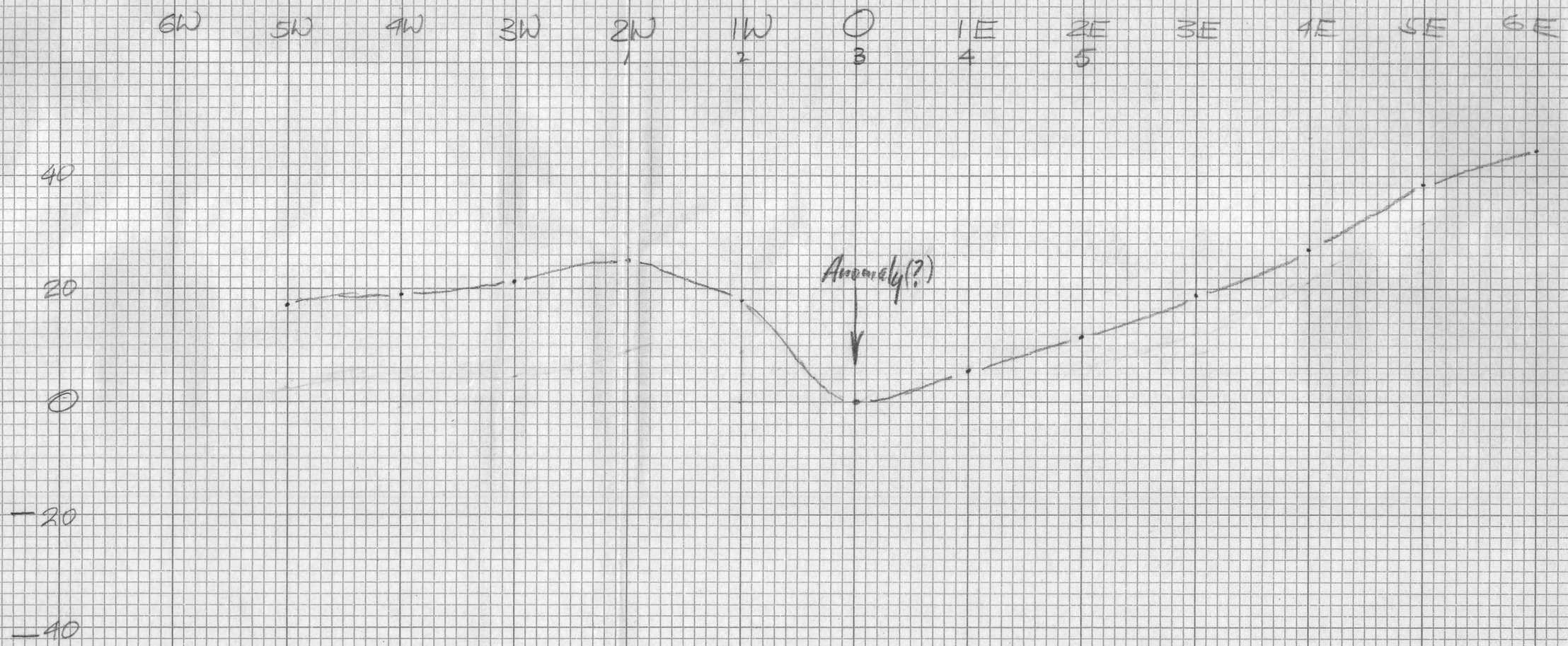

1W
0
1E
1000γ
800γ
600γ
400γ
1200γ
1000γ
800γ
600γ
400γ
False
E.M. anomaly
??
False level
W
Looking N
E
Salander Mag Survey
Mary Claim Group
8/20/62
I.P. sender
I.P. Line 2 Repeat 1000' E of previous Line 2.
1" = 1000'
1" = 200γ
3000
2000
1000W
0
1000
2000
3000
4000
5000
6000 E







KEUFFEL & ESSER CO.
MADE IN U.S.A.
STANDARD CROSS SECTION
10×10 TO THE INCH



8/29/62
IP Line 2 - May Repeat I.B.

MRS. Emmons

31. Bo Thur 7th. Pr Cr Cr

call if cant be here

Harding Well —

SE 1/4 NW 1/4 Sec 21

T17S - R13E

452' - drilled 1937
(in error)

1957 - 456' to water

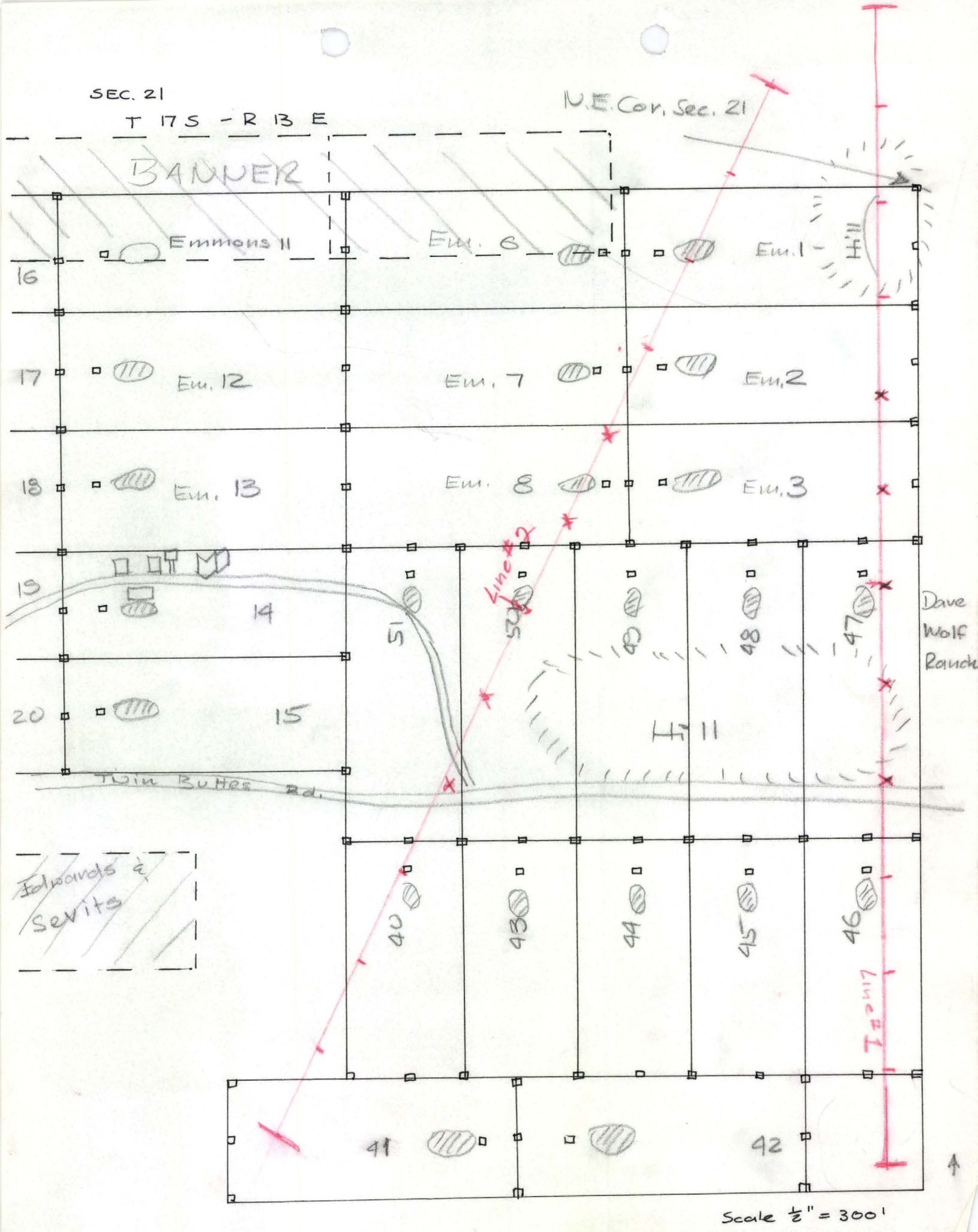
drop water level 1.9' in
1 year - 1956-57

University records

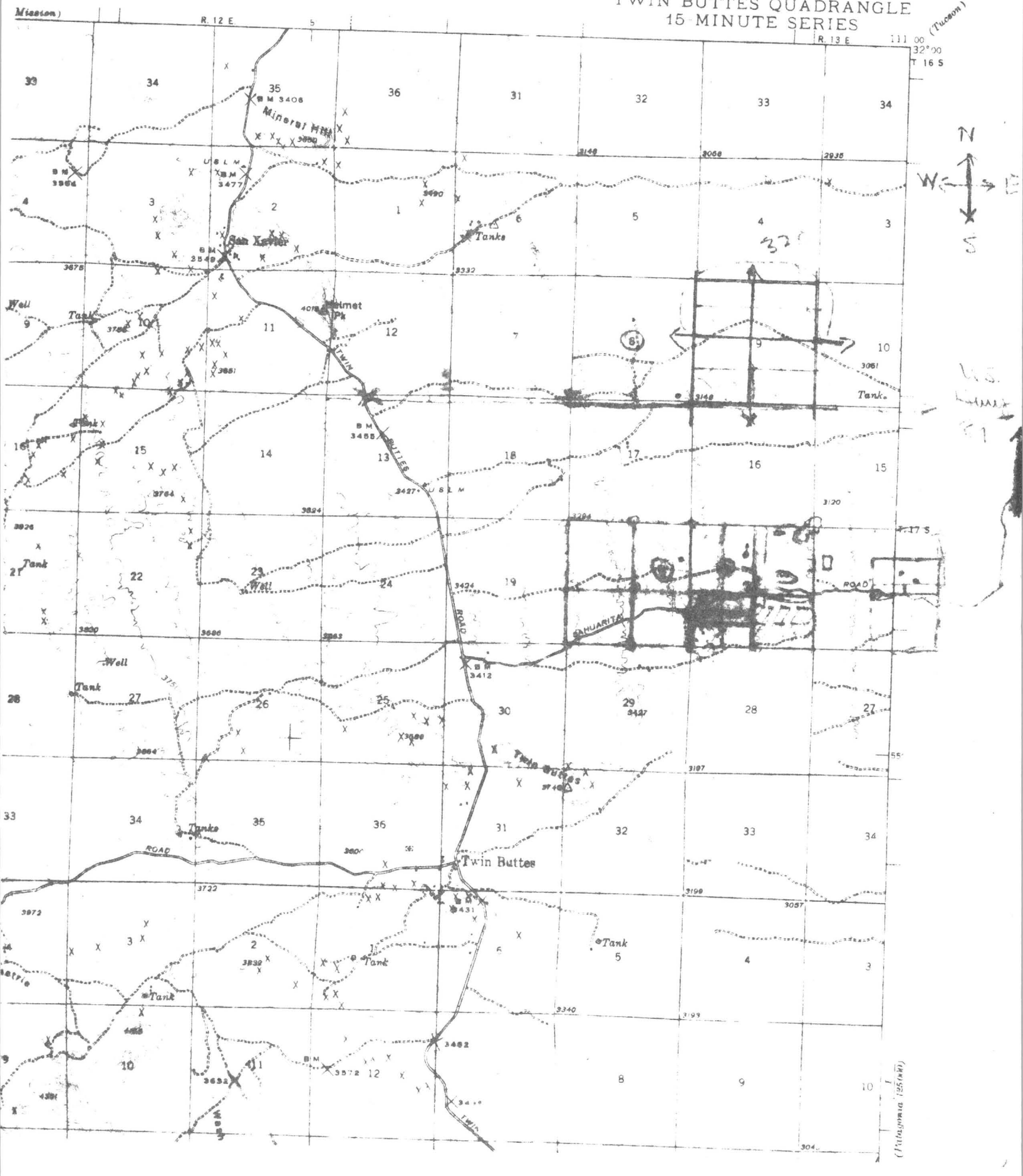
Begin
Begin
Begin
Begin
Begin
NW
NE
300'
1400'
Arlie #1
Arlie #2
Arlie #3
Arlie #4
Arlie #5
Disc
100'
SW
SE
Center Sec. 22
N
W
E
S.

d
22
173

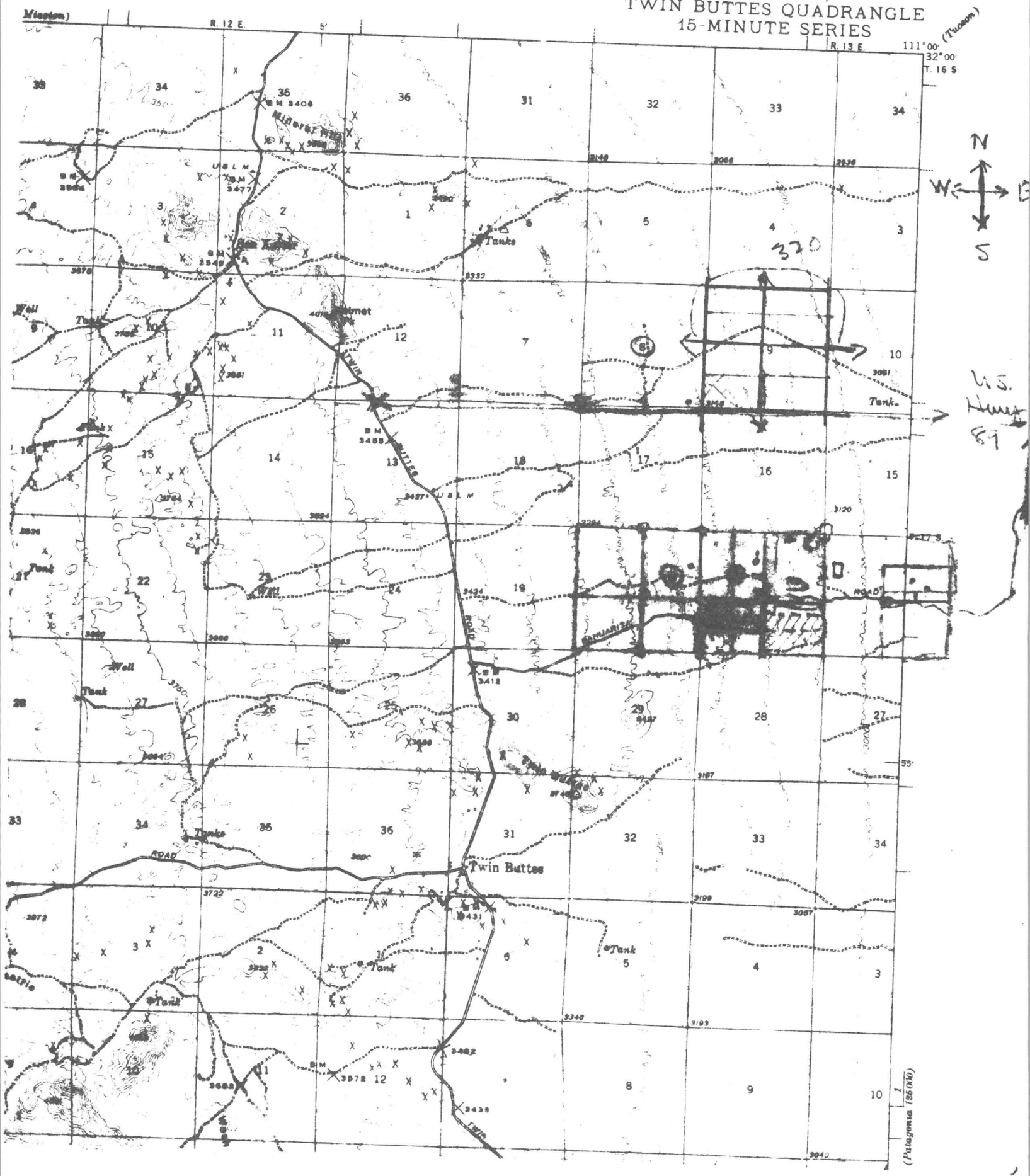
Begin
Begin
Begin
Arlie #1
Arlie #2
Arlie #3
Arlie #4
Arlie #5
300'
400'
N
W
E
S.


SEC. 21
T 17S - R 13 E
N.E. Cor. Sec. 21
BANNER
Emmons 11
Em. 6
Em. 1
Hill
16
17
Em. 12
Em. 7
Em. 2
18
Em. 13
Em. 8
Em. 3
19
14
20
15
51
50
49
48
47
Line #2
Dave Wolf Ranch
Hill
Twin Buttes Rd.
Edwards & Sevits
40
43
44
45
46
Line #1
41
42
Scale ½" = 300'

ARIZONA
(PIMA COUNTY)
TWIN BUTTES QUADRANGLE
15-MINUTE SERIES



ARIZONA
(PIMA COUNTY)
TWIN BUTTES QUADRANGLE
15-MINUTE SERIES



A.A. McDANIEL, DRILLING CONTRACTOR

1208 EAST ROGER ROAD

TUCSON, ARIZONA

3rd well
Vacant [illegible]

June 16, 1958

LOG OF WELL drilled for

Mrs Frances Emmons

Sahuarita, Arizona

FROM	0'	To	3'	Sandy soil
	3'	"	15'	Sandy clay
	15'	"	125'	Conglomerate
	125'	"	135'	Clay
	135'	"	290'	Gravelly clay
	290'	"	325'	Muddy sand & water
	325'	"	335'	Clay
	335'	"	360'	Gravelly clay
	360'	"	390'	Muddy gravel & water
	390'	"	402'	Clay

Casing: 8" ID Used pipe. Welded. (customer's pipe). 403'.

Perforations: 4 rows of 1/4" X 6" torch cuts on 18" spacing, from 290' to 398'.

Static water level: 280' (after bailing).

This is a very good well.

A.A. McDaniel

A.A. McDaniel

A.A. McDANIEL, DRILLING CONTRACTOR

1208 EAST ROGER ROAD

TUCSON, ARIZONA

80 acres
2nd well
West half.

June 16, 1958

LOG OF WELL drilled for

Mrs Frances Emmons

Sahuarita, Arizona

FROM	0'	To	3'	Sandy soil
	3'	"	15'	Sandy clay
	15'	"	125'	Conglomerate
	125'	"	135'	Clay
	135'	"	290'	Gravelly clay
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A.A. McDaniel

A.A. McDaniel

AMERICAN SMELTING & REFINING COMPANY
Tucson Arizona

July 31, 1967

See 20?

MEMORANDUM:

To: Mr. Kenyon Richard

Logging of churn drill samples from the Emmons Ranch south of the East Pima laboratory has been completed.

Five foot samples were provided by Mrs. Emmons. starting at 500 ft. and going to the reported bottom of the hole at 920 ft.

The interval 500' - 510' was a grey, medium-grained andesite porphyry showing only slight alteration.

The remainder of the hole, 510' to 920; was mainly arkose, exhibiting only minor variation. Samples taken from each of the 5 foot samples, examined under the binocular microscope, and panned for heavy concentrates indicate that the above interval is composed of fragments of Arkose, limestone and various volcanics.

The arkose is of several grain sizes and colors. Some is rather coarse-grained, some medium to fine-grained and some is nearly a siltstone. Color variation ranges from red through buff and pink to green and gray. Most of the coarse grained arkose fragments are quartz-rich with some feldspar and clay. Other sizes seem to be less siliceous.

The limestone fragments range from dense black to very thin-banded brown and black or gray and black. These always constitute a minor fraction of any sample.

The volcanic fragments, mostly andesite, were very scarce and were found only in a few samples, then constituting only 1 or 2%.

Panned concentrates throughout the section showed only minor magnetite, some hematite, a fair quantity of zircon (usually euhedral to sub-hedral), and a few rare pyrite grains, nearly always broken.

No copper minerals were observed in any of the samples, neither oxide nor sulphide. No other minerals of any value were observed. Most of the arkose fragments show oxidation of the iron minerals.

This interval may represent the San Xavier conglomerate or may represent merely valley fill. The rather consistent distribution of rock types throughout the hole indicates or favors the San Xavier conglomerate.

(s) JACKSON L. CLARK

For Mrs. F. Emmons

2601 N. First Avenue
Tucson, Arizona
June 16, 1961

Mr. Jack Splane
Arizona Land Title Building
Tucson, Arizona

Dear Mr. Splane:

Enclosed is a report on the examination of samples from the two churn drill holes submitted by Mrs. Emmons. We would appreciate your transmitting the copies of the letter and reports to Mrs. Emmons and request you convey our thanks and appreciation for the opportunity to examine her samples. We regret that in the press of other business this matter has been delayed.

The remainder of the samples is available at the office and we would appreciate your delivery of these to Mrs. Emmons at your convenience.

Very truly yours,

Jackson L. Clark

Jackson L. Clark

JLC:sah
Encls.

cc: Mrs. Emmons

For Mrs. F. Emmons

2601 N. First Avenue
Tucson, Arizona
June 16, 1961

Mr. Jack Splane
Arizona Land Title Building
Tucson, Arizona

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Very truly yours,

Jackson L. Clark

Jackson L. Clark

JLC:sah
Encls.

cc: Mrs. Emmons

AMERICAN SMELTING AND REFINING COMPANY
SOUTHWESTERN MINING DEPARTMENT
813 VALLEY NATIONAL BLDG., TUCSON, ARIZONA

T. A. SNEDDEN
MANAGER
KENYON RICHARD
CHIEF GEOLOGIST

See 30 Test hole #1 1-920

July 31, 1957

Mrs. L. B. Emmons
P. O. Box 1748
Tucson, Arizona

CHURN DRILL SAMPLE LOG

Dear Mrs. Emmons:

Our Mr. Clark has carefully examined all of the sludge samples from the recent churn drill hole on your property. Enclosed is a copy of his report to me. This is in accordance with Mr. Stone's letter of July 22 to you.

Mr. Clark's conclusion is that essentially no mineralization was encountered in the drill hole. Apparently the hole was entirely in a sedimentary formation which we term San Xavier conglomerate. This formation is post-mineral in age. This means that the rock is made up of fragments deposited in layers at a later time than the period of mineralization which formed the known copper-lead-zinc ore bodies in the district. In effect, then, your churn drill hole did not reach deep enough to explore those formations which could contain copper, lead or zinc ore bodies. I might add that it is very surprising to us to learn that this San Xavier conglomerate exists to such a great depth as is indicated on your property.

Yours very truly,

Kenyon Richard

KENYON RICHARD

KR/ds
Enclosure
cc: EAStone - w/encl.

Vaccum

Mrs. Emmons, Churn Drill Hole #2, T17S, R13E, Section 21.
Footage examined 0-160 feet with samples every ~~five feet~~.

General Remarks:

Throughout the length of the hole the dominant constituents are quartz and feldspar, plus fragments of various volcanic rock types, and some limestone, or marble, near the bottom. Most of the quartz and feldspar occur as individual grains, but granitic fragments are present. The dry samples also contain a high percentage of clay material.

A white to light gray, fine-grained, crystalline, highly calcareous limestone, or marble, first occurs in sample 95-100 feet and increases slightly up to 105-110 feet. From 110-125 feet the limestone is absent, but reappears in the 125-130 feet sample and continues-with some change-to the bottom of the hole. Sample 135-140 feet contains about 25 percent limestone, while from 140-145 feet the limestone constitutes about 40 percent of the sample.

The remaining samples, from 145-160 feet, are described separately.

145-150' In addition to the limestone described above, a light green, fine-grained, crystalline limestone, or marble, is present. Approximate percentages in sample examined are: 15 percent green limestone; 10 percent white limestone; 5 percent calcite fragments; with quartz, feldspar, and volcanics (few) the remainder.

150-155' and
155-160' About 40 percent of the samples examined consists of the light green limestone, with very little white to light gray limestone present. The remainder is quartz and feldspar. The limestone fragments are larger than previously encountered.

No mineralization was observed in the limestone portion of the hole. Magnetite was present throughout the hole, but only as inclusions in the quartz and granitic-like fragments.

It is difficult to state that bedrock was encountered by this hole because the alluvial material from the upper part may be masking the last few samples.

Mrs. Emmons, Churn Drill Hole #1, T17S, R13E, Section 21.
Footage examined 0-360 with samples every five feet.

General Remarks:

This hole apparently did not reach bedrock, bottoming in alluvium or granite wash material. The major constituents throughout the hole are individual quartz and feldspar grains, granitic fragments, fragments of various volcanic rock types, magnetite grains, some limestone near the bottom, and caliche.

Sample 345-350 contained the usual assemblage of constituents, except for a lack of volcanic fragments, plus 10-15 percent limestone. The limestone fragments varied from light gray or tan-gray to black, and were very fine-grained and dense. The samples from 350-360 feet contained very few fragments of the limestone. Either a limestone boulder was encountered, or the hole was nearing bedrock when stopped.

Aa-16.0.0

AMERICAN SMELTING AND REFINING COMPANY
SOUTHWESTERN MINING DEPARTMENT
813 VALLEY NATIONAL BLDG., TUCSON, ARIZONA

T. A. SNEDDEN
MANAGER
KENYON RICHARD
CHIEF GEOLOGIST

See 20 Test hole #1 1-920

July 31, 1957

Mrs. L. B. Emmons
P. O. Box 1748
Tucson, Arizona

CHURN DRILL SAMPLE LOG

Dear Mrs. Emmons:

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Mr. Clark's conclusion is that essentially no mineralization was encountered in the drill hole. Apparently the hole was entirely in a sedimentary formation which we term San Xavier conglomerate. This formation is post-mineral in age. This means that the rock is made up of fragments deposited in layers at a later time than the period of mineralization which formed the known copper-lead-zinc ore bodies in the district. In effect, then, your churn drill hole did not reach deep enough to explore those formations which could contain copper, lead or zinc ore bodies. I might add that it is very surprising to us to learn that this San Xavier conglomerate exists to such a great depth as is indicated on your property.

Yours very truly,

Kenyon Richard

KENYON RICHARD

KR/ds
Enclosure
cc: EAStone - w/encl.

Volcanic

Mrs. Emmons, Churn Drill Hole #2, T17S, R13E, Section 21.
Footage examined 0-160 feet with samples every five feet.

General Remarks:

Throughout the length of the hole the dominant constituents are quartz and feldspar, plus fragments of various volcanic rock types, and some limestone, or marble, near the bottom. Most of the quartz and feldspar occur as individual grains, but granitic fragments are present. The dry samples also contain a high percentage of clay material.

A white to light gray, fine-grained, crystalline, highly calcareous limestone, or marble, first occurs in sample 95-100 feet and increases slightly up to 105-110 feet. From 110-125 feet the limestone is absent, but reappears in the 125-130 feet sample and continues-with some change-to the bottom of the hole. Sample 135-140 feet contains about 25 percent limestone, while from 140-145 feet the limestone constitutes about 40 percent of the sample.

The remaining samples, from 145-160 feet, are described separately.

145-150' In addition to the limestone described above, a light green, fine-grained, crystalline limestone, or marble, is present. Approximate percentages in sample examined are: 15 percent green limestone; 10 percent white limestone; 5 percent calcite fragments; with quartz, feldspar, and volcanics (few) the remainder.

150-155' and
155-160' About 40 percent of the samples examined consists of the light green limestone, with very little white to light gray limestone present. The remainder is quartz and feldspar. The limestone fragments are larger than previously encountered.

No mineralization was observed in the limestone portion of the hole. Magnetite was present throughout the hole, but only as inclusions in the quartz and granitic-like fragments.

It is difficult to state that bedrock was encountered by this hole because the alluvial material from the upper part may be masking the last few samples.

— vacuum

Mrs. Emmons, Churn Drill Hole #1, T17S, R13E, Section 21.
Footage examined 0-360 with samples every five feet.

General Remarks:

This hole apparently did not reach bedrock, bottoming in alluvium or granite wash material. The major constituents throughout the hole are individual quartz and feldspar grains, granitic fragments, fragments of various volcanic rock types, magnetite grains, some limestone near the bottom, and caliche.

Sample 345-350 contained the usual assemblage of constituents, except for a lack of volcanic fragments, plus 10-15 percent limestone. The limestone fragments varied from light gray or tan-gray to black, and were very fine-grained and dense. The samples from 350-360 feet contained very few fragments of the limestone. Either a limestone boulder was encountered, or the hole was nearing bedrock when stopped.

— Valcum

Mrs. Emmons, Churn Drill Hole #2, T17S, R13E, Section 21.
Footage examined 0-160 feet with samples every five feet.

General Remarks:

Throughout the length of the hole the dominant constituents are quartz and feldspar, plus fragments of various volcanic rock types, and some limestone, or marble, near the bottom. Most of the quartz and feldspar occur as individual grains, but granitic fragments are present. The dry samples also contain a high percentage of clay material.

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Mrs. Emmons, Churn Drill Hole #1, T17S, R13E, Section 21. Footage examined 0-360 with samples every five feet.

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MRS. Ramona - 6/28/67 called,
Friday 8 July
to Calif for 1 week

Tomorrow
3 P.M. Friday here
with well data & claim maps.

Sec. 22, T 17S - R 13 E
Well # 1 - 80 acres

0 - 2' Red clay & gravel
2 - 80' Soft sandy, yellow clay congl.
80 - 95 Gravelly clay, congl.
95 - 125 soft yellow clay "
125 - 140 gravelly congl.
140 - 240 soft sandy clay, "
240 - 285 soft silty sand
340 - 350 sand & gravel, water
350 - 360 soft sandy congl.
360 - 370 yellow clay congl. coarse gravel

water level at 220' "
3/14/57 - " " " 253.60

(6)

Date June 1 Time 12 05 am (pm)

Phone Memo

To: Walter /From JS (OPERATOR)

WHILE YOU WERE OUT, there was a call for you from AX 4423 2 PHONE NUMBER

Mr. (Mrs.) Emmonds of

Message Wants to see you @ 3 P.M. ~~Tuesday~~ June 5th here in office. re: field work.

☒ They phoned ☐ You call back ☐ They were in ☐ Will call again ☐ See me

UTILITY Form No. 175/176

LAW OFFICES OF
RICHEY AND REIMANN
SUITE 804 PHOENIX TITLE BUILDING
TUCSON, ARIZONA

WILLIAM K. RICHEY
MARY ANNE REIMANN

TELEPHONE
623-6488

June 26, 1962

JUN 1962
GEOEX

Mr. Walter E. Heinrichs, Jr.
806-808 West Grant Road
P. O. Box 5671
Tucson, Arizona

Dear Walter:

I enclose herewith your letter of June 15, 1962, to Mrs. L. B. Emmons as approved by her through this office.

I discussed the matter with her this afternoon and she instructed me to forward this letter to you executed in this matter.

I trust this will be satisfactory for your records and that you will commence your operations at your earliest convenience. I shall expect a copy of this report for my files as well as for Mrs. Emmons' files, and request that you make duplicates in accordance with this request.

Very truly yours,

RICHEY AND REIMANN

By William K. Richey
William K. Richey

WKR/gn
Encl.

6/7/62

L.B.
Mrs. Emmons - P.O. Box 1748 Tucson
AX 4-4232

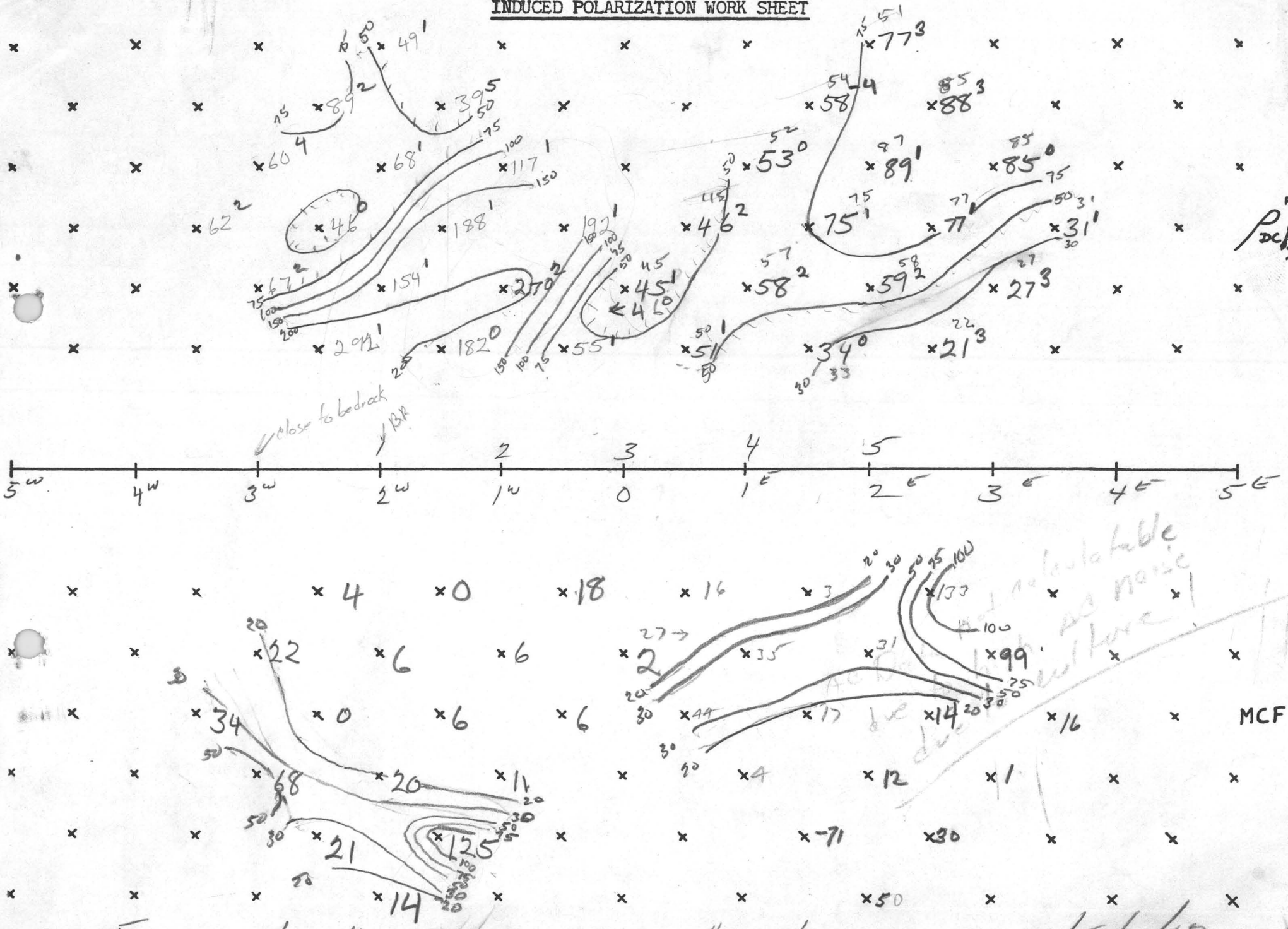
80 Acres
200 "
} 3 parcels.

write letter
advising I.P. ½/or. Mag etc.
estimate cost, production when etc.

500.00
1000
$1500.00

Sec 21 - 2 - 500' dipole V-S lines
= 3 days @ 250.00/day = $750.00
3 " @ 80.00/day = 240
990

INDUCED POLARIZATION WORK SHEET



Area Emmons - Line #3 - E Scale 1" = 100' Date 6/July/62

...CED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: Emmons Line: 3-Spr. 3-E½ Int.Cal 50.5 Date: 7/5/62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Rec.	1-2E	→	2-3E	→	→	3-4E	→	→	→	4-5E	→	→
Time			15:54	16:05	16:09	16:23	16:27	16:30	16:34	16:51	16:56	17:01
DC-1	15.0 15.3	3.6 3.3	10.0 10.3	4.4 4.4	1.38 1.33	6.5 6.6	4.45 4.42	2.25 2.3	.77 .83	2.0 2.1	2.40 2.35	1.38 1.37
DC-2	15.4 15.0	3.2 3.5	10.3 10.0	4.2 4.25	1.40 1.42	6.3 6.2	4.35 4.38	2.25 2.20	.81 .75	2.0 1.9	2.30 2.30	1.30 1.29
Σ	30.4 30.3	6.8 6.8	20.3 20.3	8.60 8.65	2.78 2.75	12.8 12.8	8.80 8.80	4.50 4.50	1.58 1.58	4.0 4.0	4.70 4.65	2.68 2.66
DC-3	15.3 15.3	3.60 3.50	10.0 10.3	4.35 4.4	1.33 1.28	6.6 6.5	4.45 4.45	2.25 2.20	.79 .81	2.0 2.0	2.30 2.25	1.38 1.40
Dc-4	15.1 15.1	3.10 3.20	10.3 10.0	4.25 4.25	1.43 1.46	6.2 6.3	4.35 4.35	2.25 2.30	.80 .78	2.0 2.0	2.30 2.40	1.28 1.27
Σ	30.4 30.4	6.70 6.8	20.8 20.3	8.60 8.65	2.76 2.74	12.8 12.8	8.80 8.80	4.50 4.50	1.59 1.59	4.0 4.0	4.60 4.65	2.66 2.67
DC-AV	30.375	6.775	20.3	8.63	2.76	12.8	8.80	4.50	1.59	4.0	4.65	2.67
AC-1	16.0	3.44	10.7	4.60	1.51	7.0 30	4.65	2.5	.93	2.18	2.55	1.45
AC-2	16.1	3.65	10.8	4.60	1.50	7.0	4.68	2.45	.91	2.15	2.52	1.43
Σ	32.1	7.09	21.5	9.20	3.01	14.0	9.33	4.95	1.84	4.33	5.07	2.88
S. P.	±25 mv	+34.6			+1.8				+8.6			
AC-N	±1.5	0.8			0.5-25				.40 +2.5			
	Extremely					Extremely	noisy			Extremely		

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Emmons Line: 7 - Spr. 3 - E ½ Int.Cal 50.5 Date: 7/5/62

	10 acal	30S.	30S.	100 S	100 S	300 S	
Send	1-2	4-5	3-4	2-3	1-2	CAL	→	→			
Rec.	→	5-6E	→	→	→	4-5	→	→			
Time	17:05			17:28		15:10	15:10	15:16	15:16		
DC-1	.50 .47	.92 .93	1.29 1.32	.75 .75	.38 .29	7.8	7.6	25.9	25.0	51.5	50.0
DC-2	.48 .51	.93 .93	1.24 1.22	.75 .75	.29 .38	7.7	7.7	25.8	25.0	51.0	50.0
Σ	.98 .98	1.85 1.86	2.53 2.54	1.50 1.50	.67 .67	15.5	15.3	51.7	50	102.5	
DC-3	.53 .45	.94 .94	1.31 1.30	.70 .70	.37 .30	7.8	7.6	25.9	25.0	51.5	50.0
Dc-4	.46 .54	.92 .92	1.23 1.24	.80 .80	.30 .37	7.7	7.7	25.8	25.0	51.0	50.0
Σ	.99 .99	1.86 1.86	2.54 2.54	1.50 1.50	.67 .67	15.5	15.3	51.7	50	102.5	100.0
DC-AV	.99	1.86	2.54	1.50	.67	15.5	15.3	51.7	50	102.5	100
AC-1	.63	1.06	1.42	.93	.40	8.0	8.5	26.2	28.0	54.8	55.0
AC-2	.62	1.10	1.44	.92	.42	7.95	8.4	26.0	27.8	55.0	55.0
Σ	1.25	2.16	2.86	1.85	.82	15.95	16.9	52.2	55.8	109.8	110.0
S. P.	+6.5			*	+1.4						
AC-N	.3+2.5			HIGHER THAN HELL							
	noisy	Extremely noisy				(A-C really unreadable - D-C OK)					

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: _____ Line: _____ Int.Cal _____ Date: _____

Send	100 S	300 S		10 S	30 S	30 S	100 S	100 S	300 S	100 S	300 S	
Rec.												
Time				17:51	17:51	17:54	17:54	17:56	17:56			
DC-1	76.0	75.0		7.75	7.8	25.7	24.5	51.2	50.0	77.0	76	
DC-2	76.8	75.0		7.85	7.6	25.7	24.8	51.0	50	76	76	
Σ	152.8	150		15.60	15.4	51.4	49.3	102.2	100	153	152	
DC-3	76.0	75.0		7.75	7.8	25.7	24.5	51.2	50	77	76	
Dc-4	76.8	75.0		7.85	7.6	25.7	24.8	51.0	50	76	76	
Σ	152.8	150.0		15.60	15.4	51.4	49.3	102.2	100	153	152	
DC AV	152.8	150		15.4	15.4	51.4	49.3	102.2	100	153	152	
AC-1	79.8	82.0		7.98	8.5	26.1	28.0	55.7	55.0	80.1	83.0	
AC-2	80.0	82		7.99	8.6	26.1	28.0	55.7	56.0	80.3	84.0	
Σ	159.8	164.0		15.97	17.1	52.2	56.0	111.4	111.0	160.4	167.0	
S. P.												
AC-N												

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: 3 - Spr. 3 - E ½ Date: 7/5/62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	1-2E	→	2-3E	→	→	3-4E	→	→	→	4-5E	→	
Time	1531	1541	1602	1605	1609	1623	1627	1630	1634	1652	1656	
Range	2 x 900	2X900	—									
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Send	1-2	4-5	3-4	2-3	1-2	CAL	→					
Receive	→	5-6E	→	→	→	4-5	→					
Time								1510			1523	
Range	2X900	→	→	→	→			2X75	2X250	2X500	2X750	
Current	1800	1800	1800	1800	1800			150	500	1000	1500	

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: #3 - Cable Date: 5/July/62

Send	4-5	→	→	→							
Receive	Cal.	→	→	→							
Time	1751	1754	1756	1800							
Range	2x75	2x250	2x500	2x750							
Current	150	500	1.00	1500							
Send											
Receive											
Time											
Range											
Current											

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Calibrations

Page_____

Project Emmons Line # 3 Field date 7/5/62 Data page 76% Comp. date_____. Comp by_____

	1.029	1.104	1.029	1.115	1.070	1.100	1.045	1.093				
(A) Send	4-5											
(B) Receive	10	30	30	100	100	300	100	300				
(C) n separation												
(D) I	150	150	500	500	1008	1000	1500	1500				
(E) Vdc (avg)	15.5	15.3	51.7	50.0	102.5	100.0	152.8	150.0				
(F) DCcal	.970	.982	.968	1.000	.975	1.000	.984	1.000				
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	15.95	16.9	52.3	55.8	109.8	110.0	159.8	164.0				
(L) AC-DC cal.	1.029	1.104	1.029	1.115	1.070	1.100	1.045	1.093				
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	80%	28%	87%	28%	55%	17%	80%	27%				

Project_____ Line 1.021 1.110 Field date 1.018 1.135 1.089 Data page 1.049 1.100 Comp. date_____ Comp by_____

	76%	26%	92%	25%	51%	17%	77%	25%				
(A) Send												
(B) Receive	10	30	30	100	100	300	100	300				
(C) n separation												
(D) I	150	150	500	500	1000	1000	1500	1500				
(E) Vdc (avg)	15.60	15.4	51.4	49.3	102.5	100.0	153.0	152.0				
(F) DCcal	.963	.975	.975	1.014	.978	1.000	.982	.988				
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	15.97	17.10	52.3	56.0	111.4	111.0	160.4	167.0				
(L) AC-DC cal.	1.021	1.110	1.018	1.135	1.089	1.110	1.049	1.100				
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	80%	29%	87%	28%	56%	19%	80%	28%				

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project_____ Line #3 Spread #1 Field date_____ Data page_____ Comp. date_____. Comp by_____

	50%	E/2 35%	30%	43%	43%	27%	45%	75%	27%	66%	80%	45%
(A) Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
(B) Receive	1E-2E	→	2E-3E	→	→	3E-4E	→	→	→	4E-5E	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1800	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	30.38	6.78	20.3	8.63	2.76	12.8	8.80	4.50	1.59	4.0	4.65	2.67
(F) DCcal	1.000	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρdc=ExFxGx10^3/D	51	45	34	58	46	21	59	75	53	27	77	89
(I) Vac Σ	32.1	7.09	21.5	9.20	3.01	14.0	9.33	4.95	1.84	4.33	5.07	2.88
(J) AC noise x 2	.16	±1.0	±1.0-5.0	→	→	±.80-5.2	→	→	→	±.6-5.0	→	→
(K) Vac(corr) =$\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												
	1.056	1.045	1.059	1.066	1.089	1.091	1.059	1.100	1.156	1.081	1.090	1.079

Project_____ Line 16% 31% Field date 42% 25% 11% Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2							
(B) Receive	4E-5E	5E-6E	→	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1800	→	→	→	→							
(E) Vdc (avg)	.99	1.86	4.54	1.50	.67							
(F) DCcal	1.000	→	→	→	→							
(G) Kn x 10^{-3}	105	30	60	105	168							
(H) ρdc=ExFxGx10^3/D	58	31	85	88	77							
(I) Vac Σ	1.25	2.16	2.86	1.85	0.82							
(J) AC noise x 2	±.6-5.0	+++										
(K) Vac (corr) =$\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.250	1.160	1.124	1.231	1.222							
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

Repeat

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line 3-5 pr 3-E Field date 7/13/62 Data page_____ Comp. date 7/14/62 Comp by C.S.L.

	? S.D.	50	33	33	42	45	64	43	74	28	67	77
(A) Send	4-5	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	CAL	1-2E	→	2-3E	→	→	3-4E	→	→	→	4-5E	—
(C) n separation		1	2	1	2	3	1	2	3	4	2	3
(D) I		1800										
(E) Vdc (avg)		30.6	6.88	20.35	8.75	2.78	13.45	8.95	4.63	1.60	4.18	4.77
(F) DCcal USED	.975											
(G) Kn x 10^{-3} α=1000'		3	12	3	12	30	3	12	30	60	12	30
(H) ρdc=ExFxGx10^3/D		49.7	44.7	33.0	57.0	45.1	21.9	58.2	75.3	52.0	27.2	72.5
(I) Vac Σ		29.8	6.65	19.90	8.40	2.69	12.81	8.62	4.47	1.60	3.99	4.62
(J) AC noise x 2		.30	.30	.32	.32	.32	.34	.34	.34	.34	.20	.20
(K) Vac(corr) = $\sqrt{I^2 - J^2}$		29.8	6.65	19.90	8.40	2.67	12.81	8.62	4.47	1.562	3.99	4.62
(L) AC-DC cal. USED	0.980											
(M) ρdc/ρac=ExL/K		1.008	1.012	1.001	1.020	1.020	1.029	1.018	1.013	1.002	1.027	1.011
(N) PFE=(M-1)(10^2)		1	1	0	2	2	3	2	1	0	3	1
(O) MCF=(M-1)(10^5)/H		16	27	3	35	44	133	31	17	4	99	14
		1.028	1.033	1.022	1.041	1.041	1.050	1.039	1.036	1.023	1.048	1.032

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

	43	16	31	43	24	10						
(A) Send	2-3	1-2	4-5	3-4	2-3	1-2						
(B) Receive	→	→	5-6E	→	→	→						
(C) n separation	4	5	3	4	5	6						
(D) I	→	→	→	→	→	→						
(E) Vdc (avg)	2.67	0.943	1.88	2.60	1.502	.565						
(F) DCcal	→	→	→	→	→	→						
(G) Kn x 10^{-3}	60	105	30	60	105	168						
(H) ρdc=ExFxGx10^3/D	86.7	53.5	30.6	84.5	85.4	51.4						
(I) Vac Σ	2.59	0.980	1.85	2.56	1.46	0.600						
(J) AC noise x 2	.20	.20	.26	.26	.26	.26						
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	2.59	0.960	1.832	2.545	1.435	0.540						
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.010	.962	1.005	1.001	1.026	1.026						
(N) PFE=(M-1)(10^2)	1	-4	1	0	3	3						
(O) MCF=(M-1)(10^5)/H	12	-71	16	1	30	50						
	1.031	.982	1.026	1.022	1.047	1.047						

Repeat — Calibrations

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line J - Spr. J E Field date 7/13/62 Data page_____ Comp. date 7/14/62 Comp by C. L.

(A) Send	CAL											
(B) Receive	4-5											
(C) ~~n separation~~ Scale	10	30	30	100	100	300	10	30	30	100	100	300
(D) I	150	150	560	560	1000	1000	150	150	560	560	1000	1000
(E) Vdc (avg)	15.94	15.70	58.0	56.0	103.6	100.0	16.65	16.30	58.5	56.1	104.3	101.0
(F) DCcal	.941	.955	.966	1.000	.967	1.000	.906	.920	.958	.998	.958	.990
(G) Kn x 10^{-3}							.961	.982				
(H) ρdc=ExFxGx10^3/D							?	?				
(I) Vac Σ	15.28	15.80	54.9	56.3	101.4	100.0	16.20	16.80	55.4	57.1	102.7	101.0
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.958	1.006	.946	1.006	.984	1.000	.974	1.030	.947	1.018	.984	1.000
(M) ρ dc/ρac=ExL/K												
(N) PFE=(M-1)(10^2) % S.C.	77	26	91	28	51	17	81	28	92	29	51	17
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation		DC. AVE	0.973	use	0.975							
(D) I												
(E) Vdc (avg)												
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page _____

Project *Emmons* Line *3 - 5 pr. 3-W ½* Field date *7/6/62* Data page _____ Comp. date _____ Comp by _____

(A) Send	3 - 4	4 - 5	2 - 3	3 - 4	4 - 5	1 - 2	2 - 3	3 - 4	4 - 5	1 - 2	2 - 3	3 - 4
(B) Receive	1 - 2 W	→	2 - 3 W	→	→	3 - 4 W	→	→	→	4 - 5 W	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1800											
(E) Vdc (avg)	32.7	6.85	109.2	40.35	11.55	175.0	23.0	11.28	3.52	10.00	2.77	2.04
(F) DCcal USED	1.000											
(G) Kn x 10^{-3}	3	12	3	12	30	3	12	30	60	12	30	60
(H) ρdc=ExFxGx10^3/D	54.5	45.6	182.0	269.5	192.2	291.5	153.5	187.9	117.3	66.7	46.1	68.0
(I) Vac Σ	34.5	7.28	116.6	41.9	12.05	184.0	24.3	11.87	3.66	10.50	2.99	2.17
(J) AC noise x 2	.36	.36	.60	.60	.60	.80	.50	.80	.80	.36	.36	.36
(K) Vac(corr) = $\sqrt{I^2 - J^2}$											2.96	2.14
(L) AC-DC cal.	1.065											
(M) ρdc/ρac=ExL/K	1.010	1.001	1.000	1.015	1.011	1.012	1.009	1.011	1.013	1.015	.999	1.014
(N) PFE=(M-1)(10^2)	1	0	0	2	1	1	1	1	1	2	0	1
(O) MCF=(M-1)(10^5)/H	18	2	0	6	6	4	6	6	11	22	0	20

Project _____ Line _____ Field date _____ Data page _____ Comp. date _____ Comp by _____

(A) Send	4 - 5	1 - 2	2 - 3	3 - 4	4 - 5							
(B) Receive	→	5 - 6 W	→	→	→							
(C) n separation	5	3	4	5	6							
(D) I	→	→	→	→	→							
(E) Vdc (avg)	.67	3.74	1.80	1.52	.52							
(F) DCcal	→	→	→	→	→							
(G) Kn x 10^{-3}	105	30	60	105	168							
(H) ρdc=ExFxGx10^3/D	39.0	62.2	60.0	88.6	48.6							
(I) Vac Σ	.77	3.90	1.86	1.62	.60							
(J) AC noise x 2	.36	.24	.24	.24	.24							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.68		1.84	1.59	.55							
(L) AC-DC cal.	1.065	→	→	→	→							
(M) ρdc/ρac =ExL/K	1.049	1.021	1.041	1.019	1.007							
(N) PFE=(M-1)(10^2)	5	2	4	2	1							
(O) MCF=(M-1)(10^5)/H	125	34	68	21	14							

HEINRICHS GEOEXPLORATION COMPANY

W½ INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line 3 - Spr. 3 Field date 7/6/62 Data page 10 Comp. date_____. Comp by_____

	7½	22½	44.2½	15½	9 A.M. ←	35½	→ P.M.	43	14½	9½	35½
(A) Send	1 - 2	→									
(B) Receive	CAL	→									
(C) ~~n separation~~ Scale	30	100	100	300	100	300	30	100	100	300	100	300
(D) I	400	400	800	800	1800	1800	400	400	800	800	1800	1800
(E) Vdc (avg)	41.0	39.8	81.0	80.0	184.0	182.0	40.7	39.7	79.8	78.0	180.8	180.0
(F) DCcal	.976	1.004	.988	1.000	.979	.989	.982	1.006	1.002	1.026	.996	1.000
(G) Kn x 10^{-3}												
(H) ρdc=ExFxGx10^3/D												
(I) Vac Σ	42.6	44.1	88.4	87.0	188.0	199.0	42.0	44.6	86.3	86.0	184.0	198.0
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.040	1.109	1.091	1.089	1.021	1.093	1.031	1.124	1.081	1.101	1.019	1.100
(M) ρdc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send												
(B) Receive												
(C) n separation												
(D) I		DC	CAL	Ave	0.996							
(E) Vdc (avg)			1.USE	1.000								
(F) DCcal												
(G) Kn x 10^{-3}												
(H) ρdc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: Emmons Line: 3 - Spr. 3 - W½ Int.Cal 50.5 Date: 7/6/67

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Rec.	1-2 W	→	2-3W	→	→	3-4W	→	→	→	4-5W	→	→
Time						14:04	14:08	14:10	14:15	14:33	14:35	14:37
DC-1	16.1 16.0	30.5 3.45	54.0 54.3	20.0 20.2	5.65.6 6.05.6	89.0 87.0	11.0 11.0	5.0 5.4	1.80 1.70	4.85 5.00	1.35 1.36	1.06 1.07
DC-2	16.5 16.7	34.5 3.45	54.8 54.8	20.5 20.0	6.05.8 5.75.7	86.0 88.0	12.1 11.9	5.9 5.7	1.72 1.83	5.10 5.05	1.41 1.41	.75 .77
Σ	32.6 32.7	6.90 6.90	108.8 109.1	40.5 40.2	11.6 11.4 11.7 11.5	175.0 175.0	23.1 22.9	11.3 11.3	3.52 3.53	9.95 10.05	2.76 2.78	2.04 2.04
DC-3	16.1 16.0	3.40 3.40	54.2 54.5	19.8 20.0	5.85.4 6.05.4	89.0 86.0	11.5 12.2	5.8 5.3	1.80 1.90	5.00 5.00	1.37 1.41	.93 1.02
Dc-4	16.6 16.7	3.40 3.40	55.0 55.0	20.4 20.5	5.76.0 5.66.0	84.0 89.0	11.4 10.8	5.5 5.9	1.70 1.62	5.00 5.00	1.40 1.36	1.10 1.02
Σ	32.7 32.7	6.80 6.80	109.2 109.5	40.2 40.5	11.5 11.0 11.6 11.6	175.0 175.0	22.9 23.0	11.3 11.2	3.50 3.52	10.00 10.00	2.73 2.73	2.09 2.09
DC AV	32.7	6.85	109.2	40.35	11.55	175.0	23.0	11.28	3.52	10.00	2.77	2.04
AC-1	17.3	3.65	58.2	21.0	6.00	92.0	12.2	5.95	1.83	5.25	1.49	1.08
AC-2	17.2	3.63	58.4	20.9	6.05	92.0	12.1	5.92	1.83	5.25	1.50	1.09
Σ	34.5	7.28	116.6	41.9	12.05	184.0	24.3	11.87	3.66	10.50	2.99	2.17
S. P.		-8.5			+1.2				+3.5			
AC-N		0.18	fnt. rumble		0.3	audible	noisy	very noisy		O.K.	O.K.	O.K.
			up to	1.0	noise *	stark		.4	→ 2.5			

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Emmons Line: 2 - 52.3 - W Int.Cal 50.2 Date: 7/6/67

Send	4-5	1-2	2-3	3-4	4-5	CAL	→	→	→	→	→
Rec.	→	5-6W	→	→	→	1-2	→	→	→	→	→
Time	14:43	15:00	15:04	15:07	15:10		12:43		12:45		12:48
DC-1	.45 .39	.80 2.06	.83 .70	.97 .83	.30 .29	20.6	20.0	40.5	40.0	92.0	91.0
DC-2	.20 .39	1.95 1.66	.97 1.10	.55 .72	.22 .28	20.4	19.8	40.5	40.0	92.0	91.0
Σ	.65 .66	2.75 3.72	1.80 1.80	1.52 1.55	.51 .52						
DC-3	.37 .32	1.70 1.70	.92 1.00	.82 .68	.29 .30	20.6	20.0	40.5	40.0	92.0	91.0
Dc-4	.30 .37	2.05 2.05	.88 .80	.68 .88	.23 .22	20.4	19.8	40.5	40.0	92.0	91.0
Σ	.67 .69	3.75 3.75	1.80 1.80	1.50 1.50	.51 .52						
DC AV	.67	3.74	1.80	1.52	.52	41.0	39.8	81.0	80.0	184.0	182.0
AC-1	.38	1.96	.93	.81	.30	21.3	22.1	44.2	44.0	94.0	99.5
AC-2	.39	1.94	.93	.81	.30	21.3	22.0	44.2	44.0	94.0	99.5
Σ	.77	3.90	1.86	1.62	.60	42.6	44.1	88.4	87.0	188.0	199.0
S. P.	+11.1			+16.8							
AC-N	0.18±.8 ?O.K.	?	?	?	.13±.3 ??						
Scale		noisy but of ?				30 Sc.	100	100	300	100	300

INDUCED POLARIZATION - RECEIVER NOTES PAGE 3

Project: 15 mmons Line: 3 - Spr. 3-W½ Int.Cal 50.0 Date: 7/6/

Send	30s	100s	100s	300s	100s	300s						
Rec.	C	1	C	1	2							
Time	15:45	15:45	15:48	15:48	15:51	15:51						
DC-1	20.3	19.8	40	39	90	90						
DC-2	20.4	19.9	39.8	39	90.8	90						
Σ	40.7	39.7	79.8	78	180.8	180						
DC-3	20.3	19.8	40.0	39	90.0	90						
Dc-4	20.4	19.9	39.8	39	90.8	90						
Σ	40.7	39.7	79.8	78	180.8	180						
DC AV	40.7	39.7	79.8	78.0	180.8	180						
AC-1	21	22	43.8	43	92	99						
AC-2	21	22	42.5	43	92	99						
Σ	42.0	44.0	86.3	86.0	184.0	198						
S. P.												
AC-N												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: EMMONS Line: 3 E½ R.P. Int.Cal 51.3 Date: 7-13-62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Rec.	1E-2E	→	2E-3E	→	→	3E-4E			→	4E-5E	→	→
Time	12:03	1:06	12:31	12:35	12:39	12:51	12:56	13:00	13:02	13:28	13:30	13:34
DC-1	15.3 15.3	3.4 3.4	10.2 10.2	4.30 4.45	1.40 1.38	6.70 6.75	4.46 4.55	2.32 2.32	0.75 0.85	2.08 2.10	2.42 2.35	1.28 1.39
DC-2	15.3 15.3	3.48 3.48	10.1 10.3	4.30 4.45	1.42 1.37	6.70 6.75	4.40 4.55	2.31 2.32	0.77 0.81	2.12 2.06	2.50 2.27	1.28 1.37
Σ	30.6 30.6	6.88 6.88	20.4 20.4	8.73 8.75	2.80 2.79	13.45 13.45	8.85 8.95	4.64 4.63	1.60 1.58	4.18 4.18	4.77 4.62	2.67 2.65
DC-3	15.3 15.3	3.42 3.44	10.1 10.2	4.25 4.48	1.42 1.36	6.70 6.75	4.39 4.57	2.32 2.33	0.81 0.79	2.10 2.07	2.44 2.35	1.30 1.35
Dc-4	15.3 15.3	3.46 3.44	10.1 10.2	4.25 4.50	1.43 1.35	6.70 6.75	4.38 4.57	2.28 2.32	0.79 0.81	2.07 2.16	2.50 2.28	1.27 1.43
Σ	30.6 30.6	6.88 6.88	20.3 20.3	8.73 8.75	2.78 2.79	13.45 13.45	8.95 8.95	4.65 4.68	1.60 1.68	4.17 4.17	4.94 4.63	2.65 2.70
DC AV	30.6	6.88	20.35	8.75	2.78	13.45	8.95	4.63	1.60	4.18	4.77	2.67
AC-1	14.9	3.33	9.95	4.20	1.34	6.41	4.30	2.23	0.79	2.00	2.31	1.29
AC-2	14.9	3.32	9.95	4.20	1.35	6.40	4.32	2.24	0.81	1.99	2.31	1.30
Σ	29.8	6.65	19.90	8.40	2.69	12.81	8.62	4.47	1.60	3.99	4.62	2.59
S. P.	←	-2.0	+2.4	↔	←	+5.9	↔	↔	←	+8.0	↔	↔
AC-N	←	0.15	0.16	↔	←	0.17	↔	↔	←	0.10	↔	↔
Scale	30	10	30	10	3	10	10	3	3	3	3	3

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: EMMONS Line: 3 E ½ RP Int.Cal 50.9 Date: 7-13-72

Send	1-2	4-5	3-4	2-3	1-2	1-2	Cal on 4-5					
Rec.	4E-5E	5E-6E	→	→	→		10.5	30.5	36.5	100.5	100.5	300.5
Time	13:40	13:50	14:00	14:06	14:19		11:49		11:53		11:56	
DC-1	43.50 53.47	.98 .90	1.30 1.30	0.77 0.73	0.35 0.35	32 36	7.97	7.85	29.0	28.0	51.8	50.0
DC-2	53.50 43.47	.90 .98	1.30 1.30	0.77 0.75	0.35 0.33	30 35	7.97	7.85	29.0	28.0	51.8	50
Σ	96.97 96.93	1.88 1.88	2.60 2.60	1.50 1.52	0.60 0.68	0.58 0.55	15.94	15.7	58.0	56.0	103.6	100
DC-3	52.40 42.52	.89 1.00	1.30 1.30	0.70 0.78	0.33 0.33	34 31	7.97	7.85	29.0	28.0	51.8	50
Dc-4	53.40 43.53	1.00 .88	1.30 1.30	0.73 0.78	0.33 0.26	21 35	7.97	7.85	29.0	28.0	51.8	50
Σ	96.93 0.93	1.89 1.88	2.60 2.60	1.48 1.51	0.54 0.56	0.55 0.56	15.94	15.70	58.0	56.0	103.6	100
DC-AV	0.943	1.89	2.60	1.502	.565		15.94	15.7	58.0	56.0	103.6	100
AC-1	0.49	0.92	1.28	0.73	0.31		7.65	7.9	27.5	28.1	51.0	50.0
AC-2	0.49	0.93	1.28	0.73	0.29		7.67	7.9	27.4	28.2	50.8	50.0
Σ	0.98	1.85	2.56	1.46	0.60		15.28	15.8	54.9	56.3	101.8	100
S. P.	+8.0	+12.6	⇔	⇔	⇔							
AC-N	0.10	0.13	⇔	⇔	⇔							
SCALE	3	3	3	3	2		10	30	30	100	100	200

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: #3 E 1/2 Repeat Spread 1 Date: 15 July 1970

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	1E-2E	→	2E-3E	→	→	3E-4E	→	→	→	4E-5E	→	→
Time	1203	1206	12:31	12:35	12:39	12:55	12:59	13:03	13:08	13:28	13:30	13:34
Range	2x900	→	→	→	→	→	→	→	→	→	→	→
Current	1800	1800	1800	1800	1800	1800	1800	18:00	1800	18:00	1800	1800
Send	1-2	4-5	3-4	2-3	1-2		4-5	—	—	—	—	—
Receive	4E-5E	5E-6E	→	→	→		Cal.	→	→	→	→	→
Time	13:40	13:58	14:02	14:06	14:11		1149	1153	1156	14:35	14:40	14:46
Range	2X900	→	→	→	→		2x75	2x280	2x500	2X75	2X280	2X500
Current	1800	1800	1800	1800	1800		150	560	1000	150	560	1000

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: Date: 2-6-62

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	W 1-2	→	W 2-3	→	→	W 2-4	→	→	→	W 4-5	→	→
Time	12:56	12:59	13:19	13:24	13:32	14:04	14:08	14:10	14:15	14:33	14:35	14:37
Range	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800
Current												

Send	4-5	1-2	2-3	3-4	4-5		Cal 1-2					
Receive	W →	W 5-6	→	→	→							
Time	14:43	15:00	15:03	15:07	15:10		12:43	12:45	12:48	15:45	15:48	15:51
Range	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800		400 400 400	800 800 800	1800 1800 1800	400 400 400	800 800 800	1800 1800 1800
Current												

R = 1.50

.30 .75 1.50 .30 .75 1.50

INDUCED POLARIZATION - RECEIVER NOTES PAGE 3

Project: EMMONS Line: 3 E½ RP Int.Cal _____ Date: 7-13-62

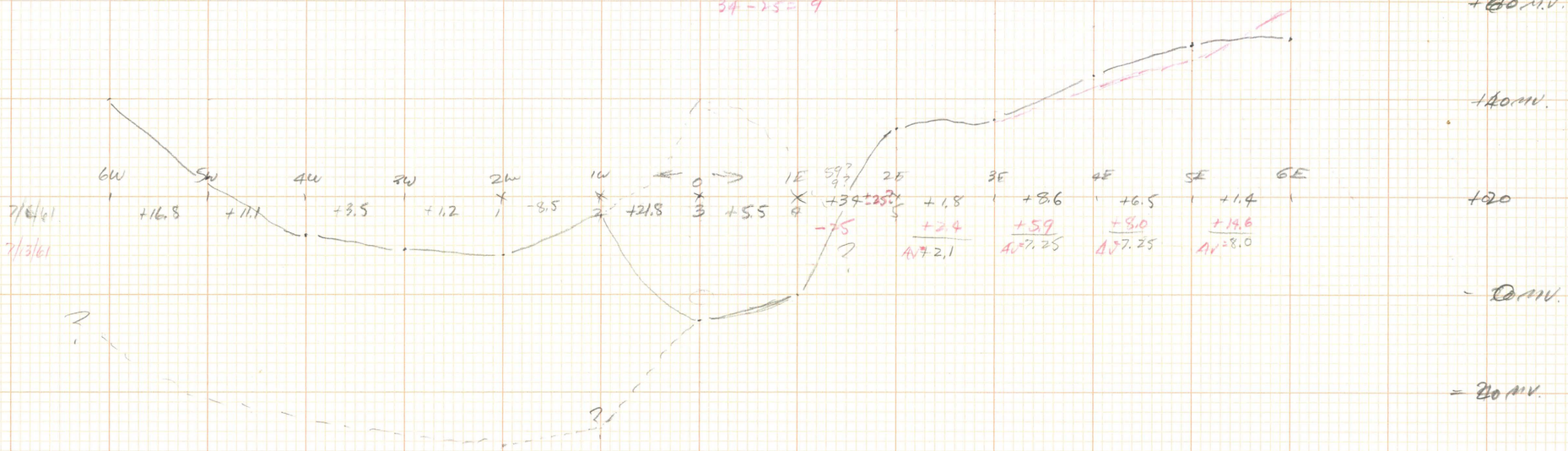
Send	4-5											
Rec.												
Time						14:46						
DC-1	8.40	8.20	29.2	28.0	52.1	50.0						
DC-2	8.25	8.10	29.3	28.1	52.2	51.0						
Σ	16.65	16.30	58.5	56.1	104.3	101.0						
DC-3	8.40	8.20	29.2	28.0	52.1	50.0						
Dc-4	8.25	8.10	29.3	28.1	52.2	51.0						
Σ	16.65	16.30	58.5	56.1	104.3	101.0						
DC AV	16.65	16.30	58.5	56.1	104.3	101.0						
AC-1	8.10	8.40	27.7	28.6	51.2	50.5						
AC-2	—	—	27.7	28.5	51.5	50.5						
Σ	16.20	16.80	55.4	57.1	102.7	101.0						
S. P.												
AC-N												
SCALE	10	30	30	100	100	300						

Looking NE

EMMONS Line 3 July 1962 - Mld.

34+25 - 59

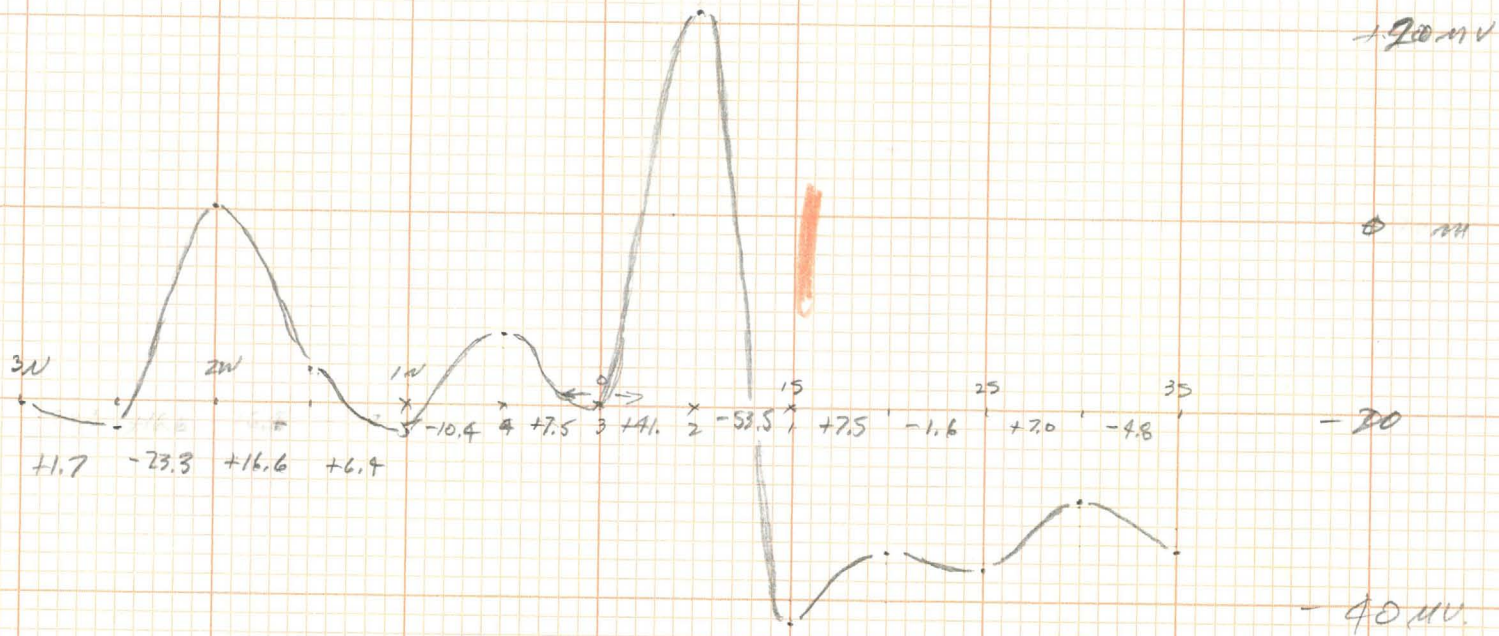
34 - 25 = 9



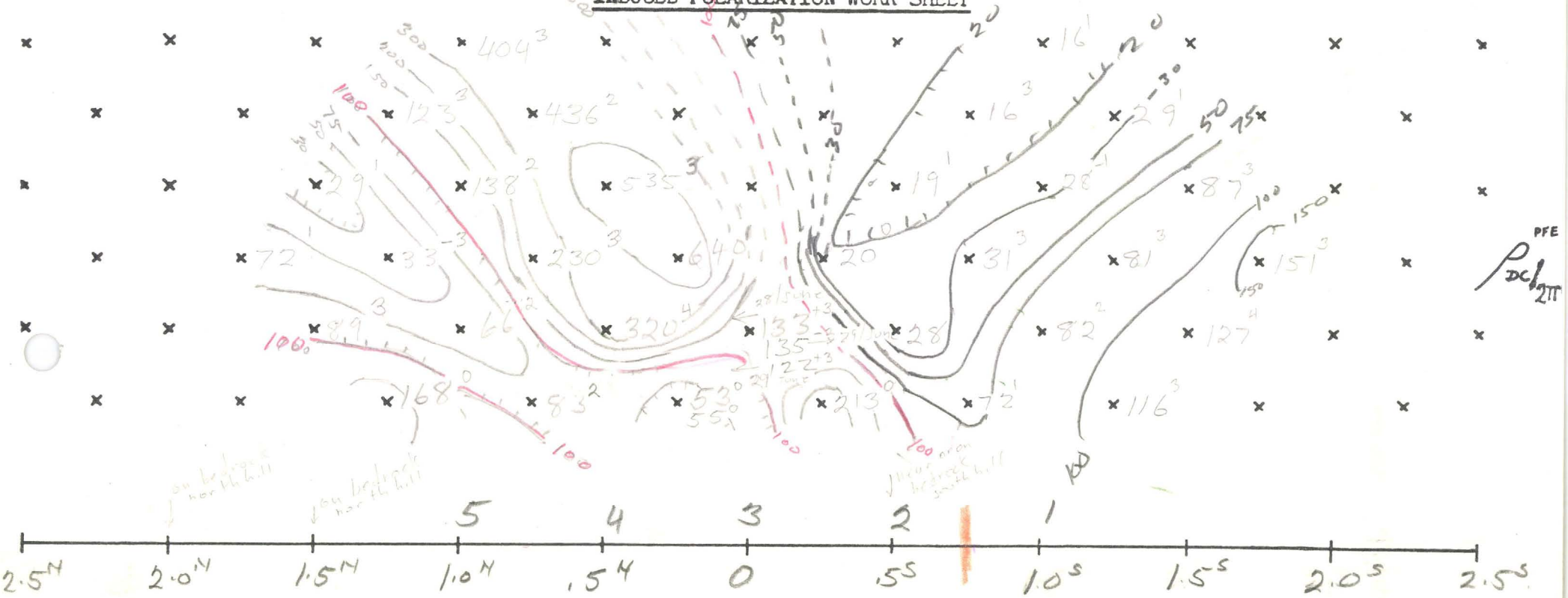
K+E STANDARD ® CROSS SECTION
10 X 10 TO THE INCH

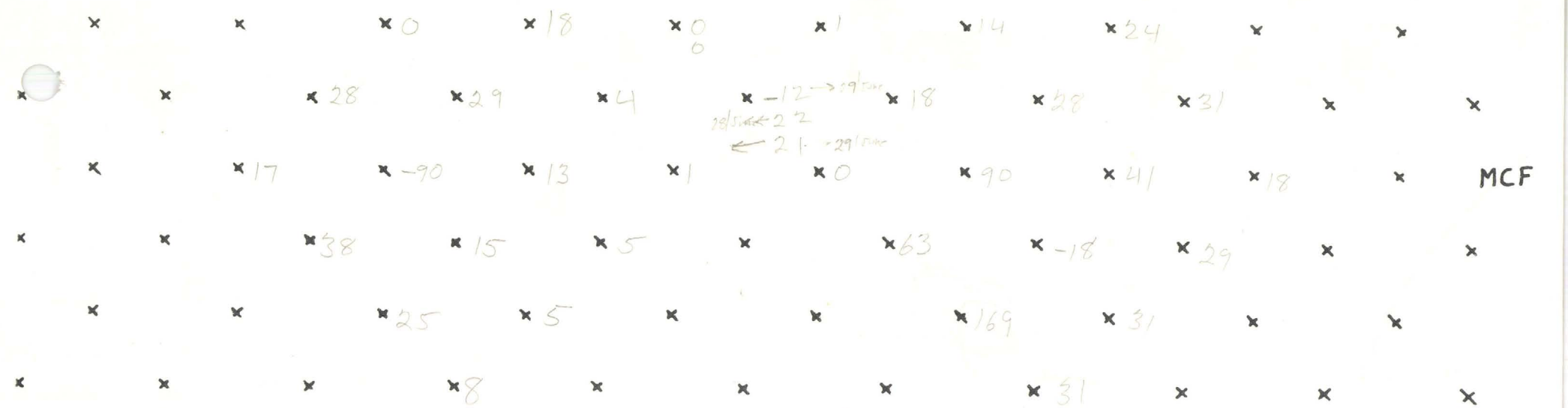
Looking E
Eunomia Line 1

July 1962 [illegible]



INDUCED POLARIZATION WORK SHEET





Area Emmons. Line #1 Looking East. Scale 1" = 500' Date 6/30/62 FAS.

August 20, 1962

Mrs. F. G. Emmons
P. O. Box 1748
Tucson, Arizona

Dear Mrs. Emmons,

Mr. Heinrichs as asked me to reply to your telephone inquiry concerning the feasibility of geochemical examination of the Arlie and Emmons claim groups.

A very broad reconnaissance geochem survey based on molybdenum in water (from wells) and ash of mesquite leaves, and copper in basal alluvium, covering an area of some 150 square miles in Townships 16 S and 17 S, Ranges 12 E, 13 E and 14 E (the Pima District) seems to have successfully pointed toward the general location of the Pima, Banner and Mission Mines. ("Geochemical Prospecting for Copper Deposits Hidden Beneath Alluvium in the Pima District, Arizona"; Lyman C. Huff, A. P. Maranzano; U.S.G.S. Bull. 308; Geological Survey Research 1961)

For the most part your claims are covered by transported alluvial soils the mineral content of which is in all probability not representative of the underlying bedrock. Measuring the mineral content of the ash of leaves of deep rooted phreatophyte plants would probably be representative of the mineral content of the groundwater, but again probably not representative of the immediately underlying bedrock. The only remaining application of possible economic significance might be the sampling of the outcropping rock or residual soils immediately adjacent thereto in Section 21 which, preliminarily, could probably be done for $500 to $1,000. Frankly, however, I think that the induced polarization surveys conducted in July have already somewhat negated probable existance of any significant shallow (above 1,000' deep) sulfide occurrence in this immediate area.

Very truly yours,
HEINRICHS GEOEXPLORATION COMPANY

Franklin A. Seward, Jr.

FAS:jh

Franklin A. Seward, Jr.
Geophysicist

July 20, 1962

Mrs. F. G. Emmons
P. O. Box 1748
Tucson, Arizona

Dear Mrs. Emmons,

Attached herewith are three copies of our report on geophysical investigations on mining claims located in Sections 21 & 22, Pima Mining District, Pima County, Arizona.

Should you have any questions regarding this report, please feel free to call upon us.

It was a pleasure to be able to do this work for you and we trust that you might call upon us again if we can be of service.

Our statement is enclosed.

Faithfully yours,

HEINRICHS GEOEXPLORATION CO.

Walter E. Heinrichs, Jr.
President & General Manager

WEH:jh
Enclosures

COPY

July 20, 1962

STATEMENT

To: Mrs. F. G. Emmons
P. O. Box 1748
Tucson, Arizona

Re: Induced Polarization Geophysical Investigations,
S½ NE¼ Sec. 22 and NE¼ & N½N½ SE¼ Sec. 21, T 17S, R13E
Pima District, Pima County, Arizona. June- July 1962

Services: Emmons Claim Group

28 June	1 day field	$250.00	
29 June	1 day field	250.00	
30 June	1 day--office	N. C.	
2 July	1 day field	250.00	
3 July	1 day field	250.00	
4 July	1 day--office	N. C.	
		$1000.00	$1,000.00

Arlie Claim Group

5 July	1 day field	250.00	
6 July	1 day field	250.00	
7 July	1 day -- office	N. C.	
13 July	1 day field repeat E½ Line 3--	N. C.	
14 July	½ day -- office	N. C.	
16 July	1 staff day--report	N. C/	
		$500.00	$500.00

Total:	$1500.00
Advance received	750.00
Balance due:	$750.00

NOTE: Our normal expense charges of 14 vehicle days, at $10.00/day plus 798 miles @ $0.10/mile and office computing, drafting & report fees and expenses were not entered in order to conform to the contract agreement. Therefore, expendatures definitely exceeded $1,000 and $500 respectively for the two parcels.

7/5/62

~~Transverse~~ N 9° W Sahuarita Rd.
Line #1 - ~~Electrode~~ #1 - 50' N
Line #2 - N 22° E

#5 electrode

50' N & 50' W of
Martin - Sahuarita
ranch road intersection
& west sides of both Ls. hills

Today

Mrs. Emmons: ~~Today~~ - 4 PM.

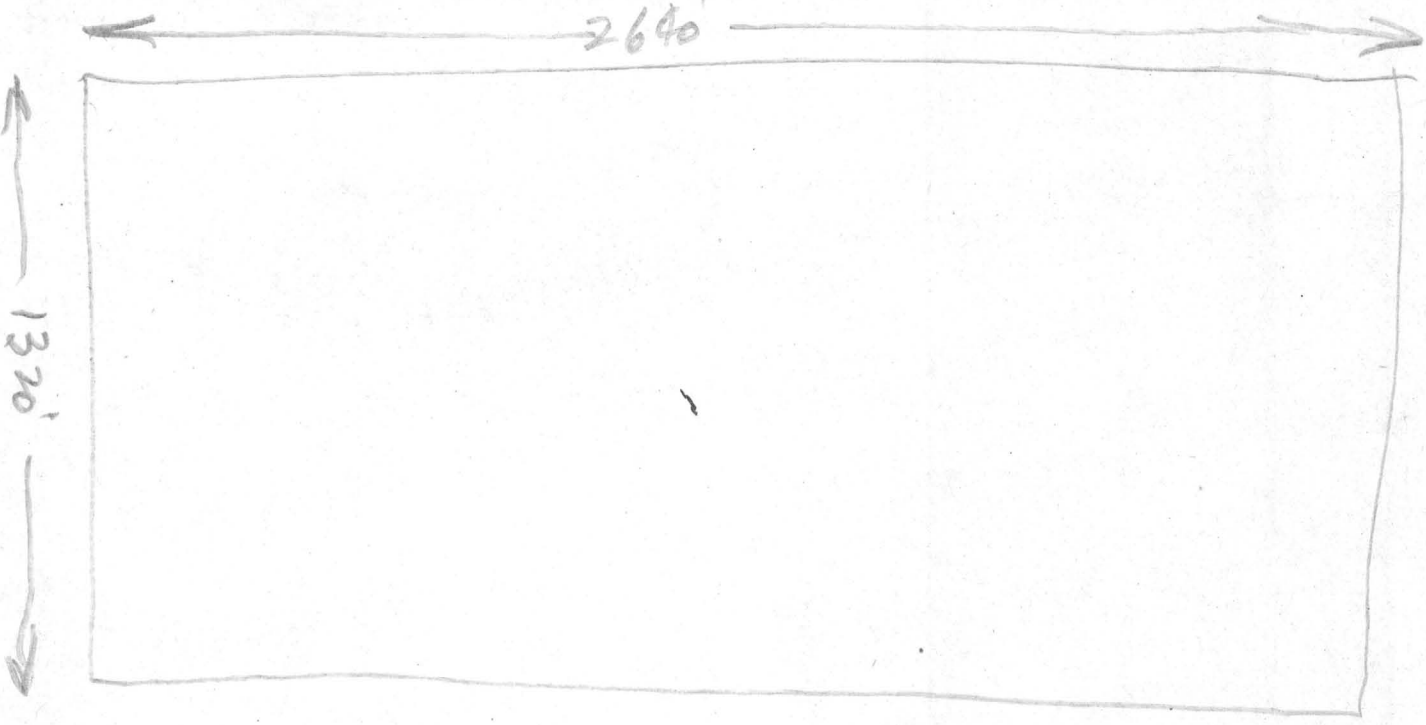
Tues. - 7/3/62

16/4/64

Talked to Grove.

6/29/62

Sec 22
5½ of NE ¼



Sec 20 – 450'± originally
then 920' total depth. } Core drilling A.S.&R. Logged.

Vacuum drill hole 5' samples± Sec 21

Shallower between Ls. Mills Sec 21 no data.

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Emmons Line: 1-5pr. 1-5½ Int.Cal 50.5 Date: 6/29/82

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Rec.	.5-1.05	→	1.0-1.55	→	→	1.5-2.05	→	→	→	2.0-2.55	→	→
Time	11:15	11:17	11:32	11:36	11:39	12:10	12:13	12:16	12:19	12:35	12:39	12:42
DC-1	122 122	20.3 20.3	43.4 43.4	4.20 4.20	1.22 1.22	69.0 69.0	12.1 12.1	1.86 1.86	.59 .58	18.9 18.9	4.90 4.90	.81 .81
DC-2	122 122	20.3 20.3	43.3 43.3	4.18 4.18	1.23 1.23	70.0 70.0	12.5 12.5	1.85 1.85	.57 .58	19.3 19.3	4.80 4.80	.87 .87
Σ	244 244	40.6 40.6	86.7 86.7	8.38 8.38	2.45 2.45	139.0 139.0	24.6 24.6	3.71 3.71	1.16 1.16	38.2 38.2	9.70 9.70	1.68 1.68
DC-3	122 122	20.3 20.3	43.4 43.4	4.18 4.20	1.26 1.26	69.0 69.0	12.1 12.0	1.84 1.84	.57 .61	19.4 19.4	4.90 4.90	.82 .81
Dc-4	122 122	20.3 20.3	43.3 43.3	4.20 4.18	1.19 1.19	70.0 70.0	12.6 12.6	1.87 1.87	.59 .55	18.8 18.8	4.80 4.80	.87 .86
Σ	244 244	40.6 40.6	86.7 86.7	8.38 8.38	2.45 2.45	139.0 139.0	24.7 24.6	3.71 3.71	1.16 1.16	38.2 38.2	9.70 9.70	1.69 1.67
D AV	244	40.6	86.7	8.38	2.45	139.0	24.6	3.71	1.16	38.2	9.70	1.68
AC-1	129	22.0	45.5	4.42	1.30	72.0	12.8	1.92	.61	19.5	4.98	0.90
AC-2	130	22.0	45.7	4.44	1.31	72.0	12.8	1.92	.61	19.6	4.99	0.90
Σ	259	44.0	91.2	8.86	2.61	144.0	25.6	3.84	1.22	39.1	9.97	1.80
S. P.	←	-53.5	←	—	+7.5	←	—	—	-1.6	←	—	—
AC-N	←	0.13	←	—	0.06	←	—	—	0.05	←	—	—
	50 E of Lime Hill					R = 1700Ω						

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Emmons Line: 1 Sp. 1-5½ Int.Cal 50.0 Date: 6/29/62

Send	1-5	1-2	2-3	3-4	4-5	CAL						
Rec.	→	2.5-3.05	→	→	→	2-3	2-3	2-3	1-2			
Time	12:45	12:55	12:58	13:00	13:04	13:23	13:26					
DC-1	.27 .27	9.0 9.0	2.58 2.58	.48 .48	.16 .16	20.3	39.8	59.0	39.8			
DC-2	.29 .29	9.1 9.1	2.62 2.62	.51 .51	.16 .18	20.3	39.9	59.0	39.8			
Σ	.56 .56	18.1 18.1	5.20 5.20	.99 .99	.34 .34	40.6	79.7	118.0	79.6			
DC-3	.30 .30	9.2 9.2	2.50 2.65	.53 .55	.15 .15	20.3	39.8	59.0	39.8			
Dc-4	.26 .26	8.9 8.9	2.70 2.55	.45 .43	.19 .19	20.3	39.9	59.0	39.8			
Σ	.56 .56	18.1 18.1	5.20 5.20	.98 .88	.34 .34	40.6	79.7	118.0	79.6			
D AV	0.56	18.1	5.20	.985	.39	40.6	79.7	118.0	79.6			
AC-1	0.30	9.4	2.70	0.52	0.18	20.7	42.2	62.0	42.1			
AC-2	0.30	9.4	2.70	0.52	0.18	20.7	42.3	62.0	42.1			
Σ	0.60	18.8	5.40	1.04	0.36	41.4	84.5	124.0	84.2			
S. P.	+7.0				-4.8							
AC-N	0.03	@ chum drill hole			0.03							

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: #1 - Sprd #1 5 1/2 Date: 29/June/62

Send	1775 3-4	4-5	1775 2-3	1775 3-4	1775 4-5	1760 1-2	2-3	3-4	4-5	1760 1-2	2-3	3-4
Receive	0.5-1.0s →		1.0-1.5s	→		1.5-2.0s	→			2.0-2.5s	→	
Time	1115	1117	1132	1136	1139	1210	1213	1216	1219	1235	1239	1242
Range	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 x2	1.5 900 x2 900
Current	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Send	4-5	1-2	2-3	3-4	4-5		2-3 Northwood	1-2				
Receive	2.0-2.5s	2.5-3s	→				0.5"-1.0"	→				
Time	1245			1300	1304		1409	1411				
Range	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900	1.5 900 x2 900		1.5 900 x2	1.5 900 x2				
Current	1800	1800	1800	1800	1800		1800	1800				

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line # 1 Spl #1 5 1/2 Field date 29 Jun 62 Data page_____ Comp. date_____. Comp by [illegible]

(A) Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
(B) Receive	.5-1.5	→	1.5-1.5	→	→	1.5-2.0	→	→	→	2.0-2.5	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1800	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	244	40.6	86.7	8.38	2.45	139.0	24.6	3.71	1.16	38.2	9.70	1.68
(F) DCcal	1.000	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρdc=ExFxGx10^3/D	213	135	72	28	20	116	82	31	19	127	81	28
(I) Vac Σ	259	44.0	91.2	8.86	2.61	144.0	25.6	3.84	1.22	39.1	9.97	1.80
(J) AC noise x 2	.26	→	.12	→	→	.10	→	→	→	.06	→	→
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.065	→	→	→	→	→	→	→	→	→	→	→
(M) ρdc/ρac=ExL/K	1.002	.984	1.010	1.005	1.000	1.028	1.023	1.026	1.012	1.040	1.033	.995
(N) PFE=(M-1)(10^2)	0	-2	1	1	0	3	2	3	1	4	3	-1
(O) MCF=(M-1)(10^5)/H	1	-12	14	18	0	24	28	90	63	31	41	-18

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

Repeat Tie

(A) Send	4-5	1-2	2-3	3-4	4-5		2-3	1-2				
(B) Receive	2.0-2.5	2.5-3.0	→	→	→		0.5-1.0	→				
(C) n separation	5	3	4	5	6		1	2				
(D) I	1800	→	→	→	→		1800	→				
(E) Vdc (avg)	0.56	18.1	5.20	.985	.34		66.0	36.7				
(F) DCcal	1.000	→	→	→	→		1.000	→				
(G) Kn x 10^{-3}	52.5	15	30	52.5	84		1.5	6				
(H) ρdc=ExFxGx10^3/D	16	151	87	29	16		55	122				
(I) Vac Σ	0.60	18.8	5.40	1.04	0.36		70.2	38.0				
(J) AC noise x 2	.06	.06			.06							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	.58											
(L) AC-DC cal.	1.065	→	→	→	→		1.065	→				
(M) ρdc/ρac =ExL/K	1.027	1.027	1.025	1.009	1.005		1.000	1.027				
(N) PFE=(M-1)(10^2)	3	3	3	1	1		0	3				
(O) MCF=(M-1)(10^5)/H	169	18	29	31	31		0					

See Calc Sheet 29 June

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: EMMONS Line: 1-5 Exp. 1-N½ Int.Cal 50.0 Date: 6/28/62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Rec.	.5-1.0N	→	1.0-1.5N	→	→	1.5-2.0N	→	→	→	2.0-2.5N	→	
Time	1523	1523	1541	1545	1546	16:00	16:02	16:05	16:08	16:22	16:26	1633
DC-1	31.8 31.9	49.8 20.0	49.7 50.0	48.0 48.2	38.3 38.5	101 101	9.7 10.2	19.0 13.9	16.3 16.1	13.4 13.3	1.9 2.2	4.35 4.30
DC-2	31.9 31.9	20.0 19.7	50.0 49.5	48.2 48.2	38.3 38.1	101 101	10.1 9.6	13.6 13.7	15.8 16.1	13.2 13.3	2.1 [illegible]	3.45 3.90
Σ	63.7 63.8	39.8 39.7	99.7 99.5	96.2 96.4	76.6 76.6	202 202	19.8 19.8	27.6 27.6	32.1 32.2	26.6 26.6	4.00 5.90	8.30 8.20
DC-3	31.9 31.8	19.7 20.1	49.6 48.2	48.2 48.0	38.2 38.5	101 101	10.3 10.0	13.4 13.4	16.0 15.1	13.1 13.6	2.0 2.15	4.40 4.25
Dc-4	31.8 31.9	20.1 19.7	49.8 51.3	48.0 48.2	38.4 38.0	101 101	9.5 9.8	15.1 15.2	16.7 16.0	13.5 13.9	1.8 1.85	3.70 4.10
Σ	63.7 63.7	39.8 39.8	99.45 99.45	96.2 96.2	76.6 76.5	202 202	19.8 19.8	27.3 27.6	32.1 32.1	26.6 26.5	3.80 3.80	8.20 8.35
DC-AV	63.7	39.8	99.5	96.2	76.6	202	19.8	27.6	32.1	26.6	3.93	8.26
AC-1	33.9	20.6	51.9	50.5	40.5	108	10.3	14.3	16.7	13.8	2.12	4.35
AC-2	33.8	20.6	52.3	50.5	40.4	107	10.4	14.2	16.6	13.9	2.10	4.18
Σ	67.7	41.2	104.2	101.0	80.9	215	20.7	28.5	33.3	27.7	4.32	8.53
S. P.	-11.1	→ -9.7	+7.2	→	+5.6				+16.6			
AC-N		0.05			0.13		0.13	[illegible]	[illegible]			

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Emmons Line: 1-5 Spr 1-N½ Int.Cal _____ Date: 6/28/62

Send	1-2	4-5	3-4	2-3	1-2		CAL	→	→			
Rec.	→	2.5-20N	→	→	→		4-5	→	→	1-2		
Time		1651		1657	1700		1509	1511		174	1743	
DC-1	7.40 7.50	4.40 4.20	0.88 0.80 0.97	2.00 2.20	4.20 4.45		20.2	39.8	80.0	22.1	42.0	91
DC-2	7.60 7.40	4.20 4.35	0.80 0.90.77	2.20 2.00	4.50 4.20		20.1	39.9	80.0	22.2	42.0	90
Σ	15.0 14.90	8.60 8.55	1.68 1.74 1.73	4.20 4.20	8.70 8.65		40.3	79.7	160	44.3	84.0	181
DC-3	7.40 7.50	4.40 4.30	0.98 .82	2.00 2.10	4.20 4.45		20.1	39.9	80.0	22.1	42.0	90
Dc-4	7.50 7.40	4.20 4.35	.75 .96	2.20 2.05	4.45 4.20		20.2	39.8	80.0	22.1	42.0	91
Σ	14.90 14.90	8.60 8.65	1.73 1.78	4.20 4.15	8.65 8.65		40.3	79.7	160	44.2	84.0	181
DC AV	14.92	8.60	1.73	4.21	8.66		40.3	79.7	160	44.2	84.0	181
AC-1	7.80	4.50	0.93	2.17	4.52		20.9	42.3	84.0	22.7	45.0	99.0
AC-2	7.80	4.53	0.92	2.17	4.50		20.9	42.5	83.5	22.8	44.8	98.0
Σ	15.60	9.03	1.85	4.34	8.92		41.8	84.8	167.5	45.5	89.8	197.0
S. P.	-23.3	+1.7			+1.7							
AC-N	0.15H				0.13H							

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: 1-Spr 1- N½ Date: 6/28/62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	.5-1.0N →		1.0-1.5N →			1.5-2.0N →				2.0-2.5N →		
Time	15:23	15:25	15:41	15:45	15:46	16:00	16:02	16:05	16:08	16:22	16:26	16:33
Range	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800
Current												
Send	1-2 *	4-5	3-4	2-3	1-2		CAL →			Cal		
Receive →		2.5-3.0N →					4-5 →			1-2		
Time	16:37	16:51	16:55	16:57	17:00		15:09	15:11	15:15	17:40	17:43	17:45
Range	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800	1800 1800 1800		400 400 400	800 800 800	1600 1600 1600	400 400 400	800 800 800	1800 1800 1800
Current												
R 1.50							.30	.75	1.50	.30	.75	1.50

* BACKSIDE

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line #1 Spd #1 N 1/2 Field date 28/June/62 Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-
(B) Receive	.5M-1.0K	→	1.0-1.5M	→	→	1.5-2M	→	→	→	2.0-2.5M	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1800	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	63.7	39.8	99.5	96.2	76.6	202.0	19.8	27.6	32.1	26.6	3.93	8.26
(F) DCcal	1.000	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρdc=ExFxGx10^3/D	53	133	83	320	640	168	66	230	535	89	33	138
(I) Vac Σ	67.7	41.2	104.2	101.0	80.9	215.0	20.7	28.5	33.3	27.6	4.32	8.53
(J) AC noise x 2	0.15	→	0.26	→	→	0.26	→	→	→	0.30	→	→
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.065	→	→	→	→	→	→	→	→	→	→	→
(M) ρdc/ρac=ExL/K	1.000	1.028	1.015	1.014	1.009	1.000	1.019	1.030	1.025	1.026	.970	1.021
(N) PFE=(M-1)(10^2)	0	3	2	1	1	0	2	3	3	3	-3	2
(O) MCF=(M-1)(10^5)/H	0	21	18	4	1	0	29	13	5	28	-90	15

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2							
(B) Receive	2.0-2.5M	2.5-3M	→	→	→							
(C) n separation	5	3	4	5	6							
(D) I	1800	→	→	→	→		400	800	1600	400	800	1800
(E) Vdc (avg)	14.92	8.60	1.73	4.21	8.66		40.3	79.7	160	44.2	84.0	181
(F) DCcal	1.000	→	→	→	→		.994	.997	1.000	.996	.953	.995
(G) Kn x 10^{-3}	52.5	15	30	52.5	84.0							
(H) ρdc=ExFxGx10^3/D	436	72	29	123	404							
(I) Vac Σ	15.60	9.03	1.85	4.34	8.92							
(J) AC noise x 2	.30	.26	.26	.26	.26							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$			1.82				41.8	84.8	167.5	45.5	89.8	197.0
(L) AC-DC cal.	1.065	→	→	→	→		1.038	1.061	1.046	1.030	1.068	1.088
(M) ρdc/ρac =ExL/K	1.020	1.012	1.011	1.031	1.032			See	Calib	Sheet	29/June	
(N) PFE=(M-1)(10^2)	2	1	1	3	3							
(O) MCF=(M-1)(10^5)/H	5	17	38	25	8							

INDUCED POLARIZATION - RECEIVER NOTES PAGE 4

Project: Emmons Line: 1-SW (ON 0.5 N) Int.Cal 50.0 Date: 6/29/62

REPEAT

Send	C	A	L	I	B	R	2-3	1-2				
Rec.	3-4	4-5	4-5	3-4	3-4	4-5	.5-1.0	N →				
Time	13:52	13:54	13:56	13:58	14:00	14:02	14:09	14:11				
DC-1	20.2	20.3	39.9	40.0	59.0	59.0	33.0 33.0	18.3 18.3				
DC-2	20.2	20.2	40.0	40.0	59.0	59.0	33.0 33.0	18.4 18.4				
Σ	40.4	40.5	79.9	80.0	118.0	118.0	66.0 66.0	36.7 36.7				
DC-3	20.2	20.3	40.0	40.0	59.0	59.0	33.0 33.0	18.3 18.3				
Dc-4	20.2	20.2	39.9	40.0	59.0	59.0	33.0 33.0	18.2 18.4				
Σ	40.4	40.5	79.9	80.0	118.0	118.0	66.0 66.0	36.7 36.7				
DC-AV	40.4	40.5	79.9	80.0	118.0	118.0	66.0	36.7				
AC-1	20.9	20.9	42.3	42.3	62.5	62.5	35.0	19.0				
AC-2	20.9	20.8	42.3	42.3	62.5	62.5	35.2	19.0				
Σ	41.8	41.7	84.6	84.6	125.0	125.0	70.2	38.0				
S. P.								+0.3				
AC-N												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 3

Project: Emmons Line: 1 Sp. 1 S½ Int.Cal 50.5 Date: 6/29/62

Send	C	A	L	I	B	R	A	T	I	O	N	S
Rec.	2-3	1-2	1-2	2-3	2-3	1-2	1-2	1-2	2-3			
Time	10:47	10:49	10:53	10:55	10:59	11:01	11:03	11:07	11:09			
DC-1	20.3	20.6	20.4	20.6	40.5	40.2	41.0	59.0	59.0			
DC-2	20.5	20.4	20.6	20.2	40.3	40.2	41.1	59.0	59.0			
Σ	40.8	41.0	41.0	40.8	80.8	80.4	82.1	118.0	118.0			
DC-3	20.3	20.6	20.4	20.6	40.5	40.2	41.0	59.0	59.0			
Dc-4	20.5	20.4	20.6	20.2	40.3	40.2	41.1	59.0	59.0			
Σ	40.8	41.0	41.0	40.8	80.8	80.4	82.1	118.0	118.0			
DC AV	40.8	41.0	41.0	40.8	80.8	80.4	82.1	118.0	118.0			
AC-1	20.9	21.1	21.2	21.0	42.3	42.8	43.8	63.0	63.0			
AC-2	20.9	21.2	21.1	20.9	42.8	42.9	43.8	63.0	63.0			
Σ	41.8	42.3	42.3	41.9	85.5	85.7	87.6	126.0	126.0			
S. P.												
AC-N		30				100			300			
		Range				Range						

INDUCED POLARIZATION -.75 SENDER NOTES

Project: Calibrations Line: Emmons #1 Spur 1 south Date: 29/June/62.

Send	2-3	1-2	1-2	2-3	2-3	1-2	1-2	1-2	2-3			
Receive												
Time	1047	1049	1053	1055	1059	1101	1104	1107	1109			
Range	.10 200 x2 200 200	.10 200 x2 200 200	.20 200 x2 200 200	.20 200 x2 200 200	.50 400 x2 400 400	.50 400 x2 400 400	.50 800 x1 800 800	1.0 600 x2 600 600	1.0 600 x2 600 600			
Current	400ma	400	400	400	800	800	800	1200	1200			

Send	2-3	2-3	2-3	1-2	3-4	4-5	4-5	3-4	3-4	4-5		
Receive												
Ti	1323	1326	1328	1335	1352	1354	1356	1358	1400	1402		
Range	.20 200 x2	.15 400 x2	1.0 600 x2	.50 400 x2	.30 200 x2	.30 400 x2	.75 400 x2	.75 400 x2	1.0 600 x2	1.0 600 x2		
Current	400	800	1200	800	400	400	800	800	1200	1200		

Emmons

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Calibrations Line #1 and #2 Field date 29 June Data page_____ Comp. date_____. Comp by_____

(A) Send	2-3	1-2	1-2	2-3	2-3	1-2	1-2	1-2	2-3			
(B) Receive												
(C) n separation	.10-200 x2	.10-200 x2	.20 200 x2	→	.50-400 x2	.50 400 x2	.50 800 x1 x1	1.0 800 x2	1.0 800 x2			
(D) I	400	400	400	400	800	800	800	1200	1200			
(E) Vdc (avg)	40.8	41.0	41.0	40.8	80.8	80.4	82.1	118.0	118.0			
(F) DCcal	.980	.976	.976	.980	.990	.995	.975	1.018	1.018			
(G) Kn x 10^{-3}												
(H) ρdc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) =$\sqrt{I^2 - J^2}$	41.8	42.3	42.3	41.9	85.5	85.7	87.6	126.0	126.0			
(L) AC-DC cal.	1.025	1.031	1.031	1.026	1.058	1.066	1.066	1.067	1.067			
(M) ρdc/ρac=ExL/K												
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

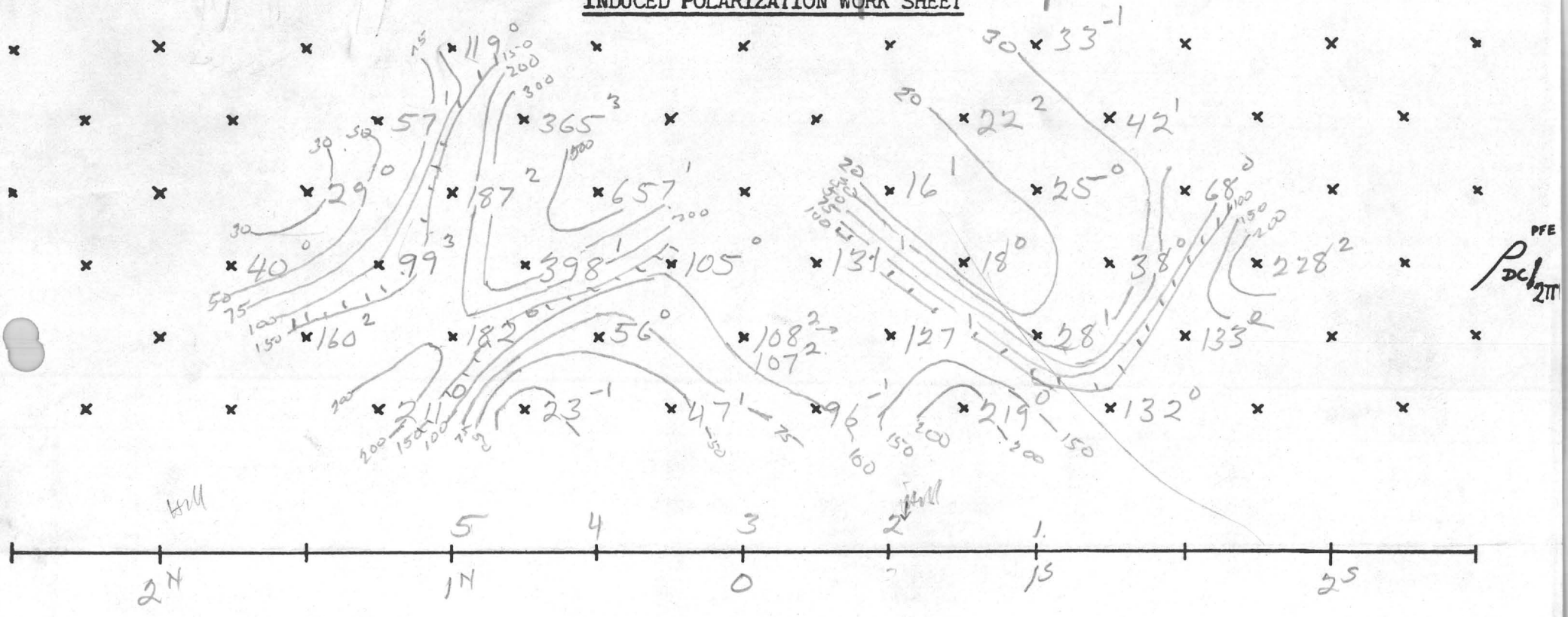
Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

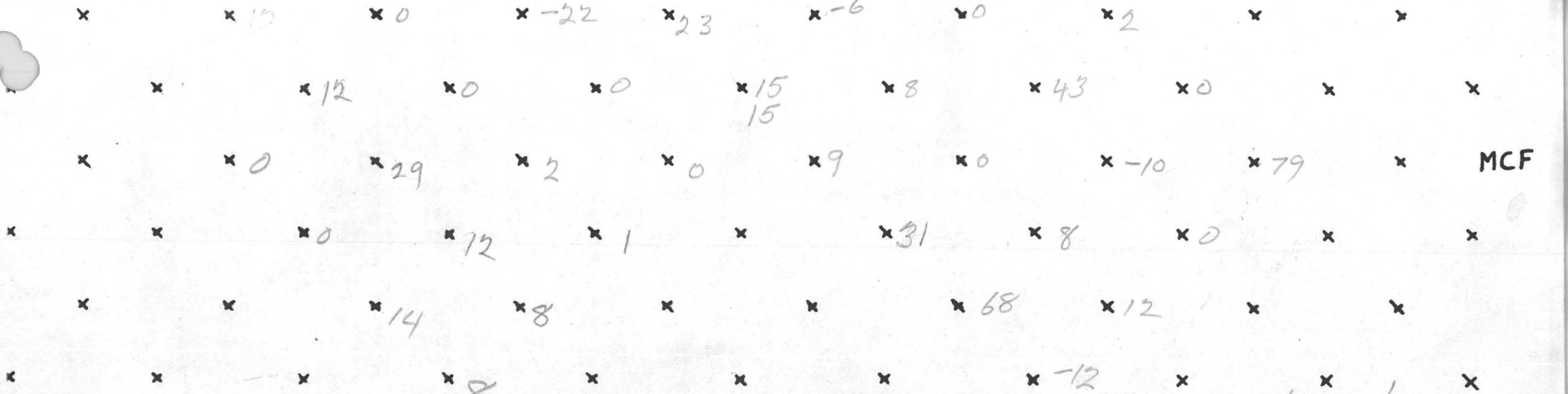
(A) Send	2-3	2-3	2-3	1-2	3-4	4-5	4-5	3-4	3-4	4-5		
(B) Receive												
(C) n separation												
(D) I												
(E) Vdc (avg)	400	800	1200	800	400	400	800	800	1200	1200		
(F) DCcal	40.6	79.7	118.0	79.6	40.4	40.5	79.9	80.0	118.0	118.0		
(G) Kn x 10^{-3}	.985	1.002	1.018	1.001	.990	.988	1.000	1.000	1.018	1.018	Use	1.000
(H) ρdc=ExFxGx10^3/D												
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) =$\sqrt{I^2 - J^2}$	41.4	84.5	124.0	84.2	41.8	41.7	84.6	84.6	125.0	125.0		
(L) AC-DC cal.	1.020	1.060	1.050	1.055	1.036	1.030	1.058	1.057	1.058	1.058	Avg	1.0483
(M) ρdc/ρac =ExL/K											Use	1.065
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

NO. 340/ -10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.

Looking Easterly.

INDUCED POLARIZATION WORK SHEET





Area Emmons - Line #2 Scale 1" = 500' Date 5/July/62

[illegible]D POLARIZATION - RECEIVER NOTES PAGE 1

Project: Emmons Line: 2 - Spr. 2 - N½ Int.Cal 50.3 Date: 7/3/62

Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Rec.	.5-1.0N	→	1.0-1.5N		→	1.5-2.0N			→	2.0-2.5N		
Time	11:29	11:35	11:47	11:49	11:55	12:11	12:14	12:15	12:18	12:34	12:38	
DC-1	29.0 29.0	16.3 16.2	14.3 13.7	8.55 8.55	6.45 6.45	131.0 129.0	27.3 27.2	24.7 24.6	20.2 20.3	24.7 24.7	6.20 6.0	5.80 5.65
DC-2	28.8 28.7	16.7 16.8	14.3 13.7	8.75 8.75	6.50 6.50	129.0 130.0	27.2 27.3	24.2 24.3	20.1 20.1	24.7 24.5	6.0 6.1	5.65 5.80
Σ	57.8 57.7	33.0 33.0	28.6 27.4	17.3 17.3	12.95 12.95	260.0 259.0	54.5 54.5	48.9 48.9	40.3 40.4	49.4 49.2	12.2 12.1	11.45 11.45
DC-3	28.9 29.0	16.3 16.2	14.0 14.0	85.5 85.5	6.45 6.45	130.0 129.0	27.3 27.2	24.4 24.7	20.2 20.2	24.6 24.6	6.15 6.05	5.80 5.80
Dc-4	28.8 28.8	16.8 16.8	14.0 14.0	87.5 87.5	6.50 6.50	129.0 130.0	27.2 27.3	24.4 24.2	20.2 20.2	24.6 24.6	6.05 6.2	5.70 5.70
Σ	57.7 57.8	33.1 33.0	28 28	173.0 173.0	12.95 12.95	259.0 259.0	54.5 54.5	48.8 48.9	40.4 40.4	49.2 49.2	12.20 12.25	11.50 11.50
D[illegible]AV	57.8	33.0	28.0	17.3	12.95	259.25	54.5	48.875	40.375	49.25	12.2125	11.475
AC-1	29.0	17.3	15.1	8.85	6.80	129.0	27.8	25.1	21.1	24.9	6.30	5.97
AC-2	29.0	17.3	15.1	8.90	6.82	140.0	27.8	25.1	20.9	24.9	6.28	5.95
Σ	58.0	34.6	30.2	17.75	13.62	279.0	55.6	50.2	42.0	49.8	12.58	11.92
S. P.	+6.3	+7.1	←	-4.8	—	←	+21.4	—	→			
AC-N	←	0.05	←	—	0.07	←	1.0	—	→			

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 2

Project: Emmons Line: 2 - Spr. 2 - N½ Int.Cal 50.0 Date: 7/7/62

Send	1-2	0-5	3-0	2-3	1-2	CAL	→	→		10 scale	30 range	100 range
Rec.	→	2.5-3.0 N	→	→	→	4-5	→	→				
Time		12:53	12:55	12:58	13:00	30 scale 1.027	100 scale 1.103	100 scale 1.045	1.08	13:24		
DC-1	6.45 6.45	2.41 2.53	.90 .85	1.03 .99	1.31 1.35	25.2	24.0	75.0	74.0	7.58 7.58	25.2 25.2	24.0 24.0
DC-2	6.35 6.37	2.50 2.38	.85 .90	.99 1.02	1.38 1.27	25.1	24.0	75.0	74.0	7.56 7.56	25.1 25.1	24.2 24.2
Σ	12.80 12.82	4.91 4.91	1.75 1.75	2.02 2.01	2.63 2.62	50.3	48.0	150.0	148.0	15.14	50.3 50.3	48.2 48.2
DC-3	6.40 6.40	2.40 2.50	.92 .84	1.02 1.00	1.29 1.35	25.2	24.0	75.0	74.0			
Dc-4	6.40 6.42	2.51 2.41	.83 .82	1.00 1.02	1.32 1.27	25.1	24.0	75.0	74.0			
Σ	12.80 12.82	4.91 4.91	1.76 1.76	2.02 2.02	2.61 2.62	50.3	48.0	150.0	148.0	15.14	50.3	
DC AV	12.81	4.91	1.755	2.0175	2.62	50.3	48.0	150.0	1480	1514	50.3	48.2
AC-1	6.58	2.53	.95	1.09	1.41	25.8	26.5	78.5	80.0	8.0	25.9	27.0
AC-2	6.57	2.54	.97	1.09	1.41	25.8	26.5	78.5	80.0	8.0	25.9	27.0
Σ	13.15	5.07	1.92	2.18	2.82	51.6	53.0	157.0	1600	16.0	51.8	54.0
S. P.	-8.9	←	←	←	+4.9							
AC-N	0.03	0.05	→	→	→							

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: _____ Line: _____ Int.Cal _____ Date: _____

Send	100 Ω Range	300 Range				30 scale						
Rec.												
Time		13:32				13:35						
DC-1	75.2	74.0				7.4						
DC-2	75.2	73.0				7.4						
Σ	150.4	147.0				14.8						
DC-3	75.2	74.0				7.4						
Dc-4	75.2	73.0				7.4						
[illegible]	150.4	147.0				14.8						
D[illegible]AV	150.4	147.0				14.8						
AC-1	78.8	81				8.3						
AC-2	78.8	81				8.2						
Σ	157.6	162.0				16.5						
S. P.												
AC-N												

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: 2-Spr. 2 - N½ Date: 7/3/62

Send	210 2-3	240 1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
Receive	.5-1.0N →		1.0-1.5N →			1.5-2.0N →				2.0-2.5N →		
Time	11:29	11:32		1153	1155	1210	1214	1216	1218	1235	1239	1242
Range AC-1	950	950										
Range DC	950	950										
Range AC-2	950	950										
Current	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900

Send	1-2	4-5	3-4	2-3	1-2	CAL						
Receive	→	2.5-3.0N →				4-5		4-5				
Time	1245	1254	1257	1259	1301	250	750	1324		1332		
Range AC-1						250	750					
Range DC						250	750	2x75	2x250	2x750		
Range AC-2						250	750					
Current	1900	1900	1900	1900	1900	500	1500	150	500	1500		
						.30 160	1.0 220					

HEnd

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line #2-N 1/2 Field date 3/Jv/10/62 Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4	2-3
(B) Receive	0.5-1M	→	1.0-1.5M	→	→	1.5-2.0M	→	→	→	2.0-2.5M	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1900											
(E) Vdc (avg)	57.8	33.0	28.0	17.3	12.95	259.05	54.5	48.9	40.4	49.3	12.21	11.5
(F) DCcal	1.03											
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρdc=ExFxGx10^3/D	47	107	23	56	105	211	182	398	657	160	99	187
(I) Vac Σ	58.0	34.6	30.2	17.75	13.6	279.0	55.6	50.2	42.0	49.8	12.58	11.92
(J) AC noise x 2	.10	→	.06	→	→	1.0	→	→	→	.06	→	→
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.015	1.012	1.072	1.025	1.050	1.077	1.020	1.032	1.048	1.032	1.058	1.061
(M) ρdc/ρac=ExL/K	1.014	1.016	.995	1.000	1.000	1.000	1.000	1.008	1.008	1.020	1.029	1.022
(N) PFE=(M-1)(10^2)	1	2	-1	0	0	0	0	1	1	2	3	2
(O) MCF=(M-1)(10^5)/H	23	15	-22	0	0	0	0	2	1	12	29	12

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	4-5	3-4	2-3	1-2							
(B) Receive	2.0-2.5M	2.5-3M	→	→	→							
(C) n separation	5	3	4	5	6	30	100	100	300	10	30	100
(D) I	1900	→	→	→	→	500	500	1500	1500	150	500	500
(E) Vdc (avg)	12.81	4.91	1.76	2.02	2.62	50.3	48.0	150.0	148.0	15.14	50.3	48.2
(F) DCcal	1.03	→	→	→	→	.995	1.041	1.000	1.013	.992	.995	1.040
(G) Kn x 10^{-3}	52.5	15	30	52.5	84							
(H) ρdc=ExFxGx10^3/D	365	40	29	57	119							
(I) Vac Σ	13.15	5.07	1.92	2.18	2.82	51.6	53.0	157.0	160.0	16.0	51.8	54.0
(J) AC noise x 2	.06	.10	→	→	→							
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	3.64											
(L) AC-DC cal.	1.053	1.031	1.095	1.089	1.076	1.025	1.103	1.046	1.081	1.056	1.030	1.120
(M) ρdc/ρac =ExL/K	1.029	1.000	1.002	1.008	1.001	DC 150.4	147.0	14.8				
(N) PFE=(M-1)(10^2)	3	0	0	1	0	AC 157.6	162.0	16.5				
(O) MCF=(M-1)(10^5)/H	8	0	0	14	8	I 1500	1500	150				

DCcal .997 1.020 1.013

ACcal/DC 1.048 1.101 1.115

100 300 30

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Emmons Line: 2 Sp 1 - 5 ½ Int.Cal 49.6 Date: 7/3/62

Send	4-5	1-2	2-3	3-4	4-5	Cal 1-2					
Rec.	→	25-20	5 →			10	30	30	100	100	300
Time	16:04					14:52	14:52	14:55	14:55	14:59	14:59
DC-1	.37 .39	13.9 14.2	2.10 2.04	.71 .76	.33 .41	7.58	7.30	25.0	24.0	62.2	61.0
DC-2	.39 .37	14.2 13.9	2.05 2.11	.76 .70	.40 .33	7.55	7.30	25.0	24.0	62.2	61.0
Σ	.76 .76	28.1 28.1	4.15 4.15	1.47 1.46	.73 .74	15.13	14.60	50.0	48.0	124.4	122.0
DC-3	.37 .39	13.9 14.2	2.12 2.02	.70 .76	.33 .40	7.58	7.30	25.0	24.0	62.2	61.0
Dc-4	.39 .37	14.2 13.9	2.03 2.13	.75 .69	.40 .33	7.55	7.30	25.0	24.0	62.2	61.0
Σ	.76 .76	28.1 28.1	4.15 4.15	1.45 1.45	.73 .73	15.13	14.60	50.0	48.0	124.4	122.0
DC AV	.76	28.1	4.15	1.46	.73	15.13	14.60	50.0	48.0	124.4	122.0
AC-1	.41	15.0				7.80	8.2	22.1	27.0	66.8	67.0
AC-2	.41	15.0	2.18	.79	.40	7.80	8.20	22.0	22.4	66.8	67.0
Σ	.82	30.0	2.20	.80	.41	15.60	16.40	44.1	49.4	133.6	134.0
S. P.	-3.7		4.38	1.59	.81						
AC-N	0.03				0.04						
				SP	+11.5						

INDUCED POLARIZATION - RECEIVER NOTES

PAGE 1

Project: Emmons Line: 2 - Spr. 1 - 5 1/2 Int.Cal _____ Date: 7/3/62

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Rec.	.5-1.05	→	1.0-1.55	→	→	1.5-2.05	→	→	→	2.0-2.55	→	→
Time	15:05	15:07	15:15	15:17	15:19	15:32	15:35	15:39		15:56	15:59	16:01
DC-1	59.0 59.3	16.0 16.2	134 135	19.7 19.6	7.95 8.15	80.0 82.0	4.40 4.35	1.09 1.10	.49 .51	20.4 20.4	2.33 2.33	.76 .75
DC-2	59.5 59.2	16.2 15.9	135 134	19.5 19.6	8.15 7.95	82.0 80.0	4.35 4.40	1.10 1.09	.51 .49	20.4 20.4	2.33 2.33	.75 .75
Σ	118.5 118.5	32.2 32.1	269 269	39.2 39.2	16.10 16.10	162.0 162.0	8.75 8.75	2.19 2.19	1.00 1.00	40.8 40.8	4.66 4.66	1.51 1.50
DC-3	59.0 59.0	15.7 16.8	134 135	19.7 19.7	7.95 8.15	80.0 82.0	4.40 4.40	1.09 1.10	.49 .51	20.4 20.4	2.30 2.35	.76 .75
Dc-4	59.5 59.5	16.7 15.5	135 134	195 19.5	8.15 7.95	82.0 80.0	4.30 4.30	1.10 1.09	.51 .49	20.4 20.4	2.35 2.31	.75 .77
Σ	118.5 118.5	32.4 32.3	269 269	39.2 39.2	16.10 16.10	162.0 162.0	8.70 8.70	2.19 2.19	1.00 1.00	40.8 40.8	4.65 4.66	1.51 1.52
D AV	118.5	32.25	269	39.2	16.10	162.0	8.725	2.19	1.00	40.8	4.66	1.51
AC-1	63.8	17.0	147.0	20.6	8.30	84.1	4.68	1.20	0.54	21.4	2.44	.82
AC-2	63.8	17.2	146.0	20.6	8.30	84.5	4.74	1.20	.55	21.3	2.45	.83
Σ	127.6	34.2	293.0	41.2	16.6.0	168.6	9.38	2.40	1.09	42.7	4.89	1.65
S. P.		-4.7			-0.6				+5.5			
AC-N		0.10			0.13				0.02			

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: _____ Line: _____ Int.Cal _____ Date: _____

Send	1 scale 30	30 scale	30 scale	100 scale	100 scale	300 scale						
Rec.												
Time	16:41	16:41	7.	7.	47	47						
DC-1	7.52 7.52	7.3	24.9	24.0	74.5	73.0						
DC-2	7.52 7.52	7.3	24.9	24.0	74.5	73.0						
Σ	15.04	14.6	49.8	48.0	149.0	146.0						
DC-3		7.3	24.9	24.0	74.5	73.0						
Dc-4		7.3	24.9	24.0	74.5	73.0						
Σ		14.6	49.8	48.0	149.0	146.0						
DC AV	15.04	14.6	49.8	48.0	149.0	146.0						
AC-1	7.81	8.1	25.5	26.8	78.5	81						
AC-2	7.82	8.2	25.5	26.8	78.5	81						
Σ	15.63	16.3	51.0	53.6	157.0	162.0						
S. P.			51.0	53.6								
AC-N												

INDUCED POLARIZATION SENDER NOTES

Project: Emmons Line: #2 Spr 1#1 S1/3 Date: 3/July/82

Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
Receive	.5-1.0s	→	1.0-1.5s	→		1.5-2.0s	→			2.0-2.5s	→	
Time	1505	1507	1515	1517	1519	1532	1535	1539	1542	1556	1559	1601
Range	2x950	2x950										
Current	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Send	4-5	1-2	2-3	3-4	4-5		1-2	→				
Receive	2.0-2.5s	2.5-3s	→				CAL					
Time	1604	1615	1617	1620	1623		1452	1455	1459	1641	1644	1647
Range	2x950	2x950	2x950	2x950	2x950		2x75	2x250	2x750	2x75	2x250	2x750
Current	1900	1900	1900	1900	1900		150	500	1500	150	500	1500

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INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Emmons Line #2 Sprd #1 Field date_____ Data page_____ Comp. date_____ Comp by_____

	1.078 64%	5/2 1.060 57%	1.089 49%	1.050 69%	1.031 85%	1.038 84%	1.075 47%	1.094 40%	1.090 1%	1.046 81%	1.048 81%	1.092 27%
(A) Send	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5	1-2	2-3	3-4
(B) Receive	0.5-1.5	→	1.0-2.5	→	→	1.5-2.5	→	→	→	2-2.5	→	→
(C) n separation	1	2	1	2	3	1	2	3	4	2	3	4
(D) I	1900	→	→	→	→	→	→	→	→	→	→	→
(E) Vdc (avg)	118.5	32.25	269	39.2	16.10	162.0	8.725	2.19	1.00	40.8	4.66	1.51
(F) DCcal	1.03	→	→	→	→	→	→	→	→	→	→	→
(G) Kn x 10^{-3}	1.5	6	1.5	6	15	1.5	6	15	30	6	15	30
(H) ρdc=ExFxGx10^3/D	96	108	219	127	131	132	28	18	16	133	38	25
(I) Vac Σ	127.6	34.2	293.0	41.2	16.60	168.6	9.38	2.40	1.09	42.7	4.89	1.65
(J) AC noise x 2	.20	→	.26	→	→	.04	→	→	→	.06	→	→
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.069	1.077	1.087	1.062	1.045	1.043	1.090	1.095	1.095	1.047	1.047	1.095
(M) ρdc/ρac=ExL/K	.994	1.016	.998	1.010	1.012	1.002	1.012	1.000	1.005	1.000	.996	1.002
(N) PFE=(M-1)(10^2)	-1	2	0	1	1	0	1	0	1	0	0	0
(O) MCF=(M-1)(10^5)/H	-6	15	0	8	9	2	43	0	31	0	-10	8

Project_____ Line 14 Field date_____ Data page_____ Comp. date_____ Comp by_____

	1.078	1.069	1.055 13	1.089	1.110							
(A) Send	4-5	1-2	2-3	3-4	4-5							
(B) Receive	2-2.5	2.5-3	→	→	→		Scale VFM 10	30	30	100	100	300
(C) n separation	5	3	4	5	6	I	150	150	500	500	1300	1300
(D) I	1900	→	→	→	→	CALIBRATIONS Vdc	15.13	14.60	56.0	48.0	124.4	122.0
(E) Vdc (avg)	.76	28.1	4.15	1.46	.73	Vac	15.60	16.40	44.1?	49.4	133.6	134.0
(F) DCcal	1.03	→	→	→	→	DCcal	.992	1.028	1.000	1.041	1.044	1.066
(G) Kn x 10^{-3}	52.5	15	30	52.5	84	AC/DCcal	1.030	1.121	1.083?	1.029	1.072	1.100
(H) ρdc=ExFxGx10^3/D	22	228	68	42	33							
(I) Vac Σ	0.82	30.0	4.38	1.59	0.81	I	150	150	500	500	1500	1500
(J) AC noise x 2	.06	.08	→	→	→	Vdc	15.04	14.6	49.8	48.0	149.0	146.0
(K) Vac (corr) = $\sqrt{I^2 - J^2}$						Vac	15.63	16.3	51.8	53.6	157.0	162.0
(L) AC-DC cal.	1.095	1.086	1.057	1.095	1.100?	DCcal	.997	1.028	1.002	1.041	1.007	1.028
(M) ρdc/ρac =ExL/K	1.015	1.018	1.000	1.005	.990	AC/DCcal	1.040	1.118	1.021	1.116	1.052	1.109
(N) PFE=(M-1)(10^2)	2	2	0	1	-1							
(O) MCF=(M-1)(10^5)/H	68	79	0	12	-12							

June 15, 1962

Mrs. L. B. Emmons
P. O. Box 1748
Tucson, Arizona

Dear Mrs. Emmons,

This will confirm the discussion we had with you in our office on June 7, 1962, concerning proposed annual labor in accordance with State and Federal mining laws on your properties in Sections 21 & 22, T 17 S, R. 13 E.

Our standard charges are usually based on a unit fee per day, depending on method, personnel and equipment involved, plus normal direct job expenses. An average field day is considered 10 hours including an average of two hours total travel time for most jobs. An office day is considered to be 8 hours but is actually usually closer to 10. A general rule of thumb requirement is considered one office day per each field day.

Induced polarization electrical work (I. P.) fees are $250.00 per day for a minimum 3 man crew; mobile magnetometer work $250.00 per day for a 2 man crew; portable or hand magnetics, $125 per day for 2 men or $100.00 per day for 1 man. Office fees are $80.00 per staff day. Our breakdown time is not charged and is either made up at no extra, or a proportional fee adjustment is made.

Expenses in this case will mainly be vehicles and reproduction of maps for report purposes. The latter are at cost and vehicles at $10.00 per day plus $0.10 per mile, per vehicle. Two vehicles are needed in I. P. work, there is no vehicle charge for the mobile magnetometer. Hand magnetics and occasionally, supervision or extra assistance in the over all interest of the job and client, would involve one vehicle. There is no extra fee for the latter--only expenses.

Translated to conditions on your two parcels, we estimate these charges to represent the approximate equivalent of $500 to $600 per profile mile of I. P. coverage; $20 - $25 per profile mile of accessible mobile magnetic coverage and $50 to $75 per profile mile of hand magnetic coverage.

COPY

Accordingly, we propose as follows:

1. Section 21 - NE¼ & N½SE¼ - 200 acres, two I. P. lines using a 500' - 750' or 1,000' dipole spacing, oriented in a manner to gain maximum advantage of surface conditions, known geology and symmetrical equilateral coverage.
2. Section 22 - S½ NE¼ - 80 acres, One I.P. line, probably oriented more or less easterly-westerly, otherwise same as above.

Since your two parcels are not contiguous, we would agree to run at least these three proposed lines for $500 each. However, if and only if the accrued I. P. charges should amount to less than $1,000 and $500 for the two respective separate areas, then we would also agree to make up any difference with additional magnetic work as required on either or both parcels.

A written report of all results and interpretation would be included, which would contain the information required by Federal statute to be part of the affidavit of labor, which in the case of this type of assessment work, must be filed with the county recorder. This, we recommend should be handled by your legal council. The affidavit must "fully set forth the location of the work related to point of discovery and boundries of the claims"; therefore, we and/or your lawyer, will need all maps and data on the claims.

Although our work will qualify according to statute, we of course, cannot and do not accept or assume any liability related to title preservation of the property.

As to availability, we will probably be doing other work nearby during the next two weeks and could effect some logistics possibly to your advantage. However, we cannot guarantee consecutive completion during this period, but only what we could sandwich in. Otherwise, our next foreseeable two weeks continuous crew availability is currently late July or possibly early August because of indefinite retainer committments. If you decide to definitely go ahead, it would be therefore somewhat mutually advantageous at present to allow us to complete the work intermittently if necessary. On this basis, I am sure we could offer you earliest completion and immediate definite assurance of completion no later than the end of August.

COPY

Customarily, we request one half the contract estimate or a week's payment in advance as a contract binder--in this case $750 and the remainder based on a weekly billing and/or final statement submitted with the report.

Under present and available circumstances, I believe the above represents a fair, efficient and optimum procedure for gaining a maximum of additional mineral (and water) information on your property at this time.

Your response, if acceptable, may be indicated by executing the blank spaces provided below on the enclosed carbon copy and returning it to us.

Very truly yours,

HEINRICHS GEOEXPLORATION CO.

by:_____
Walter E. Heinrichs, Jr.
President & General Manager

WEH:jh
Encl: Extra copy

Approved & Accepted:

Date:_____

by:_____

COPY

HEINRICHS GEOEXPLORATION COMPANY
MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS
GEOPHYSICAL, GEOLOGICAL AND ECONOMIC APPRAISALS
TUCSON, ARIZONA

WALTER E. HEINRICHS, JR.
E. GROVER HEINRICHS

PHONE: MAIN 2-4202
806-808 WEST GRANT ROAD
MAIL: P. O. BOX 5671

June 15, 1962

JUN 1962
GEOEX

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HEINRICHS GEOEXPLORATION CO.

by: W E Heinrichs Jr

Walter E. Heinrichs, Jr.
President & General Manager

WEH:jh
Encl: Extra copy

Approved & Accepted:

Date: June 26, 1962

by: Frances G Emmons
by William K Rick