Kayser. 19 March 66
Reconnaissance of Mo may
road

Rec #1.

Two adjacent anomalies were noted opposite and just east of the Sopori ranch. Gamma variation ranges from 150 to 250. The maximum depth to source material is 200'.

Rec #2.

A 200γ low in conjunction with a culvert shows approximately 0.35 miles NE of the junction of the Kx ranch road with the arivaca road. This feature has a max depth of about 500'.

Rec #3

29 March 66

Memo:

Three Samples of black limestone were taken from between electrodes 3 & 4 spread B, Line 1, Las Guijas area, for Paul Kayser. No anomalous samples were noted still leaving the coincident I.P. anomalies unexplained.

Sample #	Location	PFE
1	50-100' NE of electrode #3	0, 1.5, 0.7
2	100' E of electrode #4	1.8, 2.1
3,	375' E of electrode #3	3.0, 2.6

Stop #1
50-100' NE of #3
Shale
Strike N80E } Dip and Strike
Dip 55° NW. }
can not be considered
accurate as this shale is full
of Second Folds.

Primary out crop is seen again
to N and NE

Stop #2
100' E of Electrode #4
Shale interfingered with chert
stringers of cuticle
Strike N80E } most common
N60W }
Dip 20-30° N

Monday

Stop # 3

approx 375'

Shale underfingered with chert

½ way 3 & 4

Strike E|W roughly

Dip 30-60° N

Stop 4

200' E of #3 spread B

apparent intrusive or dike ~~[illegible]~~ trending

N S

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kay Ser Guijas Line Samples over line # Spread 2 between electrode 3-4 Field date_____ Data page_____ Comp. date_____. Comp by_____

(A) ~~Send~~ Sample #	2		2 repeat		2 repeat		3	3 Repeat		2	2 Repeat	
(B) Receive												
(C) n separation												
(D) I	40 MA						10A			60		
(E) Vdc ~~(avg)~~ Reading	185 178 183 178 183 179	179 183	181 196 184 191 196 184 196		199 185 185 185 199 200		188 189 191 189 191 188	186 193 188 193 188 193		166 167 166 167 166 168	166 164 169 164 169 163	163 170 170 168
(F) ~~DCcal~~ Dc Av	362		379		384.3		379	380.3		333.3	332	
(G) Kn x 10^{-3}												
(H) ρ dc=ExFxGx10^3/D												
(I) Vac Σ Readings	176 181		181 185		185 189		182 183	183 184		159 158	158 159	
(J) ~~AC noise x 2~~ Vac Σ	357		366		374		365	365		317	317	
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.980		.980		.980		.980	.980		.980	.980	
(M) ρ dc/ρac=ExL/K	.99372		1.015		1.007		1018	1021		1030	1026	
(N) PFE=(M-1)(10^2)	0		1.5		0.7		1.8	2.1		3.0	2.6	
(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												
(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												

A L Cotton Boring

→ All of Sec 5 T 21 S R 10 E / Duarte road
SE 1/4 Sec 32 T 21 S "

Sec 5 - Lots 1 & 2 3 4 N 1/2 of N 1/2
surface to State
minerals to U.S.

Balance of Section
surface & minerals Fed.

K - P

Sec 4
E 1/2 of the NE 1/4
NE of the SE is State Land and

applied Sec 9 W 1/2 and S 1/2 of SE 1/4

Sec 36 - 20 S R - 9 E

B Cantan & Cole Mr. Schiedel

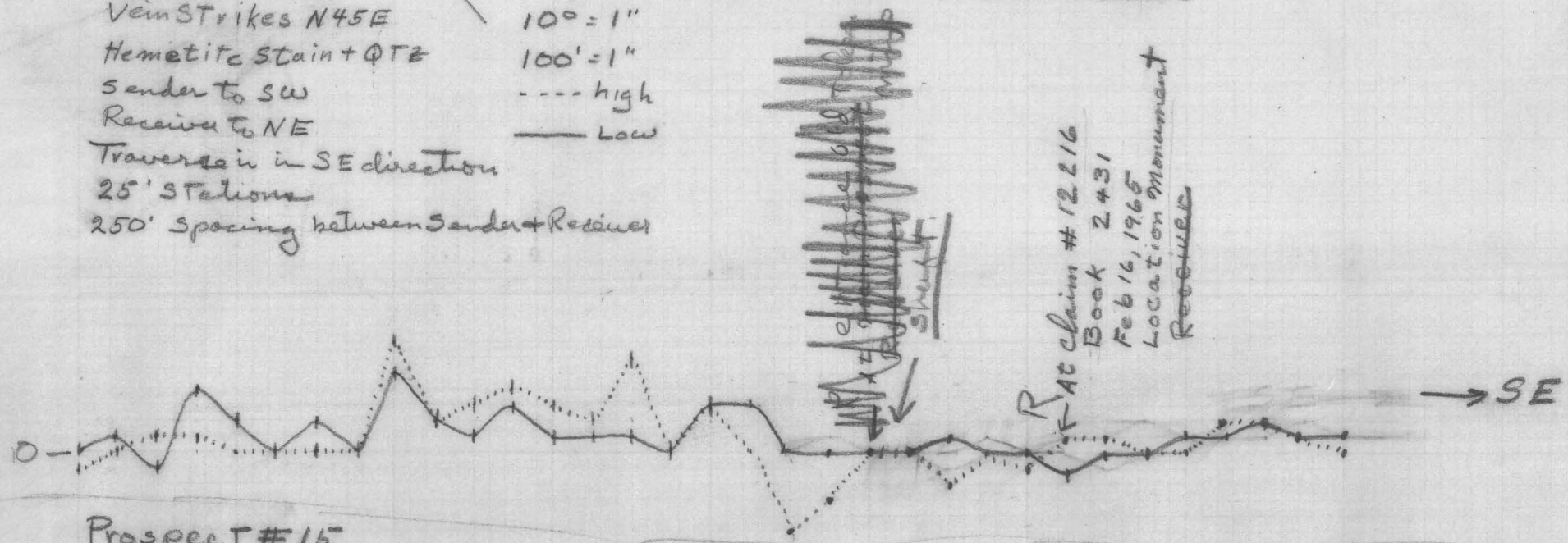
Prospect in the Las Guijas Mountains

A preliminary geologic & electromagnetic reconnaissance in and about section 5, T 21 S, R 10 E, Pima County indicates near surface economically potential mineralization is associated with parallel quartz veins striking roughly N50-90E.

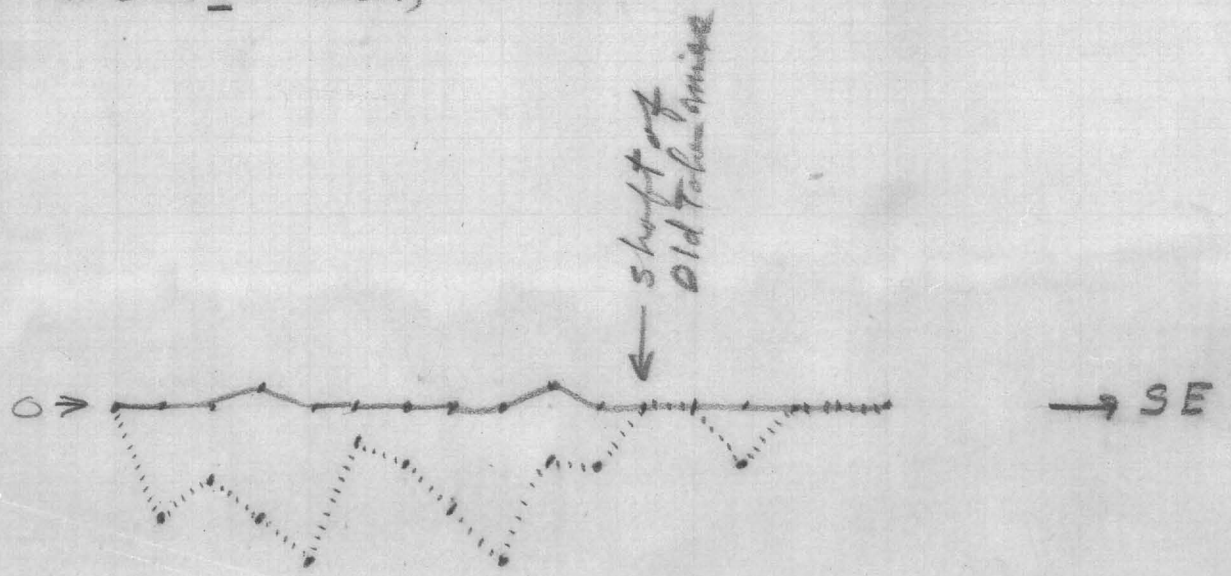
Prospect #14

Vein Strikes N45E
Hemetite Stain + QTZ
Sender to SW
Receiver to NE
Traverse in in SE direction
25' Stations
250' Spacing between Sender + Receiver

Topo - Sender 40' lower than Receiver
10° = 1"
100' = 1"
---- high
—— Low



Prospect #15
Shaft of old Token Mine (approx 125' due S of hut.)
Traverse to SE
Rec to SW
Sender to NE



Prospect #16A

hemetite stain + Some QTz 2'-2½' (Shaft with two Small drifts)

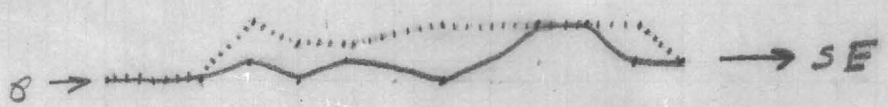
S 78° E (Strike)

Sender to SE
Receiver to NW
300' spacing
25' Stations
Traverse to NE

Prospect #16B

Traverse to SE
Receiver on SW
Sender to NE
Steep Topo - Sender 60' above Receiver
25' or 50' Stations
200' spacing between S & R
Traverse S of 16A

This line was an attempt to Look at Projected intersection of vein at Prospect 16A & with vein at prospect 15



MoMag.

Anomalies of interest were noted on three of the twelve momag. traverses run in the Las Guijas area. The anomaly noted on record #2 is located about 1500' NE of the Sopori KX Ranch entrance on the Arivaca road, Section 21, T 20S, R 11E. The anomaly does not look volcanic in character and probably results from a feature of less than 500' in depth.

On Record #8 near the main road junction ~~along the line~~ in Section 14, T 20S, R 9E, an anomaly of approximately 400γ appears in the Cretaceous section. Its maximum depth is probably less than 300'.

On Record #10, an anomaly of near 700γ coincides with the ~~[illegible]~~ granite-cretaceous contact, Sec 32, T 20S, R 10E, indicating possible intrusive activity. This anomaly, however, is discounted by I.P. Line #1 which crossed this same contact without indicating sulfides.

~~Each of the above anomalies should be evaluated with the aid of~~ Additional ground magnetics and geology are being initiated to aid in evaluating these anomalies.

~~Special~~

Standard cable from generator to Sender.
fuses. Small femail.

102 4656 / 404
Sold Cobb Water
Hartsville, Georgia

D. Anderson

Hawley & Hawley

3 March 1966 622+836

Assey List. (Tumacacori mountains Prospect #1)

1. Breccia 6-800 feet N 37° W of main pit
Special on Au-Ag-Cu

2. Hemitite from Vein near wind mill
Special for Au-Ag-Cu

3.) Breccia 200' N 37 W° of main pit.
Special Au-Ag-Cu

4.) Br

4.) Breccia from midway up hill original Sample
#6A
Special Au-Ag-Cu

5.) Sample of Vein near Quarter corner 6 & 7
Special Au-Ag Pb-Tot Cu & on MoS_2

6.) Altered material between Windmill & ¼ 6 & 7
Special for Trace Au Ag Tot Cu

Kaiser 15 March 66

Bay Quigley Mt. Project.

Prospect #14

Vein - Hematite Stain (main prospect noted on map)

Miner Quartz

STRIKES Roughly N 45°E

Roughly // diabase? dike

but about 75' S 45°E of dike

Sender to SW

R to NE

Traverse in SE direction

25' Stations

250 Spacing between S & Receiver.

Topography Sender 40' lower than Receiver

STA #	Low	High	Comment
0SE	0	-1	
25'SE	+1	0	
50SE	-1	+1	
75'	+4	+1	Fuzzy Low for 3°
100'	+2	0	
125'	0	0	
150'	+2	0	

J. L. DARLING CORP. TACOMA, WASH USA No. 314

Rite-in-the-Rain WATERPROOF

Prospect #14 Cont 15 March 66

Sta	Low	high	Comment
175	0	+2	
200	+5	+7	
225	+2	+2	
250	+1	+3	
275	+3	+4	
300	+1	+3	
325	+1	+2	Shift Traverse 50' to E
350	+1	+6	
375	+0	+0	
400	+3	+3	
425	+3	0	
450	0	-5	NE — SW
475	0	-3	R S
500	0	0	at main Prospect

Repeat last 100' of Traverse
Lect 11 with vem

Sta	Low	high	
400 A	0	-5	NE — SW
425	0	0	R - Repeat - S
450	0	0	
475	0	-2	
500	+1	-1	Main prospect

Repeat

Prospect #14 cont.

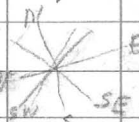
Sta	Low	high	comment
525	0	0	
550	+1	-2	
575	0	0	
600	0	-1	
625	-1	+1	Adj claim # 12216 Book 2431 Feb 16, 1965 Location monument
650	0	+1	
675	0	0	
700	+1	0	
725	+1	+2	
800	+2	+3	
825'	+1	+1	
850'	+1	0	

Area of Old Token Mine
Vein Strike at Shaft
N 52° E near Vertical Dip
2 Samples Taken
1 - high grade from 1"-2"
of this hematite stained rock
in which "high grade" QTZ
and sulfide occur.

Page 4
15 March 66

Traverse #15

Shaft of old Tohen mine Spacy 250'
approx 125' due south of hut
Receiver to SW
Sender to NE



QTz. hematite stain
Total QTz 3"-4" of 15" total across vein
30' max topo difference between
Sender & Receiver
Traverse to SE

Sta	Low	high	Comments
0 SE	0	-6	
25'SE	0	-8	Fuzzy high zone
50'SE	+1	-3	
75'.SE	0	-3	
100'SE	0	0	
125'SE	0	0	at Shaft
150'SE	0	-3	
175'SE	0	0	
200'SE	0	0	
225'SE	0	0	
0SE	0	-5	going NW
25NW	0	-3	
50NW	0	-2	

15 March 66

ST	Low	high	
75' NW	0	-8	pit
100' NW	+1	-6	
125' NW	0	-4	
150' NW	0	-6	fuzzy zone for 12°
175 NW	0	0	

Traverse # 16 A

Vein hematite + Quartz 2-2½'

S 78° E

"High grade" in sample # 3

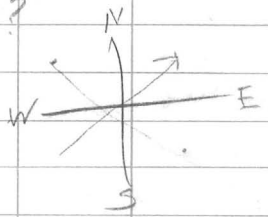
perhaps 3" to 12" ?

Sender to SE

Receiver to NW

300' Spacing

25' Stations



NW of pit with evidence of minor drifting

station	Low	high	comments
ONE	+2	+3	
25	+2	+4	
50	0	-4	
75	+1	-3	
100	-1	0	

J. L. DARLING CO. TACOMA, WASH. Rain or Shine, WATERPROOF

Traverse 16 cont

Page 6.
19th March 66

STa	Low ±	High ±	
125NE'	-2	-1	STA AT PROSPECT (Shaft)
150NE	-4	-3	
175NE	-3	-3	STA AT PROSPECT ON TOP OF RIDGE
200NE	+1	-2	
225NE	+1	-1	

TRAVERSE 16B TRAVERSE FROM NW TO SE. R on SW, S on NE TOPOGRAPHY STEEP, S under 60' ABOVE R.

STA	LOW	HIGH
ONE	0	0
25SE	0	0
50SE	0	0
75SE	+1	+3
100SE	0	+2
125SE	+1	+2
175SE	0	+3
225SE	+3	+3
250SE	+3	+3
275SE	+1	+3

	Low	High		15 March 66 Page 7	
309 SE	+1				

J. L. DARLING CORP. TACOMA, WASH USA No. 314

Rite-in-the-Rain WATERPROOF

Assay List,

10) Gold - Stop #7 called #5 by Client

6) ABCDE Samples from golden Star Claims
6E is Breccia (specularite) from around corder of 6

11) QTZ Breccia From prospect in Tumocucori Mountains

9) Sample from Station #9
about 60% granite
40% Ven.

Rec Tumac

1. Extra day + I.P. Line Placed
2.) Rec on Load to Tie-up

Rec

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

Registered Assayers

THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

IDENTIFICATION	Gold ozs.	Silver ozs.	Lead %	Copper %	Ox. Copper %	Zinc %	Mo. %	MoS_2 %
6 A	0.230	1.91		0.38				
6 B	1.26	10.82	0.15	1.01				
6 C	0.910	1.91	0.05	0.14		<.01		nil
6 D	0.130	0.23	0.05	0.23				
6 E	0.070	0.25	0.03	0.02				
9	0.010	0.07		0.01				
10	0.180	4.44						
11	0.020							

Kayser
Las Guijas Mtn
Prospect #2

MAR 1966
GEOEX

CC: Heinrichs Geoexploration Co.
ADD: 806 West Grant Road
CITY: Tucson, Arizona
ADD:
CITY:

REMARKS:

Analysis Cert. By Sherwood

Preparation $ 6.00
Analysis $ 80.00

ACC: HEINRICHS GEOEXPLORATION CO. | Date Spl. Received 3/1/66 | Date Comp. 3/10/66 | TUC329999 | $ 86.00

HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

1700 WEST GRANT ROAD - TELEPHONE 622-4836 - POST OFFICE BOX 5934

TUCSON, ARIZONA 85703

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THE SOUTHWEST'S LEADING ASSAYERS AND REPRESENTATIVES

Branch Representatives at Buyer's Plants:
Phelps Dodge Corp., Douglas, Arizona; ASARCO, El Paso, Amarillo, Texas and Hayden, Arizona

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6 D	0.130	0.23	0.05	0.23				
6 E	0.070	0.25	0.03	0.02				
9	0.010	0.07		0.01				
10	0.180	4.44						
11	0.020							

Kayser
Las Guijas Mtn.
Prospect #2

CC: Heinrichs Geoexploration Co.
ADD: 806 West Grant Road
CITY: Tucson, Arizona
ADD:
CITY:

REMARKS:

Analysis Cert. By Sliewes

Preparation $ 6.00
Analysis $ 80.00

ACC: HEINRICHS GEOEXPLORATION CO. | Date Spl. Received 3/1/66 | Date Compl. 3/10/66 | TUC329999 | $ 86.00

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6 D	0.130	0.23	0.05	0.23				
6 E	0.070	0.25	0.03	0.02				
9	0.010	0.07		0.01				
10	0.180	4.44						
11	0.020							

Kayser
Las Guijas Mtn.
Prospect #2

CC: Heinrichs Geoexploration Co.
ADD: 806 West Grant Road
CITY: Tucson, Arizona
ADD:
CITY:

REMARKS:

Analysis Cert. By Sleeu

Preparation $ 6.00
Analysis $ 80.00

ACC: HEINRICHS GEOEXPLORATION CO.

Date Spl. Received 3/1/66

Date Compl. 3/10/66

TUC329999

$ 86.00

24 Feb 66

General Page 7

Veins STrike N 50-60E and seem to be most active where they are intersected by volcanic dikes

Ore Shoots tend to Lie along zone of weakness out lined by prospects on map (Zone tends N-S - was noted yesterday

Sample of volcanics comes from above

STOP 6

Sample of Breccia comes from W end hole (6) where vein at 6 is intersected by adit.

La Fortuna 23 Feb 66

Page 1.

claim # 3

Stop # 1 - Marked #1 on Map

T 21 S

R 10 E

Sec 5 SE Corner approx

STOP #1

Observation -

A.) Zone of weakness Trends roughly N 15 W

a pegmatite

b Volcanic dike (Major Feature)

c. Fracture pattern

e (note) approx 100 tons of feldspar peg on surface

d.) Zone extends to N about 3000'?

B.) Zone #1 is intersected by

a.) Fracture pattern

b.) Some QTz stringers

c.) alteration zone trending N 55 E about 600'? roughly 75' wide

Lafortuna

23 Feb 66
Page # 2

3.) Country Rock

C) Granite → QTZ Mong
Some disseminated Py
in granite along NE → SW
Fractures where alteration
occurs.

D.) Main Mineral show is at
intersection of 1) # 2) trends
and at contact of Volcanic
dike with granite

E.) Sample Taken and Marked
1
contains
1. Volcanic dike Material
2. altered dike material
(containing approx 1% Cu ?)
according to client
3. Granite ?
4. Mineralization

LOOSE LEAF NO. 372
J. L. DARLING CORP.
WATERPROOF
Tear the line

LaforTuna 23 Feb 66

Page 3

6.) Some Cu in Granite but extends only a foot or 2 from contact.

Stop #2

A Below or to NE of Stop #1 about 25 yds

Some additional 30#'3" spacing of NSF ractures in addition to NE-SW Fractures.

Altered zone here 20' Thick Cu mineralization 1'? pyrite to 6-10' disseminated.

Prospect goes into hill 160' about 1, 1 foot wide Oxide Cu show seen by client.

Some Stained Volcanic dike in dump.

LOOSE LEAF NO. 372 J. L. DARLING CORP. WATERPROOF Write on the Line

La Fortuna 24 Feb 66

Page 4

Stop #3

1. QTz dike strikes approx EW

2.) Altered zone (Beg #3) (Beg 3b) in granite

3.) Zone trends NS averages 20 yds wide in road cut

4.) some clay 2" wide appears in pit next to road but no mineral is associated at this point.

Stop #4

1. Approx 200 yds from stop # to ENE possibly down strike from same feature

Old Pesquera Mine

Probable Silver - Vein -

E W Strike

Specularite Massive 10" wide → 4" wide as exposed

Some brecciation

Sample # 4

Granite well fractured 2" square

adjacent rock altered.

Total vein width.

2 - 3 feet.

Lafortuna 24 Feb 66

Page 5

Stop 5

on Strike with

old Pequeria Mine

apparently same vein

Location finely positive

approx SE Corner 32

SW " 33

T 20 S

R 10 E

small QTZ Veins in Granite

Specularite

Total width of Veins 7' inclusg

Stain

Veins Total 1' at most in

7' Stained Area -

LOOSE LEAF NO. 372 J. L. DARLING CORP. WATERPROOF

24 Feb 66

Stop #6 golden Star

Page 6

[#1 (old mine)] Al J. Kunkel

6A Second level
chip sample across
2' vein (vein looks high
grade in this area)

6B. 3" section of sulfide
in above 2' section.

6C - next to bottom level
Representative high
grade from 3rd level

Ranging from
0" → 12" to sporadic
sulfide 140' across
a 1' section at E end of tunnel

COPY LEAF NO. 372
J. L. DARLING CORP.
WATERPROOF

6D- Attempt at
Sampling accross
3' high grade section
near next to bottom
section

Vein strikes N65°E
Near Vertical

24 Feb 66

Stop #7 Page 4

QTZ Vein called #5
almost directly up strike
from vein (6) my notes
Strikes W E
averages about 4" thick

STop #8
QTZ Vein
Cu in halo in adjacent
granite for a few
inches
Strikes N 85° E
and is called #8
Ave width 6"

LOOSE LEAF NO. 372
J. L. DARLING CORP.
WATERPROOF
Tear the Page

24 Feb 66

Page 9

Stop #9

QTz vein Strikes

S 70° E approx

LOOSE LEAF NO. 372
J. L. DARLING CORP.
WATERPROOF
Tear the Page

To: HAWLEY & HAWLEY
Tucson, Arizona

05513

From Geoey

Ident: 6 D / Kayser

Date 28 Feb 66 Sampler Langer

CLASS OF ANALYSIS

Special ☐ Standard ☒ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2	Recon Spec	
✓	✓	✓	✓				✓	

To: HAWLEY & HAWLEY
Tucson, Arizona

05513

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05519

From Geary

Ident: GE / Ruger

Date 28 Feb 66 Sampler Langs

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
x	x	x	x					

To: HAWLEY & HAWLEY
Tucson, Arizona

05519

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From ----------

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05518

From Geoex

Ident: 1C / Kayser

Date 28 Feb 66 Sampler Langs

CLASS OF ANALYSIS

Special ☐ Standard ☒ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
X								

To: HAWLEY & HAWLEY
Tucson, Arizona

05518

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05517

From Geocy

Ident: 10 / Trayee

Date 28 Feb 66 Sampler Liangs

CLASS OF ANALYSIS

Special ☐ Standard ☒ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓							

To: HAWLEY & HAWLEY
Tucson, Arizona

05517

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From ----------

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05512

From

Ident: 9 / Kayser

Date Sampler

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05512

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05514

From Geox

Ident: 6C / Kayser

Date 28/2/66 Sampler Langs

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

To: HAWLEY & HAWLEY
Tucson, Arizona

05514

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05516

From Geoff

Ident: 6B / Kamper

Date 2/28/66 Sampler Lathrop

CLASS OF ANALYSIS

Special ☐ Standard ☒ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓	?	✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05516

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From ----------

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05515

From Geoex

Ident: 6A / Kruger

Date 28/2/66 Sampler Langer

CLASS OF ANALYSIS

Special ☐ Standard ☒ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05515

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05525

From Bewey

Ident: 6 / Kayser

Date 3 March Sampler Hanger

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05525

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05524

From Geoex

Ident: 5 / Kayser

Date 3 March Sampler Lenys

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓	✓	✓		✓	✓		

To: HAWLEY & HAWLEY
Tucson, Arizona

05524

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05523

From Geoey

Ident: 4 / Kayser

Date 3 March Sampler LANGE

CLASS OF ANALYSIS

Special ☒ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05523

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05522

From Geoex

Ident: 3 / Kayser

Date 3 March Sampler Lango

CLASS OF ANALYSIS

Special ☒ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05522

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05520

From Geocy

Ident: 1 /

Date 3 March Sampler Langt

CLASS OF ANALYSIS

Special ☒ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05520

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

To: HAWLEY & HAWLEY
Tucson, Arizona

05521

From Geoey

Ident: 2 / Kayser

Date 3 march Sampler Langs

CLASS OF ANALYSIS

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		
✓	✓		✓					

To: HAWLEY & HAWLEY
Tucson, Arizona

05521

From

Ident: /

Date Sampler

CLASS OF ANALYSIS (See price list)

Special ☐ Standard ☐ Control ☐ Umpire ☐

Au	Ag	Pb	Tot Cu	Ox Cu	Zn	MoS2		

From .....

.....

.....

To HAWLEY & HAWLEY

BOX 5934

TUCSON, ARIZ. 85705

A. L. "Cotton" Boring

WELL DRILLING CONTRACTOR

PUMP SALES AND SERVICE

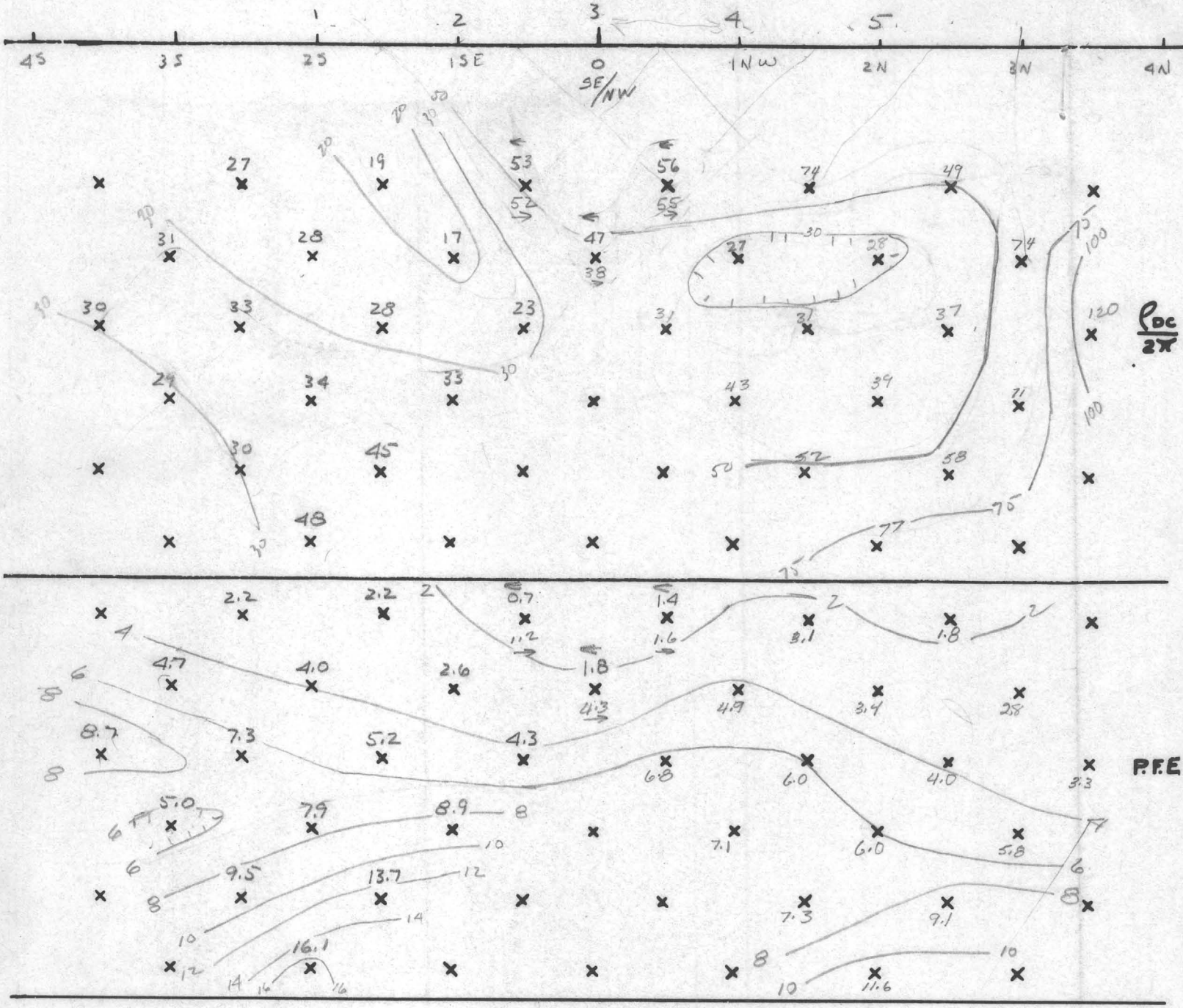
1915 S. WILSON - TUCSON, ARIZONA

MAIN 3-8989

MAIN 4-1897

When the one great Scorer comes,
To write against your name
He writes not whether you won or lost,
But how you played the game.

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SW



AREA Mowry LINE 1 Sp' a = 1000' SCALE: 1" = 1000' DATE: 6-22-66

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 1

Project Kayser-Mowry Line 1 NW 1/3 Field date 6-22-66 Data page 1 Comp. date 6-22-66. Comp by DBC

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→	40-50	→
(C) n separation	1	1	2	1	2	3	1	2	3	4	2	3
(D) I	3	3	3	4	3	3	6	4	3	3	6	4
(E) Vdc (avg)	100.9	115.93	19.87	77.4	14.35	6.56	203.0	19.4	6.43	4.48	77.6	10.45
(F) DCcal	0.477											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60	12	30
(H) ρ dc=ExFxGx10^3/D	52	55	38	74	27	31	49	28	31	43	74	37
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	100.4	114.1	19.1	75.2	13.7	6.15	200	18.8	6.08	4.19	75.6	10.08
(L) AC-DC cal.	1.002											
(M) ρ dc/ρac=ExL/K	1.012	1.016	1.043	1.031	1.049	1.068	1.018	1.034	1.060	1.071	1.028	1.040
(N) PFE=(M-1)(10^2)	1.2	1.6	4.3	3.1	4.9	6.8	1.8	3.4	6.0	7.1	2.8	4.0
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	2-3	1-2	4-5	3-4	2-3	1-2		Cal				
(B) Receive	→	→	50-60	→	→	→						
(C) n separation	4	5	3	4	5	6						
(D) I	3	3	6	4	3	3		2				
(E) Vdc (avg)	4.115	3.17	80.3	8.02	3.44	2.87		419.0				
(F) DCcal												
(G) Kn x 10^{-3}	60	105	30	60	105	168						
(H) ρ dc=ExFxGx10^3/D	39	52	120	71	57.5	77						
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	3.89	2.96	48.8	7.595	3.16	2.58		420				
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.060	1.073	1.033	1.058	1.091	1.116						
(N) PFE=(M-1)(10^2)	6.0	7.3	3.3	5.8	9.1	11.6						
(O) MCF=(M-1)(10^5)/H												

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 1

Project Kayer-Mowry Line 1 Sp 1-5E½ Field date 6-22-66 Data page 1 Comp. date 6-22-66. Comp by R.A

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	6	4	6	3	4	6	3	3	4	6		
(E) Vdc (avg)	235	134.8	40.91	39.4	11.76	9.65	57.0	14.6	7.83	7.86		
(F) DCcal	477											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	56	53	47	19	17	23	27	28	28	33		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	232	133.2	40.0	38.4	11.40	9.20	55.6	14.0	7.42	7.22		
(L) AC-DC cal.	.996											
(M) ρ dc/ρac=ExL/K	1.014	1.007	1.018	1.022	1.026	1.043	1.022	1.040	1.052	1.089		
(N) PFE=(M-1)(10^2)	1.4	0.7	1.8	2.2	2.6	4.3	2.2	4.0	5.2	8.9		
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal.		
(B) Receive	40-50	→	→	→	50-60	→	→	→		3-4		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	3	3	4	6	3	3	4	6		2		
(E) Vdc (avg)	16.4	6.88	4.72	5.44	6.21	3.01	2.44	3.21		420		
(F) DCcal												
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	31	33	34	45	30	29	30	48				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	15.6	6.38	4.36	4.76	5.72	2.86	2.22	2.76		418		
(L) AC-DC cal.	1.047	1.073	1.079	1.137	1.082	1.050	1.095	1.161				
(M) ρdc/ρac =ExL/K	4.7	7.3	7.9	13.7	8.2	5.0	9.5	16.1				
(N) PFE=(M-1)(10^2)												
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION - RECEIVER NOTES Spread 1 PAGE _____

Project: Kayser Mowry Line: Line 1 NW ½ Int.Cal _____ Date: 6-22-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	4-5	3-4
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→	40-50	→
~~Time~~ R	100	100	30	100	30	10	300	30	10	3	100	10
DC-1	50.1 50.0 50.6 50.0	56.2 59.7	10.2 9.6	39.0 38.2	6.9 7.4	3.4 3.43 3.1 3.1	100 100 103 103	10.0 10.0 9.4 9.4	3.06 3.06 3.38 3.38	2.18 2.40 2.26 2.05	37.7 37.6 39.9 40.5	5.20 5.23
DC-2	50.6 50.0	59.7 56.2	9.6 10.2	38.2 39.3	7.4 7.0	3.1 3.1 3.5 3.55	100 103 103 100	9.9 9.4 9.5 9.9	3.04 3.38 3.41 3.04	2.30 2.20	39.9 40.5 37.3	5.23 5.22
Σ	100.7 101 100.6	115.9 115.5	19.8 19.8	77.2 77.5	14.3 14.4	6.56 6.53 6.65 6.66	203 203	19.8 19.3	6.44 4.44 4.45 6.42 4.56 4.50	77.6 78.1 77.2	10.43 10.45	
DC-3	50.0 51.0	56.2 59.8	10.2 9.7	39.3 38.2	7.0 7.4	3.5 3.55 3.1 3.1	100 103	9.9 9.5	3.0 3.04 3.41	2.275 2.20	37.3 40.1	5.22 5.20
Dc-4	51.0 50.0				7.4 6.9	3.1 3.1 3.43 3.5			3.41 3.0	2.30 2.15	40.1 37.6	5.20 5.30
Σ	101 101	116.0	19.9	77.5	14.4 14.3	6.6 6.65 6.53 6.60	203	19.4	6.45 4.47 4.50 6.41 4.49 4.45	77.4 77.7	10.42 10.5	
DC-AV	100.9	115.43	19.87	77.4	14.35	6.56	203	19.4	6.43	4.48	77.6	10.45
AC-1	50.2	57.1	9.6	37.5	6.8	3.06	100	9.4	3.05	2.1	37.8	5.03
AC-2	50.2	57.0	9.5	37.7	6.9	3.07	100	9.4	3.03	2.09	37.8	5.05
Σ	100.4	114.1	19.1	75.2	13.7	6.15	200	18.8	6.08	4.19	75.6	10.08
S. P.	+44	-11		+10			+12				+11	
AC-N	.16	.11		.9			0.1			0.1	.09	
Pot. Res				32							70	

Between 20-30 NW well Grounded fence

Parallel to line 50± west

Lime stone Igneous (granite?) about 3500 NW

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kayser Mowry Line: 1 NW ½ spread 1? Int.Cal _____ Date: _____

Send	2-3	1-2	4-5	3-4	2-3	1-2		Cal				
Rec.	→	→	50-60	→	→	→		3-4				
Time R	3	3	100	10	3	3		300				
DC-1	2.05 2.17 2.00 1.93	1.66 1.69 1.52 1.48	26.5 23.9	4.0 4.05 3.99 3.98	1.88 1.80 1.58 1.65	1.35 1.36 1.45 1.40		209.5 209.5				
DC-2	2.00 1.93 2.15 2.17	1.52 1.49 1.68 1.69	23.9 26.3	3.99 3.40 4.05 4.0	1.58 1.65 1.84 1.80	1.45 1.44 1.37 1.35		209.5 209.5				
Σ	4.05 4.10 4.15 4.10	3.18 3.15 3.20 3.17	50.4 50.2	7.99 8.05 8.04 7.99								
DC-3	2.18 2.17 1.97 1.95	1.68 1.50	26.3 23.9	4.05 3.94	1.84 1.80 1.60 1.64	1.37 1.35 1.45						
Dc-4	1.97 1.95 2.17 2.17	1.50 1.67		3.99 4.05	1.60 1.80	1.45 1.36						
Σ	4.14 4.12 4.14 4.12	3.19 3.17	50.2	8.04 8.04	3.44							
DC-AV	4.115	3.17	50.3	8.02	3.44	2.87		419				
AC-1	1.95	1.48	24.5	3.80	1.58	1.29		210				
AC-2	1.94	1.48	24.3	3.795	1.58	1.29		210				
Σ	3.89	2.96	48.8	7.595	3.16	2.58		420				
S. P.			#2									
AC-N			0.1									
Pot. Res			4									

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kayer-Mowry Line: 1 Sp 1 SE 1/2 Int.Cal _____ Date: 6-22-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-10	10-20	→	20-30	→		30-40	→				
Time	300	100	30	30	10	10	100	30	10	10		
DC-1	117.5 117.5	68.0 66.6	21.25 19.7	20.4 19.0	6.82 5.04	3.66 6.34	29.0 28.0	6.4 8.1	4.16 3.64	4.86 2.96		
DC-2	117.5 117.5	68.2 66.2	21.1 19.9	20.5 18.8	6.66 5.30	3.34 6.00	29.0 28.0	6.3 8.5	4.45 3.55	4.90 2.88		
Σ									4.45 3.05	5.16 2.72		
DC-3	117.5 117.5	68.2 66.6	21.1 19.6	20.7 18.7	6.64 4.42	3.50 6.36	29.0 28.0	6.3 8.4	4.70 3.15	5.00 2.70		
Dc-4		68.2 66.6	21.3 19.7	20.8 18.6	7.62 4.16	3.30 6.40	29.0 28.0	6.2 8.4	4.64 3.04	5.70 2.60		
Σ												
DC-AV	235.0	134.8	40.91	39.4	11.76	9.65	57.0	14.6	7.83	7.86		
AC-1	116	66.6	19.95	19.2	5.70	4.60	27.8	7.0	3.70	3.60		
AC-2	116	66.6	20.05	19.2	5.70	4.60	27.8	7.0	3.72	3.62		
Σ	232	133.2	40.00	38.4	11.40	9.20	55.6	14.0	7.42	7.22		
S. P.	+10.4	+4.3		+1.5			+10.0					
AC-N	.09	.13		.07			.10					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kayser Mowry Line: 1 Spl SE½ Int.Cal _____ Date: _____

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	45		Cal		
Rec.	40-50	→	→	→	50-60	→	→	→		3-4		
Time	30	10	10	10	10	3	3			300		
DC-1	8.5 8.2	2.44 4.36	2.32 2.60	2.76 2.68	3.64 2.58	1.92 1.22	1.08 1.26	1.42 1.95		210 210		
DC-2	8.2 8.4	2.80 4.18	1.40 2.84	2.68 3.20	3.80 2.60	1.48 1.08	1.10 1.38	1.14 1.92		210 210		
Σ			1.44 3.46	2.24 2.80	3.40 2.68	1.90 1.89	1.02 1.50	1.42 1.72				
DC-3	8.0 8.3	3.18 3.86	1.72 2.30	2.80 3.18	3.48 2.78	1.06 2.08	1.07 1.40	1.34 1.87				
Dc-4	7.8 8.5	3.04 3.64	2.48 2.40	2.38 2.64	3.38 2.88	0.90 1.93	0.98 1.47	1.34 1.91				
Σ		2.48 4.42	2.46 2.44	2.84 2.22								
DC-AV	16.4	6.88	4.72	5.44	6.21	3.01	2.44	3.21		420		
AC-1	7.8	3.19	2.18	2.38	2.86	1.43	1.11	1.38		209		
AC-2	7.8	3.19	2.18	2.38	2.86	1.43	1.11	1.38		209		
Σ	15.6	6.38	4.36	4.76	5.72	2.86	2.22	2.76		418		
S. P.	-37.5				+11.2							
AC-N	.07				.07							
Pot. Res												

INDUCED POLARIZATION SENDER NOTES

Project: Kayser Mow Line: 1 - SP-1 N 1/2 Date: 6-21-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-1000	1000 —	2000	2000	—	3000	3000 —	—	—	4000		
Time	480V	480V	✓	400V	✓	✓	200V	✓	✓	✓		
Range												
Current	3A	3A	✓	4A	✓	✓	6A	✓	✓	✓	CAL.	
Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2				
Receive	4000 —	—	—	5000	5000 —	—	—	6000				
Time	✓	✓	✓	✓								
Range												
Current	✓	✓	✓	✓								

INDUCED POLARIZATION SENDER NOTES

Project: KAY-MOW Line: 1-SP-1 S 1/2 Date: 6-21-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-1000	1000-2000		2000	3000		3000		4000			
Time												
Range	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Current	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CAL	
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5		3-4	
Receive	4000		5000			5000			6000			
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓		320v	
Current	✓	✓	✓	✓		✓	✓	✓	✓		2A	

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING SW

1 2 3 4 5

4000SE 3000SE 2000SE 1000SE SE/NW 1000NW 2000NW 3000NW 4000

×	×25	×58	×183→ 184←	×181→ 178←	×75	×46	×	
×32	×31	×44	×45→ 46←	×36	×28	×12		
×35	×28	×26	×28	×30	×19	×17	×	$\rho_{DC}/2\pi$
×36	×22	×21	×	×22	×	×		
×	×34	×24	×	×	×	×	×	
×	×34	×	×	×	×	×		

×	×0.4	×0.7	×0.6← —→	×1.1← —→	×1.1	×0.3	×	
×4.0	×2.3	×1.9	×2.0← 0.7→	×0.2	×2.2	× —		
×2.6	×5.7	×5.0	×6.0	×9.7	×4.0	×6.5	×	P.F.E.
×9.3	×13.6	×13.2	×	×11.3	×	×		
×	×17.4	×16.3	×	×	×	×	×	
×	×24.7	×	×	×	×	×		

×	×	×	×	×	×	×	×	
×	×	×	×	×	×	×		
×	×	×	×	×	×	×	×	M.C.F.
×	×	×	×	×	×	×		
×	×	×	×	×	×	×	×	
×	×	×	×	×	×	×		

AREA Mowry LINE 1 SP.2 a = 1000' SCALE: 1" = 1,000' DATE: 6-22-66

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mowry Kayser Line 1sp2 N ½ Field date 6·23·66 Data page_____ Comp. date 6·28·66 . Comp by J.W.L

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-10N	10-20N →		20-30N →			30-40N →					
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2A	2A	2A	3A	2A	2A	4A	3A	2A	2A		
(E) Vdc (avg)	119.2	116.05	15.94	162	12.93	4.33	130.9	15.125	2.65	1.532		
(F) DCcal	.465											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	83	81	44.5	75	36	30	45.5	28	18.5	21.5		
(I) Vac Σ	117	114	15.4	156	12.55	3.84	127	14.4	2.48	1.34		
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.973											
(M) ρ dc/ρac=ExL/K	.991	.990	1.007	1.011	1.002	1.097	1.003	1.022	1.040	1.113		
(N) PFE=(M-1)(10^2)	—	—	0.7	1.1	0.2	9.7	0.3	2.2	4.0	11.3		
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal		
(B) Receive	40-50N →				50-60N →							
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	4A	3A	2A	2A	4A	3A	2A	2A		2A		
(E) Vdc (avg)	8.75	3.7								430		
(F) DCcal									→			
(G) Kn x 10^{-3}	12	30										
(H) ρ dc=ExFxGx10^3/D	12	17										
(I) Vac Σ	8.65	3.38										
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	→	→								418.5		
(M) ρdc/ρac =ExL/K	.9184	1.065										
(N) PFE=(M-1)(10^2)		6.5										
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: _____ Line: 1 sp 2 N ½ Int.Cal _____ Date: _____

Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal 3-4		
Rec.	40-50	→			50-60	→		→				
Time	10											
DC-1	5.3 5.45 3.3 3.4	2.28 2.15 1.41 1.56								215 215		
DC-2	5.38 5.35 3.35 3.4	2.34 2.16 1.40 1.60								215 215		
Σ	8.73 8.85 8.75	3.69 3.71 3.74 3.76								430		
DC-3	5.4 5.45 3.2 3.35	2.23 1.96 1.46 1.63										
Dc-4	5.5 5.5 3.1 3.4	2.55 2.08 1.24 1.70										
Σ	8.6 8.8 8.6 8.9	3.69 3.59 3.64 3.78										
DC-AV	8.75	3.7										
AC-1	4.3	1.70								209		
AC-2	4.35	1.68								209.5		
Σ	8.65	3.38										
S. P.	+14.3											
AC-N	0.2											
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kayser - Mowry Line: 1 spread 2 (N 2) Int.Cal _____ Date: 6-23-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-10	10-20	→	20-30		→	30-40			→		
Time	100	100	30	300	30	3	100	30	3	1		
DC-1	60.0 59.2	58.5 57.5	9.2 6.8	81.0 81.0	7.1 7.1 6.2 5.8	2.54 1.96	66.5 64.5	8.1 6.7	1.09 1.44 1.52 1.04	.84 .43 .60 1.08		
DC-2	60.1 59.2	58.7 57.5	9.2 6.75	81.0 81.0	7.0 7.2 5.9 5.8	2.44 1.84	66.5 64.3	8.4 6.8	1.08 1.55	.85 .83		
Σ	119.2 119.3	116.0 116.2			13.3 12.9 12.9 13.0	4.50 4.28	131.0 130.8	15.1 15.2	2.61 2.63	1.44 1.51 1.68		
DC-3	60.1 59.0	58.7 57.5	9.1 6.8		6.9 5.8	2.43 1.78	66.7 64.4	8.3 6.8	1.27 1.46	.57 .86		
Dc-4	60.2 59.0	58.5 57.3			7.0 5.8	2.46 1.85	66.5 64.3	8.3 6.8	1.38 1.26	.63 .97		
Σ	119.1 119.2	116.2 115.8			12.7 12.8	4.23 4.31	131.1 130.8	15.1 15.1	2.73 2.64	1.43 1.60		
DC-AV	119.2	116.05	15.94	162	12.93	4.33	130.9	15.125	2.65	1.532		
AC-1	58.5	57.0	7.7	78.0	6.25	1.92	63.5	7.2	1.24	0.67		
AC-2	58.5	57.0	7.7	78.0	6.3	1.92	63.5	7.2	1.24	0.67		
Σ	117.0	114	15.4	156.0	12.55	3.84	127.0	14.4	2.48	1.34		
S. P.	+27.1	-11.5		+11.5			-15.2					
AC-N	0.06	0.05		0.06			0.06					
Pot. Res												

INDUCED POLARIZATION SENDER NOTES

Project: Kay-Mow. Line: L-5A-2 N 1/2 Date: 6-23-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-1	1 —	2000	2 —	—	3000	3 —	—	—	4000		
Time												
Range	360V	340V	✓	400V	✓	✓	380V	✓	✓	✓		
Current	2A	2A	✓	3A	✓	✓	4A	✓	✓	✓	CAC	3-4
Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2				
Receive	4 —	—	5000		5 —	—	6000					
Time												380V
Range												
Current												2A

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Mowry Kuyper Line 1,2,3,5 ½ Field date 6-23-66 Data page_____ Comp. date 6-28-66 Comp by J.W.L

(A) Send	4-3	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-10S	10-20S	→	20-30S	→	→	30-40S	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	4A	3A	4A	2A	3A	4A	2A	2A	3A	4A		
(E) Vdc (avg)	218	175	32	80.675	23.21	7.91	53.	10.78	5.34	2.96		
(F) DCcal	.476											
(G) Kn x 10^{-3}	3	3	12	3	12	30	3	12	30	60		
(H) ρ dc=ExFxGx10^3/D	78	83.5	45.5	57.5	44	28	25	31	25.5	21		
(I) Vac Σ	212	171	30.85	78.8	22.4	7.34	51.9	10.36	5	2.57		
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	.983									→		
(M) ρ dc/ρac=ExL/K	1.011	1.006	1.020	1.007	1.019	1.060	1.004	1.023	1.050	1.132	* insufficient data	
(N) PFE=(M-1)(10^2)	1.1	0.6	2.0	0.7	1.9	6.0	0.4	2.3	5.0	13.2		
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal		
(B) Receive	40-50S	→	→	→	50-60S	→	→	→				
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2A	2A	3A	4A	2A	2A	3A	4A				
(E) Vdc (avg)	10.96	4	2.82	1.94	4.96	2.53	2.03	1.7		420		
(F) DCcal								→		.952		
(G) Kn x 10^{-3}	12	30	60	105	30	60	105	168				
(H) ρ dc=ExFxGx10^3/D	31.5	28.5	21.5	24	35	36	34	34				
(I) Vac Σ	10.36	3.72	2.44	1.64	4.75	2.275	1.7	1.34		413		
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$												
(L) AC-DC cal.								→		.983		
(M) ρdc/ρac =ExL/K	1.040	1.057	1.136	1.163	1.026	1.093	1.174	1.247				
(N) PFE=(M-1)(10^2)	4.0	5.7	13.6	16.3	2.6	9.3	17.4	24.7				
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION SENDER NOTES

Project: Kay - Mow Line: 1 - SP-2 5 1/2 Date: 6 - 23 - 66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-1	1 —	2000	2 —		3000	3 —			4000		
Time												
Range	360V	400V	✓	340V	✓	✓	340V	✓	✓	✓		
Current	4A	3A	✓	2A	✓	✓	2A	✓	✓	✓	3-4	CAC
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5			
Receive	4 —		5000			5 —			6000			
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓		360V	
Current	✓	✓	✓	✓		✓	✓	✓	✓		2A	

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: _____ Line: 1 Sp25E 1/2 Int.Cal _____ Date: _____

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal.		
Rec.	40-50	→		→	50-60	→		→		3-4		
Time	10	3	3	3	10	3	3	3		300		
DC-1	4.04 2.41 6.95 7.90	1.68 2.29	1.28 1.43	1.10 0.72	2.65 2.12 2.15 2.37	1.25 1.25 1.23 1.07	.86 .83 1.07 1.27	.65 .70 1.08 1.17		210 210		
DC-2	3.80 2.75 7.15 8.05	1.68 2.36	1.22 1.47	1.09 0.92	2.95 2.5 2.50 2.55	1.30 1.37 1.15 1.41	.77 .85 1.13 1.26	.57 .56 1.11 1.11		210 210		
Σ	10.99 10.87 19.95 10.80		1.31 1.64	0.48 0.98		2.48 2.32 2.45 2.78	1.93 2.10 1.90 2.11	1.73 1.87 1.68 1.67		420 420		
DC-3	3.40 7.55	1.64 2.4	1.20 1.48	1.08 0.97	1.85 3.5 2.30 2.6	1.27 1.31 1.37 1.10	.87 1.25	.63 1.15				
Dc-4	3.26 7.95	1.63 2.62	1.21 1.66	0.45 0.86	2.75 2.55 2.40 2.5	1.40 1.25	.65 1.05	.42 1.09				
Σ	10.95 11.21	1.42 2.52	1.14 1.89	0.91 1.06	2.05 2.55	2.64 2.41 2.65	2.12 1.70	1.76 1.51				
DC-AV	10.96	4.0	2.82	1.94	4.96	2.53	2.03	1.7				
AC-1	5.18	1.86	1.22	0.82	2.37	1.14	0.85	0.67		206.5		
AC-2	5.18	1.86	1.22	0.82	2.38	1.135	0.85	0.69		206.5		
Σ	10.36	3.72	2.44	1.64	4.75	2.275	1.70	1.34		413		
S. P.	+2.1				-2.2							
AC-N	.05				0.05							
Pot. Res												

D - Buck SP!

INDUCED POLARIZATION - RECEIVER NOTES

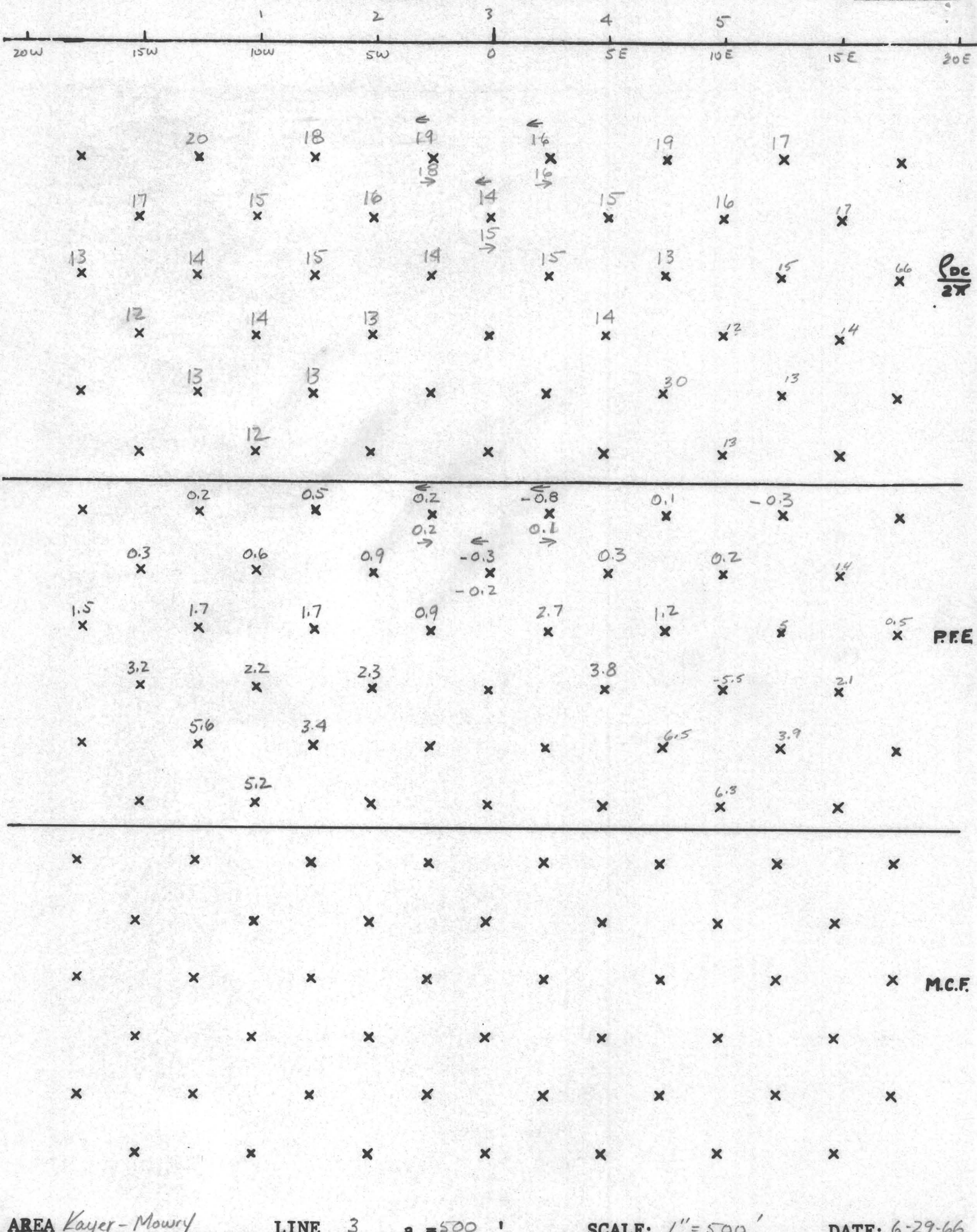
PAGE _____ not enough readings

Project: Kayser Mowry Line: 1 spread 2 SE 1/2 Int.Cal _____ Date: 6-22-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-10	10-20	→	20-30	→	→	30-40	→	→	→		
Time	300	300	30	100	30	10	100	10	10	3		
DC-1	108 110	89 86.0	14.2 17.8	41.0 39.5	13.3 10.0	4.3 3.95 3.7 3.93	25.8 27.2	6.0 5.6 4.6 5.18	2.90 3.3 2.45 2.25	1.87 .83		
DC-2	108 110	89 86	14.2 17.8	41.3 39.5	13.3 9.95	4.1 3.95 3.75 3.93	25.8 27.3	6.15 5.58 5.19 5.5	2.85 3.35 2.35 2.05	2.15 .86		
Σ	218 218	175 175	32.0 32.0	80.5 80.8	23.3 23.20	8.0 7.98 7.85 7.93	53.0 53.1	10.6 10.78 10.34 10.76	5.35 5.55 5.20 5.40	2.70 3.01		
DC-3	108 110	89 86	14.2 17.8	41.3 39.3	13.4 9.7	4.05 3.8	25.5 27.3	6.08 5.25 4.55 5.30	3.05 2.35	2.09 .70		
Dc-4	108 110	89 86		41.5 39.3	13.55 9.65	4.075 3.75	25.5 27.5	6.2 5.24 4.55 5.58	3.0 2.15	2.6 .76		
Σ	218 218	175 175	320	80.6 80.8	23.1 23.2	7.85 7.825	52.8 53.0	10.63 10.55 10.75 10.82	5.40 5.15	2.77 3.36		
DC-AV	218	175	32	80.675	23.21	7.91	52.975	10.78	5.34	2.96		
AC-1	106	85.5	15.45	39.5	11.25	3.67	25.95	5.18	2.50	1.28		
AC-2	106	85.5	15.4	39.3	11.2	3.67	25.95	5.18	2.50	1.285		
Σ	212	171.0	30.85	78.8	22.45	7.34	51.90	10.36	5	2.565		
S. P.	-25.8	-24.6	+19.3				-7.5					
AC-N	0.04	0.05		0.05			0.05			X		
Pot. Res												

Door date

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING N



AREA Kayer-Mowry LINE 3 a = 500 ' SCALE: 1" = 500' DATE: 6-29-66

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kayer-Mowry Line 3 w/2 Field date 6-29-66 Data page_____ Comp. date 6-29-66. Comp by R.P.

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	40.1	47.6	9.13	45.6	10.52	3.51	50.6	9.58	3.78	1.67		
(F) DCcal	.538											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	16	19	14	18	16	14	20	15	15	13		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	40.7	47.8	9.20	45.6	10.48	3.50	50.8	9.56	3.74	1.64		
(L) AC-DC cal.	1.005											
(M) ρ dc/ρac=ExL/K	.992	1.002	.997	1.005	1.009	1.009	1.002	1.006	1.017	1.023		
(N) PFE=(M-1)(10^2)	-0.8	0.2	-0.3	0.5	0.9	0.9	0.2	0.6	1.7	2.3		
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		cal		
(B) Receive	20-25	→	→	→	25-30	→	→	→		2-3		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	→	→	→	→	→	→	→		1		
(E) Vdc (avg)	10.92	3.56	1.82	.965	3.49	1.54	.969	.561		186.0		
(F) DCcal												
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84.0				
(H) ρ dc=ExFxGx10^3/D	12	14	14	13	13	12	13	12				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	10.94	3.52	1.78	.936	3.46	1.50	.920	.536		187.0		
(L) AC-DC cal.												
(M) ρdc/ρac =ExL/K	1.003	1.017	1.022	1.034	1.015	1.032	1.056	1.052				
(N) PFE=(M-1)(10^2)	0.3	1.7	2.2	3.4	1.5	3.2	5.6	5.2				
(O) MCF=(M-1)(10^5)/H												

HEINRICHS GEOEXPLORATION COMPANY

INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page_____

Project Kayer-Mowry Line 3 E½ Field date 6-29-66 Data page_____ Comp. date 6-29-66. Comp by R.P. DC.

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	→	→	→	→	→	→	→	→	→		
(E) Vdc (avg)	46.0	40.70	9.48	47.3	9.27	3.69	43.5	9.89	3.27	1.74		
(F) DCcal	.534											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	18	16	15	19	15	15	17	16	13	14		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) $=\sqrt{I^2 - J^2}$	46.0	40.7	9.50	47.2	9.24	3.60	43.7	9.85	3.335	1.68		
(L) AC-DC cal.	1.001											
(M) ρ dc/ρac=ExL/K	1.002	1.001	.998	1.001	1.003	1.027	.997	1.002	1.012	1.038		
(N) PFE=(M-1)(10^2)	0.2	0.1	-0.2	0.1	0.3	2.7	-0.3	0.2	1.2	3.8		
(O) MCF=(M-1)(10^5)/H												

Project_____ Line_____ Field date_____ Data page_____ Comp. date_____ Comp by_____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal.		
(B) Receive	20-25	→	→	→	25-30	→	→	→		2-3		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	→	→	→	→	→	→	→		1		
(E) Vdc (avg)	9.50	3.72	1.47	0.99	3.38	1.69	0.91	0.60		187.3		
(F) DCcal	.534											
(G) Kn x 10^{-3}	6	15	30	52.5	75	30	52.5	84.0				
(H) ρ dc=ExFxGx10^3/D	17	15	12	30	66	14	13	13				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) $=\sqrt{I^2 - J^2}$	9.10	3.55	1.56	0.930	3.32	1.66	0.875	0.565		187.5		
(L) AC-DC cal.	1.001											
(M) ρdc/ρac =ExL/K	1.045	1.05	.945	1.065	1.005	1.021	1.039	1.063				
(N) PFE=(M-1)(10^2)	14.5	5	-5.5	6.5	.5	2.1	3.9	6.3				
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Kayser-Mowry Line: 3 spread 1 E 1/2 Int.Cal _____ Date: 6-29-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-500	5-10	→	10-15	→	→	15-20	→	→	→		
Time	100	30	10	100	10	3	100	10	3	1		
DC-1	23.05 23.0	21.1 20.8 19.75 ~~4.8~~	4.3 4.15 ~~4.25~~ 5.3	23.0 22.5 24.5 24.5	4.8 4.95 4.5 4.4	2.14 1.97 1.56 1.62	22.0 21.5	4.82 4.85 5.05 5.08	1.61 1.65 1.78 1.72	.77 .74 .97 .98		
DC-2	23.0 23.0	21.0 ~~20.8~~ 19.8 19.9	4.25 ~~4.2~~ 5.3	24.0 22.5 24.5 24.5	4.8 4.95 4.5 ~~4.35~~	2.07 1.95 1.48 1.70	22.0 21.5	4.80 4.85 5.1 5.05	1.57 1.65 1.78 1.73	.76 .74 .98 .98		
Σ												
DC-3	23.0 23.0	21.0 19.75	4.2 5.30 5.3 4.15	21.8 24.5	4.9 4.4	1.99 1.90 1.55 1.86	22.0 21.5	4.80 4.9 5.1 5.0	1.61 1.63 1.65 1.72	.76 .99		
Dc-4	23.0 23.0	21.0 19.85	4.18 5.35 5.3 4.20	22.5 24.5	4.9 4.4	2.03 1.88 1.58 1.87	22.0 21.5	4.75 4.9 5.1 4.95	1.58 1.73 1.71 1.55	.76 1.0		
Σ	~~46.0~~	~~42.65~~	~~9.48~~	47.3	9.27	1.95 1.87 1.86 1.97	X					
DC-AV	46.0	40.70	9.48	47.3	9.27	3.69	43.5	9.89	3.37	1.74		
AC-1	23	20.4	4.75	23.5	4.62	1.80	21.8	4.92	1.665	0.84		
AC-2	23	20.3	4.75	23.7	4.62	1.80	21.9	4.93	1.670	0.84		
Σ	46.0	40.7	9.50	47.2	9.24	3.60	43.7	9.85	3.335	1.68		
S. P.	~~0~~ x 4.9	-2.7		+1.6			+3.0					
AC-N	0.04	0.03	~~0.0~~	0.04			0.03					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Kayser-Mowny Line: 3 spread 1 E½ Int.Cal _____ Date: 6-29-66

Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal 2-3		
Rec.	20-25	→	→	→	25-3000	→	→	→		2		
Time	10	3	3	1	3	3	1	1		300		
DC-1	4.55 4.1 1.65 5.2	1.96 1.57 1.72 2.15	.67 .87 .93 .36	.42 .42 .63	1.84 1.70 1.54 1.65	.76 .68 .95 1.03	.45 .46	2.9 4.1 2.9 .20		94.0 94.0		
DC-2	4.4 3.95 4.8 5.05	1.74 1.45 1.75 2.35	.50 1.17 1.22 .30	.25 .59 .78 .68	1.78 1.73 1.60 1.67	.77 .68 .96 1.06	.45 .46	3.3 .41 2.6 .19		93.0 94.0		
Σ												
DC-3	4.3 4.95	1.89 1.14 1.90 2.57	0.20 .93 .86 .60	.49 .27 .44 .78	1.73 1.67 1.62 1.72	.72 .63 1.0 1.06	.45 .46	3.5 2.4		93.5 93.5		
Dc-4	4.15 4.95	1.67 1.16 2.14 2.60	.67 .93 .63 .65	.48 .31 .50 .50	1.71 1.65 1.61 1.73	.68 .59 1.0 1.04	.445 .45	.36 .22				
Σ	~~10.35~~	~~3.72~~	.84 .85 .70 .85	2.7 ~~2.7~~ 2.5 2.9	k					187.3		
DC-AV	10.35	3.72	1.47	0.99	3.33	1.69	0.91	0.60		187.3		
AC-1	4.55	1.78	0.78	0.465	1.66	0.83	0.435	0.28		94.0		
AC-2	4.55	1.77	0.78	0.465	1.66	0.83	0.44	0.285		93.5		
Σ	9.10	3.55	1.56	0.930	3.32	1.66	0.875	0.565		187.5		
S. P.	-7.8				-5.9							
AC-N	0.04				0.3							
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 3

Project: Kayser-Mo Line: 3 spread 1 W/S Int.Cal _____ Date: 6-9-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-500	5-10	→	10-15	→	→	15-20	→	→	→		
Time	30	100	10	100	10	3	100	10	3	3		
DC-1	21.9 18.6	22.8 24.8	4.70 4.48	22.8 22.8	5.15 5.38	1.73 1.66 1.80 1.89	25.8 24.8	4.96 4.58	1.76 2.02	0.82 0.75		
DC-2	22.3 18.3	22.6 25.0	4.76 4.42	22.8 22.8	5.15 5.38	1.73 1.63 1.83 1.92	25.8 24.6	5.02 4.59	1.78 2.00	0.93 0.73		
Σ												
DC-3	20.5 18.1	22.4 25.4	4.80 4.38	22.8 22.8	5.12 5.40	1.69 1.84	26.0 24.6	5.04 4.48	1.78 2.00	0.93 0.73		
Dc-4	22.7 17.9	22.2 25.4	4.84 4.34		5.12 5.39	1.67 1.85	26.0 24.6	5.16 4.42	1.78 2.00	0.94 0.73		
Σ												
DC-AV	40.10	47.6	9.13	45.6	10.52	3.51	50.6	9.58	3.78	1.67		
AC-1	20.35	23.9	4.60	22.8	5.25	1.75	25.4	4.78	1.87	0.82		
AC-2	20.35	23.9	4.60	22.8	5.23	1.75	25.4	4.78	1.87	0.82		
Σ	40.70	47.8	9.20	45.6	10.48	3.50	50.8	9.56	3.74	1.64		
S. P.	-5.0	-4.8		-5.2			-4.2					
AC-N	.03	.03		.03			.03					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 4

Project: Kayser Mowry Line: 3 spread 3 w/2 Int.Cal _____ Date: 6-29-66

Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal		
Rec.	20-25	→	→	→	25-3000	→	→	→		2-3		
Time	10	3	3	1	3	3	1	1		300		
DC-1	5.62 5.28	1.92 2.01 1.66 1.54	1.0 1.05 .81 .75	.470 .436 .500 .520	1.76 1.77 1.74 1.72	.77 .72 .77 .82	.478 .330 .502 .630	336 230 236 330		93.0 93.0		
DC-2	5.64 5.26	1.96 2.02 1.59 2.50	1.02 1.06 .80 .75	.450 .438 .518 .530	1.76 1.75	.76 .72 .79 .83	.436 .510 .524 .460	320 218 266 342		93.0 93.0		
Σ								286 206 284 370				
DC-3	5.70 5.20	1.98 2.08 1.61 1.48	1.02 1.06 .79 .74	.444 .420 .516 .550	1.76 1.73	.74 .80	.438 .500 .568 .462	270 .170 306 .400				
Dc-4	5.76 5.16	2.00 2.06 1.56 1.47	1.05 1.07 .75 .72	.450 .415 .514 .546	1.75 1.73	.74 .81	.375 .475 .594 .475	248 .150 326 420				
Σ							.385 .480 .595 .475	250 305				
DC-AV	10.92	3.56	1.82	.965	3.49	1.54	.969	.561		186.0		
AC-1	5.46	1.76	0.89	.468	1.73	0.75	.462	.268		93.5		
AC-2	5.48	1.76	0.89	.468	1.73	0.75	.458	.268		93.5		
Σ	10.94	3.52	1.78	.936	3.46	1.50	.920	.536		187.0		
S. P.	-9.2				-6.0							
AC-N	.03				.02							
Pot. Res												

INDUCED POLARIZATION SENDER NOTES

Project: KAY MOW Line: 3-SP-1 W1/2 Date:

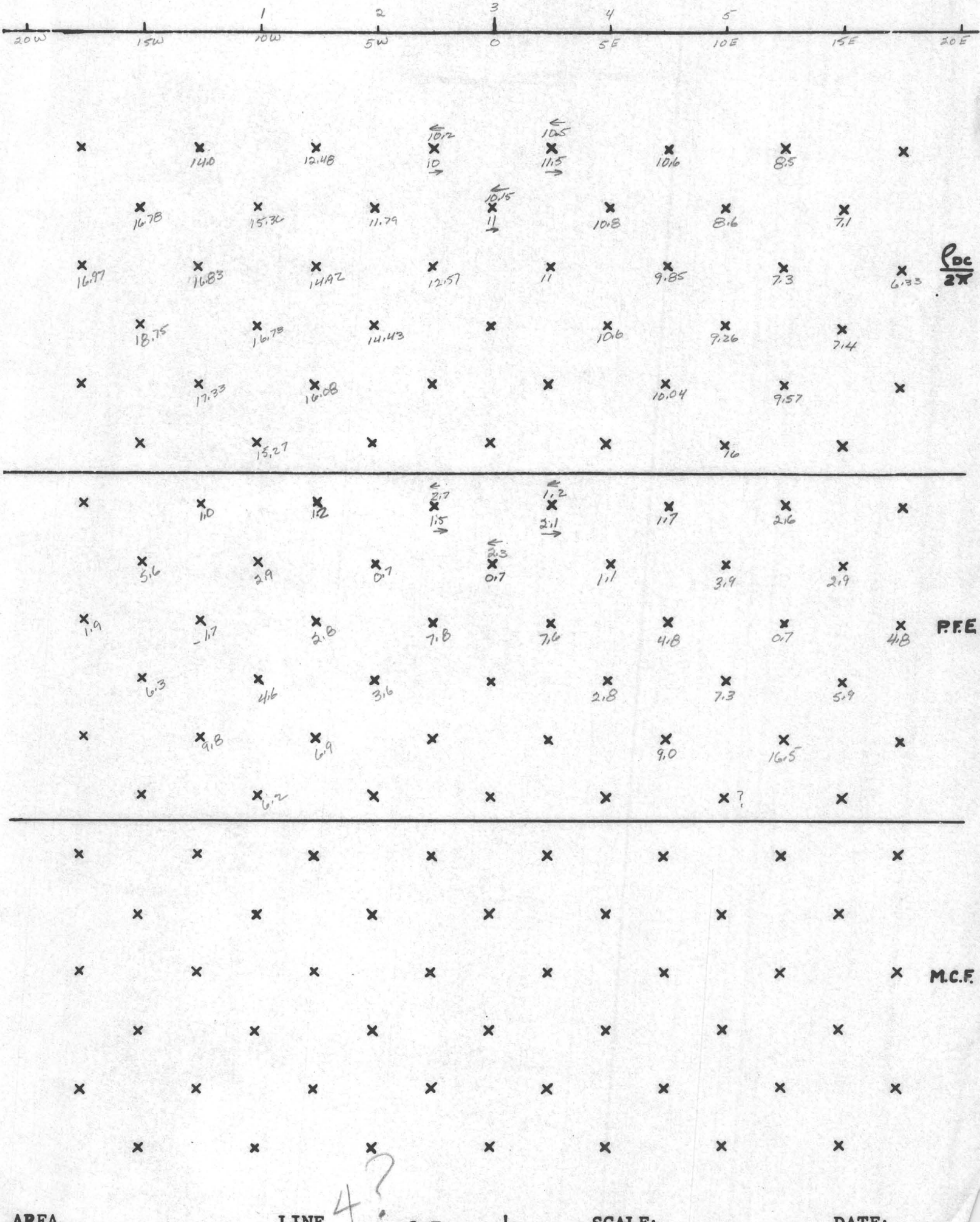
Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-500	500—1000		1000	——	1500	1500	——	——	2000		
Time												
Range	200V	200V	✓	✓	✓	✓	✓	✓	✓	✓		
Current	2A	2A	✓	✓	✓	✓	✓	✓	✓	✓		
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5		CAL	2-3
Receive	2000	——	——	2500		2500	——	——	3000			
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓			130V
Current	✓	✓	✓	✓		✓	✓	✓	✓			1A

INDUCED POLARIZATION SENDER NOTES

Project: KAY-MOW Line: 3-SP-1 E 1/2 Date: 6-29-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-500	500 —	1000	1000 —	—	1500	1500 —	—	—	2000		
Time												
Range	210V	190V	✓	200V	✓	✓	200V	✓	✓	✓		
Current	2A	2A	✓	✓	✓	✓	✓	✓	✓	✓	Cal	2-3
Send	4-5	3-4	2-3	1-2		4-5	3-4	2-3	1-2			
Receive	2000 —	—	2500			2500	—	—	3000			
Time												130V
Range	✓	✓	✓	✓		✓	✓	✓	✓			
Current	✓	✓	✓	✓		✓		✓	✓			1A

HEINRICHS GEOEX. INDUCED POLARIZATION SECTIONAL DATA PLOT, LOOKING NW



AREA _____ LINE 4? a = ' SCALE: _____ DATE: _____

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 1

Project Kayser Mowry Line 4 NW½ Field date 6-30-66 Data page 1 Comp. date 6-30-66. Comp by Cooley

(A) Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	2	1.8	2	2	2	2	2	2	2		
(E) Vdc (avg)	27.04	27.1	6.98	31.3	7.38	3.15	36.1	9.63	3.74	1.81		
(F) DCcal	0.532											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	6	15	30		
(H) ρ dc=ExFxGx10^3/D	10.52	10.23	10.15	12.48	11.79	12.57	14.0	15.36	14.92	14.43		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	26.6	26.55	6.30	30.8	7.30	3.02	35.6	9.30	3.62	1.74		
(L) AC-DC cal.	0.996											
(M) ρ dc/ρac=ExL/K	1.012	1.027	1.023	1.012	1.007	1.078	1.010	1.029	1.028	1.036		
(N) PFE=(M-1)(10^2)	1.2	2.7	2.3	1.2	0.7	7.8	1.0	2.9	2.8	3.6		
(O) MCF=(M-1)(10^5)/H												
		?x	?x					?x	x			

Project Kayser Mowry Line 4 Field date 6-30-66 Data page ~~2~~ 2 Comp. date 6-30-66 Comp by

(A) Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal 2-3		
(B) Receive	20-25	→	→	→	25-30	→	→	→				
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	2	2	2	2	2	2	2		1		
(E) Vdc (avg)	10.05	4.22	2.095	1.15	4.25	2.35	1.24	0.693		188		
(F) DCcal	0.532											
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84.0				
(H) ρ dc=ExFxGx10^3/D	16.78	16.83	16.73	16.08	16.97	18.75	17.33	15.27				
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac (corr) = $\sqrt{I^2 - J^2}$	9.90	4.28	1.99	1.072	4.15	2.2	1.125	0.65		187		
(L) AC-DC cal.	0.996											
(M) ρdc/ρac =ExL/K	1.056	0.983	1.046	1.069	1.019	1.063	1.098	1.062				
(N) PFE=(M-1)(10^2)	-5.6	-1.7	4.6	6.9	1.9	6.3	9.8	6.2				
(O) MCF=(M-1)(10^5)/H												
	x	?x			x			?x				

HEINRICHS GEOEXPLORATION COMPANY
INDUCED POLARIZATION SURVEY COMPUTATION SHEET

Page 2

Project Kayser Mowry Line 4 SE½ Field date 7-1-66 Data page 1 Comp. date 7-66 . Comp by Cooley

(A) Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
(B) Receive	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
(C) n separation	1	1	2	1	2	3	1	2	3	4		
(D) I	2	2	2	2	2	2	2	2	2	2		
(E) Vdc (avg)	25.1	28.24	6.86	26.8	6.77	2.88	21.88	5.39	2.47	1.33		
(F) DCcal	0.532											
(G) Kn x 10^{-3}	1.5	1.5	6	1.5	6	15	1.5	16	15	30		
(H) ρ dc=ExFxGx10^3/D	10	11.5	11	10.6	10.8	11	8.5	8.6	9.85	10.6		
(I) Vac Σ												
(J) AC noise x 2												
(K) Vac(corr) = $\sqrt{I^2 - J^2}$	24.8	27.75	6.82	26.4	6.72	2.75	20.8	5.20	2.36	1.295		
(L) AC-DC cal.	1.001											
(M) ρ dc/ρac=ExL/K	1.015	1.021	1.007	1.017	1.011	1.076	1.026	1.039	1.048	1.028		
(N) PFE=(M-1)(10^2)	1.5	2.1	0.7	1.7	1.1	7.6	2.6	3.9	4.8	2.8		
(O) MCF=(M-1)(10^5)/H												

Project _____ Line _____ Field date _____ Data page 2 Comp. date _____ Comp by _____

(A) Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		Cal		
(B) Receive	20-25	→	→	→	25-30	→	→	→		2-3		
(C) n separation	2	3	4	5	3	4	5	6				
(D) I	2	2	2	2	2	2	2	2		1		
(E) Vdc (avg)	4.42	1.83	1.16	0.742	1.58	0.928	0.694	0.714		188		
(F) DCcal	0.532											
(G) Kn x 10^{-3}	6	15	30	52.5	15	30	52.5	84.0				
(H) ρ dc=ExFxGx10^3/D	7.1	7.3	9.26	10.04	6.33	7.4	9.57	16				
(I) Vac Σ												
(J) AC noise x 2	4.30	1.82	1.084	0.680	1.516	0.876	0.596	0.416		190.0		
(K) Vac (corr) = $\sqrt{I^2 - J^2}$												
(L) AC-DC cal.	1.001											
(M) ρdc/ρac =ExL/K	1.029	1.007	1.073	1.09	1.048	1.059	1.165	1.718				
(N) PFE=(M-1)(10^2)	2.9	0.7	7.3	9.0	4.8	5.9	16.5					
(O) MCF=(M-1)(10^5)/H												

INDUCED POLARIZATION - RECEIVER NOTES PAGE 1

Project: Kayser-Mowry Line: 4 Nw 1/2 Int.Cal _____ Date: 6-30-66

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Rec.	0-500	5-10	→	10-15	→	→	15-20	→	→	→		
Time	30	30	10	30	10	3	30	10	3	3		
DC-1	12.8 14.2	12.8 12.6 14.5 14.6	3.95 3.6 2.6 2.9	16.7 14.7	4.8 4.9 2.7 2.6	1.55 1.15 1.60 1.25	18.4 18.6 17.8 17.6	3.2 3.4 6.15 6.2	1.80 1.77 1.95 2.02	.95 .95 .95 .89		
DC-2	13.0 14.0	12.8 14.4	3.8 2.7	16.7 14.7	4.85 2.65	1.59 1.53	18.6 18.7 18.0 17.5	3.9 3.3 5.9 6.4	1.90 1.73 2.3 2.04	.96 .97 .83 .90		
Σ												
DC-3	13.1 13.8	12.6 14.4	3.8 2.8	16.8 14.7	4.9 2.6	1.58 1.53	18.7 18.0	3.65 3.2 6.0 6.4	1.75 1.73 2.02 2.07	.99 .96 .83 .83		
Dc-4	13.3 13.7	12.3 14.6	3.7 2.8	16.8 14.7	4.9 2.6	1.58 1.73	18.5 18.7	3.55 3.1 6.2 6.5	1.74 1.65 2.02 2.12	.99 .99 .81 .81		
Σ												
DC-AV	27.04	27.1	6.48	31.3	7.38	3.15	36.1	9.63	3.74	1.81		
AC-1	13.3	13.30	3.15	15.4	3.65	1.50	17.8	4.65	1.81	0.87		
AC-2	13.3	13.25	3.15	15.4	3.65	1.51	17.8	4.65	1.81	0.87		
Σ	26.6	26.55	6.30	30.8	7.30	3.02	35.6	9.30	3.62	1.74		
S. P.	-3.6	-5.2		-3.2			-1.9					
AC-N	0.06	0.07		0.04			0.07					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES

PAGE _____

Project: Kaye - Mowry Line: 4 - E½ Int.Cal _____ Date: 7-1-66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Rec.	0-5	5-10	→	10-15	→	→	15-20	→	→	→		
Time	30	30	10	30	10	3	30	10	3	3		
DC-1	11.9 13.15	12.7 14.65	3.62 386 3.35 310	13.2 10.6 13.5 13.2	385 398 3.22 294	1.59 154 1.21 132	11.1 10.2	2.46 2.50 2.98 2.80	133 133 115 115	61 68 67 63		
DC-2	11.95 13.2	13.65 14.5	3.60 388 3.25 294	13.4 13.3	366 400 3.22 295	1.62 162 1.29 118	11.2 10.2	248 260 294 276	129 127 126 114	66 72 67 70		
Σ			380 415 315 270		370 405 322 278	157 165 133 124	11.1 10.2	244 294	121 128 128 121	71 62 61 66		
DC-3	11.95 13.2	13.7 14.5	378 440 308 250	13.5 13.2	3.76 420 304 264	153 171 135 125	11.2 10.1	242 288	122 122 125 121	88 72 43 61		
Dc-4	11.95 13.2	13.2 14.6	385 470 316 225	13.6 13.3	386 2.98	150 157 132 138	11.3 10.0	252 288	129 130 109 110	91 90 43 58		
Σ												
DC-AV	25.1	28.24	6.86	26.8	6.77	2.88	21.33	5.39	2.47	1.33		
AC-1	12.4	13.85	3.41	13.2	3.36	1.38	10.4	2.60	1.18	0.645		
AC-2	12.4	13.90	3.41	13.2	3.36	1.37	10.4	2.60	1.18	0.65		
Σ	24.8	27.75	6.82	26.4	6.72	2.75	20.8	5.20	2.36	1.295		
S. P.	-13.1	-8.0		-22.0			-7.7					
AC-N	.11	.07		.10			.05					
Pot. Res												

INDUCED POLARIZATION - RECEIVER NOTES PAGE _____

Project: Kayer-Mowry Line: 4-SE1/2 Int.Cal _____ Date: 7-1-66

Send	4-5	3-4	2-3	1-2	4-5	3-4	2-3	1-2		cal		
Rec.	20-25	→	→	→	25-30	→	→	→		2-3		
Time	10	3	1	1	3	1	1	1		300		
DC-1	224 2.19	1.03 132 .87 .60	344 608 66 638	348 392 348 478	68 63 87 98	482 420 460 552	230 320 310 385	158 .070 330 .520		94.0 94.0		
DC-2	224 2.16	1.11 134 .78 .58	47 428 64 682	374 258 318 440	68 .57 84 1.07	415 310 425 592	320 265 295 430	150 .070 315 .620		94.0 94.0		
Σ	226 2.19	1.19 .74	44 544 65 634	458 324 362 358	74 .52 77 1.11	505 390 446 640	240 245 335 385	4.0 .260 412 .664				
DC-3	224 2.18	1.17 .71	412 48 654 708	378 372 356 348	76 55 85 1.01	505 225 466 625	180 270 360 345	056 .28 420 .720				
Dc-4	2.24 2.19	1.29 .54	532 392 640 80	358 356 60 360	70 55 93 1.16	452 245 505 685	260 375 380 250	040 .360 .490 .840				
Σ										188		
DC-AV	4.42	1.83	1.16	0.742	1.58	0.928	0.694	0.714				
AC-1	2.15	0.91	.542	.340	.755	.438	.298	.208		95.0		
AC-2	2.15	0.91	.542	.340	.755	.438	.298	.208		95.0		
Σ	4.30	1.82	1.084	0.680	1.510	0.876	0.596	0.416		190.0		
S. P.	-9.5				-9.6							
AC-N	.09				.08							
Pot. Res												

INDUCED POLARIZATION SENDER NOTES

project: Kay-Mow Line: 4-SP-1-SE½ Date: July 1, 66

Send	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2		
Receive	0-500	500 —	1000	1500	—	1500	1500 —			2000		
Time	✓											
Range	200V	180V	✓	180	✓	✓	✓	✓	✓	✓		
Current	2A	2A	✓	2A	✓	✓	✓	✓	✓	✓	CAL	
Send	4-5	3-4	2-3	1-2		4-5	3-4	2-3	1-2		2-3	
Receive	2000 —		2500			2500 —		3000				
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓		✓	
Current	✓	✓	✓	✓		✓	✓	✓	✓		1A	

INDUCED POLARIZATION SENDER NOTES

Project: KAY-MOW Line: A-SP-1 NW 1/2 Date: 6-30-6

Send	4-5	3-4	4-5	2-3	3-4	4-5	1-2	2-3	3-4	4-5		
Receive	0-500	500 —	1000	1000 —		1500	1500 —			2000		
Time												
Range	240V	100V	100	✓	✓	✓	240V	220V	240V	240V		
Current	2A	2A	1.8A	~~2A~~	~~2A~~	~~2A~~	2A	2A	2A	2A	CAL	2-3
Send	1-2	2-3	3-4	4-5		1-2	2-3	3-4	4-5			
Receive	2000	—	—	2500		2500	—	—	3000			
Time												
Range	✓	✓	✓	✓		✓	✓	✓	✓			
Current	✓	✓	✓	✓		✓	✓	✓	✓			VA

INDUCED POLARIZATION - RECEIVER NOTES PAGE 2

Project: Kayser-Mowry Line: 4 NW 1/2 Int.Cal _____ Date: 6-30-66

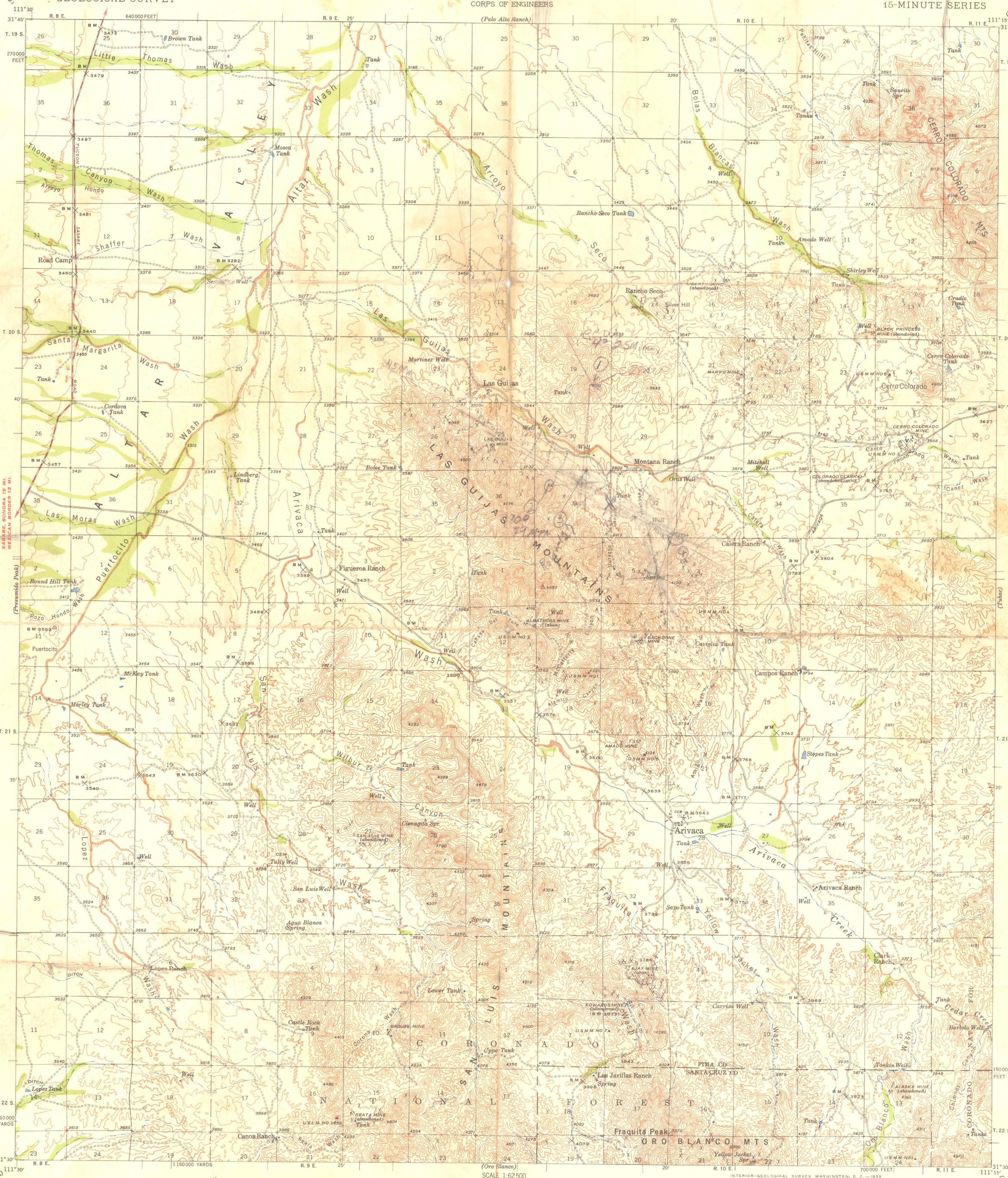
Send	1-2	2-3	3-4	4-5	1-2	2-3	3-4	4-5		Cal 2-3		
Rec.	20-25	→	→	→	25-30	→	→	→				
Time	10	10	3	1	10	3	1	1		300		
DC-1	4.8 5.15	2.3 2.25 2.1 2.1	.88 .81 1.23 1.28	.80 .68 .57 .57	2.2 2.1 1.8 2.15	1.42 1.29 .85 1.01	.42 .29 .79 .96	.50 .65 .14 .1		94 94		
DC-2	4.8 5.15	2.25 2.3 2.15 2.05	.87 .78 1.20 1.31	.30 .60 .82 .39 .55	2.3 2.1 2.0 2.3	1.40 1.26 .90 1.0	.40 .28 .86 .98	.56 .55 .18 .1		94 94		
Σ												
DC-3	4.85 5.20	2.0 2.0	.86 .78 1.23 1.37	.74 .60 .42 .56	2.2 2.0 2.05 2.3	1.36 1.29 .97 .95	.30 ~~.30~~ .99	.50 .65 .15 .04		94 94		
Dc-4	4.85 5.15	2.01 2.15	.87 1.67 1.25 1.43	.67 .59 .55 .58	2.3 1.9 2.05 2.4	1.34 1.27 1.0 1.0	.34 .90	.59 .69 .06 .04		94 94		
Σ												
DC-AV	10.05	4.22	2.095	1.15	4.25	2.35	1.24	0.693		188		
AC-1	4.95	2.15	1.0	0.535	2.075	1.1	0.56	0.325		94		
AC-2	4.98	2.13	0.99	0.537	2.075	1.1	0.565	0.325		93		
Σ	9.90	4.28	1.99	1.072	4.150	2.2	1.125	0.650		187		
S. P.	+42				-10.4							
AC-N	0.05				0.05							
Pot. Res												

TUCSON 50 MI.
ROBLES RANCH (JUNC. ARIZ. 86) 26 MI.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

ARIZONA
ARIVACA QUADRANGLE
15-MINUTE SERIES



Topography by S. C. Kain
Surveyed in 1940-41

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN DECLINATION, 1941

SCALE 1:62 500

1 ½ 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

Contour interval 50 feet
Datum is mean sea level

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1956
M R—1022

Sections lines in T. 22 S., R. 11 E. are omitted because of insufficient data

Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system.F
10000 foot grid based on Arizona (Central) rectangular coordinate system

ARIVACA, ARIZ.

N3130—W11115/15

1941

ROAD CLASSIFICATION

Heavy-duty 4 LANE | 6 LANE
Medium-duty 4 LANE | 6 LANE
Light-duty
Unimproved dirt
U. S. Route
State Route

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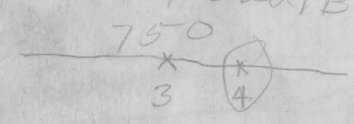
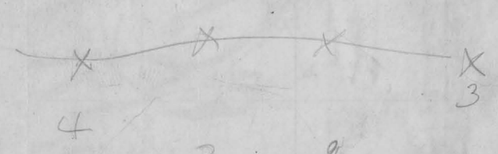
State Lease
Rowley.
Seco 1398 2277

Stewart.
Bill Fry
Judge Fry

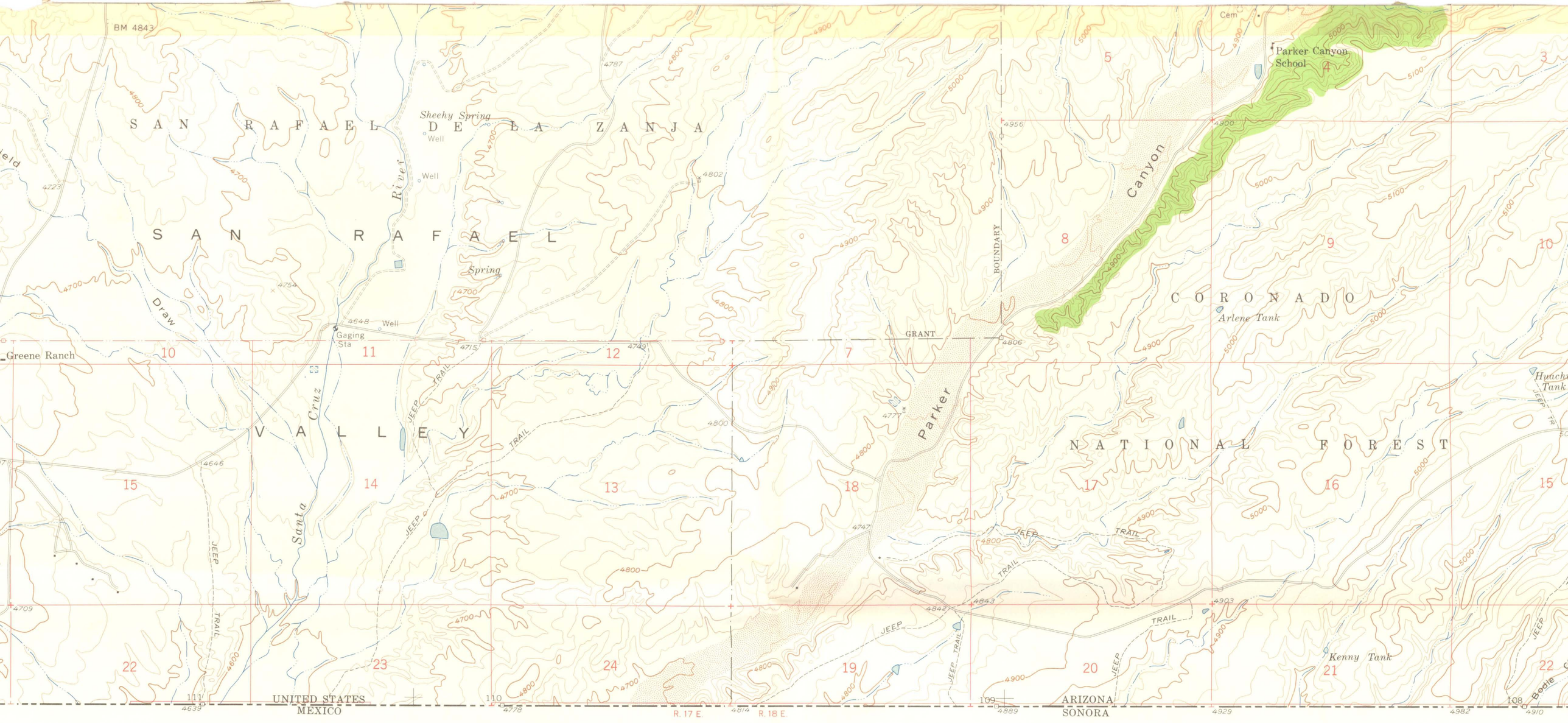
1, 4° 25'
2, 90° 29'
3. 127 Rough
4. 246° 39 min

Spread 1B





4 3 2 1



gical Survey

stereoplanigraph methods
check 1948

erican datum
dinate system, central zone
tor grid ticks,

13°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1958

SCALE 1:24 000

1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
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ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty ..... Unimproved dirt .....

LOCHIEL, ARI
SE/4 LOCHIEL 15' QUADRA
N3115—W11030/7.

1958

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1959—NS
MR 6506

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
TUBAC QUADRANGLE
15-MINUTE SERIES

Topography by S. C. Kain, Chester Lloyd, S. M. Borrell, K. A. Bunker, and J. J. Hayes
Surveyed in 1939

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN DECLINATION, 1939

Scale $\frac{1}{62500}$

1 ½ 0 1 2 3 4 Miles
1000 500 0 1000 2000 3000 4000 5000 6000 7000 Yards
1000 0 3000 6000 9000 12000 15000 18000 Feet
1 .5 0 1 2 3 4 5 Kilometers

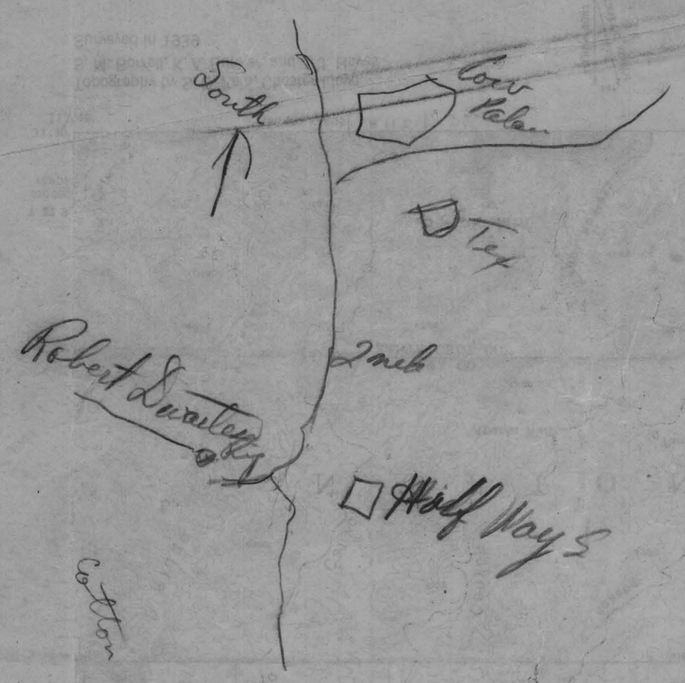
Contour interval 50 feet
Datum is mean sea level

Land lines pertaining to T. 22 S., R. 11 E. are omitted because of lack of control and plats and topography can not be reconciled

ROUTES USUALLY TRAVELED
HARD IMPERVIOUS SURFACES
OTHER SURFACE IMPROVEMENTS
U. S. ROUTE 1942
STATE ROUTE

Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system, F
10000 foot grid based on Arizona (Central) rectangular coordinate system

TUBAC, ARIZ.
Edition of 1943
N3130—W11100/15



1. digging
2. Shaft.
} 2 Areas.

UNITED STATES
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GEOLOGICAL SURVEY

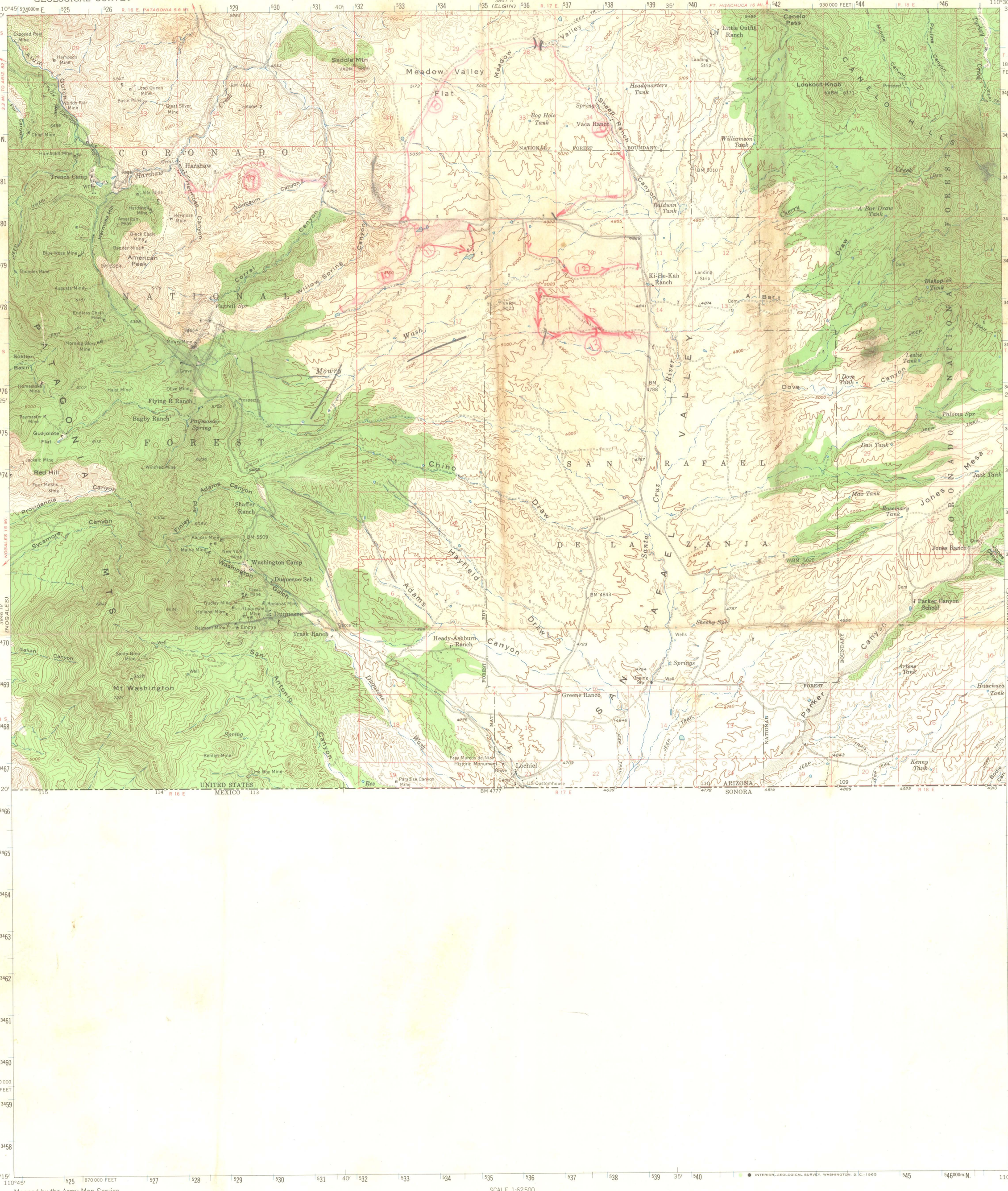
UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

CANELO PASS QUADRANGLE
ARIZONA-SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 LOCHIEL 15' QUADRANGLE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

LOCHIEL QUADRANGLE
ARIZONA–SANTA CRUZ CO.
15 MINUTE SERIES (TOPOGRAPHIC)



Mapped by the Army Map Service
Edited and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Compiled in 1958 from 1:24 000-scale maps of Canelo Pass, Harshaw, Duquesne, and Lochiel 7.5 minute quadrangles, surveyed 1948

Topography from aerial photographs by stereoplanigraph methods
Aerial photographs taken 1946. Revised by the Geological Survey 1958

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Land lines unsurveyed in T. 23 S. and T. 24 S., R. 16 E.

Unchecked elevations are shown in brown

GN MN
0°12′ 4 MILS
13° 231 MILS
UTM GRID AND 1958 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62 500

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242
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ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty ——— Unimproved dirt - - - - -

This area also covered by 1:24 000-scale maps of Canelo Pass, Harshaw, Duquesne, and Lochiel 7.5 minute quadrangles, surveyed 1948

LOCHIEL, ARIZ.
N3115—W11030/15

1958

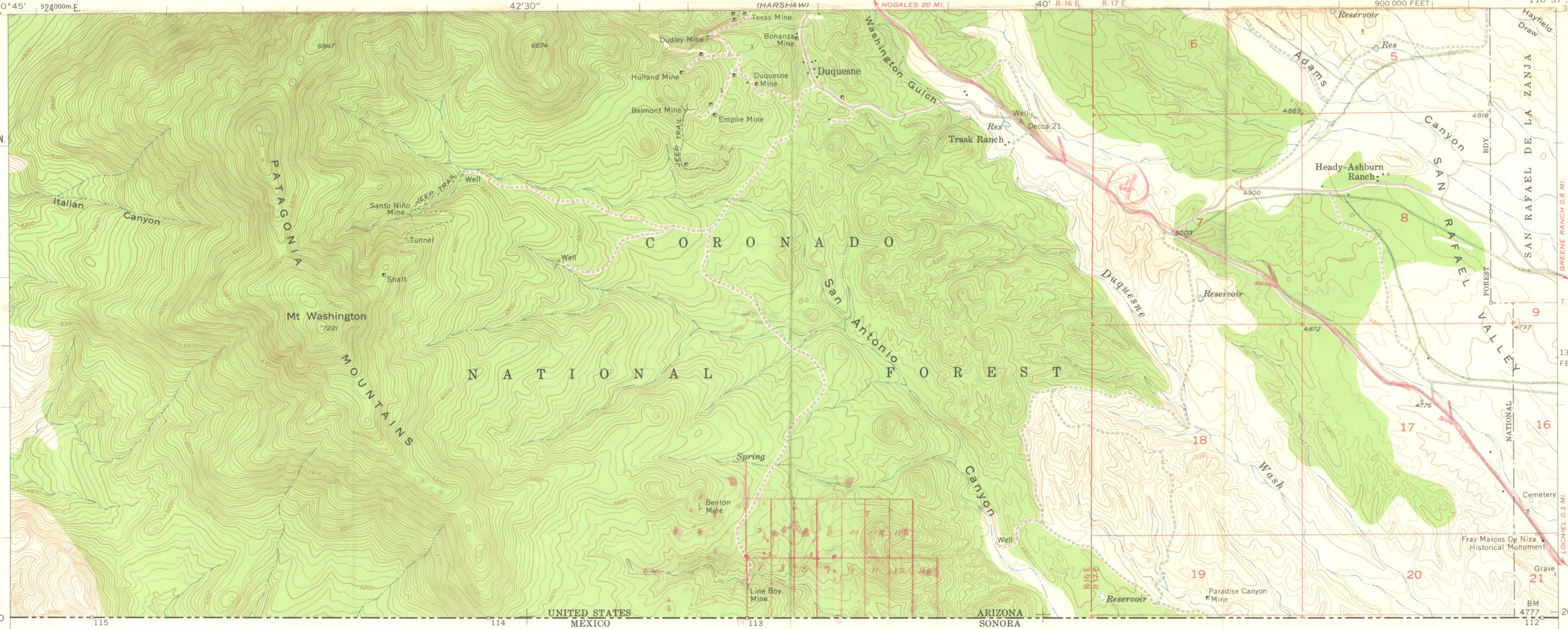
AMS 3846 I—SERIES V798

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1965

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

DUQUESNE QUADRANGLE
ARIZONA—SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 LOCHIEL 15' QUADRANGLE



ARIVACA, ARIZ.
N3130—W11115/15
1941
Topography by S. C. Kain
Surveyed in 1940-41
SCALE 1:62500
Contour interval 50 feet
Datum is mean sea level
APPROXIMATE MEAN DECLINATION, 1941
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U. S. Route
State Route
Sections lines in T. 22 S., R. 11 E. are omitted because of insufficient data
Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system. F
10000 foot grid based on Arizona (Central) rectangular coordinate system
INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.—1956
M R-1022
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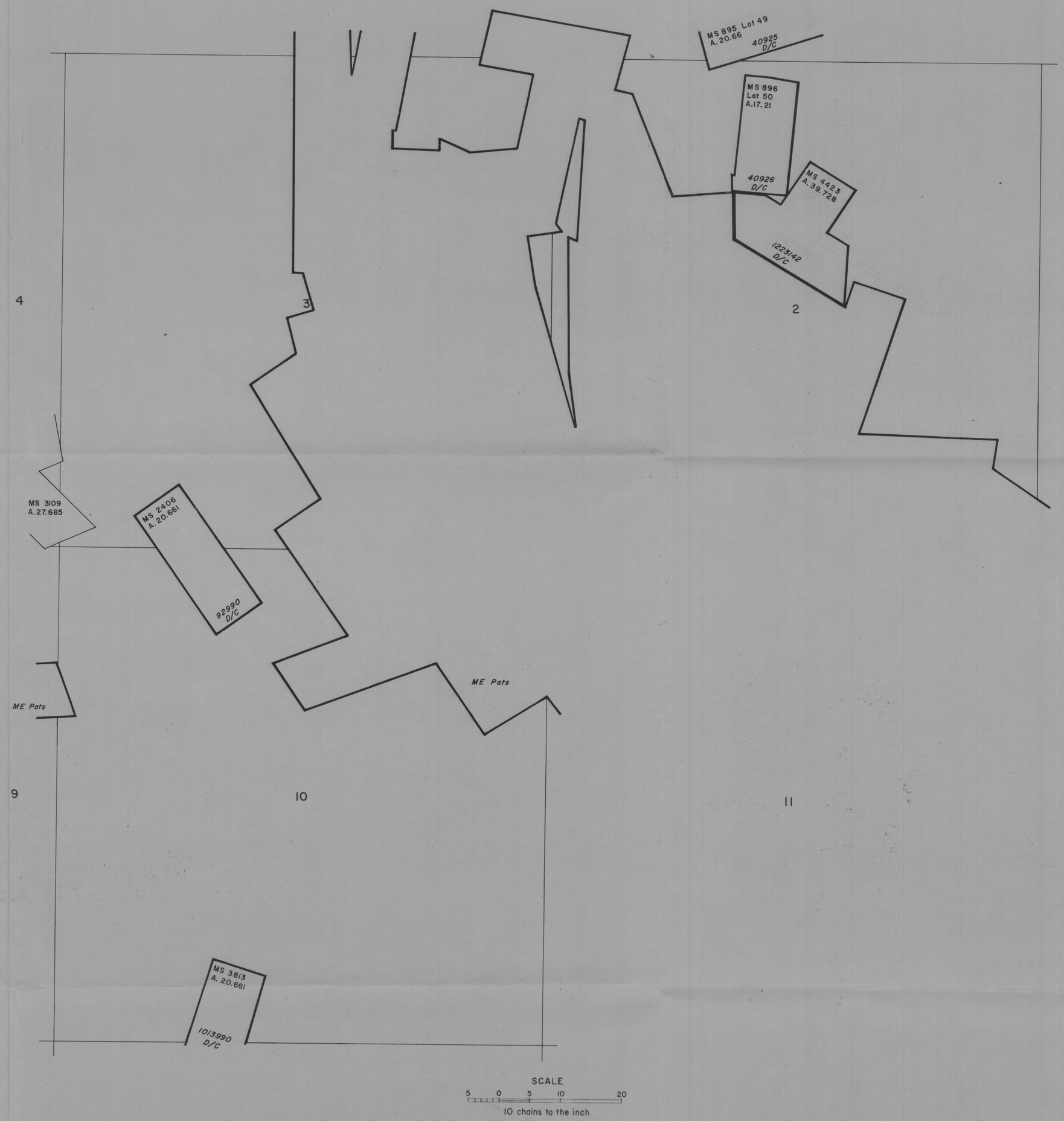
ALTA VALLEY
LAS GUIJAS MOUNTAINS
SAN LUIS MOUNTAINS
CORONADO NATIONAL FOREST
ORO BLANCO MTS
CERRO COLORADO MTS
Arivaca
Arivaca Ranch
Las Guijas
Rancho Seco
Montana Ranch
Calera Ranch
Figueroa Ranch
Campos Ranch
Lopez Ranch
Clark Ranch
Canoa Ranch
Las Jarillas Ranch
Cerro Colorado
Road Camp
Puertocito
Fraquita Peak
Arivaca Creek
Cedar Creek
Oro Blanco
Yellow Jacket
Fraquita
Alta Wash
Arivaca Wash
Las Guijas Wash
Las Moras Wash
Santa Margarita Wash
Shaffer Wash
Thomas Wash
Little Thomas Wash
Canyon Hondo Wash
Arroyo Seco
Bolas Blancas Wash
Cerro Colorado Wash
Wilbur Canyon
San Luis Wash
Lopez Wash
Puertocito Wash
Pozo Hondo Wash
Las Moras Wash
Calera Wash
Canez Wash
Tonkin Wash
Chimney Canyon
Oro Blanco Wash
Reata Wash
Coronado Wash
Cienaga Spr
Agua Blanca Spring
Tully Well
San Luis Well
Carriza Well
Tonkin Well
Bartolo Well
Yellow Jacket Spr
Fraquita Peak
Sapo Tank
Stopes Tank
Cradle Tank
Cerro Colorado Tank
Round Hill Tank
Cordova Tank
Lindberg Tank
Boice Tank
Mosca Tank
Brown Tank
Secundino Well
Rancho Seco Tank
Amado Well
Shirley Well
Martinez Well
Mitchell Well
Orus Well
Caviglia Tank
Lower Tank
Upper Tank
Lopez Tank
Morley Tank
McKay Tank
Tanks
Spring
Well
Tank
PIMA CO
SANTA CRUZ CO
(Presumido Peak)
(Tubac)
(Oro Blanco)
(Ruby)
R. 8 E.
R. 9 E.
R. 10 E.
R. 11 E.
T. 19 S.
T. 20 S.
T. 21 S.
T. 22 S.
111°30'
111°15'
31°30'
1160000 YARDS
700000 FEET
910000 YARDS
270000 FEET
190000 FEET

UNSURVEYED TOWNSHIP 24 SOUTH RANGE 16 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA



STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 2,3,10

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

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Area (4)

CURRENT TO	BY

1966 APR 28 PM 12 20

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PHOENIX, ARIZONA
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T. 24 S.
R. 16 E.

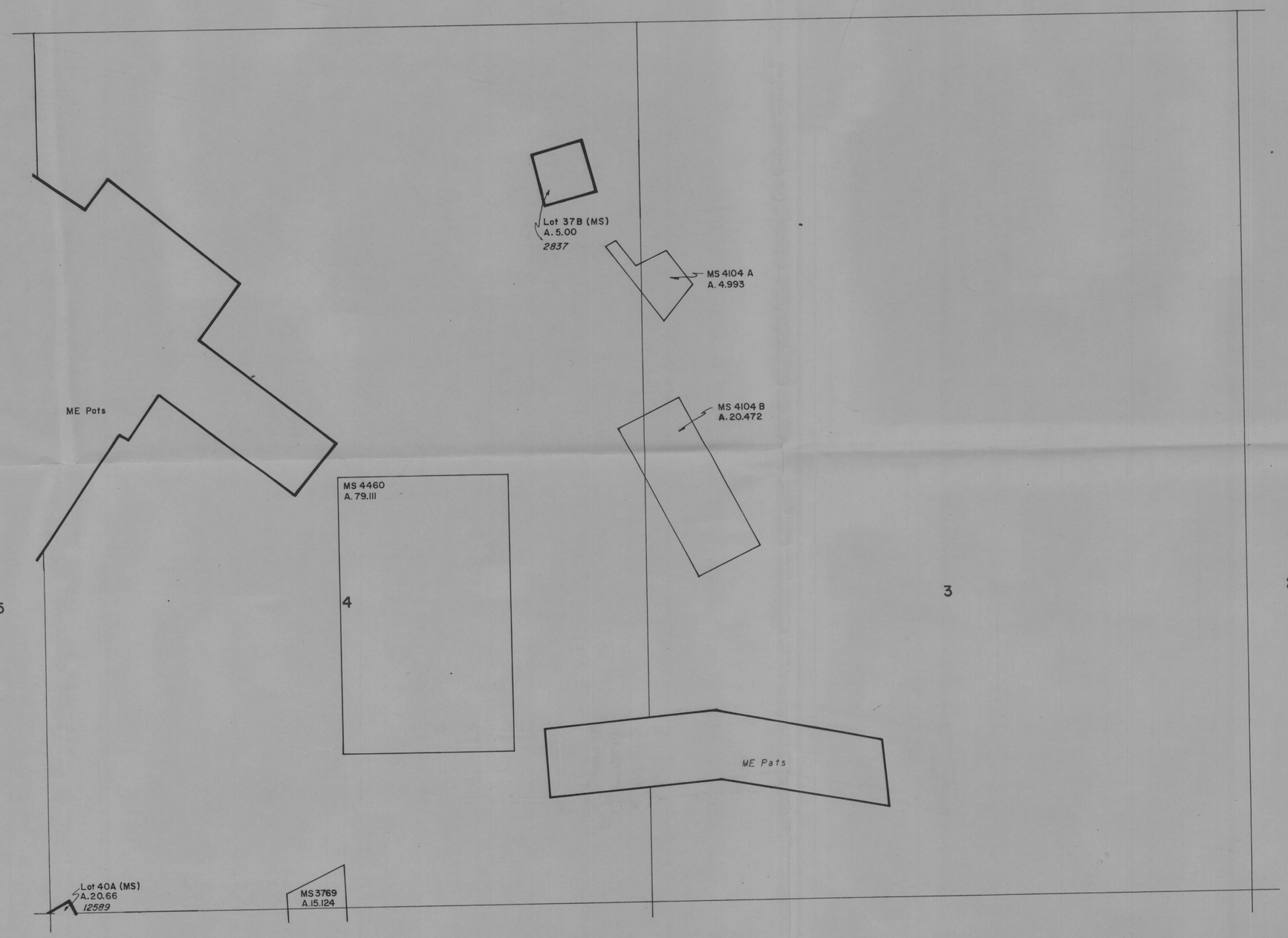
APR 1966 GEOEX

Tatums
7845-PAGE

UNSURVEYED TOWNSHIP 23 SOUTH RANGE 16 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 3,4



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Area 4

CURRENT TO	BY

SCALE
5 0 5 10 20
10 chains to the inch

T. 23S.
R. 16E.

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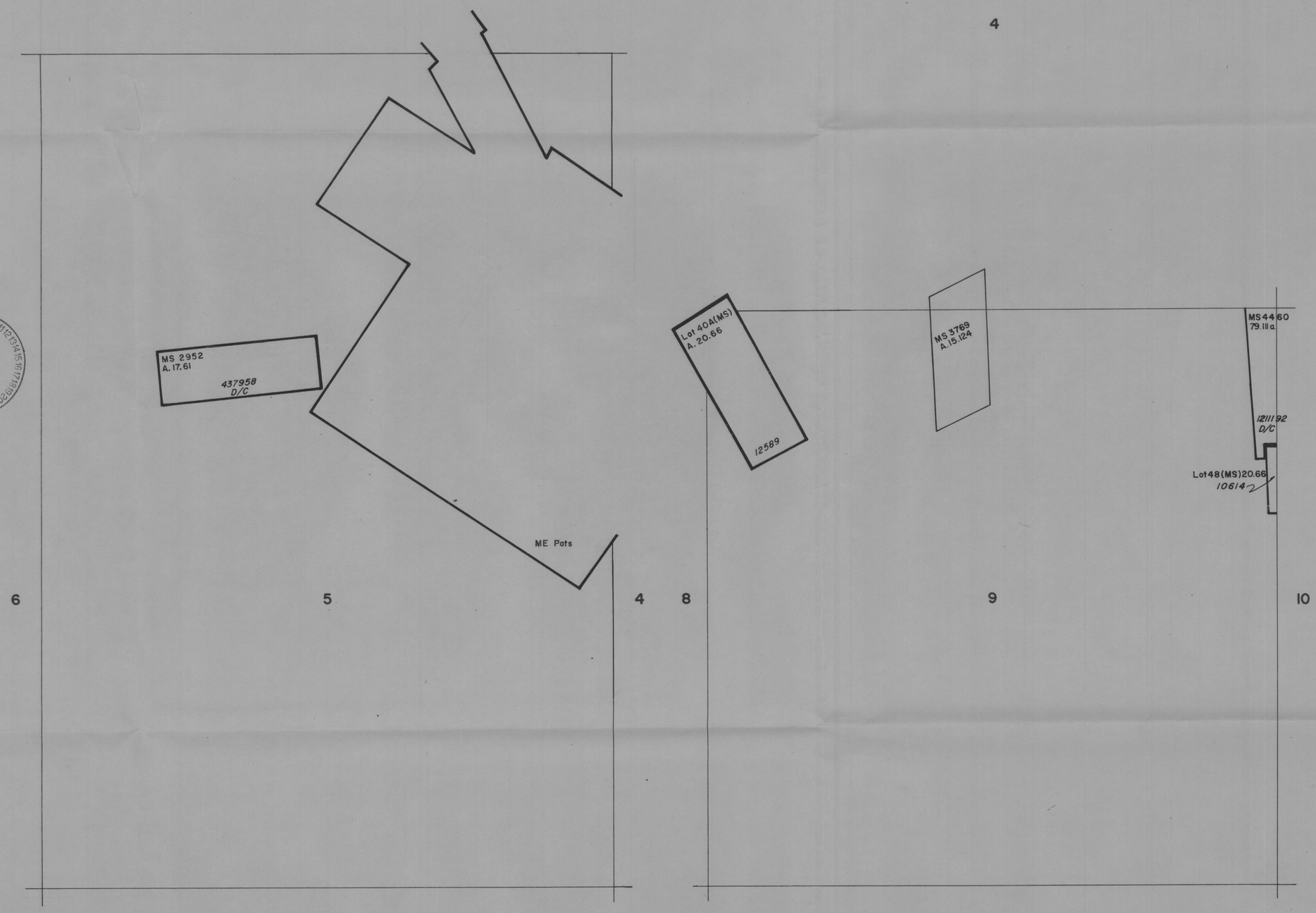
Planning
7835-PAZ

UNSURVEYED TOWNSHIP 23 SOUTH RANGE 16 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 5,9



SCALE
5 0 5 10 20
10 chains to the inch

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

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Area (4)

CURRENT TO	BY

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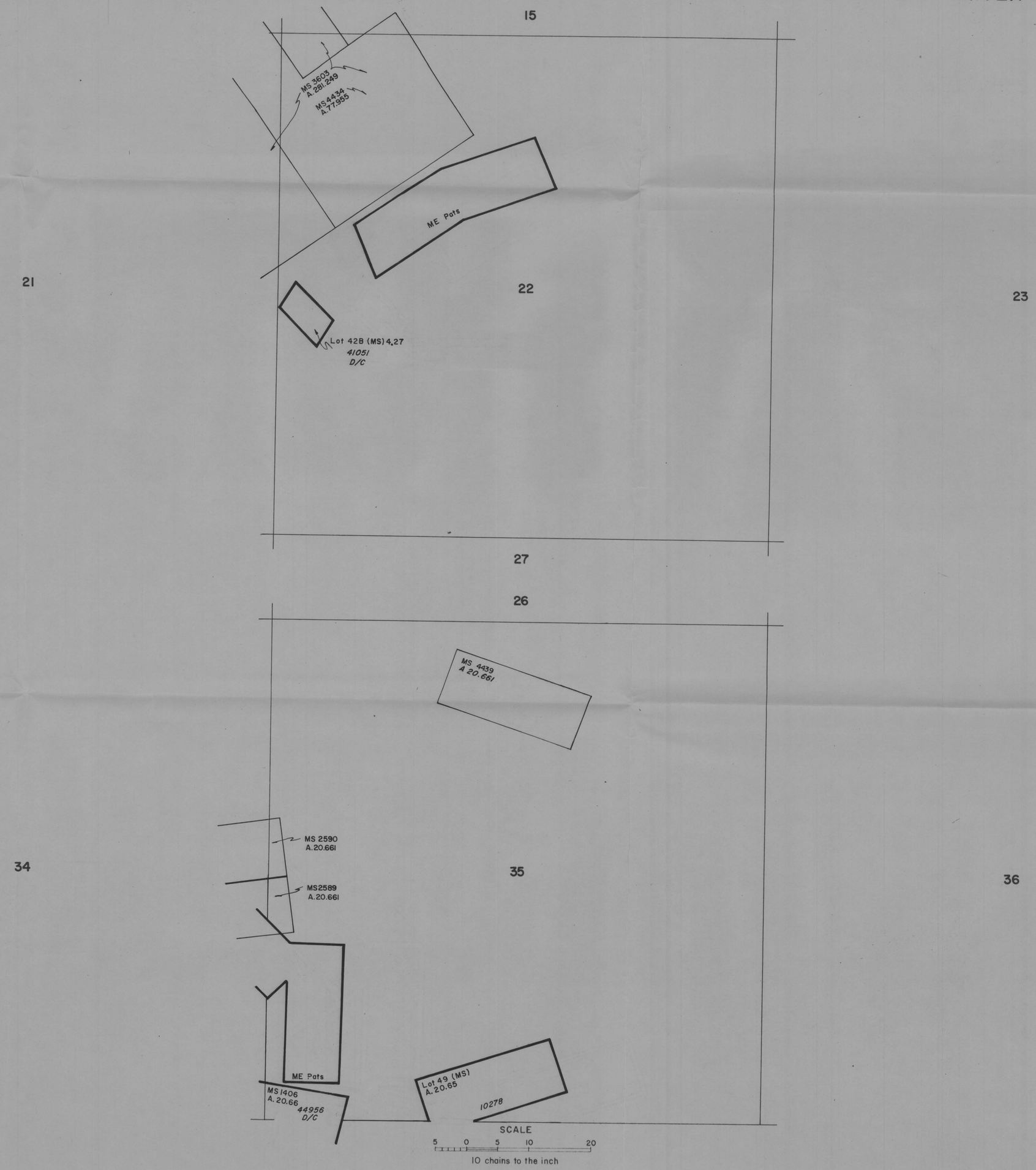
T. 23S.
R. 16E.

Transmittal
T235-File E

UNSURVEYED TOWNSHIP 23 SOUTH RANGE 16 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA



STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 22,35

INDEX TO SEGREGATED TRACTS				
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TRACT NO	T	R	SEC	SUBDIVISION

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Area 4

CURRENT TO	BY

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R. 16 E.

APR 1966 GEOEX

Transcribed
T33S-R16E

PARTIALLY SURVEYED TOWNSHIP 23 SOUTH RANGE 17 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 14

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

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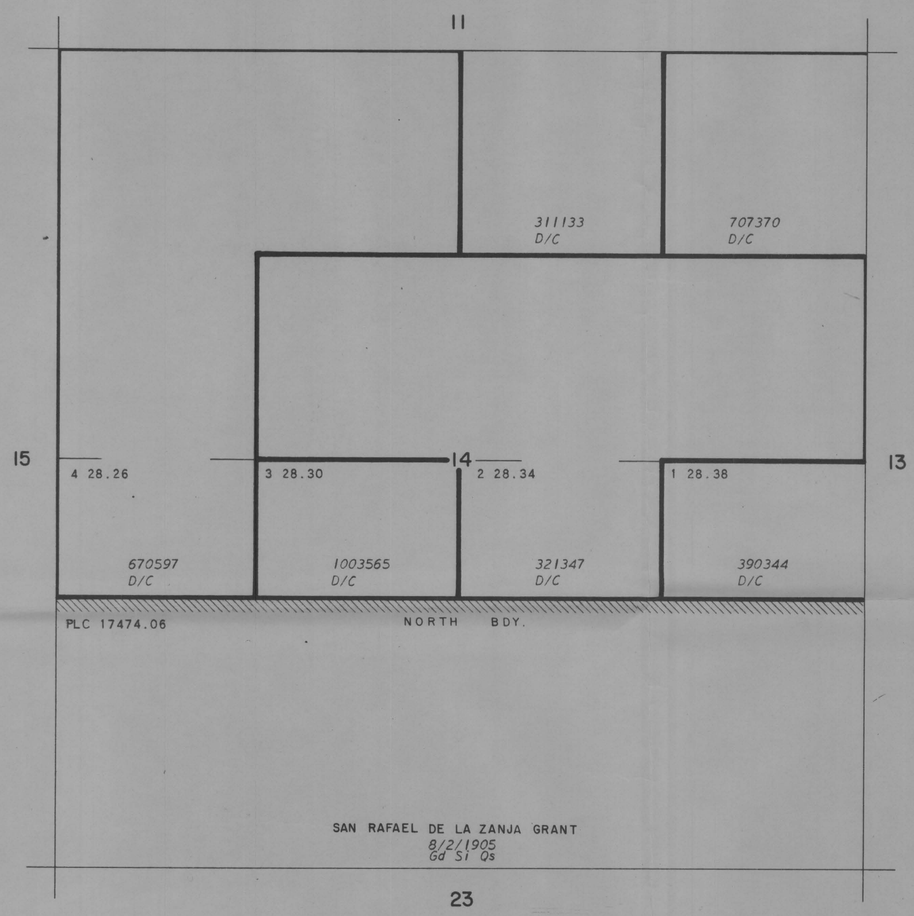

Area (4)

CURRENT TO	BY

1986 APR 23 PM 12 21

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PHOENIX, ARIZONA
COPY ISSUED BY
T. 23 S.
R. 17 E.

SCALE
5 0 5 10 20
10 chains to the inch

Transmittal
T4S3-R17E

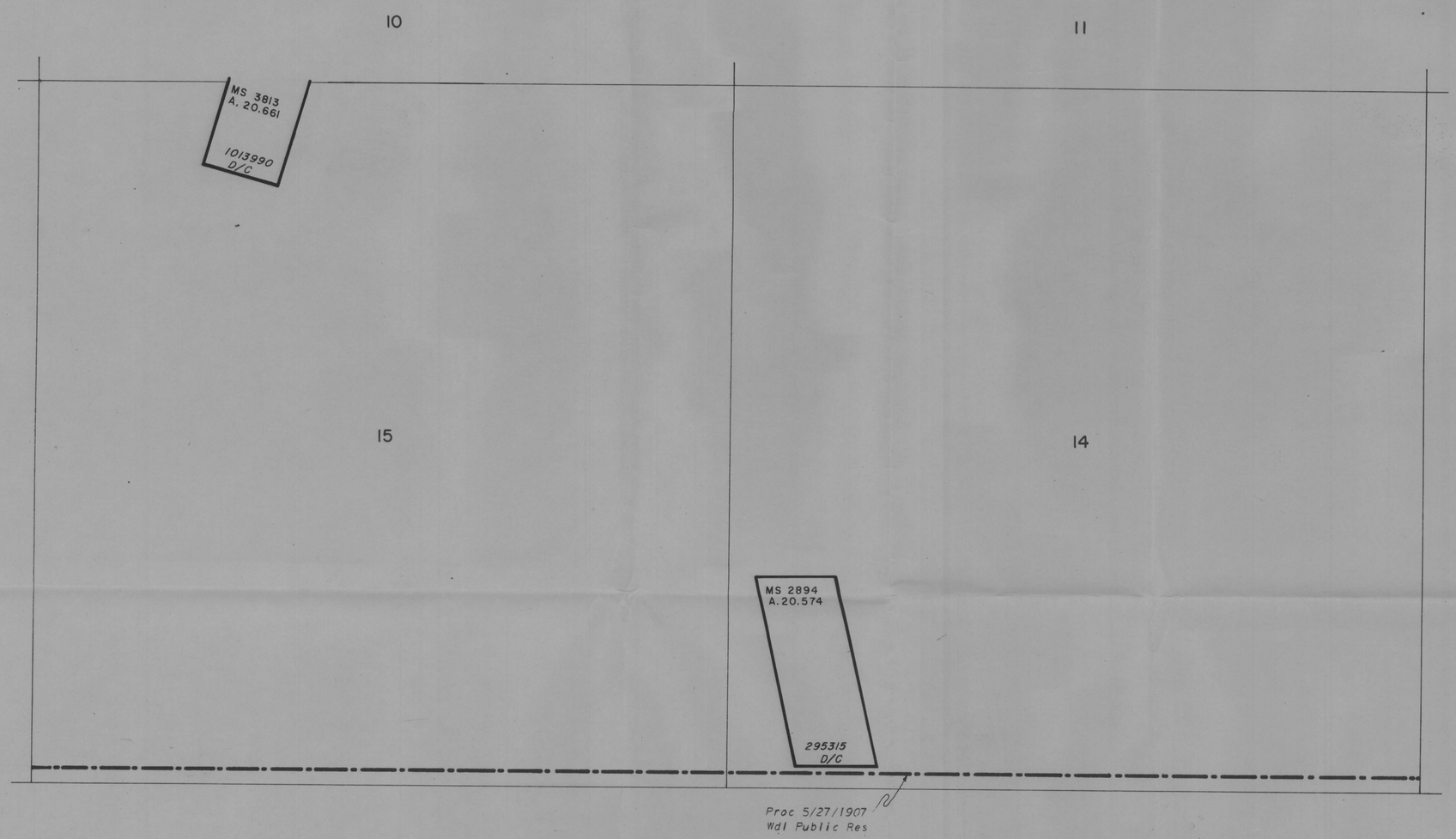
UNSURVEYED TOWNSHIP 24 SOUTH RANGE 16 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 14,15

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

APR 1966 GEOEX



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Area (4)

SCALE
5 0 5 10 20
10 chains to the inch

CURRENT TO	BY

1966 APR 20 PM 1 20

BUREAU OF LAND MANAGEMENT
PHOENIX, ARIZONA
COPY ISSUED BY

T. 24 S.
R. 16 E.

Mowery
T34S - R16E

PARTIALLY SURVEYED TOWNSHIP 24 SOUTH RANGE 17 EAST OF THE GILA AND SALT RIVER MERIDIAN, ARIZONA

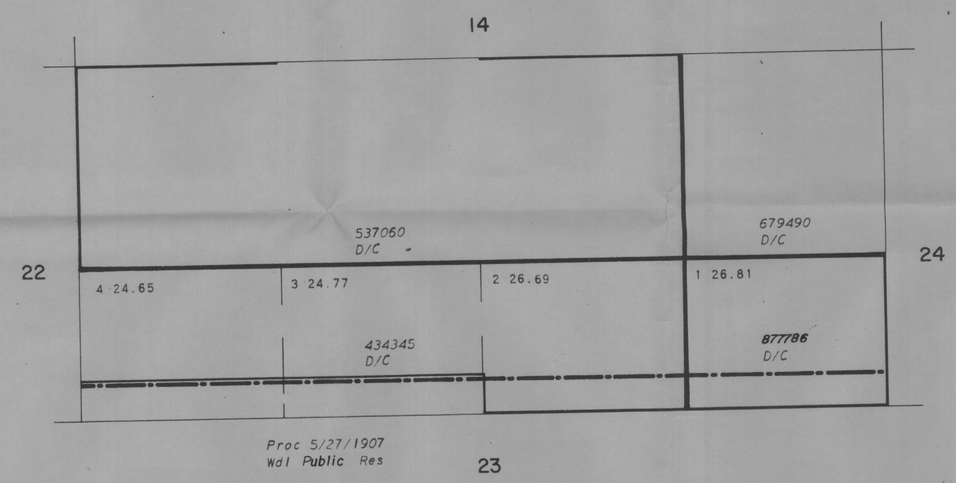
STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MTP
SUPPL Sec 23

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS.

Area (4)



SCALE
5 0 5 10 20
10 chains to the inch

CURRENT TO	BY

1986 APR 28 PM 12 21

BUREAU OF LAND MANAGEMENT
PHOENIX, ARIZONA
COPY ISSUED BY

T. 23 S.
R. 17 E.

GEOCOX
APR 1986

Mowery
T24S & R17E

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

HARSHAW QUADRANGLE
ARIZONA-SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 LOCHIEL 15' QUADRANGLE

Mapped by the Army Map Service
Published for civil use by the Geological Survey

Control by USC&GS, USGS, and USCE

Topography from aerial photographs by stereoplanigraph methods
Aerial photographs taken 1946. Field check 1948

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone

No distinction is made between barns, dwellings, commercial and industrial buildings

Unchecked elevations are shown in brown

TRUE NORTH
MAGNETIC NORTH
13°
APPROXIMATE MEAN DECLINATION, 1948

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL

ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 6 LANE
Medium-duty — 4 LANE | 6 LANE
Light-duty
Unimproved dirt
U. S. Route
State Route

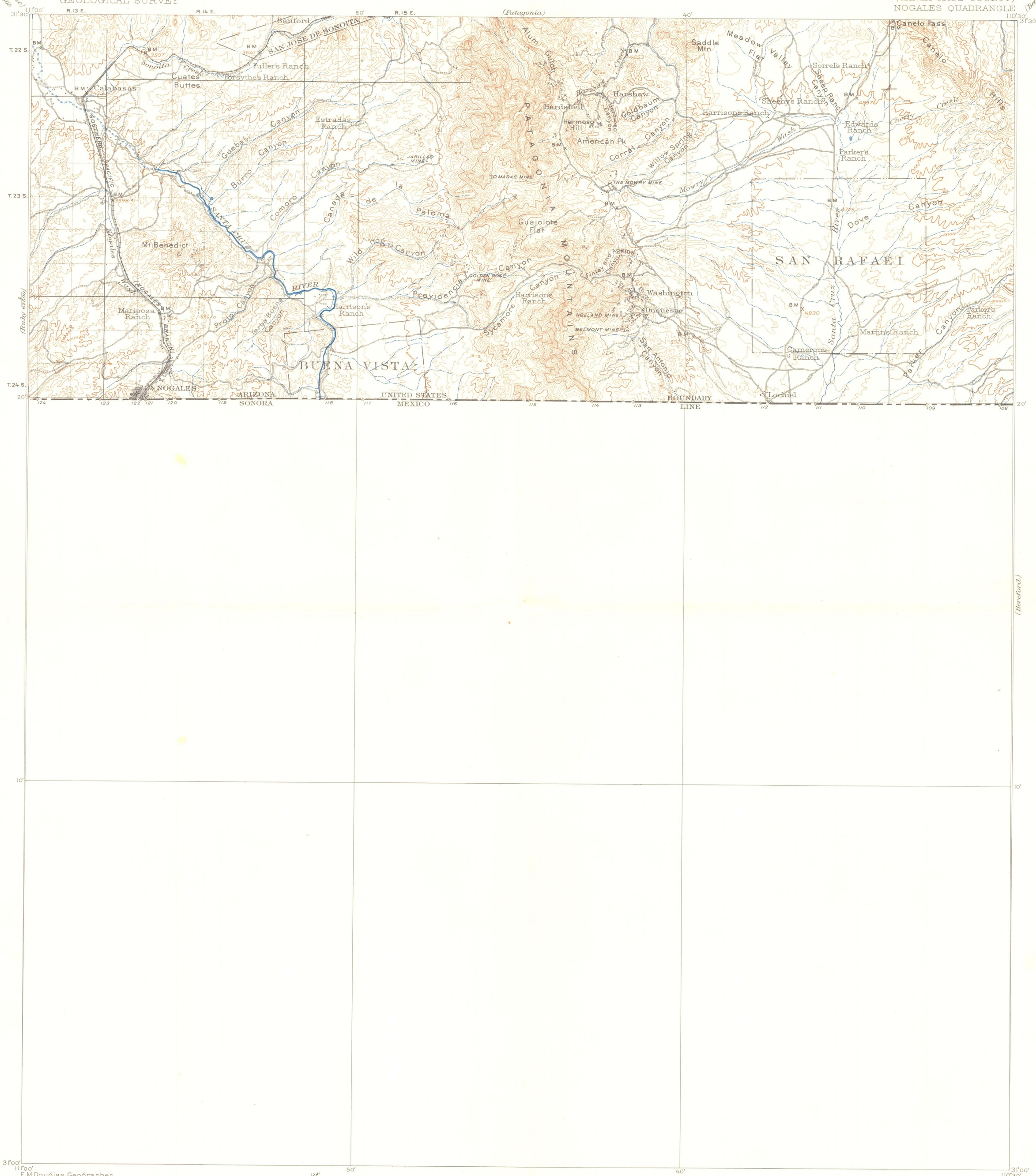
HARSHAW, ARIZ.
NW/4 LOCHIEL 15' QUADRANGLE
N3122.5—W11037.5/7.5

1948

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
(SANTA CRUZ COUNTY)
NOGALES QUADRANGLE



E.M.Douglas, Geographer.
T.M.Bannon, Topographer in charge.
Topography by H.H.Hodgeson, W.J.Forster and S.S.Stahl.
Triangulation by T.M.Bannon.
Surveyed in 1903-1904.

TRUE NORTH
MAGNETIC NORTH
12½°
APPROXIMATE MEAN DECLINATION 1904.

SCALE 1:125000

1 ½ 0 1 2 3 4 5 6 7 8 9 MILES

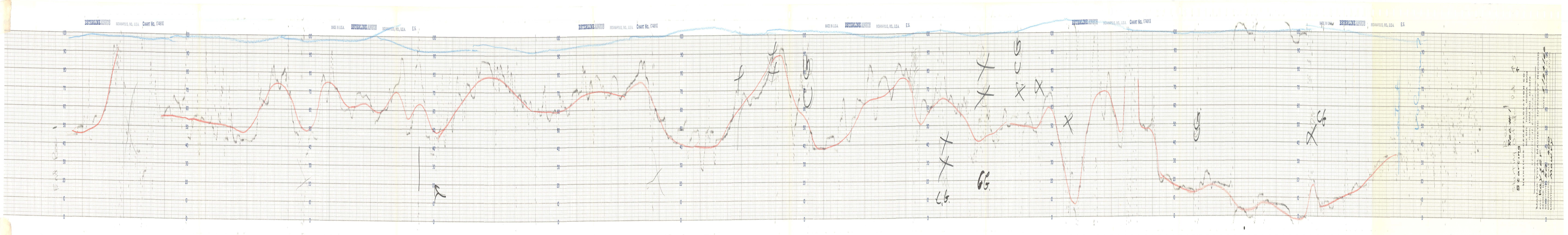
5000 0 5000 10000 15000 20000 25000 30000 35000 FEET

1 0 1 2 3 4 5 6 7 8 9 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM IS MEAN SEA LEVEL

Edition of 1905, reprinted 1947
Polyconic projection

ARIZ.
NOGALES
N3100-W11030/30



Base

SPECIALTY RECORDS Washington, D.C. U.S.A. Chart No. 73814

SPECIALTY RECORDS Washington, D.C. U.S.A. Chart No. 73815

Left Rec 2

Right Rec 2

N.T. Mag. Entrance

SPECIALTY RECORDS Washington, D.C. U.S.A. Chart No. 73816

Shift Rec 2

SPECIALTY RECORDS Washington, D.C. U.S.A.

MADE IN U.S.A.

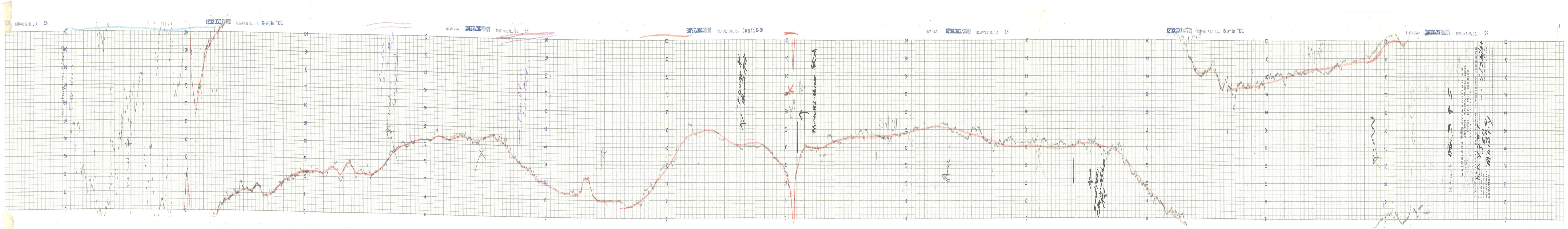
MAGNETIC INTENSITY RECORD

Date May 25/66

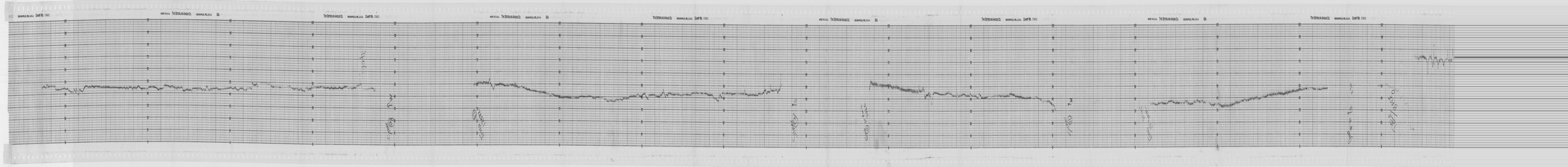
Observer KAYSEK

Location 2

Recorder NEWBY



26520' End Rec 4 at Locheil
Hardy - Ashburn Rd.
Duquesne Rd.
Start Rec 4 at Wash Camp
38920
HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578
GEOPHYSICAL ENGINEERS
MOMAG TOTAL MAGNETIC INTENSITY RECORD
FOR: KAYSER
RECORD NO. 4
DATE 5/23/64
SENSITIVITY 50 GAMMAS/¼ In.
HORIZONTAL SCALE 400 FT./In.
LOCATION Mowry
ESTERLINE ANGUS
INDIANAPOLIS, IND., U.S.A.
CHART No. 1746X
MADE IN U.S.A.

44350'
End 5 at Ki-He-Kan Ranch
Bldg ?
Start Rec ↑ NE 5 at Locket
HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578
GEOPHYSICAL ENGINEERS
MOBILE TOTAL MAGNETIC INTENSITY RECORD
KAYSER
RECORD NO. 5
DATE 5/25/66
SENSITIVITY 50 GAMMAS / ½ In.
HORIZONTAL SCALE 400 FT./In.
LOCATION Mowry
ESTERLINE ANGUS
INDIANAPOLIS, IND. U.S.A.
CHART NO. 1749X

Start Rec 6
TN
HEINRICHS GEOEXPLORATION CO.
BOX 5671 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578
GEOPHYSICAL ENGINEERS
MAGNETIC INTENSITY RECORD
DATE
Mowry
MADE IN U.S.A.
ESTERLINE ANGUS
INDIANAPOLIS, IND., U.S.A.