Case No.

2069

Large Exhibits

V.N.M.C.F. MICROGRAPHICS

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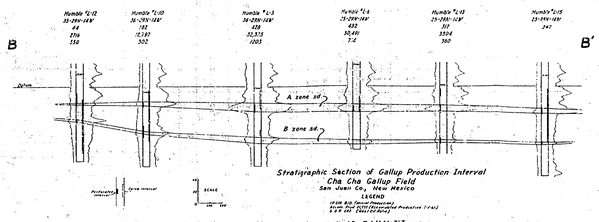
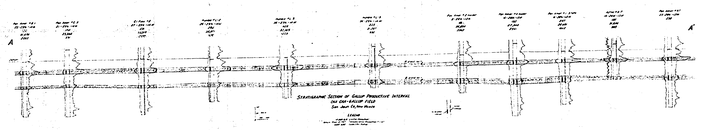


Stratigraphic Section of Gallup Production Interval
Cha Cha Gallup Field
San Juan Co., New Mexico

Humble Exhibit III



Humble Exhibit II

W.N.M.C.P. MICROGRAPHICS
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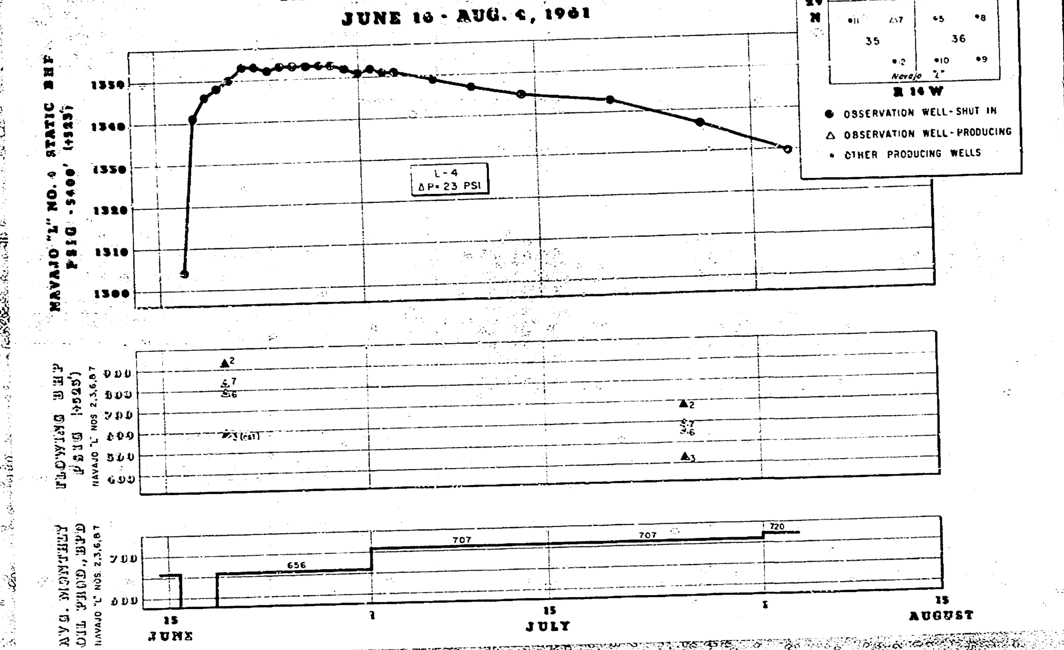
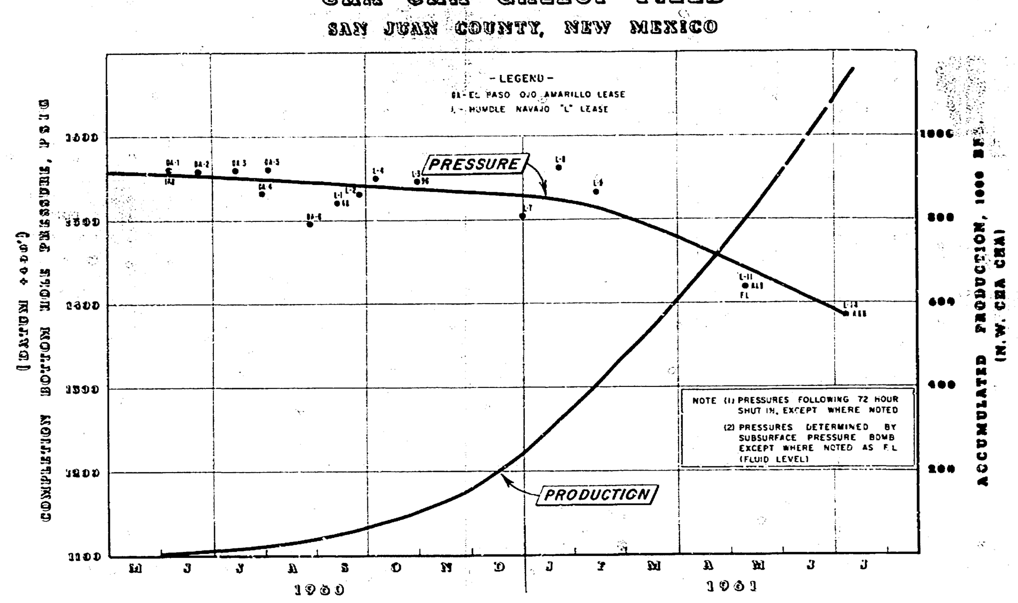
HUMBLE EXHIBIT IV

PRESSURE INTERFERENCE DATA
NAVAJO "L" LEASE
CHA CHA GALLUP FIELD
SAN JUAN COUNTY, NEW MEXICO
JUNE 16 - AUG. 4, 1961



HUMBLE EXHIBIT V

COMPLETION BOTTOM HOLE PRESSURES vs. TIME
ACCUMULATED OIL PRODUCTION vs. TIME
CHA CHA GALLUP FIELD
SAN JUAN COUNTY, NEW MEXICO



W.K.M.C.F. MICROGRAPHICS

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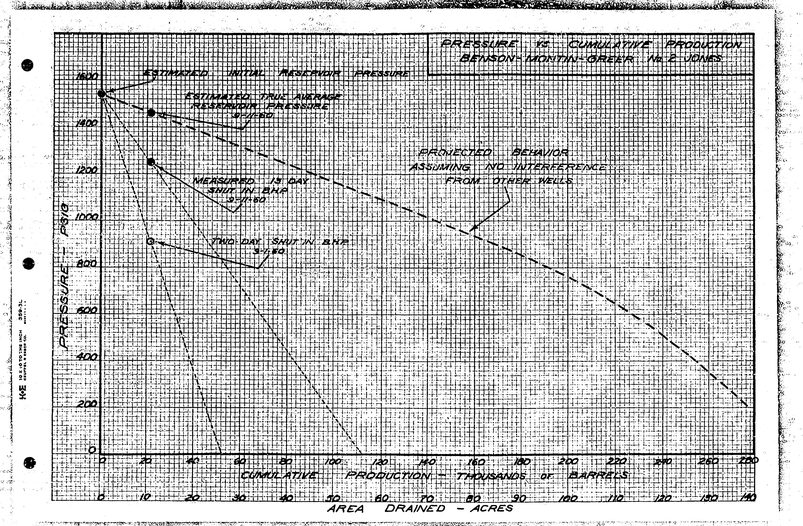

U.N.M.C.F. MICROGRAPHICS
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CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

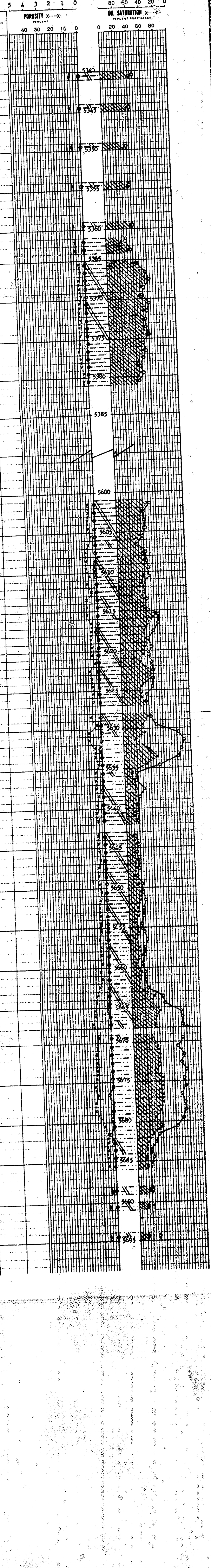
COMPANY BENSON - MONTIN - GREER DATE ON 9/21/59 FILE NO. RP-3-1082
WELL No. 2 JONES DATE OFF 9/23/59 ENGRS. ENGLISH
FIELD WILDCAT FORMATION GALLUP ELEV. 6037' KB
COUNTY SAN JUAN STATE N.MEXICO DRLG. FLD. OIL EMULSION CORES DIAMOND
LOCATION SEC17 - T28N - R13W REMARKS SAMPLED BY CLIENT

SAND | SHALE | LIMESTONE | DOLOMITE | CONGLOMERATE | VERTICAL FRACTURE | CHERT

TABULAR DATA and INTERPRETATION

Sample Number	Depth Feet	Perm. Md.	Porosity %	Residual Saturation % Pore Space: Oil	Total Water	Prob. Prod.
	LOGGED FROM SAMPLES ONLY.					
1	5340-42	0.02	7.1	43.7	54.8	
2	5345	0.01	7.5	38.7	60.0	
3	5350	0.03	6.5	32.2	66.2	
4	5355	0.02	7.4	35.2	63.5	
5	5360	<0.01	7.6	38.2	59.2	
6	5362	<0.01	6.4	23.4	72.0	
7	63	0.02	6.5	33.8	64.6	
8	5366	0.03	4.4	38.6	56.8	
9	67	<0.01	3.9	48.8	43.6	
10	68	<0.01	4.4	59.1	38.6	
11	69	<0.01	4.4	50.0	47.8	
12	70	<0.01	3.7	48.7	48.7	
13	71	<0.01	5.0	58.0	40.0	
14	72	<0.01	5.4	53.7	42.6	
15	73	<0.01	4.2	52.3	45.2	
16	74	<0.01	5.5	52.8	45.4	
17	75	<0.01	5.1	56.8	41.3	
18	76	<0.01	5.5	47.3	49.2	
19	77	<0.02	6.2	50.0	46.8	
20	78	<0.01	5.4	48.2	50.0	
21	79	<0.01	4.5	42.3	53.5	
22	80	<0.01	3.3	45.5	51.5	
23	81	<0.01	3.7	40.6	56.8	
24	5601-02	0.05	5.9	47.5	50.9	
25	02-03	0.04	5.1	37.3	60.7	
26	03-04	<0.01	4.4	34.1	59.1	
27	04-05	0.02	5.4	40.7	57.4	
28	05-06	0.01	4.3	34.9	62.7	
29	06-07	0.01	3.3	27.2	69.6	
30	07-08	<0.01	4.9	38.8	59.3	
31	08-09	<0.01	7.2	40.3	58.4	
32	09-10	0.10	7.7	42.9	55.8	
33	10-11	0.01	7.4	39.2	59.4	
34	11-12	0.04	5.1	33.4	64.7	
35	12-13	0.02	6.7	32.8	62.6	
36	13-14	<0.01	3.9	38.5	59.0	
37	14-15	0.01	7.8	35.9	61.6	
38	15-16	<0.01	7.6	54.0	43.4	
39	16-17	0.10	5.0	44.0	50.0	
40	17-18	0.15	4.6	36.9	60.9	
41	18-19	<0.01	5.6	39.3	53.6	
42	19-20	0.02	4.5	37.8	55.6	
43	20-21	0.01	4.6	34.8	58.8	
44	21-22	<0.01	2.4	29.1	54.3	
45	22-23	<0.01	6.1	45.9	52.5	
46	23-24	0.06	5.8	44.8	53.4	
47	24-25	<0.01	4.3	30.2	62.4	
48	25-26	0.01	4.5	28.9	64.4	
49	26-27	<0.01	4.7	34.1	61.6	
50	5628-29	0.03	7.9	39.3	57.0	
51	29-30	<0.02	3.0	30.0	50.0	
52	30-31	0.06	8.6	33.7	17.4	
53	31-32	0.03	8.3	18.1	9.7	
54	32-33	0.16	5.4	38.8	14.8	
55	33-34	0.01	4.2	50.0	19.0	
56	34-35	0.01	2.1	33.3	47.6	
57	35-36	<0.01	5.4	12.9	81.5	
58	36-37	<0.01	4.6	15.2	82.6	
59	37-38	0.04	4.6	19.5	71.8	
60	38-39	<0.01	3.8	18.4	78.8	
61	39-40	0.01	4.3	16.3	81.4	
62	40-41	0.02	4.8	14.6	81.1	
63	41-42	<0.01	4.3	16.3	81.4	
64	5643-44	<0.01	4.3	11.6	86.1	
65	44-45	0.02	4.5	15.5	82.3	
66	45-46	<0.01	4.0	12.5	85.0	
67	46-47	<0.01	3.6	13.9	83.5	
68	47-48	0.04	4.5	15.5	82.3	
69	48-49	<0.01	4.3	11.6	86.1	
70	49-50	<0.01	4.2	16.7	78.5	
71	50-51	0.02	3.5	20.0	77.3	
72	51-52	0.03	4.1	17.1	75.6	
73	52-53	0.01	4.9	14.3	77.5	
74	53-54	<0.01	4.5	15.6	77.5	
75	54-55	0.05	4.7	10.6	80.8	
76	[illegible]	0.02	5.0	13.9	80.9	
77	55-56	0.01	4.8	14.6	77.2	
78	56-57	0.01	6.0	11.6	73.4	
79	57-58	0.01	5.3	13.2	77.4	
80	58-59	0.02	5.6	17.9	78.9	
81	59-60	0.02	5.4	9.3	81.5	
82	60-61	<0.01	6.0	16.7	78.4	
83	61-62	0.07	4.8	14.5	77.1	
84	62-63	0.05	6.6	13.6	75.6	
85	63-64	0.01	9.2	35.9	53.4	
86	64-65	0.06	9.3	32.3	51.6	
87	65-66	0.10	10.7	43.9	27.1	
88	66-67	0.05	10.5	37.1	25.7	
89	67-68	0.06	12.3	34.2	25.2	
90	5669-70	0.05	9.6	30.2	26.1	
91	70-71	0.02	10.4	36.5	33.6	
92	71-72	0.20	11.7	40.2	24.8	
93	72-73	<0.01	11.8	39.0	28.0	
94	73-74	0.06	11.4	35.1	21.9	
95	74-75	0.01	11.8	43.2	26.3	
96	75-76	0.09	13.6	41.2	24.3	
97	76-77	0.38	10.6	42.5	29.2	
98	77-78	0.02	12.4	42.0	25.0	
99	78-79	0.02	12.8	39.1	24.2	
100	79-80	0.10	8.9	30.4	28.1	
101	80-81	0.04	7.0	40.0	37.2	
102	81-82	0.34	5.0	26.0	66.0	
103	82-83	0.02	4.7	19.2	70.2	
104	83-84	<0.01	4.2	16.7	78.6	
105	84-85	<0.01	4.4	15.9	75.1	
106	85-86	<0.01	4.3	16.3	77.8	
107	5688-89	<0.01	3.7	18.9	78.4	
108	5690-91	<0.01	4.5	15.6	77.9	
109	5694-95	<0.01	5.1	13.7	68.7	

COMPLETION COREGRAPH



W.N.M.C.F. MICROGRAPHICS
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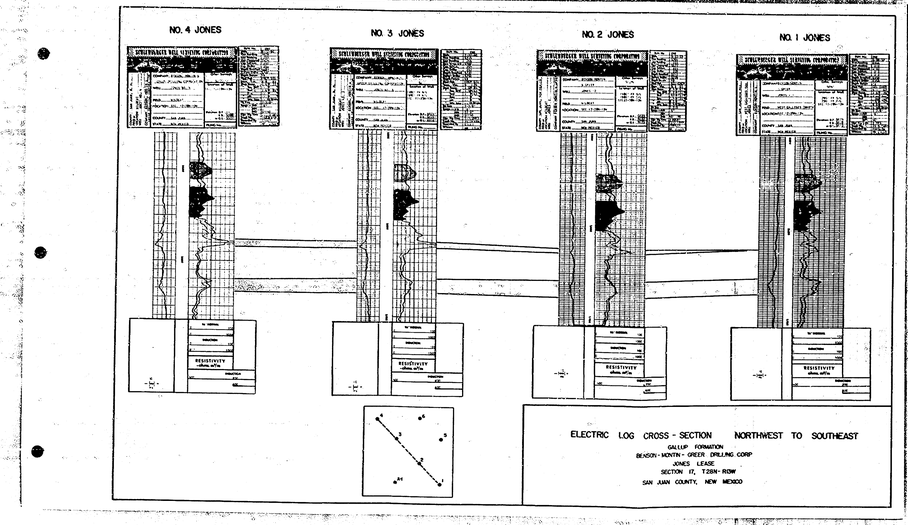

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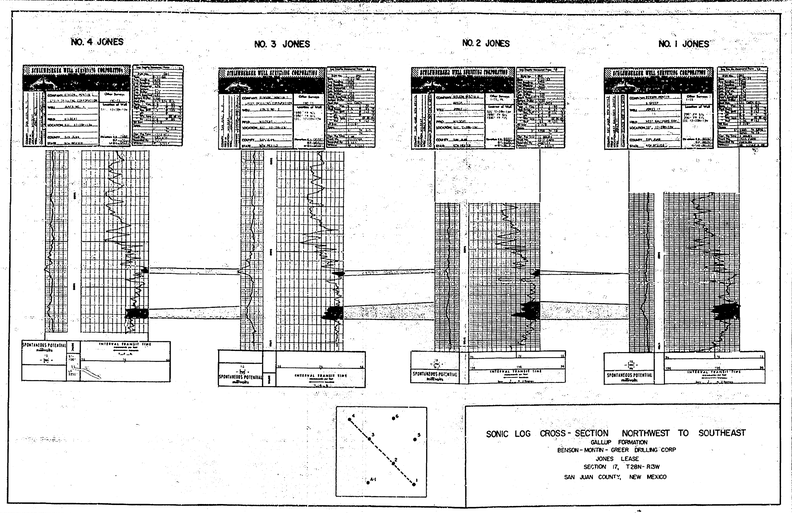

SONIC LOG CROSS-SECTION NORTHWEST TO SOUTHEAST
GALLUP FORMATION
BENSON-MONTIN-GREER DRILLING CORP
JONES LEASE
SECTION 17, T.26N.-R.3W
SAN JUAN COUNTY, NEW MEXICO

N.M.M.C.F. MICROGRAPHICS
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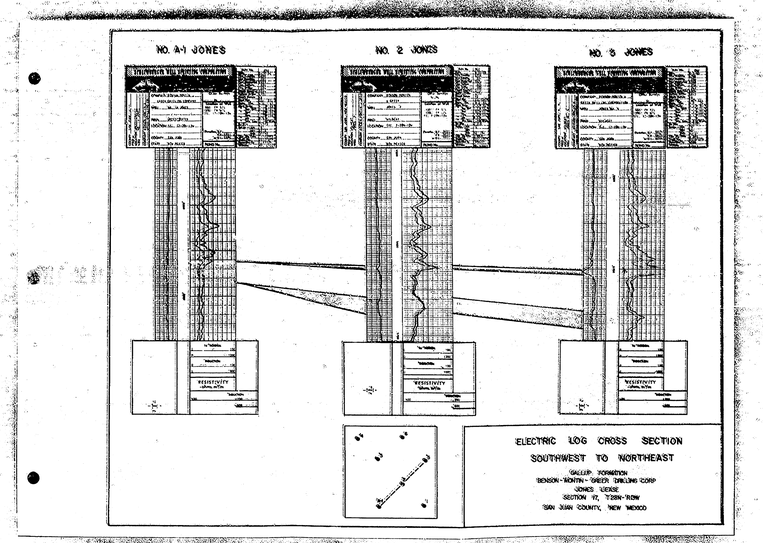

U.S.G.S. MICROGRAPHICS
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Case No.

2089

Large Exhibits

W.N.M.C.F. MICROGRAPHICS

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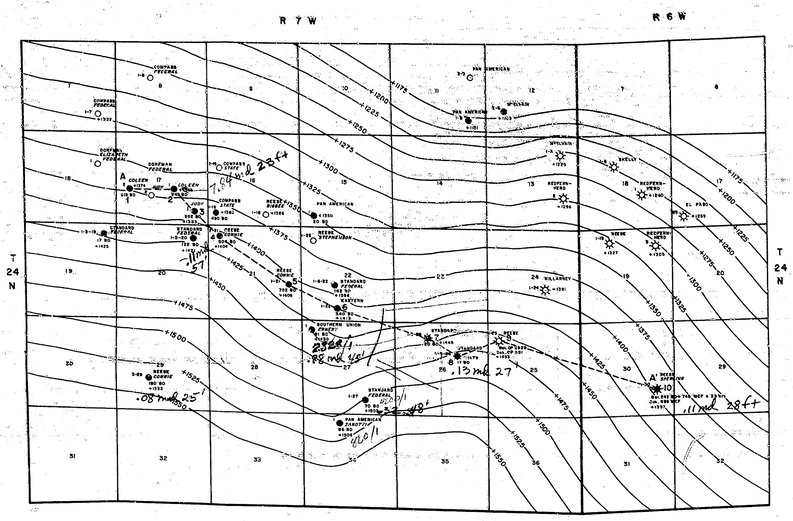

ESCRITO—GALLUP OIL POOL
STRUCTURE MAP
RIO ARRIBA CO., NEW MEXICO

CONTOURED ON TOP OF GALLUP
CONTOUR INTERVAL 25 FEET
SCALE: 2"=1 MILE

SEPT. 1960
VAL R. REESE AND ASSOCIATES INC.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 2089

CROSS SECTION A----A'
INITIAL POTENTIAL IS SHOWN BELOW EACH WELL

CASE 2089
REESE EXHIBIT NO. 3

U.N.M.C.P. MICROGRAPHICS
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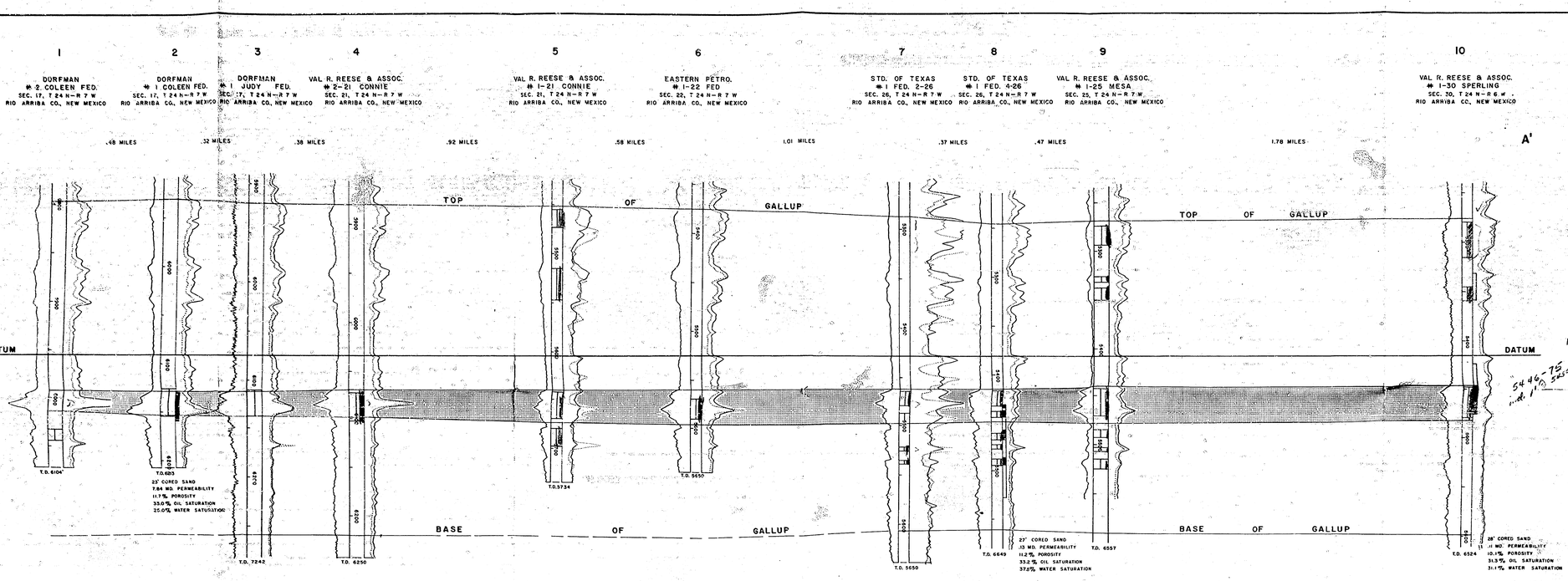

WEST—EAST CROSS SECTION A—A'

ESCRITO—GALLUP OIL POOL

RIO ARRIBA CO., NEW MEXICO

I PERFORATIONS

] ANALIZED CORE INTERVALS

▮ CORED NET PRODUCTIVE SAND

SEPT. 1960

VAL R. REESE AND ASSOCIATES INC.

100%
5 1/2" liner
5446-75
5350-61 14%
ind. 1

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 2089

CASE 2089

REESE EXHIBIT NO. 4

U.N.M.C.F. MICROGRAPHICS
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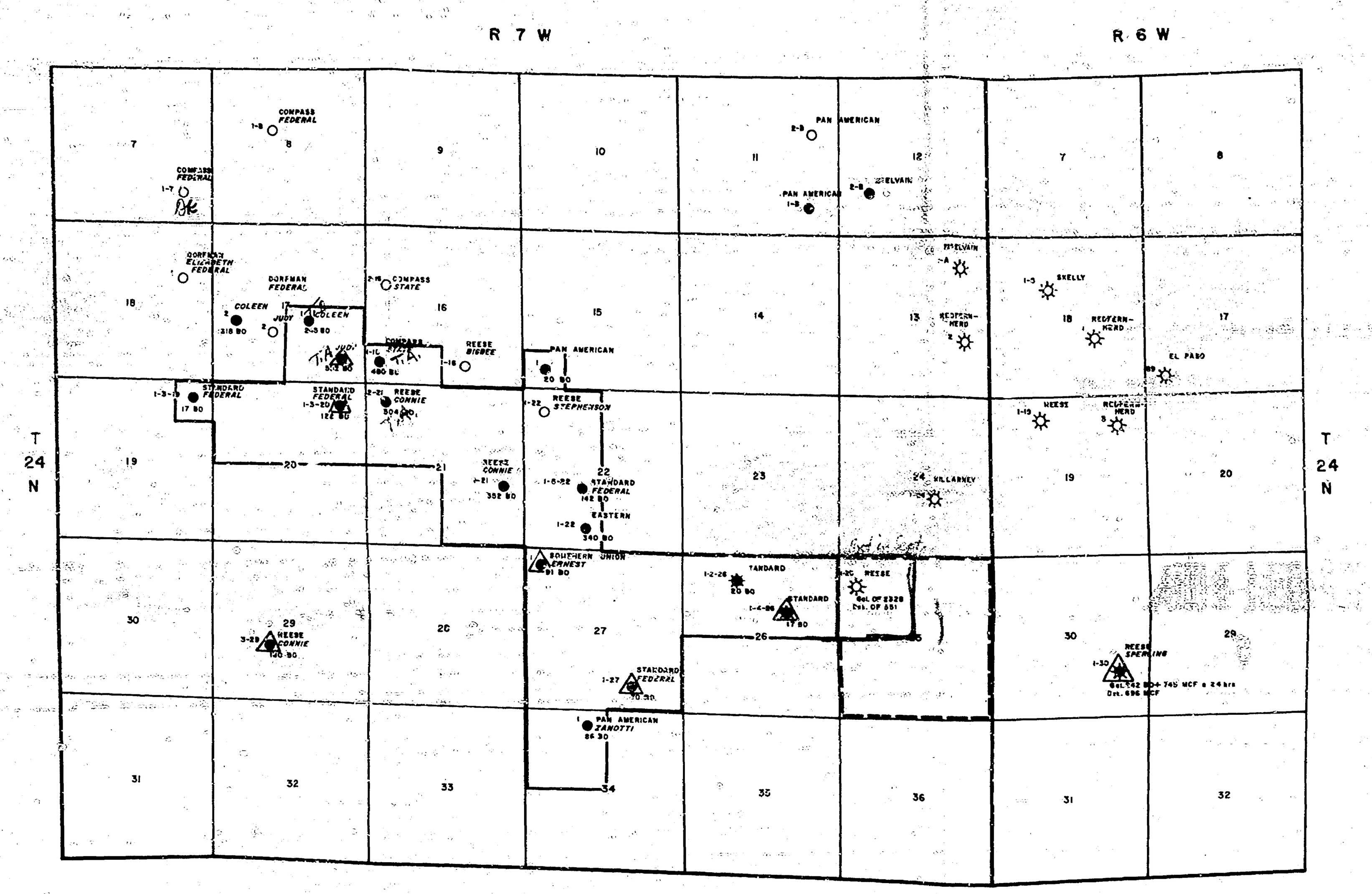

ESCRITO—GALLUP OIL POOL
AREA MAP
RIO ARRIBA CO., NEW MEXICO

PRESENT LIMITS OF ESCRITO-GALLUP OIL POOL

EXTENSION REQUESTED BY APPLICATION

SCALE: 2"=1 MILE

△ CORED WELL

INITIAL POTENTIAL IS SHOWN BELOW EACH WELL

T.A. = top allowance

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 2089

SEPT. 1960

VAL R. REESE AND ASSOCIATES INC.

CASE 2089

REESE EXHIBIT NO. 1

W.N.M.C.F. MICROGRAPHICS

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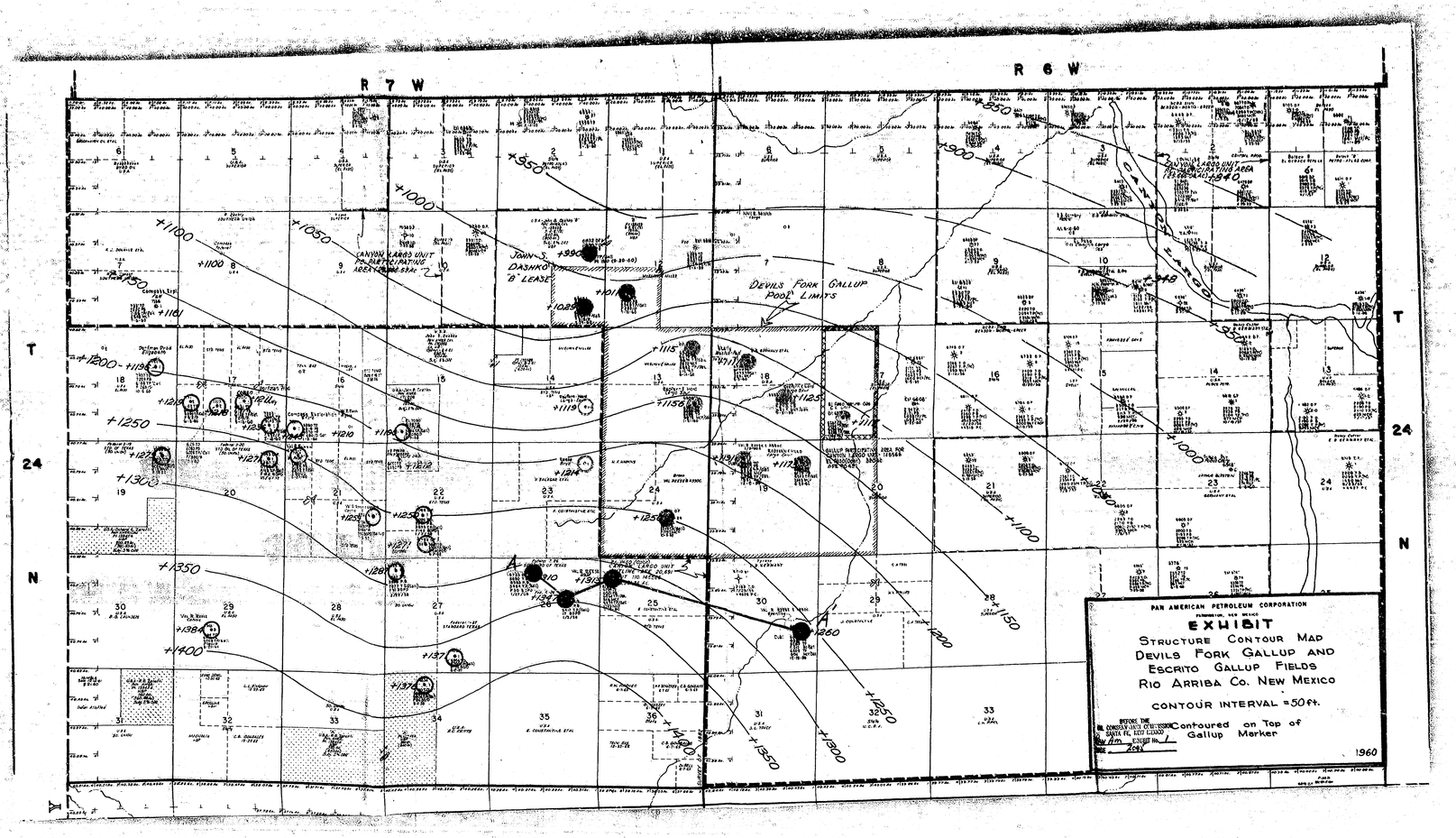

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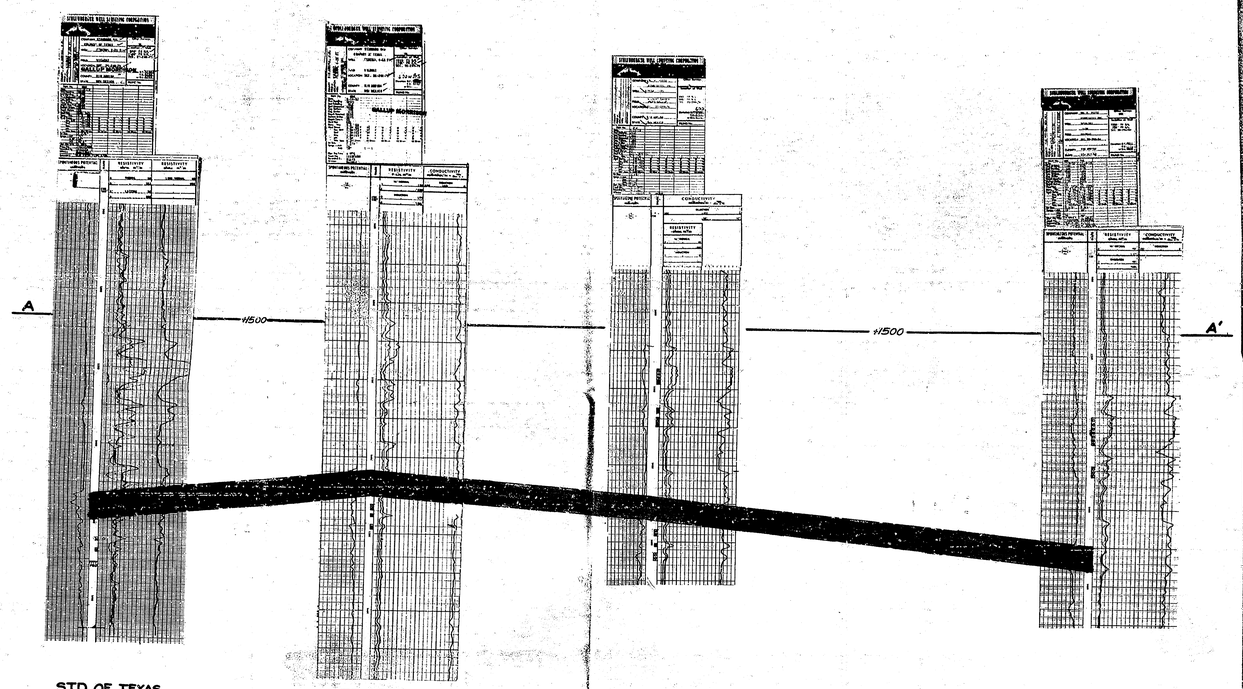

STD. OF TEXAS
No. 2-26 #1 Federal

STANDARD OF TEXAS-FEDERAL 2-26 NO. 1

660' FEL & 1980' FNL Section 26, T-24-N, R-3-W
Rio Arriba County, New Mexico

TD: 6600' PBD: 5933'
Elevation: 6450' DF

Perforated Gallup: 5164-5165, 5188-5196, 5203-5206, 5232-5240

SOP Gallup: 5164-5240 with 35,000 gallons & 45,000 lbs. sand

Initial Potential: Gallup flowed 30 barrels oil per day, GOR 4,167 cubic, GOR 90,000.

Completed: 3-27-58

STD OF TEXAS
No. 4-26 #1 Federal

STANDARD OF TEXAS-FEDERAL 4-26 NO. 1

1850' FEL & 1700' FSL Section 26, T-24-N, R-3-W
Rio Arriba County, New Mexico

TD: 6643' PBD: 5838'
Perforated Gallup: 5454-5460, 5471-5478, 5486-5494

SOP: 5455-5494 with 35,000 gallons and 35,000 lbs. sand

Perforated Gallup: 5437-5454, 5460-5466

SOP: 5437-5466 with 35,000 gallons and 35,000 lbs. sand

Initial Potential: Gallup flowed 19 barrels oil per day, GOR - 57,000.

Completed: 5-5-58

V.R. REESE & ASSOC.
No. 1-25 Mesa

V.R. REESE & ASSOCIATES
Mesa No. 1-25

990' FNL & 660' FEL Section 25, T-24-N, R-3-W
Rio Arriba County, New Mexico

TD: 6416' PBD: 6331'
Perforated Gallup: 5708-5720, 5728-5732, 5736-5752

SOP Gallup: 5708-5752 with 45,000 gallons & 80,000 lbs. sand

Perforated Gallup: 5580-5592, 5596-5620, 5660-5672, 5682-5694

SOP Gallup: 5660-5694 with 45,000 gallons & 100,000 lbs. sand

Initial Potential: Gallup zone flowed 1971 MCF/ D through 3/4" choke. Heavy spray oil throughout test. CITP - 1160/0 psig. CSIP - 1021 MCF.

Completed: 9-13-60

Dual Gallup-Dakota well.

V.R. REESE & ASSOC.
No. 1-30 Sperling

V.R. REESE & ASSOCIATES
Sperling No. 1-30

790' FEL & 1850' FSL Section 30, T-24-N, R-4-W
Rio Arriba County, New Mexico

TD: 6184' PBD: 6090'
Perforated Gallup: 5448-5480
SOP: 5448-5480 with 41,000 gallons and 75,000 lbs. sand
Perforated Gallup: 5280-5294, 5344-5356
SOP: 5280-5356 with 41,000 gallons and 75,000 lbs. sand
Initial Potential: Gallup zone flowed 249 barrels oil in 24 hours, GOR - 1080, Gravity 40.0° API. CITP - 1160/0 psig.

Completed: 12-31-59

Dual Gallup-Dakota Well.

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Pan Am EXHIBIT No. 8
CASE 3046

CROSS SECTION A-A'
ESCRITO GALLUP AREA
RIO ARRIBA COUNTY, NEW MEXICO

NOVEMBER 14, 1960

PAN AMERICAN EXHIBIT No.

U.N.M.C.F. MICROGRAPHICS
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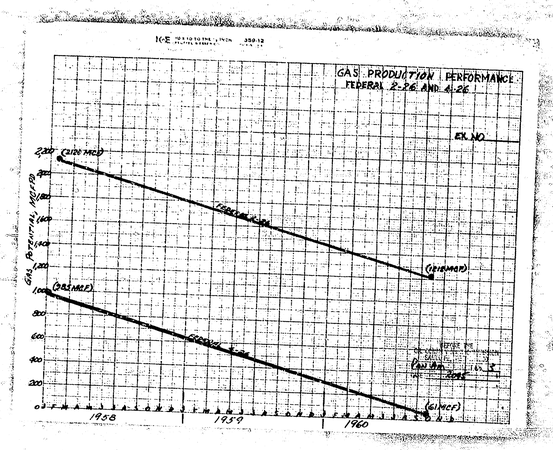

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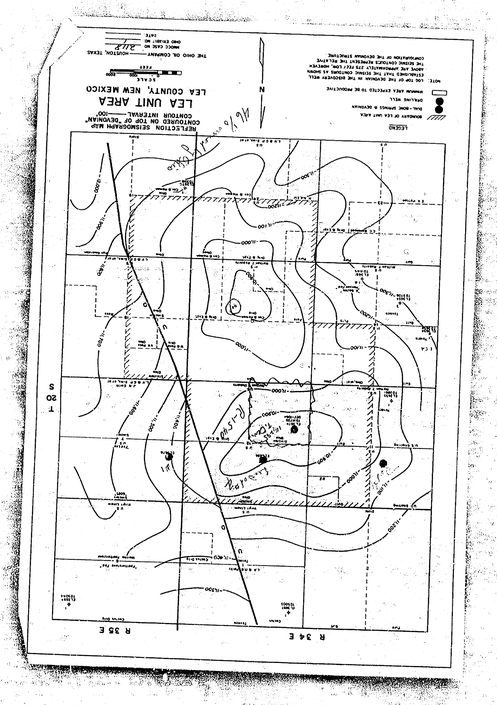

U.S.M.C.T. MICROGRAPHICS
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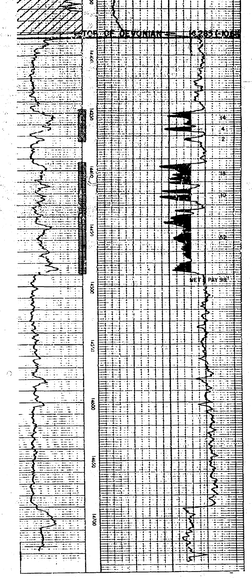
OHIO OIL COMPANY
LEA UNIT FEDERAL WELL NO. 1
ELEV 3674
NW/4 SW/4 SEC 12, T-20-S, R-34-E

RADIOACTIVITY LOG OF DEVONIAN SECTION



NMOCC CASE NO. 2114
OHIO EXHIBIT NO. _____
DATE _____

U.N.M.C.F. MICROGRAPHICS
BEST AVAILABLE COPY

LEA DEVONIAN POOL

PERTINENT DATA

1. Location of Field:

   Approximately 14 miles west-southwest of Monument, New Mexico, Section 12, T-20-S, R-34-E, Lea County

2. Completion Data Lea Unit Well No. 1:

a.	Formation	Devonian
b.	Total Depth	14,735
c.	Top of Devonian	14,285 (-10,611)
d.	Top of Devonian Pay	14,392 (-10,675)
e.	Completion Date	7-8-60
f.	Perforated Interval	14,392-475 14,392-469
g.	Treatment	500 gal MA 4,000 gal Acid
h.	Initial Potential Test	
	(1) Potential (BOPD)	516
	(2) Choke Size (in.)	(8/64)
	(3) GOR (CF/B)	384
	(4) Casing Pressure (psig)	pkr.
	(5) Tubing Pressure (psig)	1570

3. Reservoir Fluid Characteristics:

a.	Saturation Pressure (bubble point)	567 psi @ 202°F
b.	Formation Volume Factor @ Original Pressure	1.185
c.	Solution Gas Oil Ratio (CF/B)	318
d.	Oil Viscosity @ Original Pressure (cp)	0.310
e.	Oil Gravity (°API @ 60°F)	38.2

4. Reservoir Characteristics:

a.	Porosity (%)	4.7
b.	Permeability (md)	9.6 and greater
c.	Water Saturation (%)	30.0 est.
d.	Net Pay (ft.)	98
e.	Reservoir Temperature (°F)	202
f.	Original Reservoir Pressure (psig)	6046 @ -10,744
g.	Probable Reservoir Mechanism	Water Drive

NMOCC Case No. 2118

Ohio Exhibit No. 3

Date

RECOVERABLE OIL RESERVES

LEA DEVONIAN POOL

Basic Data

Net Pay	= 98 feet	(Neutron Log)
Porosity	= 4.7%	(Neutron Log)
Water Saturation	= 30%	(estimated)
Formation Volume Factor	= 1.185	(fluid analysis)
Recovery Factor	= 50%	(estimated)

Volumetric Calculation

$$\frac{7758 \text{ Bbl/acre-foot} \times \text{Porosity} \times (1\text{-Water Saturation}) \times \text{Net Pay} \times \text{Recovery Factor}}{\text{Formation Volume Factor}}$$

$$\frac{(7758)(0.047)(0.70)(98)(0.50)}{1.185} = 10,754 \text{ bbls/acre}$$

NMOCC Case No. 2118

Ohio Exhibit No. 4

Date

COMPARATIVE ECONOMICS
FOR DEVELOPMENT OF
LEA DEVONIAN POOL

40-ACRE SPACING VS. 80-ACRE SPACING

Minimum Area Expected to be Productive		800 Acres
Wells Required with 40 Acre Spacing		20 Wells
Wells Required with 80 Acre Spacing		10 Wells
Investment @ $471,000 per Well		
For 40 Acre Spacing (20 Wells)		$ 9,420,000
For 80 Acre Spacing (10 Wells)		$ 4,710,000
Ultimate Reserves		
Oil		8,443,200 bbls.
Gas @ 300 cu. ft. per bbl.		2,532,960 MCF
W.I. Net Operating Income Per Gross Bbl. of Oil Produced Including Income From Gas Produced with Oil		
Value		
Bbl. of oil		$2.77
300 cu. ft. of gas		.06
Total Gross Value		$2.83
Costs		
Severance & Advalorem Taxes	$0.20	
Royalty	0.35	
Lifting Costs	0.25	
		$0.80
Net Operating Income per gross bbl.		$2.03
W.I. Total Net Operating Income 8,443,200 x $2.03/bbl.		$17,139,696
Net Profit for 40-Acre Spacing		$ 7,719,696
Net Profit per Well	$385,985	
Profit to Investment Ratio		0.82 to 1
Net Profit for 80-Acre Spacing		$12,429,696
Net Profit per Well	$1,242,970	
Profit to Investment Ratio		2.64 to 1

NMOCC Case No. 2118

Ohio Exhibit No. 5

Date

LEA BONE SPRINGS POOL

PERTINENT DATA

1. Location of Field:

   Approximately 14 miles west-southwest of Monument, New Mexico, Section 12, T-20-S, R-34-E, Lea County

2. Completion Data Lea Unit Well No. 1:

a.	Formation	Bone Springs
b.	Top of Bone Springs	8183 (-5409)
c.	Top of Bone Springs Pay	9480 (-7006)
d.	Completion Date	10-9-60
e.	Perforated Interval	9480-9550
f.	Treatment	None
g.	Initial Potential Test	
	(1) Potential (BOPD)	214
	(2) Choke Size (in.)	1/2
	(3) GOR (CF/B)	1817
	(4) Casing Pressure (psig)	pkr.
	(5) Tubing Pressure (psig)	100

3. Reservoir Fluid Characteristics:

a.	Saturation Pressure	Unknown
b.	Formation Volume Factor	1.95 est.
c.	Solution GOR (CF/B)	1817
d.	Oil Gravity (°API @ 60°F)	42

4. Reservoir Characteristics:

		Dolomite	Sand
a.	Porosity (%)	3.05	10.2
b.	Permeability (md)	4.39	0.25
c.	Water Saturation (%)	30.0 est.	30.0 est.
d.	Net Pay (ft.)	28	19
e.	Reservoir Temperature (°F)	142	
f.	Original Reservoir Press. (psig)	3983 @ -5840	
g.	Probable Reservoir Mechanism	Solution Gas	

NMOCC Case No. 2119

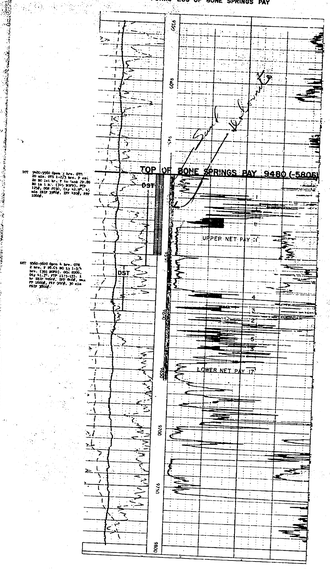
Ohio Exhibit No. 6

Date

W.N.M.C.P. MICROGRAPHICS

BEST AVAILABLE COPY

OHIO OIL COMPANY
LEA UNIT FEDERAL WELL NO. 1
ELEV. 3674
NW/4 SW/4 SEC. 12, T-20-S, R-34-E
FORXG LOG OF BONE SPRINGS PAY



NMOCC CASE NO. 2115
OHIO EXHIBIT NO. 7
DATE:

W.N.M.C.P. MICROGRAPHICS
BEST AVAILABLE COPY

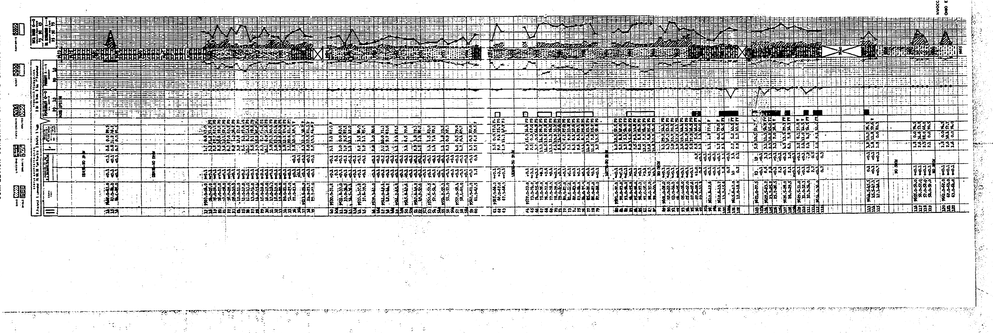
OHIO OIL COMPANY

LEA UNIT FEDERAL WELL NO. 2

ELEV. 3986

SE/4 NW/4 SEC. 18, T-20-S, R-34-E

COMPLETION CORDROY OF BONE SPRINGS PAY



N.M.O.C.D. MICROGRAPHICS

BOX / ROLLBACK COPY

RECOVERABLE OIL PEREVE

LEA BONE SPRINGS POOL

DOLOMITE INTERVAL:

Basic Data

Porosity	- 3.0% (core analysis #2 well)
Permeability	- 4.39 md (core analysis #2 well)
Net Pay	- 88 ft. (Log #1 well)
Water Saturation	- 30% (estimated)
Recovery Factor	- 20% (estimated)
Formation Volume Factor	- 1.95 (estimated)

Volumetric Calculation

$$\frac{7758 \text{ Bbl/Acre-foot x Porosity x (1-Water Saturation) x Net Pay x Recovery Factor}}{\text{Formation Volume Factor}}$$

$$\frac{(7758)(0.030)(0.70)(88)(0.20)}{1.95} = 476 \text{ bbl/acre}$$

SAND INTERVAL

Basic Data

Porosity	- 10.3% (core analysis #2 well)
Permeability	- 0.85 md (core analysis #2 well)
Net Pay	- 19 ft. (core analysis #2 well)
Water Saturation	- 30% (estimated)
Recovery Factor	- 10% (estimated)
Formation Volume Factor	- 1.95 (estimated)

Volumetric Calculations

$$\frac{7758 \text{ Bbl/Acre-foot x Porosity x (1-Water Saturation) x Net Pay x Recovery Factor}}{\text{Formation Volume Factor}}$$

$$\frac{(7758)(0.103)(0.70)(19)(0.10)}{1.95} = 540 \text{ bbl/acre}$$

TOTAL BONE SPRINGS INTERVAL:

Zone Total = 476 + 540 = 1016 bbl/acre

NMOCC Case No. 2119

Ohio Exhibit No. 9

Date

COMPARATIVE ECONOMICS FOR DEVELOPMENT OF LEA BONE SPRINGS POOL

40-ACRE SPACING VS. 80-ACRE SPACING

Minimum Area Expected to be Productive	800 Acres
Wells Required with 40 Acre Spacing	20 Wells
Wells Required with 80 Acre Spacing	10 Wells
Investment @ $225,000 per well	
For 40 Acre Spacing (20 Wells)	$4,500,000
For 80 Acre Spacing (10 Wells)	$2,250,000
Investment for Dual Completion @ $25,000 per Well	
For 40 Acre Spacing (20 Wells)	$ 500,000
For 80 Acre Spacing (10 Wells)	$ 250,000
Ultimate Reserves	
Oil	812,800 bbls.
Gas @ 2000 cu. ft. per bbl.	1,625,600 MCF

W.I. Net Operating Income Per Gross Bbl. of Oil Produced Including Income from Gas Produced With Oil

Value		
Bbl. of oil		$ 2.77
2000 cu. ft. of gas		0.20
Total Gross Value		$ 2.97
Costs		
Severance & Advalorem Taxes	$0.21	
Royalty	0.37	
Lifting Costs	0.24	
		$ 0.82
Net Operating Income per Gross Bbl.		$ 2.15

W.I. Total Net Operating Income
812,800 X $2.15/bbl. $1,747,520

Net Loss for 40-Acre Spacing		$2,732,480
Net Loss per Well	$137,624	
Net Loss for 80-Acre Spacing		$ 502,480
Net Loss per Well	$ 50,248	
Net Profit for Dual Completion for 40-Acre Spacing		$1,247,520
Net Profit per Well	$ 62,376	
Profit to Investment Ratio	2.50 to 1	
Net Profit for Dual Completion for 80-Acre Spacing		$1,497,520
Net Profit per Well	$149,752	
Profit to Investment Ratio	5.99 to 1	

NMOCC Case No. 2119

Ohio Exhibit No. 10

Date

CORE ANALYSIS

LEA UNIT WELL NO. 2

BONE SPRINGS PAY

LOWER DOLOMITE INTERVAL 9607-9648

W/PERMEABILITY EQUAL TO OR GREATER THAN 0.1 MILLIDARCY

Depth Interval	Footage	Permeability md.	Porosity %
9607.6-09.1	1.5	1.0	2.8
09.1-10.8	1.7	0.2	1.4
13.7-15.6	1.9	1.8	2.1
15.6-17.0	1.4	10.0	2.7
17.0-18.0	1.0	0.2	2.9
21.0-22.5	1.5	23.0	5.9
22.5-23.7	1.2	6.6	3.1
23.7-25.2	1.5	2.8	2.3
25.2-26.5	1.3	2.3	3.3
28.0-29.5	1.5	2.1	6.1
32.3-34.0	1.7	6.1	2.4
34.0-36.0	2.0	0.7	2.0
44.5-45.5	1.0	0.1	3.2
Net Pay	19.2 ft.		
Weighted Average		4.39 md.	3.0%

CORE ANALYSIS

LEA UNIT WELL NO. 2

BONE SPRINGS PAY

LOWER SAND INTERVAL 9565-9607

W/PERMEABILITY EQUAL TO OR GREATER THAN 0.1 MILLIDARCY

Depth Interval	Foot ge	Permeability md.	Porosity %
9566.0-67.0	1.0	0.3	9.6
72.0-73.0	1.0	0.1	9.3
75.0-76.0	1.0	0.3	10.3
76.0-77.0	1.0	0.6	14.5
77.0-78.0	1.0	0.4	13.3
79.0-80.0	1.0	0.1	8.6
80.0-81.0	1.0	0.1	8.0
81.0-82.0	1.0	0.1	7.1
82.0-83.0	1.0	0.1	8.3
83.0-84.0	1.0	0.1	9.6
84.0-85.0	1.0	0.1	10.4
85.0-86.0	1.0	0.4	14.9
86.0-87.0	1.0	0.4	11.5
94.0-95.0	1.0	0.1	6.0
95.0-96.0	1.0	0.1	7.5
96.0-97.0	1.0	0.1	8.0
97.0-98.0	1.0	0.4	12.5
98.0-99.0	1.0	0.6	12.8
99.0-00.0	1.0	0.4	10.8
Net Pay	19.0 ft.		
Weighted Average		0.25 md.	10.2%

N.M.C.F. MICROGRAPHICS

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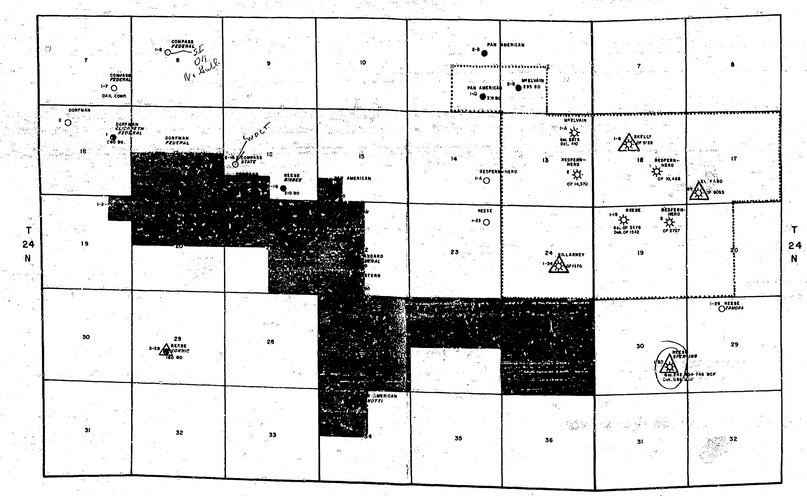

ESCRITO—GALLUP OIL POOL

AREA MAP

RIO ARRIBA CO., NEW MEXICO

LIMITS OF ESCRITO—GALLUP POOL

EXTENSION OF ESCRITO—GALLUP POOL REQUESTED BY APPLICATION

LIMITS OF DEVILS FORK—GALLUP POOL

CORED WELL

INITIAL POTENTIAL IS SHOWN BELOW EACH WELL

SCALE: 2"=1 MILE

NOV. 1960

VAL R. REESE AND ASSOCIATES INC.

CASE 2089
DE NOVO HEARING
REESE EXHIBIT NO. 1

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

(9)

Escrito-Gallup Oil Pool Well Data Sheet
November, 1960

Location S-T-R	Operator	Well No.	Comp. Date	Initial Potential	Gallup Perforations	First Prod.	Current GOR cu. ft./Bbl.	Cumulative Prod. to 9-1-60
30-24-6	Reese	1-30 Sperling	12-8-59	242 BOPD 745 Mcf	5448-5480' 5344-5358' 5280-5316'	1/60	41,712	3,106 BO 1,774 BO
15-24-7	Pan Am	1 Dashko	2-18-58	20 BOPD	5936-66' 5977-91' 6005-15'	6/58	2,400	5,713 BO
16-24-7	Compass	1-16 State	2-1-60	480 BOPD	6070-96'	2/60	2,190	13,327 BO
16-24-7	Reese	1-16 Bigbee	11-3-60	210 BOPD	5916-38' 5782-90' 5800-04'			
17-24-7	Dorfman	1 Judy-Fed.	2-25-60	552 BOPD	5110-38'	2/60	1,352	16,553 BO
17-24-7	Dorfman	2 Judy-Fed.	10-8-60	300 BOPD	6024-74'		833	
17-24-7	Dorfman	1 Coleen-Fed.	5-18-60	245 BOPD	6128-56'	5/60	1,060	9,093 BO
17-24-7	Dorfman	2 Coleen-Fed.	6-15-60	618 BOPD	5980-6014' 6032-44'	6/60	696	6,734 BO
18-24-7	Dorfman	1 Elizabeth-Fed.	10-7-60	260 BOPD	6108-33'		825	
19-24-7	Standard	1-3-19 Federal	2-18-58	17 BOPD	6054-90' 6090-6114'	2/58	1,467	7,545 BO
20-24-7	Standard	1-3-20 Federal	10-8-57	122 BOPD	6128-43'	9/57	3,084	30,183 BO
21-24-7	Reese	1-21 Connie	7-4-59	352 BOPD	5636-80' 5670-42' 5548-16' 5474-56'	7/59	5,310	15,526 BO 12,222 Mcf
21-24-7	Reese	2-21 Connie	4-18-60	504 BOPD	6072-6098'	4/60	1,065	11,183 BO
22-24-7	Eastern	1-22 Federal	6-8-58	340 BOPD	5570-90'	6/58	300*	21,233 BO
22-24-7	Reese	1-22 Stephenson	11-3-60	342 BOPD	5972-6004' 5846-76' 5782-5804'			
22-24-7	Standard	1-6-22 Federal	1-7-58	142 BOPD	5855-76' 5881-89'	1/58	2,300	18,572 BO

*New GOR not available. Previously filed GOR is used.

Case 2089
De Novo Hearing
Reese Exhibit No. 2

Escrito-Gallup Oil Pool Well Data Sheet (contd.)
November, 1960

Location S-T-R	Operator	Well No.	Comp. Date	Initial Potential	Gallup Perforations	First Prod.	Current GOR cu. ft./Bbl.	Cumulative Prod. to 9-1-60
25-24-7	Reese	1-25 Mesa	6-5-60	OF 2328 Mcf	5514-5524' 5502-5506' 5484-5492' 5442-5470' 5328-5350' 5326-5332' 5274-5294'	--	70,000 (estimated)	
26-24-7	Standard	1-2-26 Federal	1-27-58	30 BOPD	5464-40'	1/58	86,571	2,748 BO 236,000 Mcf**
26-24-7	Standard	1-4-26 Federal	1-5-58	17 BOPD	5462-69' 5474-78' 5488-94' 5417-34' 5440-46'	1/58	30,400	2,265 BO 128,645 Mcf**
27-24-7	So. Union	1 Ernest	2-22-58	91 BOPD	5577-5601'	2/58	-2,350	15,498 BO
27-24-7	Standard	1-1-27 Federal	6-10-57	70 BOPD	5700-13'	6/57	-3,550	16,495 BO
29-24-7	Reese	3-29 Connie	6-13-60	180 BOPD	6048-6056' 6006-6022'		-3,267	
34-24-7	Pan Am	1 Zanotti	3-4-58	86 BOPD	5604-24' 5640-58' 5658-78'	3/58	1,472	11,626 BO

**Vented

Note: All wells single completions with the exception of Reese #1-30 Sperling and Reese #1-25 Mesa, which are dual Dakota wells.

U.N.M.C.F. MICROGRAPHICS
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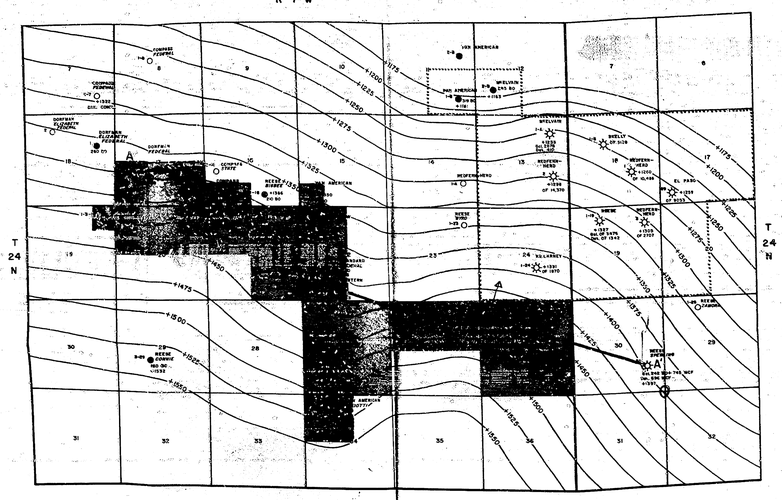

DEVILS FORK—GALLUP GAS POOL
and
ESCRITO—GALLUP OIL POOL
STRUCTURE MAP
RIO ARRIBA CO., NEW MEXICO

LIMITS OF ESCRITO—GALLUP POOL

EXTENSION OF ESCRITO—GALLUP POOL REQUESTED BY APPLICATION

LIMITS OF DEVILS FORK—GALLUP POOL

CONTOURED ON TOP OF GALLUP

CONTOUR INTERVAL 25 FEET

SCALE : 2"=1 MILE

CROSS SECTION A——A'

NOV. 1960
VAL R. REESE AND ASSOCIATES INC.

CASE 2089
DE NOVO HEARING
REESE EXHIBIT NO. 3

N.M.O.C.D. MICROGRAPHICS
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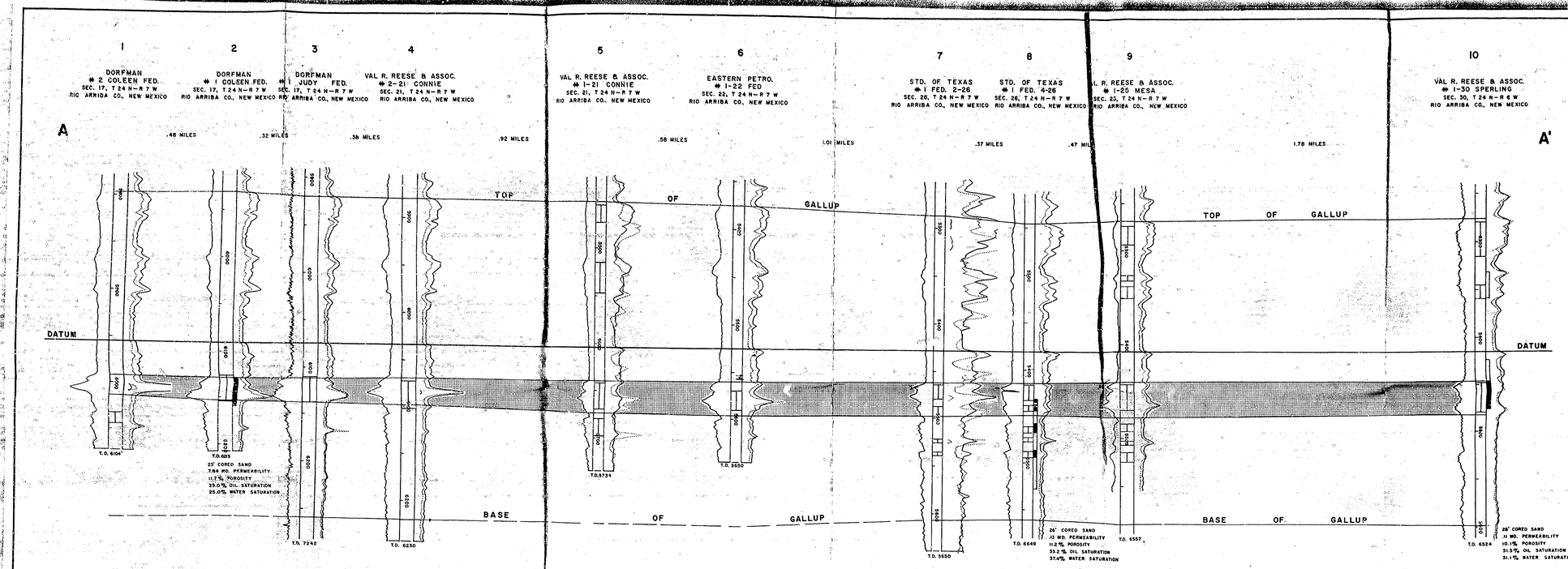

WEST—EAST CROSS SECTION A—A'

ESCRITO—GALLUP OIL POOL

RIO ARRIBA CO., NEW MEXICO

I PERFORATIONS
] ANALIZED CORE INTERVALS
▮ CORED NET PRODUCTIVE SAND

NOV. 1960

VAL R. REESE AND ASSOCIATES INC.

DATUM IS MARKER BED WITHIN GALLUP FORMATION
CROSS SECTION DOES NOT SHOW STRUCTURAL POSITION OF WELLS

CASE 2089
DE NOVO HEARING
REESE EXHIBIT NO. 4

N.M.O.C.C. MICROGRAPHICS
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Calculation of Recoverable Reserves
Standard 1-3-20 Federal
Section 20, T-24N, R-7W

Oil Area

Net sand thickness	57 feet
Porosity of sand	10.1 %
Water saturation of sand	35.5 %
Shrinkage factor	.7
Estimated recovery by primary methods	5 %
Oil in place per acre-foot	353.8 Bbls.
Recoverable oil per acre-foot	17.7 Bbls.
Recoverable oil per acre	1,009 Bbls.
Recoverable oil from 40 acres	40,360 Bbls.
Gross value at $2.42/Bbl.	$97,671
Production and ad valorem taxes	6 %
Assumed outstanding royalty interests	17.5 %
$97,671 x .825 x .94 = $75,744 net after royalty and taxes	
Net value from 60 acres	$151,488

Note: The net value determination does not consider operating costs and is not discounted over the productive life of the well.

Case 2089
De Novo Hearing
Reese Exhibit No. 5A

Calculation of Recoverable Reserves
Dorfman #1 Coleen Federal
Section 17, T-24N, R-7W

Oil Area

Net sand thickness	23 feet
Porosity of sand	11.7 %
Water saturation of sand	25.0 %
Shrinkage factor	.7
Estimated recovery by primary methods	15 %
Oil in place per acre-foot	476.5 Bbls.
Recoverable oil per acre-foot	71.5 Bbls.
Recoverable oil per acre	1,644 Bbls.
Recoverable oil from 40 acres	65,760 Bbls.
Gross value at $2.42/Bbl.	$159,139
Production and ad valorem taxes	6 %
Assumed outstanding royalty interests	17.5 %
$159,139 x .825 x .94 = $123,412 net after royalty and taxes	
Net value from 80 acres	$246,824

Note: The net value determination does not consider operating costs and is not discounted over the productive life of the well.

Case 2089
De Novo Hearing
Reese Exhibit No. 5B

Calculation of Recoverable Reserves
Standard 1-4-26 Federal
Section 26, T-24N, R-7W

Gas Area

Net sand thickness	41 feet
Porosity of sand	11.2 %
Oil saturation of sand	33.2 %
Water saturation of sand	37.8 %
Bottom hole pressure	1842 psig
Reservoir temperature	121 °F
Compressibility factor	.790
Gas per acre-foot originally in place	198 Mcf
Gas per acre-foot remaining at 250 psia abandonment pressure	22 Mcf
Recoverable gas per acre-foot	176 Mcf
Recoverable gas per acre	7,216 Mcf
Liquid content	12 Bbls. / MMcf
Pipeline gas recoverable per acre	7,108 Mcf
Liquids recoverable per acre	85 Bbls.
Recoverable gas from 40 acres	284,320 Mcf
Gross value of gas at 13¢/Mcf	$36,962

Case 2089
De Novo Hearing
Reese Exhibit No. 5C

Calculation of Recoverable Reserves
Standard 1-4-26 Federal
-2-

Recoverable liquids from 40 acres	3,400 Bbls.
Gross value of liquids at $2.22/Bbl.	$7,548
Gross value of recoverable hydrocarbons	$44,510
Production and ad valorem taxes	6 %
Assumed outstanding royalty interests	17.5 %
$44,510 x .825 x .94 = $34,518 net after royalty and taxes	
Net value from 160 acres	$138,072
Net value from 320 acres	$275,144

Note: The net value determination does not consider operating costs and is not discounted over the productive life of the well.

N.M.M.C.F. MICROGRAPHICS
BEST AVAILABLE COPY

Calculation of Recoverable Reserves
Reese #1-30 Sperling
Section 30, T-24N, R-6W

Gas Area

Net sand thickness	33 feet
Porosity	10.1 %
Oil saturation of sand	31.3 %
Water saturation of sand	31.1 %
Bottom hole pressure	1842 psig
Reservoir temperature	121 °F
Compressibility factor	.790
Gas per acre-foot originally in place	231 Mcf
Gas per acre-foot remaining at 250 psia abandonment pressure	27 Mcf
Recoverable gas per acre-foot	204 Mcf
Recoverable gas per acre	6,732 Mcf
Liquid content	12 Bbls. / MMcf
Pipeline gas recoverable per acre	6,631 Mcf
Liquids recoverable per acre	80 Bbls.
Recoverable gas from 40 acres	265,240 Mcf
Gross value of gas at 13¢/Mcf	$34,481

Case 2089
De Novo Hearing
Reese Exhibit No. 50

Calculation of Recoverable Reserves
Reese #1-30 Sperling
-2-

Recoverable liquids from 40 acres	3,200 Bbls.
Gross value of liquids at $2.22/Bbl.	$7,104
Gross value of recoverable hydrocarbons	$41,585
Production and ad valorem taxes	6 %
Assumed outstanding royalty interests	17.5 %

$41,585 x .825 x .94 = $32,249 net after royalty and taxes

Net value from 160 acres	$128,997
Net value from 320 acres	$257,993

Note: The net value determination does not consider operating costs and is not discounted over the productive life of the well.

N.M.O.C.D. MICROGRAPHICS
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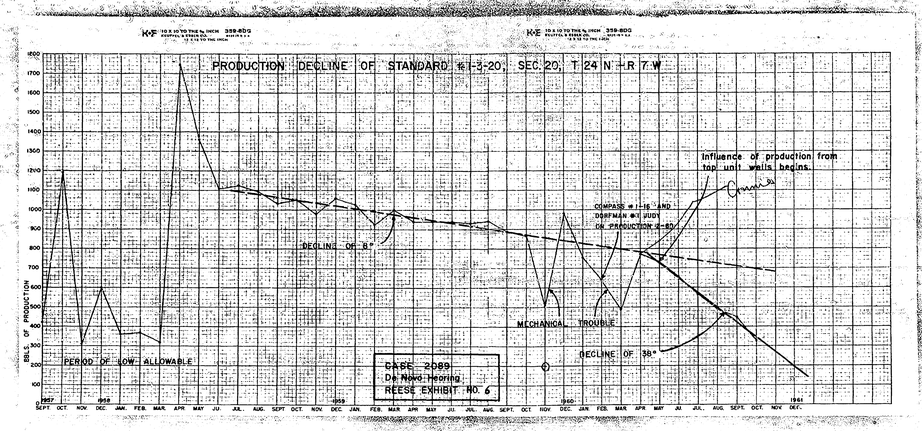
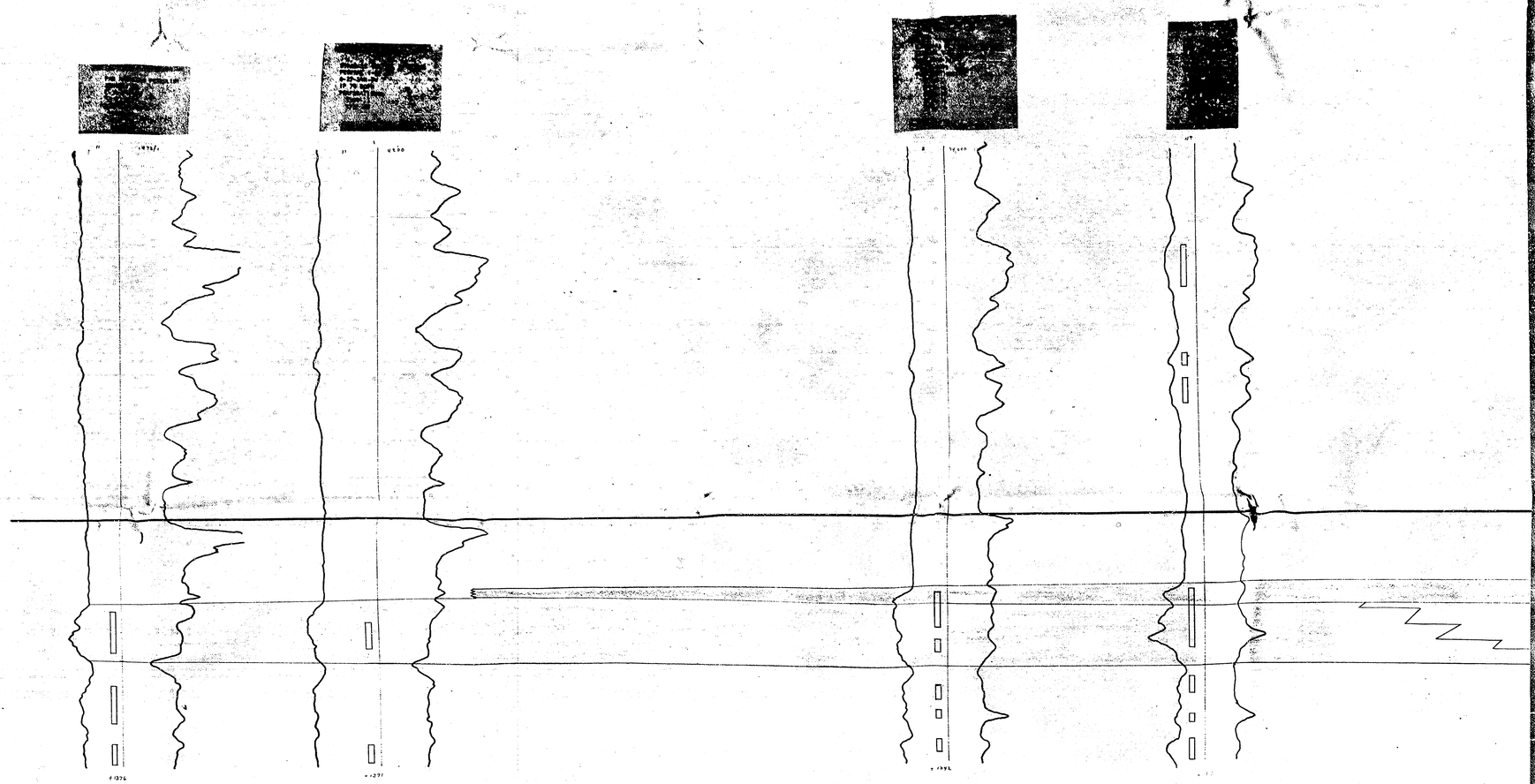


W.N.M.C.P. MICROGRAPHICS

BEST AVAILABLE COPY



W.N.M.C.F. MICROGRAPHICS

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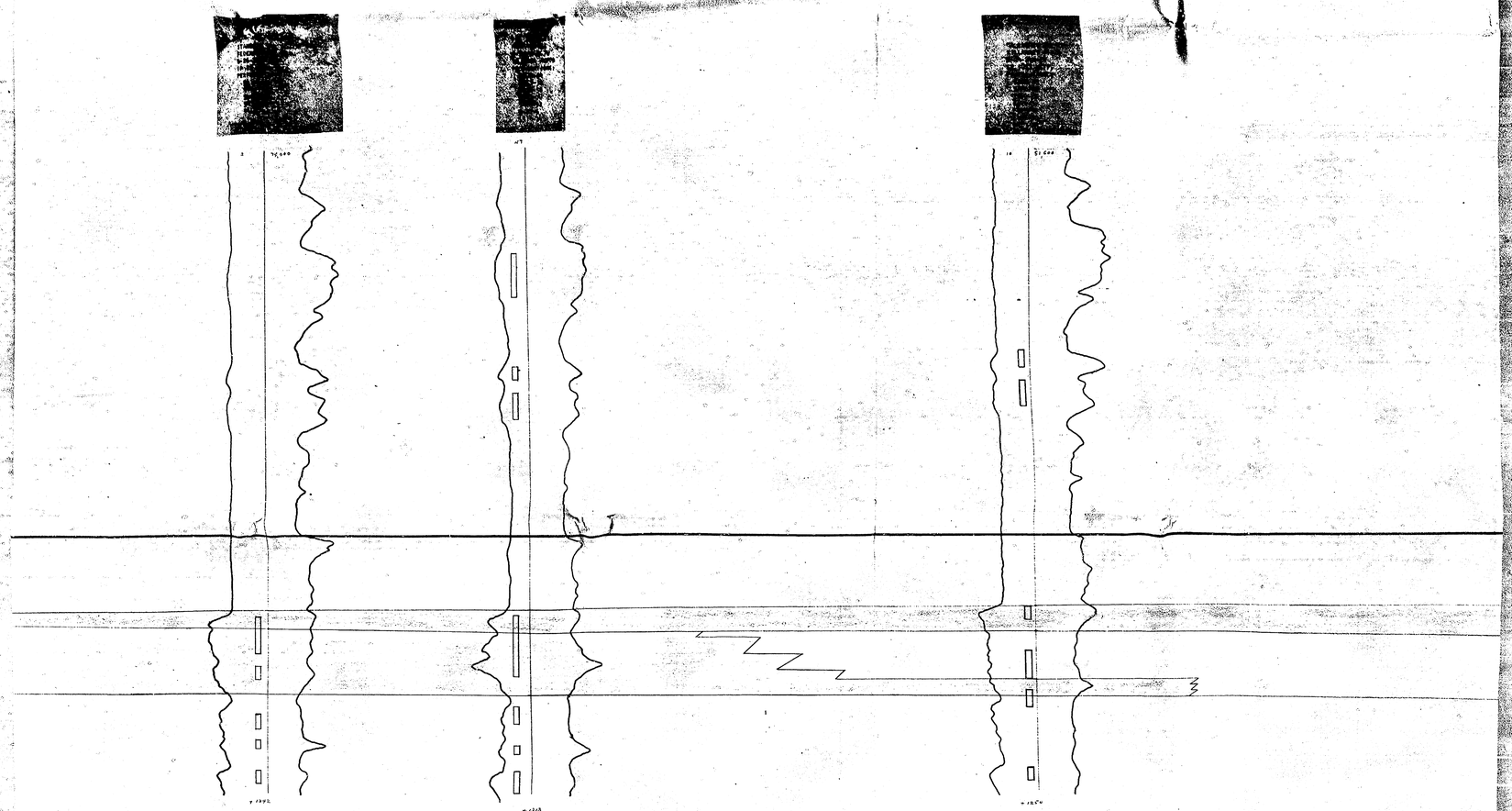

W.N.M.C.F. MICROGRAPHICS

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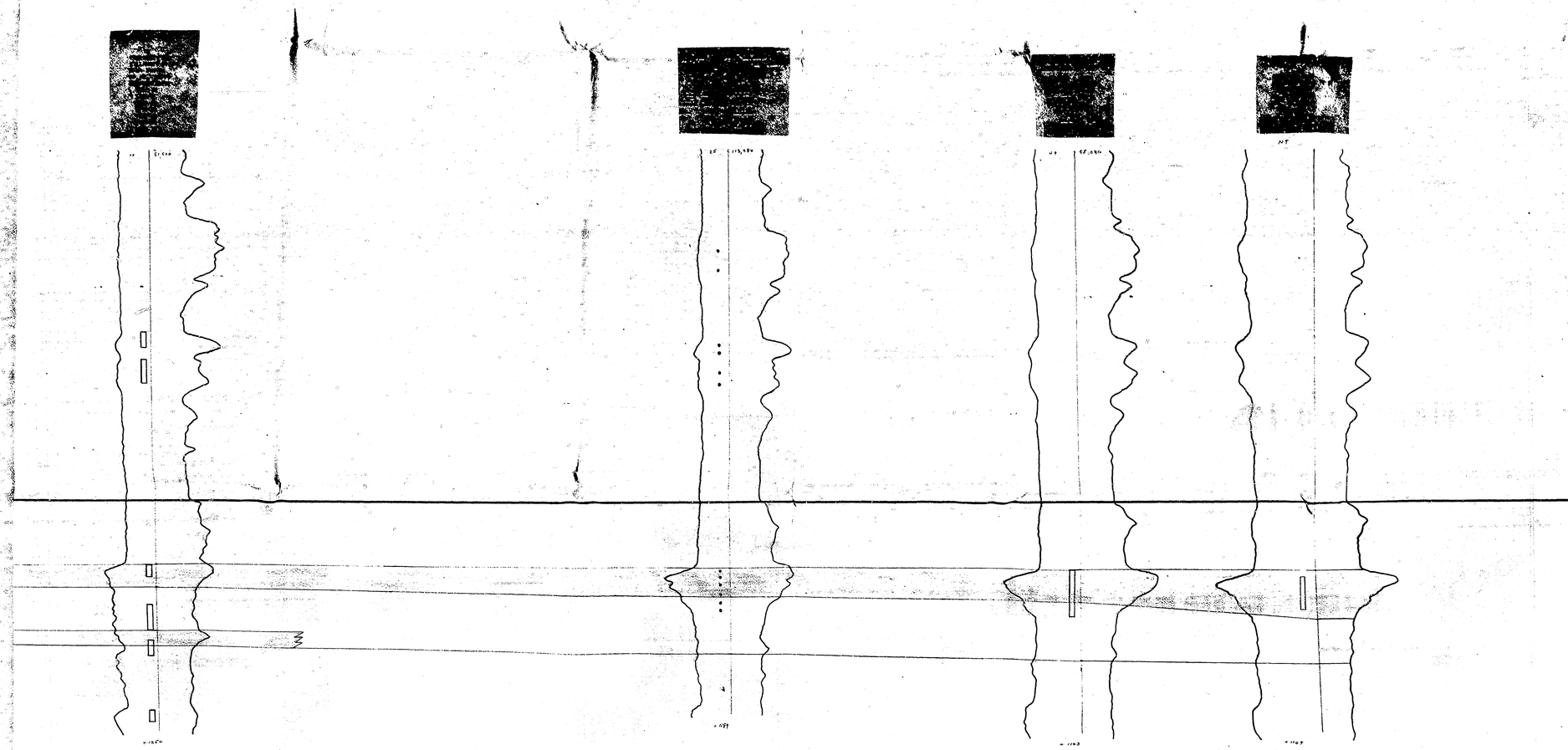

N.M.C.F. MICROGRAPHICS

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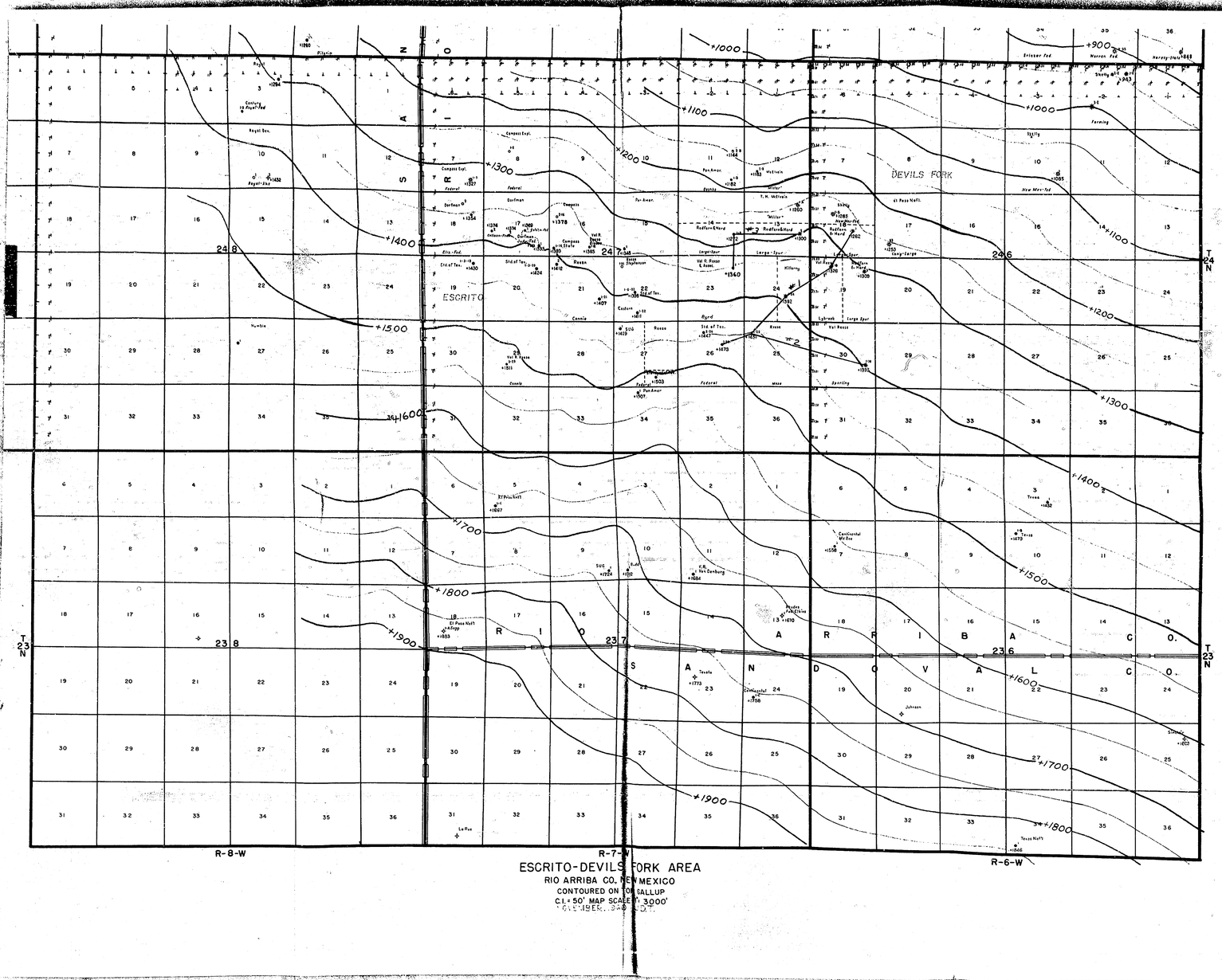

ESCRITO-DEVILS FORK AREA

RIO ARRIBA CO., NEW MEXICO

CONTOURED ON TOP SALLUP

C.I. = 50', MAP SCALE 1" = 3000'

W.N.M.C.P. MICROGRAPHICS

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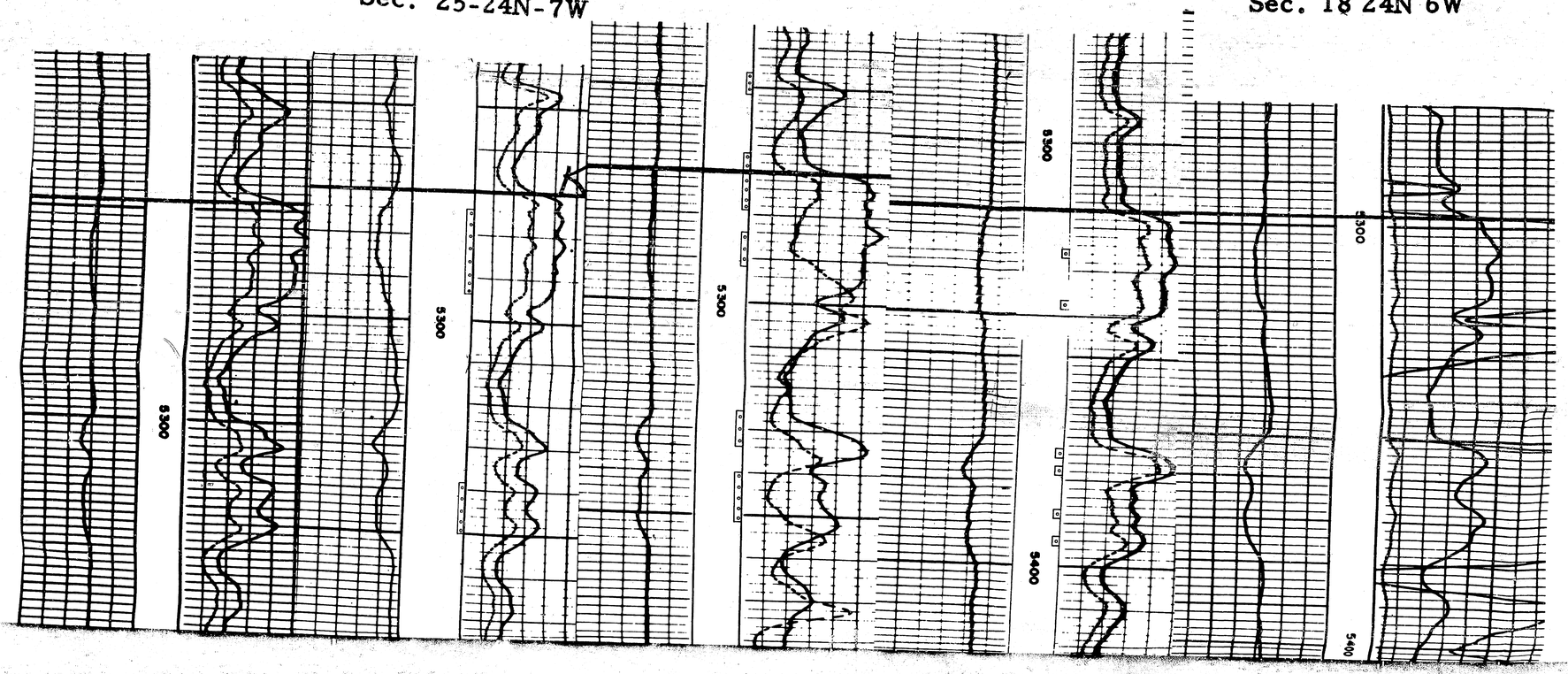
Standard Oil
#1 Federal 4-26
NE SW NE
26 24N 7 W

Val R. Reese
Mesa #1-25
Sec. 25-24N-7W

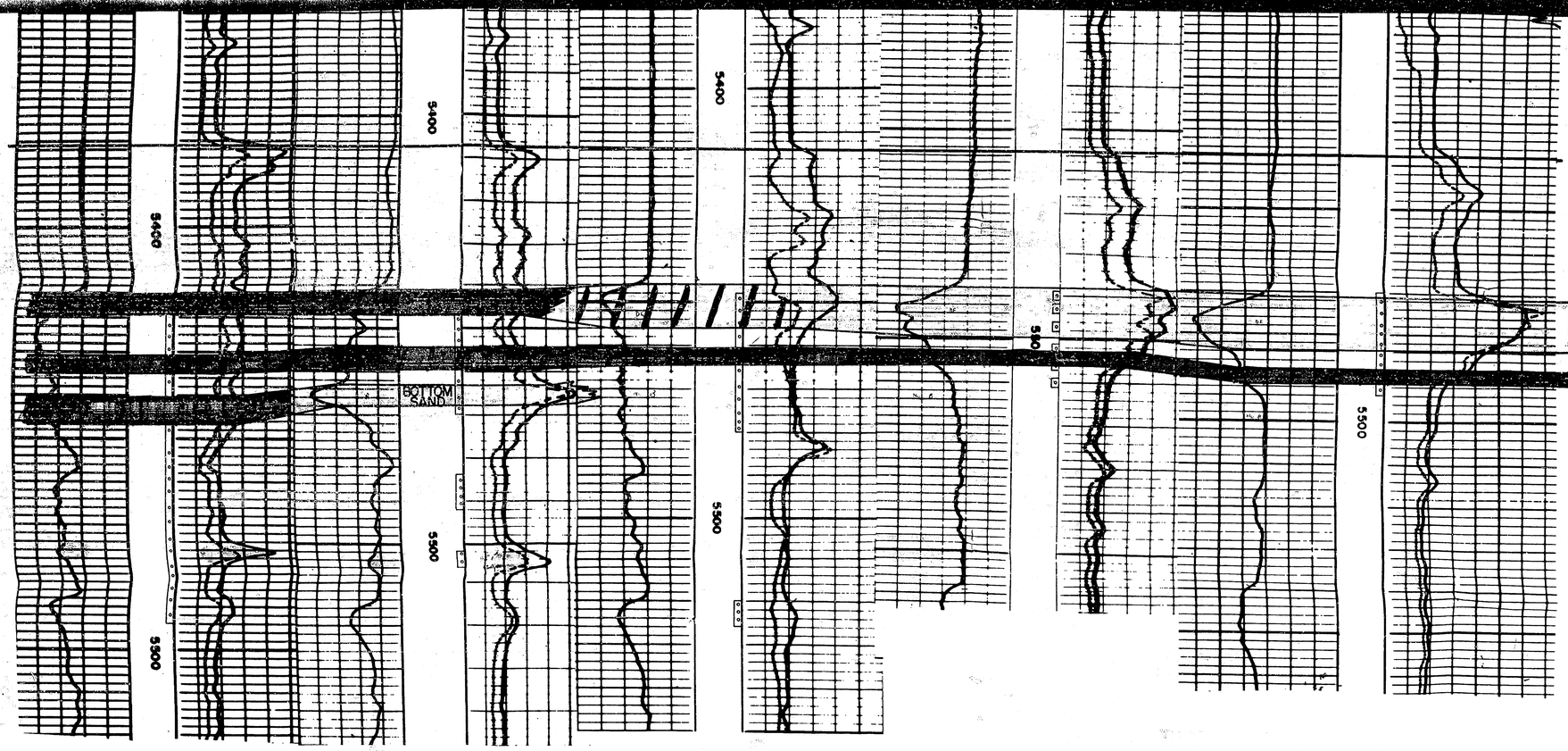
Killarny
Brown #1-24
Sec. 24-24N-7W

Val R. Reese
& Associates
Lybrook 1-19
Sec. 19 24N 6W

Redfern & Herd
Largo Spur #1
Sec. 18 24N 6W



V.R.M.C.F. MICROGRAPHICS
BEST AVAILABLE COPY



SW-NE CROSS-SECTION

SHOWING FACIES CHANGE OF SAND LENSES AND PRIMARY PRODUCING SAND LENSE IN DEVILS FORK AND ESCRITO POOLS.

VERTICAL SCALE - 10" = 100'
NO HORIZONTAL SCALE

NOVEMBER, 1960

N.M.O.C.C. MICROGRAPHICS
BEST AVAILABLE COPY

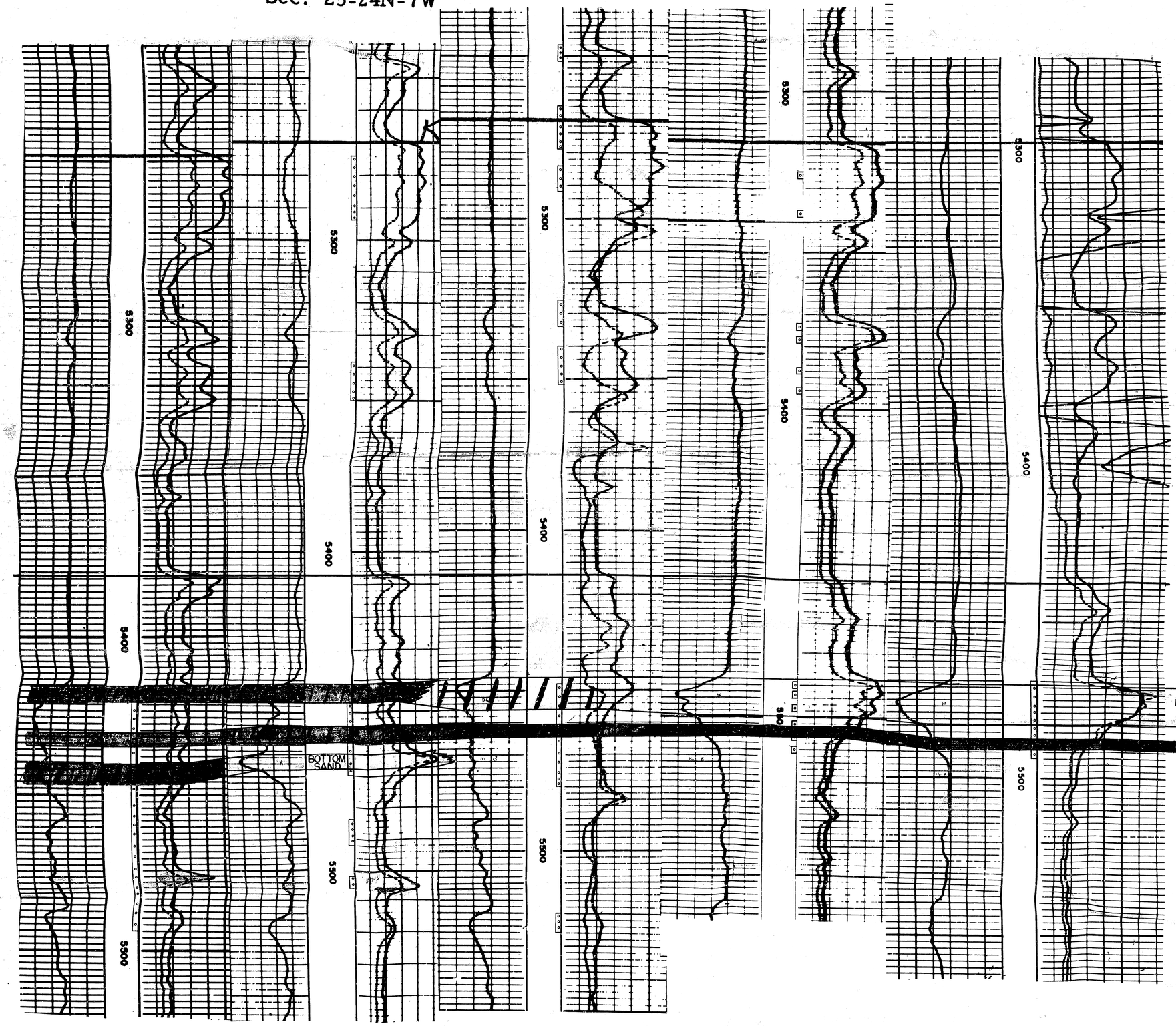
Standard Oil
#1 Federal 4-26
NE SW NE
26 24N 7 W

Val R. Reese
Mesa #1-25
Sec. 25-24N-7W

Killarny
Brown #1-24
Sec. 24-24N-7W

Val R. Reese
& Associates
Lybrook 1-19
Sec. 19 24N 6W

Redfern & Herd
Largo Spur #1
Sec. 18 24N 6W



SW-NE CROSS-SECTION

SHOWING FACIES CHANGE OF SAND LENSES AND PRIMARY PRODUCING SAND LENSE IN DEVILS FORK AND ESCRITO POOLS.

VERTICAL SCALE - 10" = 100'
NO HORIZONTAL SCALE

NOVEMBER, 1960

Redfern & Herd
No. 1-A Largo Spur
SW/4 Sec. 14
T 24 N, R 7 W

Val R. Reese & Associates
No. 1-23 Byrd
NE/4, Sec. 23, T24N, R7W

5500

5400

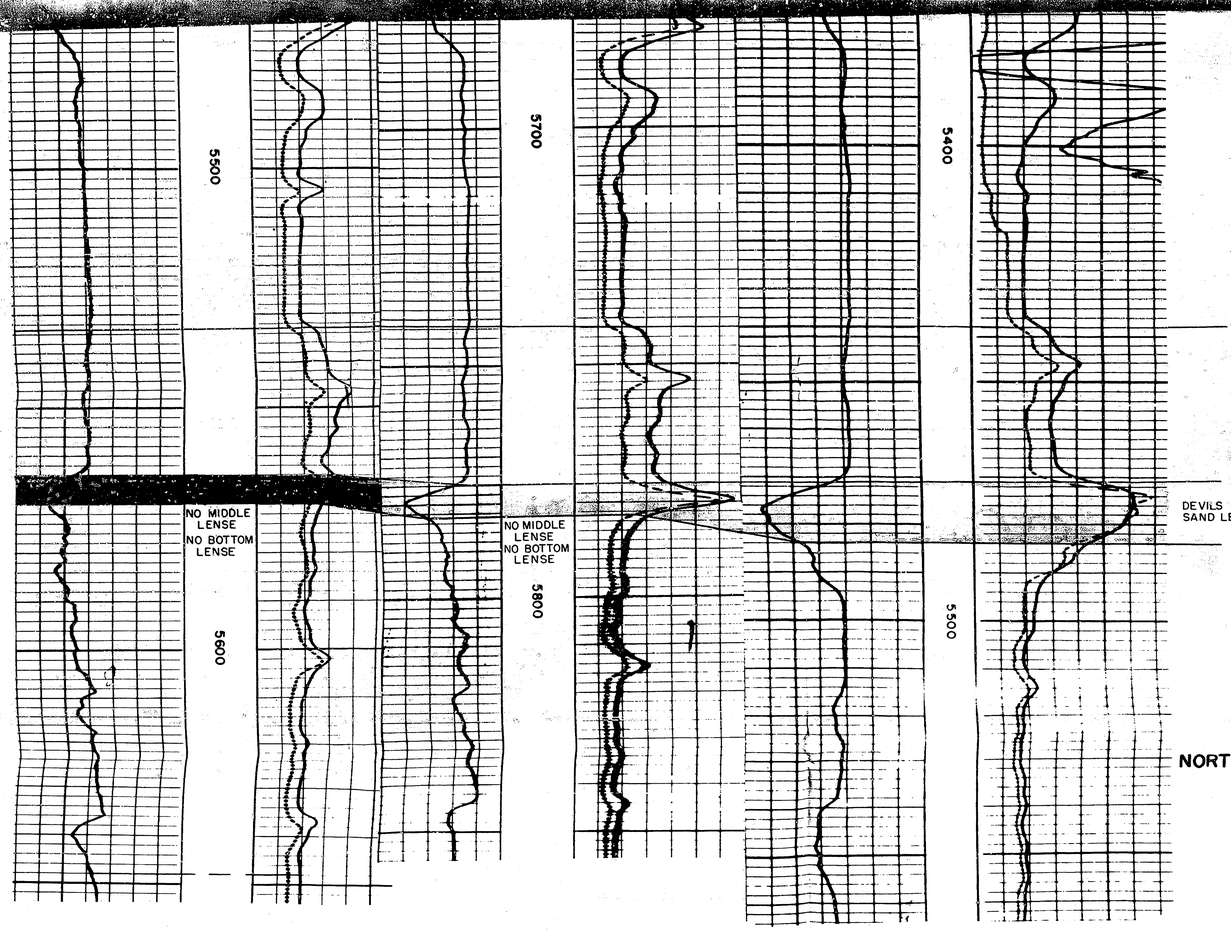
5600

5300

Redfern & Herd
Largo Spur #1
Sec. 18 24N 6W

W.N.M.G.F. MICROGRAPHICS

BEST AVAILABLE COPY



NORTH TO SOUTH TO EAST CROSS SECTION

SHOWING WEDGE OUT OF
DEVILS FORK SAND LENSE

VERTICAL SCALE 1" = 10'
NO HORIZONTAL SCALE
NOVEMBER, 1960

W.R.N.C.F. MICROGRAPHICS
WEST VIRGINIA GEPT

No. 1-A Largo Spur
SW/4 Sec. 14
T 24 N, R 7 W

Val R. Reese & Associates
No. 1-23 Byrd
NE/4, Sec. 23, T24N, R7W

Redfern & Herd
Largo Spur #1
Sec. 18 24N 6W

5500
5400
5600
5700
5800
5900
5400
5500
5600

NO MIDDLE LENSE
NO BOTTOM LENSE

NO MIDDLE LENSE
NO BOTTOM LENSE

DATUM LINE

DEVILS FORK SAND LENSES

NORTH TO SOUTH TO EAST CROSS SECTION

SHOWING WEDGE OUT OF
DEVILS FORK SAND LENSE

VERTICAL SCALE 1" = 10'
NO HORIZONTAL SCALE
NOVEMBER, 1960

V.N.C.F. MICROGRAPHICS
AVAILABLE COPY