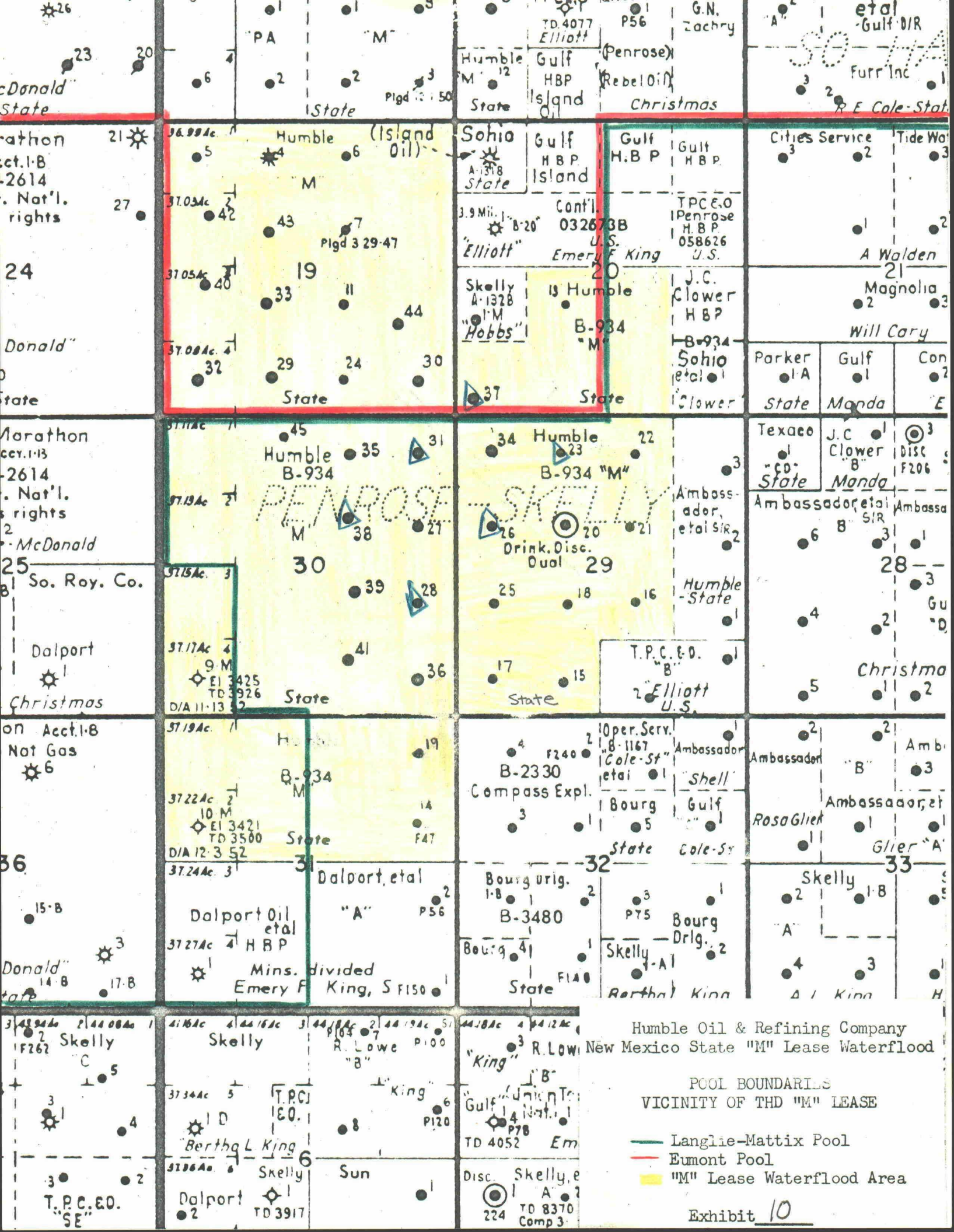
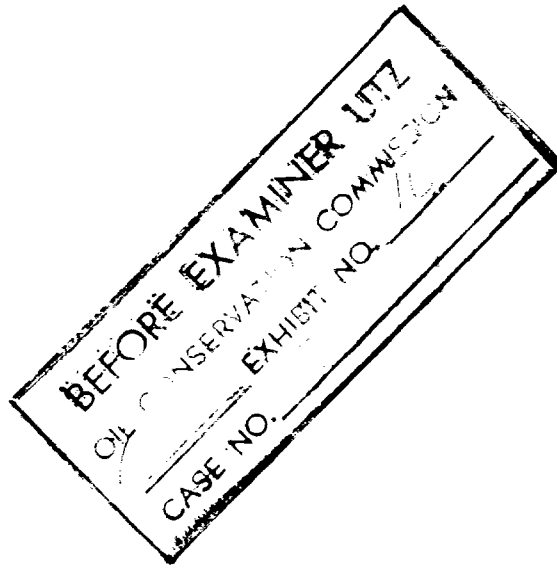
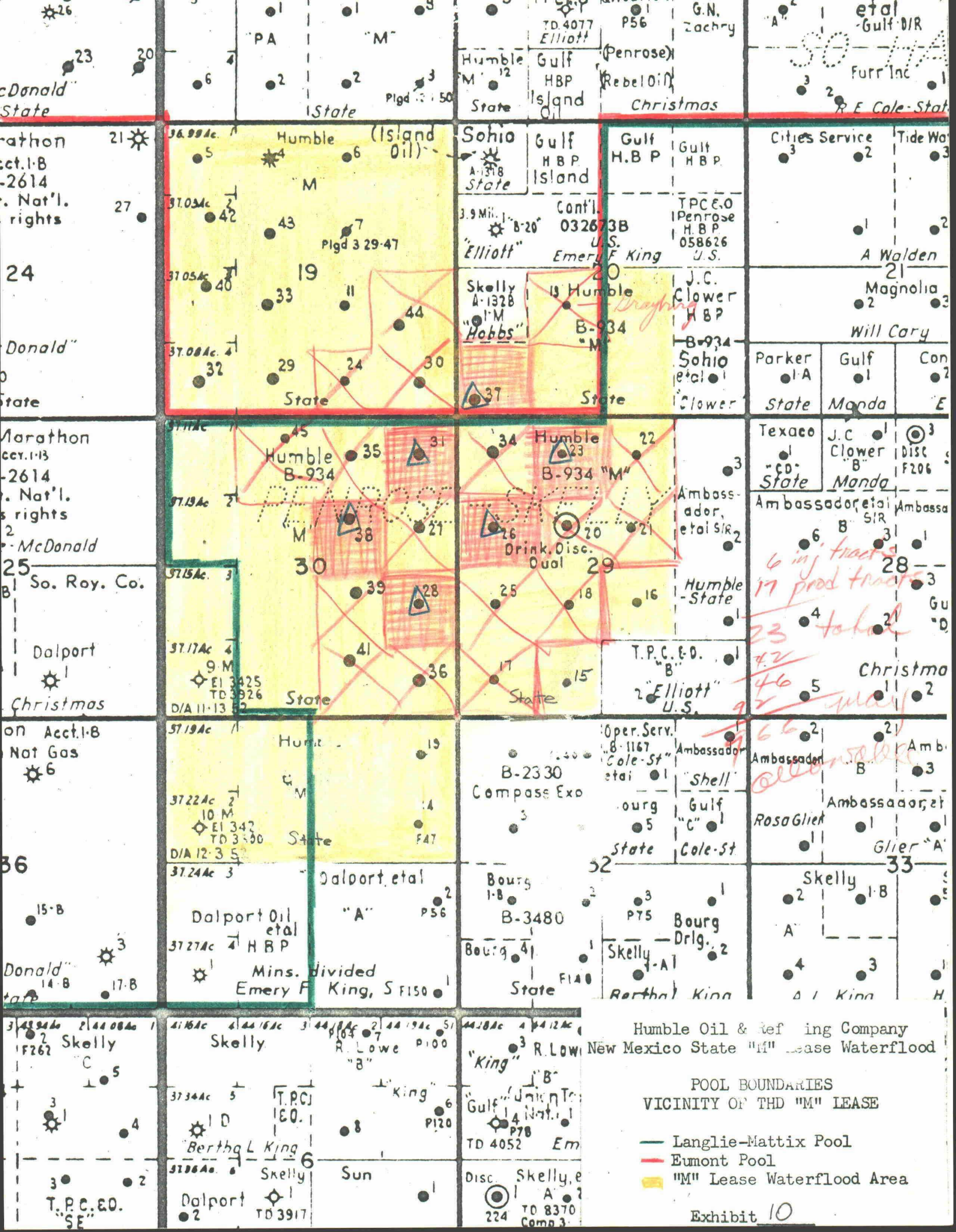








Humble Oil & Refining Company
New Mexico State "M" Lease Waterflood

POOL BOUNDARIES
VICINITY OF THD "M" LEASE

- Langlie-Mattix Pool
- Eumont Pool
- "M" Lease Waterflood Area

SOURCE WATER FOR PROPOSED "M" LEASE
HUMBLE OIL & REFINING COMPANY WATERFLOOD
 SOUTHWEST REGION
 SERVICE LABORATORY

Laboratory No. 45020-A

WATER ANALYSIS

Houston, Texas

November 29, 1962

COUNTY Lea, New Mexico

DATE SAMPLED November 12, 1962

FIELD Langlie-Mattix

DATE RECEIVED November 15, 1962

WELL New Mexico State M-20

SUBMITTED BY A. L. Carpenter

DEPTH 4,170-4,260, 4,534-4,544,

WORKED BY Ann B. Pearson

4,551-4,555

FORMATION San Andres

SOURCE Reda pump after 20,000 bbls. continuous production

OWNER Humble Oil & Refining Co.

Analysis		Comparison Data	
	Parts Per Million		Percent
Radicals			
Sodium	1,800	Primary Salinity	55.36
Calcium	766	Secondary Salinity	36.06
Magnesium	290	Primary Alkalinity	None
Chloride	3,030	Secondary Alkalinity	8.53
Sulfate	2,115	Chloride Salinity	66.00
Bicarbonate	740	Sulfate Salinity	34.00
Carbonate	None		
		Ratios	
TOTAL	4,795	Chloride: Bicarbonate	7.0
Hydrogen Sulfide	572	Bicarbonate: Sulfate	0.3
Iron, Total	4	Calcium: Magnesium	1.6
Calcium Carbonate Stability		Sodium: Calcium & Magnesium	1.2
Turbidity	10	Specific Gravity at 79 °F.	1.006
		Resistivity, ohm meters at 79 °F.	0.83
		pH	6.5

Case 2879
EXHIBIT "H"

Typical Injection Well
New Mexico State "M" Lease
Waterflood
Humble Oil & Refining Co.
Hobbs District
Hobbs, New Mexico

7" Surface Casing Set At
Approximately 300', Cement
Circulated To The Surface.

Pressure
Gauge

Inhibited Liquid Filled
Annulus.

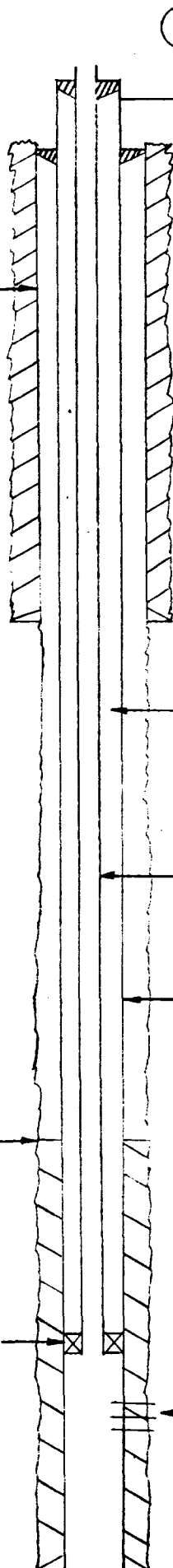
1.5" Nominal (1.9" O.D.)
Internally Coated Tubing

2-7/8" Casing

Top Cement-Calculated 2600'

Permanent Type Packer Set At
Approximately 3400'.

Perforations



HUMBLE OIL & REFINING COMPANY

SOUTHWEST REGION

SERVICE LABORATORY

Laboratory No. 45920-A

WATER ANALYSIS

Houston, Texas

November 29, 1962

9

COUNTY Lea, New Mexico

DATE SAMPLED November 12, 1962

FIELD Langlie-Mattix

DATE RECEIVED November 15, 1962

WELL New Mexico State M-20

SUBMITTED BY A. L. Carpenter

DEPTH 4,170-4,260, 4,534-4,544,
4,551-4,556

WORKED BY Ann B. Pearson

FORMATION San Andres

SOURCE Reda pump after 20,000 bbls. continuous
production

OWNER Humble Oil & Refining Co.

Analysis

Comparison Data

	Parts Per Million		Percent
Radicals			
Sodium	1,800	Primary Salinity	55.36
Calcium	766	Secondary Salinity	36.06
Magnesium	290	Primary Alkalinity	None
Chloride	3,030	Secondary Alkalinity	8.53
Sulfate	2,110	Chloride Salinity	66.00
Bicarbonate	740	Sulfate Salinity	34.00
Carbonate	None		
		Ratios	
TOTAL	3,756	Chloride: Bicarbonate	7.0
Hydrogen Sulfide	371	Bicarbonate: Sulfate	0.3
Iron, Total	4	Calcium: Magnesium	1.6
Calcium Carbonate Stability		Sodium: Calcium & Magnesium	1.2
Turbidity	7.10	Specific Gravity at 79 °F.	1.006
		Resistivity, ohm meters at 79 °F.	0.93
		pH	6.5

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2879
CASE NO. 2879

HUMBLE OIL & REFINING COMPANY

HUMBLE DIVISION

SERVICE LABORATORY

Laboratory No. 45920-B

WATER ANALYSIS

Houston, Texas

November 29, 1962

9

COUNTY Lea, New Mexico
 FIELD Langlie-Mattix
 WELL New Mexico State "M" Lease
 DEPTH 3,600-3,710
 FORMATION Queen
 OWNER Humble Oil & Refining Co.

DATE SAMPLED November 12, 1962
 DATE RECEIVED November 15, 1962
 SUBMITTED BY A. L. Carpenter
 WORKED BY Ann B. Pearson
 SOURCE Produced water by pump.

Analysis

Comparison Data

Radicals	Parts Per Million
Sodium	3,034
Calcium	173
Magnesium	131
Chloride	3,600
Sulfate	57
Bicarbonate	2,907
Carbonate	None
TOTAL	9,907
Hydrogen Sulfide	207
Iron, Total	3
Calcium Carbonate Stability	
Turbidity	6

	Percent
Primary Salinity	67.70
Secondary Salinity	None
Primary Alkalinity	19.34
Secondary Alkalinity	12.96
Chloride Salinity	98.85
Sulfate Salinity	1.15

Ratios

Chloride: Bicarbonate	2.1
Bicarbonate: Sulfate	41.1
Calcium: Magnesium	0.8
Sodium: Calcium & Magnesium	6.7
Specific Gravity at 79°F.	1.006
Resistivity, ohm meters at 79°F.	0.72
pH	6.9

cc: Mr. R. R. McCarty
 Mr. J. W. Craybeal (3)
 Mr. R. R. Alworth
 Mr. A. L. Carpenter

mb

D14p27 (6-60)

ORIGINAL MAILED

NOV 30 1962

By.....

Laboratory Supervisor

HUMBLE OIL & REFINING COMPANY**HOUSTON ENGINEERING LABORATORIES****GENERAL ANALYTICAL LABORATORY**

Laboratory No. 45920 A & B

9

Houston, Texas

November 29, 1962

SAMPLE OF Salt Waters

DATE RECEIVED

November 15, 1962

FROM Langlie-Mattix Field, Lea County,
New Mexico

WORKED BY

Ann B. Pearson

SUBMITTED BY A. L. Carpenter

OTHER DESCRIPTION

Sample A - San Andres water from New Mexico
State "M" 20Sample B - Queen water from New Mexico State
"M" LeaseCOMPATIBILITY TEST

Turbidity, parts per million

<u>Mixture</u>	<u>Immediately After Mixing</u>	<u>1 Hour after Mixing</u>	<u>24 Hours after Mixing</u>
100% A	10	10	24
75% A 25% B	6	10	26
50% A 50% B	10	16	34
75% B 25% A	8	12	12
100% B	6	6	6

Humble Oil & Refining Company

New Mexico State "M" Lease

PROPOSED INJECTION WELLS' CASING PROGRAM

7

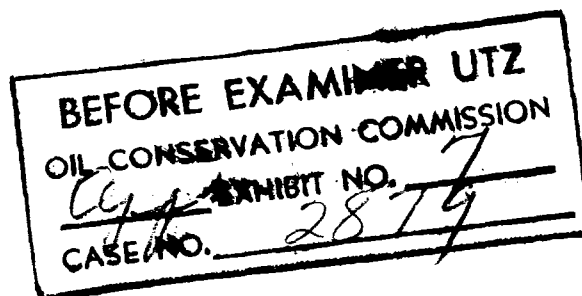
Well No.	Surface Casing Seat	Top Cement	Oil String Seat	Top Cement
23	7" Set @ 338'	Circulated	2-7/8" Set @ 3686'	Calculated 2600'
26	7" Set @ 329'	Circulated	2-7/8" Set @ 3685'	Calculated 2600'
28	7" Set @ 328'	Circulated	2-7/8" Set @ 3749'	Calculated 2600'
31	7" Set @ 299'	Circulated	2-7/8" Set @ 3740'	Calculated 2600'
37	7" Set @ 305 1/2'	Circulated	2-7/8" Set @ 3700'	Calculated 2600'
38	7" Set @ 310'	Circulated	2-7/8" Set @ 3758'	Calculated 2600'

2270

6" Hole

2000

330



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Case **EXHIBIT NO. 6**
CASE NO. 28,779

Humble Oil & Refining Company
 New Mexico State "W" Lease Waterflood

LEASE INDIVIDUAL WELL DATA

Exhibit 6

Well	Total Depth	Plugged Back Depth	Completion Date	Initial Completion ^a		Current Completion		Original Potential Test		April 1963 Production Rate		Cumulative Oil Prod. to 5-1-63 Barrels	May 1963 Allowable B/D
				Interval	Zone	Interval	Zone	Barrels of Oil Per Day	GOR Cubic Feet Per Barrel	Barrels of Oil Per Day	GOR Cubic Feet Per Barrel		
4	3714	3714	10-25-40	3578 - 3714	Grayburg & 7, 8, 9, 10, 11	Same	Same	636	677	6	73,978	82,120 ^b	6
5	3719	3715	11-16-40	3540 - 3715	2 - 10	Same	Same	384	547	8	14,601	119,019	9
6	3717	3712	3-26-44	3645 - 3704	Grayburg	3649 & 3654	Grayburg	1,584	585	6	5,468	152,431 ^c	6
7	3728	3720	4-26-44	3670 - 3710	Grayburg	Plugged & Abandoned 3-25-47		137	-	-	-	Approx. 15,000 ^c	-
11	3698	3675	7-16-56	3530 - 3580	1, 2, 3, 4	3637 & 3646		39	25,469	4	13,017	18,030	4
				3625 - 3650	7	3660 - 3670							
14	3850	3700	7-19-59	3655 - 3670	8	3655 - 3667		4	24,469	2	10,167	8,563	2
				3655 - 3667	2	3672 - 3676							
				3682 - 3683	4	3682 - 3683							
				3709 - 3725	6	3682 - 3683							
				3736 - 3756	7								
				3775 - 3785	8								
				3790 - 3800	9								
				3624 - 3630	6								
				3646 - 3666	7								
15	3718	3708	9-23-59	3570 - 3578	6	Same	Same	202	1,829	13	4,615	26,252	13
16	3690	3680	10-12-59	3570 - 3578	7	Same	Same	54	4,862	7	7,700	27,551	7
17	3725	3714	10-29-59	3590 - 3610	7	Same	Same	376	983	11	4,994	26,904	11
18	3715	3701	10-29-59	3702 - 3712	8	Same	Same	70	2,649	5	9,133	27,883	5
19	3784	3717	12-30-59	3660 - 3666	9	3651 - 3656		20	1,955	3	4,067	10,212	3
				3726 - 3746	5, 6	3652 - 3653							
						3694 - 3714							
20	6850	3697	5-28-60	3622 - 3632	9	Same	Same	80	5,854	6	11,528	18,938	6
				3642 - 3650	10								
21	3680	3657	8-11-60	3594 - 3604	8	Same	Same	374	2,326	9	7,911	20,441	9
				3616 - 3626	9								
22	3678	3635	9-20-60	3576 - 3585	8	3559 - 3564		25	6,767	3	20,000	8,433	3
				3600 - 3605	9	3576 - 3586							
						3600 - 3605							
23	3686	3673	9-21-60	3584 - 3594	8	Same	Same	51	11,608	3	19,667	10,724	3
				3605 - 3612	9								
24	7005	3794	10-31-60	3704 - 3726	7	Same	Same	303	1,321	16	4,908	21,909	16
				3742 - 3746	8								
25	3735	3726	9-4-60	3664 - 3674	8	Same	Same	309	1,950	7	9,590	18,555	7
				3689 - 3695	9								
26	3685	3676	9-10-60	3626 - 3638	8	Same	Same	261	2,624	10	6,917	22,360	10
				3651 - 3658	9								
27	3730	3722	10-6-60	3632 - 3702	7	Same	Same	274	3,700	13	4,303	21,022	13
				3712 - 3722	8								
28	3750	3741	10-28-60	3696 - 3710	7	Same	Same	943 -	971	14 -	5,957	21,435	14
				3723 - 3733	8								
29	3765	3755	1-22-61	3724 - 3754	6	Same	Same	240	882	10	3,597	16,926	10
30	3750	3743	2-2-61	3665 - 3675	8	Same	Same	180	2,300	7	6,781	15,556	7
31	3740	3735	2-9-61	3685 - 3695	9	Same	Same	374	1,397	12	4,153	17,774	12
				3678 - 3688	8								
32	3863	3832	4-22-61	3698 - 3708	9	Same	Same	28	1,143	5	2,800	6,667	5
				3746 - 3748	2								
				3758 - 3762	3								

*All completions are perforated except Well 4, which is open hole.
Well 4 - Total production was from the Grayburg and the Queen. Cumulative from the Queen was taken as one-half the total well cumulative.
Well 6 - Total cumulative is from the Grayburg.
Well 43 - Original potential test is for current Queen interval.
NOTE: Total cumulative and May 1963 allowable totals are only for Queen production.

*All completions are perforated except Well 4, which is open hole.
Well 4 - Total production was from the Grayburg and the Queen. Cumulative from the Queen was taken as one-half the total well cumulative.
Well 6 - Total cumulative is from the Grayburg.
Well 43 - Original potential test is for current Queen interval.
NOTE: Total cumulative and May 1963 allowable totals are only for Queen production.

GAS-OIL RATIO: CU. FT. PER BBL.

DAILY OIL PRODUCTION: BBL.

CUMULATIVE OIL PRODUCTION: M BBL.

PERCENT WATER

GAS-OIL RATIO: CU. FT. PER BBL.

CUMULATIVE PRODUCTION

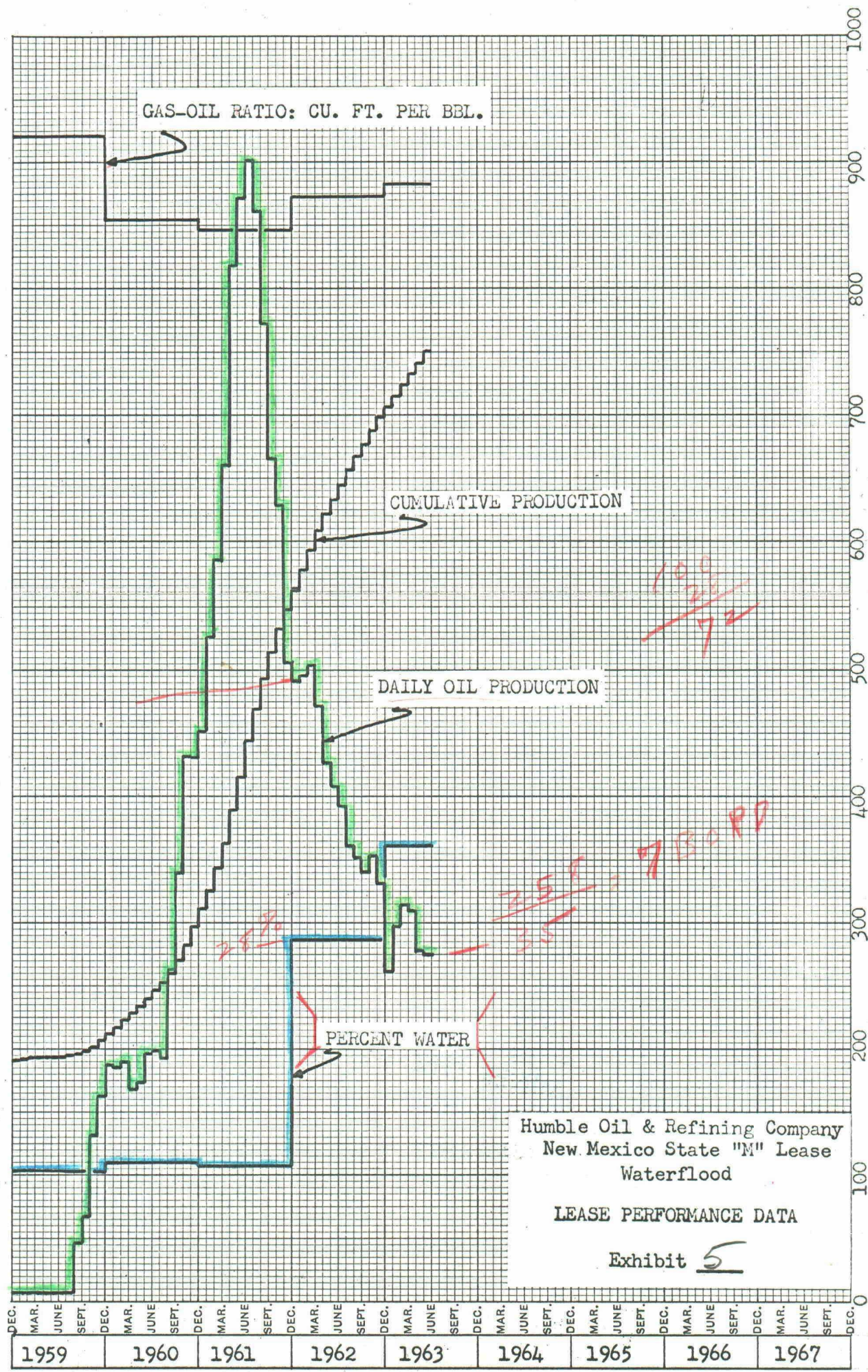
DAILY OIL PRODUCTION

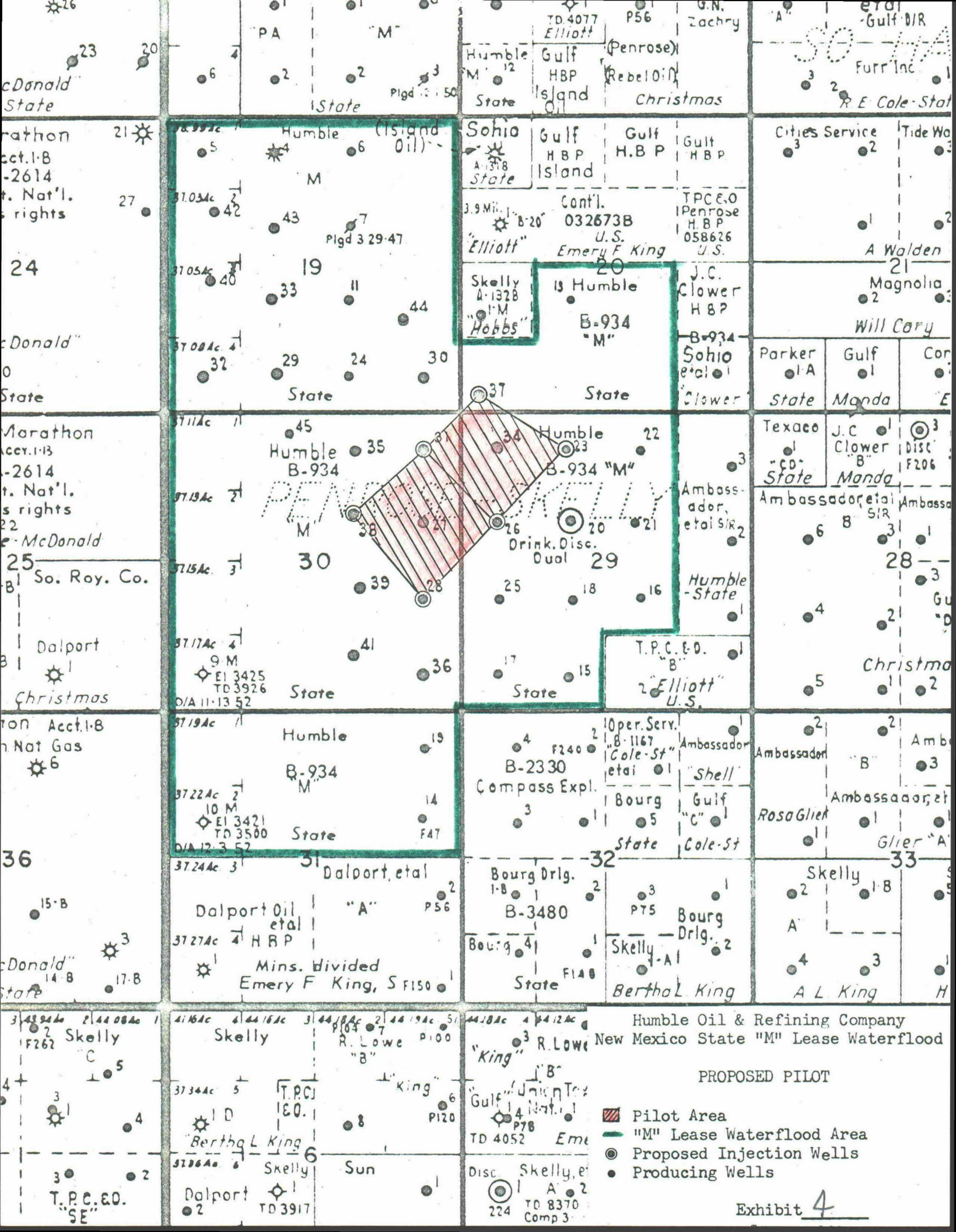
PERCENT WATER

Humble Oil & Refining Company
New Mexico State "M" Lease
Waterflood

LEASE PERFORMANCE DATA

Exhibit 5

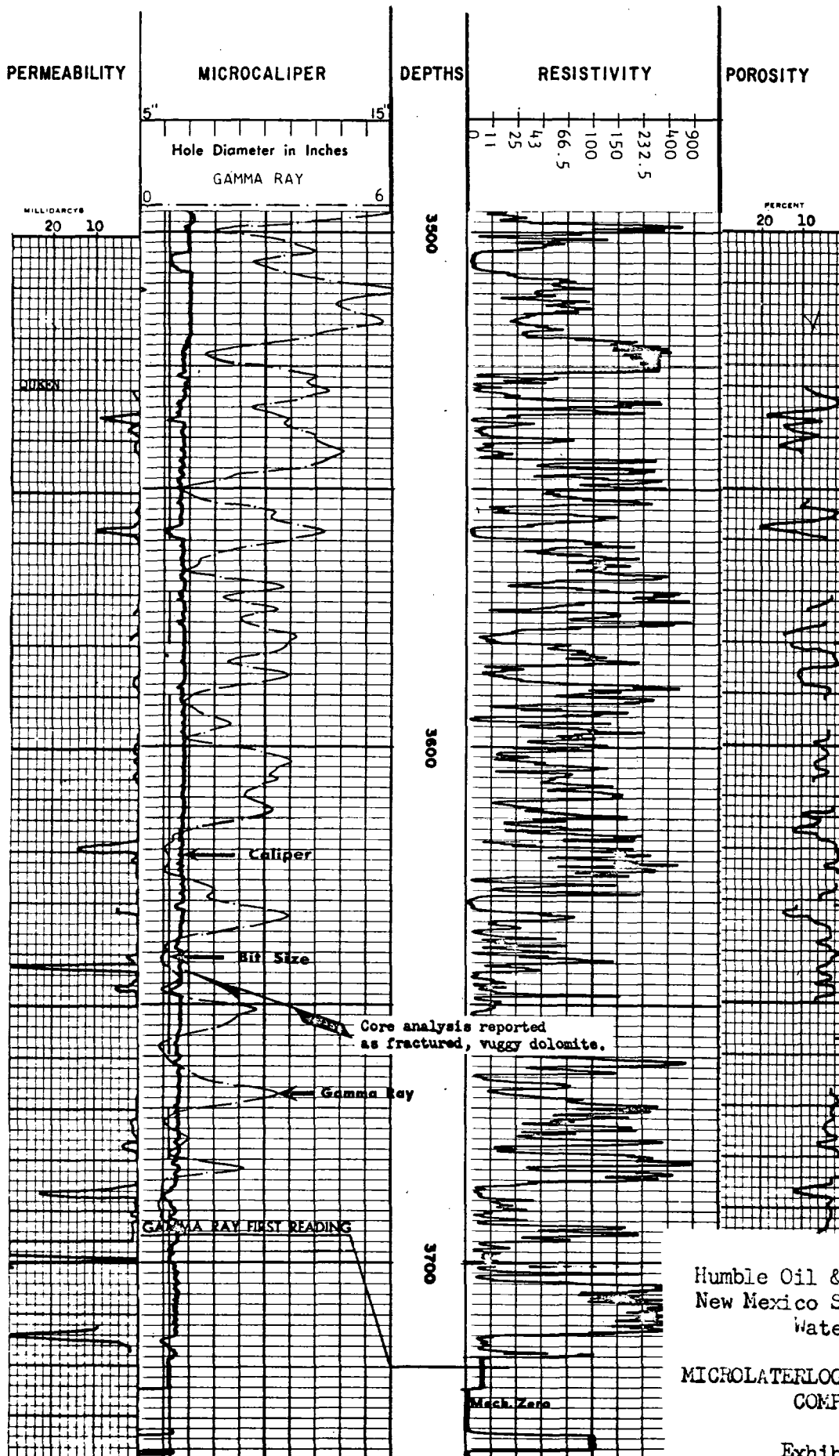




BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 108-19

FILED
JUL 10 1964
FBI - NEW YORK

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<u> </u>	EXHIBIT NO. <u>4</u>
CASE NO. <u> </u>	<u> </u>



Humble Oil & Refining Co.
New Mexico State "M" Lease
Waterflood

MICROLATERLOG - CORE ANALYSIS
COMPARISON

Exhibit 3

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<i>Casey</i>	EXHIBIT NO. <i>2</i>
CASE NO.	<i>28727</i>