

Casa No.

Caprock Field

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Application, Transcript,  
Small Exhibits, Etc.

NEW MEXICO  
BUREAU OF MINES AND MINERAL RESOURCES

A Division of the School of Mines

E. C. ANDERSON

Director

Circular 17

CAPROCK POOL STATISTICAL REPORT

Chaves & Lea Co. New Mexico

Compiled By

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and

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Socorro

1947

#### GENERAL STATEMENT

The Caprock Pool Statistical Report includes oil production, subsurface completion and bottom hole pressure data for wells in the Caprock Pool.

The compilation of these data is done as a service to the Caprock Pool operators, and to the oil and gas industries of New Mexico.

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#### ACKNOWLEDGEMENTS

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The report was ably typed and prepared for publication by Helen A. Watson, under the direction of the authors.

#### GENERAL INFORMATION

The Caprock Pool is located at the common corner of Townships 12 and 13 S, Range 32 E, Lea County, and Townships 12 and 13 South, Range 31 E, Chaves County, New Mexico. The field is one mile east of the "Caprock", the west boundary of the Llano Estacado.

The discovery well, Geo. P. Livermore, No. 1 D, State, located in the SE/4 SE/4 Sec. 30, T 12 S, R 32 E, was completed on November 24, 1940. The well was drilled to 4385' in lime and plugged back to 3052' and completed natural for 16 bbls. of oil and 9 bbls. of water daily. The second well in the pool was completed on March 30, 1944, 3 1/2 years after the discovery well.

Due to the lack of transportation facilities, the production rate in the pool has been very erratic. The Stanolind Pipe Line Company commenced taking oil through their recently completed 6" pipe line outlet on September 1, 1947. The monthly production rates are shown on the attached production curve.

All wells are drilled on a regular 40-acre allowable unit and in most cases the well is located in the center of the unit.

Wells in the Caprock Pool have been drilled with rotary tools to the top of the Queen formation at which point the oil string of casing was set and cemented. The wells were then "drilled in" with cable tools.

Caliche and surface materials are underlain by red sand and shale of Triassic and Permian Age. The Rustler, encountered at about 1350', is represented by approximately 100' of anhydrite. The Salado consists of salt, red shale and stringers of anhydrite, and is approximately 650' thick. Tansill formation is 140' thick and consists of red shale and anhydrite. The Yates and Seven-Rivers formations are made up of 770' of red shale, red and gray sand, anhydrite and salt. The thickness of these formations is difficult to estimate from rotary cuttings. The "Artesia Red Sand", uppermost member of the Queen formation, is encountered at approximately 3040'

and is the producing formation in the Caprock Pool.

The accumulation of oil is found in the "Red Sand" on the East flank of a local high extending slightly east of north through this area. The reservoir is a stratigraphic trap; but there are indications of local "hickies" with a few feet of closure.

The pay section is a sand with a wide range of porosity, permeability and saturation, and in some areas contains salt and shale. The more prolific wells with a highly permeable producing formation "drill themselves in", and the actual thickness of the pay is not known. However, the estimated average thickness of effective pay for the pool is less than 12 feet.

The results of an analysis of cores of the pay zone in the Livermore - Malco "E" State No. 1 were as follows:

|                                                           |      |
|-----------------------------------------------------------|------|
| Average Permeability, Millidarcys                         | 147  |
| Average Porosity Per cent                                 | 19   |
| Average Residual Oil Saturation<br>Per cent of pore space | 17.1 |
| Connate Water Per cent pore space                         | 17   |

The Caprock Pool is considered to be a dissolved gas drive type reservoir with an estimated solution gas-oil ratio of 260 cubic feet of gas per barrel of oil. The absence of an active water drive in the pool has not been established.

The crude oil is a paraffine base, 37.7° gravity A. P. I. at 60°F with a sulfur content of 1.07% and a salt content of 4.03 pounds per 1000 bbls.

The original reservoir pressure was not recorded. The highest pressure recorded in the field with a pressure bomb was 1042 P. S. I. at a datum of 11400' above sea level.

# STATISTICAL DATA - CAPROCK POOL

Lea & Chaves County, New Mexico

| COMPANY<br>LEASE               | WELL<br>UNIT | S. T. R. | COMP.<br>DATE | ELEV. | T.D. | TOP<br>PAY | I.P.<br>BOPD | OIL STRING |       |     | Tbg. Record |       | SHOT |          | TOP<br>ANHY. |      |
|--------------------------------|--------------|----------|---------------|-------|------|------------|--------------|------------|-------|-----|-------------|-------|------|----------|--------------|------|
|                                |              |          |               |       |      |            |              | Size       | Depth | Sax | Size        | Depth | Qts. | Interval |              |      |
| BRITISH AMERICAN OIL PROD. CO. |              |          |               |       |      |            |              |            |       |     |             |       |      |          |              |      |
| State                          | 1 B          | 13-13-31 | 12-21-46      | 1401  | 3051 | 3050       | 225F         | 7          | 3043  | 600 | 2           |       | 3032 |          |              |      |
| State                          | 2 G          | 13-13-31 | 3-19-47       | 1406  | 3066 | 3051       | 96P          | 7          | 3045  | 600 | 2           |       | 3055 | 40       | 3050-65      | 1465 |
| CITIES SERVICE OIL CO.         |              |          |               |       |      |            |              |            |       |     |             |       |      |          |              |      |
| State R                        | 1 C          | 17-13-32 | 7-12-47       | 4566  | 3070 | 3054       | 216F         | 5 1/2      | 3028  | 600 | 2           |       | 3062 |          |              |      |
| State R                        | 2 D          | 17-13-32 | 9-14-47       | 4372  | 3072 | 3055       | 111P         | 5 1/2      | 3029  | 600 | 2           |       | 3067 | 50       | 3055-72      |      |
| COOPERATIVE PROD. ASSOCIATION  |              |          |               |       |      |            |              |            |       |     |             |       |      |          |              |      |
| Grt. Ws. Pr. St.               | 1 O          | 12-13-31 | 7-18-46       | 1405  | 3056 | 3050       | 1432F        | 5 1/2      | 3018  | 600 | 2           |       | 3045 |          |              |      |
| Liv. Max. St.                  | 1 O          | 36-12-31 | 12-10-45      | 1407  | 3055 | 3028       | 120F         | 5 1/2      | 2990  | 600 | 2           |       | 2980 |          |              | 1460 |
| Liv. Max. St. A                | 1 J          | 1-13-31  | 1-26-46       | 4392  | 3034 | 3024       | 80F          | 5 1/2      | 3004  | 600 | 2           |       | 3032 | 50       | 3024-34      | 1410 |
| Liv. Max. St. D                | 2 O          | 30-12-32 | 5-24-44       | 4392  | 3033 | 3032       | 144P         | 5 1/2      | 3008  | 500 | 2           |       | 3030 |          |              | 1390 |
| Liv. Max. St. G                | 1 C          | 31-12-32 | 7-26-44       | 4387  | 3023 | 3020       | 146P         | 5 1/2      | 3004  | 600 | 2           |       | 3022 |          |              | 1390 |
| Max. St. G                     | 4 O          | 31-12-32 | 7-22-45       | 4374  | 3021 | 3015       | 84P          | 5 1/2      | 2970  | 600 | 2           |       | 3020 | 50       | 3011-21      | 1370 |
| Max. St. G                     | 5 J          | 31-12-32 | 7-28-45       | 4390  | 3015 | 3013       | 366P         | 5 1/2      | 2977  | 600 | 2           |       | 3010 |          |              | 1385 |
| Max. St. H                     | 1 H          | 36-12-31 | 7-26-44       | 1402  | 3016 | 3015       | 133P         | 5 1/2      | 3004  | 237 | 2           |       | 3015 |          |              | 1400 |
| Max. St. J                     | 1 L          | 6-13-32  | 4-26-45       | 4393  | 3032 | 3031       | 173F         | 5 1/2      | 3007  | 600 | 2           |       | 3030 |          |              | 1430 |
| Max. St. J                     | 2 K          | 6-13-32  | 10-31-45      | 4393  | 3053 | 3040       | 240P         | 5 1/2      | 3002  | 600 | 2           |       | 3051 | 70       | 3040-48      | 1430 |
| Max. St. J                     | 3 M          | 6-13-32  | 2-21-46       | 1401  | 3064 | 3038       | 576F         | 5 1/2      | 3006  | 600 |             |       |      |          |              | 1423 |
| Max. St. J                     | 4 N          | 6-13-32  | 3-14-46       | 4390  | 3059 | 3034       | 372F         | 5 1/2      | 3020  | 600 | 2           |       | 3045 |          |              |      |
| Max. St. K                     | 1 C          | 7-13-32  | 5-22-46       | 4391  | 3070 | 3042       | 216P         | 5 1/2      | 3009  | 600 | 2           |       | 3065 |          |              |      |
| McQueen St.                    | 1 H          | 1-13-31  | 9-2-45        | 1402  | 3038 | 3026       | 45F          | 5 1/2      | 3000  | 600 | 2           |       | 3034 | 70       | 3016-36      | 1450 |
| Ohio St.                       | 1 J          | 11-13-31 | 11-5-45       | 1417  | 3048 | 3022       | 70F          | 5 1/2      | 2998  | 600 |             |       |      | 80       | 3022-47      | 1476 |
| Williams                       | 1 B          | 7-13-32  | 1-11-45       | 4385  | 3064 | 3045       | 24P          | 5 1/2      | 2975  | 600 | 2           |       | 3063 | 60       | 3044-59      | 1420 |
| Williams                       | 2 G          | 7-13-32  | 8-22-47       | 4382  | 3061 | 3044       | 80P          | 5 1/2      | 3033  | 600 | 2           |       | 3005 | 30       | 3044-59      | 1420 |
| Williams                       | 3 H          | 7-13-32  | 10-15-47      | 4378  | 3057 | 3044       | 45P          | 5 1/2      | 3035  | 600 | 2           |       | 3025 | 30       | 3045-57      |      |
| Williams                       | 4 A          | 7-13-32  |               | 4385  |      |            |              |            |       |     |             |       |      |          |              |      |
| Malco Max. St. F               | 3 I          | 1-13-31  | 6-24-46       | 1404  | 3034 | 3034       | 1000F        | 5 1/2      | 3014  | 600 | 2           |       | 3035 |          |              |      |
| Malco Max. St. H               | 1 D          | 7-13-32  | 5-15-46       | 4389  | 3035 | 3028       | 576F         | 5 1/2      | 3002  | 600 | 2           |       | 2968 |          |              |      |
| Malco Max. St. F               | 1 J          | 36-12-31 | 1-18-46       | 1410  | 3020 | 3017       | 91F          | 5 1/2      | 2978  | 600 | 2           |       | 3019 |          |              | 1470 |
| Malco Max. St. A               | 1 B          | 31-13-32 | 3-30-44       | 4395  | 3030 | 3029       | 120P         | 5 1/2      | 2995  | 150 | 2           |       | 3029 |          |              | 1394 |

ALL MEASUREMENTS DERRICK FLOOR

| QUEEN SAND |       |                                           | NOV.        | PROD.            | JUNE        | PROD.            | NOV.        | ACCUM.        |
|------------|-------|-------------------------------------------|-------------|------------------|-------------|------------------|-------------|---------------|
| Depth      | Datum | REMARKS                                   | 1946<br>BHP | 11-46 to<br>6-47 | 1947<br>BHP | 6-47 to<br>11-47 | 1947<br>BHP | to<br>11-1-47 |
| 3050       | 1351  |                                           |             | 5879             | 750         | 5411             | 627         | 9486          |
| 3051       | 1355  | 81 BOPD Natural.                          |             | 803              | 868         | 1633             | 684         | 2436          |
| 3054       | 1312  |                                           |             |                  |             | 3140             | 668         | 3140          |
| 3055       | 1317  | 1600' oil in hole after shot              |             |                  |             | 1774             | 833         | 1774          |
| 3050       | 1355  |                                           | 871         | 3951             |             | 3921             |             | 9630          |
| 3028       | 1379  | Cored 3023-39 & 3039-55                   | 645         | 4772             |             | 4595             | 501         | 17321         |
| 3022       | 1370  |                                           | 747         | 3210             | 668         | 3794             | 590         | 11301         |
| 3032       | 1360  | 2000' oil in hole - Natural.              | 472         | 4269             | 535         | 3153             | 439         | 21473         |
| 3020       | 1367  | Flo. 256 BO thru csg. (6 Hrs.) & died.    |             | 4292             |             | 4424             | 482         | 26981         |
| 3012       | 1362  | 1200' oil in hole. Natural.               | 437         | 4294             | 623         | 4121             | 510         | 22260         |
| 3013       | 1377  |                                           | 710         | 4419             | 800         | 4424             | 657         | 22382         |
| 3015       | 1387  |                                           |             | 4132             | 729*        | 4218             | 629*        | 27079         |
| 3031       | 1362  |                                           | 781         | 3989             | 711*        | 4080             | 624         | 19888         |
| 3040       | 1353  |                                           | 748         | 3989             | 694         | 4080             | 597         | 19815         |
| 3038       | 1363  |                                           | 753*        | 3990             | 707*        | 4080             | 623*        | 15591         |
| 3034       | 1356  | Last hr. 24 hr. test Flow 9 BO            | 763*        | 3987             | 703*        | 4081             | 633*        | 15587         |
| 3042       | 1349  | S. I. Csg. Press. 970#                    | 255         | 4052             | 677         | 4144             | 548         | 13589         |
| 3026       | 1376  | 1100' Oil in hole - Natural (22Hrs.)      | 619         | 1691             | 461         | 1519             | 421         | 12906         |
| 3022       | 1395  |                                           | 546         | 2814             | 427         | 2088             | 438         | 8523          |
| 3045       | 1340  | Swb. 1 BOPH on 19 Hrs. test.              |             | 2844             | 603         | 2823             | 566         | 12484         |
| 3044       | 1338  | Lane-wells log 1000' Oil in hole. Natural |             |                  |             | 1302             | 352         | 1302          |
| 3044       | 1334  | 1400' oil in hole - Natural.              |             |                  |             | 331              | 672         | 331           |
| 3034       | 1370  |                                           |             | 4351             | 761*        | 3829             |             | 14266         |
| 3028       | 1361  |                                           |             | 3849             |             | 4276             | 523*        | 13994         |
| 3017       | 1393  |                                           | 654         | 4007             | 585         | 3827             | 511         | 16632         |
| 3029       | 1366  |                                           | 619         | 3566             | 629         | 3648             | 562         | 27030         |

\* Plus 1400 datum pressures taken with bomb; Other pressures with echo meter.

| COMPANY<br>LEASE                          | WELL<br>UNIT | S. T. R. | COMP.<br>DATE | ELEV. | T.D. | TOP<br>PAY | I.P.<br>BOPD | OIL STRING |       |     | TBG. RECORD |       | SHOT      |                    | TOP<br>ANHY. |
|-------------------------------------------|--------------|----------|---------------|-------|------|------------|--------------|------------|-------|-----|-------------|-------|-----------|--------------------|--------------|
|                                           |              |          |               |       |      |            |              | Size       | Depth | Sax | Size        | Depth | Qts.      | Interval           |              |
| COOPERATIVE PROD. ASSOCIATION - Continued |              |          |               |       |      |            |              |            |       |     |             |       |           |                    |              |
| Malco Max. St. A                          | 2 G          | 31-13-32 | 7-10-44       | 4395  | 3041 | 3031       | 116P         | 5 1/2      | 2996  | 600 | 2           | 3036  | 30        | 3030-41            | 1390         |
| Malco Max. St. A                          | 3 L          | 31-13-32 | 11-4-44       | 4395  | 3005 | 3004       | 110F         | 5 1/2      | 2973  | 600 | 2           | 3004  |           |                    | 1410         |
| Malco Max. St. A                          | 4 M          | 31-13-32 | 2-17-45       | 4395  | 3016 | 3016       | 150F         | 5 1/2      | 2956  | 600 | 2           | 3014  |           |                    | 1410         |
| Malco Max. St. A                          | 5 N          | 31-13-32 | 5-15-45       | 4390  | 3016 | 3016       | 35F          | 5 1/2      | 2977  | 600 | 2           | 3017  |           |                    | 1380         |
| Malco Max. St. A                          | 6 K          | 31-13-32 | 7-3-45        | 4389  | 3008 | 3008       | 166F         | 5 1/2      | 2972  | 600 | 2           | 2988  |           |                    | 1390         |
| Malco Max. St. B                          | 1 G          | 36-12-31 | 1-11-45       | 4402  | 3028 | 3010       | 25F          | 5 1/2      | 2962  | 600 | 2           | 3026  | 55<br>120 | 3010-25<br>3010-25 | 1420         |
| Malco Max. St. C                          | 1 I          | 36-12-31 | 2-6-45        | 4399  | 3011 | 3010       | 1064F        | 5 1/2      | 2962  | 600 | 2           | 3002  |           |                    | 1390         |
| Malco Max. St. E                          | 1 G          | 1-13-31  | 10-21-45      | 4407  | 3034 | 3025       | 200F         | 5 1/2      | 2979  | 600 | 2           | 3024  |           |                    | 1470         |
| COCKBURN, BARNEY                          |              |          |               |       |      |            |              |            |       |     |             |       |           |                    |              |
| State                                     | 1 N          | 36-12-31 | 3-12-47       | 4409  | 3045 | 3025       | 100P         | 5 1/2      | 3007  | 600 | 2           | 2950  | 100       | 3036-38            | 1495         |
| State                                     | 2 F          | 13-13-31 | 10-16-47      | 4410  | 3068 | 3060       | 36P          | 5 1/2      | 3032  | 600 | 2           | 3004  | 20        | 3060-68            | 1469         |
| DELFRN OIL CO.                            |              |          |               |       |      |            |              |            |       |     |             |       |           |                    |              |
| State                                     | A 1 P        | 36-12-31 | 9-5-45        | 4407  | 3032 | 3025       | 110F         | 5 1/2      | 3001  | 600 | 2           | 3025  |           |                    | 1420         |
| State                                     | B 1 B        | 1-13-31  | 9-9-45        | 4406  | 3022 | 3020       | 120F         | 5 1/2      | 2989  | 600 | 2           | 3015  |           |                    | 1440         |
| State                                     | C 1 K        | 1-13-31  | 10-11-45      | 4395  | 3030 | 3021       | 110F         | 5 1/2      | 2982  | 600 | 2           | 3025  |           |                    | 1446         |
| State                                     | D 1 J        | 1-13-31  | 12-22-45      | 4409  | 3037 | 3037       | 150F         | 5 1/2      | 2993  | 600 | 2           | 3029  |           |                    | 1430         |
| State                                     | E 1 A        | 11-13-31 | 1-9-46        | 4416  | 3043 | 3032       | 312F         | 5 1/2      | 2996  | 600 | 2           | 3036  |           |                    | 1440         |
| State                                     | E 2 H        | 11-13-31 | 9-13-46       | 4410  | 3044 | 3036       | 192F         | 5 1/2      | 2991  | 600 | 2           | 3035  |           |                    | 1450         |
| State                                     | F 1 E        | 7-13-32  | 3-7-46        | 4399  | 3043 | 3042       | 145F         | 5 1/2      | 3020  | 600 | 2           | 3033  |           |                    | 1450         |
| State                                     | 2 L          | 7-13-32  | 7-30-46       | 4403  | 3056 | 3050       | 360F         | 5 1/2      | 3014  | 600 | 2           | 3041  |           |                    | 1440         |
| State                                     | 3 M          | 7-13-32  | 8-16-46       | 4395  | 3053 | 3048       | 65F          | 5 1/2      | 3008  | 600 | 2           | 3037  |           |                    | 1450         |
| State                                     | G 1 O        | 1-13-32  | 4-9-46        | 4405  | 3040 | 3040       | 1000F        | 5 1/2      | 3000  | 600 | 2           | 3031  |           |                    | 1450         |
| State                                     | 2 P          | 1-13-32  | 4-17-46       | 4394  | 3034 | 3030       | 360F         | 5 1/2      | 2989  | 600 | 2           | 3019  |           |                    | 1430         |
| State                                     | H 1 A        | 12-13-31 | 7-6-46        | 4403  | 3044 | 3034       | 110F         | 5 1/2      | 2994  | 600 | 2           | 3040  |           |                    | 1450         |
| State                                     | 2 B          | 12-13-31 | 7-31-46       | 4407  | 3040 | 3040       | 840F         | 5 1/2      | 3001  | 600 | 2           | 3036  |           |                    | 1450         |
| State                                     | J 1 A        | 13-13-31 | 1-28-47       | 4393  | 3047 | 3041       | 65F          | 5 1/2      | 3026  | 600 | 2           | 3034  |           |                    | 1460         |
| State                                     | 2 E          | 13-13-31 | 7-3-47        | 4416  | 3072 | 3058       | 149P         | 5 1/2      | 3012  | 600 | 2           | 3070  | 45        | 3059-67            | 1450         |

ALL MEASUREMENTS DERRICK FLOOR

| QUEEN SAND<br>Depth Datum |      | REMARKS                                         | NOV.<br>1946<br>BHP | PROD.<br>11-46 to<br>6-47 | JUNE<br>1947<br>BHP | PROD.<br>6-47 to<br>11-47 | NOV.<br>1947<br>BHP | ACCUM.<br>to<br>11-1-47 |
|---------------------------|------|-------------------------------------------------|---------------------|---------------------------|---------------------|---------------------------|---------------------|-------------------------|
| 3031                      | 1364 | Swb. 3 BOPD - Natural.<br>Flo 150 BO in 12 hrs. |                     |                           |                     |                           |                     |                         |
| 3004                      | 1391 |                                                 |                     |                           |                     |                           |                     |                         |
| 3016                      | 1379 |                                                 | 687                 | 3567                      | 567                 | 3648                      | 184                 | 21545                   |
| 3016                      | 1374 |                                                 | 664*                | 3568                      |                     | 3648                      | 552                 | 21874                   |
| 3008                      | 1381 |                                                 |                     | 3569                      | 627*                | 3647                      |                     | 21107                   |
| 3014                      | 1386 |                                                 | 631                 | 3570                      | 575                 | 3646                      | 516                 | 20272                   |
| 3010                      | 1388 |                                                 | 686*                | 3570                      | 641*                | 3647                      |                     | 19904                   |
| 3026                      | 1381 |                                                 |                     | 839                       | 711                 | 382                       | 602                 | 5171                    |
|                           |      |                                                 | 654*                | 3977                      |                     | 4015                      | 532*                | 24978                   |
|                           |      |                                                 | 721*                | 3675                      | 632*                | 4302                      | 604*                | 19071                   |
| 3018                      | 1384 |                                                 |                     |                           |                     |                           |                     |                         |
| 3057                      | 1353 |                                                 |                     | 762                       | 480                 | 3603                      | 312                 | 4365                    |
|                           |      |                                                 |                     |                           |                     |                           | 487                 |                         |
| 3025                      | 1382 |                                                 |                     |                           |                     |                           |                     |                         |
| 3020                      | 1386 |                                                 |                     |                           |                     |                           |                     |                         |
| 3021                      | 1374 |                                                 | 683                 | 4318                      | 359                 | 3333                      | 559                 | 18302                   |
| 3037                      | 1372 |                                                 | 664*                | 4248                      | 608*                | 3530                      | 524*                | 20643                   |
| 3032                      | 1384 |                                                 |                     | 3810                      | 624                 | 4470                      | 470                 | 20522                   |
| 3036                      | 1374 |                                                 | 820*                | 3563                      | 739*                | 4750                      | 638*                | 17518                   |
| 3042                      | 1357 |                                                 | 835                 | 5582                      | 773                 | 3556                      | 682                 | 15502                   |
| 3050                      | 1353 |                                                 |                     | 2640                      | 630                 | 3820                      | 486                 | 17653                   |
| 3048                      | 1347 |                                                 | 814*                | 4046                      | 718*                | 4741                      | 652*                | 17021                   |
| 3040                      | 1365 |                                                 | 834*                | 4689                      | 752*                | 4120                      | 641*                | 11513                   |
| 3030                      | 1364 |                                                 | 863*                | 4270                      | 767*                | 5925                      | 648*                | 13445                   |
| 3034                      | 1369 |                                                 | 774*                | 4543                      | 709*                | 5311                      | 615*                | 17520                   |
| 3040                      | 1367 |                                                 | 793*                | 3239                      | 726*                | 5599                      | 657*                | 15416                   |
| 3041                      | 1352 |                                                 | 794*                | 3923                      | 739*                | 4514                      | 640*                | 11396                   |
| 3058                      | 1358 |                                                 | 815*                | 4809                      | 749*                | 5675                      | 645*                | 14267                   |
|                           |      |                                                 |                     | 2050                      | 701                 | 4502                      | 575                 | 6552                    |
|                           |      |                                                 |                     |                           |                     | 2321                      | 713                 | 2321                    |

\* Plus 1400 Datum pressures taken with bomb; Other pressures with echo meter.

| COMPANY<br>LEASE     | WELL<br>UNIT | S. T. R | COMP.<br>DATE | ELEV.      | T.D. | TOP<br>PAY | I.P.<br>BOPD | OIL STRING<br>Size Depth | Sax  | TBG. RECORD<br>Size Depth | SHOT<br>Qts. Interval | TOP<br>ANHY. |
|----------------------|--------------|---------|---------------|------------|------|------------|--------------|--------------------------|------|---------------------------|-----------------------|--------------|
| GREAT WESTERN PROD.  |              |         |               |            |      |            |              |                          |      |                           |                       |              |
| Max. State           | 1            | G       | 12-13-31      | 9-3-46     | 4400 | 3037       | 3036         | 740F 7                   | 3021 | 600 2                     | 3036                  | 1487         |
| State                | L 1          | N       | 12-13-31      | 8-25-46    | 4401 | 3047       | 3046         | 703F 5 1/2               | 3039 | 600 2                     | 3046                  | 1440         |
| State                | 2            | K       | 12-13-31      | 10-28-46   | 4407 | 3045       | 3044         | 1000F 5 1/2              | 3035 | 600 2                     | 3042                  | 1415         |
| State                | M 1          | M       | 12-13-31      | 1-25-47    | 4396 | 3048       | 3033         | 1144P 5 1/2              | 3000 | 600 2                     | 3047                  | 40 3033-47   |
| State                | 2            | L       | 12-13-31      | 3-4-47     | 4408 | 3054       | 3042         | 120F 5 1/2               | 3039 | 600 2                     | 3053                  | 40 3042-54   |
| State                | N 1          | D       | 18-13-32      | 3-5-47     | 4396 | 3050       | 3050         | 240F 5 1/2               | 3040 | 600 2                     | 3049                  | 1425         |
| State                | 2            | A       | 18-13-32      | 8-24-47    | 4374 | 3060       | 3045         | 52P 6 5/8                | 3025 | 600 2                     | 3030                  | 1442         |
| State                | 3            | B       | 18-13-32      | 11-15-47   | 4381 | 3062       | 3044         | 30P 5 1/2                | 3038 | 600 2                     | 3057                  | 40 3045-62   |
| State                | O 1          | H       | 13-13-32      | 4-7-47     | 4395 | 3077       | 3045         | 15P 5 1/2                | 3040 | 600 2                     | 3051                  | 40 3045-65   |
| G.P. Livermore State | 1            | P       | 30-12-32      | 11-24-40   | 4385 | 4385       | 3027         | 16P 7                    | 3048 | 75 2                      | 3040                  | 1395         |
| GULF OIL CORPORATION |              |         |               |            |      |            |              |                          |      |                           |                       |              |
| Lea State            | 1            | D       | 6-13-32       | 12-18-45   | 4388 | 3041       | 3017         | 27P 5 1/2                | 2985 | 500 2                     | 3022                  | 30 3017-32   |
| Lea State            | 2            | F       | 6-13-32       | 10-1-47    | 4398 | 3053       | 3035         | 25P 5 1/2                | 2997 | 600 2                     | 2993                  | 30 3035-50   |
| Chaves State         | 1            | C       | 12-13-31      | 7-21-47    | 4403 | 3048       | 3045         | 100F 5 1/2               | 3060 | 600 2                     | 2998                  | 1420         |
| Chaves State         | 2            | D       | 12-13-31      | 11-6-47    | 4410 | 3060       | 3043         | 508F 5 1/2               | 3010 | 500 2                     | 3050                  | 1420         |
| MALCO REFINERIES     |              |         |               |            |      |            |              |                          |      |                           |                       |              |
| Caprock State        | 1            | N       | 7-13-32       | 11-29-46   | 4399 | 3065       | 3053         | 25P 5 1/2                | 3040 | 600 2                     | 3025                  | 60 3052-60   |
| Caprock State        | 2            | J       | 6-13-32       | 12-12-46   | 4391 | 3063       | 3044         | 60F 5 1/2                | 3041 | 600 2                     | 2996                  | 40 3044-58   |
| Caprock State        | 3            | O       | 6-13-32       | 2-24-47    | 4379 | 3048       | 3028         | 75P 5 1/2                | 3028 | 600 2                     | 3/8 3001              | 80 3028-48   |
| Caprock State        | 4            | P       | 6-13-32       | 3-27-47    | 4388 | 3070       | 3051         | 70P 5 1/2                | 3035 | 600 2                     | 3052                  | 90 3050-70   |
| Max. State           | 1            | H       | 12-13-31      | 9-21-46    | 4396 | 3032       | 3032         | 1000F 5 1/2              | 3028 | 600 2                     | 3007                  | 1435         |
| Max. State           | 2            | I       | 12-13-31      | 9-28-46    | 4379 | 3026       | 3026         | 1000F 5 1/2              | 3012 | 600 2                     | 2950                  | 1435         |
| Max. State           | 3            | C       | 13-13-31      | 10-11-46   | 4409 | 3068       | 3054         | 12P 5 1/2                | 3043 | 600 2                     | 3059                  | 30 3054-68   |
| Max. State           | C 2          | F       | 1-13-31       | Re. 4-8-47 | 4402 | 3050       | 3015         | 12P 5 1/2                | 2998 | 660 2                     | 3050                  | 100 3020-50  |
| Williams             | 1            | J       | 7-13-32       | 11-11-46   | 4387 | 3070       | 3053         | 20F 5 1/2                | 3042 | 600 2                     | 3007                  | 40 3053-70   |
| Williams             | 2            | I       | 7-13-32       | 2-12-47    | 4380 | 3067       | 3048         | 110P 5 1/2               | 3035 | 600 2                     | 3016                  | 66 3041-60   |
| Williams             | 3            | P       | 7-13-32       | 4-30-47    | 4388 | 3071       | 3054         | 30P 5 1/2                | 3035 | 600 2                     | 3069                  | 80 3054-71   |

ALL MEASUREMENTS DERRICK FLOOR

| QUEEN SAND |       | REMARKS                                                            | NOV.        | PROD.            | JUNE        | PROD.            | NOV.        | ACCUM.        |
|------------|-------|--------------------------------------------------------------------|-------------|------------------|-------------|------------------|-------------|---------------|
| Depth      | Datum |                                                                    | 1946<br>BHP | 11-16 to<br>6-17 | 1947<br>BHP | 6-17 to<br>11-17 | 1947<br>BHP | to<br>11-1-47 |
| 3036       | 1364  | 46 BO 10 min. after Flo 2 hrs.                                     | 823*        | 4348             | 769*        | 4530             | 657*        | 10018         |
| 3046       | 1355  |                                                                    | 906*        | 3805             | 766*        | 4205             | 681*        | 9533          |
| 3044       | 1367  | 25 BO 15 min. thru osg.                                            |             | 3804             | 768*        | 4206             | 654*        | 8010          |
| 3033       | 1363  |                                                                    |             | 2449             | 776         | 3695             | 709         | 6114          |
| 3042       | 1366  |                                                                    |             | 1703             | 789         | 3698             | 657         | 5401          |
| 3050       | 1346  |                                                                    |             |                  | 816*        | 2786             | 685         | 2786          |
| 3045       | 1329  |                                                                    |             |                  |             | 1890             | 557         | 1890          |
| 3042       | 1339  | Swb. 53 BOPD                                                       |             |                  |             |                  |             |               |
| 3044       | 1351  | Lane wells log                                                     |             |                  | 428         | 738              | 574         | 738           |
| 3027       | 1358  | Csg. Perf. 29 shots 3021-33<br>Completion test 16 BO, 9 BW per day |             |                  |             |                  |             | 2689          |
| 3017       | 1371  | 400' O I H in 24 hrs. - Natural                                    |             | 878              | 53          | 470              | 356         | 3221          |
| 3035       | 1363  |                                                                    |             |                  |             | 174              | 594         | 174           |
| 3042       | 1369  |                                                                    |             |                  |             | 2822             | 666*        | 2822          |
| 3040       | 1370  |                                                                    |             |                  |             |                  |             |               |
| 3053       | 1346  |                                                                    |             | 824              | 695         | 613              | 207         | 1437          |
| 3044       | 1347  |                                                                    |             | 1776             | 641         | 2600             | 524         | 4276          |
| 3028       | 1351  |                                                                    |             | 999              | 372         | 2601             | 566         | 3600          |
| 3050       | 1338  |                                                                    |             | 524              |             | 2602             | 206         | 3126          |
| 3032       | 1364  |                                                                    | 824*        | 3867             | 751*        | 4391             | 662*        | 9520          |
| 3026       | 1353  |                                                                    |             | 3870             | 755*        | 4395             | 692*        | 9528          |
| 3054       | 1355  | 30 BOPD - Natural                                                  | 913*        | 3526             | 678         | 3162             |             | 6688          |
| 3015       | 1387  | Old Well Recompleted                                               |             |                  |             | 443              | 172         | 443           |
| 3051       | 1336  |                                                                    |             | 3187             | 459         | 3419             | 541         | 6606          |
| 3048       | 1332  |                                                                    |             | 2228             | 711         | 3421             | 643         | 5649          |
| 3054       | 1334  |                                                                    |             | 530              | 373         | 3422             | 373         | 3952          |

\* Plus 1400 datum pressures taken with bomb; Other pressures with echo meter.

| COMPANY<br>LEASE              | WELL<br>UNIT | S. T. R. | COMP.<br>DATE | ELEV.    | T.D.     | TOP<br>PAY | I.P.<br>BOPD | OIL STRING<br>Size Depth Sax | TBG. RECORD<br>Size Depth | SHOT<br>Qts. Interval | TOP<br>ANHY. |         |  |
|-------------------------------|--------------|----------|---------------|----------|----------|------------|--------------|------------------------------|---------------------------|-----------------------|--------------|---------|--|
| MALCO REFINERIES -- Continued |              |          |               |          |          |            |              |                              |                           |                       |              |         |  |
| Williams                      | 4            | O        | 7-13-32       | 8-5-47   | 4391     | 3064       | 3051         | 53P 5 1/2 3044               | 600 2                     | 2997 65               | 3050-64      |         |  |
| Williams                      | 5            | E        | 8-13-32       | 9-28-47  | 4377     | 3068       | 3054         | 45P 5 1/2 3044               | 600 2                     | 2998 70               | 3053-68      |         |  |
| MANRY & CO.                   |              |          |               |          |          |            |              |                              |                           |                       |              |         |  |
| Manry State A                 | 1            | G        | 6-13-32       | 4-20-47  | 4390     | 3049       | 3036         | 80P 7 3024                   | 600 2                     | 3048 30               | 3036-48      |         |  |
| Manry State A                 | 2            | B        | 6-13-32       | 5-20-47  | 4393     | 3038       | 3032         | 564F 7 3026                  | 600 2                     | 3035                  | 1400         |         |  |
| Manry State A                 | 3            | G        | 11-13-31      | 5-27-47  | 4418     | 3042       | 3027         | 148F 5 1/2 3017              | 600 2                     | 3018 30               | 3027-42      |         |  |
| Manry State A                 | 4            | B        | 11-13-31      |          | 4411     |            | 3019         |                              |                           |                       | 1438         |         |  |
| POLIS, A. K.                  |              |          |               |          |          |            |              |                              |                           |                       |              |         |  |
| State                         | A            | 1        | F             | 12-13-31 | 7-26-47  | 4406       | 3045         | 3040                         | 695F 7 3033               | 600 2                 | 3007         | 1450    |  |
| State                         | A            | 2        | E             | 12-13-31 | 8-27-47  | 4396       | 3036         | 3031                         | 800F 7 3012               | 600 2                 | 3001         |         |  |
| State                         | B            | 1        | M             | 1-13-31  | 10-14-47 | 4411       | 3051         | 3041                         | 200P 7 3023               | 600 2                 | 3009         |         |  |
| State                         | B            | 2        | L             | 1-13-31  |          | 4415       |              | 3039                         |                           |                       |              |         |  |
| RESLER OIL CO.                |              |          |               |          |          |            |              |                              |                           |                       |              |         |  |
| State                         | A            | 1        | A             | 1-13-31  | 5-24-46  | 4401       | 3043         | 3016                         | 75F 7 2997                | 100 2                 | 3040 120     | 3013-43 |  |
| State                         | B            | 1        | P             | 12-13-31 | 10-29-46 | 4396       | 3066         | 3048                         | 105F 5 1/2 3017           | 600 2                 | 3056 120     | 3048-56 |  |
| State                         | C            | 1        | J             | 12-13-31 | 11-21-46 | 4403       | 3050         | 3040                         | 480F 7 3021               | 600 2                 | 3040         |         |  |
| State                         | D            | 1        | K             | 7-13-32  | 12-14-46 | 4402       | 3075         | 3050                         | 120P 7 3040               | 600 2                 | 3040 100     | 3050-70 |  |
| State                         | E            | 1        | D             | 13-13-31 | 1-16-47  | 4410       | 3063         | 3048                         | 50P 7 3035                | 600 2                 | 3040 50      | 3047-63 |  |
| WILLIAMS, SAM                 |              |          |               |          |          |            |              |                              |                           |                       |              |         |  |
| Williams                      | 1            | L        | 8-13-32       | 9-26-46  | 4360     | 3072       | 3049         | 75F 7 3007                   | 400 2                     | 3006 110              | 3031-55      | 1487    |  |
| Williams                      | 2            | M        | 8-13-32       | 11-18-46 | 4373     | 3071       | 3052         | 75P 7 2948                   | 600 2                     | 3040 120              | 3035-69      | 1493    |  |
| Williams                      | 3            | N        | 8-13-32       | 2-26-47  | 4362     | 3070       | 3050         | 150F 7 3030                  | 600 2                     | 3058 100              | 3051-69      | 1460    |  |
| Williams                      | 4            | K        | 8-13-32       | 3-10-47  | 4368     | 3085       | 3054         | 75P 7 3027                   | 600 2                     | 3054 120              | 3054-65      | 1476    |  |

ALL MEASUREMENTS DERRICK FLOOR

| QUEEN SAND             |       | NOV.        | FROD.            | JUNE         | PROD.            | NOV.         | ACCU.         |
|------------------------|-------|-------------|------------------|--------------|------------------|--------------|---------------|
| Depth                  | Datum | 1946<br>BHP | 11-46 to<br>6-47 | 1947<br>BHP  | 6-47 to<br>11-47 | 1947<br>BHP  | to<br>11-1-47 |
| 3051                   | 1340  |             |                  |              | 2338             | 684          | 2338          |
| 3054                   | 1323  |             |                  |              |                  | 783          |               |
| 3034                   | 1356  |             |                  | 796          | 2826             | 397          | 2826          |
| 3032                   | 1361  |             |                  |              | 5300             | 734          | 5300          |
| 3026                   | 1392  |             |                  |              | 1244             | 305          | 1244          |
| 3019                   | 1392  |             |                  |              |                  |              |               |
| 3040                   | 1366  |             |                  |              |                  | 1042*        |               |
| 3030                   | 1366  |             |                  |              |                  | 685          |               |
| 3040                   | 1371  |             |                  |              |                  | 722          |               |
| 3039                   | 1376  |             |                  |              |                  |              |               |
| 3016                   | 1385  |             | 3496             | 573          | 3203             | 319          | 10138         |
| 3048                   | 1348  |             | 2805             | 715          | 3173             | 579          | 5978          |
| 3040                   | 1363  |             | 2802             | 763*         | 4409             |              | 7211          |
| 3050                   | 1352  |             | 1248             | 228          | 678              | 138          | 1926          |
| 3048                   | 1362  |             | 2137             | 143          | 1733             | 341          | 3870          |
| 3040                   | 1320  | 216         | 4167             | 441          | 3688             | 94           | 7855          |
| 3052                   | 1321  | 808         | 4626             | 561          | 3688             | 292          | 8314          |
| 3050                   | 1312  |             | 1779             | 811          | 3688             | 643          | 5467          |
| 3054                   | 1314  |             | 1781             | 318          | 3688             | 279          | 5469          |
| TOTAL PRODUCTION       |       |             | 229136           |              | 287895           |              | 916192        |
| ARITHMETIC AVERAGE BHP |       |             | 706-38 wells     | 633-66 wells |                  | 519-84 wells |               |
| ARITHMETIC AVERAGE BHP |       |             | 700              | 655          |                  | 572          |               |

(32 wells on which 3 surveys have been run)

SUBSURFACE COMPLETION DATA ON DRY HOLES DRILLED IN CAPROCK AREA

| COMPANY<br>LEASE                | WELL<br>UNIT | S. T. R. | COMP.<br>DATE | ELEV.    | T.D. | TOP<br>PAY | I.P.<br>BOPD         | OIL STRING |       |     | TBG. RECORD |       | SHOT      |                    | TOP<br>ANHY |
|---------------------------------|--------------|----------|---------------|----------|------|------------|----------------------|------------|-------|-----|-------------|-------|-----------|--------------------|-------------|
|                                 |              |          |               |          |      |            |                      | Size       | Depth | Sax | Size        | Depth | Qts.      | Interval           |             |
| DELFERN OIL CO.<br>State        | K 1          | M        | 36-12-31      | 10-20-47 | 4414 | 3055       | Temp. Abd. 7         | 2996       | 600   |     |             |       | 65        | 3029-55            |             |
| GEORGE P. LIVERMORE<br>State    | F 1          | N        | 30-12-32      | 5-27-44  | 4397 | 3040       | Plg. & Abd. 5 1/2    | 3003       | 700   |     |             |       | 20<br>80  | 3033-40<br>3024-34 | 1390        |
| State                           | G 2          | F        | 31-12-32      | 11-7-44  | 4396 | 3037       | Plg. & Abd. 5 1/2    | 2973       | 173   |     |             |       | 70<br>240 | 3016-34<br>3016-34 | 1400        |
| State                           | G 3          | E        | 31-12-32      | 12-30-44 | 4395 | 3024       | Plg. & Abd. 5 1/2    | 2978       | 600   |     |             |       | 74        | 3004-24            | 1400        |
| Williams                        | B 1          | J        | 3-13-31       | 5-26-45  | 4441 | 3025       | Plg. & Abd. 5 1/2    | 2900       | 600   |     |             |       |           |                    | 1407        |
| MALCO REFINERIES, INC.<br>State | D 1          | F        | 36-12-31      | 3-20-45  | 4408 | 3048       | Gas well<br>shut in. | 5 1/2      | 2960  | 600 |             |       | 80        | 3011-31            | 1420        |
| SKELLY OIL CO.<br>State         | B 1          | E        | 20-12-32      | 10-8-45  | 4389 | 3115       | Plg. & Abd.          |            |       |     |             |       |           |                    | 1440        |

QUEEN SAND  
Depth Datum

REMARKS

NOV.  
1946  
BHP

PROD.  
11-16 to  
6-47

JUNE  
1947  
BHP

PROD.  
6-47 to  
11-47

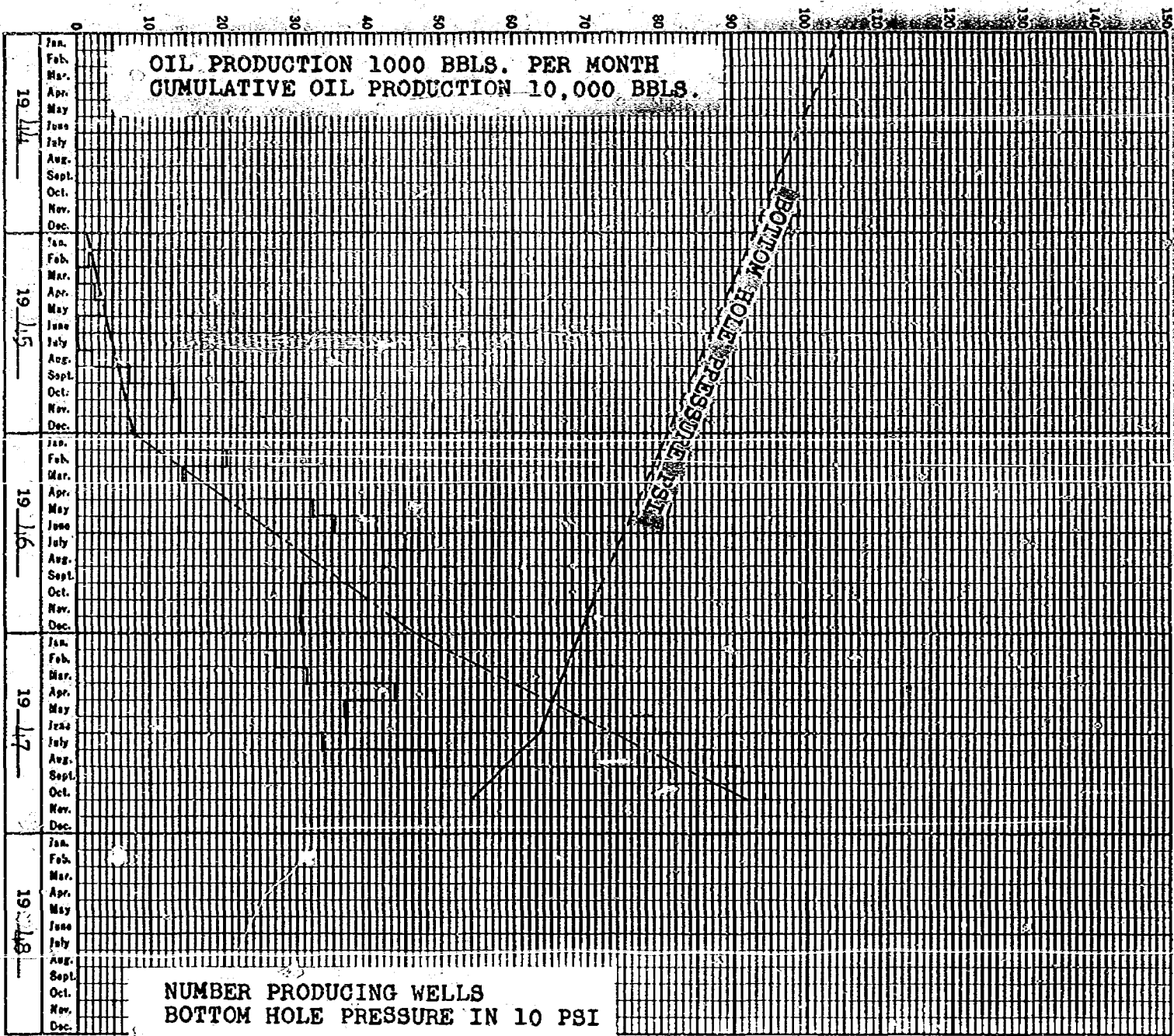
NOV.  
1947  
BHP

ACCUM.  
to  
11-1-47

|      |      |                                                             |
|------|------|-------------------------------------------------------------|
| 3029 | 1385 | Bail 72 Gal. per day after shot.                            |
| 3033 | 1364 | After shot test 1 gal. oil. 30 gals.<br>water in 2 hrs.     |
| 3017 | 1379 | Bail 32 gal. oil per day after shot                         |
| 3005 | 1391 | Bail 2 gal. oil & 4 gal. wtr. on 15 hr.<br>test after shot. |
| 3002 | 1439 | Sl. show of gas 3002-03                                     |
| 3015 | 1393 | Gas test 15.43 MCF per day. C.P. 870#.                      |
| 3010 | 1379 |                                                             |

CARROCK POOL

PRODUCTION & B. H. P. CURVE



Monthly Oil Production —  
Cumulative Oil Production —  
No. Producing Wells —