



# COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3913

3713 W. MARLAND ST.

P. O. BOX 1829

HOBBS, NEW MEXICO 88240

January 14, 1973

Mobil Oil Corporation  
P. O. Box 633  
Midland, Texas 79701

RE: Tubb-Tubb Gas  
E. O. Carson, No.9  
4-Point Back Pressure  
Test, Gas-Sample &  
Analysis Test

Gentlemen:

In compliance with your instructions, a 4-Point Back Pressure test was conducted, and the absolute open flow potential was calculated to be 1296 MCF/D. The average gas production was recorded as 527.8 MCF/D, with 75.36 BO/D, and a resulting GOR of 7004 CF Gas/Bbl.D.

The average gas production for the 24.0 hour production test was recorded as 478.7 MCF/D, with 93.05 BO/D, through a 20/64" choke, and a resulting GOR of 5145 CF Gas/Bbl. D.

The sample taken during test yielded component percentages as follows:

|                        |        |
|------------------------|--------|
| CARBON DIOXIDE         | 0.20   |
| NITROGEN               | 2.42   |
| OXYGEN                 | 0.00   |
| HYDROGEN SULFIDE       | 0.00   |
| METHANE                | 83.93  |
| ETHANE                 | 8.21   |
| PROPANE                | 3.46   |
| ISO-BUTANE             | 0.34   |
| NORMAL BUTANE          | 0.89   |
| ISO-PENTANE            | 0.19   |
| NORMAL PENTANE         | 0.20   |
| HEXANES plus           | 0.16   |
| TOTAL                  | 100.00 |
| CALCULATED Sp. G.      | 0.6684 |
| CALCULATED BTU Sat dry | 1145   |
| CALCULATED BTU Sat wet | 1125   |

Enclosures:

*Copies*  
*R.H. Cummins - Buckeye*  
*B.C. Bartlett - Midland*  
*C.W. Tucker - Midland*  
*Holter files*

Very Truly Yours

COLEMAN PETROLEUM ENG.CO.

Joe A. Coleman



KE-TONE®

OF NEW MEXICO

P. O. BOX 1499

PHONE 393-775

HOBBS, NEW MEXICO 88240

No. 2393

Run No. 1-15-73

Date of Run

Date Secured

# CERTIFICATE OF ANALYSIS

A Sample of E. O. Carson #9 - Mobil Oil Corporation  
 Secured from Coleman Engineering  
 At Hobbs, New Mexico Secured by \_\_\_\_\_  
 Time \_\_\_\_\_ Date \_\_\_\_\_  
 Sampling conditions \_\_\_\_\_ Press \_\_\_\_\_  
 Temp. \_\_\_\_\_ Tubb Gas  
Lea County, New Mexico

## FRACTIONAL ANALYSIS

### Percentage Composition

|                  | MOL %  | LIQ. % | G.P.M. |
|------------------|--------|--------|--------|
| Carbon Dioxide   | .20    |        |        |
| Air              |        |        |        |
| Nitrogen         | 2.42   |        |        |
| Oxygen           |        |        |        |
| Hydrogen sulfide |        |        |        |
| Hydrogen         |        |        |        |
| Methane          | 83.93  |        |        |
| Ethane           | 8.21   |        |        |
| Propane          | 3.46   |        | .952   |
| Butanes          |        |        |        |
| Iso-Butane       | .34    |        | .111   |
| N-Butane         | .89    |        | .280   |
| Pentanes         |        |        |        |
| Iso-Pentane      | .19    |        | .069   |
| N-Pentane        | .20    |        | .072   |
| Hexanes Plus     | .16    |        | .066   |
| TOTAL            | 100.00 |        | 1.550  |

Calc. Sp. Gr. 0.6684  
 Calc. A.P.I. \_\_\_\_\_  
 Calc. Vapor Press. \_\_\_\_\_ PSI  
 Sp. Gr. \_\_\_\_\_  
 Mol. Wt. \_\_\_\_\_

### LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M. .952  
 Butanes Calc. G.P.M. .391  
 Pentanes Plus. G.P.M. .207  
 Ethane Calc. G.P.M. \_\_\_\_\_  
 \* RVP Gasoline G.P.M. \_\_\_\_\_  
 B.T.U./Cu. Ft. @ 14.696 P.S.I.A.  
 Dry Basis 1145  
 Wet Basis 1125

Sulfur Analysis by Titration  
 Gr./100 Cu. Ft.  
 Hydrogen Sulfide  
 Mercaptans  
 Sulfides  
 Residual Sulfur  
 Total Sulfur

Run by Deane Simpson Checked by \_\_\_\_\_ Approved by Deane Simpson

Additional Data and Remarks

NEW MEXICO OIL CONSERVATION COMMISSION  
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122  
Revised 9-1-65

|                                                                                                                           |          |                                    |                                        |                                       |                                                         |
|---------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------|----------------------------------------|---------------------------------------|---------------------------------------------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |          |                                    |                                        | Test Date<br>1-14-73                  |                                                         |
| Company<br>Mobil Oil Corporation                                                                                          |          |                                    | Connection<br>Northern Natural Gas Co. |                                       |                                                         |
| Pool<br>Tubb                                                                                                              |          |                                    | Formation<br>Tubb Gas                  |                                       | Unit<br>-                                               |
| Completion Date<br>12-21-72                                                                                               |          | Total Depth<br>8172'               |                                        | Plug Back TD<br>6280'                 | Elevation<br>3469' GL                                   |
| Farm or Lease Name<br>E. O. Carson                                                                                        |          |                                    | Well No.<br>9                          |                                       |                                                         |
| Csg. Size 7"    Wt. 23                                                                                                    | Id 6.366 | Set At                             | Perforations:<br>From 5975' To 6245'   |                                       | Unit    Sec.    Twp.    Rge.<br>E    33    21    s 37 e |
| 5" + 15                                                                                                                   | 4.408    | 6620'                              |                                        |                                       |                                                         |
| Tbg. Size 2"                                                                                                              | Wt. 4.7  | Id 1.995                           | Set At 5864'                           | From Open To ended                    |                                                         |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br>G. O. Multiple                                                 |          |                                    |                                        | Packer Set At<br>5864'                | County<br>Lea                                           |
| Producing Thru<br>Tubing                                                                                                  |          | Reservoir Temp. °F<br>100° @ 6110' | Mean Annual Temp. °F<br>60             | Baro. Press. - P <sub>a</sub><br>13.2 | State<br>New Mexico                                     |
| L<br>6110'                                                                                                                | H<br>-   | Gg<br>0.668                        | % CO <sub>2</sub><br>0.20              | % N <sub>2</sub><br>2.42              | % H <sub>2</sub> S<br>0.00                              |
|                                                                                                                           |          | Prover                             | Meter Run<br>X                         | Taps<br>F                             |                                                         |

| FLOW DATA |                  |       |              |                 |                      | TUBING DATA |                     | CASING DATA |                 | Duration of Flow |          |
|-----------|------------------|-------|--------------|-----------------|----------------------|-------------|---------------------|-------------|-----------------|------------------|----------|
| NO.       | Prover Line Size | X     | Orifice Size | Press. p.s.i.g. | Diff. h <sub>w</sub> | Temp. °F    | Press. p.s.i.g. DWT | Temp. °F    | Press. p.s.i.g. |                  | Temp. °F |
| SI        |                  |       |              |                 |                      |             | 1326                |             |                 |                  | 72.0 Hrs |
| 1.        | 4                | 18/64 | 1.250        | 230             | 37                   | 56          | 626                 | 64          | PACKER          |                  | 3.0      |
| 2.        | 4                | 15/64 | 1.250        | 226             | 13                   | 56          | 721                 | 64          |                 |                  | 1.0      |
| 3.        | 4                | 13/64 | 1.250        | 226             | 8                    | 58          | 764                 | 66          |                 |                  | 1.0      |
| 4.        | 4                | 11/64 | 1.250        | 220             | 4                    | 55          | 842                 | 66          |                 |                  | 2.0      |
| 5.        |                  |       |              |                 |                      |             |                     |             |                 |                  |          |

| RATE OF FLOW CALCULATIONS |                       |                  |                         |                       |                               |                                         |                      |
|---------------------------|-----------------------|------------------|-------------------------|-----------------------|-------------------------------|-----------------------------------------|----------------------|
| NO.                       | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure P <sub>m</sub> | Flow Temp. Factor Ft. | Gravity Factor F <sub>g</sub> | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1                         | 7.469                 | 94.86            | 243.2                   | 1.004                 | 1.224                         | 1.023                                   | 890.7                |
| 2                         | 7.469                 | 55.77            | 239.2                   | 1.004                 | 1.224                         | 1.023                                   | 523.7                |
| 3                         | 7.469                 | 43.74            | 239.2                   | 1.002                 | 1.224                         | 1.023                                   | 409.9                |
| 4                         | 7.469                 | 30.54            | 233.2                   | 1.005                 | 1.224                         | 1.023                                   | 287.0                |
| 5                         |                       |                  |                         |                       |                               |                                         |                      |

| NO. | R    | Temp. °R | T <sub>r</sub> | Z     | Gas Liquid Hydrocarbon Ratio | Mcf/bbl. |
|-----|------|----------|----------------|-------|------------------------------|----------|
| 1   | 0.36 | 516      | 1.41           | 0.956 | 7004                         |          |
| 2   | 0.36 | 516      | 1.41           | 0.956 | 45.5                         |          |
| 3   | 0.36 | 518      | 1.42           | 0.956 | 0.668                        |          |
| 4   | 0.35 | 515      | 1.41           | 0.956 | XXXXXX                       |          |
| 5   |      |          |                |       |                              |          |

| NO. | P <sub>i</sub> <sup>2</sup> | P <sub>w</sub> * | P <sub>w</sub> <sup>2</sup> | P <sub>e</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> | (1) $\frac{P_e^2}{P_e^2 - P_w^2} =$ | (2) $\left[ \frac{P_e^2}{P_e^2 - P_w^2} \right]^n =$ |
|-----|-----------------------------|------------------|-----------------------------|-----------------------------------------------------------|-------------------------------------|------------------------------------------------------|
| 1   | -                           | 960.2            | 922.0                       | 1703.0                                                    | 1.541                               | 1.455                                                |
| 2   | -                           | 1300.2           | 1690.5                      | 934.5                                                     |                                     |                                                      |
| 3   | -                           | 1386.2           | 1921.6                      | 703.4                                                     |                                     |                                                      |
| 4   | -                           | 1469.2           | 2158.5                      | 466.5                                                     |                                     |                                                      |
| 5   |                             |                  |                             |                                                           |                                     |                                                      |

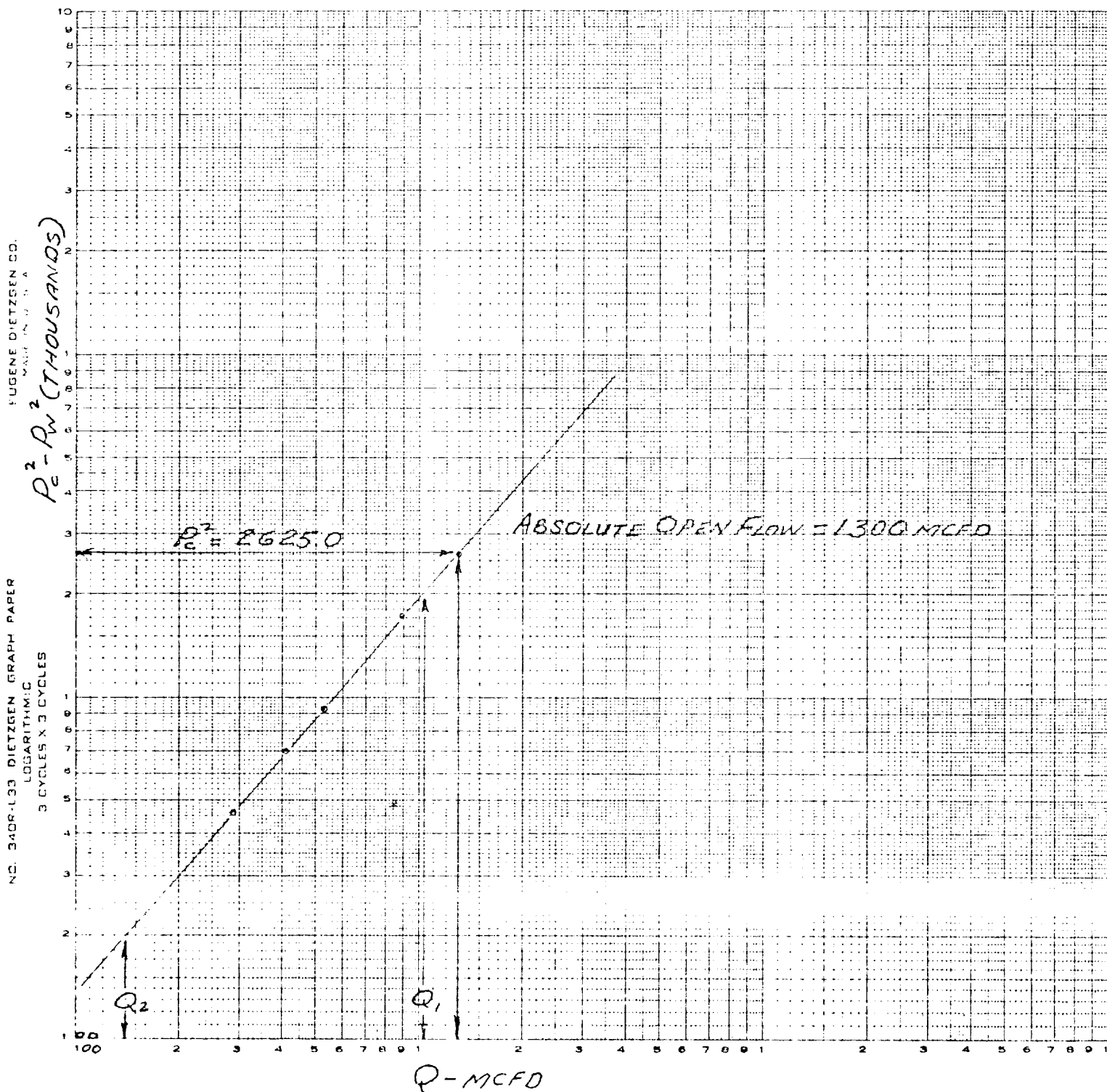
  

|                                                                                          |  |  |  |                         |                |
|------------------------------------------------------------------------------------------|--|--|--|-------------------------|----------------|
| Absolute Open Flow 1296 Mcfd @ 15.025                                                    |  |  |  | Angle of Slope @ 49° 5' | Slope, n 0.867 |
| Remarks: * BHP @ (-2641') 6110' used for pressure calculations<br>+ Top 5" liner @ 5885' |  |  |  |                         |                |

|                             |                                      |                                  |                               |
|-----------------------------|--------------------------------------|----------------------------------|-------------------------------|
| Approved By Commission:<br> | Conducted By:<br>COLEMAN PET.ENG.CO. | Calculated By:<br>JOE A. COLEMAN | Checked By:<br>JOE A. COLEMAN |
|-----------------------------|--------------------------------------|----------------------------------|-------------------------------|

COMPANY MOBIL OIL CORPORATION  
 WELL E. O. Carson, No. 9  
 LOCATION UNIT E, Sec. 33, 21 s 37 e  
 COUNTY LEA NEW MEXICO  
 DATE JANUARY 14, 1973



$$Q_1 = 1030 \text{ MCFD}; \text{LOG } Q_1 = 3.01281$$

$$Q_2 = 140 \text{ MCFD}; \text{LOG } Q_2 = 2.14613$$

$$n = 0.86668 = 0.867$$



# COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3613

3713 W. MAPLAND ST.

P. O. BOX 1822

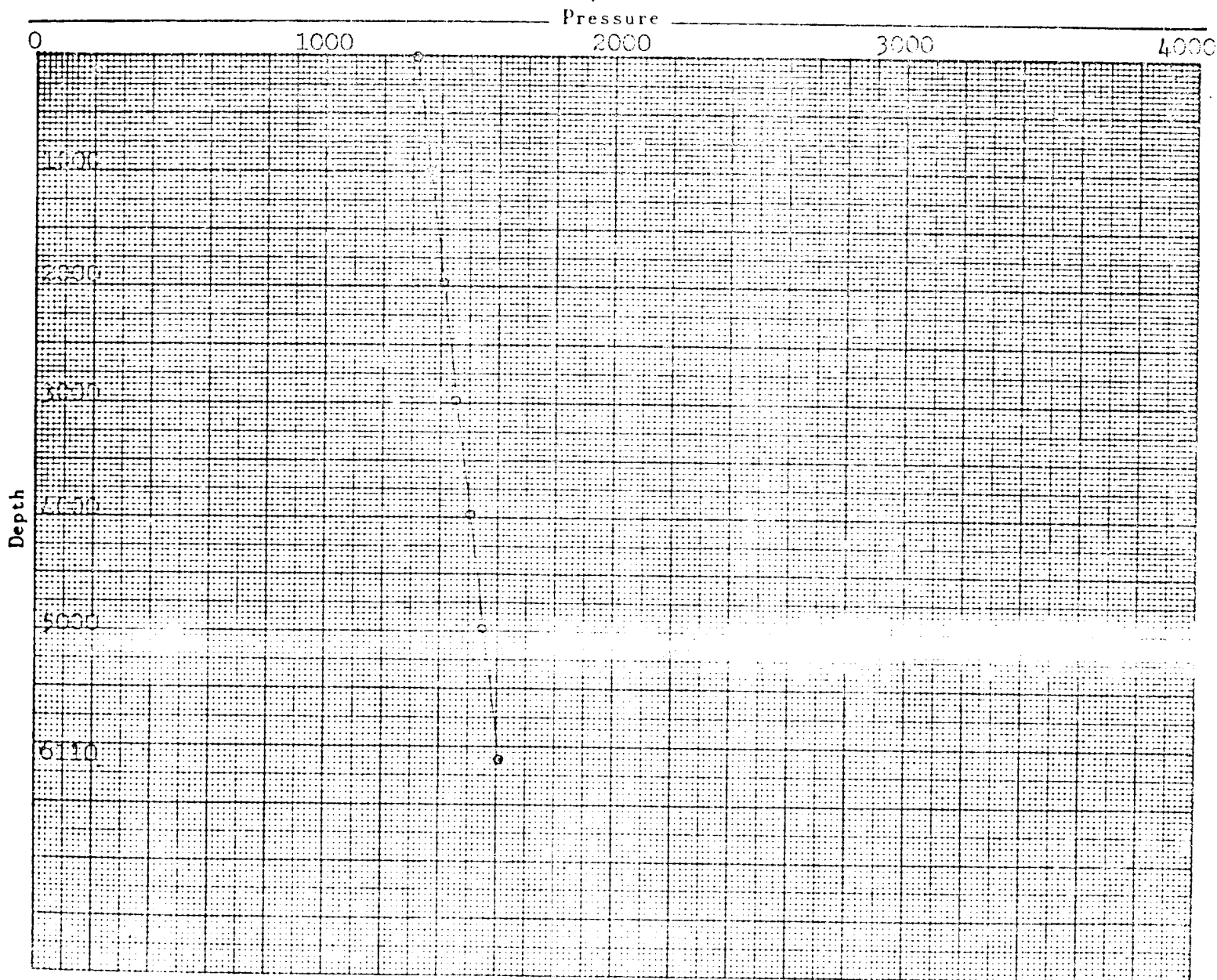
HOBBS, NEW MEXICO 88240

## BOTTOM HOLE PRESSURE RECORD

OPERATOR Mobil Oil Corporation  
FIELD Tubb FORMATION Tubb Gas  
LEASE E.O. Carson WELL No. 9  
COUNTY Lea STATE New Mexico  
DATE 1-14-73 TIME 7:00 Am  
Status Shut In Test depth 6110'  
Time S. I. 72.0 Hrs Last test date Initial  
Tub Pres. 1326 DWT BHP last test -  
Cas. Pres. PKR BHP change -  
Elev. 3469' GL Fluid top NONE  
Datum (-2641') \*\* Water top NONE  
Temp. @ 100° F Run by Weaver  
Cal. No. A2410N Chart No. 1

| Depth        | Pressure | Gradient |
|--------------|----------|----------|
| 0            | 1326     | -        |
| 1000         | 1371     | .045     |
| 2000         | 1416     | .045     |
| 3000         | 1462     | .046     |
| 4000         | 1508     | .046     |
| 5000         | 1555     | .047     |
| 6110 (-2641) | 1607**   | .047     |

\*\* Mid Point of casing perforations





# COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1829

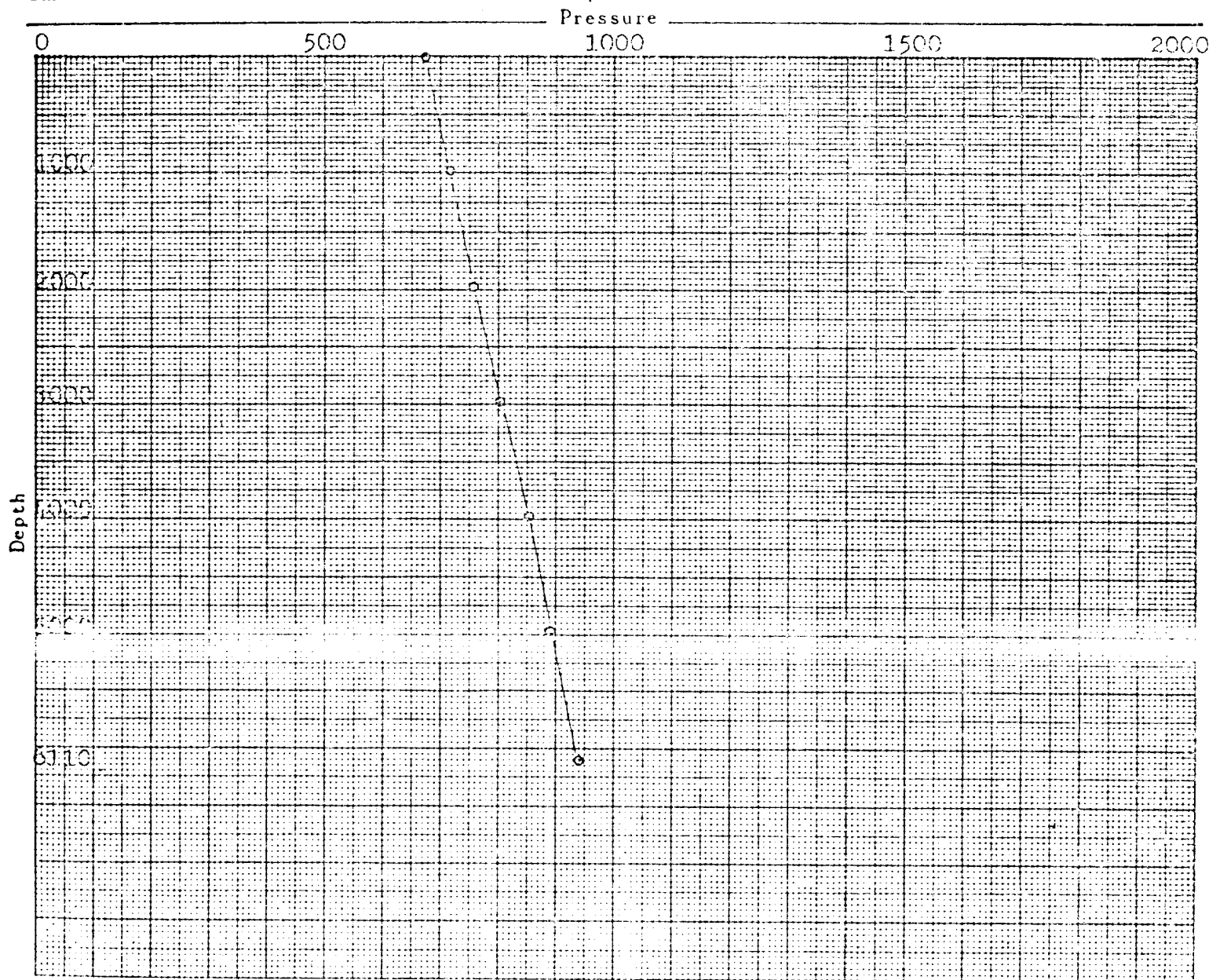
HOBBS, NEW MEXICO 88240

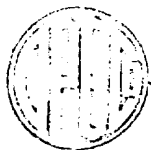
## BOTTOM HOLE PRESSURE RECORD

OPERATOR Mobil Oil Corporation  
FIELD Tubb FORMATION Tubb Gas  
LEASE E. Q. Carson WELL No. 9  
COUNTY Lea STATE New Mexico  
DATE 1-15-73 TIME 3:00 Pm  
Status Flowing On Test depth 6110'  
~~Pressure~~ 20/64" ch Last test date -  
Tub Pres. 672 BHP last test -  
Cas. Pres. PKR BHP change -  
Elev. 3769' GL Fluid top NONE  
Datum (-2641') \*\* Water top NONE  
Temp. @ 100°F Run by Martin  
Cal. No. A2410N Chart No. 2

| Depth       | Pressure | Gradient |
|-------------|----------|----------|
| 0           | 672      | -        |
| 1000        | 718      | .046     |
| 2000        | 759      | .041     |
| 3000        | 802      | .043     |
| 4000        | 851      | .049     |
| 5000        | 892      | .041     |
| 6110(-2641) | 940**    | .043     |

\*\* Mid point of casing perforations





# COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE EXPRESS 3-2813

611 GRIMES

P. O. BOX 1829

HOBBS, NEW MEXICO

MOBIL OIL CORPORATION

WELL: E. O. CARSON, NO. 9FIELD: TUBB-TUBB GAS

## CHRONOLOGICAL PRESSURE AND PRODUCTION DATA

| DATE | STATUS OF WELL                                                                                                          | TIME     | ELAPSED TIME |     | PRODUCTION |            |       | SURFACE PRESSURE |     | BHP @ (-2641') 6110' PSI |
|------|-------------------------------------------------------------------------------------------------------------------------|----------|--------------|-----|------------|------------|-------|------------------|-----|--------------------------|
|      |                                                                                                                         |          | HRS          | MIN | MCF GAS/D  | Bbls OIL/D | GOR   | TBG              | CSG |                          |
| 1973 | Well shut in 72.0                                                                                                       |          |              |     |            |            |       |                  |     |                          |
| 1-14 | hrs. Ran static Gradient & on bottom W/Bomb & opened well on 18/64"choke & started 1st rate                             | 8:00 Am  | -            | -   | -          | -          | -     | 1326B            | PKR | 1607                     |
|      | Shut in choke to 15/64"                                                                                                 |          |              |     |            |            |       |                  |     |                          |
|      | started 2nd rate                                                                                                        | 11:00    | 3            | 00  | 890.7      | 134.16     | 6639  | 626              | -   | 947                      |
|      | Shut in choke to 13/64"                                                                                                 |          |              |     |            |            |       |                  |     |                          |
|      | Started 3rd rate                                                                                                        | 12:00 N  | 1            | 00  | 523.7      | 39.60      | 13225 | 721              | -   | 1287                     |
|      | Shut in choke to 11/64"                                                                                                 |          |              |     |            |            |       |                  |     |                          |
|      | Started 4th rate                                                                                                        | 2:00 Pm  | 2            | 00  | 409.9      | 39.60      | 10351 | 764              | -   | 1373                     |
|      | Finished 4th rate                                                                                                       | 3:00     | 1            | 00  | 287.0      | 22.64      | 12677 | 842              | -   | 1456                     |
|      | Pulled bomb, Changed charts, opened choke to 20/64", ran bomb back in well & on bottom W/bomb & started production test | 4:00 Pm  | 0            | 00  | -          | -          | -     | 672 B            | -   | 940                      |
|      | Flowing                                                                                                                 | 5:00     | 1            | 00  | -          | -          | -     | 700              | -   | 862                      |
|      | "                                                                                                                       | 6:00     | 2            | 00  | -          | -          | -     | 680              | -   | 800                      |
|      | "                                                                                                                       | 7:00     | 3            | 00  | -          | -          | -     | 640              | -   | 741                      |
|      | "                                                                                                                       | 8:00     | 4            | 00  | -          | -          | -     | 560              | -   | 696                      |
|      | "                                                                                                                       | 9:00     | 5            | 00  | -          | -          | -     | 550              | -   | 672                      |
|      | "                                                                                                                       | 10:00    | 6            | 00  | -          | -          | -     | 500              | -   | 645                      |
|      | "                                                                                                                       | 11:00    | 7            | 00  | -          | -          | -     | 480              | -   | 648                      |
|      | "                                                                                                                       | 12:00 Mn | 8            | 00  | -          | -          | -     | 450              | -   | 625                      |
| 1-15 | "                                                                                                                       | 1:00 Am  | 9            | 00  | -          | -          | -     | 450              | -   | 621                      |
|      | "                                                                                                                       | 2:00     | 10           | 00  | -          | -          | -     | 450              | -   | 613                      |
|      | "                                                                                                                       | 3:00     | 11           | 00  | -          | -          | -     | 450              | -   | 625                      |
|      | "                                                                                                                       | 4:00     | 12           | 00  | -          | -          | -     | 450              | -   | 616                      |
|      | "                                                                                                                       | 5:00     | 13           | 00  | -          | -          | -     | 450              | -   | 608                      |
|      | "                                                                                                                       | 6:00     | 14           | 00  | -          | -          | -     | 450              | -   | 621                      |
|      | "                                                                                                                       | 7:00     | 15           | 00  | -          | -          | -     | 450              | -   | 604                      |
|      | "                                                                                                                       | 8:00     | 16           | 00  | -          | -          | -     | 450              | -   | 599                      |
|      | "                                                                                                                       | 9:00     | 17           | 00  | -          | -          | -     | 450              | -   | 592                      |
|      | "                                                                                                                       | 10:00    | 18           | 00  | -          | -          | -     | 440              | -   | 599                      |
|      | "                                                                                                                       | 11:00    | 19           | 00  | -          | -          | -     | 430              | -   | 609                      |
|      | "                                                                                                                       | 12:00 N  | 20           | 00  | -          | -          | -     | 425              | -   | 601                      |
|      | "                                                                                                                       | 1:00 Pm  | 21           | 00  | -          | -          | -     | 420              | -   | 599                      |
|      | "                                                                                                                       | 2:00     | 22           | 00  | -          | -          | -     | 400              | -   | 601                      |
|      | "                                                                                                                       | 3:00     | 23           | 00  | -          | -          | -     | 350              | -   | 594                      |
|      | Pulled bomb & ran Flowing gradient                                                                                      | 4:00     | 24           | 00  | 478.7      | 93.05      | 5145  | 329 B            | -   | 585                      |



# COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1529

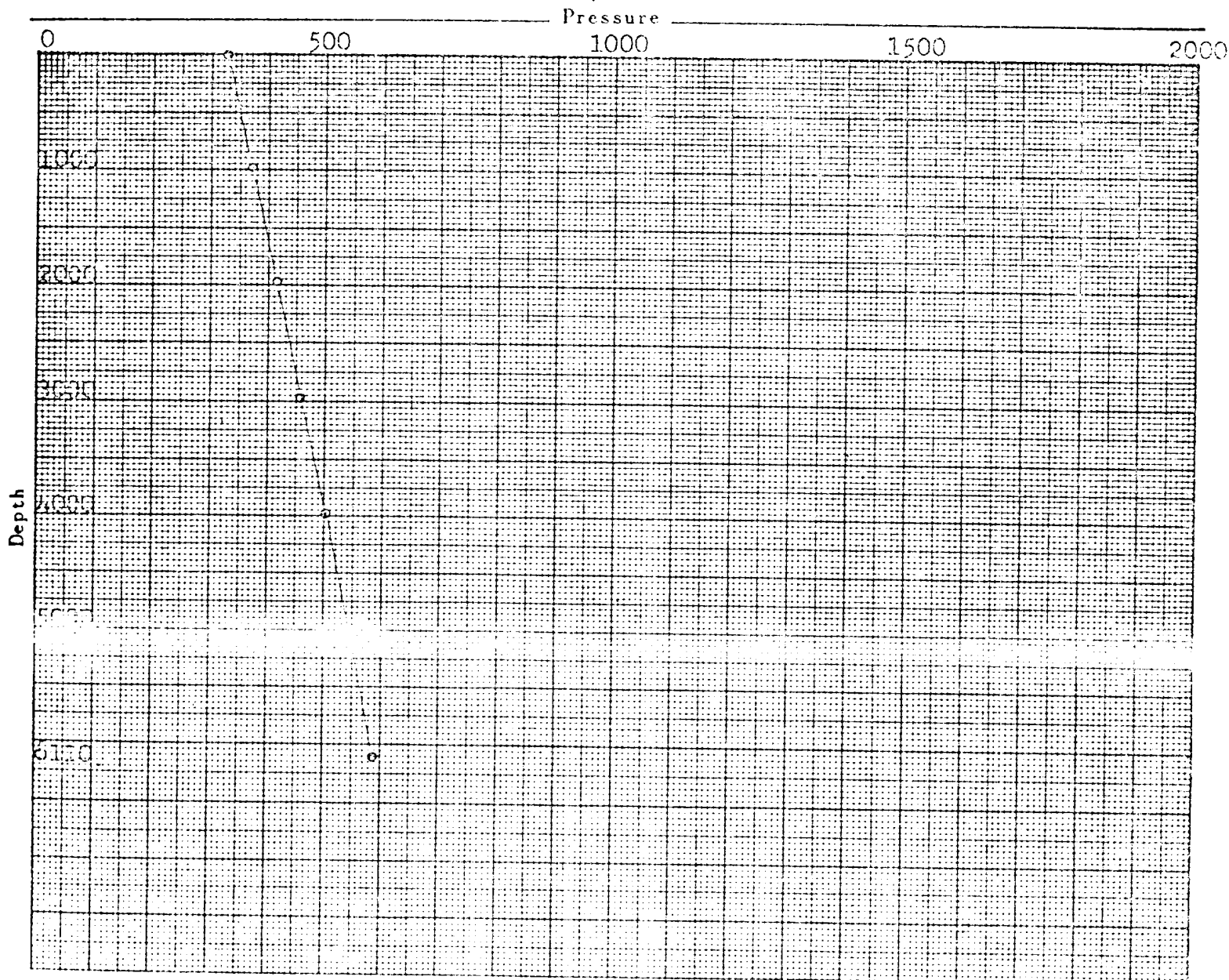
HOBBS, NEW MEXICO 88240

## BOTTOM HOLE PRESSURE RECORD

OPERATOR Mobil Oil Corporation  
FIELD Tubb FORMATION Tubb Gas  
LEASE E.O. Carson WELL No. 9  
COUNTY Lea STATE New Mexico  
DATE 1-16-73 TIME 4:00 Pm  
Status Flowing On Test depth 6110'  
~~20/64" ch~~ Last test date -  
Tub Pres. 329 BHP last test -  
Cas. Pres. PER BHP change -  
Elev. 3169' GL Fluid top NONE  
Datum (-2641') Water top NONE  
Temp. @ 100°F Run by Martin  
Cal. No. A2410N Chart No. 3

| Depth       | Pressure | Gradient |
|-------------|----------|----------|
| 0           | 329      | -        |
| 1000        | 373      | .044     |
| 2000        | 414      | .041     |
| 3000        | 460      | .040     |
| 4000        | 501      | .041     |
| 5000        | 541      | .040     |
| 6110(-2641) | 585**    | .040     |

\*\* Mid point of casing perforations



RECEIVED

JAN 11 1973

U.S. CONSTITUTION & COMM.  
RECORD, W. 111