

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-122  
Revised 4-1-91

Permit in duplicate to  
appropriate district office  
by Rule 401 & Rule 1122

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

RECEIVED  
OCC. ARTESIAN

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

|                                                                                                                           |  |                            |  |                                                    |  |                                   |  |
|---------------------------------------------------------------------------------------------------------------------------|--|----------------------------|--|----------------------------------------------------|--|-----------------------------------|--|
| Operator<br><b>OXY USA, INC.</b>                                                                                          |  |                            |  | Lease or Unit Name<br><b>LOGAN draw 4 FED COM</b>  |  |                                   |  |
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |  |                            |  | Test Date<br><b>27-FEB-98</b>                      |  | Well No.<br><b>1</b>              |  |
| Completion Date<br><b>19-FEB-98</b>                                                                                       |  | Total Depth<br><b>9247</b> |  | Plug Back TD                                       |  | Elevation<br><b>3418.5</b>        |  |
| Csg. Size<br><b>4 1/2</b>                                                                                                 |  |                            |  | Wt.<br><b>11.6</b>                                 |  | d<br><b>4.0</b>                   |  |
| Set At<br><b>9247</b>                                                                                                     |  |                            |  | Perforations:<br>From: <b>8885</b> To: <b>8918</b> |  | Country<br><b>EDDY</b>            |  |
| Tbg. Size<br><b>2 3/8</b>                                                                                                 |  |                            |  | Wt.<br><b>4.7</b>                                  |  | d<br><b>1.995</b>                 |  |
| Set At<br><b>8792</b>                                                                                                     |  |                            |  | Perforations:<br>From: To:                         |  | Pool                              |  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br><b>SINGLE</b>                                                  |  |                            |  | Packer Set At<br><b>8792</b>                       |  | Formation<br><b>MORROW</b>        |  |
| Producing Interval<br><b>TUBING</b>                                                                                       |  |                            |  | Reservoir Temp. °F<br><b>157</b>                   |  | Mean Annual Temp. °F<br><b>60</b> |  |
| Baro. Press. - P <sub>a</sub><br><b>13.2</b>                                                                              |  |                            |  | Connection                                         |  | Meter Run<br><b>3.068</b>         |  |
| G <sub>g</sub><br><b>3902</b>                                                                                             |  |                            |  | % CO <sub>2</sub><br><b>1.05</b>                   |  | % N <sub>2</sub><br><b>0.35</b>   |  |
| H <sub>2</sub> S<br><b>8902</b>                                                                                           |  |                            |  | Prover                                             |  | Taps<br><b>FLANGE</b>             |  |

| FLOW DATA |                  |              |                 | TUBING DATA          |          |                 |          | CASING DATA     |          | Duration of Flow |
|-----------|------------------|--------------|-----------------|----------------------|----------|-----------------|----------|-----------------|----------|------------------|
| NO.       | Prover Line Size | Onifice Size | Press. p.s.i.g. | Diff. h <sub>w</sub> | Temp. °F | Press. p.s.i.g. | Temp. °F | Press. p.s.i.g. | Temp. °F |                  |
| SI        |                  |              |                 |                      |          | 2860            |          | 3656*           | 157      | 75               |
| 1.        | 3.068 X          | 0.6247       | 750             | 15                   | 55       | 2840            |          | 3653            | 157      | 0.6              |
| 2.        | 3.068 X          | 0.6247       | 753             | 26                   | 67       | 2815            |          | 3653            | 157      | 0.8              |
| 3.        | 3.068 X          | 0.6247       | 756             | 39                   | 66       | 2780            |          | 3651            | 157      | 0.9              |
| 4.        | 3.068 X          | 0.6247       | 765             | 93                   | 69       | 2750            |          | 3647            | 157      | 0.6              |
| 5.        |                  |              |                 |                      |          |                 |          |                 |          |                  |

| RATE OF FLOW CALCULATIONS |                       |           |                         |                      |                               |                                         |                      |
|---------------------------|-----------------------|-----------|-------------------------|----------------------|-------------------------------|-----------------------------------------|----------------------|
| NO.                       | COEFFICIENT (24 HOUR) | $h_w P_m$ | Pressure P <sub>m</sub> | Flow Temp. Factor FL | Gravity Factor F <sub>g</sub> | Super Compress. Factor, F <sub>sp</sub> | Rate of Flow Q, Mcfd |
| 1.                        |                       | 107.0     | 763.2                   | 1.0048               | 1.252                         | 1.0797                                  | 1404                 |
| 2.                        |                       | 141.14    | 766.2                   | 0.9933               | 1.252                         | 1.0727                                  | 1716                 |
| 3.                        |                       | 173.20    | 769.2                   | 0.9943               | 1.252                         | 1.0736                                  | 2216                 |
| 4.                        |                       | 269.02    | 778.2                   | 0.9915               | 1.252                         | 1.0727                                  | 3369                 |
| 5.                        |                       |           |                         |                      |                               |                                         |                      |

| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z     | Gas Liquid Hydrocarbon Ratio | Mcf/bbl. |
|-----|----------------|----------|----------------|-------|------------------------------|----------|
| 1.  | 1.13           | 515      | 1.40           | 0.858 | 89.4                         |          |
| 2.  | 1.14           | 527      | 1.43           | 0.869 |                              |          |
| 3.  | 1.14           | 526      | 1.43           | 0.868 |                              |          |
| 4.  | 1.15           | 529      | 1.44           | 0.869 |                              |          |
| 5.  |                |          |                |       |                              |          |

|                                           |  |  |  |  |                                          |  |                       |  |
|-------------------------------------------|--|--|--|--|------------------------------------------|--|-----------------------|--|
| P <sub>r</sub> 2839.4 P <sub>c</sub> 8062 |  |  |  |  | A.P. I Gravity of Liquid Hydrocarbons 57 |  | Deg. I                |  |
|                                           |  |  |  |  | Specific Gravity Separator Gas 0.638     |  | XXXXXXXXXX            |  |
|                                           |  |  |  |  | Specific Gravity Flowing Fluid XXXXX     |  | 0.668                 |  |
|                                           |  |  |  |  | Critical Pressure 675                    |  | P.S.I.A. 673 P.S.I.A. |  |
|                                           |  |  |  |  | Critical Temperature 368                 |  | R 377 R               |  |
|                                           |  |  |  |  |                                          |  |                       |  |

| NO. | P <sub>r</sub> <sup>2</sup> | P <sub>w</sub> | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> | 1) $\frac{P_c^2}{P_c^2 - P_w^2}$ | 2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n$ |
|-----|-----------------------------|----------------|-----------------------------|-----------------------------------------------------------|----------------------------------|---------------------------------------------------|
| 1.  | 13441                       | 2837           | 8049                        | 14                                                        |                                  |                                                   |
| 2.  | 13438                       | 2837           | 8047                        | 15                                                        |                                  |                                                   |
| 3.  | 13425                       | 2835           | 8038                        | 24                                                        |                                  |                                                   |
| 4.  | 13396                       | 2832           | 8019                        | 43                                                        |                                  |                                                   |
| 5.  |                             |                |                             |                                                           |                                  |                                                   |

Absolute Open Flow **151200** Mcfd @ 15.025 Angle of Slope **54.1** Slope, n **0.725**

Remarks: \*BOTTOMHOLE DATA USED IN PLOT

Approved By Division \_\_\_\_\_ Conducted By: *Larry Davis* Calculated By: *Chub Simola* Checked By: \_\_\_\_\_

# BACK PRESSURE CURVE

CLIENT: OXY USA, INC.

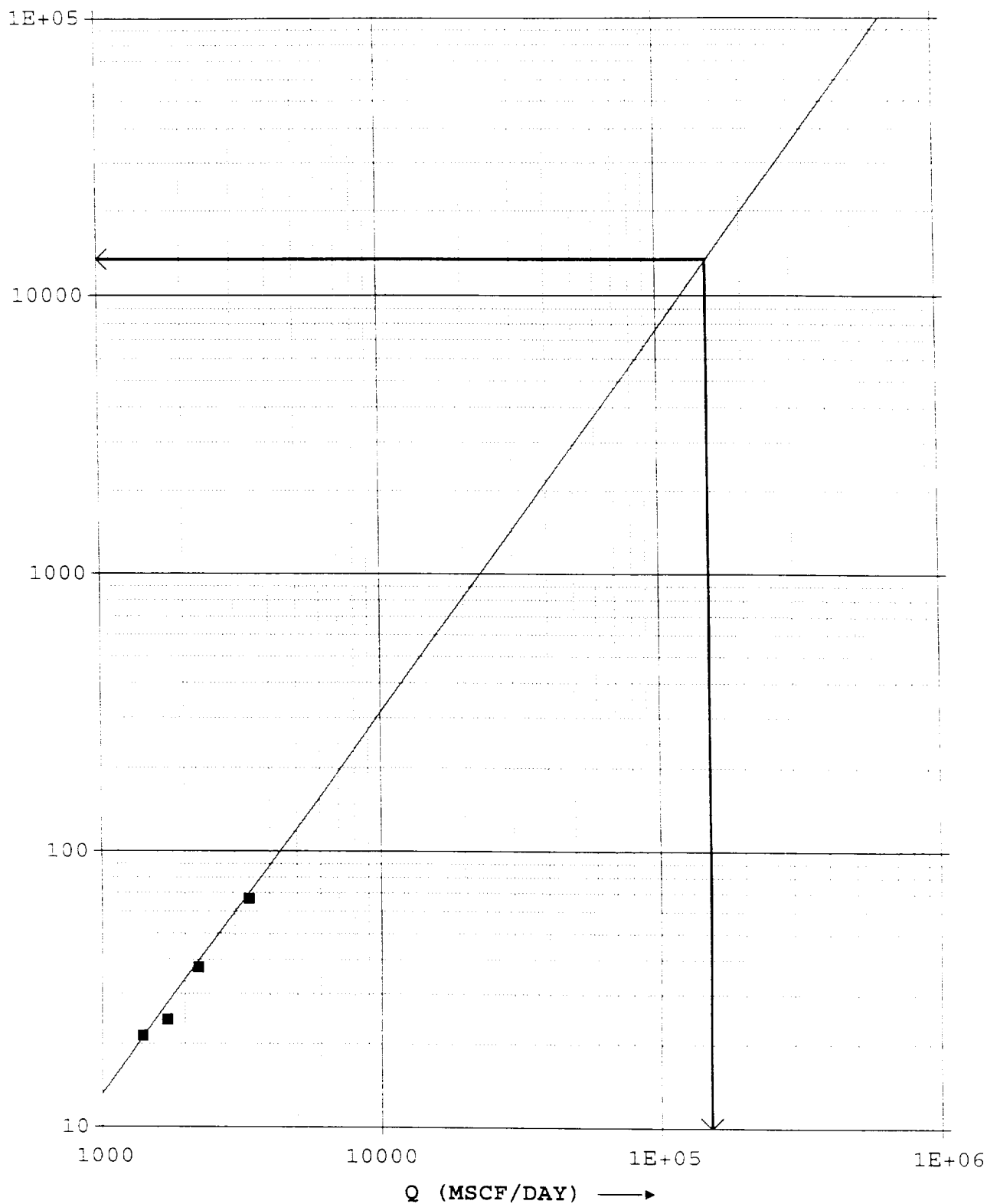
WELL: LOGAN DRAW 4 FED COMM #1

Test Date: 27-FEB-1998

County: EDDY, NEW MEXICO

PLOT USES MEASURED BOTTOMHOLE PRESSURES

↑  $P_C^2 - P_W^2$  ( $10^3$  PSI<sup>2</sup>)



Well Tester:

*Larry Davis*

SCHLUMBERGER Testing

$\theta = 54.058$  degrees

$n = 0.7250$

AOF =  $1.512E+05$  MSCF/DAY