

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

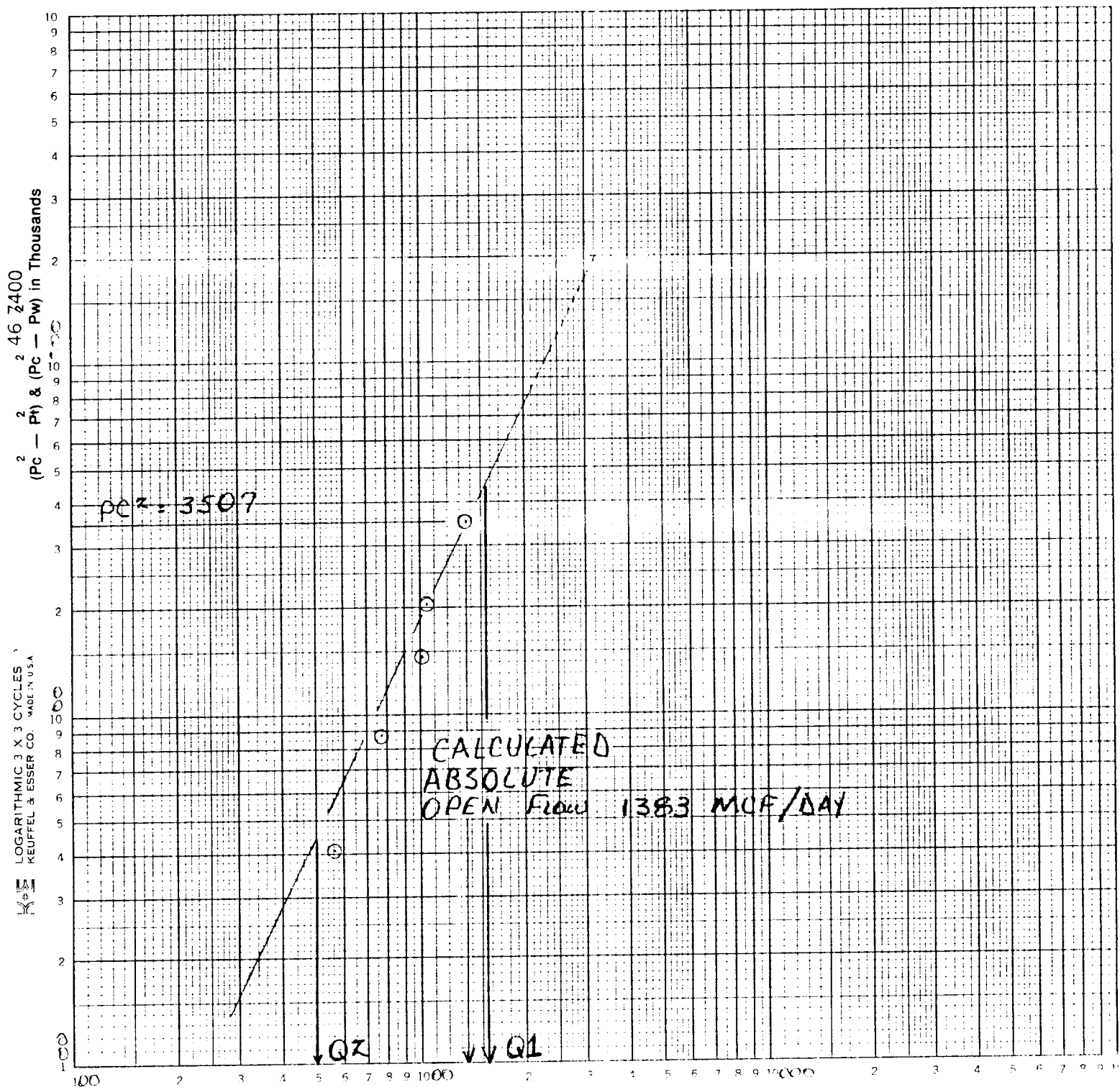
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|                                                                                                                           |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------|---------------------------------|-----------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------|----------|-----------------|----------|------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |                             | Test Date<br>7/6/89              |                                 | JUL 11 '89                                                |                                                                |                                                             |                                                          |          |                 |          |                  |
| Company<br>CARL A. SCHELLINGER                                                                                            |                             | Connection<br>PIPELINE           |                                 | Unit<br>O. C. D.                                          |                                                                |                                                             |                                                          |          |                 |          |                  |
| Pool<br>PENN                                                                                                              |                             | Formation<br>PENN                |                                 | Address<br>CAMPBELL STATION UT.                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| Completion Date<br>7/1/89                                                                                                 |                             | Total Depth<br>6452              |                                 | Plug Back TD<br>6208                                      |                                                                |                                                             |                                                          |          |                 |          |                  |
| Elevation<br>6595                                                                                                         |                             | Well No.<br>6                    |                                 | Farm or Lease Name<br>CAMPBELL STATION UT.                |                                                                |                                                             |                                                          |          |                 |          |                  |
| Ceq. Size<br>5.500                                                                                                        | Wt.<br>15.5                 | d<br>4.950                       | Set At<br>6595                  | Perforations:<br>From 6311 To 6337                        |                                                                |                                                             |                                                          |          |                 |          |                  |
| Thq. Size<br>2.875                                                                                                        | Wt.<br>8.7                  | d<br>2.259                       | Set At<br>6208                  | Perforations:<br>From 0. To 0.                            |                                                                |                                                             |                                                          |          |                 |          |                  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br>SINGLE GAS                                                     |                             |                                  |                                 | Packer Set At<br>6208                                     |                                                                |                                                             |                                                          |          |                 |          |                  |
| Producing Thru<br>TUBING                                                                                                  |                             | Reservoir Temp. °F<br>140        |                                 | Mean Annual Temp. °F<br>60                                |                                                                |                                                             |                                                          |          |                 |          |                  |
| Baro. Press. - P <sub>a</sub><br>13.2                                                                                     |                             | State<br>N. M.                   |                                 | County<br>CHAVES                                          |                                                                |                                                             |                                                          |          |                 |          |                  |
| L<br>6324                                                                                                                 | H<br>6324                   | G <sub>g</sub><br>.811           | % CO <sub>2</sub><br>21.00      | % N <sub>2</sub><br>1.12                                  | % H <sub>2</sub> S<br>.00                                      |                                                             |                                                          |          |                 |          |                  |
| Prover<br>.0                                                                                                              |                             | Meter Run<br>2.1                 |                                 | Taps<br>FLANGE                                            |                                                                |                                                             |                                                          |          |                 |          |                  |
| FLOW DATA                                                                                                                 |                             |                                  | TUBING DATA                     |                                                           | CASING DATA                                                    |                                                             |                                                          |          |                 |          |                  |
| NO.                                                                                                                       | Prover Line Size            | X                                | Orifice 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 | Duration of Flow |
| SI                                                                                                                        |                             |                                  |                                 |                                                           |                                                                |                                                             | 1860                                                     | 62       |                 |          | 72.0             |
| 1.                                                                                                                        | 2.09 X 1.375                |                                  | 170                             | 13                                                        | 57                                                             | 1745                                                        | 61                                                       | PKR      |                 |          | 1.0              |
| 2.                                                                                                                        | 2.09 X 1.375                |                                  | 175                             | 24                                                        | 55                                                             | 1605                                                        | 61                                                       | PKR      |                 |          | 1.0              |
| 3.                                                                                                                        | 2.09 X 1.375                |                                  | 185                             | 38                                                        | 54                                                             | 1420                                                        | 61                                                       | PKR      |                 |          | 1.0              |
| 4.                                                                                                                        | 2.09 X 1.375                |                                  | 185                             | 42                                                        | 59                                                             | 1200                                                        | 61                                                       | PKR      |                 |          | 1.0              |
| 5.                                                                                                                        |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| RATE OF FLOW CALCULATIONS                                                                                                 |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| NO.                                                                                                                       | Coefficient (24 Hour)       | $\sqrt{h_w P_m}$                 | Pressure P <sub>m</sub>         | Flow Temp. Factor F <sub>t</sub>                          | Gravity Factor F <sub>g</sub>                                  | Super Compress. Factor F <sub>pv</sub>                      | Rate of Flow Q, Mcf/d                                    |          |                 |          |                  |
| 1                                                                                                                         | 10.16                       | 48.80                            | 183.2                           | 1.0029                                                    | 1.1104                                                         | 1.0185                                                      | 562                                                      |          |                 |          |                  |
| 2                                                                                                                         | 10.16                       | 67.21                            | 188.2                           | 1.0048                                                    | 1.1104                                                         | 1.0193                                                      | 776                                                      |          |                 |          |                  |
| 3                                                                                                                         | 10.16                       | 86.78                            | 198.2                           | 1.0058                                                    | 1.1104                                                         | 1.0205                                                      | 1005                                                     |          |                 |          |                  |
| 4                                                                                                                         | 10.16                       | 91.24                            | 198.2                           | 1.0010                                                    | 1.1104                                                         | 1.0198                                                      | 1050                                                     |          |                 |          |                  |
| 5                                                                                                                         |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| NO.                                                                                                                       | P <sub>r</sub>              | Temp. °R                         | T <sub>r</sub>                  | Z                                                         | Gas Liquid Hydrocarbon Ratio .0                                |                                                             | Mcf/bbl.                                                 |          |                 |          |                  |
|                                                                                                                           |                             |                                  |                                 |                                                           | A.P.I. Gravity of Liquid Hydrocarbons .0                       |                                                             | Deg.                                                     |          |                 |          |                  |
| 1                                                                                                                         | .24                         | 517                              | 1.34                            | .964                                                      | Specific Gravity Separator Gas .811                            |                                                             | X X X X X X X X                                          |          |                 |          |                  |
| 2                                                                                                                         | .25                         | 515                              | 1.33                            | .962                                                      | Specific Gravity Flowing Fluid X X X X X                       |                                                             | .811                                                     |          |                 |          |                  |
| 3                                                                                                                         | .26                         | 514                              | 1.33                            | .960                                                      | Critical Pressure 752.                                         |                                                             | P.S.I.A.                                                 |          | 752.            |          |                  |
| 4                                                                                                                         | .26                         | 519                              | 1.34                            | .961                                                      | Critical Temperature 386.                                      |                                                             | R                                                        |          | 386.            |          |                  |
| 5                                                                                                                         |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| P <sub>c</sub> 1872.8                                                                                                     |                             | P <sub>c</sub> <sup>2</sup> 3507 |                                 | (1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.7341$                |                                                                | (2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.3169$ |                                                          |          |                 |          |                  |
| 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> | AOF = Q $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1383.$ |                                                             | Post ID-2<br>8-25-89<br>Camp in North<br>Four Ranch Penn |          |                 |          |                  |
| 1                                                                                                                         | 3091                        | 1759                             | 3096                            | 411                                                       |                                                                |                                                             |                                                          |          |                 |          |                  |
| 2                                                                                                                         | 2619                        | 1620                             | 2626                            | 882                                                       |                                                                |                                                             |                                                          |          |                 |          |                  |
| 3                                                                                                                         | 2054                        | 1437                             | 2065                            | 1442                                                      |                                                                |                                                             |                                                          |          |                 |          |                  |
| 4                                                                                                                         | 1472                        | 1219                             | 1485                            | 2023                                                      |                                                                |                                                             |                                                          |          |                 |          |                  |
| 5                                                                                                                         |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| Absolute Open Flow 1383.                                                                                                  |                             | Mcf/d @ 15.025                   |                                 | Angle of Slope @ 63.4                                     |                                                                | Slope, n .500                                               |                                                          |          |                 |          |                  |
| Remarks: CHOKE SIZE: 1ST RATE - 10/64 2ND RATE - 12/64 3RD RATE - 14/64<br>4TH RATE - 16/64                               |                             |                                  |                                 |                                                           |                                                                |                                                             |                                                          |          |                 |          |                  |
| Approved By Division                                                                                                      |                             |                                  | Conducted By:<br>BENNETT-CATHEY |                                                           |                                                                | Calculated By:<br>MATT LEE                                  |                                                          |          | Checked By:     |          |                  |

# BENNETT & CATHEY PRODUCTION TESTING BACK PRESSURE CUR

Operator CARL A. SCHELLINGER Lease CAMPBELL STATION Well No. #6  
 County CHAVES Field \_\_\_\_\_ Location SEC. 5-9S-27E  
 Date of Test 7/6/89 Slope "n" .500 Angle of Slope 63.4

Calc. Abs. Potential 1383 MCF/D



$$\overline{\Delta P}_1^2 \quad P_c^2 - P_w^2 = 4400$$

$$\overline{\Delta P}_2^2 \quad P_c^2 - P_w^2 = 440$$

$$Q_1 = 1581$$

$$Q_2 = 500$$

$Q, \text{ Mcfd}$

$$\text{LOG } Q_1 = 3.199$$

$$\text{LOG } Q_2 = 2.699$$

$$n = .500$$