

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

RECEIVED

|                                                                                                                           |            |                                   |                            |                                      |                         |                                       |                |                                         |             |
|---------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------|----------------------------|--------------------------------------|-------------------------|---------------------------------------|----------------|-----------------------------------------|-------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |            |                                   |                            |                                      |                         | Test Date<br>5/18/81                  |                | MAY 22 1981                             |             |
| Company<br>Gulf Oil <del>Exploration &amp; Production Co.</del> Corporation                                               |            |                                   |                            |                                      |                         | Connection<br>To Air                  |                | O. C. D.                                |             |
| Pool<br>Undz Shugart <i>Morrow</i>                                                                                        |            |                                   |                            |                                      |                         | Formation<br>Morrow                   |                | Unit<br>ARTESIA, OFFICE                 |             |
| Completion Date<br>5/18/81                                                                                                |            | Total Depth<br>12250'             |                            | Plug Back TD<br>12206'               |                         | Elevation<br>3644' GL                 |                | Farm or Lease Name<br>Eddy JP State Com |             |
| Co-1 Size<br>5 1/2"                                                                                                       | Wt.<br>17  | d                                 | Set At<br>12250            | Perforations:<br>From 11995 To 12055 |                         | Well No.<br>1                         |                |                                         |             |
| Tbg. Size<br>2 3/8"                                                                                                       | Wt.<br>4.7 | d                                 | Set At<br>11874            | Perforations: Open End<br>From To    |                         | Unit<br>N N                           |                | Sec.<br>36                              | Twp.<br>18s |
| Type Well - Single - Gradient - G.C. or G.O. Multiple<br>Single                                                           |            |                                   |                            |                                      |                         | Packer Set At<br>11874                |                | County<br>Eddy                          |             |
| Producing Thru<br>Tbg                                                                                                     |            | Reservoir Temp. °F<br>193 @ 11874 |                            | Mean Annual Temp. °F<br>60           |                         | Baro. Press. - P <sub>a</sub><br>13.2 |                | State<br>New Mexico                     |             |
| L<br>11874                                                                                                                | H<br>11874 | G <sub>g</sub><br>0.707           | % CO <sub>2</sub><br>4.272 | % N <sub>2</sub><br>0.991            | % H <sub>2</sub> S<br>- | Prover                                | Meter Run<br>4 | Taps<br>Flg.                            |             |

| 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        |                  |   |              |                 |                      |          | 3139                |          | PACKER          |          | 72.0 hrs         |
| 1.        | 4                | X | .750         | 460             | 7                    | 92       | 2531                |          |                 |          | 1.0 hr           |
| 2.        | 4                | X | .750         | 460             | 14                   | 90       | 2248                |          |                 |          | 1.0 hr           |
| 3.        | 4                | X | .750         | 460             | 30                   | 87       | 1930                |          |                 |          | 1.0 hr           |
| 4.        | 4                | X | .750         | 495             | 42                   | 78       | 1575                |          |                 |          | 1.0 hr           |
| 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, Mscf/d |
| 1                         | 2.661                 | 57.55            | 473.2                   | 0.9706                           | 1.189                         | 1.044                                   | 184                    |
| 2                         | 2.661                 | 81.39            | 473.2                   | 0.9723                           | 1.189                         | 1.044                                   | 261                    |
| 3                         | 2.661                 | 119.15           | 473.2                   | 0.9750                           | 1.189                         | 1.045                                   | 384                    |
| 4                         | 2.661                 | 146.10           | 508.2                   | 0.9831                           | 1.189                         | 1.051                                   | 478                    |
| 5                         |                       |                  |                         |                                  |                               |                                         |                        |

| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z    | Gas Liquid Hydrocarbon Ratio          | Mcf/Ubl.     |
|-----|----------------|----------|----------------|------|---------------------------------------|--------------|
|     |                |          |                |      | 5.984                                 |              |
|     |                |          |                |      | A.P.I. Gravity of Liquid Hydrocarbons | 54.5 @ 60    |
| 1   | .69            | 552      | 1.43           | .918 | Specific Gravity Separator Gas        | .707         |
| 2   | .69            | 550      | 1.43           | .918 | Specific Gravity Flowing Fluid        | XXXXXX       |
| 3   | .69            | 547      | 1.42           | .916 | Critical Pressure                     | 685 P.S.I.A. |
| 4   | .74            | 538      | 1.40           | .906 | Critical Temperature                  | 385 °R       |
| 5   |                |          |                |      |                                       |              |

| NO. | P <sub>c</sub> | 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) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ |
|-----|----------------|----------------|-----------------------------|-----------------------------------------------------------|-------------------------------------|------------------------------------------------------|
|     | 31522          | 9936.4         |                             |                                                           | 1.342                               | 1.342                                                |
| 1   |                | 2544.5         | 6474.6                      | 3461.8                                                    |                                     |                                                      |
| 2   |                | 2261.9         | 5116.1                      | 4820.3                                                    |                                     |                                                      |
| 3   |                | 1944.7         | 3782.0                      | 6154.4                                                    |                                     |                                                      |
| 4   |                | 1590.7         | 2530.5                      | 7405.9                                                    |                                     |                                                      |
| 5   |                |                |                             |                                                           |                                     |                                                      |

AOF = C  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = .641$

|                        |  |               |                       |               |
|------------------------|--|---------------|-----------------------|---------------|
| Absolute Open Flow 641 |  | Mscf @ 15.025 | Angle of Slope 45° 0' | Slope, n 1.00 |
|------------------------|--|---------------|-----------------------|---------------|

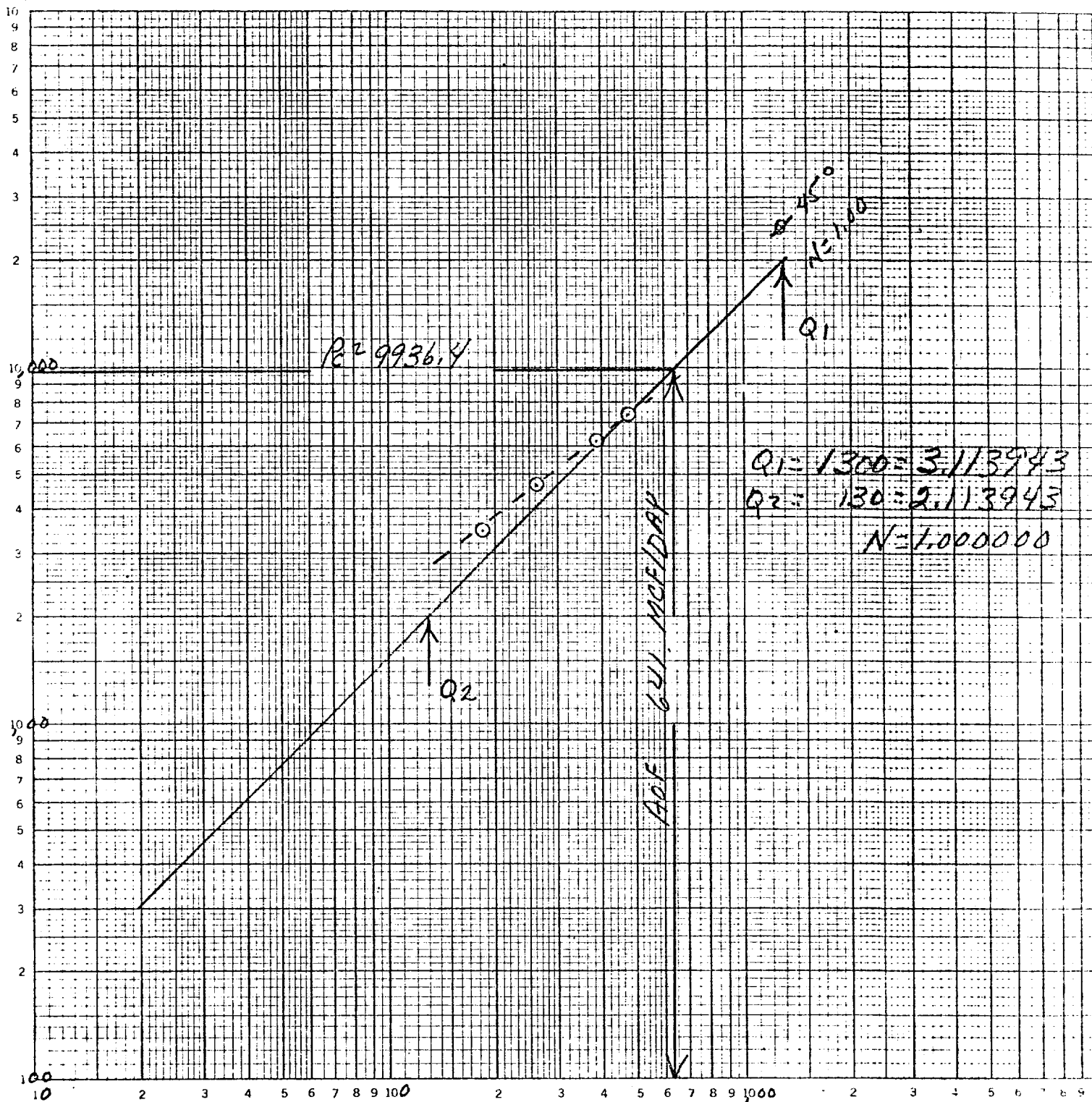
Remarks: MADE 9.1 BBLS CONDENSATE DURING TEST.  
POINT ALINEMENT TOO FLAT, A SLOPE OF 45° WAS DOWN THROUGH HIGH RATE

|                      |                                        |                             |                                           |
|----------------------|----------------------------------------|-----------------------------|-------------------------------------------|
| Approved By Division | Conducted By:<br>JARREL SERVICES, INC. | Calculated By:<br>R. Reston | Checked By:<br>PE #2208<br>Joe A. Coleman |
|----------------------|----------------------------------------|-----------------------------|-------------------------------------------|

COMPANY: Gulf Oil Exploration & Production Co.  
 WELL: Eddy JP State Com, No. 1  
 LOCATION: H - 36 - 18s - 31e  
 COUNTY: Eddy  
 DATE: May 18, 1981

$R^2 Pw^2$  in  $T_{Dsd}^2$   
 467400

LOGARITHMIC 3 X 3 CYCLES  
 KEUFFEL & ESSER CO. MADE IN U.S.A.



Q = Mcf/Day

**NEW-TEX  
LAB**P. O. BOX 1181  
HOBBS, N.M. 88240

No. 5002

Run No.

Date of Run 5-19-81

Date Secured 5-18-81

**CERTIFICATE OF ANALYSIS**

A Sample of Gulf Eddy "JP" State Comm #1  
Secured from Jarrel Well Testing  
At Box 1654 Secured by \_\_\_\_\_  
Hobbs, New Mexico 88240 Time \_\_\_\_\_ Date \_\_\_\_\_  
Sampling conditions \_\_\_\_\_ Press \_\_\_\_\_  
Temp. \_\_\_\_\_

**FRACTIONAL ANALYSIS****Percentage Composition**

|                  | MOL %     | LIQ. % | G.P.M. |
|------------------|-----------|--------|--------|
| Carbon Dioxide   | 4.272     |        |        |
| Air              |           |        |        |
| Nitrogen         | .993      |        |        |
| Oxygen           |           |        |        |
| Hydrogen sulfide |           |        |        |
| Hydrogen         |           |        |        |
| Methane          | 80.986    |        |        |
| Ethane           | 8.370     | 2.232  |        |
| Propane          | 3.370     | .925   |        |
| Butanes          |           |        |        |
| Iso-Butane       | .412      | .134   |        |
| N-Butane         | .846      | .266   |        |
| Pentanes         |           |        |        |
| Iso-Pentane      | .217      | .079   |        |
| N-Pentane        | .235      | .085   |        |
| Hexanes          | .106      | .043   |        |
| Heptanes         | Plus .193 | .089   |        |
| Octanes          |           |        |        |
| TOTAL            | 100.000   | 3.853  |        |

Calc. Sp. Gr. — 0.7072  
Calc. A.P.I. —  
Calc. Vapor Press. — PSIA  
Sp. Gr. —  
Mol. Wt. 20.50

**LIQUID CONTENT (GAL./MCF)**

Propane Calc. G.P.M. .925  
Butanes Calc. G.P.M. .400  
Pentanes Plus. G.P.M. .296  
Ethane Calc. G.P.M. 2.232  
RVP Gasoline G.P.M.

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.  
Dry Basis 1125  
Wet Basis 1105

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**

5/5/5/

4.

530

[illegible]