

**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><b>1-3-71</b>                       |                                |
| Company<br><b>READING &amp; BATES, INC.</b>                                                                               |                    |                                                |                                  | Connection<br><b>NONE</b>                        |                                |
| Pool<br><b>WILDCAT</b>                                                                                                    |                    |                                                |                                  | Formation<br><b>QUEEN</b>                        |                                |
| Completion Date<br><b>12-30-70</b>                                                                                        |                    | Total Depth<br><b>2675</b>                     |                                  | Plug Back TD<br><b>2640</b>                      |                                |
| Elevation<br><b>4133 GR</b>                                                                                               |                    | Farm or Lease Name<br><b>R &amp; J FEDERAL</b> |                                  |                                                  |                                |
| Csg. Size<br><b>4 1/2"</b>                                                                                                | Wt.<br><b>9.5#</b> | d<br><b>3.96</b>                               | Set At<br><b>2675</b>            | Perforations:<br>From <b>2604</b> To <b>2609</b> |                                |
| Thq. Size<br><b>2 3/8"</b>                                                                                                | Wt.<br><b>4.7#</b> | d<br><b>1.96</b>                               | Set At<br><b>2560</b>            | Perforations:<br>From <b>OPEN END</b> To         |                                |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br><b>SINGLE</b>                                                  |                    |                                                |                                  | Packer Set At<br><b>NONE</b>                     |                                |
| Producing Thru<br><b>TUBING</b>                                                                                           |                    | Reservoir Temp. °F<br><b>90 @ 2600</b>         |                                  | Mean Annual Temp. °F<br><b>13.2</b>              |                                |
| Baro. Press. - P <sub>a</sub><br><b>13.2</b>                                                                              |                    | State<br><b>NEW MEXICO</b>                     |                                  |                                                  |                                |
| L                                                                                                                         | H                  | Gg                                             | % CO <sub>2</sub><br><b>0.05</b> | % N <sub>2</sub><br><b>58.7</b>                  | % H <sub>2</sub> S<br><b>0</b> |
| Prover<br><b>X</b>                                                                                                        |                    | Meter Run<br>Taps                              |                                  |                                                  |                                |

| FLOW DATA |                |   |                 |                    |                         |             | TUBING DATA        |             | CASING DATA        |             | Duration<br>of<br>Flow |
|-----------|----------------|---|-----------------|--------------------|-------------------------|-------------|--------------------|-------------|--------------------|-------------|------------------------|
| NO.       | Prover<br>Size | X | Orifice<br>Size | Press.<br>p.s.i.g. | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>p.s.i.g. | Temp.<br>°F | Press.<br>p.s.i.g. | Temp.<br>°F |                        |
| SI        |                |   |                 | 1080               |                         | 70          |                    |             | 1080               |             | 69.0 HRS               |
| 1.        | 2 inch         |   | 1/8             | 970                |                         | 70          |                    |             | 985                |             | 1.5                    |
| 2.        | "              |   | 5/16            | 810                |                         | 68          |                    |             | 820                |             | 2.5                    |
| 3.        | "              |   | 3/8             | 680                |                         | 60          |                    |             | 765                |             | 3.0                    |
| 4.        | "              |   | 1/2             | 470                |                         | 55          |                    |             | 670                |             | 3.0                    |
| 5.        | "              |   | 1/2             | 470                |                         | 44          |                    |             | 665                |             | 22.0                   |

| RATE OF FLOW CALCULATIONS |                       |                  |                                     |                       |                               |                                         |                      |
|---------------------------|-----------------------|------------------|-------------------------------------|-----------------------|-------------------------------|-----------------------------------------|----------------------|
| NO.                       | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure PROVER P <sub>m</sub> PSIA | Flow Temp. Factor Ft. | Gravity Factor F <sub>g</sub> | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1                         | <b>0.3418</b>         |                  | <b>983.2</b>                        | <b>0.9905</b>         | <b>0.8289</b>                 | <b>1.0404</b>                           | <b>277</b>           |
| 2                         | <b>2.1577</b>         |                  | <b>823.2</b>                        | <b>0.9924</b>         | "                             | <b>1.0400</b>                           | <b>1520</b>          |
| 3                         | <b>3.0691</b>         |                  | <b>693.2</b>                        | <b>1.0000</b>         | "                             | <b>1.0314</b>                           | <b>1819</b>          |
| 4                         | <b>5.5233</b>         |                  | <b>483.2</b>                        | <b>1.0048</b>         | "                             | <b>1.0242</b>                           | <b>2276</b>          |
| 5                         | <b>5.5233</b>         |                  | <b>483.2</b>                        | <b>1.0157</b>         | "                             | <b>1.0249</b>                           | <b>2303</b>          |

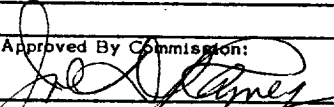
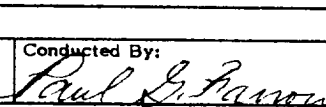
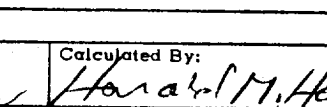
|     |                |          |                |   |                                                               |
|-----|----------------|----------|----------------|---|---------------------------------------------------------------|
| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z | Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.                   |
| 1.  |                |          |                |   | A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.              |
| 2.  |                |          |                |   | Specific Gravity Separator Gas <b>0.873</b> <b>XXXXXXXXXX</b> |
| 3.  |                |          |                |   | Specific Gravity Flowing Fluid <b>XXXXXX</b>                  |
| 4.  |                |          |                |   | Critical Pressure _____ P.S.I.A.    _____ P.S.I.A.            |
| 5.  |                |          |                |   | Critical Temperature _____ R    _____ R                       |

| NO. | P <sub>r</sub> <sup>2</sup> | P <sub>w</sub> <sup>2</sup> | 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   |                             | <b>998.2</b>                | <b>996.4</b>                | <b>195.7</b>                                              | <b>1.641</b>                        | <b>1.477</b>                                         |
| 2   |                             | <b>833.2</b>                | <b>694.2</b>                | <b>500.9</b>                                              |                                     |                                                      |
| 3   |                             | <b>778.2</b>                | <b>605.6</b>                | <b>589.5</b>                                              |                                     |                                                      |
| 4   |                             | <b>683.2</b>                | <b>466.8</b>                | <b>728.3</b>                                              |                                     |                                                      |
| 5   |                             | <b>678.2</b>                | <b>460.0</b>                | <b>735.1</b>                                              |                                     |                                                      |

AOF = Q  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$  **3361**

|                                               |                           |                      |
|-----------------------------------------------|---------------------------|----------------------|
| Absolute Open Flow <b>3,400</b> Mcfd @ 15.025 | Angle of Slope <b>48°</b> | Slope, n <b>0.90</b> |
|-----------------------------------------------|---------------------------|----------------------|

Remarks: \_\_\_\_\_

|                                                                                                               |                                                                                                      |                                                                                                        |             |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------|
| Approved By Commission:<br> | Conducted By:<br> | Calculated By:<br> | Checked By: |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------|

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OIL CONSERVATION COMM.  
HOUSTON, TEX.

79760

## HYDROCARBON ANALYSIS

## LABORATORY REPORT

Charge Reading & Bates Inc.  
Test No. WPL-70-1386  
Date of Run 12-26-70  
Date Received 12-24-70

Sample of Gas from Federal No 1 - Reading and Bates Inc.

cured from Queens Formation

Chaves Co. New Mexico \_\_\_\_\_ Secured by P. Farrow

Purpose \_\_\_\_\_ Time \_\_\_\_\_ Date 12-24-70

Sampling Conditions: Pressure 880 psig  
Gas Vol 596 MCF/D  
Well Stabilized for 2 Hours

## CHROMATOGRAPH ANALYSIS

|                     | Gas Vol.<br>or Mol. % | Liquid<br>Vol. % | GPM  |
|---------------------|-----------------------|------------------|------|
| Hydrogen Sulfide    |                       |                  |      |
| Carbon Dioxide      | 1.06                  |                  |      |
| Air                 |                       |                  |      |
| Nitrogen            | 56.46                 |                  |      |
| Oxygen              |                       |                  |      |
| Ethane              | 30.36                 |                  |      |
| Propane             | 7.02                  |                  |      |
| Isobutane           | 3.01                  |                  | .83  |
| Normal Butane       | .37                   |                  | .12  |
| Isopentane          | .74                   |                  | .23  |
| Normal Pentane      | .19                   |                  | .07  |
| Isopentane          | .22                   |                  | .08  |
| Normal Hexane       |                       |                  |      |
| Isopentane          |                       |                  |      |
| Normal Pentanes (2) |                       |                  |      |
| Normal Hexanes (2)  | .57                   |                  | .24  |
| Normal Heptane (2)  |                       |                  |      |
| TOTAL               | 100.00                |                  | 1.57 |

- 1) and lighter
- 2) and heavier

## ANALYSIS INFORMATION

Volume of Sample \_\_\_\_\_ cc. @ \_\_\_\_\_ ° F  
 Sp. Gr. Residue \_\_\_\_\_ Vol. of Residue \_\_\_\_\_ cc.  
 Molecular Wgt. of Residue \_\_\_\_\_  
 Gal/lb. Mol. \_\_\_\_\_

## VAPOR PRESSURE

Calculated \_\_\_\_\_ lbs. @ 100° F

## GASOLINE CONTENT

|        |          |       |          |
|--------|----------|-------|----------|
| 26/70  | Gasoline | .585  | G. P. M. |
| 100%   | Propane  | .830  | G. P. M. |
| Excess | Butanes  | .155  | G. P. M. |
|        | TOTAL    | 1.570 | G. P. M. |

## SULFUR DETERMINATION

|                     |                  |       |                |            |
|---------------------|------------------|-------|----------------|------------|
| Hydrogen Sulfide    | H <sub>2</sub> S | _____ | grs/100        | SCF        |
| Mercaptans          | RSH              | _____ | grs/100        | SCF        |
| Sulfides            | RSR              | _____ | grs/100        | SCF        |
| Residual Sulfur     | RSSR             | _____ | grs/100        | SCF        |
| <b>Total Sulfur</b> |                  | _____ | <b>grs/100</b> | <b>SCF</b> |

## OTHER DATA

|                       |           |         |       |
|-----------------------|-----------|---------|-------|
| BTU Content           | Wet Basis | (Calc)  | 578   |
| BTU Content (Actual)  | Dry Basis | (Calc.) | 588   |
| Sp. Gravity (Actual)  |           | (Calc.) | .8992 |
| A. P. I. Gr. (Actual) |           | (Calc.) |       |

Run by: J. Wolf Checked by: J. Wolf Approved: \_\_\_\_\_

### Additional Data and Remarks

## COPIES

4 - Mr. Paul Farrow  
Reading & Bates Inc.  
810 East County Road  
Odessa, Texas 79760

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OIL CONSERVATION COM.  
HOBBBS, N. H.

# WOLF PETRO LAB, INC.

DIAL EMERSON 6.9701  
DIAL EMERSON 6.7171

2411 WEST 42ND STREET

P. O. BOX 643  
ODESSA, TEXAS

79760

## HYDROCARBON ANALYSIS

## LABORATORY REPORT

Charge Reading & Bates Inc.

Test No. WPL-70-1391

Date of Run 12-30-70

Date Received 12-30-70

Sample of Gas from J. Frank Stringer - Terra Federal No. 1

Produced from Queen Sand Formation

Chaves Co. New Mexico

Secured by D. Kipgen

Purpose Time Date 12-30-70

Sampling Conditions:

### CHROMATOGRAPH ANALYSIS

|                   | Gas Vol.<br>or Mol. % | Liquid<br>Vol. % | GPM         |
|-------------------|-----------------------|------------------|-------------|
| Hydrogen Sulfide  |                       |                  |             |
| Carbon Dioxide    | <u>.09</u>            |                  |             |
| Propane           | <u>60.49</u>          |                  |             |
| Ethane            | <u>28.84</u>          |                  |             |
| Propane           | <u>7.02</u>           |                  |             |
| Isobutane         | <u>2.61</u>           |                  | <u>.72</u>  |
| Normal Butane     | <u>.26</u>            |                  | <u>.08</u>  |
| Normal Pentane    | <u>.42</u>            |                  | <u>.13</u>  |
| Normal Hexane     | <u>.08</u>            |                  | <u>.03</u>  |
| Normal Heptane    | <u>.08</u>            |                  | <u>.03</u>  |
| Normal Octane (2) |                       |                  |             |
| Normal Nonane (2) | <u>.11</u>            |                  | <u>.05</u>  |
| Normal Decane (2) |                       |                  |             |
| TOTAL             | <u>100.00</u>         |                  | <u>1.04</u> |

and lighter  
and heavier

### ANALYSIS INFORMATION

Volume of Sample cc. @ ° F  
Sp. Gr. Residue Vol. of Residue cc.  
Molecular Wgt. of Residue   
Gal/lb. Mol.

### VAPOR PRESSURE

Calculated lbs. @ 100° F  
lbs. @ 100° F

### GASOLINE CONTENT

|               |          |              |          |
|---------------|----------|--------------|----------|
| <u>26/70</u>  | Gasoline | <u>.165</u>  | G. P. M. |
| <u>100%</u>   | Propane  | <u>.720</u>  | G. P. M. |
| <u>Excess</u> | Butanes  | <u>.155</u>  | G. P. M. |
|               | TOTAL    | <u>1.040</u> | G. P. M. |

### SULFUR DETERMINATION

|                  |                  |                    |
|------------------|------------------|--------------------|
| Hydrogen Sulfide | H <sub>2</sub> S | <u>grs/100 SCF</u> |
| Mercaptans       | RSH              | <u>grs/100 SCF</u> |
| Sulfides         | RSR              | <u>grs/100 SCF</u> |
| Residual Sulfur  | RSSR             | <u>grs/100 SCF</u> |
| Total Sulfur     |                  | <u>grs/100 SCF</u> |

### OTHER DATA

|                       |           |         |              |
|-----------------------|-----------|---------|--------------|
| BTU Content           | Wet Basis | (Calc.) | <u>505</u>   |
| BTU Content (Actual)  | Dry Basis | (Calc.) | <u>515</u>   |
| Sp. Gravity (Actual)  |           | (Calc.) | <u>.8797</u> |
| A. P. I. Gr. (Actual) |           | (Calc.) | <u></u>      |

Run by: J. Wolf Checked by: J. Wolf Approved:

Additional Data and Remarks

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DOBBE, L. L.