

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL **DEC 3 1981**

|                                                                                                                                                               |             |                                                 |                          |                                       |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------|--------------------------|---------------------------------------|-------------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> FOUR POINT <input type="checkbox"/> Annual <input type="checkbox"/> Special |             | Test Date<br>4-25-81                            |                          | O. C. D.<br>ARTESIA, OFFICE           |                         |
| Company<br>READ & STEVENS ✓                                                                                                                                   |             | Connection<br>AIR NEW WELL                      |                          | 1650N & WL & 990 FWL                  |                         |
| Pool<br>WILDCAT <i>W. H. Valley P.</i>                                                                                                                        |             | Formation<br>ATOKA                              |                          | Unit<br>E                             |                         |
| Completion Date<br>4-29-81                                                                                                                                    |             | Total Length<br>9,068                           |                          | Play Back TO<br><del>8,941</del> 9010 |                         |
| Elevation<br>3532 KB                                                                                                                                          |             | Farm or Lease Name<br>HARRIS FEDERAL <i>com</i> |                          | Well No.<br>#5                        |                         |
| Coq. Size<br>4.5                                                                                                                                              | Wt.<br>11.6 | d<br>4.000                                      | Set At<br>9,068          | Perforations:<br>From 8,776 To 8,789  |                         |
| Thg. Size<br>2.375                                                                                                                                            | Wt.<br>4.7  | d<br>1.995                                      | Set At<br>8,719          | Perforations:<br>From OPEN To ENDED   |                         |
| Type Well - Single - Broadhead - G.G. or G.O. Multiple<br>SINGLE                                                                                              |             |                                                 |                          | Packer Set At<br>8,719                |                         |
| Producing Thru<br>TUBING                                                                                                                                      |             | Reservoir Temp. °F<br>142# 8,719                |                          | Mean Annual Temp. °F<br>60            |                         |
| Baro. Press. - P <sub>b</sub><br>13.2                                                                                                                         |             | State<br>NEW MEXICO                             |                          | County<br>CHAVES                      |                         |
| L<br>8782                                                                                                                                                     | H<br>8782   | G <sub>g</sub><br>.637                          | % CO <sub>2</sub><br>.31 | % N <sub>2</sub><br>.61               | % H <sub>2</sub> S<br>0 |
| Prover<br>4"                                                                                                                                                  |             | Meter Run<br>4"                                 |                          | Taps<br>FLG                           |                         |

| FLOW DATA |                  |   |              |                 |                      |          | TUBING DATA     |          | BH GASING 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. | Temp. °F | BH Press. p.s.i.g. | Temp. °F |                  |
| SI        |                  |   |              |                 |                      |          | 2481            |          | 3291               |          | 72½              |
| 1.        | 4 X 1½           |   |              | 535.            | 2.2                  | 94       | 2065            | 87       | 2786               |          | 1                |
| 2.        | 4 X 1½           |   |              | 535.            | 3.0                  | 94       | 1910            | 85       | 2576               |          | 1                |
| 3.        | 4 X 1½           |   |              | 540.            | 4.8                  | 84       | 1709            | 79       | 2299               |          | 1                |
| 4.        | 4 X 1½           |   |              | 550.            | 8.3                  | 78       | 1212            | 83       | 1626               |          | 1                |
| 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 Fg | Super. Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1                         |                       |                  |                         |                       |                   |                                          |                      |
| 2                         | 11.12                 | 34.73            | 548.2                   | .9688                 | 1.2529            | 1.0426                                   | 489.                 |
| 3                         | 11.12                 | 40.55            | 548.2                   | .9688                 | 1.2529            | 1.0426                                   | 571.                 |
| 4                         | 11.12                 | 51.53            | 553.2                   | .9777                 | 1.2529            | 1.0443                                   | 733.                 |
| 5                         | 11.12                 | 68.37            | 563.2                   | .9831                 | 1.2529            | 1.0483                                   | 982.                 |

| NO. | P <sub>1</sub> | Temp. °R | T <sub>1</sub> | Z    | Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.                 |  |
|-----|----------------|----------|----------------|------|-------------------------------------------------------------|--|
| 1   | .82            | 554      | 1.51           | .920 | A.P.L. Gravity of Liquid Hydrocarbons 54.9 AT 60 _____ Deg. |  |
| 2   | .82            | 554      | 1.51           | .920 | Specific Gravity Separator Gas .637 _____ XXXXX XXXXX       |  |
| 3   | .82            | 544      | 1.49           | .917 | Specific Gravity Flowing Fluid XXXXX _____                  |  |
| 4   | .84            | 538      | 1.47           | .910 | Critical Pressure 671 _____ P.S.I.A. _____ P.S.I.A.         |  |
| 5   |                |          |                |      | Critical Temperature 366 _____ °F _____ °F                  |  |

| P <sub>1</sub> 329.2 P <sub>2</sub> 10832.0 |                |                |                                                           | (1) $\frac{P_1^2}{P_2^2 - P_1^2} = 1.3299$                      |  | (2) $\left[ \frac{P_1^2}{P_2^2 - P_1^2} \right]^n = 1.2191$ |  |
|---------------------------------------------|----------------|----------------|-----------------------------------------------------------|-----------------------------------------------------------------|--|-------------------------------------------------------------|--|
| NO.                                         | P <sub>1</sub> | P <sub>2</sub> | P <sub>2</sub> <sup>2</sup> - P <sub>1</sub> <sup>2</sup> | AOF = Q $\left[ \frac{P_1^2}{P_2^2 - P_1^2} \right]^n = 1197.1$ |  |                                                             |  |
| 1                                           | 2799.2         | 7835.9         | 2966.0                                                    |                                                                 |  |                                                             |  |
| 2                                           | 2589.2         | 6704.0         | 4128.0                                                    |                                                                 |  |                                                             |  |
| 3                                           | 2312.2         | 5346.3         | 5486.0                                                    |                                                                 |  |                                                             |  |
| 4                                           | 1639.2         | 2687.          | 8145.0                                                    |                                                                 |  |                                                             |  |
| 5                                           |                |                |                                                           |                                                                 |  |                                                             |  |

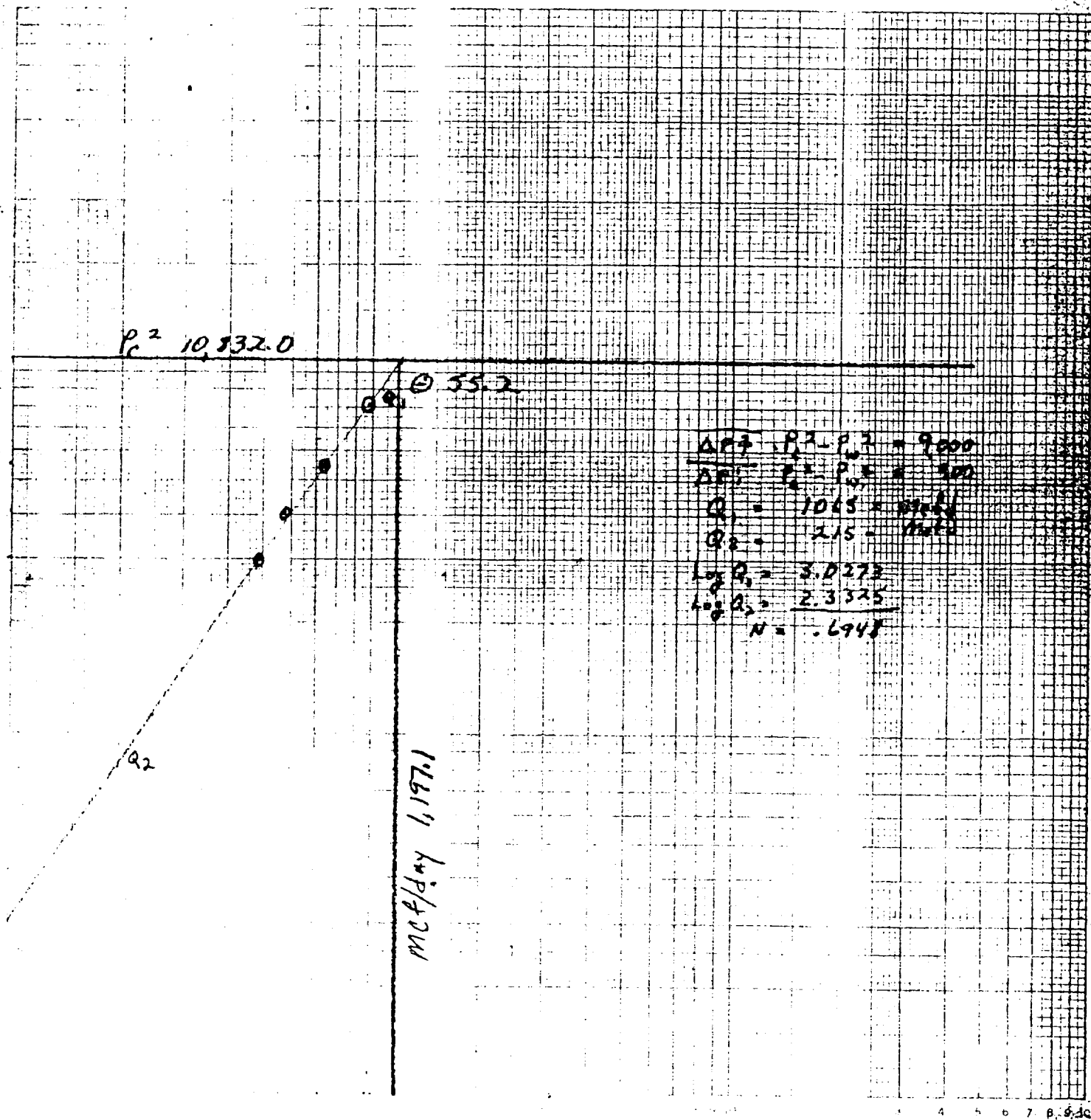
|                                                                    |  |              |  |                       |  |                |  |
|--------------------------------------------------------------------|--|--------------|--|-----------------------|--|----------------|--|
| Absolute Open Flow 1,197.1                                         |  | Mcf @ 15.025 |  | Angle of Slope θ 55.2 |  | Slope, n .6948 |  |
| Remarks: BOTTOM HOLE PRESSURES MEASURED WITH TANDUM AMERADA GUAGES |  |              |  |                       |  |                |  |

|                      |                              |                                      |             |
|----------------------|------------------------------|--------------------------------------|-------------|
| Approved By Division | Conducted By:<br>DON BENNETT | Calculated By:<br>WOHLFORD & JENKINS | Checked By: |
|----------------------|------------------------------|--------------------------------------|-------------|

Unit E, Sec 25, T1 15S, R5 27E  
 Chaves County, New Mexico  
 April 25, 1981

5074 57  
 45 7403  
 $P_c^2 - P_w^2$



Q mcf/day

COMPANY READ & STEVENS  
DATE OF TEST 4-25-81

WELL NAME HARRIS FEDERAL WELL NO 5  
FORMATION ATOKA PAGE 1 OF 1

ELEMENT NUMBER RPG3# 46951 RANGE 0-7,000 LB.  
CLOCK NUMBER \_\_\_\_\_ RANGE \_\_\_\_\_  
TIME WELL SHUT IN 1000 4-22-81  
TIME CLOCK STARTED 0920  
DEAD WEIGHT ELEMENT ON SURFACE 2494 LBS.  
TIME ELEMENT REACHED BOTTOM 1030  
DEAD WEIGHT ELEMENT ON BOTTOM 2494 LBS.  
ELEMENT SET AT 8,719 FEET.  
TEMPERATURE \_\_\_\_\_ FT. \_\_\_\_\_ °F.  
DEAD WEIGHT AT THE END OF \_\_\_\_\_ HOURS \_\_\_\_\_ MINUTES.  
TANDUM BOMBS RUN RPG3# 43798, 0-7,000 LB. RANGE

Devan Powers & Staff 2000-2001

**BENNETT - CATHEY**  
Artesia, New Mexico 88210  
**SUBSURFACE PRESSURE MEASUREMENTS**

WELL NAME HARRIS FEDERAL WELL NO 5

FORMATION ATOKA

PAGE 1 OF 1

|                                |              |       |             |
|--------------------------------|--------------|-------|-------------|
| ELEMENT NUMBER                 | RPG3# 46951  | RANGE | 0-7,000 LB. |
| CLOCK NUMBER                   |              | RANGE |             |
| TIME WELL SHUT IN              | 1000 4-22-81 |       |             |
| TIME CLOCK STARTED             | 0913         |       |             |
| DEAD WEIGHT ELEMENT ON SURFACE | 163          |       | LBS.        |
| TIME ELEMENT REACHED BOTTOM    | 0951         |       |             |
| DEAD WEIGHT ELEMENT ON BOTTOM  | 182          |       | LBS.        |
| ELEMENT SET AT                 | 8,719        |       | FEET.       |
| TEMPERATURE                    |              | FT.   | °F.         |
| DEAD WEIGHT AT THE END OF      |              | HOURS | MINUTES.    |

[illegible]