

**KANSAS CORPORATION COMMISSION**  
MULTIPOINT BACK PRESSURE TEST

FORM G-1  
8-7-58

|                                                                                                                         |                                |                                |                             |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------|
| TYPE TEST: <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |                                | TEST DATE: 11-3-1999           |                             |
| COMPANY<br>Horsehoe Operating Inc                                                                                       |                                | LEASE<br>Hazlett               |                             |
| WELL NO.<br>1                                                                                                           |                                |                                |                             |
| COUNTY<br>Hamilton                                                                                                      | LOCATION<br>C SE SW            | SECTION<br>22                  | TWP<br>21s 41               |
| RNG                                                                                                                     |                                | ACRES<br>640                   |                             |
| FIELD<br>Bradshaw                                                                                                       | RESERVOIR<br>Winfield          | PIPELINE CONNECTION<br>KN      |                             |
| COMPLETION DATE<br>9-29-1995                                                                                            | PLUG BACK DEPTH<br>TOTAL DEPTH | 2783                           |                             |
| PACKER SET AT                                                                                                           |                                |                                |                             |
| CASING SIZE<br>4.500                                                                                                    | WT.<br>10.500                  | ID<br>4.052                    | SET AT<br>2793              |
| PERF.<br>2760                                                                                                           |                                | TO<br>2773                     |                             |
| TUBING SIZE<br>2.375                                                                                                    | WT.<br>4.700                   | ID<br>1.995                    | SET AT<br>2774              |
| PERF.                                                                                                                   |                                | TO                             |                             |
| TYPE COMPLETION (Describe)<br>single gas                                                                                |                                | TYPE FLUID PRODUCTION<br>water |                             |
| PRODUCING THRU (Annulus/Tubing)<br>casing                                                                               |                                | RESERVOIR TEMPERATURE F<br>95  | BAR PRESS - Pa<br>14.4 psia |
| GAS GRAVITY - Gg<br>.774                                                                                                | % CARBON DIOXIDE<br>.037       | % NITROGEN<br>27.879           | API GRAVITY OF LIQUID       |
| VERTICAL DEPTH (H)<br>2766                                                                                              | TYPE METER CONN.<br>flange     |                                | METER RUN SIZE<br>2.067     |
| REMARKS                                                                                                                 |                                |                                |                             |

**OBSERVED SURFACE DATA**

| RATE NO. | ORIFICE SIZE in. | (METER) PRESSURE psig | DIFF. (h <sub>w</sub> ) (h <sub>t</sub> ) | FLOWING TEMP. t. | WELLHEAD TEMP. t. | CASING WELLHEAD PRESS. |                                                            | TUBING WELLHEAD PRESS. |                                                            | DURATION HOURS | LIQUID PROD. Bbls. |
|----------|------------------|-----------------------|-------------------------------------------|------------------|-------------------|------------------------|------------------------------------------------------------|------------------------|------------------------------------------------------------|----------------|--------------------|
|          |                  |                       |                                           |                  |                   | psig                   | (P <sub>w</sub> ) (P <sub>t</sub> ) (P <sub>c</sub> ) psia | psig                   | (P <sub>w</sub> ) (P <sub>t</sub> ) (P <sub>c</sub> ) psia |                |                    |
| SHUT-IN  |                  |                       |                                           |                  |                   | 89                     | 102                                                        |                        |                                                            |                |                    |
| 1.       | .625             | 42.50                 | 8.00                                      | 66               |                   | 85                     | 98                                                         |                        |                                                            | .50            |                    |
| 2.       | .625             | 44.00                 | 33.00                                     | 66               |                   | 81                     | 94                                                         |                        |                                                            | .50            |                    |
| 3.       | .625             | 45.00                 | 59.00                                     | 66               |                   | 77                     | 90                                                         |                        |                                                            | .50            |                    |
| 4.       | .625             | 46.00                 | 93.00                                     | 67               |                   | 73                     | 86                                                         |                        |                                                            | .50            |                    |

**FLOW STREAM ATTRIBUTES**

| RATE NO. | COEFFICIENT (F <sub>b</sub> ) Mcfd | (METER) PRESSURE psia | EXTENSION $\sqrt{P_m \times H_w}$ | GRAVITY FACTOR Fg | FLOWING TEMP FACTOR Ft | DEVIATION FACTOR Fpv | RATE OF FLOW Q Mcfd | GOR | G <sub>m</sub> |
|----------|------------------------------------|-----------------------|-----------------------------------|-------------------|------------------------|----------------------|---------------------|-----|----------------|
| 1.       | 1.910                              | 55.7                  | 21.11                             | 1.1367            | .9943                  | 1.0044               | 45                  |     | .774           |
| 2.       | 1.910                              | 57.2                  | 43.45                             | 1.1367            | .9943                  | 1.0045               | 94                  |     | .774           |
| 3.       | 1.914                              | 58.2                  | 58.60                             | 1.1367            | .9943                  | 1.0046               | 127                 |     | .774           |
| 4.       | 1.914                              | 59.2                  | 74.20                             | 1.1367            | .9933                  | 1.0046               | 161                 |     | .774           |

**PRESSURE CALCULATION**

| RATE NO. | P <sub>t</sub> psia | P <sub>c</sub> psia | P <sub>w</sub> psia | (P <sub>c</sub> ) <sup>2</sup> Thousands | (P <sub>w</sub> ) <sup>2</sup> Thousands | PLOTING POINTS                                                            |        | % SHUT-IN<br>100 $\left[ \frac{P_w - P_a}{P_c - P_a} \right]$ |
|----------|---------------------|---------------------|---------------------|------------------------------------------|------------------------------------------|---------------------------------------------------------------------------|--------|---------------------------------------------------------------|
|          |                     |                     |                     |                                          |                                          | (P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> Thousands | Q Mcfd |                                                               |
| 1.       | 98.2                | 102.2               | 98.2                | 10.4                                     | 9.6                                      | .8                                                                        | 45.8   | 95.5                                                          |
| 2.       | 94.4                | 102.2               | 94.5                | 10.4                                     | 8.9                                      | 1.5                                                                       | 94.2   | 91.4                                                          |
| 3.       | 90.4                | 102.2               | 90.6                | 10.4                                     | 8.2                                      | 2.2                                                                       | 127.3  | 87.0                                                          |
| 4.       | 86.2                | 102.2               | 86.6                | 10.4                                     | 7.5                                      | 2.9                                                                       | 161.1  | 82.5                                                          |

INDICATED WELLHEAD OPEN FLOW

558

Mcfd @ 14.65 psia

"n" =

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated herein and that said report is true and correct. Executed this the 11 day of Nov, 19 99

Witness (if any)

For Commission

Original: Wichita  
Copy : Dodge City  
Copy: Horseshoe Operating

For Company

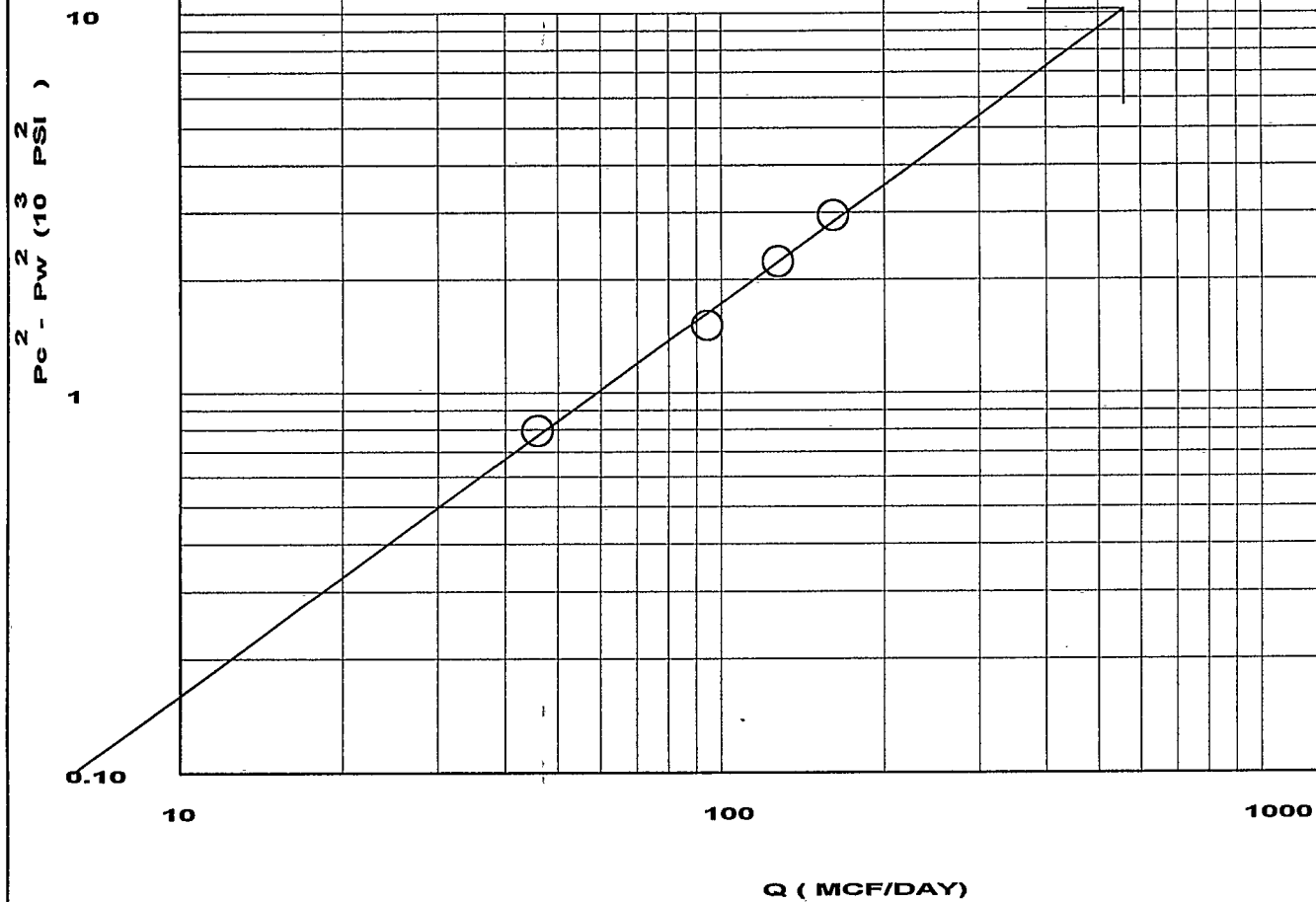
Checked by

**GAS WELL BACK PRESSURE CURVE**

**WELL TESTER:**

**TEST DATE: 11-3-1999**

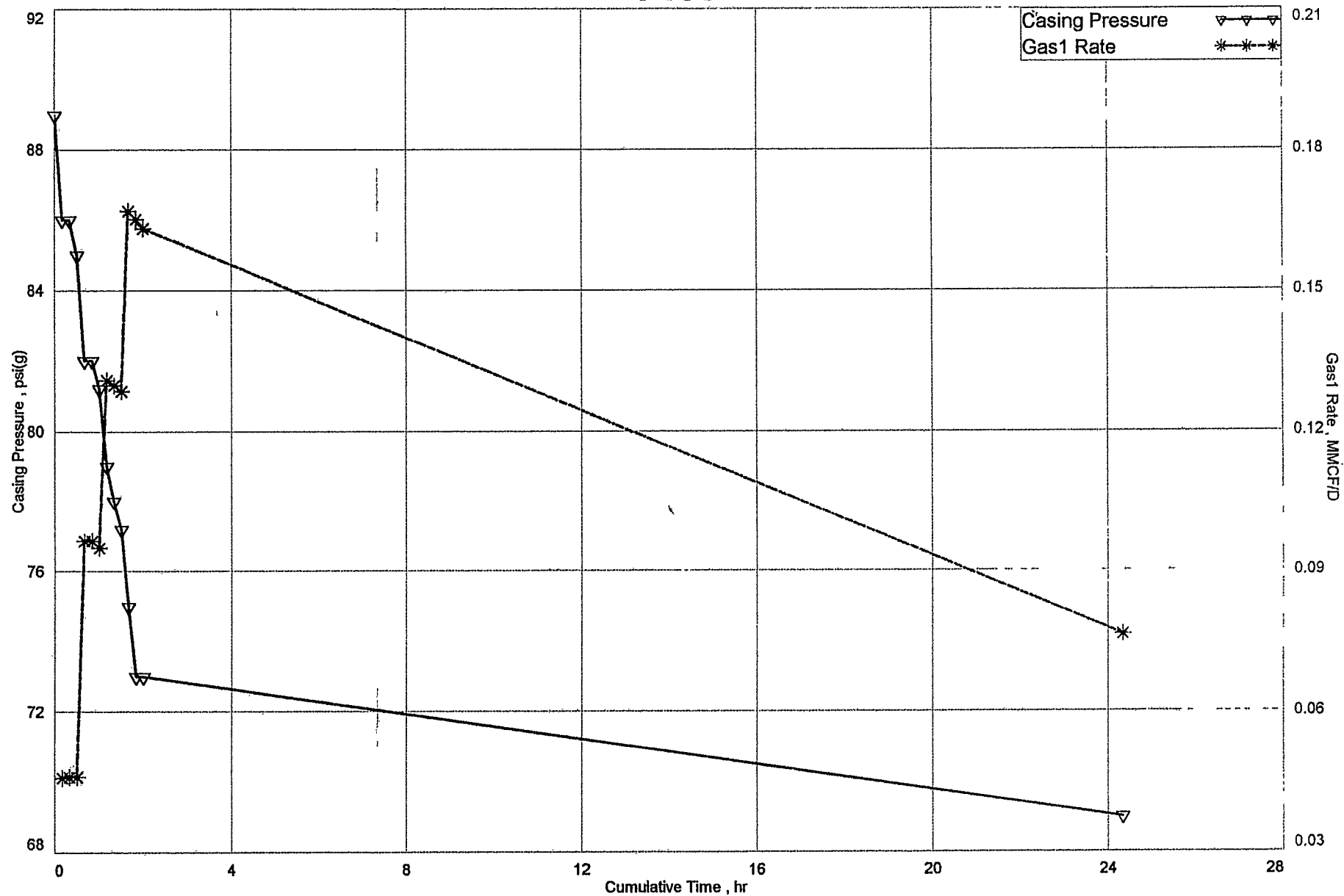
Horsehoe Operating Inc  
Hazlett 1  
22 21s 41  
Hamilton ,KS.  
Exponent n: 0.9667  
AOF: 558.



Horseshoe Operating Inc  
C SE SW 22 21s 41w Hamilton county Kansas

Hazlett 1

# Plot



# FieldNotes

## Field Measurements

|    | Date       | Clock<br>Time | Comments | Casing<br>Pres | Static1<br>Pres | Diff1<br>Pres | Meter1<br>Temp | Gas1<br>Rate |
|----|------------|---------------|----------|----------------|-----------------|---------------|----------------|--------------|
|    | yyyy/mm/dd | hh:mm:ss      |          | psi(g)         | psi(g)          | in of H2O     | °F             | MMCF/D       |
| 1  | 1999/11/03 | 09:40:00      | shutin   | 89.00          | 0.00            |               |                |              |
| 2  |            | 09:50:00      |          | 86.00          | 42.00           | 8.00          | 65.00          | 0.046        |
| 3  |            | 10:00:00      |          | 86.00          | 42.50           | 8.00          | 66.00          | 0.046        |
| 4  |            | 10:10:00      | 1st pt   | 85.00          | 42.50           | 8.00          | 66.00          | 0.046        |
| 5  |            | 10:20:00      |          | 82.00          | 44.00           | 34.00         | 66.00          | 0.097        |
| 6  |            | 10:30:00      |          | 82.00          | 44.00           | 34.00         | 66.00          | 0.097        |
| 7  |            | 10:40:00      | 2nd pt   | 81.20          | 44.00           | 33.00         | 66.00          | 0.095        |
| 8  |            | 10:50:00      |          | 79.00          | 45.00           | 61.00         | 65.00          | 0.131        |
| 9  |            | 11:00:00      |          | 78.00          | 45.00           | 60.00         | 65.00          | 0.130        |
| 10 |            | 11:10:00      | 3rd pt   | 77.20          | 45.00           | 59.00         | 66.00          | 0.129        |
| 11 |            | 11:20:00      |          | 75.00          | 46.00           | 97.00         | 66.00          | 0.167        |
| 12 |            | 11:30:00      |          | 73.00          | 46.00           | 95.00         | 66.00          | 0.165        |
| 13 |            | 11:40:00      | 4th pt   | 73.00          | 46.00           | 93.00         | 67.00          | 0.163        |
| 14 | 1999/11/04 | 10:00:00      | 1 pt     | 69.00          | 43.00           | 21.00         | 48.00          | 0.076        |