

STATE OF KANSAS - CORPORATION COMMISSION  
ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

RECEIVED

TYPE TEST:  Deliverability  Open Flow TEST DATE: 4/3/89 STATE CORPORATION COMMISSION

COMPANY: Mid Gulf, Inc. LEASE: Greundel WELL NO.: 1

MAY 15 1989  
05-15-89  
CONSERVATION DIVISION  
Wichita, Kansas

COUNTY: Leavenworth LOCATION: SE SE NE SECTION: 12 TWP: 10 RNG: 22E

FIELD: Fairmont RESERVOIR: McLouth PIPELINE CONNECTION: Fairmont Pipeline

COMPLETION DATE: PLUG BACK TOTAL DEPTH: PACKER SET AT:

CASINO SIZE: 4 1/2" WT.: 11.6 LD.: SET AT: 1240' PERF.: 1096 TO: 1110'

TUBING SIZE: 2 3/8" WT.: LD.: SET AT: 1070' PERF.: TO:

TYPE COMPLETION (Describe): Single Gas TYPE FLUID PRODUCTION: Nil

PRODUCING THRU: Tubing RESERVOIR TEMPERATURE: F BAR. PRESS - P<sub>a</sub>: 14.4 Psia

GAS GRAVITY - G<sub>g</sub>: .5734 % CARBON DIOXIDE: 0 % NITROGEN: 3.5 API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): 1103' TYPE METER CONN.: Flange (METER RUN) (PROVER) SIZE: 2"

SHUT-IN PRESSURE: SHUT IN: 3/28 1989 AT 830 (AM)(PM) TAKEN: 3/31 1989 AT 210 (AM)(PM)

FLOW TEST: STARTED: 4/2 1989 AT 900 (AM)(PM) TAKEN: 4/3 1989 AT 1010 (AM)(PM)

OBSERVED DATA DURATION OF SHUT-IN: 77.5

| SHUT-IN OR FLOW | ORIFICE SIZE in. | (METER) (PROVER) PRESSURE psig | DIFF. in. (h <sub>w</sub> )(h <sub>d</sub> ) | FLOWING TEMP. t | WELL-HEAD TEMP. t | CASINO WELLHEAD PRESS |  | TUBING WELLHEAD PRESS |  | DURATION HOURS | LIQUID PROD. Bbls. |
|-----------------|------------------|--------------------------------|--|-----------------|-------------------|-----------------------|--|-----------------------|--|----------------|--------------------|
|                 |                  |                                |  |                 |                   | psig                  | (P <sub>w</sub> )(P <sub>i</sub> )(P <sub>o</sub> ) psia | psig                  | (P <sub>w</sub> )(P <sub>i</sub> )(P <sub>o</sub> ) psia |                |                    |
| SHUT-IN         |                  |                                |  |                 |                   | 261.8                 | 276.2  | 261.8                 | 276.2  | 77.5           |                    |
| FLOW            | 3/4              | 58.0                           | 42.0   |                 | 60                | 232.1                 | 246.5  |                       |  | 25.0           |                    |

RATE OF FLOW CALCULATIONS

| COEFFICIENT (F <sub>o</sub> )(F <sub>d</sub> ) <sup>2</sup> Mcfd | (METER) (PROVER) PRESSURE psia | EX.ENSION √P <sub>m</sub> × h <sub>w</sub> | GRAVITY FACTOR F <sub>g</sub> | FLOWING TEMP. FACTOR F <sub>L</sub> | DEVIATION FACTOR F <sub>pv</sub> | RATE OF FLOW R Mcfd | GOR | G <sub>m</sub> |
|--|--------------------------------|--|-------------------------------|-------------------------------------|----------------------------------|---------------------|-----|----------------|
| 2.779  | 72.4                           | 55.143                                     | 1.321                         | 1.00                                | 1.00                             | 202                 |     |                |

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>o</sub>)<sup>2</sup> = 76 286 (P<sub>w</sub>)<sup>2</sup> = 60 762 P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ (P<sub>w</sub>)<sup>2</sup> = 0.207 (P<sub>d</sub>)<sup>2</sup> = \_\_\_\_\_

| (P <sub>o</sub> ) <sup>2</sup> - (P <sub>d</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>d</sub> ) <sup>2</sup> | (P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> | $\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2}$ | LOG [ ] | "n"  | n × LOG [ ] | ANTILOG | OPEN FLOW DELIVERABILITY EQUALS R × ANTILOG Mcfd |
|--|---|---------------------------------------|---------|------|-------------|---------|--|
| 76 079   | 15 524  | 4.9007                                | .6903   | .931 | .6426       | 4.3917  | 887  |

OPEN FLOW 887 Mcfd @ 14.65 psia DELIVERABILITY Mcfd @ 14.65 psia

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 therein, and that said report is true and correct.

Executed this the 12<sup>th</sup> day of April, 1989.

*MB N...* Consultant  
For Company

Witness (if any)

For Commission

Checked by