STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-122
Revised 10-1-78

# MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

| | | | | |
|---|---|---|---|---|
| Type Test: [x] Initial [ ] Annual [ ] Special | | | Test Date: 3-18-86 | Lease Designation: 19143 |
| Company: Diamond Shamrock Exploration Co. | Connection: Negotiating Contract | | | |
| Pool: Antelope Ridge | Formation: Atoka | | | Unit: G |
| Completion Date: 3-18-86 | Total Depth: 13552 | Plug Back TD: 12,408 | Elevation: 3389 GR | Farm or Lease Name: Federal |
| Csg. Size: 5½ Liner / Wt.: 20# / d: 4.778 | Set At: T-11,413 B-12408 | Perforations: From 12,084 To 12,112 | | Well No.: #1 |
| Tbg. Size: 2 7/8 / Wt.: 6.5 / d: 2.441 | Set At: 11946 | Perforations: From 12,084 To 12,112 | | Unit: G / Sec.: 3 / Twp.: 23S / Rge.: 34E |
| Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single Gas | | Packer Set At: 11,946 | | County: Lea |
| Producing Thru: 2 7/8" tubing | Reservoir Temp. °F: 175@ 12098 | Mean Annual Temp. °F: 60 | Baro. Press. – $P_a$: 13.2 | State: New Mexico |

| L | H | Gg | % $CO_2$ | % $N_2$ | % $H_2S$ | Prover | Meter Run | Taps |
|---|---|---|---|---|---|---|---|---|
| 12,098 | 12,098 | .668 | .25 | 1.12 | -- | | x | F |

| NO. | FLOW DATA: Prover Line Size x Orifice Size | Press. p.s.i.g. | Diff. $h_w$ | Temp. °F | TUBING DATA: Press. p.s.i.g. | Temp. °F | CASING DATA: Press. p.s.i.g. | Temp. °F | Duration of Flow |
|---|---|---|---|---|---|---|---|---|---|
| SI | | | | | 4913 | | Packer | | + 72 hrs S.I. |
| 1. | 4 x 2.250 | 150 | 6.0 | 86 | 4834 | 70 | | | 1 hr. |
| 2. | 4 x 2.250 | 300 | 15.0 | 85 | 4716 | 70 | | | 1 hr. |
| 3. | 4 x 2.250 | 450 | 37.0 | 71 | 4657 | 73 | | | 1 hr. |
| 4. | 4 x 2.250 | 900 | 68.0 | 63 | 4284 | 75 | | | 1 hr. 15 min. |
| 5. | | | | | | | | | |

## RATE OF FLOW CALCULATIONS

| NO. | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure $P_m$ | Flow Temp. Factor Ft. | Gravity Factor Fg | Super Compress. Factor, Fpv | Rate of Flow Q, Mcfd |
|---|---|---|---|---|---|---|---|
| 1 | 25.99 | 30 | 150 | .9759 | .947736 | 1.01375 | 731 |
| 2. | 25.99 | 67 | 300 | .976795 | .947736 | 1.02818 | 1659 |
| 3. | 25.99 | 129 | 450 | .989588 | .947736 | 1.0474 | 3294 |
| 4. | 25.99 | 247 | 900 | .997128 | .947736 | 1.1065 | 6723 |
| 5. | | | | | | | |

| NO. | $P_t$ | Temp. °R | $T_r$ | Z |
|---|---|---|---|---|
| 1 | 3.81 | 520 | 1.60 | 1.021 |
| 2. | 3.72 | 520 | 1.60 | 1.016 |
| 3. | 3.67 | 520 | 1.60 | 1.013 |
| 4. | 3.38 | 520 | 1.61 | .995 |
| 5 | | | | |

Gas Liquid Hydrocarbon Ratio: 73,200/1 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons: 56.7 Deg.
Specific Gravity Separator Gas: .668 / XXXXXXXXX
Specific Gravity Flowing Fluid: XXXXX / .678
Critical Pressure: 669 P.S.I.A. / 669 P.S.I.A.
Critical Temperature: 322 R / 385 R

$P_c$ 6778 $P_c^2$ 45941

| NO | $P_t^2$ | $P_w$ | $P_w^2$ | $P_c^2 - P_w^2$ |
|---|---|---|---|---|
| 1 | 23495 | 6754 | 45617 | 324 |
| 2 | 22365 | 6710 | 45024 | 917 |
| 3 | 21811 | 6602 | 43586 | 2355 |
| 4 | 18466 | 6336 | 40145 | 5796 |
| 5 | | | | |

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = -$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = -$

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

Absolute Open Flow: 34,000 Mcfd @ 15.025 | Angle of Slope θ: 53° | Slope, n: .754

Remarks: 45 Bbls of condensate was produced during the test.

| Approved By Division | Conducted By: | Calculated By: | Checked By: |
|---|---|---|---|
| | Greg McMurry | Greg McMurry | Scott Moss |

Company Diam-I Shamrock Exploration Co.

Lease Name Federal Well No. 1

GAS WELL
BACK PRESSURE CURVE

Date 3/19/86

Angle of Curve 53° Slope of Curve n .754

Absolute Open Flow 34,000 MCF/Day