

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

FORM O-2  
 8-7-58

29  
 12-3-81

TYPE TEST:  Deliverability  Open Flow TEST DATE: 6-2-86 15-181-20243-00-00

COMPANY: GOODLAND GAS COMPANY LEASE: Morton WELL NO.: 1-5

COUNTY: Sherman LOCATION: NW $\frac{1}{4}$ , NE $\frac{1}{4}$ , NW $\frac{1}{4}$  SECTION: 5 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KN Energy

COMPLETION DATE: 3-30-83 PLUG BACK TOTAL DEPTH: 1057 PACKER SET AT: None

CASINO SIZE: 4 3/4" WT.: 9.5#/ft. L.D.: SET AT: 1122 PERF.: 1007 TO: 1039

TUBING SIZE: None WT.: L.D.: SET AT: PERF.: TO:

TYPE COMPLETION (Describe): Frac 100,700# Sd. 918 Bbls H<sub>2</sub>O TYPE FLUID PRODUCTION: Gas

PRODUCING THRU: Casing RESERVOIR TEMPERATURE, F: 13.2 BAR. PRESS - P<sub>a</sub>: XXX Paia

GAS GRAVITY - G<sub>g</sub>: 0.5837 % CARBON DIOXIDE: 1.98 % NITROGEN: 2.79 API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): TYPE METER CONN.: Orifice (METER RUN (PROVER) SIZE): 2.067

SHUT-IN PRESSURE: SHUT IN 5-27 19 86 AT (AM)(PM) TAKEN 5-30 19 86 AT (AM)(PM)

FLOW TEST: STARTED 5-30 19 86 AT (AM)(PM) TAKEN 6-2 19 86 AT (AM)(PM)

OBSERVED DATA DURATION OF SHUT-IN: HR.

SHUT-IN OR FLOW	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psia	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.
						psia	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia	psia	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia		
SHUT-IN	--	--	--	--	--	51	64.2	--	--	72	--
FLOW	1.250	--	--	73	--	33.8	47	--	--	72	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (F <sub>1</sub> )(F <sub>2</sub> ) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_{wh}h_w}$	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. F <sub>L</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcfd	GOR	Q <sub>m</sub>
345.1	--	--	1.3089	0.9877	1.0006	355	--	--

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = \_\_\_\_\_ | (P<sub>w</sub>)<sup>2</sup> = \_\_\_\_\_ | P<sub>d</sub><sup>2</sup> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ | (P<sub>w</sub>)<sup>2</sup> = 0.207 | (P<sub>d</sub>)<sup>2</sup> = \_\_\_\_\_

$\frac{(P_c)^2 - (P_w)^2}{(P_c)^2 - (P_d)^2}$	$(P_c)^2 - (P_w)^2$	$\left[ \frac{P_c^2 - P_w^2}{P_c^2 - P_d^2} \right]$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
3.947	1.913	2.064	0.315	0.670	0.211	1.625	577

OPEN FLOW 577 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 25<sup>th</sup> day of Nov, 1986. *Robert M. Richardson*  
 For Company

Witness (if any) \_\_\_\_\_  
 For Commission \_\_\_\_\_  
 DEC 5 1986  
 Checked by \_\_\_\_\_  
 DEC 11 1986