

15-181-20265-00-00  
**STATE OF KANSAS - CORPORATION COMMISSION**  
 ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

FORM G-2  
 8-7-58  
 29  
 6-4-87

TYPE TEST:  Deliverability  Open Flow TEST DATE: 4-25 to 5-1-87

COMPANY: Goodland Gas Company LEASE: Wolf Eyth WELL NO.: 1-2

COUNTY: Sherman LOCATION: SW 1/4, SW 1/4 SECTION: 2 TWP: 8S RNG: 40W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KN Energy

COMPLETION DATE: PLUG BACK TOTAL DEPTH: 1270' PACKER SET AT: None

CASING SIZE: 4 1/2" WT. LD. SET AT: 1342' PERF.: 1204' TO: 1242'

TUBING SIZE: None WT. LD. SET AT: PERF.: TO:

TYPE COMPLETION (Describe): Frac 82,600# Sd, 40 tons CO2, 633 Bbls H2O TYPE FLUID PRODUCTION: Gas

PRODUCING THRU: Casing RESERVOIR TEMPERATURE F: SAR. PRESS - Pa: 14.4 Psia

GAS GRAVITY - Gg: 0.5827 % CARBON DIOXIDE: 1.280 % NITROGEN: 2.635 API GRAVITY OF LIQUID: --

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

SHUT-IN PRESSURE: SHUT IN: 4-25 19 87 AT 11:45 (AM)(PM) TAKEN: 4-28 19 87 AT 11:46 (AM)(PM)

FLOW TEST: STARTED: 4-28 19 87 AT 11:50 (AM)(PM) TAKEN: 5-1 19 87 AT 11:32 (AM)(PM)

OBSERVED DATA DURATION OF SHUT-IN: 72 HR.

SHUT-IN OR FLOW	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIFF. in. (hw)(hd)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(Pw)(Pc) psia	psig	(Pw)(Pc) psia		
SHUT-IN	--	--	--	--	--	36.5	50.9	--	--	72	--
FLOW	0.500	29.7	4.9	60	--	29.9	44.3	--	--	72	--

**RATE OF FLOW CALCULATIONS**

COEFFICIENT (Pd)(Pc) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION sqrt(Pmshw)	GRAVITY FACTOR Fg	FLOWING TEMP. FL	DEVIATION FACTOR Fpv	RATE OF FLOW R Mcfd	GOR	Qm
50.5	44.1	14.7	1.31	1.00	1.0041	23	--	--

**(OPEN FLOW) (DELIVERABILITY) CALCULATIONS**

(Pc)² = 2590.81, (Pw)² = 1962.49, Pd² = \_\_\_\_\_ % (Pc - 14.4) + 14.4 = \_\_\_\_\_ (Pc)² = 0.207 (Pd)² = \_\_\_\_\_

(Pc)² - (Pa)² or (Pc)² - (Pd)²	(Pc)² - (Pw)²	[Pc² - Pa²] / [Pc² - Pd²]	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG
2383.45	628.32	3.79	0.58	0.85	0.49	3.11	71

OPEN FLOW 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 15 day of May, 1987

Witness (if any) \_\_\_\_\_ For Company: *Harold J. Sullivan*

Checked by \_\_\_\_\_

RECEIVED  
 CORPORATION COMMISSION  
 6-1-87  
 CONSERVATION DIVISION  
 Topeka, Kansas

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

FORM O-2  
8-7-58  
89  
6-1-57

TYPE TEST:  Deliverability  Open Flow TEST DATE: \_\_\_\_\_

COMPANY: \_\_\_\_\_ LEASE: Wolf. Eyth WELL NO.: 1-2

COUNTY: \_\_\_\_\_ LOCATION: \_\_\_\_\_ SECTION: \_\_\_\_\_ TWP: \_\_\_\_\_ RNG: \_\_\_\_\_ ACRES: \_\_\_\_\_

FIELD: \_\_\_\_\_ RESERVOIR: \_\_\_\_\_ PIPELINE CONNECTION: \_\_\_\_\_

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

CASING SIZE: \_\_\_\_\_ WT. I.D. SET AT \_\_\_\_\_ PERF. TO \_\_\_\_\_

TUBING SIZE: \_\_\_\_\_ WT. I.D. SET AT \_\_\_\_\_ PERF. TO \_\_\_\_\_

TYPE COMPLETION (Describe): \_\_\_\_\_ TYPE FLUID PRODUCTION: \_\_\_\_\_

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

GAS GRAVITY - G<sub>r</sub>: 5827 % CARBON DIOXIDE: \_\_\_\_\_ % NITROGEN: \_\_\_\_\_ API GRAVITY OF LIQUID: \_\_\_\_\_

VERTICAL DEPTH (H): \_\_\_\_\_ TYPE METER CONN.: F (METER RUN)(PROVER) SIZE: 2

SHUT-IN PRESSURE: SHUT IN \_\_\_\_\_ 19 \_\_\_\_\_ AT \_\_\_\_\_ (AM)(PM) TAKEN \_\_\_\_\_ 19 \_\_\_\_\_ AT \_\_\_\_\_ (AM)(PM)

FLOW TEST: STARTED \_\_\_\_\_ 19 \_\_\_\_\_ AT \_\_\_\_\_ (AM)(PM) TAKEN \_\_\_\_\_ 19 \_\_\_\_\_ AT \_\_\_\_\_ (AM)(PM)

**OBSERVED DATA** DURATION OF SHUT-IN \_\_\_\_\_ HR.

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	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia	psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia		
SHUT-IN						36.5	50.9			72	
FLOW	.500	29.7	4.9	60		29.9	44.3			72	

**RATE OF FLOW CALCULATIONS**

COEFFICIENT (F <sub>b</sub> )(F <sub>d</sub> ) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m h_w}$	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcfd	GOR	Q <sub>m</sub>
1.219	44.1	14.7	1.31	1.0	1.011	23.73		

**(OPEN FLOW) (DELIVERABILITY) CALCULATIONS**

(P<sub>c</sub>)<sup>2</sup> = 2590.81 (P<sub>w</sub>)<sup>2</sup> = 1962.49 P<sub>d</sub><sup>2</sup> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ (P<sub>a</sub>)<sup>2</sup> = 0.207 (P<sub>d</sub>)<sup>2</sup> = \_\_\_\_\_

$\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_d)^2}$	$(P_c)^2 - (P_w)^2$	$\frac{P_c^2 \cdot P_a^2}{P_c^2 - P_w^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
2383.45	62832	3.793	.5789	.85	.4921	3.105	73.68

OPEN FLOW 74 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 \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

Witness (if any)  
Julie F. Baltzger  
For Commission

For Company \_\_\_\_\_  
Checked by \_\_\_\_\_

RECEIVED  
STATE CORPORATION COMMISSION  
CONSERVATION DIVISION  
Wichita, Kansas