

15-181-20096-00-00

FORM 9-3  
8-7-58

P2  
6-4-51

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

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

COMPANY: Goodland Gas Company LEASE: Wiggins WELL NO.: 1-1

COUNTY: Sherman LOCATION: SW 1/4, NE 1/4, NW 1/4 SECTION: 1 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KN Energy

COMPLETION DATE: 8-13-80 PLUG BACK TOTAL DEPTH: 959' PACKER SET AT: None

CASING SIZE: 4 1/2" WT. LD. SET AT: 1015' PERF.: 948 TO: 988

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

TYPE COMPLETION (Describe): Frac 40,000# sd, 114 MCF N2 20,000 gal. TYPE FLUID PRODUCTION: Gas

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

GAS GRAVITY - G<sub>g</sub>: 0.5827 % CARBON DIOXIDE: 1.28 % 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 10:25 (AM)(PM) TAKEN 4-28 19 87 AT 10:28 (AM)(PM)

FLOW TEST: STARTED 4-28 19 87 AT 10:30 (AM)(PM) TAKEN 5-1 19 87 AT 10:32 (AM)(PM)

OBSERVED DATA

DURATION OF SHUT-IN 72 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>t</sub> )(P <sub>c</sub> ) psia	psig	(P <sub>w</sub> )(P <sub>t</sub> )(P <sub>c</sub> ) psia		
SHUT-IN	--	--	--	--	--	23.0	37.4	--	--	72	--
FLOW	0.500	18.7	6.2	60	--	19.0	33.4	--	--	72	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (F <sub>d</sub> )(F <sub>w</sub> ) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √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	Q <sub>m</sub>
50.5	33.10	14.33	1.3100	1.00	1.0010	22.8	-	-

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 1398.76 ; (P<sub>w</sub>)<sup>2</sup> = 1115.56 ; 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> = \_\_\_\_\_

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>d</sub> ) <sup>2</sup>	$\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
1191.40	283.20	4.21	0.624	0.718	0.448	2.81	Mcfd @ 14.65 psia

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, 1981

*Clarence J. Salinger*  
For Company

Witness (if any)

Checked by

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

FORM G-2  
8-7-58

89  
6-1-57

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

COMPANY \_\_\_\_\_ LEASE Wiggins WELL NO. 1-1

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

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

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

CASINO 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>g</sub> 0.5827 % 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	CASINO 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						23.0	37.4			72	
FLOW	1.500	18.7	6.2	60		19.0	33.4			72	

**RATE OF FLOW CALCULATIONS**

COEFFICIENT (F <sub>p</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>L</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcfd	GOR	Q <sub>m</sub>
1.219	33.10	14.33	1.31	1.0	1.011	23.14		

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

(P<sub>c</sub>)<sup>2</sup> = 1398.76 (P<sub>w</sub>)<sup>2</sup> = 1115.56 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> = \_\_\_\_\_

$\frac{(P_c)^2 - (P_d)^2}{(P_c)^2 - (P_w)^2}$	(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 x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
1191.40	283.20	4.206	.6238	.718	.4479	2.804	64.88

OPEN FLOW 65 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)  
Ade F. Baitheson  
For Commission

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

RECEIVED  
STATE CORPORATION COMMISSION  
CONSERVATION DIVISION  
Wichita, Kansas