

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

FORM G-2  
8-7-58

P. 2  
6-7-87

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

COMPANY: Goodland Gas Company LEASE: Wallace WELL NO.: 1-16

COUNTY: Sherman LOCATION: NE SECTION: 16 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KNEnergy

COMPLETION DATE: 4-25-82 PLUG BACK TOTAL DEPTH: 983' PACKER SET AT: None

CASING SIZE: 4.5 inch WT.: 9.5 LD.: - SET AT: 1030' PERF.: 962 TO: 982

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

TYPE COMPLETION (Describe): Frac 100,000# 10/20 and 20/40 sand 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: 1.280 % 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 9:45 (AM)(PM) TAKEN 4-28 19 87 AT 9:23 (AM)(PM)

FLOW TEST: STARTED 4-28 19 87 AT 9:23 (AM)(PM) TAKEN 5-1 19 87 AT 9:25 (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						18.4	32.80	-	-	72	
FLOW	0.375	16.2	2.4	60	-	16.3	30.70	-	-	72	

RATE OF FLOW CALCULATIONS

COEFFICIENT (P <sub>w</sub> )(P <sub>d</sub> ) / Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_{wh}h_w}$	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	G <sub>m</sub>
28.4	30.60	8.57	1.31	1.00	1.0009	8	-	-

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 1075.84 (P<sub>w</sub>)<sup>2</sup> = 942.49 P<sub>d</sub><sup>2</sup> = \_\_\_\_\_ % (P<sub>w</sub> - 14.4) + 14.4 = \_\_\_\_\_ (P<sub>d</sub>)<sup>2</sup> = 0.207

(P <sub>w</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 x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
868.48	133.35	6.51	0.81	0.85	0.69	4.92	39

STATE CORPORATION COMMISSION  
RECEIVED  
JUN 1 1987  
MICHIGAN, KANSAS

OPEN FLOW Mcfd @ 14.65 psia DELIVERABILITY

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

*Wardell J. Parkins*  
For Company

Witness (if any)

Checked by

15-181-20220-00-00  
**STATE OF KANSAS - CORPORATION COMMISSION**  
**ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST**

FORM O-3  
8-7-58

29  
6-4-57

TYPE TEST:  Deliverability  Open Flow TEST DATE:

COMPANY LEASE WELL NO.  
Wallace 1-76

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> % CARBON DIOXIDE % NITROGEN API GRAVITY OF LIQUID  
.5827

VERTICAL DEPTH (H) TYPE METER CONN. (METER RUN)(PROVER) SIZE  
F 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						18.4	32.8				
FLOW	.375	16.2	2.4	60		16.3	30.7				

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	G <sub>m</sub>
.6860	30.6	8.57	1.31	1.0	1.011	7.79		

RECEIVED  
STATE CORPORATION COMMISSION

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 1075.84 (P<sub>w</sub>)<sup>2</sup> = 942.49 P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_

$\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_d)^2}$	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	$\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	DELIVERABILITY EQUALS R x ANTILOG Mcfd
868.48	133.35	6.513	.8138	.85	.6917	4.917	38.30

CORRECTION FACTOR = 0.207  
 OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd

OPEN FLOW 38 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)  
 Dale J. Balthezo  
 For Commission

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