

15-181-20242-00-00

FORM G-3
8-7-58

189
6-1-87

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: Armstrong WELL NO.: 2-6

COUNTY: Sherman LOCATION: NE 1/4, NE 1/4, NE 1/4 SECTION: 6 TWP: 8S RNO: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KN Energy

COMPLETION DATE: 3-30-83 PLUG BACK TOTAL DEPTH: 1125' PACKER SET AT: None

CASING SIZE: 4 1/2" WT.: 9.5#/ft. LD.: SET AT: 1144' PERF.: 1019' TO: 1031'

TUBING SIZE: 2 3/8" WT.: LD.: SET AT: PERF.: TO:

TYPE COMPLETION (Describe): Frac 100,000# Sd., 918 Bbls H2O TYPE FLUID PRODUCTION: Gas

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

GAS GRAVITY - G_g: 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 1987 AT 11:35 (AM)(PM) TAKEN 4-28 19 AT 11:28 (AM)(PM)

FLOW TEST: STARTED 4-28 1987 AT 11:25 (AM)(PM) TAKEN 5-1 19 AT 11:07 (AM)(PM)

OBSERVED DATA DURATION OF SHUT-IN 72 HR.

SHUT-IN OR FLOW	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIFF. in. (h _w)(h _d)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASINO WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _i)(P _c) psia	psig	(P _w)(P _i)(P _c) psia		
SHUT-IN	--	--	--	--	--	--	--	34.3	48.7	72	--
FLOW	0.750	28.1	7.2	60	--	--	--	28.4	42.8	72	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (P _c)(P _d) / Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P _m h _w	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	RECEIVED STATE CORPORATION COMMISSION CONSERVATION DIVISION Wichita, Kansas
115.1	42.5	17.49	1.31	1.0	1.0017	63		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 2371.69, (P_w)² = 1831.84, P_d = _____ % (P_c - 14.4) + 14.4 = _____ (P_c)² = 0.207 (P_d)² = _____

(P _c) ² - (P _a) ² or (P _c) ² - (P _d) ²	(P _c) ² - (P _w) ²	$\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
2164.33	539.85	4.01	0.60	0.85	0.51	3.26	206

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

Harold J. Sartin
For Company

Witness (if any)

Checked by

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

FORM O-2
8-7-58

89
6-7-87

TYPE TEST: Deliverability Open Flow TEST DATE:

COMPANY LEASE WELL NO.
 Armstrong 2-6

COUNTY LOCATION SECTION TWP RNO 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_a
 14.4 Psia

GAS GRAVITY - G_r % 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 _w)(h _d)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASINO WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _i)(P _c) psia	psig	(P _w)(P _i)(P _c) psia		
SHUT-IN								34.3	48.7		
FLOW	.750	28.1	7.2	60				28.4	42.8		

RATE OF FLOW CALCULATIONS

COEFFICIENT (F _p)(F _d) Mofd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m \Delta h_w}$	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mofd	GOR	G _m
2.779	42.5	17.49	1.31	1.0	1.011	64.37		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 2371.69 (P_w)² = 1831.84 P_d² = _____ % (P_c - 14.4) + 14.4 = _____ (P_a)² = 0.207 (P_d)² = _____

$\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_d)^2}$	(P _c) ² - (P _w) ²	$\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mofd
2164.33	539.85	4.009	.6031	.85	.5126	3.256	209.58

OPEN FLOW 210 Mofd @ 14.65 psia DELIVERABILITY Mofd @ 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 F. Balthazor
 For Commission

For Company
 Checked by

RECEIVED
 STATE CORPORATION COMMISSION
 CONSERVATION DIVISION
 Wichita, Kansas