

15-181-20239-00-00

FORM O-2
8-7-58

Pg
6-2-87

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

TYPE TEST: Deliverability Open Flow Flow TEST DATE: 5-28-87

COMPANY: Goodland Gas Company LEASE: Armstrong WELL NO.: 2-2

COUNTY: Sherman LOCATION: NW/4 SECTION: 2 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KNEnergy

COMPLETION DATE: 2/10/83 PLUG BACK TOTAL DEPTH: 1054 PACKER SET AT: None

CASING SIZE: 4-1/2" WT.: 9.5# I.D.: 1062 SET AT: 970 PERF.: 990 TO:

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

TYPE COMPLETION (Describe): TYPE FLUID PRODUCTION: Gas

100,000# Sand, 40 tons CO₂ & 800 SCF/Bbl

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

GAS GRAVITY - G_g: 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 5-15 1987 AT 11:09 (AM)(PM) TAKEN 5-18 1987 AT 11:26 (AM)(PM)

FLOW TEST: STARTED 5-26 1987 AT 11:27 (AM)(PM) TAKEN 5-28 1987 AT 11:15 (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	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION HOURS	LIQUID PROD. Bble.
						psig	(P _w)(P _i)(P _c) psia	psig	(P _w)(P _i)(P _c) psia		
SHUT-IN	--	--	--	--	--	25.7	40.1	--	--	72	--
FLOW	0.875	24.2	6.7	60	--	24.5	38.9	--	--	48	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (F _b)(F _d) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P _m xh _w	GRAVITY FACTOR F _g	FLOWING TEMP. F _t	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	G _m
158.5	38.6	16.08	1.31	1.00	1.0009	80	--	--

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 1608.01, (P_w)² = 1513.21; P_d = _____ % (P_c - 14.4) + 14.4 = _____; (P_d)² = 0.207

(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
1400.65	94.80	14.77	1.17	0.85	0.99	9.86	789.19

OPEN FLOW 789 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 1 day of June, 1987

Daniel S. Sacklin
For Company

Checked by _____