

15-181-20243-00-00

FORM G-2
8-7-59

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: Morton WELL NO.: 1-5

COUNTY: Sherman LOCATION: NW 1/4, NE 1/4, NW 1/4 SECTION: 5 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KN Energy

COMPLETION DATE: 3-30-83 PLUG BACK TOTAL DEPTH: 1002' PACKER SET AT: None

CASING SIZE: 4 1/2" WT.: 9.5#/ft. LD.: SET AT: 1122' PERF.: 1030' TO: 1039'

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

TYPE COMPLETION (Describe): Frac 100,700# 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 19.87 AT 11:30 (AM) (PM) TAKEN 4-28 19.87 AT 11:15 (AM) (PM)

FLOW TEST: STARTED 4-28 19.87 AT 11:18 (AM) (PM) TAKEN 5-1 19.87 AT 11:01 (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		TIEING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _c) psia	psig	(P _w)(P _c) psia		
SHUT-IN	--	--	--	--	--	43.8	58.2	--	--	72	--
FLOW	1.250	37.0	6.0	60	--	37.9	52.3	--	--	72	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (P _c)(P _w) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_{mshw}}$	GRAVITY FACTOR F _g	FLOWING TEMP. F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR
345.1	51.4	17.56	1.3100	1.00	1.0022	191	--

STATE CORPORATION COMMISSION
RECEIVED
CONSERVATION DIVISION
Wichita, Kansas

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 3387.24 ; (P_w)² = 2735.29 ; P_d² = _____ % (P_c - 14.4) + 14.4 = _____ ; (P_w)² = 0.207 ; (P_d)² = _____

$\frac{(P_c)^2 - (P_w)^2}{(P_c)^2 - (P_d)^2}$	$(P_c)^2 - (P_w)^2$	$\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
3179.88	651.95	4.88	0.69	0.670	0.46	2.89	552

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

General D. Larkin
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

PJ
6-187

TYPE TEST: Deliverability Open Flow TEST DATE:

COMPANY LEASE WELL NO.
Morton 1-5

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_g % CARBON DIOXIDE % NITROGEN API GRAVITY OF LIQUID
1.5827

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 _t)(P _c) psia	psig	(P _w)(P _t)(P _c) psia		
SHUT-IN						43.8	58.2				
FLOW	1.250	37.0	6.0	60		37.9	52.3				

RATE OF FLOW CALCULATIONS

COEFFICIENT (F _p)(F _d) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_{mshw}}$	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	CONSERVATION DIVISION Wichita, Kansas
8.329	51.4	17.56	1.31	1.0	1.011	193.70		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 3387.24 (P_w)² = 2735.29 P_d = _____ % (P_c - 14.4) + 14.4 = _____ (P_w)² = 0.207 (P_d)² = _____

$\frac{(P_c)^2 - (P_w)^2}{(P_c)^2 - (P_d)^2}$	(P _c) ² - (P _w) ²	$\frac{P_c^2 - P_w^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
3179.88	651.95	4.877	.6881	.670	.4610	2.890	559.81

OPEN FLOW 560 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. Balthazor
For Commission

For Company
Checked by