

STATE OF KANSAS - CORPORATION COMMISSION

FORM G-3
8-7-53

ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

TYPE TEST: Deliverability Open Flow TEST DATE: 3/09/90 15-181-20233-00-00

COMPANY: GOODLAND GAS COMPANY LEASE: Nemechek WELL NO.: 1-4

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

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KNEnergy

COMPLETION DATE: 1-23-83 PLUG BACK TOTAL DEPTH: 1077 PACKER SET AT: None

CASING SIZE: 4 1/2" WT.: 9.5#/ft. I.D.: SET AT: 1105 PERFP.: 1006 TO: 1026

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

TYPE COMPLETION (Describe): Frac 100,000# SD, 40 tons CO2 TYPE FLUID PRODUCTION: 800 Bbls H2O Gas

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

GAS GRAVITY - G_e: 0.5837 % CARBON DIOXIDE: 1.98 % NITROGEN: 2.790 API GRAVITY OF LIQUID: --

VERTICAL DEPTH (ft): TYPE METER CONN.: Orifice-Flange (METER RUN) (PROVER) SIZE: 2.067

SHUT-IN PRESSURE: SHUT IN 2/9 1990 AT 11:20 (AM)(PM) TAKEN 2/12 1990 AT 11:10 (AM)(PM)

FLOW TEST: STARTED 2/22 1990 AT 8:00 (AM)(PM) TAKEN 2/23 1990 AT 8:00 (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)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING 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	--	--	--	--	--	24	38.4	--	--	72	--
FLOW	0.875	14.8	7.3	26	--	13	27.4	--	--	24	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (F _o)(F _g) Mscfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m \times h_w}$	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _t	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mscfd	GOR	G _m
3.824	29.2	14.59	1.3089	1.035	1.0013	76	--	--

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 1.475 ; (P_w)² = 0.751 ; 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	$\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mscfd
1.268	0.724	1.751	0.243	0.85	0.207	1.61	122

OPEN FLOW

Mscfd @ 14.65 psia

DELIVERABILITY

Mscfd @ 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 31st day of Dec, 1990

John P. Sanders
For Company

Witness (if any)

For Commission

Checked by