

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

FORM O-3
 6-7-53

TYPE TEST: Deliverability Open Flow TEST DATE: 3/09/90 15-181-20264-00-00

COMPANY: GOODLAND GAS COMPANY LEAD: Hendrich WELL NO.: 1-1

COUNTY: Sherman LOCATION: SW 1/4, SW 1/4 SECTION: 1 TWP: 8S RNO: 40W ACRS:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KNEnergy

COMPLETION DATE: 11-17-83 PLUG BACK TOTAL DEPTH: 1224 PACKER SET AT: None

CASINO SIZE: 4 1/2" WT: 9.5#/ft. I.D.: 1303 SKT AT: 1132 PRRF.: 1168 TO:

TUBING SIZE: None WT.: I.D.: SKT AT: PRRF.: TO:

TYPE COMPLETION (Description): Frac 82 600# Sd 40 tons CO2 627 TYPE FLUID PRODUCTION: Bbls H2O Gas

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

GAS GRAVITY - G_e: 0.5940 % CARBON DIOXIDE: 1.98 % NITROGEN: 2.790 API GRAVITY OF LIQUID: --

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

SHUT-IN PRESSURE: SHUT IN 2/9 1990 AT 10:50 (AM)(PM) TAKEN 2/12 1990 AT 8:20 (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	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	--	--	--	--	--	25	39.4	--	--	72	--
FLOW	0.5	16.9	2.9	39	--	15	29.4	--	--	24	--

RATE OF FLOW CALCULATIONS

COEFFICIENT (F _g) ² / Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P _m h _w	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _t	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	G _m
1.219	31.3	9.51	1.2975	1.021	1.0014	15	--	--

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 1.552 ; (P_w)² = 0.864 ; P_d = -- % (P_c - 14.4) + 14.4 = -- ; (P_w)² = 0.207 ; (P_d)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 Mcfd
1.345	0.688	1.955	0.291	0.85	0.248	1.17	27

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 31st day of Dec, 1990

John P. Sanders
 For Company

Witness (if any)
 For Commission

1-2-91

Checked by