

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

FORM C-2  
8-7-53

2  
PJ  
-3-91

TYPE TEST:  Deliverability  Open Flow TEST DATE: 3/09/90 **15-181-20127-00-00**

COMPANY: GOODLAND GAS COMPANY LEASE: Cebula WELL NO.: 1-15

COUNTY: Sherman LOCATION: SW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NW $\frac{1}{4}$  SECTION: 15 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: KNEnergy

COMPLETION DATE: 4-25-82 PLUG BACK TOTAL DEPTH: 960' PACKER SET AT: None

CASING SIZE: 4 $\frac{1}{2}$ " WT.: 9.5#/ft. I.D.: 993' SET AT: 934' PERF. TO: 954'

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

TYPE COMPLETION (Describe): Frac 40,000# Sd., 16,000 Gal. H<sub>2</sub>O TYPE FLUID PRODUCTION: 300 MCF CO<sub>2</sub> Gas

PRODUCING THRU: Casing RESERVOIR TEMPERATURE: BAR. PRESS - P<sub>a</sub> Psia

GAS GRAVITY - G<sub>g</sub>: 0.5837 % CARBON DIOXIDE: 1.98 % NITROGEN: 2.790 API GRAVITY OF LIQUID: --

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

SHUT-IN PRESSURE: SHUT IN 2/9 1990 AT 10:10 (AM)(PM) TAKEN 2/12 1990 AT 8:55 (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. (hw)(X) <del>(hw)</del>	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASED WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia	psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia		
SHUT-IN	--	--	--	--	--	20	34.4	--	--	72	--
FLOW	0.75	9.1	0.6	26	--	12	26.4	--	--	24	--

**RATE OF FLOW CALCULATIONS**

COEFFICIENT (F <sub>g</sub> )(Z <sub>g</sub> ) Mcf/d	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m x h_w}$	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. T <sub>f</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcfd	GOR	G <sub>m</sub>
2.779	23.5	3.69	1.3089	1.035	1.0009	14	--	--

**(OPEN FLOW) (DELIVERABILITY) CALCULATIONS**

(P<sub>c</sub>)<sup>2</sup> = 1.183 ; (P<sub>w</sub>)<sup>2</sup> = 0.697 ; P<sub>d</sub> = -- % (P<sub>c</sub> - 14.4) + 14.4 = -- ; (P<sub>w</sub>)<sup>2</sup> = 0.207 ; (P<sub>d</sub>)<sup>2</sup> = --

$\frac{(P_c)^2 - (P_w)^2}{(P_c)^2 - (P_d)^2}$	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	$\frac{P_c^2 - P_w^2}{P_c^2 - P_w^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG M:fd
0.976	0.486	2.007	0.303	0.85	0.257	1.81	25

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 31<sup>st</sup> day of Dec, 1990.

*John P. Sanders*  
For Company

Witness (if any)

For Completion

Checked by