

STATE OF KANSAS - CORPORATION COMMISSION

FORM CG-1

MULTIPOINT BACK PRESSURE TEST

15-023-20277-0000

**TYPE TEST:**  Initial  Annual  Special **TEST DATE:** 10/2/89

**COMPANY:** Harvest Energy Company **LEASE:** Raile **WELL NO.:** 1-29

**COUNTY:** Cheyenne **LOCATION:** s/2NESW **SECTION:** 29 **TWP:** 4S **RNG:** 39W **ACRES:**

**FIELD:** Wheeler **RESERVOIR:** Niobrara **PIPELINE CONNECTION:** none on test date

**COMPLETION DATE:** 9/25/89 **PLUG BACK TOTAL DEPTH:** 1,371' **PACKER SET AT:** n/a

<b>CASING SIZE:</b> 4 1/2"	<b>WT.:</b> 10.5#	<b>ID:</b> 4.052"	<b>SET AT:</b> 1,395'	<b>PERF.:</b> 1,304'	<b>TO:</b> 1,322'
<b>TUBING SIZE:</b> n/a	<b>WT.:</b>	<b>ID:</b>	<b>SET AT:</b>	<b>PERF.:</b>	<b>TO:</b>

**TYPE COMPLETION (Describe):** single gas **TYPE FLUID PRODUCTION:**

**PRODUCING THRU:** casing **RESERVOIR TEMPERATURE F:** 89 **BAR PRESS - P<sub>a</sub>:** 13 14.4 Psia

**GAS GRAVITY - G<sub>g</sub>:** .6 est. **% CARBON DIOXIDE:** **% NITROGEN:** **API GRAVITY OF LIQUID:**

**VERTICAL DEPTH (H):** 1,316' **TYPE METER CONN.:** none **(METER RUN) (PROVER) SIZE:** 2" prover

**REMARKS:** 2" critical flow prover & dead weight tester.

OBSERVED DATA

DURATION OF SHUT-IN \_\_\_\_\_ HR.

RATE No.	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIFF. (h <sub>w</sub> ) (h <sub>d</sub> )	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P <sub>w</sub> )(P <sub>t</sub> )(P <sub>c</sub> ) psia	psig	(P <sub>w</sub> )(P <sub>t</sub> )(P <sub>c</sub> ) psia		
SHUT IN		230				230	243				
1	5/32	220		59		220	233			1	
2	6/32	215		59		215	228			1	
3	8/32	211		60		211	224			1	
4	10/32	203		59		203	216			1	
5	10/32	142		62		142	155			24	

RATE OF FLOW CALCULATIONS

RATE NO.	COEFFICIENT (F <sub>D</sub> )(F <sub>P</sub> ) Mofd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m z h_w}$	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW Q Mofd	GOR	G <sub>m</sub>
1	.4380	233		1.291	1.0010	1.0194	134		
2	.6237	228		1.291	1.0010	1.0188	187		
3	1.1150	224		1.291	1.0000	1.0186	328		
4	1.7140	216		1.291	1.0010	1.0181	487		
5	1.7140	155		1.291	.9981	1.0108	346		

PRESSURE CALCULATIONS

RATE NO.	P <sub>t</sub> psia	P <sub>c</sub> psia	P <sub>w</sub> psia	(P <sub>c</sub> ) <sup>2</sup> THOUSANDS	(P <sub>w</sub> ) <sup>2</sup> THOUSANDS	PLOTING POINTS		% SHUT-IN 100 $\frac{P_w - P_c}{P_c - P_a}$
						(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> THOUSANDS	Q Mofd	
1		243	233	59.0	54.3	4.8	134	96
2		243	228	59.0	52.0	7.1	187	93
3		243	224	59.0	50.2	8.9	328	92
4		243	216	59.0	46.7	12.4	487	88
5		243	155	59.0	24.0	35.0	346	62

INDICATED WELLHEAD OPEN FLOW 737 Mofd @ 14.65 psia "n" = 1.454

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 14th day of February, 1991.

Witness (if any) \_\_\_\_\_  
For Commission \_\_\_\_\_

FFR 1 8 1991

Alan L. Nackerud  
For Company  
Checked by \_\_\_\_\_