

15-091-21594-0000  
 8-31-87  
 FORM O-2  
 8-7-58

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

TYPE TEST:  Deliverability  Open Flow TEST DATE: 6/20/87

COMPANY: Miller Brothers Production Co. LEASE: Busch WELL NO.: 2

COUNTY: Johnson LOCATION: SE SW NW SECTION: 8 TWP: 14 RNG: 23E ACRES: 23E

FIELD: Gardner Lake RESERVOIR: Bartlesville PIPELINE CONNECTION: Grant Oil, Inc.

COMPLETION DATE: PLUG BACK TOTAL DEPTH: PACKER SET AT:

CASINO SIZE: 4 1/2" WT. I.D. SET AT 777' PERF. TO

TUBING SIZE: 2 3/8" WT. I.D. SET AT PERF. TO

TYPE COMPLETION (Describe): Single Gas TYPE FLUID PRODUCTION:

PRODUCING THRU: Annulus RESERVOIR TEMPERATURE F: BAR. PRESS - P<sub>a</sub>: 14.4 Psia

GAS GRAVITY - Q<sub>g</sub>: .5751 % CARBON DIOXIDE: .36 % NITROGEN: 3.60 API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): TYPE METER CONN.: Flange (METER RUN) X PROVER X SIZE: 2"

SHUT-IN PRESSURE: SHUT IN 6/16 19.87 AT 1130 (AM)(PM) TAKEN 6/19 19.87 AT 1100 (AM)(PM)

FLOW TEST: STARTED 6/19 19.87 AT 300 (AM)(PM) TAKEN 6/20 19.87 AT 445 (AM)(PM)

OBSERVED DATA DURATION OF SHUT-IN: 71.5 HR.

SHUT-IN OR FLOW	ORIFICE SIZE In.	(METER) (PROVER) PRESSURE psig	DIFF. In. (h <sub>w</sub> )(h <sub>d</sub> )	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASINO 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						102.7	117.1	50.0	64.4	71.5	
FLOW	3/4	52.0	6"			49.5	63.9	46.2	60.6	25.8	

RATE OF FLOW CALCULATIONS

COEFFICIENT (F <sub>b</sub> )(P <sub>d</sub> ) / Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P <sub>m</sub> h <sub>w</sub>	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcfd	GOR	Q <sub>m</sub>
2.779	66.4	19.960	1.319	1.00	1.00	73		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 13.712 ; (P<sub>w</sub>)<sup>2</sup> = 4.083 ; P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ (P<sub>d</sub>)<sup>2</sup> = 0.207

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>a</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>d</sub> ) <sup>2</sup>	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	$\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
13.505	9.629	1.4025	.1469	.9600	.1410	1.3837	101

OPEN FLOW 101 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 8<sup>th</sup> day of July, 1987

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

Checked by MB Nathan Consultant For Company

08-31-87