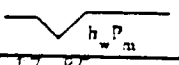


OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator <u>Gruy Pet. Mang.</u>						Lease or Unit Name <u>Rhoads Fed 4</u>						
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date <u>8-17-98</u>						
Completion Date <u>3/12/98</u>			Total Depth <u>3309</u>			Plug Back TD <u>3150</u>			Well No. <u>43</u>			
Casing Size <u>7</u>			WC <u>23</u>			d <u>6.366</u>			Set At <u>3309</u>			
Perforations: <u>From: 2680 To: 2923</u>			Unit Loc. - Sec. - TWP. - Rge. <u>L-4-26-37</u>			County <u>Lea</u>			Pool			
Tubg. Size <u>2 3/8</u>			WC <u>4.7</u>			d <u>1.995</u>			Set At <u>2916</u>			
Perforations: <u>From: To:</u>			Formation <u>Vates</u>			Connection <u>Sales</u>			Meter Run <u>2.067</u>			
Type Well - Single - Bradenhead - G.G. or G.C. Multiple <u>Single</u>						Packer Set At <u>No Pkr</u>						
Producing Thru <u>T6a</u>			Reservoir Temp. °F <u>60</u>			Mean Annual Temp. °F <u>60</u>			Baro. Press. - P _a <u>13.2</u>			
L <u>2916</u>			II <u>2916</u>			Gg <u>.682</u>			% CO ₂ <u>1.617</u>			
						% N ₂ <u>.423</u>			% H ₂ S <u>0</u>			
						Prover <u>0</u>			Meter Run <u>2.067</u>			
									Taps <u>6lg</u>			
FLOW DATA						TUBING DATA				CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F		
1.	2.067	X	1.375	15	9.6	800	43	21	800	20	800	24 hrs
2.												
3.												
4.												
5.												
RATE OF FLOW CALCULATIONS												
NO.	COEFFICIENT (24 HOUR)		Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{sp}	Rate of Flow Q, Mscf/d					
1.	10.20	17.85	33.2	.9813	1.211	1.052	227					
2.												
3.												
4.												
5.												
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio <u>N/A</u>			McBbl				
1.	.80	5400	1.42	.903	A.P. L. Gravity of Liquid Hydrocarbons <u>N/A</u>			Deg.				
2.					Specific Gravity Separator Gas <u>.682</u>			XXXXXXXXXX				
3.					Specific Gravity Flowing Fluid <u>N/A</u>			XXXXXX				
4.					Critical Pressure <u>674</u>			P.S.I.A.				
5.					Critical Temperature <u>380</u>			R				
P _e <u>56.2</u>		P _w <u>3.2</u>										
NO.	P _e ²	P _w	P _w ²	P _e ² - P _w ²	1) $\frac{P_e^2}{P_e^2 - P_w^2} = \frac{2.220}{1.7 - 1.4} = 2.220$							
1.	1.1	41.7	1.7	1.4	(2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^2 = 2.220$							
2.												
3.												
4.												
5.												
AOF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^2 = 504$												
Absolute Open Flow <u>504</u>				Mcfd @ 15.025	Angle of Slope θ <u>450</u>		Slope, n <u>1.000</u>					
Remarks: <u>*No Liquid made during test</u>												
Approved By Division			Conducted By: <u>Pro well Testing</u>			Calculated By: <u>M.B.</u>		Checked By: <u>B.M.</u>				

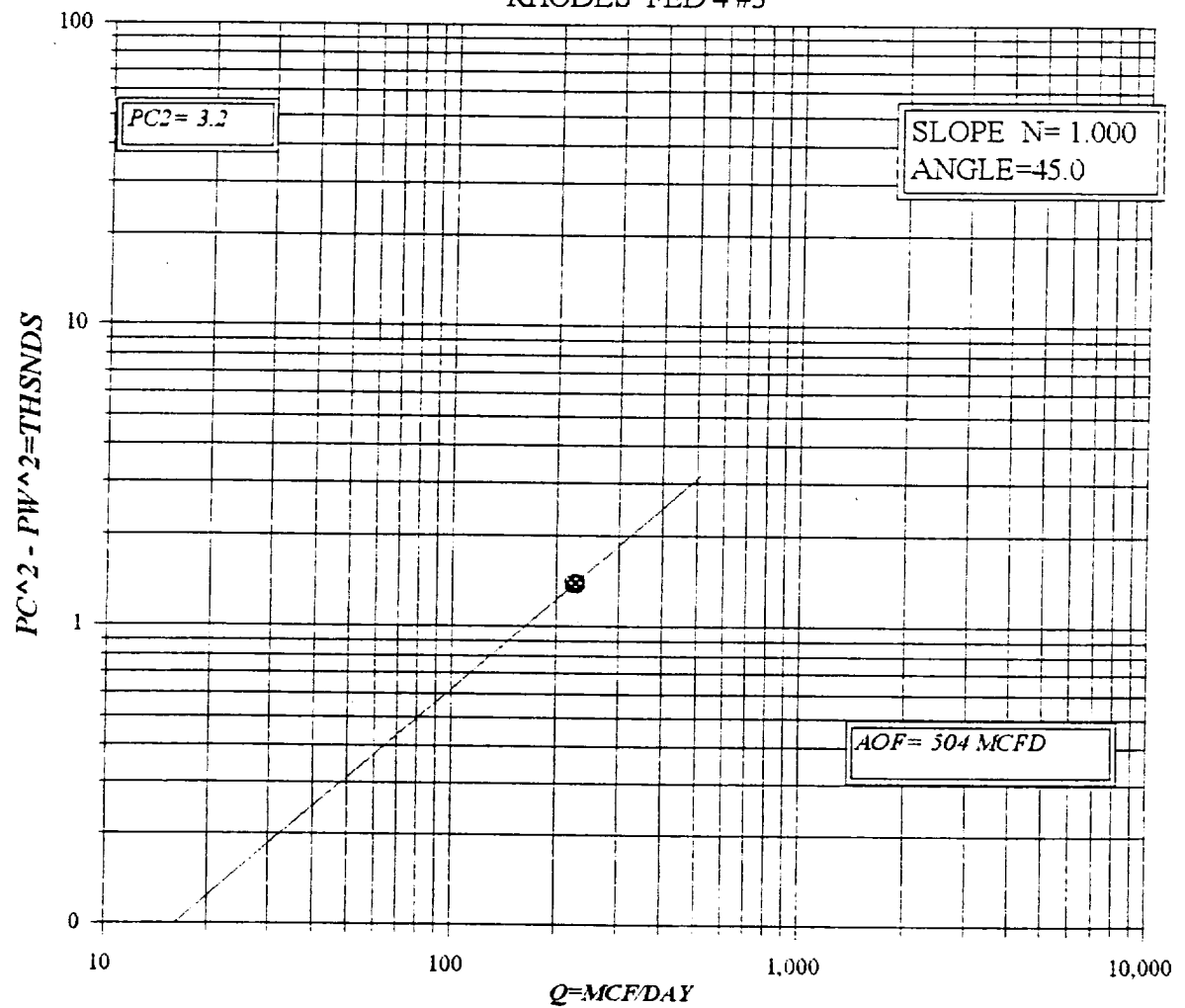
COMPANY :GRUY LEASE :RHOADS FED 4 WELL NO. : 3 Pc = 56.2 Pc2 = 3.2
 UNIT : SECTION : TOWNSHIP :
 L : 2916 H : 2916 L/H : 1 G/GMIX : 0.682 Pt2 = 1.1 Pw = 41.7
 %CO2 : 1.617 %N2 : 0.423 H2S : DATE :8/17/98 0.0 ERR
 d : 1.995 Fr :0.018231 GH : 1988.7 RANGE : 0.0 ERR
 0.0 ERR

VOL 1 : 227 PSIA 1 : 33.2 RESV.TEMP 103.2 Pc2-Pw2= 1.4 Pw2 = 1.7
 VOL 2 : PSIA 2 : ERR ERR
 VOL 3 : PSIA 3 : SHUT-IN PR= 56.2 ERR ERR
 VOL 4 : PSIA 4 : ERR ERR
 PCR : 674 n = 1.000
 TCR : 380

LINE		RATE 1		RATE 2		RATE 3		RATE 4		
		'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	
1	QM	0.227	0.227	0.000	0.000	0.000	0.000	0.000	0.000	
2	TW	534	534	534	534	534	534	534	534	
3	Ts	563.2	563.2	563.2	563.2	563.2	563.2	563.2	563.2	[Pc2/Pc2-Pw2]n = 2.220
4	T	548.6	548.6	548.6	548.6	548.6	548.6	548.6	548.6	ERR
	PR (est)	0.05		0.00		0.00		0.00		ERR
5	Z(est)	0.970	0.969	ERR	ERR	ERR	ERR	ERR	ERR	
6	TZ	532.2	531.7	ERR	ERR	ERR	ERR	ERR	ERR	AOI= Q 0.504
7	GH/TZ	3.737	3.741	ERR	ERR	ERR	ERR	ERR	ERR	ERR
8	eS	1.150	1.151	ERR	ERR	ERR	ERR	ERR	ERR	ERR
9	l-e-S	0.131	0.131	ERR	ERR	ERR	ERR	ERR	ERR	ERR
10	Pt	33.2	33.2	0.0	0.0	0.0	0.0	0.0	0.0	
11	Pt2 /1000	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	
12	Fr	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	
13	Fc=FrTZ	9.702	9.693	ERR	ERR	ERR	ERR	ERR	ERR	
14	FcQm	2.20	2.20	ERR	ERR	ERR	ERR	ERR	ERR	
15	L/H(FcQm)	4.9	4.8	ERR	ERR	ERR	ERR	ERR	ERR	
16	Fw	0.634247	0.633592	ERR	ERR	ERR	ERR	ERR	ERR	
17	Pw2	1.7	1.7	ERR	ERR	ERR	ERR	ERR	ERR	
18	Ps2	2.0	2.0	ERR	ERR	ERR	ERR	ERR	ERR	
19	Ps	44.7	44.7	ERR	ERR	ERR	ERR	ERR	ERR	
20	P	38.9	38.9	ERR	ERR	ERR	ERR	ERR	ERR	
21	Pr	0.06	0.06	ERR	ERR	ERR	ERR	ERR	ERR	
22	Tr	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	
23	Z	0.969	0.969	ERR	ERR	ERR	ERR	ERR	ERR	FORM C122-0

GRUY MANAGEMENT

RHODES FED 4 #3



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

FOR APPROVED
OMB NO. 1004-0137
Expires: December 31, 1991

5. LEASE DESIGNATION AND SERIAL NO.
LC-054668

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
8920003820

8. FARM OR LEASE NAME, WELL NO.
Rhodes Federal Unit # 43

9. API WELL NO.
30-025-11949

10. FIELD AND POOL, OR WILDCAT
Rhodes Yates- 7 Rivers Gas

11. SEC. T., R., M., OR BLOCK AND SURVEY OR AREA
Sec 4 26S 37E

12. COUNTY OR PARISH
Lea

13. STATE
NM

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other _____

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☒ DIFF. REMVR. ☐ Other _____

2. NAME OF OPERATOR
Gruy Petroleum Management Co.

3. ADDRESS AND TELEPHONE NO.
P O Box 140907 Irving Tx. 75014-0907

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 2310' FSL & 990' FWL

At top prod. interval reported below

At total depth

14. PERMIT NO. DATE ISSUED

15. DATE SPUDDED 3-5-98 16. DATE T.D. REACHED 17. DATE COMPL. (Ready to prod.) 3-11-98 18. ELEVATIONS (DF, RKB, RT, OR, ETC.)* 2984 19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 21. PLUG, BACK T.D., MD & TVD 3150' 22. IF MULTIPLE COMPL., HOW MANY* 23. INTERVALS DRILLED BY ROTARY TOOLS CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* Yates - 2680' - 2923' 25. WAS DIRECTIONAL SURVEY MADE N/A

26. TYPE ELECTRIC AND OTHER LOGS RUN N/A, used old log 27. WAS WELL CORED

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT FULLED

29. LINER RECORD					30. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	BACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 3/8"	2915'	

31. PERFORATION RECORD (Interval, size and number)
2680' - 2923' 114 holes 1spf

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2680'-2923'	2,200 gals 15% HCL
2680'-2923'	50,000 gals 50/50 CO2, 77,200 #
	16/30 Brady sand

33. PRODUCTION
DATE FIRST PRODUCTION PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing WELL STATUS (Producing or Shut-in) Shut-in

DATE OF TEST	HOURS TESTED	CHOKER SIZE	PROD'N. FOR TEST PERIOD	OIL—BSL.	GAS—MCF.	WATER—BSL.	GAS-OIL RATIO
8-17-98	24 hours	48/64"		-0-	227	-0-	
FLOW, TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BSL.	GAS—MCF.	WATER—BSL.	OIL GRAVITY-API (CORR.)	
21	20		-0-	504	-0-		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) Sold TEST WITNESSED BY

35. LIST OF ATTACHMENTS

C-122 Back Pressure test

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Lea Farris TITLE Manager, Operations Admin. DATE 08/25/98

*(See Instructions and Spaces for Additional Data on Reverse Side)

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
Yates	2650'		Sandstone and Dolomite	Yates	2650'	
				Seven Rivers	2952'	