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See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

NGPA Permits

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

OCT 17 1995

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator EXXON CO. U.S.A.					Lease of Unit Name F. F. HARDISON B				
Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 10-7-95		Well No. 2		
Completion Date 8-9-95		Total Depth 6574		Plug Back TD 5860		Elevation 3391		Unit Ltr. - Sec. - TWP - Rge. A 34-21S-37E	
Csg. Size 5 1/2	Wt. 14	d 5.012	Set At 6574	Perforations: From: 5453 To: 5814				County LEA	
Tbg. Size 2-3/8	Wt. 4.7	d 1.995	Set At 5405	Perforations: From: To:				Pool BLUEBRY OIL AND GAS (72480)	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple single					Packer Set At none		Formation BLINEBRY		
Producing Thru TBG. & CSG.		Reservoir Temp. °F 60°		Mean Annual Temp. °F 60°		Baro. Press - P _a 13.2		Connection SALES	
L 5405	H 5405	Gg .737	% CO ₂ 1.35	% N ₂ 1.79	% H ₂ S	Prover -0-	Meter Run 4.026	Taps FLG.	

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
SI									190	60°	24 hrs.
1.	4.026	X	.750	39.7	41	60°	PUMPING		40	60°	24 hr.s
2.											
3.											
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft	Gravity Factor Fg	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	2.661	40.34	39.7	1.000	1.165	1.004	125.
2.							
3.							
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	.06	520	1.29	.989	DRY GAS	1.004	125.
2.					DRY		
3.					.737	XXXXXXX	
4.					-0-	XXXXX	
5.					671	670	
					397	401	

P _c 203.2	P _c ² 41.3						
NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²	1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.074$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.074$	
1.	2.8	53.2	2.8	38.5			
2.							
3.							
4.							
5.							

Absolute Open Flow	134	Mcfd @ 15.025	Angle of Slope Θ	45	Slope, n	1.000
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Remarks:

Approved By Division	Conducted By: PRO WELL TESTING	Calculated By: MB	Checked By: BM
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EXXON CO. U.S.A.

F. F. HARDISON B, WELL # 2

NGPA Permits

A 34-21S-37E

LEA COUNTY, NEW MEXICO

10-7-95

OCT 17 1995

$$Q_1 = 230; L_{0.5} = 2.361730$$

$$Q_2 = 23; L_{0.6} = 1.361730$$

$$\text{SLOPE } N = 1.000$$

$$P_e^2 = 41.3$$

$$\theta = 45^\circ$$
$$N = 1.000$$

$$A.O.F. = 134 \text{ MCF/DAY}$$

Q₂

Q MCF/DAY

0 COMPANY : EXXON USA , INC. LEASE : F F HARDISON B WELL NO. : 2 Pc = 203.2 Pc2 = 41.3 #
UNIT : A SECTION : 34 TOWNSHIP : 21 #
L : 5405 H : 5405 L/H : 1 G/GMIX : 0.737 #
%CO2 : 1.35 %N2 : 1.79 H2S : DATE : #
d : 3.933 Fr : 0.003096 GH : 3983.5 RANGE : #
0.0 #
0.0 #
0.0 #

VOL 1 : 125 PSIA 1 : 53.2 RESV.TEMP 128.1 Pc2-Pw2= 38.4 Pw2 = 2.8 #
VOL 2 : PSIA 2 : ERR ERR #
VOL 3 : PSIA 3 : SHUT-IN PR= 203.2 ERR ERR #
VOL 4 : PSIA 4 : ERR ERR #

PCR : 671 n = 1.000 #
TCR : 397 #

Pc2/(Pc2-Pw2) = 1.074 #
ERR #
ERR #
ERR #

LINE	RATE 1		RATE 2		RATE 3		RATE 4		
	'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	
1 QM	0.125	0.125	0.000	0.000	0.000	0.000	0.000	0.000	
2 TW	534	534	534	534	534	534	534	534	[Pc2/Pc2-Pw2]n = 1.074
3 Ts	588.1	588.1	588.1	588.1	588.1	588.1	588.1	588.1	ERR
4 T	561.0	561.0	561.0	561.0	561.0	561.0	561.0	561.0	ERR
PR (est)	0.08		0.00		0.00		0.00		ERR
5 Z(est)	0.966	0.965	ERR	ERR	ERR	ERR	ERR	ERR	
6 TZ	542.0	541.7	ERR	ERR	ERR	ERR	ERR	ERR	AOF= Q 0.134 ✓
7 GH/TZ	7.349	7.354	ERR	ERR	ERR	ERR	ERR	ERR	ERR
8 eS	1.317	1.318	ERR	ERR	ERR	ERR	ERR	ERR	ERR
9 (-e-S	0.241	0.241	ERR	ERR	ERR	ERR	ERR	ERR	ERR
10 Pt	53.2	53.2	0.0	0.0	0.0	0.0	0.0	0.0	
11 Pt2 /1000	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	
12 Fr	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096	
13 Fc=FrTZ	1.678	1.677	ERR	ERR	ERR	ERR	ERR	ERR	
14 FcQm	0.21	0.21	ERR	ERR	ERR	ERR	ERR	ERR	
15 L/H(FcQm)	0.0	0.0	ERR	ERR	ERR	ERR	ERR	ERR	
16 Fw	0.010601	0.010592	ERR	ERR	ERR	ERR	ERR	ERR	
17 Pw2	2.8	2.8	ERR	ERR	ERR	ERR	ERR	ERR	
18 Ps2	3.7	3.7	ERR	ERR	ERR	ERR	ERR	ERR	
19 Ps	61.2	61.2	ERR	ERR	ERR	ERR	ERR	ERR	
20 P	57.2	57.2	ERR	ERR	ERR	ERR	ERR	ERR	
21 Pr	0.09	0.09	ERR	ERR	ERR	ERR	ERR	ERR	
22 Tr	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	
23 Z	0.965	0.965	ERR	ERR	ERR	ERR	ERR	ERR	FORM C122-D

NGPA Perm

OCT 17 1995

Laboratory Services, Inc.

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

NGPA Permits

OCT 17 1995

FOR: Pro Well Testing & Wireline
Attention: Mr. Lane Thorp
P. O. Box 791
Hobbs, New Mexico 88241

SAMPLE
IDENTIFICATION: Hardison #2
COMPANY: Exxon Company USA
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 10-05-95 1:00 PM GAS (XX) LIQUID ()
ANALYSIS DATE: 10-09-95 SAMPLED BY: Lane Thorp
PRESSURE - PSIG 40.00 ANALYSIS BY: Vickie Walker
SAMPLE TEMP. °F
ATMOS. TEMP. °F

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	
Hydrogen Sulfide (H2S)			
Nitrogen (N2)	1.79		
Carbon Dioxide (CO2)	1.35		
Methane (C1)	77.93		
Ethane (C2)	10.21	2.724	
Propane (C3)	5.01	1.378	
I-Butane (IC4)	0.58	0.189	
N-Butane (NC4)	1.59	0.499	
I-Pentane (IC5)	0.39	0.143	
N-Pentane (NC5)	0.50	0.181	
Hexane Plus (C6+)	0.65	0.266	
	100.00	5.380	
BTU/CU.FT. - DRY	1231	MOLECULAR WT.	21.3391
AT 14.650 DRY	1227		
AT 14.650 WET	1206		
AT 14.73 DRY	1234		
AT 14.73 WET	1213		
SPECIFIC GRAVITY -			
CALCULATED	0.737		
MEASURED			