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See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

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

11/16/92

O. C. D.

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator MERIT ENERGY COMPANY						Lease or Unit Name PENN JACK					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 1/6/93		Well No. 9			
Completion Date 11/16/92		Total Depth 4600		Plug Back TD		Elevation 3754.9 (GL)		Unit Ltr. - Sec. - TWP - Rge. 6 10S 26E			
Csg. Size 4 1/2"	Wt. 10.5	d	Set At 4600'	Perforations: From: 4400' To: 4519'				County CHAVES			
Tbg. Size 2 3/8"	Wt. 4.7	d	Set At 4379'	Perforations: From: To:				Pool S. PECOS SLOPE			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE						Packer Set At		Formation ABO			
Producing Thru TBG		Reservoir Temp. °F 117.8@4379'		Mean Annual Temp. °F 60°		Baro. Press - P _a 13.2		Connection			
L 4379	H 4379	Gg .648	% CO ₂ .72	% N ₂ 3.64	% H ₂ S	Prover		Meter Run 2.067	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							542				24 HRS
1.	2	X	1.000	165	5.00	40	476				1 HR
2.	2	X	1.000	160	7.00	41	442				1 HR
3.	2	X	1.000	160	11.00	40	407				1 HR
4.	2	X	1.000	160	17.00	40	340				1 HR
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.	4.946	29.85	178.2	1.020	1.242	1.017	190
2.	4.946	34.82	173.2	1.019	1.242	1.017	221
3.	4.946	43.65	173.2	1.020	1.242	1.017	277
4.	4.946	54.26	173.2	1.020	1.242	1.017	345
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	DRY GAS	Mcf/bbl
1.	.27	500	1.38	.966	A.P. I Gravity of Liquid Hydrocarbons	DRY	Deg.
2.	.26	501	1.38	.967	Specific Gravity Separator Gas	.648	XXXXXXXXXX
3.	.26	500	1.38	.967	Specific Gravity Flowing Fluid	XXXXXX	
4.	.26	500	1.38	.967	Critical Pressure	665	P.S.I.A.
5.					Critical Temperature	363	R

P_c 555.2 P_c² 308.2

NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²
1.	239.3	489.8	239.9	68.4
2.	207.2	456.1	208.0	100.3
3.	176.6	421.7	177.8	130.4
4.	124.8	356.0	126.7	181.5
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.698$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.480$

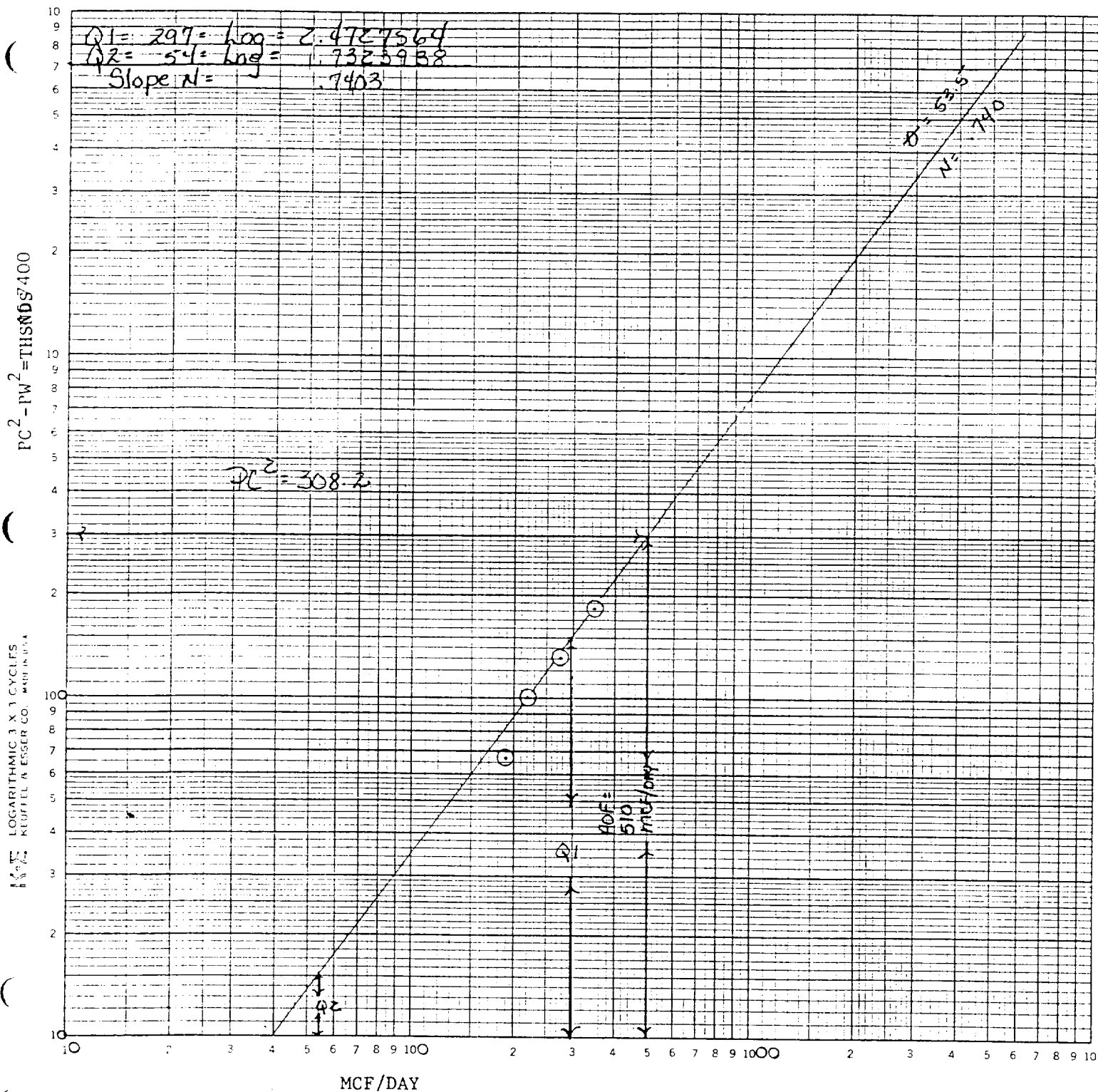
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = .510$

Absolute Open Flow	510 Mcfd @ 15.025	Angle of Slope θ	53.5	Slope, n	.740
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Remarks:

Approved By Division	Conducted By: JOHN WEST ENG.	Calculated By: GPW	Checked By: BM
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MERIT ENERGY COMPANY
 PENNJACK WELL NO. 9
 SEC. 6 TWP. 10S RGE. 26E
 JANUARY 6, 1993
 CHAVES COUNTY, NEW MEXICO



COMPANY : MERIT ENERGY CO. LEASE : PENNJACK WELL NO. : 9 Pc = 555.2 Pc2 = 308.2 *
 UNIT : SECTION : 6 TOWNSHIP : 10S Pt2 = 239.3 Pw = 489.8 *
 L : 4379 H : 4379 L/H : 1 G/GMIX : 0.648 DATE : 1/6/93 207.2 456.1 *
 %CO2 : 0.72 %N2 : 3.64 H2S : RANGE : 265 176.6 421.7 *
 d : 1.995 Fr : 0.018231 GH : 2837.6 124.8 356.0 *

VOL 1 : 190 PSIA 1 : 489.2 RESV. TEMP 117.8 Pc2-Pw2 = 68.4 Pw2 = 239.9 *
 VOL 2 : 221 PSIA 2 : 455.2 100.3 208.0 *
 VOL 3 : 277 PSIA 3 : 420.2 SHUT-IN PR = 555.2 130.4 177.8 *
 VOL 4 : 345 PSIA 4 : 353.2 181.5 126.7 *
 PCR : 665 n = 0.740 *
 TCR : 363

LINE	RATE 1		RATE 2		RATE 3		RATE 4		
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND	
1 QM	0.190	0.190	0.221	0.221	0.277	0.277	0.345	0.345	
2 TW	534	534	534	534	534	534	534	534	[Pc2/Pc2-Pw2]n = 3.048
3 Ts	577.8	577.8	577.8	577.8	577.8	577.8	577.8	577.8	2.296
4 T	555.9	555.9	555.9	555.9	555.9	555.9	555.9	555.9	1.890
PR (est)	0.74		0.68		0.63		0.53		1.480
5 Z(est)	0.910	0.906	0.914	0.911	0.919	0.916	0.928	0.925	
6 TZ	505.8	503.8	508.2	506.4	510.8	509.0	515.7	514.2	ADP = Q 0.579
7 GH/TZ	5.611	5.633	5.583	5.604	5.555	5.574	5.502	5.519	0.507
8 eS	1.234	1.235	1.233	1.234	1.232	1.232	1.229	1.230	0.523
9 1-e-S	0.190	0.190	0.189	0.190	0.188	0.189	0.186	0.187	0.510
10 Pt	489.2	489.2	455.2	455.2	420.2	420.2	353.2	353.2	
11 Pt2 /1000	239.3	239.3	207.2	207.2	176.6	176.6	124.8	124.8	
12 Fr	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	
13 Fc=FrTZ	9.221	9.184	9.266	9.232	9.312	9.280	9.402	9.374	
14 FcQm	1.75	1.75	2.05	2.04	2.58	2.57	3.24	3.23	
15 L/H(FcQm)	3.1	3.0	4.2	4.2	6.7	6.6	10.5	10.5	
16 Fw	0.582337	0.579821	0.792102	0.788909	1.251280	1.246572	1.961654	1.9552547	
17 Pw2	239.9	239.9	208.0	208.0	177.8	177.8	126.7	126.7	
18 Ps2	296.1	296.3	256.4	256.6	219.0	219.2	155.7	155.8	
19 Ps	544.1	544.4	506.4	506.6	468.0	468.1	394.7	394.8	
20 P	516.7	516.8	480.8	480.9	444.1	444.2	373.9	374.0	
21 Pr	0.78	0.78	0.72	0.72	0.67	0.67	0.56	0.56	
22 Tr	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	
23 Z	0.906	0.906	0.911	0.911	0.916	0.916	0.925	0.925	FORM C122-D



Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: John West Engineering
Attention: Mr. Buz Thomason
412 N. Dal Paso
Hobbs, New Mexico 88240

SAMPLE
IDENTIFICATION: Penjack #9
COMPANY: Merit Energy
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	1/6/93 2:00PM	GAS (XX)	LIQUID ()
	ANALYSIS DATE:	01-06-93	SAMPLED BY:	West Eng.
	PRESSURE - PSIG	160.00	ANALYSIS BY:	Rolland Perry
	SAMPLE TEMP. °F			
	ATMOS. TEMP. °F			

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	
Hydrogen Sulfide (H2S)			
Nitrogen (N2)	3.64		
Carbon Dioxide (CO2)	0.72		
Methane (C1)	86.83		
Ethane (C2)	5.30	1.410	
Propane (C3)	1.99	0.546	
I-Butane (IC4)	0.29	0.094	
N-Butane (NC4)	0.57	0.179	
I-Pentane (IC5)	0.17	0.061	
N-Pentane (NC5)	0.16	0.057	
Hexane (C6)	0.33	0.143	
Heptanes Plus (C7+)	0.00	0.000	
	100.00	2.490	
BTU/CU.FT. - DRY	1078	MOLECULAR WT.	18.7577
AT 14.650 DRY	1081		
AT 14.650 WET	1062	26# GASOLINE -	0.321
AT 15.025 DRY	1054		
AT 15.025 WET	1036		
SPECIFIC GRAVITY -			
CALCULATED	0.648		
MEASURED			