

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT / ONE POINT BACK PRESSURE TEST FOR GAS WELL

File # 122
Form C-122
Revised 9-1-65

Test Type: ☒ Initial ☐ Annual ☐ Special				Test Date: 03-03-80	
Company: MESA PETROLEUM Co.				Location: AIR	
Well No.: UNDESIGNATED				Formation: ABO	
Completion Date: 02-16-80		Total Length: 4088		Plug Back To: 3771	
Elevation: 4154 GL		Field or Lease Name: ROCK FEDERAL			
Casing Size: 4 1/2"	ID: 10.5	Set At: 4088	Perforations: From 2923 To 3363		Well No.: # 1
Tubing Size: 2 3/8"	ID: 4.7	Set At: 2830	Perforations: From open To end		Unit: J Sec: 7 Twp: 8s Rge: 23e
Type Well - Single - Horizontal - G.G. or G.O. Multiple: SINGLE GAS WELL				Packer Set At: 2822	
Producing thru: TBG.				State: NEW MEXICO	
Reservoir Temp. °F: 102 @ 2822		Mean Annual Temp. °F: 60		Zero. Press. - P _a : 13.2	
L: 2822	H: 2822	G _g : .618	% CO ₂ : .495	% N ₂ : 4.331	Meter Run: 4"
Flow Data				Tubing Data	
NO.	Prover Line Size	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F
1.	4 X 1.000	420	2.	52	847
2.	4 X 1.000	425	7.	50	782
3.	4 X 1.000	440	24.	52	750
4.	4 X 1.000	450	47.	73	710
5.	4 X 1.000	460	82.	74	647
RATE OF FLOW CALCULATIONS					
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g
1.	4.753	29.43	433.2	1.008	1.272
2.	4.753	55.38	438.2	1.010	1.272
3.	4.753	104.29	453.2	1.008	1.272
4.	4.753	147.55	463.2	.9877	1.272
5.	4.753	196.98	473.2	.9868	1.272
Gas Liquid Hydrocarbon Ratio: DRY Mol./Vol.					
A.P.I. Gravity of Liquid Hydrocarbons: _____ Deg.					
Specific Gravity Separator Gas: _____ XXXXXXXXXX					
Specific Gravity Floating Fluid: _____ XXXXXX					
Critical Pressure: 664 P.S.I.A.					
Critical Temperature: 351 R					
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio: DRY Mol./Vol.
1.	.65	512	1.46	.928	A.P.I. Gravity of Liquid Hydrocarbons: _____ Deg.
2.	.66	510	1.45	.925	Specific Gravity Separator Gas: _____ XXXXXXXXXX
3.	.68	512	1.46	.925	Specific Gravity Floating Fluid: _____ XXXXXX
4.	.70	533	1.52	.933	Critical Pressure: 664 P.S.I.A.
5.	.71	534	1.52	.932	Critical Temperature: 351 R
P _r 860.2 P _w 739.9					
NO.	P _r ²	P _w ²	P _r ² - P _w ²	(1) $\frac{P_r^2}{P_r^2 - P_w^2} = 2.562$ (2) $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 2.540$	
1.	833.4	694.6	45.3	AOF = Q $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 3.092$	
2.	796.0	633.6	106.3		
3.	766.1	586.9	153.0		
4.	729.0	531.5	208.4		
5.	671.6	451.1	288.8		
Absolute Open Flow: 3,092 MCF/D 15.025				Angle of Slope: 45.025 Slope, n: .991	
Remarks:					
Approved By:		Conducted By: JOHN DAVIS		Calculated By: LARRY DAVIS	
Checked By:					

NEW-TEX
LAB

P. O. BOX 1161
HOBBS, N.M. 88240

TIGHT HOLE

No. 2290

Run No.

Date of Run 3-4-80

Date Secured

CERTIFICATE OF ANALYSIS

A Sample of Mesa Petroleum Co. Rock Federal #1
Secured from Davis Services
At Box 2033 Secured by
Hobbs, NM 88240 Time Date
Sampling conditions Press
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	.495		
Air			
Nitrogen	4.331		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	90.898		
Ethane	2.087		.557
Propane	1.087		.299
Butanes			
Iso-Butane	.148		.048
N-Butane	.412		.130
Pentanes			
Iso-Pentane	.070		.026
N-Pentane	.162		.059
Hexanes	.102		.042
Heptanes Plus	.209		.089
Octanes			
TOTAL	100.000		1.250

Calc. Sp. Gr. 0.6178
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt.

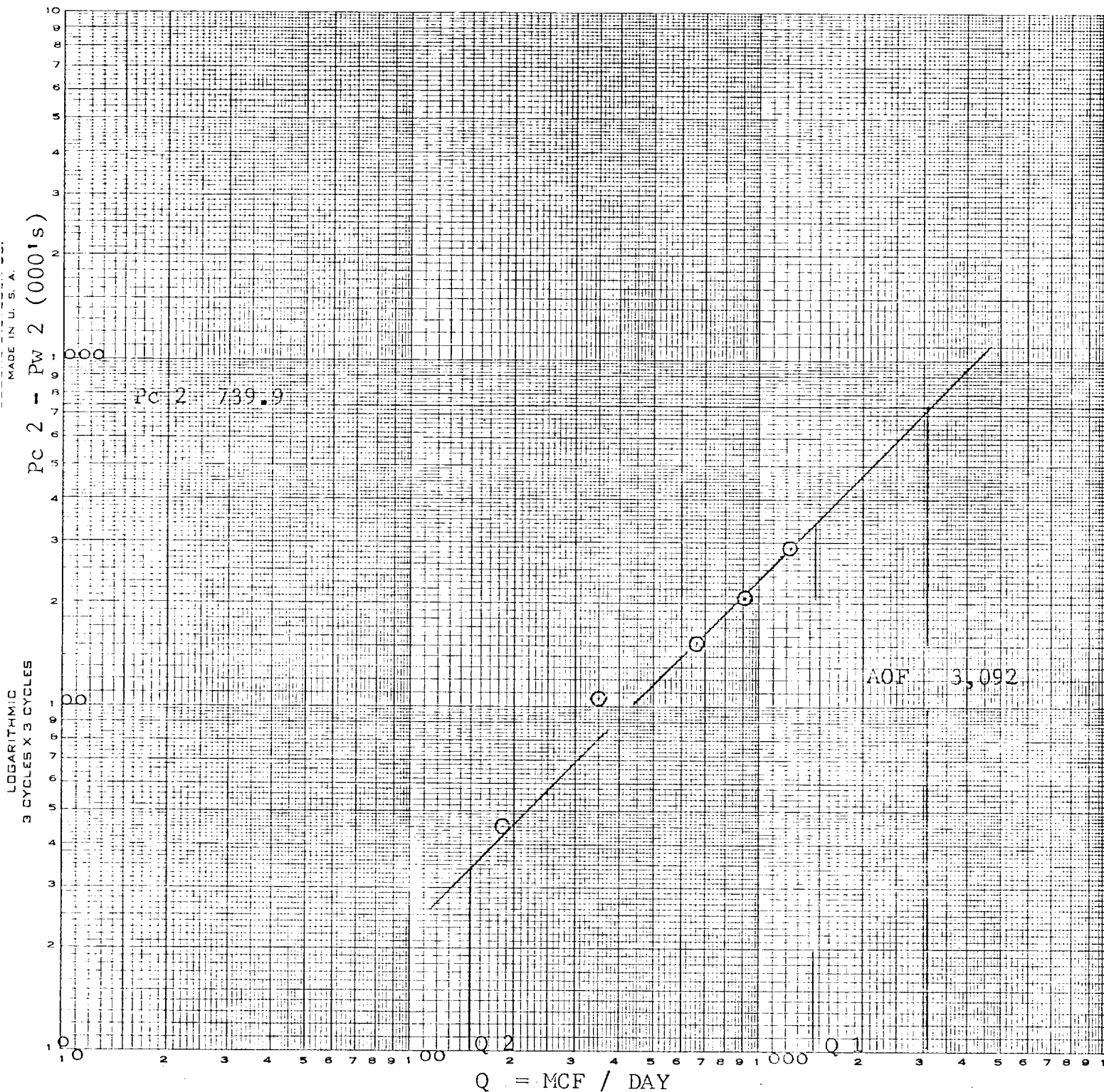
LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.299
Butanes Calc. G.P.M.	.178
Pentanes Plus. G.P.M.	.216
Ethane Calc. G.P.M.	.557
RVP Gasoline G.P.M.	
B.T.U./Cu. Ft. @ 14.696 P.S.I.A.	
Dry Basis	1025
Wet Basis	1007
Sulfur Analysis by Titration	
Gr./100 Cu. Ft.	
Hydrogen Sulfide	
Mercaptans	
Sulfides	
Residual Sulfur	
Total Sulfur	

Run by Deane Simpson Checked by Approved by Deane Simpson

Additional Data and Remarks

LEASE : ROCK FEDERAL
 WELL NO. : # 1
 UNIT : J / 7/ 8 s / 23 e
 COUNTY : CHAVES
 STATE : NEW MEXICO
 DATE : MARCH 3, 1980



Q1 = 1469; LOG OF Q 1 = 3.167091
 Q2 = 150; LOG OF Q 2 = 2.176091
 N = .991000

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY MESA PETROLEUM LEASE ROCK FEDERAL WELL NO. # 1 DATE 03-03-80

LOCATION: Unit J Section 7 Township 8 S Range 23 E

L 2822 H 2822 L/H 1.00 G .618 % CO₂ .495 % N₂ 4.331 % H₂S

d 1.995 F_r .018231 GH 1744 P_{cr} 664 T_{cr} 351
TABLE IX & X TABLE IX & X

LINE	RATE	T	RATE	TI	RATE	TI	RATE	IV	RATE	V
1 Q _m	.186	.186	.352	.352	.661	.661	.912	.912	1.217	1.217
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534	534	534
3 T _s (B.H. °R)	562	562	562	562	562	562	562	562	562	562
4 T = ($\frac{T_w + T_s}{2}$)	548	548	548	548	548	548	548	548	548	548
5 Z (Est.)	.905	.901	.907	.906	.913	.910	.918	.915	.924	.921
6 T _Z	495.9	493.7	497.0	496.5	500.3	498.7	503.1	501.4	506.4	504.7
7 GH/T _Z	3.516	3.532	3.509	3.513	3.486	3.497	3.467	3.478	3.444	3.455
8 e ^s (Table XIV)	1.141	1.142	1.141	1.141	1.140	1.140	1.139	1.139	1.138	1.138
9 1-e ^s (Table XIV)	.1235	.1241	.1233	.1234	.1225	.1229	.1219	.1223	.1212	.1215
10 P _t	833.2	833.2	795.2	795.2	763.2	763.2	723.2	723.2	660.2	660.2
11 P _t 2/1000	694.2	694.2	632.3	632.3	582.5	582.5	523.0	523.0	435.9	435.9
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231
13 F _c = F _r T _Z	9.041	9.001	9.061	9.051	9.121	9.091	9.171	9.141	9.231	9.201
14 F _c Q _m	1.682	1.674	3.190	3.186	6.029	6.009	8.364	8.337	11.234	11.198
15 L/H (F _c Q _m) ²	2.828	2.803	10.174	10.151	36.352	36.113	69.961	69.505	126.214	125.396
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	.3494	.3478	1.254	1.253	4.454	4.438	8.499	15.293	15.293	15.240
17 P _w ² = P _t ² + F _w	694.6	694.6	633.6	633.6	586.9	586.9	531.5	531.5	451.2	451.1
18 P _s ² = e ^s P _w ²	792.5	792.9	722.7	722.8	668.9	669.2	605.3	605.6	513.4	513.5
19 P _s	890.2	890.5	850.1	850.2	817.9	818.0	778.0	778.2	716.5	716.6
20 P = ($\frac{P_t + P_s}{2}$)	861.7	861.8	822.7	822.7	790.5	790.6	750.6	750.7	688.3	688.4
21 P _r = (P/P _{cr})	1.30	1.30	1.24	1.24	1.19	1.19	1.13	1.13	1.04	1.04
22 T _r = (T/T _{cr})	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
23 Z (Table X)	.901	.901	.906	.906	.910	.910	.915	.915	.921	.921