

Submit in duplicate to
appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

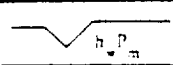
OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator Marathon					Lease or Unit Name McDonald St. Acct. 2				
Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 7-2-99		Well No. 31		
Completion Date 5-6-99		Total Depth 6866'		Plug Back TD 3740		Elevation		Unit Ltr. - Sec. - TWP - Rge.	
Log. Size 5 1/2	Wt. 15.5	d 4.950	Set At 6798	Perforations: From: 2648 To: 3250'			County Lea		
Log. Size 1 1/2	Wt. 1.4#	d 1.31	Set At 2875	Perforations: From: To:			Pool		
Type Well - Single - Bradenhead - G.G. or G.C. Multiple Single					Packer Set At N/A		Formation Eumont		
Producing Thru Tbg		Reservoir Temp. °F 60°		Mean Annual Temp. °F 60°		Baro. Press - P _a 13.2		Connection Sales	
L 2875	II 2875	Gg .731	% CO ₂ .151	% N ₂ 9.841	% H ₂ S N/A	Prover N/A	Meas Run 3.068	Taps F/G	

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.	
51							218	N/A	N/A	
1.	3.068	X	1.000	28	4"	80°	35			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, Mcfd
1.	4.789	13.8	48.2	.9813	1.170	1.051	75
2.							
3.							
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Moist.
1.	.82	540	1.44	.905	N/A	Moist.
2.					A.P. I. Gravity of Liquid Hydrocarbons	Deg.
3.					Specific Gravity Separator Gas	.731
4.					Specific Gravity Flowing Fluid	N/A
5.					Critical Pressure	656
					Critical Temperature	375

P _c 237.1 P _w 53.5					1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.059$		(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^a = 1.059$	
NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²				
1.	2.3	54.6	3.0	50.5				
2.								
3.								
4.								
5.								

Absolute Open Flow	79	Mcfd @ 15.025	Angle of Slope	45°	Slope, n	1.000
--------------------	----	---------------	----------------	-----	----------	-------

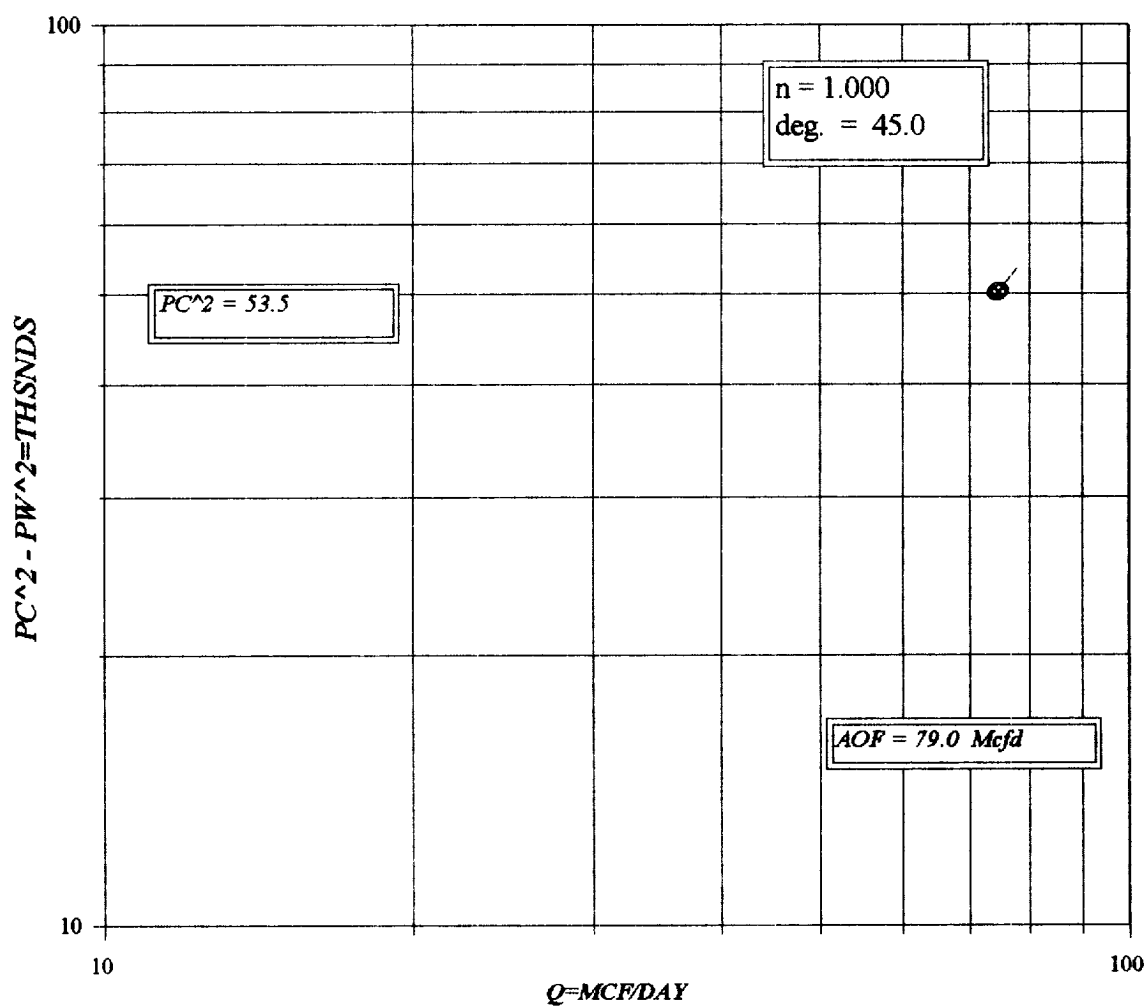
Remarks: *No liquid made during test.

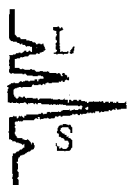
Approved By Division	Conducted By: Pro Well Testing	Calculated By: M. B.	Checked By: B. M.
----------------------	-----------------------------------	-------------------------	----------------------

SC

✓

MARATHON OIL CO.
MCDONALD ST. A/C. 2 # 31



**Laboratory Services, Inc.**

4016 Fleeta Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

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

SAMPLE:
IDENTIFICATION: McDonald A/C 2 #31
COMPANY: Marathon Oil Co.
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 7/2/99 12:00 pm
ANALYSIS DATE: 7/2/99
PRESSURE - PSIG 25
SAMPLE TEMP. °F
ATMOS. TEMP. °F

GAS (XX) LIQUID ()
SAMPLED BY: Lane Thorp
ANALYSIS BY: Vickie Walker

REMARKS:

COMPONENT ANALYSIS

COMPONENT		MOL PERCENT	GPM
Hydrogen Sulfide	(H ₂ S)		
Nitrogen	(N ₂)	9.841	
Carbon Dioxide	(CO ₂)	0.151	
Methane	(C ₁)	74.506	
Ethane	(C ₂)	8.507	2.270
Propane	(C ₃)	3.803	1.045
I-Butane	(IC ₄)	0.534	0.174
N-Butane	(NC ₄)	1.218	0.383
I-Pentane	(IC ₅)	0.325	0.119
N-Pentane	(NC ₅)	0.362	0.131
Hexane Plus	(C ₆ +)	0.753	0.309
		100.000	4.431

BTU/CU.FT. - DRY 1119
AT 14.650 DRY 1116
AT 14.650 WET 1096
AT 14.73 DRY 1122
AT 14.73 WET 1102

MOLECULAR WT. 21.1717

SPECIFIC GRAVITY -
CALCULATED 0.731
MEASURED

Submit in duplicate to
appropriate district office
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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator Marathon					Lease or Unit Name McDonald St. Acct. 2				
Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 7-2-99		Well No. 31		
Completion Date 5-6-99		Total Depth 6866'		Plug Back TD 3740		Elevation		Unit Ltr. - Sec. - TWP - Rge.	
Log. Size 5 1/2	WL 15.5	d 4.950	Set At 6798	Perforations: From: 2648 To: 3250'		County Lea			
Log. Size 1 1/2	WL 1.4#	d 1.31	Set At 2875	Perforations: From: To:		Pool			
Type Well - Single - Bradenhead - G.G. or G.C. Multiple Single					Packer Set At N/A		Formation Eumont		
Producing Thru T6g		Reservoir Temp. °F 60°		Mean Annual Temp. °F 60°		Baro. Press - P _a 13.2		Connection Sales	
L 2875	II 2875	G _g .731	% CO ₂ .151	% N ₂ 9.841	% H ₂ S N/A	Prover N/A	Meter Run 3.068	Tags F/G	

FLOW DATA					TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X Orifice Size	Press. psig.	Diff. h _w	Temp. °F	Press. psig.	Temp. °F	Press. psig.		Temp. °F
1.	3.068	X 1.000	28	4"	80°	35				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
1.	4.789	13.8	48.2	.9813	1.170	1.051	75
2.							
3.							
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Method
1.	.82	540	1.44	.905	N/A	Method
2.					A.P. I. Gravity of Liquid Hydrocarbons	Method
3.					Specific Gravity Separator Gas	7.31 XXXXXXXXXX
4.					Specific Gravity Flowing Fluid	N/A XXXXX
5.					Critical Pressure	656 P.S.I.A. P.S.I.A.
					Critical Temperature	375 R R

P_c 231.1 P_e 53.5

NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²
1.	2.3	54.6	3.0	50.5
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{1.059}{1.059 - 1.059} = 1.059$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^2 = 1.059$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^2 = 79$

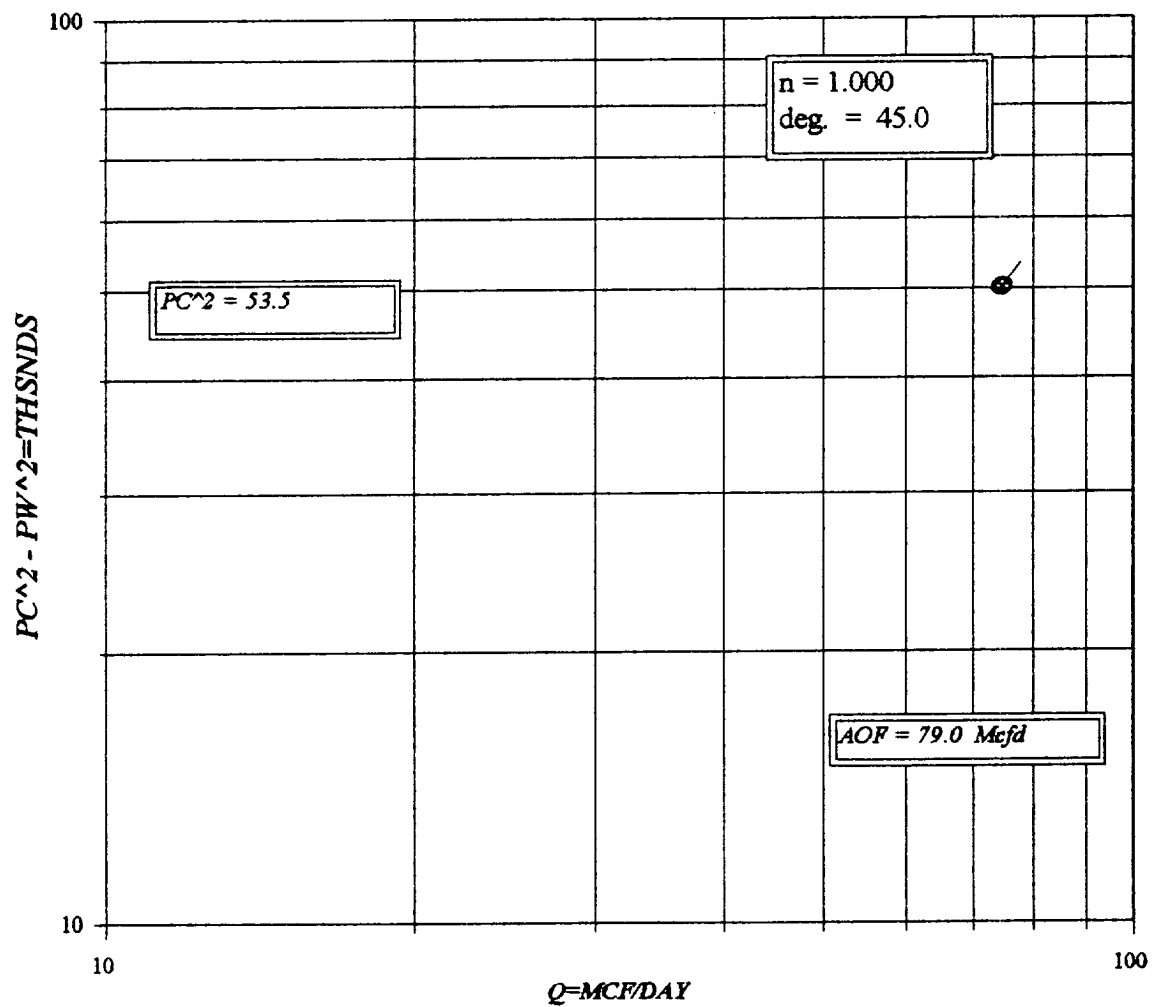
Absolute Open Flow	79	Method @ 15.025	Angle of Slope θ	45°	Slope, n	1.000
--------------------	----	-----------------	------------------	-----	----------	-------

Remarks: ***No liquid made during test.**

Approved By Division	Conducted By: Pro Well Testing	Calculated By: M.B.	Checked By: R.M.
----------------------	--	-------------------------------	----------------------------

MARATHON OIL CO.

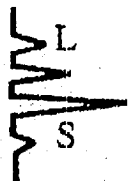
MCDONALD ST. A/C. 2 # 31



○ COMPANY :MARTHON OIL CO. LEASE :MCDONALD ST A/C. 2 WELL NO. : 31 Pc = 231.2 Pc2 = 53.5 *
 UNIT : SECTION : TOWNSHIP : *
 L : 2875 H : 2875 L/H : 1 G/GMIX : 0.731 Pt2 = 2.3 Pw = 54.6 *
 %CO2 : 0.151 %N2 : 9.841 H2S : DATE :7/2/99 0.0 ERR *
 d : 1.31 Fr :0.054695 GH : 2101.6 RANGE : 0.0 ERR *
 0.0 ERR *

VOL 1 : 75 PSIA 1 : 48.2 RESV.TEMP 102.8 Pc2-Pw2= 50.5 Pw2 = 3.0 *
 VOL 2 : PSIA 2 : ERR ERR *
 VOL 3 : PSIA 3 : SHUT-IN PR= 231.2 ERR ERR *
 VOL 4 : PSIA 4 : ERR ERR *
 PCR : 656 n = 1.000 *
 TCR : 375 *
 Pc2/(Pc2-Pw2) = 1.059 *
 ERR *
 ERR *

LINE		RATE 1		RATE 2		RATE 3		RATE 4		
		'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	'1ST	'2ND	
1	QM	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	
2	TM	534	534	534	534	534	534	534	534	[Pc2/Pc2-Pw2]n = 1.059
3	Ts	562.8	562.8	562.8	562.8	562.8	562.8	562.8	562.8	ERR
4	T	548.4	548.4	548.4	548.4	548.4	548.4	548.4	548.4	ERR
	PR (est)	0.07		0.00		0.00		0.00		ERR
5	Z(est)	0.968	0.967	ERR	ERR	ERR	ERR	ERR	ERR	
6	TZ	530.7	530.2	ERR	ERR	ERR	ERR	ERR	ERR	AOF= Q 0.079
7	GH/TZ	3.960	3.964	ERR	ERR	ERR	ERR	ERR	ERR	ERR
8	eS	1.160	1.160	ERR	ERR	ERR	ERR	ERR	ERR	ERR
9	l-e-S	0.138	0.138	ERR	ERR	ERR	ERR	ERR	ERR	ERR
10	Pt	48.2	48.2	0.0	0.0	0.0	0.0	0.0	0.0	
11	Pt2 /1000	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	
12	Fr	0.054695	0.054695	0.054695	0.054695	0.054695	0.054695	0.054695	0.054695	
13	Fc=FrTZ	29.026	29.001	ERR	ERR	ERR	ERR	ERR	ERR	
14	FcQm	2.18	2.18	ERR	ERR	ERR	ERR	ERR	ERR	
15	L/H(FcQm)	4.7	4.7	ERR	ERR	ERR	ERR	ERR	ERR	
16	Fw	0.654042	0.653425	ERR	ERR	ERR	ERR	ERR	ERR	
17	Pw2	3.0	3.0	ERR	ERR	ERR	ERR	ERR	ERR	
18	Ps2	3.5	3.5	ERR	ERR	ERR	ERR	ERR	ERR	
19	Ps	58.8	58.8	ERR	ERR	ERR	ERR	ERR	ERR	
20	P	53.5	53.5	ERR	ERR	ERR	ERR	ERR	ERR	
21	Pr	0.08	0.08	ERR	ERR	ERR	ERR	ERR	ERR	
22	Tr	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	
23	Z	0.967	0.967	ERR	ERR	ERR	ERR	ERR	ERR	FORM C122-D



Laboratory Services, Inc.

4016 Fleeta Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

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

SAMPLE:
IDENTIFICATION: McDonald A/C 2 #31
COMPANY: Marathon Oil Co.
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 7/2/99 12:00 pm
ANALYSIS DATE: 7/2/99
PRESSURE - PSIG 25
SAMPLE TEMP. °F
ATMOS. TEMP. °F

GAS (XX) LIQUID ()
SAMPLED BY: Lane Thorp
ANALYSIS BY: Vickie Walker

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H ₂ S)		
Nitrogen (N ₂)	9.841	
Carbon Dioxide (CO ₂)	0.151	
Methane (C ₁)	74.506	
Ethane (C ₂)	8.507	2.270
Propane (C ₃)	3.803	1.045
I-Butane (IC ₄)	0.534	0.174
N-Butane (NC ₄)	1.218	0.383
I-Pentane (IC ₅)	0.325	0.119
N-Pentane (NC ₅)	0.362	0.131
Hexane Plus (C ₆ +) <u>0.753</u>		<u>0.309</u>
	100.000	4.431

BTU/CU.FT. - DRY 1119
AT 14.650 DRY 1116
AT 14.650 WET 1096
AT 14.73 DRY 1122
AT 14.73 WET 1102

MOLECULAR WT. 21.1717

SPECIFIC GRAVITY -
CALCULATED 0.781
MEASURED