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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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator ☒ Marathon Oil Company				Lease or Unit Name Indian Hills Unit			
Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 3/24/99		Well No. 18	
Completion Date 2-28-99		Total Depth 8160'		Plug Back TD 8089'		Elevation KB-3755'	
Csg. Size 7"		Wt. 23#		Set At 8120'		Perforations: From: 7366' To: 7480'	
Tbg. Size 2 7/8"		Wt. 6.5		Set At 7241'		Perforations: From: To:	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At 7251'		Formation Upper Penn	
Producing Thru tbg.		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press - P _a 13.2	
L 7366		H 7366		Gg .645		% CO ₂ .330	
				% N ₂ 1.059		% H ₂ S	
				Prover		Meter Run 3" & 4"	
						Taps	

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.	
SI	3	x	2.000	163	10.20	70°	1410		Pkr.	72 hrs.
1.	3	x	2.000	190	53.30	68°	1400		Pkr.	1 hr.
2.	4	x	2.000			70°	1380		Pkr.	1 hr.
3.	4	x	2.000			70°	1340		Pkr.	1 hr.
4.							1325		Pkr.	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.	21.32	42.39	176.2	.9905	1.245	1.017	1,133
2.	21.32	104.07	203.2	.9924	1.245	1.020	2,796
3.		Measured by total flow meter					3,590
4.		Measured by total flow meter					4,140
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry Gas	Mcf/bbl.
1.	.26	530	1.43	.967	A.P.I. Gravity of Liquid Hydrocarbons	Dry	Deg.
2.	.30	528	1.43	.962	Specific Gravity Separator Gas	.645	XXXXXXXXXX
3.					Specific Gravity Flowing Fluid	XXXXXX	
4.					Critical Pressure **	669	P.S.I.A.
5.					Critical Temperature **	369	R

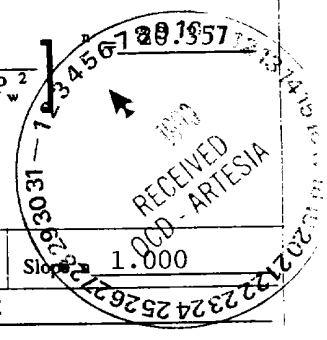
P _c 1423.2		P _c ² 2025.5		1) $\frac{P_c^2}{P_c^2 - P_w^2} = 20.357$		(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 84.278$	
NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²			
1.		1416.8	2007.2	18.3			
2.		1415.1	2002.4	23.1			
3.		1390.2	1937.7	92.8			
4.		1387.8	1926.0	99.5			
5.							

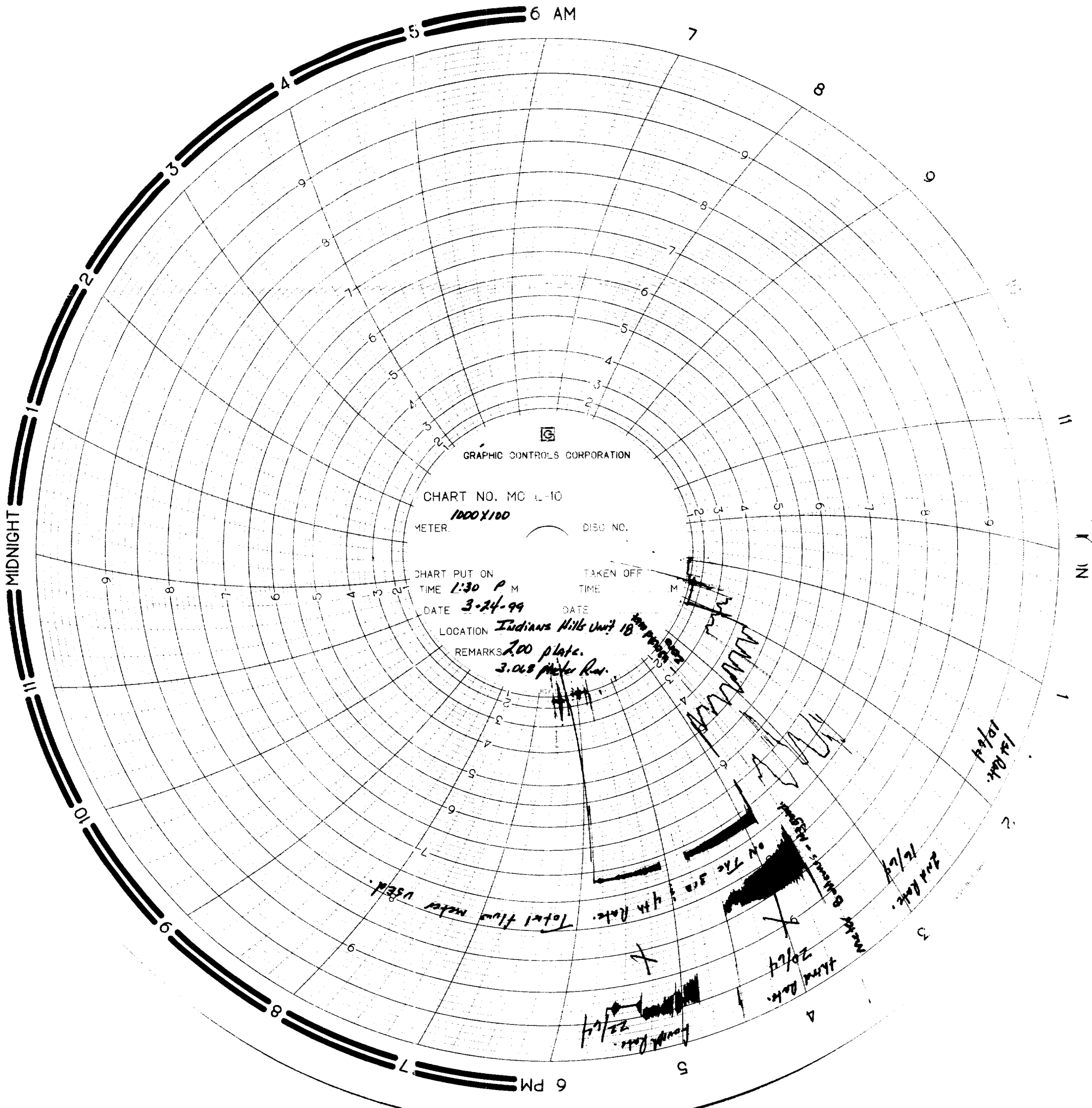
Absolute Open Flow 84,278 Mcfd @ 15.025 Angle of Slope Θ 45 Slope 1.000

Remarks: No fluid produced ** = corrected to 1.059% N2

* = Switch well into total flow meter

Approved By Division	Conducted By: Metering & Testing	Calculated By: BM	Checked By: BM
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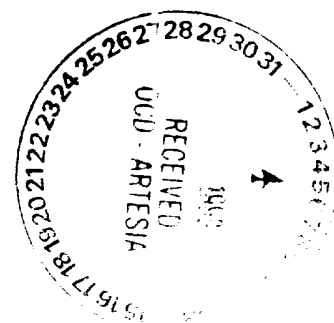




Indian Hicks Unit #18
3-24-99

Metering & Testing

Ther



METERING AND TESTING: DATA SHEET

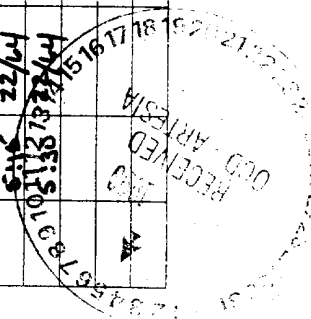
Phone NO. (505)-397-1631
Fax No. (505)-397-0990

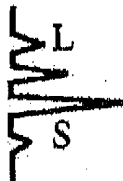
Company Name: Marathon Oil Co.
Well No. Indian Hills Unit #18
Test Date: 3-24-99
Formation Upper Penn
County: Eddy
State: NM
Test Type: 4-Point.

Meter Run Size: 3.068
Orifice Meter Range: 1000 x 100
Tbg. Size: 2 7/8
Csg Size: 2 3/8
Perfs: 7366 - 7480
Packer Depth: 7251
TD / Pbcd: 8089'

Running Totals:
Oil: 0
Water: 0

Date	Time	Choke	Tbg PX	Csg PX	Temp	Oil Meter	Total Oil	BBL Oil Per Hr	Water Meter	BBL H2O Per Hr	Total Water	Diff Press	Static Press	Gas Rate	Comments
3/24	12:50		1410	Dead Weight		shot 14.									Plate size 2.00
	1:30		1410	Started Test.											COEF: 17.018
	1:45	10/64	1390		72							3.0	4.8	1253	
	2:00	10/64	1400		70	No Fluid						3.3	4.5	1292	
	2:15	10/64	1400		70							3.2	4.2	1169	
	2:30	10/64	1400		70							3.2	4.2	1169	
	2:45	16/64	1385		69							7.4	4.5	2897	
	3:00	16/64	1385		68	No Fluid						7.3	4.5	2858	
	3:15	16/64	1380		68							7.3	4.5	2858	
	3:30	16/64	1380		68							7.3	4.5	2858	
	3:45	20/64	1350		70				Switched to total flow meter						
	4:00	20/64	1350		68	No fluid			2.00" plate.					3600	
	4:15	20/64	1340		70				250 x 250 Meter Range.					3590	
	4:30	20/64	1340		70				2 1/2" Meter Range.					3590	
	4:45	22/64	1335		70									4160	
	5:00	22/64	1325		70	No fluid.								4140	
	5:15	22/64	1325		70									4140	
	5:30	22/64	1325		70									4140	





Laboratory Services, Inc.

4016 Fiesta Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Metering & Testing Services, Inc.
Attention: Mr. Tom Duncan
2807 West County Road
Hobbs, New Mexico 88240

SAMPLE:
IDENTIFICATION: Indian Hills #18
COMPANY: Marathon Oil Co.
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 3/24/99 3:30 pm
ANALYSIS DATE: 3/25/99
PRESSURE - PSIG 80
SAMPLE TEMP. °F 68
ATMOS. TEMP. °F 81

GAS (XX) LIQUID ()
SAMPLED BY: Floyd Davis
ANALYSIS BY: Vickie Walker

REMARKS:

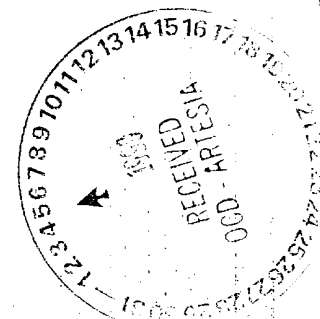
COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	1.059	
Carbon Dioxide (CO2)	0.330	
Methane (C1)	90.162	
Ethane (C2)	4.560	1.217
Propane (C3)	1.488	0.409
i-Butane (iC4)	0.277	0.090
n-Butane (nC4)	0.491	0.154
i-Pentane (iC5)	0.337	0.123
n-Pentane (nC5)	0.437	0.158
Hexane Plus (C6+)	0.859	0.352
	100.000	2.503

BTU/CU.FT. - DRY 1126
AT 14.650 DRY 1122
AT 14.650 WET 1103
AT 14.73 DRY 1128
AT 14.73 WET 1109

MOLECULAR WT. 18.6768

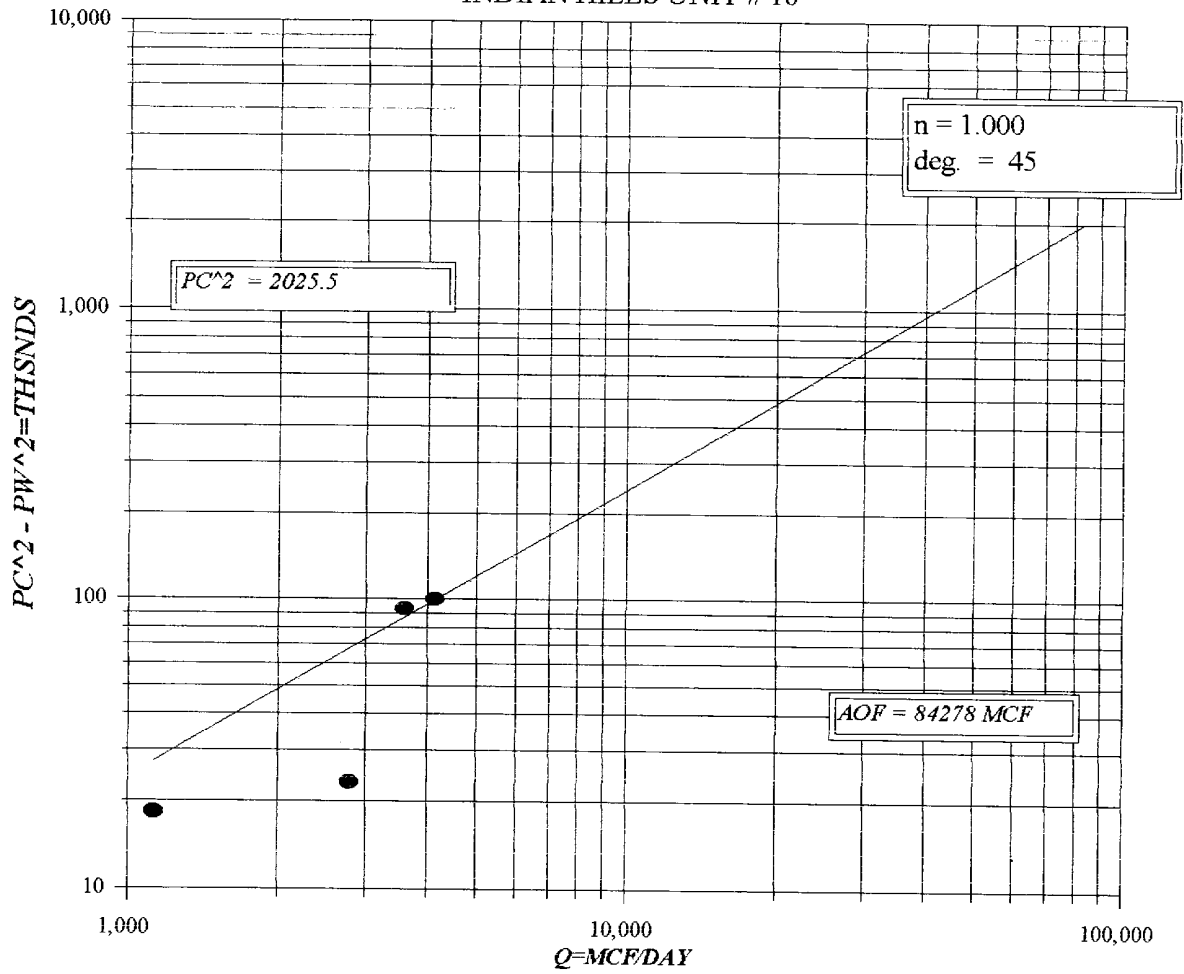
SPECIFIC GRAVITY -
CALCULATED 0.645
MEASURED



LINE	RATE 1		RATE 2		RATE 3		RATE 4			
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND		
1	QM	1.133	1.133	2.796	2.796	3.590	3.590	4.140	4.140	
2	TW	534	534	534	534	534	534	534	534	
3	Ts	607.7	607.7	607.7	607.7	607.7	607.7	607.7	607.7	[Pc2/Pc2-Pw2]n = 110.706
4	T	570.8	570.8	570.8	570.8	570.8	570.8	570.8	570.8	
	PR (est)	2.11		2.08		2.02		2.00		
5	Z(est)	0.814	0.803	0.816	0.804	0.819	0.807	0.821	0.807	
6	TZ	464.9	458.6	465.8	459.0	467.7	460.4	468.4	460.8	
7	GH/TZ	10.220	10.360	10.200	10.351	10.159	10.319	10.143	10.311	AOF= Q 125.430
8	eS	1.467	1.475	1.466	1.474	1.464	1.473	1.463	1.472	
9	l-e-S	0.318	0.322	0.318	0.322	0.317	0.321	0.316	0.321	
10	Pt	1413.2	1413.2	1393.2	1393.2	1353.2	1353.2	1338.2	1338.2	
11	Pt2 /1000	1997.1	1997.1	1941.0	1941.0	1831.2	1831.2	1790.8	1790.8	
12	Fr	0.010763	0.010763	0.010763	0.010763	0.010763	0.010763	0.010763	0.010763	
13	Fc=FrTZ	5.004	4.936	5.013	4.940	5.034	4.955	5.041	4.959	
14	FcQm	5.67	5.59	14.02	13.81	18.07	17.79	20.87	20.53	
15	L/H(FcQm)	32.1	31.3	196.5	190.8	326.5	316.5	435.6	421.6	
16	Fw	10.23143	10.06776	62.45304	61.37993	103.4482	101.5558	137.8232	135.18399	
17	Pw2	2007.4	2007.2	2003.5	2002.4	1934.6	1932.7	1928.6	1926.0	
18	Ps2	2944.9	2960.2	2937.0	2952.0	2831.7	2845.9	2821.2	2835.1	
19	Ps	1716.1	1720.5	1713.8	1718.1	1682.8	1687.0	1679.7	1683.8	
20	P	1564.6	1566.9	1553.5	1555.7	1518.0	1520.1	1508.9	1511.0	
21	Pr	2.34	2.34	2.32	2.33	2.27	2.27	2.26	2.26	
22	Tr	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	
23	Z	0.803	0.803	0.804	0.804	0.807	0.806	0.807	0.807	

FORM C122-D

MARATHON OIL CO.
INDIAN HILLS UNIT # 18



MARATHON OIL CO.
INDIAN HILLS UNIT # 18

