
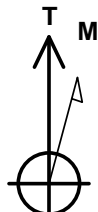


Scientific Drilling
 Rocky Mountain Operations

Project: Garfield County, CO NAD 83
 Site: 596-33A Pad
 Well: 596-33A-16
 Wellbore: OH
 Design: Plan #1



Marathon Oil Co.

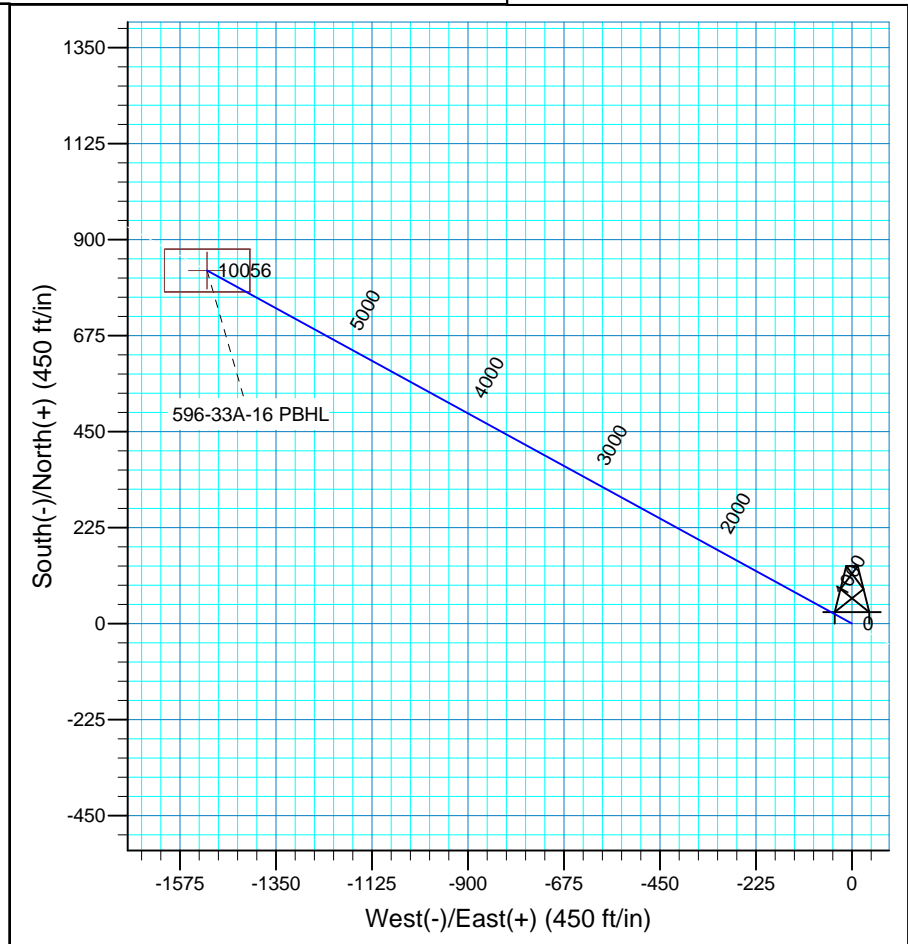
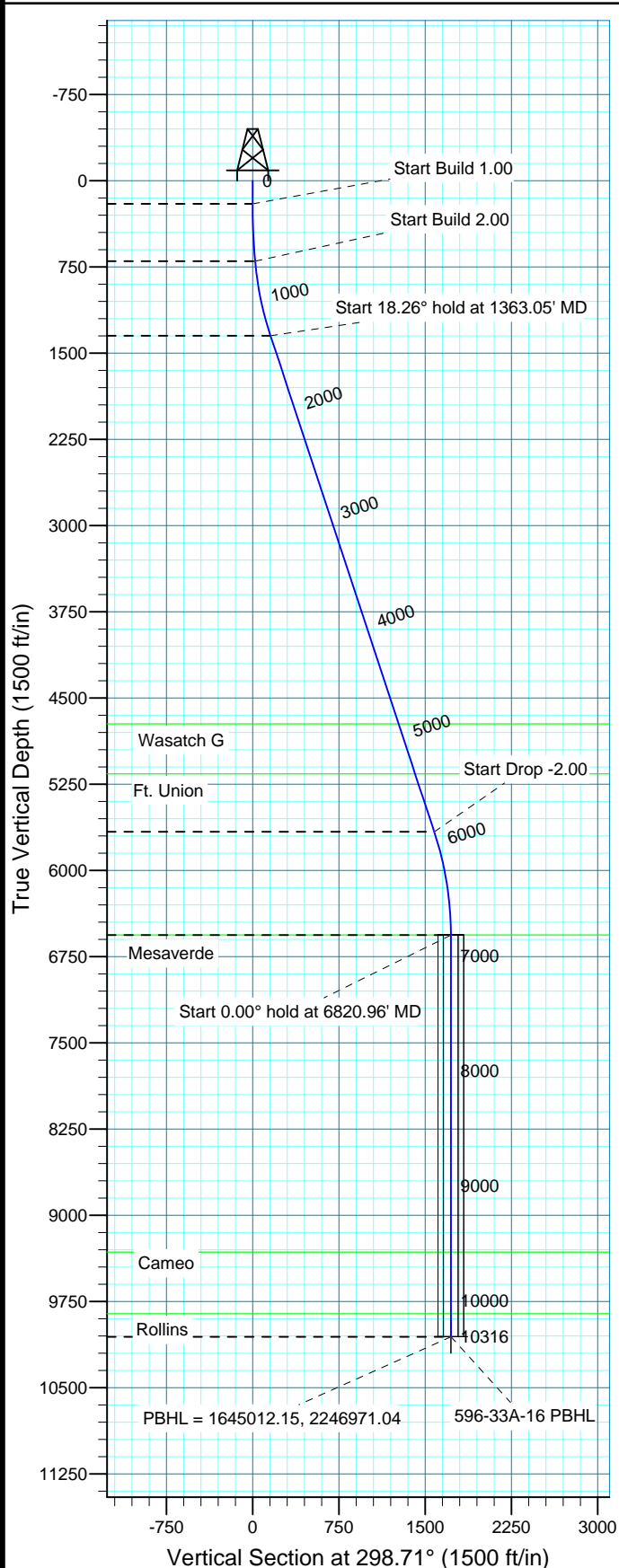


Azimuths to True North
 Magnetic North: 10.65°

 Magnetic Field
 Strength: 52460.1snT
 Dip Angle: 65.83°
 Date: 8/25/2009
 Model: IGRF200510

WELL DETAILS: 596-33A-16

+N/-S	+E/-W	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)		8110.00	Slot
0.00	0.00	Northing	Easting	Latitude	Longitude
		1644140.32	2248457.83	39° 34' 18.024 N	108° 9' 59.037 W



FORMATION TOP DETAILS					Plan: Plan #1 (596-33A-16/OH)					
TVDPath	MDPath	Formation			Created By: Rex Hall Date: 2009-08-28					
4725.00	4919.82	Wasatch G			PROJECT DETAILS: Garfield County, CO NAD 83 Geodetic System: US State Plane 1983 Datum: North American Datum 1983 Ellipsoid: GRS 1980 Zone: Colorado Central Zone System Datum: Mean Sea Level Local North: True					
5160.00	5377.89	Ft. Union								
6561.00	6820.96	Mesaverde								
9319.00	9578.96	Cameo								
9856.00	10115.96	Rollins								
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	700.00	5.00	298.71	699.37	10.47	-19.12	1.00	298.71	21.80	596-33A-16 PBHL
4	1363.05	18.26	298.71	1347.35	74.53	-136.10	2.00	0.00	155.17	
5	5907.91	18.26	298.71	5663.33	758.53	-1385.20	0.00	0.00	1579.28	
6	6820.96	0.00	0.00	6561.00	827.82	-1511.74	2.00	180.00	1723.56	
7	10315.96	0.00	0.00	10056.00	827.82	-1511.74	0.00	0.00	1723.56	596-33A-16 PBHL

Marathon Oil Co.

Garfield County, CO NAD 83

596-33A Pad

596-33A-16 - Slot I

OH

Plan: Plan #1

Standard Planning Report

28 August, 2009

Scientific Drilling International

Planning Report

Database:	EDM 2003.16 Multi-User Db	Local Co-ordinate Reference:	Well 596-33A-16 - Slot I
Company:	Marathon Oil Co.	TVD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Project:	Garfield County, CO NAD 83	MD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Site:	596-33A Pad	North Reference:	True
Well:	596-33A-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Garfield County, CO NAD 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		596-33A Pad, Sec 33 T5S R96W			
Site Position:		Northing:	1,644,179.10 ft	Latitude:	39° 34' 18.394 N
From:	Map	Easting:	2,248,412.04 ft	Longitude:	108° 9' 59.636 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.68 °

Well	596-33A-16 - Slot I, 2629' FSL & 465' FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,644,140.32 ft	Latitude:	39° 34' 18.024 N
	+E/-W	0.00 ft	Easting:	2,248,457.83 ft	Longitude:	108° 9' 59.037 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,110.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/25/2009	10.65	65.83	52,460

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	298.71	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	5.00	298.71	699.37	10.47	-19.12	1.00	1.00	0.00	298.71	596-33A-16 PBHL
1,363.05	18.26	298.71	1,347.35	74.53	-136.10	2.00	2.00	0.00	0.00	
5,907.91	18.26	298.71	5,663.33	758.53	-1,385.20	0.00	0.00	0.00	0.00	
6,820.96	0.00	0.00	6,561.00	827.82	-1,511.74	2.00	-2.00	0.00	180.00	
10,315.96	0.00	0.00	10,056.00	827.82	-1,511.74	0.00	0.00	0.00	0.00	596-33A-16 PBHL

Scientific Drilling International

Planning Report

Database:	EDM 2003.16 Multi-User Db	Local Co-ordinate Reference:	Well 596-33A-16 - Slot I
Company:	Marathon Oil Co.	TVD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Project:	Garfield County, CO NAD 83	MD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Site:	596-33A Pad	North Reference:	True
Well:	596-33A-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
300.00	1.00	298.71	299.99	0.42	-0.77	0.87	1.00	1.00	0.00
400.00	2.00	298.71	399.96	1.68	-3.06	3.49	1.00	1.00	0.00
500.00	3.00	298.71	499.86	3.77	-6.89	7.85	1.00	1.00	0.00
600.00	4.00	298.71	599.68	6.70	-12.24	13.96	1.00	1.00	0.00
700.00	5.00	298.71	699.37	10.47	-19.12	21.80	1.00	1.00	0.00
Start Build 2.00									
800.00	7.00	298.71	798.81	15.49	-28.29	32.26	2.00	2.00	0.00
900.00	9.00	298.71	897.83	22.18	-40.50	46.17	2.00	2.00	0.00
1,000.00	11.00	298.71	996.31	30.52	-55.73	63.54	2.00	2.00	0.00
1,100.00	13.00	298.71	1,094.12	40.50	-73.96	84.33	2.00	2.00	0.00
1,200.00	15.00	298.71	1,191.14	52.12	-95.18	108.52	2.00	2.00	0.00
1,300.00	17.00	298.71	1,287.27	65.36	-119.36	136.08	2.00	2.00	0.00
1,363.05	18.26	298.71	1,347.35	74.53	-136.10	155.17	2.00	2.00	0.00
Start 18.26° hold at 1363.05' MD									
1,400.00	18.26	298.71	1,382.44	80.09	-146.26	166.75	0.00	0.00	0.00
1,500.00	18.26	298.71	1,477.41	95.14	-173.74	198.09	0.00	0.00	0.00
1,600.00	18.26	298.71	1,572.37	110.19	-201.23	229.42	0.00	0.00	0.00
1,700.00	18.26	298.71	1,667.33	125.24	-228.71	260.76	0.00	0.00	0.00
1,800.00	18.26	298.71	1,762.30	140.29	-256.19	292.09	0.00	0.00	0.00
1,900.00	18.26	298.71	1,857.26	155.34	-283.68	323.43	0.00	0.00	0.00
2,000.00	18.26	298.71	1,952.23	170.39	-311.16	354.76	0.00	0.00	0.00
2,100.00	18.26	298.71	2,047.19	185.44	-338.64	386.09	0.00	0.00	0.00
2,200.00	18.26	298.71	2,142.15	200.49	-366.13	417.43	0.00	0.00	0.00
2,300.00	18.26	298.71	2,237.12	215.54	-393.61	448.76	0.00	0.00	0.00
2,400.00	18.26	298.71	2,332.08	230.59	-421.10	480.10	0.00	0.00	0.00
2,500.00	18.26	298.71	2,427.05	245.64	-448.58	511.43	0.00	0.00	0.00
2,600.00	18.26	298.71	2,522.01	260.69	-476.06	542.77	0.00	0.00	0.00
2,700.00	18.26	298.71	2,616.97	275.74	-503.55	574.10	0.00	0.00	0.00
2,800.00	18.26	298.71	2,711.94	290.79	-531.03	605.44	0.00	0.00	0.00
2,900.00	18.26	298.71	2,806.90	305.84	-558.51	636.77	0.00	0.00	0.00
3,000.00	18.26	298.71	2,901.87	320.89	-586.00	668.10	0.00	0.00	0.00
3,100.00	18.26	298.71	2,996.83	335.94	-613.48	699.44	0.00	0.00	0.00
3,200.00	18.26	298.71	3,091.79	350.99	-640.96	730.77	0.00	0.00	0.00
3,300.00	18.26	298.71	3,186.76	366.04	-668.45	762.11	0.00	0.00	0.00
3,400.00	18.26	298.71	3,281.72	381.09	-695.93	793.44	0.00	0.00	0.00
3,500.00	18.26	298.71	3,376.69	396.14	-723.42	824.78	0.00	0.00	0.00
3,600.00	18.26	298.71	3,471.65	411.19	-750.90	856.11	0.00	0.00	0.00
3,700.00	18.26	298.71	3,566.61	426.24	-778.38	887.45	0.00	0.00	0.00
3,800.00	18.26	298.71	3,661.58	441.29	-805.87	918.78	0.00	0.00	0.00
3,900.00	18.26	298.71	3,756.54	456.34	-833.35	950.11	0.00	0.00	0.00
4,000.00	18.26	298.71	3,851.51	471.39	-860.83	981.45	0.00	0.00	0.00
4,100.00	18.26	298.71	3,946.47	486.44	-888.32	1,012.78	0.00	0.00	0.00
4,200.00	18.26	298.71	4,041.43	501.49	-915.80	1,044.12	0.00	0.00	0.00
4,300.00	18.26	298.71	4,136.40	516.54	-943.28	1,075.45	0.00	0.00	0.00
4,400.00	18.26	298.71	4,231.36	531.59	-970.77	1,106.79	0.00	0.00	0.00
4,500.00	18.26	298.71	4,326.32	546.64	-998.25	1,138.12	0.00	0.00	0.00
4,600.00	18.26	298.71	4,421.29	561.69	-1,025.73	1,169.46	0.00	0.00	0.00
4,700.00	18.26	298.71	4,516.25	576.74	-1,053.22	1,200.79	0.00	0.00	0.00
4,800.00	18.26	298.71	4,611.22	591.79	-1,080.70	1,232.13	0.00	0.00	0.00

Scientific Drilling International

Planning Report

Database:	EDM 2003.16 Multi-User Db	Local Co-ordinate Reference:	Well 596-33A-16 - Slot I
Company:	Marathon Oil Co.	TVD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Project:	Garfield County, CO NAD 83	MD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Site:	596-33A Pad	North Reference:	True
Well:	596-33A-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,900.00	18.26	298.71	4,706.18	606.84	-1,108.19	1,263.46	0.00	0.00	0.00
4,919.82	18.26	298.71	4,725.00	609.82	-1,113.63	1,269.67	0.00	0.00	0.00
Wasatch G									
5,000.00	18.26	298.71	4,801.14	621.89	-1,135.67	1,294.79	0.00	0.00	0.00
5,100.00	18.26	298.71	4,896.11	636.94	-1,163.15	1,326.13	0.00	0.00	0.00
5,200.00	18.26	298.71	4,991.07	651.99	-1,190.64	1,357.46	0.00	0.00	0.00
5,300.00	18.26	298.71	5,086.04	667.04	-1,218.12	1,388.80	0.00	0.00	0.00
5,377.89	18.26	298.71	5,160.00	678.76	-1,239.53	1,413.20	0.00	0.00	0.00
Ft. Union									
5,400.00	18.26	298.71	5,181.00	682.09	-1,245.60	1,420.13	0.00	0.00	0.00
5,500.00	18.26	298.71	5,275.96	697.14	-1,273.09	1,451.47	0.00	0.00	0.00
5,600.00	18.26	298.71	5,370.93	712.19	-1,300.57	1,482.80	0.00	0.00	0.00
5,700.00	18.26	298.71	5,465.89	727.24	-1,328.05	1,514.14	0.00	0.00	0.00
5,800.00	18.26	298.71	5,560.86	742.29	-1,355.54	1,545.47	0.00	0.00	0.00
5,900.00	18.26	298.71	5,655.82	757.34	-1,383.02	1,576.80	0.00	0.00	0.00
5,907.91	18.26	298.71	5,663.33	758.53	-1,385.20	1,579.28	0.00	0.00	0.00
Start Drop -2.00									
6,000.00	16.42	298.71	5,751.23	771.71	-1,409.27	1,606.73	2.00	-2.00	0.00
6,100.00	14.42	298.71	5,847.63	784.48	-1,432.59	1,633.31	2.00	-2.00	0.00
6,200.00	12.42	298.71	5,944.89	795.63	-1,452.94	1,656.52	2.00	-2.00	0.00
6,300.00	10.42	298.71	6,042.91	805.14	-1,470.31	1,676.32	2.00	-2.00	0.00
6,400.00	8.42	298.71	6,141.56	813.00	-1,484.66	1,692.68	2.00	-2.00	0.00
6,500.00	6.42	298.71	6,240.71	819.20	-1,495.98	1,705.60	2.00	-2.00	0.00
6,600.00	4.42	298.71	6,340.26	823.73	-1,504.27	1,715.04	2.00	-2.00	0.00
6,700.00	2.42	298.71	6,440.08	826.60	-1,509.50	1,721.00	2.00	-2.00	0.00
6,800.00	0.42	298.71	6,540.04	827.79	-1,511.67	1,723.48	2.00	-2.00	0.00
6,820.96	0.00	0.00	6,561.00	827.82	-1,511.74	1,723.56	2.00	-2.00	0.00
Start 0.00° hold at 6820.96' MD - Mesaverde									
6,900.00	0.00	0.00	6,640.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,000.00	0.00	0.00	6,740.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,100.00	0.00	0.00	6,840.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,200.00	0.00	0.00	6,940.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,300.00	0.00	0.00	7,040.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,400.00	0.00	0.00	7,140.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,500.00	0.00	0.00	7,240.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,600.00	0.00	0.00	7,340.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,700.00	0.00	0.00	7,440.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,800.00	0.00	0.00	7,540.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
7,900.00	0.00	0.00	7,640.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,000.00	0.00	0.00	7,740.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,100.00	0.00	0.00	7,840.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,200.00	0.00	0.00	7,940.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,300.00	0.00	0.00	8,040.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,400.00	0.00	0.00	8,140.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,500.00	0.00	0.00	8,240.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,600.00	0.00	0.00	8,340.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,700.00	0.00	0.00	8,440.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,800.00	0.00	0.00	8,540.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
8,900.00	0.00	0.00	8,640.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,000.00	0.00	0.00	8,740.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,100.00	0.00	0.00	8,840.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,200.00	0.00	0.00	8,940.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,300.00	0.00	0.00	9,040.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00

Scientific Drilling International

Planning Report

Database:	EDM 2003.16 Multi-User Db	Local Co-ordinate Reference:	Well 596-33A-16 - Slot I
Company:	Marathon Oil Co.	TVD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Project:	Garfield County, CO NAD 83	MD Reference:	GL 8110' & RKB 24' @ 8134.00ft (H&P 324)
Site:	596-33A Pad	North Reference:	True
Well:	596-33A-16	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,400.00	0.00	0.00	9,140.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,500.00	0.00	0.00	9,240.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,578.96	0.00	0.00	9,319.00	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
Cameo									
9,600.00	0.00	0.00	9,340.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,700.00	0.00	0.00	9,440.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,800.00	0.00	0.00	9,540.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
9,900.00	0.00	0.00	9,640.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
10,000.00	0.00	0.00	9,740.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
10,100.00	0.00	0.00	9,840.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
10,115.96	0.00	0.00	9,856.00	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
Rollins									
10,200.00	0.00	0.00	9,940.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
10,300.00	0.00	0.00	10,040.04	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
10,315.96	0.00	0.00	10,056.00	827.82	-1,511.74	1,723.56	0.00	0.00	0.00
PBHL = 1645012.15, 2246971.04 - 596-33A-16 PBHL - 596-33A-16 PBHL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
596-33A-16 PBHL	0.00	0.00	10,056.00	827.82	-1,511.74	1,645,012.15	2,246,971.04	39° 34' 26.205 N	108° 10' 18.343 W
- plan hits target center									
- Rectangle (sides W100.00 H200.00 D0.00)									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,919.82	4,725.00	Wasatch G		0.00		
5,377.89	5,160.00	Ft. Union		0.00		
6,820.96	6,561.00	Mesaverde		0.00		
9,578.96	9,319.00	Cameo		0.00		
10,115.96	9,856.00	Rollins		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	Start Build 1.00	
700.00	699.37	10.47	-19.12	Start Build 2.00	
1,363.05	1,347.35	74.53	-136.10	Start 18.26° hold at 1363.05' MD	
5,907.91	5,663.33	758.53	-1,385.20	Start Drop -2.00	
6,820.96	6,561.00	827.82	-1,511.74	Start 0.00° hold at 6820.96' MD	
10,315.96	10,056.00	827.82	-1,511.74	PBHL = 1645012.15, 2246971.04	