



# **Marathon Oil Co.**

**Garfield County, CO NAD 83**

**596-19C Pad**

**596-19C-24 - Slot D**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**24 March, 2008**

# Scientific Drilling

## Planning Report

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 596-19C-24 - Slot D
<b>Company:</b>	Marathon Oil Co.	<b>TVD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Project:</b>	Garfield County, CO NAD 83	<b>MD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Site:</b>	596-19C Pad	<b>North Reference:</b>	True
<b>Well:</b>	596-19C-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

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

Site		596-19C Pad, Sec 19 T5S R96W			
Site Position:		Northing:	1,654,080.12 ft	Latitude:	39° 35' 52.433 N
From:	Map	Easting:	2,235,631.58 ft	Longitude:	108° 12' 46.609 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.71 °

Well	596-19C-24 - Slot D, 1628' FSL 1285' FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,654,057.62 ft	Latitude:	39° 35' 52.210 N
	+E/-W	0.00 ft	Easting:	2,235,631.60 ft	Longitude:	108° 12' 46.600 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,423.50 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2005-10	2008-03-24	10.86	65.88	52,604

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	240.36	

<b>Plan Sections</b>										
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	
343.05	2.86	240.36	342.99	-1.77	-3.10	2.00	2.00	0.00	240.36	
6,402.12	2.86	240.36	6,394.51	-151.34	-265.95	0.00	0.00	0.00	0.00	
6,545.17	0.00	0.00	6,537.50	-153.10	-269.05	2.00	-2.00	0.00	180.00	
9,665.17	0.00	0.00	9,657.50	-153.10	-269.05	0.00	0.00	0.00	0.00	596-19C-24 PBHL

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<b>Company:</b>	Marathon Oil Co.	<b>TVD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Project:</b>	Garfield County, CO NAD 83	<b>MD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Site:</b>	596-19C Pad	<b>North Reference:</b>	True
<b>Well:</b>	596-19C-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
300.00	2.00	240.36	299.98	-0.86	-1.52	1.75	2.00	2.00	0.00
343.05	2.86	240.36	342.99	-1.77	-3.10	3.57	2.00	2.00	0.00
400.00	2.86	240.36	399.87	-3.17	-5.57	6.41	0.00	0.00	0.00
500.00	2.86	240.36	499.74	-5.64	-9.91	11.40	0.00	0.00	0.00
600.00	2.86	240.36	599.62	-8.11	-14.25	16.40	0.00	0.00	0.00
700.00	2.86	240.36	699.50	-10.58	-18.59	21.39	0.00	0.00	0.00
800.00	2.86	240.36	799.37	-13.05	-22.93	26.38	0.00	0.00	0.00
900.00	2.86	240.36	899.25	-15.51	-27.26	31.37	0.00	0.00	0.00
1,000.00	2.86	240.36	999.12	-17.98	-31.60	36.36	0.00	0.00	0.00
1,100.00	2.86	240.36	1,099.00	-20.45	-35.94	41.35	0.00	0.00	0.00
1,200.00	2.86	240.36	1,198.87	-22.92	-40.28	46.34	0.00	0.00	0.00
1,300.00	2.86	240.36	1,298.75	-25.39	-44.62	51.33	0.00	0.00	0.00
1,400.00	2.86	240.36	1,398.62	-27.86	-48.95	56.32	0.00	0.00	0.00
1,500.00	2.86	240.36	1,498.50	-30.33	-53.29	61.32	0.00	0.00	0.00
1,600.00	2.86	240.36	1,598.37	-32.79	-57.63	66.31	0.00	0.00	0.00
1,700.00	2.86	240.36	1,698.25	-35.26	-61.97	71.30	0.00	0.00	0.00
1,800.00	2.86	240.36	1,798.12	-37.73	-66.31	76.29	0.00	0.00	0.00
1,900.00	2.86	240.36	1,898.00	-40.20	-70.64	81.28	0.00	0.00	0.00
2,000.00	2.86	240.36	1,997.88	-42.67	-74.98	86.27	0.00	0.00	0.00
2,100.00	2.86	240.36	2,097.75	-45.14	-79.32	91.26	0.00	0.00	0.00
2,200.00	2.86	240.36	2,197.63	-47.61	-83.66	96.25	0.00	0.00	0.00
2,300.00	2.86	240.36	2,297.50	-50.07	-88.00	101.25	0.00	0.00	0.00
2,400.00	2.86	240.36	2,397.38	-52.54	-92.33	106.24	0.00	0.00	0.00
2,500.00	2.86	240.36	2,497.25	-55.01	-96.67	111.23	0.00	0.00	0.00
2,600.00	2.86	240.36	2,597.13	-57.48	-101.01	116.22	0.00	0.00	0.00
2,700.00	2.86	240.36	2,697.00	-59.95	-105.35	121.21	0.00	0.00	0.00
2,800.00	2.86	240.36	2,796.88	-62.42	-109.69	126.20	0.00	0.00	0.00
2,900.00	2.86	240.36	2,896.75	-64.88	-114.02	131.19	0.00	0.00	0.00
3,000.00	2.86	240.36	2,996.63	-67.35	-118.36	136.18	0.00	0.00	0.00
3,100.00	2.86	240.36	3,096.50	-69.82	-122.70	141.17	0.00	0.00	0.00
3,200.00	2.86	240.36	3,196.38	-72.29	-127.04	146.17	0.00	0.00	0.00
3,300.00	2.86	240.36	3,296.26	-74.76	-131.38	151.16	0.00	0.00	0.00
3,400.00	2.86	240.36	3,396.13	-77.23	-135.71	156.15	0.00	0.00	0.00
3,500.00	2.86	240.36	3,496.01	-79.70	-140.05	161.14	0.00	0.00	0.00
3,600.00	2.86	240.36	3,595.88	-82.16	-144.39	166.13	0.00	0.00	0.00
3,700.00	2.86	240.36	3,695.76	-84.63	-148.73	171.12	0.00	0.00	0.00
3,800.00	2.86	240.36	3,795.63	-87.10	-153.07	176.11	0.00	0.00	0.00
3,900.00	2.86	240.36	3,895.51	-89.57	-157.40	181.10	0.00	0.00	0.00
4,000.00	2.86	240.36	3,995.38	-92.04	-161.74	186.10	0.00	0.00	0.00
4,100.00	2.86	240.36	4,095.26	-94.51	-166.08	191.09	0.00	0.00	0.00
4,200.00	2.86	240.36	4,195.13	-96.98	-170.42	196.08	0.00	0.00	0.00
4,300.00	2.86	240.36	4,295.01	-99.44	-174.76	201.07	0.00	0.00	0.00
4,400.00	2.86	240.36	4,394.88	-101.91	-179.09	206.06	0.00	0.00	0.00
4,500.00	2.86	240.36	4,494.76	-104.38	-183.43	211.05	0.00	0.00	0.00
4,600.00	2.86	240.36	4,594.63	-106.85	-187.77	216.04	0.00	0.00	0.00
4,700.00	2.86	240.36	4,694.51	-109.32	-192.11	221.03	0.00	0.00	0.00
4,800.00	2.86	240.36	4,794.39	-111.79	-196.45	226.02	0.00	0.00	0.00
4,900.00	2.86	240.36	4,894.26	-114.26	-200.78	231.02	0.00	0.00	0.00
5,000.00	2.86	240.36	4,994.14	-116.72	-205.12	236.01	0.00	0.00	0.00
5,100.00	2.86	240.36	5,094.01	-119.19	-209.46	241.00	0.00	0.00	0.00
5,200.00	2.86	240.36	5,193.89	-121.66	-213.80	245.99	0.00	0.00	0.00

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<b>Project:</b>	Garfield County, CO NAD 83	<b>MD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Site:</b>	596-19C Pad	<b>North Reference:</b>	True
<b>Well:</b>	596-19C-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
5,300.00	2.86	240.36	5,293.76	-124.13	-218.14	250.98	0.00	0.00	0.00
5,400.00	2.86	240.36	5,393.64	-126.60	-222.47	255.97	0.00	0.00	0.00
5,500.00	2.86	240.36	5,493.51	-129.07	-226.81	260.96	0.00	0.00	0.00
5,600.00	2.86	240.36	5,593.39	-131.54	-231.15	265.95	0.00	0.00	0.00
5,700.00	2.86	240.36	5,693.26	-134.00	-235.49	270.94	0.00	0.00	0.00
5,800.00	2.86	240.36	5,793.14	-136.47	-239.83	275.94	0.00	0.00	0.00
5,900.00	2.86	240.36	5,893.01	-138.94	-244.16	280.93	0.00	0.00	0.00
6,000.00	2.86	240.36	5,992.89	-141.41	-248.50	285.92	0.00	0.00	0.00
6,100.00	2.86	240.36	6,092.77	-143.88	-252.84	290.91	0.00	0.00	0.00
6,200.00	2.86	240.36	6,192.64	-146.35	-257.18	295.90	0.00	0.00	0.00
6,300.00	2.86	240.36	6,292.52	-148.81	-261.52	300.89	0.00	0.00	0.00
6,400.00	2.86	240.36	6,392.39	-151.28	-265.85	305.88	0.00	0.00	0.00
6,402.12	2.86	240.36	6,394.51	-151.34	-265.95	305.99	0.00	0.00	0.00
6,500.00	0.90	240.36	6,492.33	-152.93	-268.74	309.20	2.00	-2.00	0.00
6,545.17	0.00	0.00	6,537.50	-153.10	-269.05	309.56	2.00	-2.00	0.00
6,600.00	0.00	0.00	6,592.33	-153.10	-269.05	309.56	0.00	0.00	0.00
6,700.00	0.00	0.00	6,692.33	-153.10	-269.05	309.56	0.00	0.00	0.00
6,800.00	0.00	0.00	6,792.33	-153.10	-269.05	309.56	0.00	0.00	0.00
6,900.00	0.00	0.00	6,892.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,000.00	0.00	0.00	6,992.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,100.00	0.00	0.00	7,092.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,200.00	0.00	0.00	7,192.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,300.00	0.00	0.00	7,292.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,400.00	0.00	0.00	7,392.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,500.00	0.00	0.00	7,492.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,600.00	0.00	0.00	7,592.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,700.00	0.00	0.00	7,692.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,800.00	0.00	0.00	7,792.33	-153.10	-269.05	309.56	0.00	0.00	0.00
7,900.00	0.00	0.00	7,892.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,000.00	0.00	0.00	7,992.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,100.00	0.00	0.00	8,092.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,200.00	0.00	0.00	8,192.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,300.00	0.00	0.00	8,292.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,400.00	0.00	0.00	8,392.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,500.00	0.00	0.00	8,492.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,600.00	0.00	0.00	8,592.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,700.00	0.00	0.00	8,692.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,800.00	0.00	0.00	8,792.33	-153.10	-269.05	309.56	0.00	0.00	0.00
8,900.00	0.00	0.00	8,892.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,000.00	0.00	0.00	8,992.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,100.00	0.00	0.00	9,092.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,200.00	0.00	0.00	9,192.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,300.00	0.00	0.00	9,292.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,400.00	0.00	0.00	9,392.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,500.00	0.00	0.00	9,492.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,600.00	0.00	0.00	9,592.33	-153.10	-269.05	309.56	0.00	0.00	0.00
9,665.17	0.00	0.00	9,657.50	-153.10	-269.05	309.56	0.00	0.00	0.00

# Scientific Drilling

## Planning Report

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<b>Company:</b>	Marathon Oil Co.	<b>TVD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Project:</b>	Garfield County, CO NAD 83	<b>MD Reference:</b>	GL 8423.5' & RKB 24' @ 8447.50ft
<b>Site:</b>	596-19C Pad	<b>North Reference:</b>	True
<b>Well:</b>	596-19C-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
596-19C-24 PBHL	0.00	0.00	9,657.50	-153.10	-269.05	1,653,912.62	2,235,358.10	39° 35' 50.697 N	108° 12' 50.037 W
- plan hits target center									
- Rectangle (sides W100.00 H200.00 D0.00)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
4,742.04	4,736.50	Wasatch G		0.00		
5,056.43	5,050.50	Fort Union		0.00		
6,545.17	6,537.50	Mesaverde		0.00		
9,215.17	9,207.50	Cameo Top		0.00		
9,665.17	9,657.50	Rollins		0.00		