

# **Marathon Oil Company**

**Niobrara Horizontals  
Larimer County, Colorado.  
Rawhide Flats 10-68-16-1B**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**23 January, 2011**

# Gyrodatta

## Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Larimer County, Colorado.
<b>Company:</b>	Marathon Oil Company	<b>TVD Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Project:</b>	Niobrara Horizontals	<b>MD Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Site:</b>	Larimer County, Colorado.	<b>North Reference:</b>	Grid
<b>Well:</b>	Rawhide Flats 10-68-16-1B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Niobrara Horizontals		
<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 Northern Zone		

Site		Larimer County, Colorado.			
Site Position: From:	Lat/Long	Northing:	1,549,123.10 ft	Latitude:	40° 50' 22.780 N
		Easting:	3,137,682.77 ft	Longitude:	105° 0' 8.698 W
		Position Uncertainty:	0.0 ft	Slot Radius:	0 "

Well	Rawhide Flats 10-68-16-1B					
Well Position	+N/-S	0.0 ft	Northing:	1,549,123.10 ft	Latitude:	40° 50' 22.780 N
	+E/-W	0.0 ft	Easting:	3,137,682.77 ft	Longitude:	105° 0' 8.698 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	0.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	2011/01/23	9.05	67.39	53,438

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	225.06

<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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,629.0	0.00	0.00	5,629.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,529.1	90.00	225.06	6,202.0	-404.7	-405.6	10.00	10.00	0.00	225.06	
6,618.8	98.97	225.07	6,195.0	-467.8	-468.8	10.00	10.00	0.01	0.04	
11,764.0	98.97	225.06	5,393.0	-4,057.6	-4,066.5	0.00	0.00	0.00	-112.99	PBHL 1B

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<b>Site:</b>	Larimer County, Colorado.	<b>North Reference:</b>	Grid
<b>Well:</b>	Rawhide Flats 10-68-16-1B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
5,629.0	0.00	0.00	5,629.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP Begin Build 10.00°/100'MD</b>									
6,529.1	90.00	225.06	6,202.0	-404.8	-405.6	573.0	10.00	10.00	0.00
<b>End of Build 90.00° 6529' MD</b>									
6,618.8	98.97	225.07	6,195.0	-467.9	-468.9	662.4	10.00	10.00	0.01
<b>End of Build 98.97° 6619' MD</b>									
11,764.0	98.97	225.06	5,393.0	-4,057.6	-4,066.5	5,744.7	0.00	0.00	0.00

Design 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									
PBHL 1B	0.00	0.00	5,393.0	-4,057.6	-4,066.5	1,545,065.48	3,133,616.23	40° 49' 42.910 N	105° 1' 1.891 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,629.0	5,629.0	0.0	0.0	KOP Begin Build 10.00°/100'MD
6,529.1	6,202.0	-404.8	-405.6	End of Build 90.00° 6529' MD
6,618.8	6,195.0	-467.9	-468.9	End of Build 98.97° 6619' MD
11,764.0	5,393.0	-4,057.6	-4,066.6	PBHL 98.97° 11764' MD