

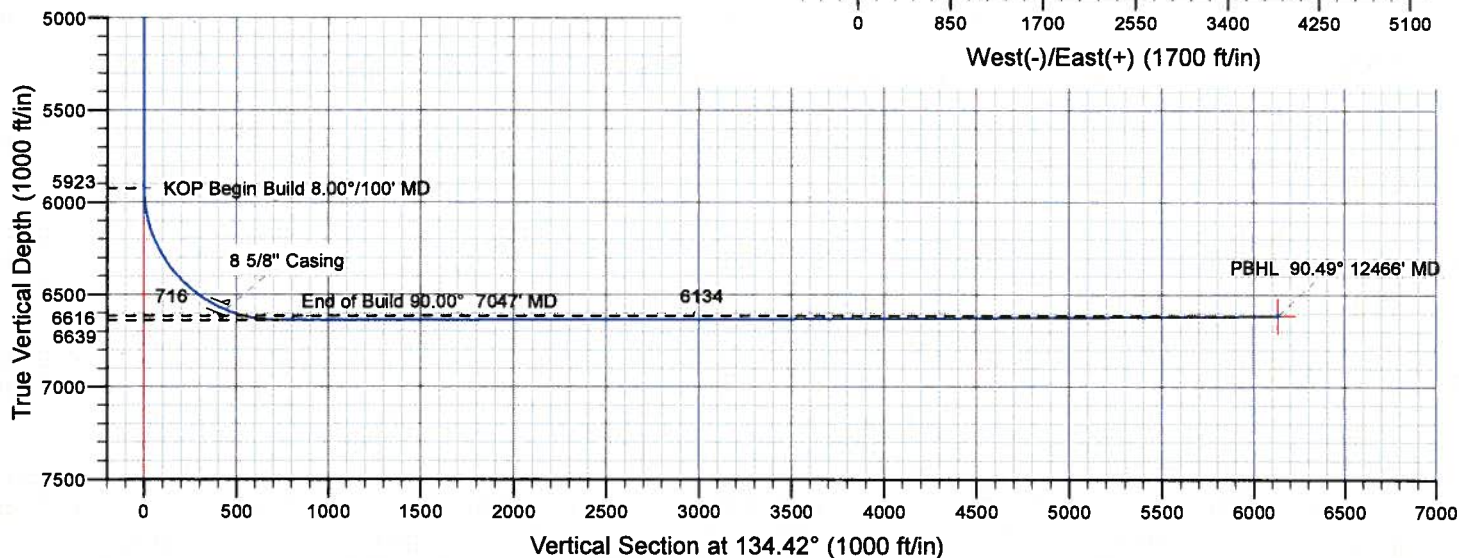
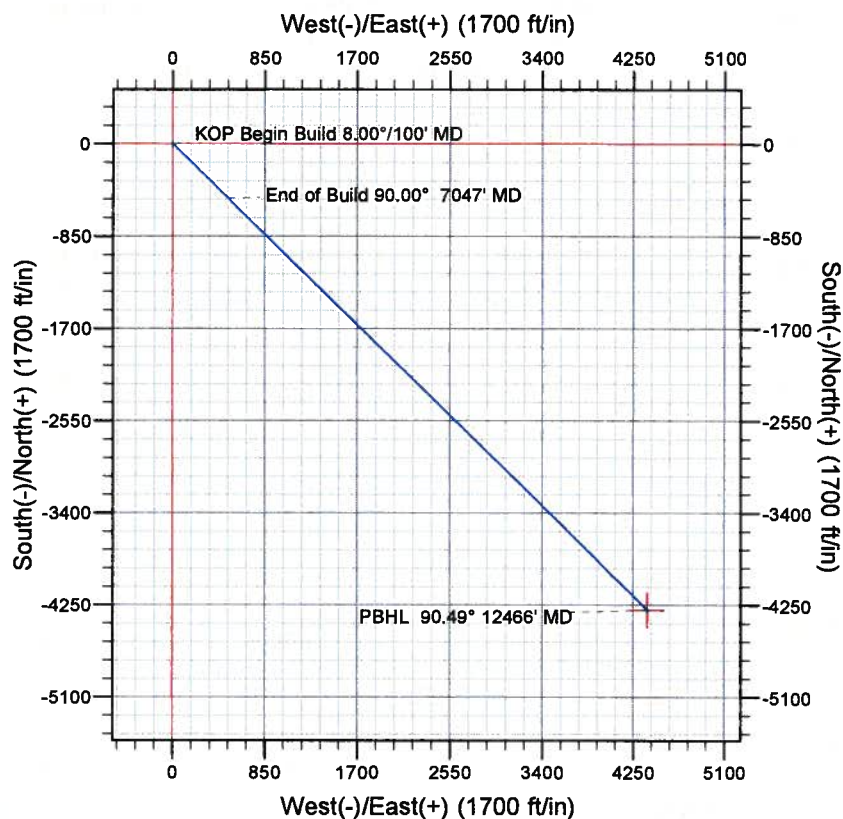
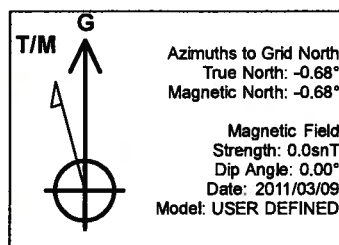
# Marathon Oil Company

French Lake 03-63-16-1A

Weld County, Colorado



**gyrodata**



## Design #1

### Surface Location

**Northing** 1328834.77  
**Easting** 3293066.32  
**Latitude** 40° 13' 52.637 N  
**Longitude** 104° 27' 1.166 W

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0			0.0	0.0	0.0	0.00	0.00	0.0	
2	5923.0	0.00	0.00	5923.0	0.0	0.0	0.00	0.00	0.0	
3	7047.7	90.00	134.42	6639.0	-501.1	511.4	8.00	134.42	716.0	
4	12466.3	90.49	134.42	6616.0	-4293.6	4381.5	0.01	-0.12	6134.5	PBHL

To convert a Magnetic Direction to a Grid Direction, Subtract 0.68°



# **Marathon Oil Company**

**Niobrara Horizontals**

**Weld County, Colorado.**

**French Lake 03-63-16-1A**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**14 March, 2011**

# Gyrodata Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Weld 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>	Weld County, Colorado.	<b>North Reference:</b>	Grid
<b>Well:</b>	French Lake 03-63-16-1A	<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		

<b>Site</b>	Weld County, Colorado.		
<b>Site Position:</b>		<b>Northing:</b>	1,328,834.77 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,293,066.32 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	0 "
		<b>Latitude:</b>	40° 13' 52.637 N
		<b>Longitude:</b>	104° 27' 1.166 W
		<b>Grid Convergence:</b>	0.68 °

<b>Well</b>	French Lake 03-63-16-1A		
<b>Well Position</b>	+N/-S	0.0 ft	<b>Northing:</b> 1,328,834.77 ft
	+E/-W	0.0 ft	<b>Easting:</b> 3,293,066.32 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 0.0 ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	User Defined	2011/03/09	0.00
			<b>Dip Angle (°)</b> 0.00
			<b>Field Strength (nT)</b> 0

<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>
	0.0	0.0	0.0
			<b>Direction (°)</b> 134.42

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,923.0	0.00	0.00	5,923.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,047.7	90.00	134.42	6,639.0	-501.1	511.4	8.00	8.00	0.00	134.42	
12,466.3	90.49	134.42	6,616.0	-4,293.6	4,381.5	0.01	0.01	0.00	-0.12 PBHL FL	



# Gyrodata Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Weld 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>	Weld County, Colorado.	<b>North Reference:</b>	Grid
<b>Well:</b>	French Lake 03-63-16-1A	<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)
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,923.0	0.00	0.00	5,923.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP Begin Build 8.00°/100' MD</b>									
6,000.0	6.16	134.42	5,999.9	-2.9	3.0	4.1	8.00	8.00	0.00
6,100.0	14.16	134.42	6,098.2	-15.2	15.5	21.8	8.00	8.00	0.00
6,200.0	22.17	134.42	6,193.1	-37.0	37.8	52.9	8.00	8.00	0.00
6,300.0	30.17	134.42	6,282.8	-67.9	69.3	97.0	8.00	8.00	0.00
6,400.0	38.17	134.42	6,365.5	-107.2	109.3	153.1	8.00	8.00	0.00
6,500.0	46.17	134.42	6,439.5	-154.1	157.3	220.2	8.00	8.00	0.00
6,600.0	54.17	134.42	6,503.5	-207.8	212.1	296.9	8.00	8.00	0.00
6,700.0	62.18	134.42	6,556.2	-267.2	272.7	381.8	8.00	8.00	0.00
6,765.2	67.40	134.42	6,584.0	-308.5	314.8	440.8	8.00	8.00	0.00
<b>8 5/8" Casing</b>									
6,800.0	70.18	134.42	6,596.6	-331.2	338.0	473.2	8.00	8.00	0.00
6,900.0	78.18	134.42	6,623.8	-398.5	406.6	569.4	8.00	8.00	0.00
7,000.0	86.18	134.42	6,637.4	-467.8	477.4	668.3	8.00	8.00	0.00
7,047.7	90.00	134.42	6,639.0	-501.1	511.4	716.0	8.00	8.00	0.00
<b>End of Build 90.00° 7047' MD</b>									
7,100.0	90.00	134.42	6,639.0	-537.7	548.7	768.3	0.01	0.01	0.00
7,200.0	90.01	134.42	6,639.0	-607.7	620.2	868.3	0.01	0.01	0.00
7,300.0	90.02	134.42	6,639.0	-677.7	691.6	968.3	0.01	0.01	0.00
7,400.0	90.03	134.42	6,638.9	-747.7	763.0	1,068.3	0.01	0.01	0.00
7,500.0	90.04	134.42	6,638.8	-817.7	834.4	1,168.3	0.01	0.01	0.00
7,600.0	90.05	134.42	6,638.8	-887.7	905.9	1,268.3	0.01	0.01	0.00
7,700.0	90.06	134.42	6,638.7	-957.7	977.3	1,368.3	0.01	0.01	0.00
7,800.0	90.07	134.42	6,638.6	-1,027.7	1,048.7	1,468.3	0.01	0.01	0.00
7,900.0	90.08	134.42	6,638.4	-1,097.7	1,120.1	1,568.3	0.01	0.01	0.00
8,000.0	90.09	134.42	6,638.3	-1,167.7	1,191.6	1,668.3	0.01	0.01	0.00
8,100.0	90.09	134.42	6,638.1	-1,237.7	1,263.0	1,768.3	0.01	0.01	0.00
8,200.0	90.10	134.42	6,638.0	-1,307.7	1,334.4	1,868.3	0.01	0.01	0.00
8,300.0	90.11	134.42	6,637.8	-1,377.6	1,405.8	1,968.3	0.01	0.01	0.00
8,400.0	90.12	134.42	6,637.6	-1,447.6	1,477.2	2,068.3	0.01	0.01	0.00
8,500.0	90.13	134.42	6,637.3	-1,517.6	1,548.7	2,168.3	0.01	0.01	0.00
8,600.0	90.14	134.42	6,637.1	-1,587.6	1,620.1	2,268.3	0.01	0.01	0.00
8,700.0	90.15	134.42	6,636.9	-1,657.6	1,691.5	2,368.3	0.01	0.01	0.00
8,800.0	90.16	134.42	6,636.6	-1,727.6	1,762.9	2,468.3	0.01	0.01	0.00
8,900.0	90.17	134.42	6,636.3	-1,797.6	1,834.4	2,568.3	0.01	0.01	0.00
9,000.0	90.18	134.42	6,636.0	-1,867.6	1,905.8	2,668.3	0.01	0.01	0.00
9,100.0	90.18	134.42	6,635.7	-1,937.6	1,977.2	2,768.3	0.01	0.01	0.00
9,200.0	90.19	134.42	6,635.4	-2,007.6	2,048.6	2,868.3	0.01	0.01	0.00
9,300.0	90.20	134.42	6,635.0	-2,077.5	2,120.1	2,968.3	0.01	0.01	0.00
9,400.0	90.21	134.42	6,634.7	-2,147.5	2,191.5	3,068.3	0.01	0.01	0.00
9,500.0	90.22	134.42	6,634.3	-2,217.5	2,262.9	3,168.3	0.01	0.01	0.00
9,600.0	90.23	134.42	6,633.9	-2,287.5	2,334.3	3,268.3	0.01	0.01	0.00
9,700.0	90.24	134.42	6,633.5	-2,357.5	2,405.7	3,368.3	0.01	0.01	0.00
9,800.0	90.25	134.42	6,633.1	-2,427.5	2,477.2	3,468.3	0.01	0.01	0.00
9,900.0	90.26	134.42	6,632.6	-2,497.5	2,548.6	3,568.3	0.01	0.01	0.00
10,000.0	90.27	134.42	6,632.2	-2,567.5	2,620.0	3,668.3	0.01	0.01	0.00
10,100.0	90.27	134.42	6,631.7	-2,637.5	2,691.4	3,768.3	0.01	0.01	0.00
10,200.0	90.28	134.42	6,631.2	-2,707.5	2,762.9	3,868.3	0.01	0.01	0.00
10,300.0	90.29	134.42	6,630.7	-2,777.4	2,834.3	3,968.3	0.01	0.01	0.00
10,400.0	90.30	134.42	6,630.2	-2,847.4	2,905.7	4,068.3	0.01	0.01	0.00
10,500.0	90.31	134.42	6,629.7	-2,917.4	2,977.1	4,168.3	0.01	0.01	0.00

# Gyrodatta Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Weld 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>	Weld County, Colorado.	<b>North Reference:</b>	Grid
<b>Well:</b>	French Lake 03-63-16-1A	<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)	
10,600.0	90.32	134.42	6,629.1	-2,987.4	3,048.5	4,268.3	0.01	0.01	0.00	
10,700.0	90.33	134.42	6,628.6	-3,057.4	3,120.0	4,368.3	0.01	0.01	0.00	
10,800.0	90.34	134.42	6,628.0	-3,127.4	3,191.4	4,468.3	0.01	0.01	0.00	
10,900.0	90.35	134.42	6,627.4	-3,197.4	3,262.8	4,568.3	0.01	0.01	0.00	
11,000.0	90.35	134.42	6,626.8	-3,267.4	3,334.2	4,668.3	0.01	0.01	0.00	
11,100.0	90.36	134.42	6,626.1	-3,337.4	3,405.7	4,768.3	0.01	0.01	0.00	
11,200.0	90.37	134.42	6,625.5	-3,407.4	3,477.1	4,868.3	0.01	0.01	0.00	
11,300.0	90.38	134.42	6,624.8	-3,477.3	3,548.5	4,968.3	0.01	0.01	0.00	
11,400.0	90.39	134.42	6,624.2	-3,547.3	3,619.9	5,068.3	0.01	0.01	0.00	
11,500.0	90.40	134.42	6,623.5	-3,617.3	3,691.4	5,168.3	0.01	0.01	0.00	
11,600.0	90.41	134.42	6,622.8	-3,687.3	3,762.8	5,268.3	0.01	0.01	0.00	
11,700.0	90.42	134.42	6,622.0	-3,757.3	3,834.2	5,368.3	0.01	0.01	0.00	
11,800.0	90.43	134.42	6,621.3	-3,827.3	3,905.6	5,468.3	0.01	0.01	0.00	
11,900.0	90.44	134.42	6,620.6	-3,897.3	3,977.0	5,568.3	0.01	0.01	0.00	
12,000.0	90.44	134.42	6,619.8	-3,967.3	4,048.5	5,668.3	0.01	0.01	0.00	
12,100.0	90.45	134.42	6,619.0	-4,037.2	4,119.9	5,768.3	0.01	0.01	0.00	
12,200.0	90.46	134.42	6,618.2	-4,107.2	4,191.3	5,868.3	0.01	0.01	0.00	
12,300.0	90.47	134.42	6,617.4	-4,177.2	4,262.7	5,968.3	0.01	0.01	0.00	
12,400.0	90.48	134.42	6,616.6	-4,247.2	4,334.1	6,068.2	0.01	0.01	0.00	
12,466.2	90.49	134.42	6,616.0	-4,293.5	4,381.4	6,134.4	0.01	0.01	0.00	
<b>PBHL 90.49° 12466° MD</b>										
12,466.3	90.49	134.42	6,616.0	-4,293.6	4,381.5	6,134.5	0.01	0.01	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude		Longitude
PBHL FL	0.00	0.00	6,616.0	-4,293.6	4,381.5	1,324,541.16	3,297,447.82	40° 13' 9.692 N		104° 26' 5.341 W
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
650.0	650.0	13 3/8" Casing		13-3/8	13-3/8
6,765.2	6,584.0	8 5/8" Casing		8-5/8	8-5/8

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
5,923.0	5,923.0	0.0	0.0	KOP Begin Build 8.00°/100' MD	
7,047.7	6,639.0	-501.1	511.4	End of Build 90.00° 7047' MD	
12,466.2	6,616.0	-4,293.5	4,381.4	PBHL 90.49° 12466° MD	