

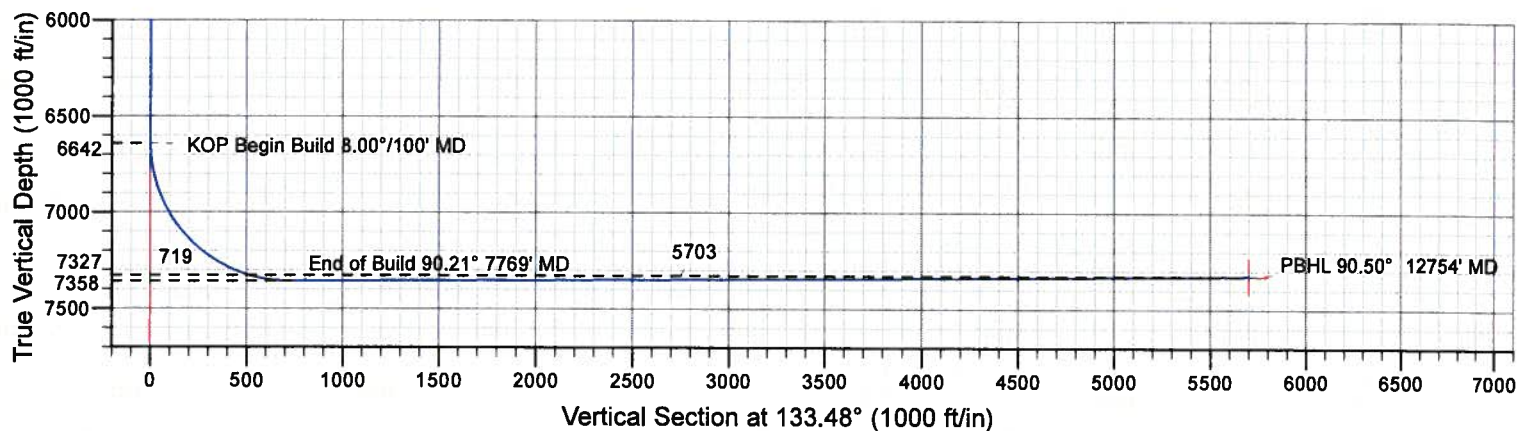
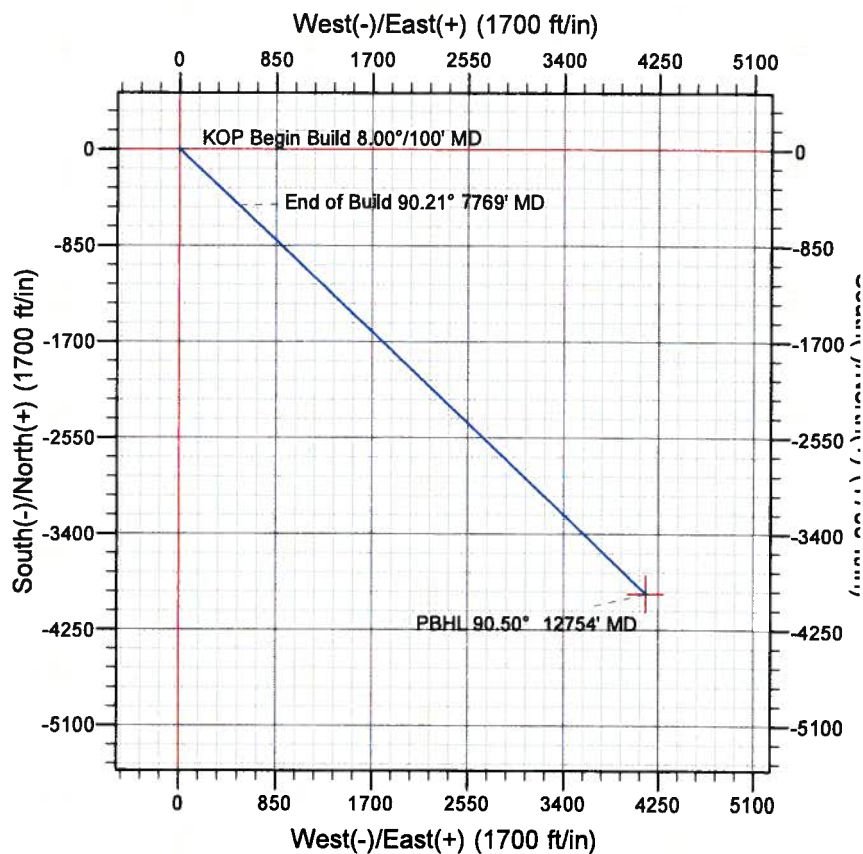
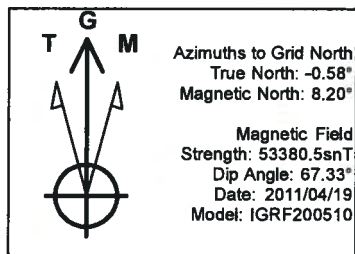
Marathon Oil Company

Owl Creek 8-64-6-1A

Weld County, Colorado



gyrodata



Design #1

Surface Location

Northing	Easting	Latitude	Longitude
1497060.44	3249954.92	$40^\circ 41' 39.610$ N	$104^\circ 35' 54.960$ W

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0			0.0	0.0	0.0	0.00	0.00	0.0	
2	6642.0	0.00	0.00	6642.0	0.0	0.0	0.00	0.00	0.0	
3	7769.3	90.21	133.47	7358.0	-494.4	521.5	8.00	133.47	718.6	
4	12753.5	90.50	133.48	7327.0	-3928.3	4134.0	0.01	2.62	5702.8	PBHL Owl Creek

To convert a Magnetic Direction to a Grid Direction, Add 8.20°

Marathon Oil Company

Niobrara Horizontals

Weld County, Colorado . .

Owl Creek 8-64-6-1A

Wellbore #1

Plan: Design #1

Standard Planning Report

19 April, 2011

Gyrodatta

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Weld County, Colorado . .
Company:	Marathon Oil Company	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Niobrara Horizontals	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Weld County, Colorado . .	North Reference:	Grid
Well:	Owl Creek 8-64-6-1A	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Niobrara Horizontals		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Weld County, Colorado . .			
Site Position:		Northing:	1,497,060.44 ft	Latitude:	40° 41' 39.610 N
From:	Lat/Long	Easting:	3,249,954.92 ft	Longitude:	104° 35' 54.960 W
Position Uncertainty:	0.0 ft	Slot Radius:	0 "	Grid Convergence:	0.58 °

Well	Owl Creek 8-64-6-1A					
Well Position	+N/-S	0.0 ft	Northing:	1,497,060.44 ft	Latitude:	40° 41' 39.610 N
	+E/-W	0.0 ft	Easting:	3,249,954.92 ft	Longitude:	104° 35' 54.960 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	0.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2011/04/19	8.78	67.33	53,381

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	133.48

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Bulld 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	
6,642.0	0.00	0.00	6,642.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,769.3	90.21	133.47	7,358.0	-494.4	521.5	8.00	8.00	0.00	133.47	
12,753.5	90.50	133.48	7,327.0	-3,928.3	4,134.0	0.01	0.01	0.00	2.62	PBHL Owl Creek

Gyrodatta

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Weld County, Colorado . .
Company:	Marathon Oil Company	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Project:	Niobrara Horizontals	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Weld County, Colorado . .	North Reference:	Grid
Well:	Owl Creek 8-64-6-1A	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
6,642.0	0.00	0.00	6,642.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP Begin Build 8.00°/100' MD									
6,700.0	4.64	133.47	6,699.9	-1.6	1.7	2.3	8.00	8.00	0.00
6,800.0	12.64	133.47	6,798.7	-11.9	12.6	17.4	8.00	8.00	0.00
6,900.0	20.65	133.47	6,894.5	-31.6	33.4	46.0	8.00	8.00	0.00
7,000.0	28.65	133.47	6,985.3	-60.3	63.6	87.7	8.00	8.00	0.00
7,100.0	36.65	133.47	7,069.4	-97.4	102.7	141.6	8.00	8.00	0.00
7,200.0	44.65	133.47	7,145.2	-142.2	150.0	206.6	8.00	8.00	0.00
7,300.0	52.65	133.47	7,211.2	-193.8	204.4	281.7	8.00	8.00	0.00
7,400.0	60.66	133.47	7,266.1	-251.2	265.0	365.1	8.00	8.00	0.00
7,500.0	68.66	133.47	7,308.9	-313.3	330.5	455.4	8.00	8.00	0.00
7,600.0	76.66	133.47	7,338.7	-378.9	399.7	550.8	8.00	8.00	0.00
7,700.0	84.66	133.47	7,354.9	-446.8	471.3	649.4	8.00	8.00	0.00
7,769.3	90.21	133.47	7,358.0	-494.4	521.5	718.6	8.00	8.00	0.00
End of Build 90.21° 7769' MD									
7,800.0	90.21	133.47	7,357.9	-515.5	543.8	749.3	0.01	0.01	0.00
7,900.0	90.22	133.47	7,357.5	-584.3	616.4	849.3	0.01	0.01	0.00
8,000.0	90.22	133.47	7,357.1	-653.1	688.9	949.3	0.01	0.01	0.00
8,100.0	90.23	133.47	7,356.7	-721.9	761.5	1,049.3	0.01	0.01	0.00
8,200.0	90.24	133.47	7,356.3	-790.7	834.0	1,149.3	0.01	0.01	0.00
8,300.0	90.24	133.47	7,355.9	-859.6	906.6	1,249.3	0.01	0.01	0.00
8,400.0	90.25	133.47	7,355.5	-928.4	979.1	1,349.3	0.01	0.01	0.00
8,500.0	90.25	133.47	7,355.0	-997.2	1,051.7	1,449.3	0.01	0.01	0.00
8,600.0	90.26	133.47	7,354.6	-1,066.0	1,124.2	1,549.3	0.01	0.01	0.00
8,700.0	90.26	133.47	7,354.1	-1,134.9	1,196.8	1,649.3	0.01	0.01	0.00
8,800.0	90.27	133.47	7,353.7	-1,203.7	1,269.3	1,749.3	0.01	0.01	0.00
8,900.0	90.28	133.47	7,353.2	-1,272.5	1,341.8	1,849.3	0.01	0.01	0.00
9,000.0	90.28	133.47	7,352.7	-1,341.4	1,414.4	1,949.3	0.01	0.01	0.00
9,100.0	90.29	133.47	7,352.2	-1,410.2	1,486.9	2,049.3	0.01	0.01	0.00
9,200.0	90.29	133.47	7,351.7	-1,479.1	1,559.4	2,149.3	0.01	0.01	0.00
9,300.0	90.30	133.48	7,351.2	-1,547.9	1,631.9	2,249.3	0.01	0.01	0.00
9,400.0	90.31	133.48	7,350.7	-1,616.8	1,704.4	2,349.3	0.01	0.01	0.00
9,500.0	90.31	133.48	7,350.1	-1,685.7	1,777.0	2,449.3	0.01	0.01	0.00
9,600.0	90.32	133.48	7,349.6	-1,754.5	1,849.5	2,549.3	0.01	0.01	0.00
9,700.0	90.32	133.48	7,349.0	-1,823.4	1,922.0	2,649.3	0.01	0.01	0.00
9,800.0	90.33	133.48	7,348.4	-1,892.3	1,994.5	2,749.3	0.01	0.01	0.00
9,900.0	90.34	133.48	7,347.9	-1,961.2	2,067.0	2,849.3	0.01	0.01	0.00
10,000.0	90.34	133.48	7,347.3	-2,030.0	2,139.4	2,949.3	0.01	0.01	0.00
10,100.0	90.35	133.48	7,346.7	-2,098.9	2,211.9	3,049.3	0.01	0.01	0.00
10,200.0	90.35	133.48	7,346.1	-2,167.8	2,284.4	3,149.3	0.01	0.01	0.00
10,300.0	90.36	133.48	7,345.4	-2,236.7	2,356.9	3,249.3	0.01	0.01	0.00
10,400.0	90.36	133.48	7,344.8	-2,305.6	2,429.4	3,349.3	0.01	0.01	0.00
10,500.0	90.37	133.48	7,344.2	-2,374.5	2,501.8	3,449.3	0.01	0.01	0.00
10,600.0	90.38	133.48	7,343.5	-2,443.4	2,574.3	3,549.3	0.01	0.01	0.00
10,700.0	90.38	133.48	7,342.9	-2,512.3	2,646.8	3,649.3	0.01	0.01	0.00
10,800.0	90.39	133.48	7,342.2	-2,581.2	2,719.2	3,749.3	0.01	0.01	0.00
10,900.0	90.39	133.48	7,341.5	-2,650.2	2,791.7	3,849.3	0.01	0.01	0.00
11,000.0	90.40	133.48	7,340.8	-2,719.1	2,864.2	3,949.3	0.01	0.01	0.00
11,100.0	90.41	133.48	7,340.1	-2,788.0	2,936.6	4,049.3	0.01	0.01	0.00
11,200.0	90.41	133.48	7,339.4	-2,856.9	3,009.1	4,149.3	0.01	0.01	0.00
11,300.0	90.42	133.48	7,338.7	-2,925.9	3,081.5	4,249.3	0.01	0.01	0.00
11,400.0	90.42	133.48	7,337.9	-2,994.8	3,153.9	4,349.3	0.01	0.01	0.00
11,500.0	90.43	133.48	7,337.2	-3,063.7	3,226.4	4,449.3	0.01	0.01	0.00
11,600.0	90.43	133.48	7,336.4	-3,132.7	3,298.8	4,549.3	0.01	0.01	0.00

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Planning Report

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Project:	Niobrara Horizontals	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Weld County, Colorado . .	North Reference:	Grid
Well:	Owl Creek 8-64-6-1A	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
11,700.0	90.44	133.48	7,335.7	-3,201.6	3,371.2	4,649.3	0.01	0.01	0.00
11,800.0	90.45	133.48	7,334.9	-3,270.6	3,443.7	4,749.3	0.01	0.01	0.00
11,900.0	90.45	133.48	7,334.1	-3,339.5	3,516.1	4,849.3	0.01	0.01	0.00
12,000.0	90.46	133.48	7,333.3	-3,408.5	3,588.5	4,949.3	0.01	0.01	0.00
12,100.0	90.46	133.48	7,332.5	-3,477.5	3,660.9	5,049.3	0.01	0.01	0.00
12,200.0	90.47	133.48	7,331.7	-3,546.4	3,733.3	5,149.3	0.01	0.01	0.00
12,300.0	90.48	133.48	7,330.9	-3,615.4	3,805.7	5,249.2	0.01	0.01	0.00
12,400.0	90.48	133.48	7,330.0	-3,684.4	3,878.1	5,349.2	0.01	0.01	0.00
12,500.0	90.49	133.48	7,329.2	-3,753.4	3,950.5	5,449.2	0.01	0.01	0.00
12,600.0	90.49	133.48	7,328.3	-3,822.3	4,022.9	5,549.2	0.01	0.01	0.00
12,700.0	90.50	133.48	7,327.5	-3,891.3	4,095.3	5,649.2	0.01	0.01	0.00
12,753.5	90.50	133.48	7,327.0	-3,928.1	4,134.1	5,702.7	0.01	0.01	0.00
PBHL 90.50° 12754' MD									

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 Owl Creek	0.00	0.00	7,327.0	-3,928.2	4,134.0	1,493,132.20	3,254,088.97	40° 41' 0.377 N	104° 35' 1.820 W
- plan misses target center by 0.1ft at 12753.5ft MD (7327.0 TVD, -3928.1 N, 4134.1 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,642.0	6,642.0	0.0	0.0	KOP Begin Build 8.00°/100' MD
7,769.3	7,358.0	-494.4	521.5	End of Build 90.21° 7769' MD
12,753.5	7,327.0	-3,928.1	4,134.1	PBHL 90.50° 12754' MD