

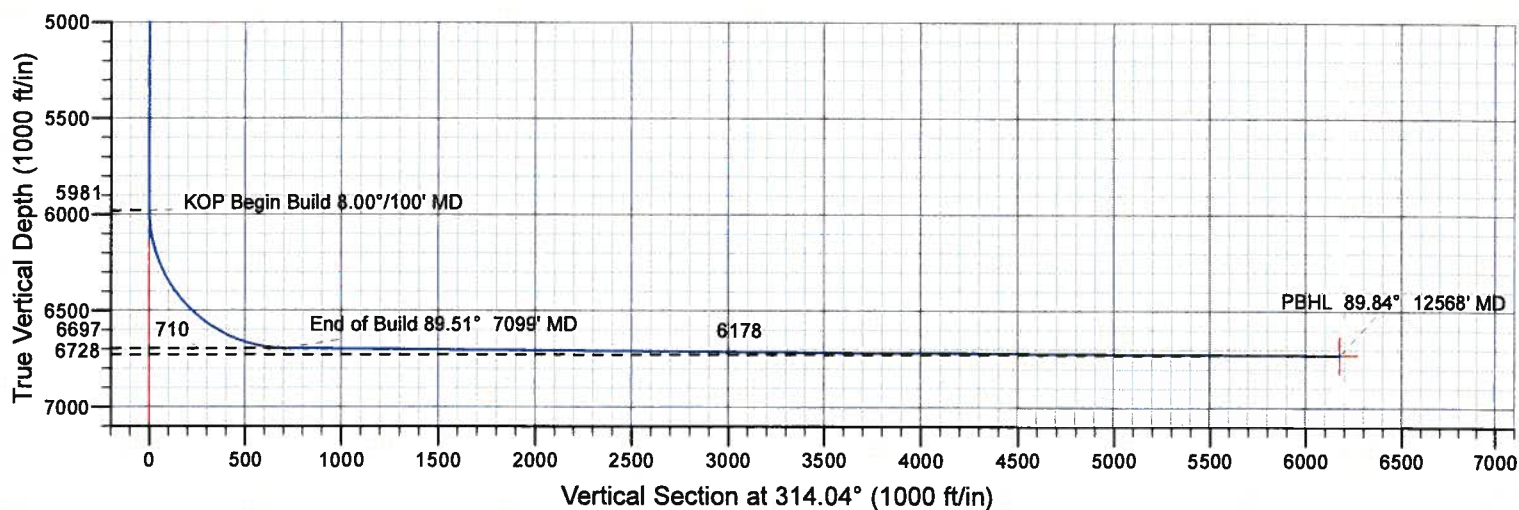
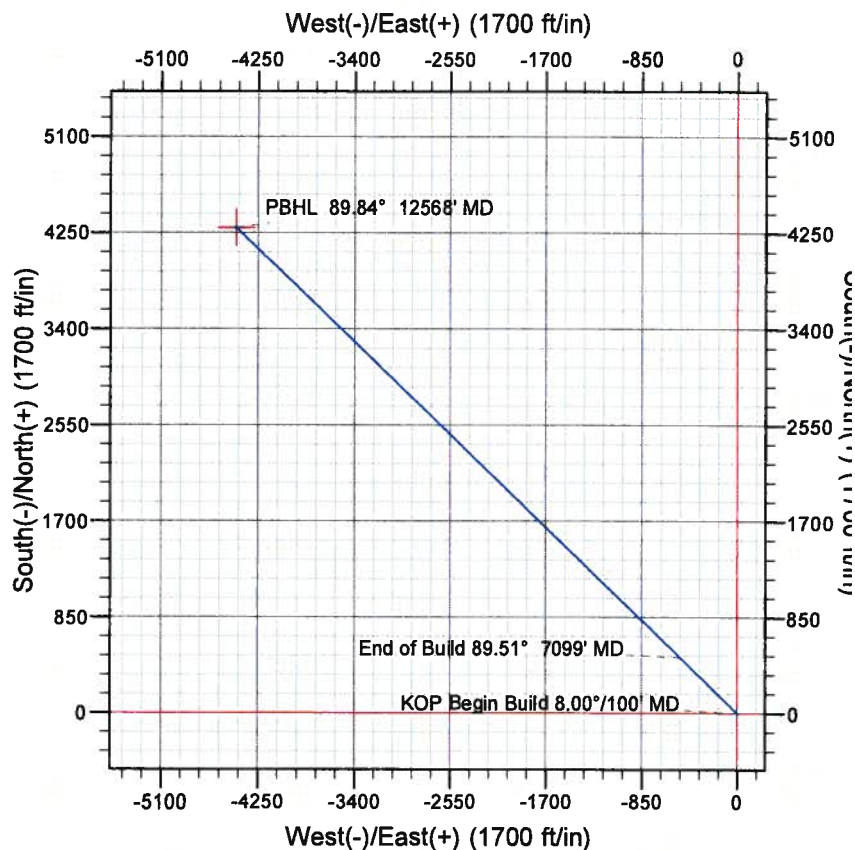
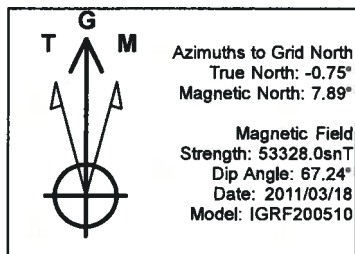
Marathon Oil Company

Crow Valley 7-62-31-1A

Weld County, Colorado



gyrodata



Design #1

Surface Location

Northing 1436006.41
Easting 3322840.90
Latitude 40° 31' 27.966 N
Longitude 104° 20' 19.194 W

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0			0.0	0.0	0.0	0.00	0.00	0.0	
2	5981.0	0.00	0.00	5981.0	0.0	0.0	0.00	0.00	0.0	
3	7099.6	89.51	314.04	6697.0	493.5	-510.3	8.00	314.04	709.9	
4	12567.7	89.84	314.04	6728.0	4294.6	-4441.0	0.01	-0.01	6177.9	PBHL

To convert a Magnetic Direction to a Grid Direction, Add 7.89°

Marathon Oil Company

**Niobrara Horizontals
Weld County, Colorado
Crow Valley 7-62-31-1A**

Wellbore #1

Plan: Design #1

Standard Planning Report

18 March, 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:	Crow Valley 7-62-31-1A	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:	1,436,006.41 ft	Latitude:	40° 31' 27.966 N
From:	Lat/Long	Easting:	3,322,840.91 ft	Longitude:	104° 20' 19.194 W
Position Uncertainty:	0.0 ft	Slot Radius:	0 "	Grid Convergence:	0.75

Well	Crow Valley 7-62-31-1A					
Well Position	+N/-S	0.0 ft	Northing:	1,436,006.41 ft	Latitude:	40° 31' 27.966 N
	+E/-W	0.0 ft	Easting:	3,322,840.91 ft	Longitude:	104° 20' 19.194 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	2011/03/18	8.64	67.24	53,328

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	314.04	

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	
5,981.0	0.00	0.00	5,981.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,099.6	89.51	314.04	6,697.0	493.5	-510.3	8.00	8.00	0.00	314.04	
12,567.7	89.84	314.04	6,728.0	4,294.6	-4,441.0	0.01	0.01	0.00	-0.01 PBHL	

Gyrodata 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:	Crow Valley 7-62-31-1A	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)
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,981.0	0.00	0.00	5,981.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP Begin Build 8.00°/100' MD									
6,000.0	1.52	314.04	6,000.0	0.2	-0.2	0.3	8.00	8.00	0.00
6,100.0	9.52	314.04	6,099.5	6.9	-7.1	9.9	8.00	8.00	0.00
6,200.0	17.52	314.04	6,196.6	23.1	-23.9	33.2	8.00	8.00	0.00
6,300.0	25.53	314.04	6,289.6	48.6	-50.2	69.9	8.00	8.00	0.00
6,400.0	33.53	314.04	6,376.5	82.8	-85.6	119.1	8.00	8.00	0.00
6,500.0	41.53	314.04	6,455.7	125.1	-129.4	180.0	8.00	8.00	0.00
6,600.0	49.53	314.04	6,525.7	174.7	-180.7	251.3	8.00	8.00	0.00
6,700.0	57.53	314.04	6,585.1	230.6	-238.4	331.7	8.00	8.00	0.00
6,800.0	65.54	314.04	6,632.7	291.6	-301.6	419.5	8.00	8.00	0.00
6,900.0	73.54	314.04	6,667.7	356.7	-368.9	513.1	8.00	8.00	0.00
7,000.0	81.54	314.04	6,689.2	424.5	-439.0	610.7	8.00	8.00	0.00
7,099.6	89.51	314.04	6,697.0	493.5	-510.3	709.9	8.00	8.00	0.00
End of Build 89.51° 7099' MD									
7,100.0	89.51	314.04	6,697.0	493.8	-510.6	710.3	0.16	0.16	0.00
7,200.0	89.52	314.04	6,697.9	563.3	-582.5	810.3	0.01	0.01	0.00
7,300.0	89.52	314.04	6,698.7	632.8	-654.4	910.3	0.01	0.01	0.00
7,400.0	89.53	314.04	6,699.5	702.3	-726.2	1,010.3	0.01	0.01	0.00
7,500.0	89.53	314.04	6,700.3	771.8	-798.1	1,110.3	0.01	0.01	0.00
7,600.0	89.54	314.04	6,701.1	841.3	-870.0	1,210.3	0.01	0.01	0.00
7,700.0	89.55	314.04	6,701.9	910.9	-941.9	1,310.3	0.01	0.01	0.00
7,800.0	89.55	314.04	6,702.7	980.4	-1,013.8	1,410.3	0.01	0.01	0.00
7,900.0	89.56	314.04	6,703.5	1,049.9	-1,085.7	1,510.3	0.01	0.01	0.00
8,000.0	89.56	314.04	6,704.3	1,119.4	-1,157.5	1,610.3	0.01	0.01	0.00
8,100.0	89.57	314.04	6,705.0	1,188.9	-1,229.4	1,710.3	0.01	0.01	0.00
8,200.0	89.58	314.04	6,705.8	1,258.4	-1,301.3	1,810.3	0.01	0.01	0.00
8,300.0	89.58	314.04	6,706.5	1,327.9	-1,373.2	1,910.3	0.01	0.01	0.00
8,400.0	89.59	314.04	6,707.2	1,397.4	-1,445.1	2,010.3	0.01	0.01	0.00
8,500.0	89.59	314.04	6,707.9	1,467.0	-1,517.0	2,110.3	0.01	0.01	0.00
8,600.0	89.60	314.04	6,708.6	1,536.5	-1,588.8	2,210.2	0.01	0.01	0.00
8,700.0	89.61	314.04	6,709.3	1,606.0	-1,660.7	2,310.2	0.01	0.01	0.00
8,800.0	89.61	314.04	6,710.0	1,675.5	-1,732.6	2,410.2	0.01	0.01	0.00
8,900.0	89.62	314.04	6,710.7	1,745.0	-1,804.5	2,510.2	0.01	0.01	0.00
9,000.0	89.62	314.04	6,711.3	1,814.5	-1,876.4	2,610.2	0.01	0.01	0.00
9,100.0	89.63	314.04	6,712.0	1,884.1	-1,948.3	2,710.2	0.01	0.01	0.00
9,200.0	89.64	314.04	6,712.6	1,953.6	-2,020.2	2,810.2	0.01	0.01	0.00
9,300.0	89.64	314.04	6,713.3	2,023.1	-2,092.0	2,910.2	0.01	0.01	0.00
9,400.0	89.65	314.04	6,713.9	2,092.6	-2,163.9	3,010.2	0.01	0.01	0.00
9,500.0	89.66	314.04	6,714.5	2,162.1	-2,235.8	3,110.2	0.01	0.01	0.00
9,600.0	89.66	314.04	6,715.1	2,231.6	-2,307.7	3,210.2	0.01	0.01	0.00
9,700.0	89.67	314.04	6,715.7	2,301.1	-2,379.6	3,310.2	0.01	0.01	0.00
9,800.0	89.67	314.04	6,716.2	2,370.7	-2,451.5	3,410.2	0.01	0.01	0.00
9,900.0	89.68	314.04	6,716.8	2,440.2	-2,523.3	3,510.2	0.01	0.01	0.00
10,000.0	89.69	314.04	6,717.4	2,509.7	-2,595.2	3,610.2	0.01	0.01	0.00
10,100.0	89.69	314.04	6,717.9	2,579.2	-2,667.1	3,710.2	0.01	0.01	0.00
10,200.0	89.70	314.04	6,718.4	2,648.7	-2,739.0	3,810.2	0.01	0.01	0.00
10,300.0	89.70	314.04	6,719.0	2,718.2	-2,810.9	3,910.2	0.01	0.01	0.00
10,400.0	89.71	314.04	6,719.5	2,787.7	-2,882.8	4,010.2	0.01	0.01	0.00
10,500.0	89.72	314.04	6,720.0	2,857.3	-2,954.6	4,110.2	0.01	0.01	0.00
10,600.0	89.72	314.04	6,720.5	2,926.8	-3,026.5	4,210.2	0.01	0.01	0.00
10,700.0	89.73	314.04	6,721.0	2,996.3	-3,098.4	4,310.2	0.01	0.01	0.00

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:	Crow Valley 7-62-31-1A	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)
10,800.0	89.73	314.04	6,721.4	3,065.8	-3,170.3	4,410.2	0.01	0.01	0.00
10,900.0	89.74	314.04	6,721.9	3,135.3	-3,242.2	4,510.2	0.01	0.01	0.00
11,000.0	89.75	314.04	6,722.3	3,204.8	-3,314.1	4,610.2	0.01	0.01	0.00
11,100.0	89.75	314.04	6,722.8	3,274.3	-3,386.0	4,710.2	0.01	0.01	0.00
11,200.0	89.76	314.04	6,723.2	3,343.9	-3,457.8	4,810.2	0.01	0.01	0.00
11,300.0	89.76	314.04	6,723.6	3,413.4	-3,529.7	4,910.2	0.01	0.01	0.00
11,400.0	89.77	314.04	6,724.0	3,482.9	-3,601.6	5,010.2	0.01	0.01	0.00
11,500.0	89.78	314.04	6,724.4	3,552.4	-3,673.5	5,110.2	0.01	0.01	0.00
11,600.0	89.78	314.04	6,724.8	3,621.9	-3,745.4	5,210.2	0.01	0.01	0.00
11,700.0	89.79	314.04	6,725.2	3,691.4	-3,817.3	5,310.2	0.01	0.01	0.00
11,800.0	89.79	314.04	6,725.6	3,761.0	-3,889.2	5,410.2	0.01	0.01	0.00
11,900.0	89.80	314.04	6,725.9	3,830.5	-3,961.0	5,510.2	0.01	0.01	0.00
12,000.0	89.81	314.04	6,726.2	3,900.0	-4,032.9	5,610.2	0.01	0.01	0.00
12,100.0	89.81	314.04	6,726.6	3,969.5	-4,104.8	5,710.2	0.01	0.01	0.00
12,200.0	89.82	314.04	6,726.9	4,039.0	-4,176.7	5,810.2	0.01	0.01	0.00
12,300.0	89.82	314.04	6,727.2	4,108.5	-4,248.6	5,910.2	0.01	0.01	0.00
12,400.0	89.83	314.04	6,727.5	4,178.1	-4,320.5	6,010.2	0.01	0.01	0.00
12,500.0	89.84	314.04	6,727.8	4,247.6	-4,392.3	6,110.2	0.01	0.01	0.00
12,567.6	89.84	314.04	6,728.0	4,294.6	-4,440.9	6,177.8	0.01	0.01	0.00
PBHL 89.84° 12568' MD									
12,567.7	89.84	314.04	6,728.0	4,294.6	-4,441.0	6,177.9	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
- hit/miss target									
- Shape									
PBHL	0.00	0.00	6,728.0	4,294.6	-4,441.0	1,440,301.04	3,318,399.90	40° 32' 10.972 N	104° 21' 15.980 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,981.0	5,981.0	0.0	0.0	KOP Begin Build 8.00°/100' MD
7,099.6	6,697.0	493.5	-510.3	End of Build 89.51° 7099' MD
12,567.6	6,728.0	4,294.6	-4,440.9	PBHL 89.84° 12568' MD