

# ENSIGN

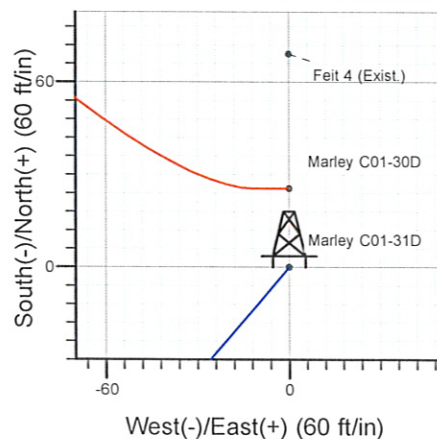
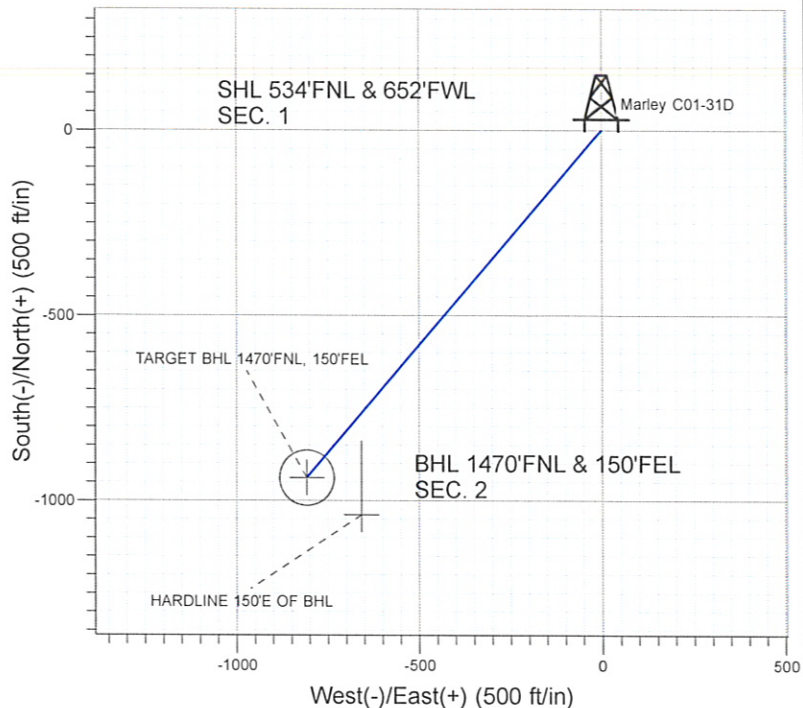
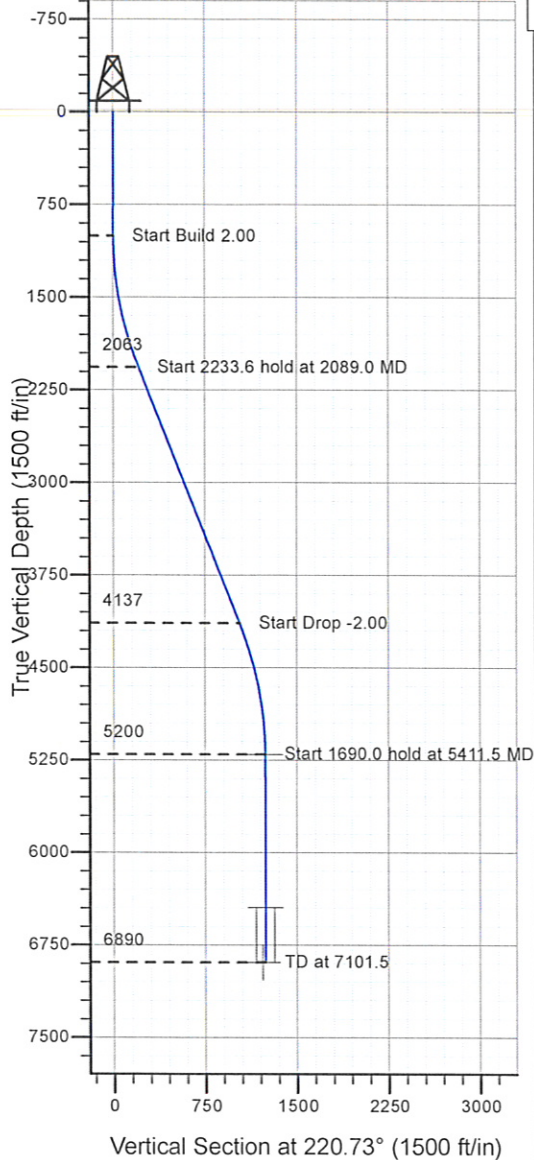
## Directional

### Well Name: Marley C01-31D

Surface Location: Marley C01-30D Pad Sec.1-T4N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4607.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1370875.37 3277102.10 40° 20' 49.884 N 104° 30' 20.916 W  
Original Well Elev WELL @ 4620.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Marley C01-30D Pad Sec.1-T4N-R64W  
Marley C01-31D  
Noble Marley C01-31D Plan #1 11-18-09  
12:56, November 18 2009



Azimuths to True North  
Magnetic North: 8.89°

Magnetic Field  
Strength: 53318.0snT  
Dip Angle: 67.11°  
Date: 11/18/2009  
Model: IGRF200510

#### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1470'FNL, 150'FEL	5200.0	-937.9	-807.6	40° 20' 40.615 N	104° 30' 31.346 W	Point
TARGET CIRCLE 1470'FNL, 150'FEL	6444.0	-937.9	-807.6	40° 20' 40.616 N	104° 30' 31.346 W	Circle (Radius: 75.0)
HARDLINE 150'E OF BHL	6890.0	-1037.9	-657.6	40° 20' 39.628 N	104° 30' 29.409 W	Polygon

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	2089.0	21.78	220.73	2062.9	-155.0	-133.4	2.00	220.73	204.5	
4	4322.5	21.78	220.73	4137.1	-783.0	-674.2	0.00	0.00	1033.2	
5	5411.5	0.00	0.00	5200.0	-937.9	-807.6	2.00	180.00	1237.7	TARGET BHL 1470'FNL, 150'FEL
6	7101.5	0.00	0.00	6890.0	-937.9	-807.6	0.00	0.00	1237.7	



**Directional**

**NOBLE ENERGY INC WELD  
COUNTY CO**

**SEC.1-T4N-R64W**

**Marley C01-30D Pad Sec.1-T4N-R64W**

**Marley C01-31D**

**Wellbore #1**

**Plan: Noble Marley C01-31D Plan #1 11-18-09**

**Standard Planning Report**

**18 November, 2009**





Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Marley C01-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4620.0ft (Original Well Elev)
Project:	SEC.1-T4N-R64W	MD Reference:	WELL @ 4620.0ft (Original Well Elev)
Site:	Marley C01-30D Pad Sec.1-T4N-R64W	North Reference:	True
Well:	Marley C01-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Marley C01-31D Plan #1 11-18-09		

Project	SEC.1-T4N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Marley C01-30D Pad Sec.1-T4N-R64W		
Site Position:		Northing:	1,370,900.88 ft
From:	Lat/Long	Easting:	3,277,101.81 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 20' 50.136 N
		Longitude:	104° 30' 20.916 W
		Grid Convergence:	0.64 °

Well	Marley C01-31D		
Well Position	+N/-S	-25.5 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 20' 49.884 N
		Longitude:	104° 30' 20.916 W
		Ground Level:	4,607.0 ft

Wellbore	Wellbore #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/18/2009	8.89	67.11	53,318

Design	Noble Marley C01-31D Plan #1 11-18-09		
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Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	220.73

Plan Sections										
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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,089.0	21.78	220.73	2,062.9	-155.0	-133.4	2.00	2.00	0.00	220.73	
4,322.5	21.78	220.73	4,137.1	-783.0	-674.2	0.00	0.00	0.00	0.00	
5,411.5	0.00	0.00	5,200.0	-937.9	-807.6	2.00	-2.00	0.00	180.00	TARGET BHL 147C
7,101.5	0.00	0.00	6,890.0	-937.9	-807.6	0.00	0.00	0.00	0.00	

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 Well: Marley C01-31D  
 Wellbore: Wellbore #1  
 Design: Noble Marley C01-31D Plan #1 11-18-09

Local Co-ordinate Reference: Well Marley C01-31D  
 TVD Reference: WELL @ 4620.0ft (Original Well Elev)  
 MD Reference: WELL @ 4620.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

**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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.80	220.73	1,040.0	-0.2	-0.2	0.3	2.00	2.00	0.00
1,080.0	1.60	220.73	1,080.0	-0.8	-0.7	1.1	2.00	2.00	0.00
1,120.0	2.40	220.73	1,120.0	-1.9	-1.6	2.5	2.00	2.00	0.00
1,160.0	3.20	220.73	1,159.9	-3.4	-2.9	4.5	2.00	2.00	0.00
1,200.0	4.00	220.73	1,199.8	-5.3	-4.6	7.0	2.00	2.00	0.00
1,240.0	4.80	220.73	1,239.7	-7.6	-6.6	10.0	2.00	2.00	0.00
1,280.0	5.60	220.73	1,279.6	-10.4	-8.9	13.7	2.00	2.00	0.00
1,320.0	6.40	220.73	1,319.3	-13.5	-11.6	17.9	2.00	2.00	0.00
1,360.0	7.20	220.73	1,359.1	-17.1	-14.7	22.6	2.00	2.00	0.00
1,400.0	8.00	220.73	1,398.7	-21.1	-18.2	27.9	2.00	2.00	0.00
1,440.0	8.80	220.73	1,438.3	-25.6	-22.0	33.7	2.00	2.00	0.00
1,480.0	9.60	220.73	1,477.8	-30.4	-26.2	40.1	2.00	2.00	0.00
1,520.0	10.40	220.73	1,517.1	-35.7	-30.7	47.1	2.00	2.00	0.00
1,560.0	11.20	220.73	1,556.4	-41.3	-35.6	54.6	2.00	2.00	0.00
1,600.0	12.00	220.73	1,595.6	-47.4	-40.8	62.6	2.00	2.00	0.00
1,640.0	12.80	220.73	1,634.7	-53.9	-46.5	71.2	2.00	2.00	0.00
1,680.0	13.60	220.73	1,673.6	-60.9	-52.4	80.3	2.00	2.00	0.00
1,720.0	14.40	220.73	1,712.4	-68.2	-58.7	90.0	2.00	2.00	0.00
1,760.0	15.20	220.73	1,751.1	-75.9	-65.4	100.2	2.00	2.00	0.00
1,800.0	16.00	220.73	1,789.6	-84.1	-72.4	111.0	2.00	2.00	0.00
1,840.0	16.80	220.73	1,828.0	-92.7	-79.8	122.3	2.00	2.00	0.00
1,880.0	17.60	220.73	1,866.2	-101.6	-87.5	134.1	2.00	2.00	0.00
1,920.0	18.40	220.73	1,904.3	-111.0	-95.6	146.5	2.00	2.00	0.00
1,960.0	19.20	220.73	1,942.1	-120.8	-104.0	159.3	2.00	2.00	0.00
2,000.0	20.00	220.73	1,979.8	-130.9	-112.7	172.8	2.00	2.00	0.00
2,040.0	20.80	220.73	2,017.3	-141.5	-121.8	186.7	2.00	2.00	0.00
2,080.0	21.60	220.73	2,054.6	-152.4	-131.3	201.2	2.00	2.00	0.00
2,089.0	21.78	220.73	2,062.9	-155.0	-133.4	204.5	2.00	2.00	0.00



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Wellbore: Wellbore #1  
Design: Noble Marley C01-31D Plan #1 11-18-09

Local Co-ordinate Reference: Well Marley C01-31D  
TVD Reference: WELL @ 4620.0ft (Original Well Elev)  
MD Reference: WELL @ 4620.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

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)
2,120.0	21.78	220.73	2,091.7	-163.7	-140.9	216.0	0.00	0.00	0.00
2,160.0	21.78	220.73	2,128.9	-174.9	-150.6	230.8	0.00	0.00	0.00
2,200.0	21.78	220.73	2,166.0	-186.2	-160.3	245.7	0.00	0.00	0.00
2,240.0	21.78	220.73	2,203.2	-197.4	-170.0	260.5	0.00	0.00	0.00
2,280.0	21.78	220.73	2,240.3	-208.7	-179.7	275.4	0.00	0.00	0.00
2,320.0	21.78	220.73	2,277.5	-219.9	-189.4	290.2	0.00	0.00	0.00
2,360.0	21.78	220.73	2,314.6	-231.2	-199.0	305.1	0.00	0.00	0.00
2,400.0	21.78	220.73	2,351.8	-242.4	-208.7	319.9	0.00	0.00	0.00
2,440.0	21.78	220.73	2,388.9	-253.7	-218.4	334.7	0.00	0.00	0.00
2,480.0	21.78	220.73	2,426.1	-264.9	-228.1	349.6	0.00	0.00	0.00
2,520.0	21.78	220.73	2,463.2	-276.2	-237.8	364.4	0.00	0.00	0.00
2,560.0	21.78	220.73	2,500.3	-287.4	-247.5	379.3	0.00	0.00	0.00
2,600.0	21.78	220.73	2,537.5	-298.6	-257.1	394.1	0.00	0.00	0.00
2,640.0	21.78	220.73	2,574.6	-309.9	-266.8	408.9	0.00	0.00	0.00
2,680.0	21.78	220.73	2,611.8	-321.1	-276.5	423.8	0.00	0.00	0.00
2,720.0	21.78	220.73	2,648.9	-332.4	-286.2	438.6	0.00	0.00	0.00
2,760.0	21.78	220.73	2,686.1	-343.6	-295.9	453.5	0.00	0.00	0.00
2,800.0	21.78	220.73	2,723.2	-354.9	-305.6	468.3	0.00	0.00	0.00
2,840.0	21.78	220.73	2,760.4	-366.1	-315.3	483.1	0.00	0.00	0.00
2,880.0	21.78	220.73	2,797.5	-377.4	-324.9	498.0	0.00	0.00	0.00
2,920.0	21.78	220.73	2,834.6	-388.6	-334.6	512.8	0.00	0.00	0.00
2,960.0	21.78	220.73	2,871.8	-399.9	-344.3	527.7	0.00	0.00	0.00
3,000.0	21.78	220.73	2,908.9	-411.1	-354.0	542.5	0.00	0.00	0.00
3,040.0	21.78	220.73	2,946.1	-422.4	-363.7	557.4	0.00	0.00	0.00
3,080.0	21.78	220.73	2,983.2	-433.6	-373.4	572.2	0.00	0.00	0.00
3,120.0	21.78	220.73	3,020.4	-444.9	-383.0	587.0	0.00	0.00	0.00
3,160.0	21.78	220.73	3,057.5	-456.1	-392.7	601.9	0.00	0.00	0.00
3,200.0	21.78	220.73	3,094.7	-467.3	-402.4	616.7	0.00	0.00	0.00
3,240.0	21.78	220.73	3,131.8	-478.6	-412.1	631.6	0.00	0.00	0.00
3,280.0	21.78	220.73	3,168.9	-489.8	-421.8	646.4	0.00	0.00	0.00
3,320.0	21.78	220.73	3,206.1	-501.1	-431.5	661.2	0.00	0.00	0.00
3,360.0	21.78	220.73	3,243.2	-512.3	-441.1	676.1	0.00	0.00	0.00
3,400.0	21.78	220.73	3,280.4	-523.6	-450.8	690.9	0.00	0.00	0.00
3,440.0	21.78	220.73	3,317.5	-534.8	-460.5	705.8	0.00	0.00	0.00
3,480.0	21.78	220.73	3,354.7	-546.1	-470.2	720.6	0.00	0.00	0.00
3,520.0	21.78	220.73	3,391.8	-557.3	-479.9	735.5	0.00	0.00	0.00
3,560.0	21.78	220.73	3,429.0	-568.6	-489.6	750.3	0.00	0.00	0.00
3,600.0	21.78	220.73	3,466.1	-579.8	-499.2	765.1	0.00	0.00	0.00
3,640.0	21.78	220.73	3,503.3	-591.1	-508.9	780.0	0.00	0.00	0.00
3,680.0	21.78	220.73	3,540.4	-602.3	-518.6	794.8	0.00	0.00	0.00
3,720.0	21.78	220.73	3,577.5	-613.6	-528.3	809.7	0.00	0.00	0.00
3,760.0	21.78	220.73	3,614.7	-624.8	-538.0	824.5	0.00	0.00	0.00
3,800.0	21.78	220.73	3,651.8	-636.0	-547.7	839.3	0.00	0.00	0.00
3,840.0	21.78	220.73	3,689.0	-647.3	-557.4	854.2	0.00	0.00	0.00
3,880.0	21.78	220.73	3,726.1	-658.5	-567.0	869.0	0.00	0.00	0.00
3,920.0	21.78	220.73	3,763.3	-669.8	-576.7	883.9	0.00	0.00	0.00
3,960.0	21.78	220.73	3,800.4	-681.0	-586.4	898.7	0.00	0.00	0.00
4,000.0	21.78	220.73	3,837.6	-692.3	-596.1	913.5	0.00	0.00	0.00
4,040.0	21.78	220.73	3,874.7	-703.5	-605.8	928.4	0.00	0.00	0.00
4,080.0	21.78	220.73	3,911.8	-714.8	-615.5	943.2	0.00	0.00	0.00
4,120.0	21.78	220.73	3,949.0	-726.0	-625.1	958.1	0.00	0.00	0.00
4,160.0	21.78	220.73	3,986.1	-737.3	-634.8	972.9	0.00	0.00	0.00
4,200.0	21.78	220.73	4,023.3	-748.5	-644.5	987.8	0.00	0.00	0.00
4,240.0	21.78	220.73	4,060.4	-759.8	-654.2	1,002.6	0.00	0.00	0.00



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 MD Reference: WELL @ 4620.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

**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)
4,280.0	21.78	220.73	4,097.6	-771.0	-663.9	1,017.4	0.00	0.00	0.00
4,320.0	21.78	220.73	4,134.7	-782.3	-673.6	1,032.3	0.00	0.00	0.00
4,322.5	21.78	220.73	4,137.1	-783.0	-674.2	1,033.2	0.00	0.00	0.00
4,360.0	21.03	220.73	4,171.9	-793.3	-683.1	1,046.9	2.00	-2.00	0.00
4,400.0	20.23	220.73	4,209.4	-804.0	-692.3	1,061.0	2.00	-2.00	0.00
4,440.0	19.43	220.73	4,247.0	-814.3	-701.1	1,074.6	2.00	-2.00	0.00
4,480.0	18.63	220.73	4,284.8	-824.2	-709.7	1,087.6	2.00	-2.00	0.00
4,520.0	17.83	220.73	4,322.8	-833.7	-717.8	1,100.1	2.00	-2.00	0.00
4,560.0	17.03	220.73	4,361.0	-842.7	-725.6	1,112.1	2.00	-2.00	0.00
4,600.0	16.23	220.73	4,399.3	-851.4	-733.1	1,123.5	2.00	-2.00	0.00
4,640.0	15.43	220.73	4,437.8	-859.7	-740.2	1,134.5	2.00	-2.00	0.00
4,680.0	14.63	220.73	4,476.4	-867.5	-747.0	1,144.8	2.00	-2.00	0.00
4,720.0	13.83	220.73	4,515.2	-875.0	-753.4	1,154.7	2.00	-2.00	0.00
4,760.0	13.03	220.73	4,554.1	-882.0	-759.5	1,163.9	2.00	-2.00	0.00
4,800.0	12.23	220.73	4,593.1	-888.7	-765.2	1,172.7	2.00	-2.00	0.00
4,840.0	11.43	220.73	4,632.3	-894.9	-770.5	1,180.9	2.00	-2.00	0.00
4,880.0	10.63	220.73	4,671.5	-900.7	-775.5	1,188.5	2.00	-2.00	0.00
4,920.0	9.83	220.73	4,710.9	-906.1	-780.2	1,195.7	2.00	-2.00	0.00
4,960.0	9.03	220.73	4,750.4	-911.0	-784.4	1,202.2	2.00	-2.00	0.00
5,000.0	8.23	220.73	4,789.9	-915.6	-788.3	1,208.2	2.00	-2.00	0.00
5,040.0	7.43	220.73	4,829.5	-919.7	-791.9	1,213.7	2.00	-2.00	0.00
5,080.0	6.63	220.73	4,869.2	-923.4	-795.1	1,218.6	2.00	-2.00	0.00
5,120.0	5.83	220.73	4,909.0	-926.7	-797.9	1,222.9	2.00	-2.00	0.00
5,160.0	5.03	220.73	4,948.8	-929.6	-800.4	1,226.7	2.00	-2.00	0.00
5,200.0	4.23	220.73	4,988.7	-932.0	-802.5	1,229.9	2.00	-2.00	0.00
5,240.0	3.43	220.73	5,028.6	-934.0	-804.3	1,232.6	2.00	-2.00	0.00
5,280.0	2.63	220.73	5,068.5	-935.6	-805.6	1,234.7	2.00	-2.00	0.00
5,320.0	1.83	220.73	5,108.5	-936.8	-806.6	1,236.2	2.00	-2.00	0.00
5,360.0	1.03	220.73	5,148.5	-937.6	-807.3	1,237.2	2.00	-2.00	0.00
5,400.0	0.23	220.73	5,188.5	-937.9	-807.6	1,237.7	2.00	-2.00	0.00
5,411.5	0.00	0.00	5,200.0	-937.9	-807.6	1,237.7	2.00	-2.00	1,210.47
TARGET BHL 1470'FNL, 150'FEL									
5,440.0	0.00	0.00	5,228.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,480.0	0.00	0.00	5,268.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,308.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,348.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,388.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,428.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,468.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,508.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,548.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,588.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,628.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,668.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,708.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,748.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,788.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,828.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,868.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,908.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,160.0	0.00	0.00	5,948.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,200.0	0.00	0.00	5,988.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,028.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.1-T4N-R64W  
 Site: Marley C01-30D Pad Sec.1-T4N-R64W  
 Well: Marley C01-31D  
 Wellbore: Wellbore #1  
 Design: Noble Marley C01-31D Plan #1 11-18-09

Local Co-ordinate Reference: Well Marley C01-31D  
 TVD Reference: WELL @ 4620.0ft (Original Well Elev)  
 MD Reference: WELL @ 4620.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

**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)
6,280.0	0.00	0.00	6,068.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,108.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,148.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,188.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,228.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,268.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,308.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,348.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,388.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,428.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,655.5	0.00	0.00	6,444.0	-937.9	-807.6	1,237.7	0.00	0.00	0.00
<b>NIORARA - TARGET CIRCLE 1470'FNL, 150'FEL</b>									
6,680.0	0.00	0.00	6,468.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,508.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,548.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,588.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,628.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,668.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,708.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
6,951.5	0.00	0.00	6,740.0	-937.9	-807.6	1,237.7	0.00	0.00	0.00
<b>CODELL</b>									
6,960.0	0.00	0.00	6,748.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,788.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,828.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
7,080.0	0.00	0.00	6,868.5	-937.9	-807.6	1,237.7	0.00	0.00	0.00
7,101.5	0.00	0.00	6,890.0	-937.9	-807.6	1,237.7	0.00	0.00	0.00
<b>HARDLINE 150'E OF BHL</b>									

**Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARDLINE 150'E OF	0.00	0.00	6,890.0	-1,037.9	-657.6	1,369,830.21	3,276,456.21	40° 20' 39.628 N	104° 30' 29.409 W
- plan misses target center by 180.3ft at 7101.5ft MD (6890.0 TVD, -937.9 N, -807.6 E)									
- Polygon									
Point 1			6,890.0	0.0	0.0	1,369,830.21	3,276,456.21		
Point 2			6,890.0	200.0	0.0	1,370,030.19	3,276,453.96		
TARGET CIRCLE 147	0.00	0.00	6,444.0	-937.9	-807.6	1,369,928.52	3,276,305.10	40° 20' 40.616 N	104° 30' 31.346 W
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1470'F	0.00	0.00	5,200.0	-937.9	-807.6	1,369,928.49	3,276,305.10	40° 20' 40.615 N	104° 30' 31.346 W
- plan hits target center									
- Point									



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Marley C01-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4620.0ft (Original Well Elev)
Project:	SEC.1-T4N-R64W	MD Reference:	WELL @ 4620.0ft (Original Well Elev)
Site:	Marley C01-30D Pad Sec.1-T4N-R64W	North Reference:	True
Well:	Marley C01-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Marley C01-31D Plan #1 11-18-09		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,655.5	6,444.0	NIOBRARA		0.00	
6,951.5	6,740.0	CODELL		0.00	