

# ENSIGN

## Directional

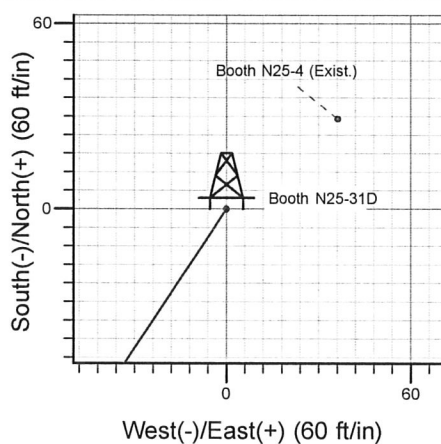
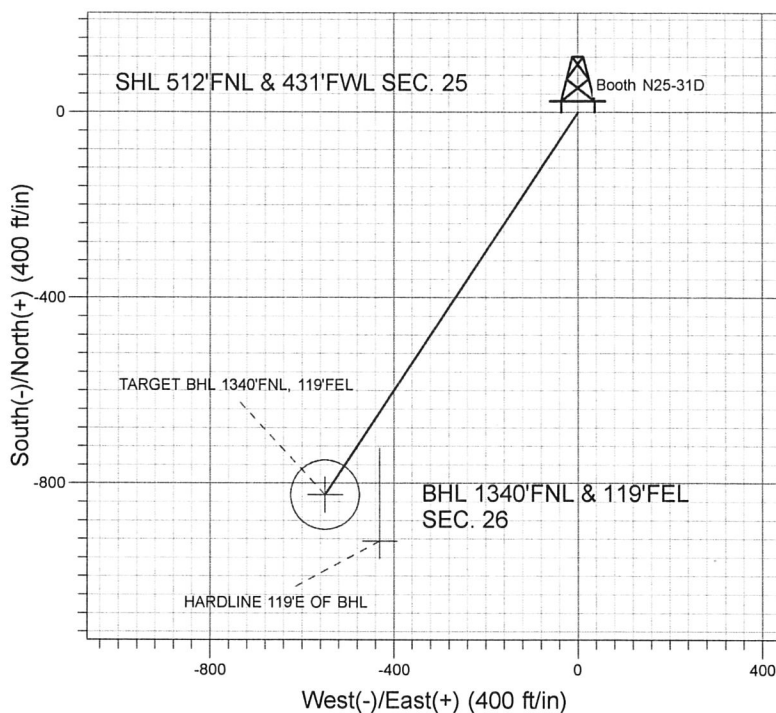
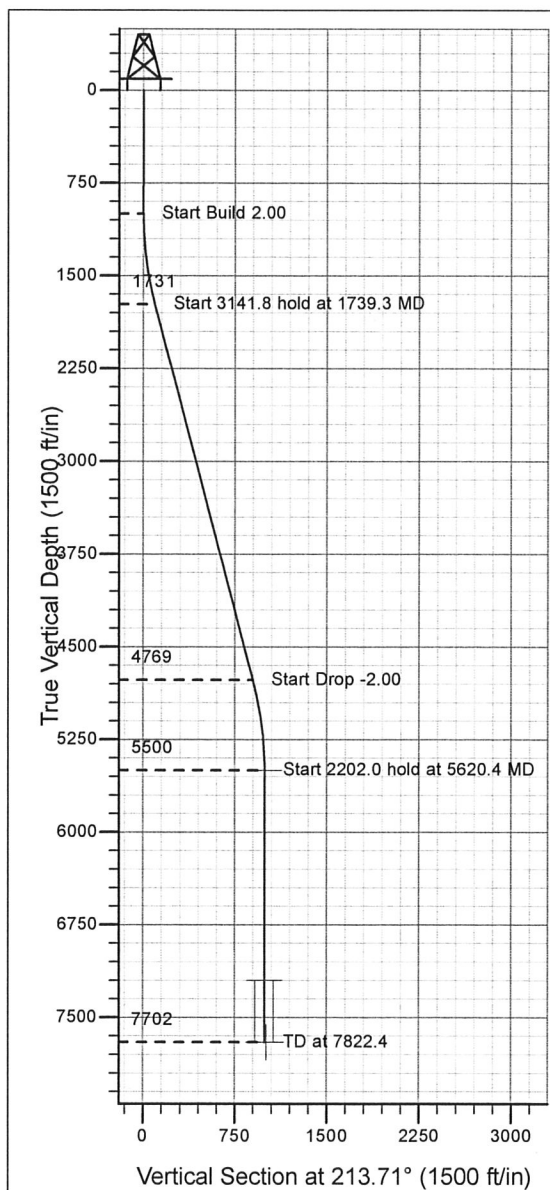
### Well Name: Booth N25-31D

Surface Location: Booth N25-31D Pad Sec.25-T5N-R67W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5039.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1380653.43 3181257.32 40° 22' 35.292 N 104° 50' 57.876 W  
Original Well Elev WELL @ 5052.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Booth N25-31D Pad Sec.25-T5N-R67W  
Booth N25-31D  
Noble Booth N25-31D Plan #1 (02-23-10)  
17:30, February 23 2010



Azimuths to True North  
Magnetic North: 9.07°

Magnetic Field  
Strength: 53280.9snT  
Dip Angle: 67.08°  
Date: 12/31/2009  
Model: IGRF200510

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

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1340'FNL, 119'FEL	5500.0	-824.8	-550.4	40° 22' 27.141 N	104° 51' 4.987 W	Point
TARGET CIRCLE 1340'FNL, 119'FEL	7202.0	-824.8	-550.4	40° 22' 27.141 N	104° 51' 4.987 W	Circle (Radius: 75.0)
HARDLINE 119'E OF BHL	7702.0	-924.8	-431.4	40° 22' 26.153 N	104° 51' 3.450 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	1739.3	14.79	213.71	1731.1	-78.9	-52.7	2.00	213.71	94.9	
4	4881.1	14.79	213.71	4768.9	-745.9	-497.7	0.00	0.00	896.7	
5	5620.4	0.00	0.00	5500.0	-824.8	-550.4	2.00	180.00	991.6	TARGET BHL 1340'FNL, 119'FEL
6	7822.4	0.00	0.00	7702.0	-824.8	-550.4	0.00	0.00	991.6	

**ENSIGN**

## **Directional**

### **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.25-T5N-R67W**

**Booth N25-31D Pad Sec.25-T5N-R67W**

**Booth N25-31D**

**Wellbore #1**

**Plan: Noble Booth N25-31D Plan #1 (02-23-10)**

### **Standard Planning Report**

**23 February, 2010**



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Booth N25-31D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Project:</b>	SEC.25-T5N-R67W	<b>MD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Site:</b>	Booth N25-31D Pad Sec.25-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Booth N25-31D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Booth N25-31D Plan #1 (02-23-10)		

<b>Project</b>	SEC.25-T5N-R67W, Weld County, Colorado		
<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		Using geodetic scale factor

Site		Booth N25-31D Pad Sec.25-T5N-R67W			
Site Position:		Northing:	1,380,653.44 ft	Latitude:	40° 22' 35.292 N
From:	Lat/Long	Easting:	3,181,257.32 ft	Longitude:	104° 50' 57.876 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.42 °

Well	Booth N25-31D					
Well Position	+N/-S	0.0 ft	Northing:	1,380,653.43 ft	Latitude:	40° 22' 35.292 N
	+E/-W	0.0 ft	Easting:	3,181,257.32 ft	Longitude:	104° 50' 57.876 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,039.0 ft

<b>Wellbore</b>	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.07	67.08	53,281

<b>Design</b>	Noble Booth N25-31D Plan #1 (02-23-10)				
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<b>Audit Notes:</b>					
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<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
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Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	213.71

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	
1,739.3	14.79	213.71	1,731.1	-78.9	-52.7	2.00	2.00	0.00	213.71	
4,881.1	14.79	213.71	4,768.9	-745.9	-497.7	0.00	0.00	0.00	0.00	
5,620.4	0.00	0.00	5,500.0	-824.8	-550.4	2.00	-2.00	0.00	180.00	TARGET BHL 134C
7,822.4	0.00	0.00	7,702.0	-824.8	-550.4	0.00	0.00	0.00	0.00	

# ENSIGN

## Directional

### ENSIGN DIRECTIONAL

#### Planning Report



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Booth N25-31D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Project:</b>	SEC.25-T5N-R67W	<b>MD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Site:</b>	Booth N25-31D Pad Sec.25-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Booth N25-31D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Booth N25-31D Plan #1 (02-23-10)		

#### 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	213.71	1,040.0	-0.2	-0.2	0.3	2.00	2.00	0.00
1,080.0	1.60	213.71	1,080.0	-0.9	-0.6	1.1	2.00	2.00	0.00
1,120.0	2.40	213.71	1,120.0	-2.1	-1.4	2.5	2.00	2.00	0.00
1,160.0	3.20	213.71	1,159.9	-3.7	-2.5	4.5	2.00	2.00	0.00
1,200.0	4.00	213.71	1,199.8	-5.8	-3.9	7.0	2.00	2.00	0.00
1,240.0	4.80	213.71	1,239.7	-8.4	-5.6	10.0	2.00	2.00	0.00
1,280.0	5.60	213.71	1,279.6	-11.4	-7.6	13.7	2.00	2.00	0.00
1,320.0	6.40	213.71	1,319.3	-14.9	-9.9	17.9	2.00	2.00	0.00
1,360.0	7.20	213.71	1,359.1	-18.8	-12.5	22.6	2.00	2.00	0.00
1,400.0	8.00	213.71	1,398.7	-23.2	-15.5	27.9	2.00	2.00	0.00
1,440.0	8.80	213.71	1,438.3	-28.1	-18.7	33.7	2.00	2.00	0.00
1,480.0	9.60	213.71	1,477.8	-33.4	-22.3	40.1	2.00	2.00	0.00
1,520.0	10.40	213.71	1,517.1	-39.1	-26.1	47.1	2.00	2.00	0.00
1,560.0	11.20	213.71	1,556.4	-45.4	-30.3	54.6	2.00	2.00	0.00
1,600.0	12.00	213.71	1,595.6	-52.1	-34.7	62.6	2.00	2.00	0.00
1,640.0	12.80	213.71	1,634.7	-59.2	-39.5	71.2	2.00	2.00	0.00
1,680.0	13.60	213.71	1,673.6	-66.8	-44.6	80.3	2.00	2.00	0.00
1,720.0	14.40	213.71	1,712.4	-74.9	-50.0	90.0	2.00	2.00	0.00
1,739.3	14.79	213.71	1,731.1	-78.9	-52.7	94.9	2.00	2.00	0.00
1,760.0	14.79	213.71	1,751.1	-83.3	-55.6	100.1	0.00	0.00	0.00
1,800.0	14.79	213.71	1,789.8	-91.8	-61.3	110.4	0.00	0.00	0.00
1,840.0	14.79	213.71	1,828.5	-100.3	-66.9	120.6	0.00	0.00	0.00
1,880.0	14.79	213.71	1,867.2	-108.8	-72.6	130.8	0.00	0.00	0.00
1,920.0	14.79	213.71	1,905.8	-117.3	-78.3	141.0	0.00	0.00	0.00
1,960.0	14.79	213.71	1,944.5	-125.8	-83.9	151.2	0.00	0.00	0.00
2,000.0	14.79	213.71	1,983.2	-134.3	-89.6	161.4	0.00	0.00	0.00
2,040.0	14.79	213.71	2,021.9	-142.7	-95.3	171.6	0.00	0.00	0.00
2,080.0	14.79	213.71	2,060.5	-151.2	-100.9	181.8	0.00	0.00	0.00

# ENSIGN Directional

## ENSIGN DIRECTIONAL Planning Report



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Booth N25-31D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Project:</b>	SEC.25-T5N-R67W	<b>MD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Site:</b>	Booth N25-31D Pad Sec.25-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Booth N25-31D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Booth N25-31D Plan #1 (02-23-10)		

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	14.79	213.71	2,099.2	-159.7	-106.6	192.0	0.00	0.00	0.00	
2,160.0	14.79	213.71	2,137.9	-168.2	-112.3	202.2	0.00	0.00	0.00	
2,200.0	14.79	213.71	2,176.6	-176.7	-117.9	212.4	0.00	0.00	0.00	
2,240.0	14.79	213.71	2,215.2	-185.2	-123.6	222.7	0.00	0.00	0.00	
2,280.0	14.79	213.71	2,253.9	-193.7	-129.3	232.9	0.00	0.00	0.00	
2,320.0	14.79	213.71	2,292.6	-202.2	-134.9	243.1	0.00	0.00	0.00	
2,360.0	14.79	213.71	2,331.3	-210.7	-140.6	253.3	0.00	0.00	0.00	
2,400.0	14.79	213.71	2,369.9	-219.2	-146.3	263.5	0.00	0.00	0.00	
2,440.0	14.79	213.71	2,408.6	-227.7	-151.9	273.7	0.00	0.00	0.00	
2,480.0	14.79	213.71	2,447.3	-236.2	-157.6	283.9	0.00	0.00	0.00	
2,520.0	14.79	213.71	2,486.0	-244.6	-163.3	294.1	0.00	0.00	0.00	
2,560.0	14.79	213.71	2,524.6	-253.1	-168.9	304.3	0.00	0.00	0.00	
2,600.0	14.79	213.71	2,563.3	-261.6	-174.6	314.5	0.00	0.00	0.00	
2,640.0	14.79	213.71	2,602.0	-270.1	-180.3	324.7	0.00	0.00	0.00	
2,680.0	14.79	213.71	2,640.7	-278.6	-185.9	334.9	0.00	0.00	0.00	
2,720.0	14.79	213.71	2,679.3	-287.1	-191.6	345.2	0.00	0.00	0.00	
2,760.0	14.79	213.71	2,718.0	-295.6	-197.2	355.4	0.00	0.00	0.00	
2,800.0	14.79	213.71	2,756.7	-304.1	-202.9	365.6	0.00	0.00	0.00	
2,840.0	14.79	213.71	2,795.4	-312.6	-208.6	375.8	0.00	0.00	0.00	
2,880.0	14.79	213.71	2,834.0	-321.1	-214.2	386.0	0.00	0.00	0.00	
2,920.0	14.79	213.71	2,872.7	-329.6	-219.9	396.2	0.00	0.00	0.00	
2,960.0	14.79	213.71	2,911.4	-338.1	-225.6	406.4	0.00	0.00	0.00	
3,000.0	14.79	213.71	2,950.1	-346.5	-231.2	416.6	0.00	0.00	0.00	
3,040.0	14.79	213.71	2,988.7	-355.0	-236.9	426.8	0.00	0.00	0.00	
3,080.0	14.79	213.71	3,027.4	-363.5	-242.6	437.0	0.00	0.00	0.00	
3,120.0	14.79	213.71	3,066.1	-372.0	-248.2	447.2	0.00	0.00	0.00	
3,160.0	14.79	213.71	3,104.8	-380.5	-253.9	457.5	0.00	0.00	0.00	
3,200.0	14.79	213.71	3,143.4	-389.0	-259.6	467.7	0.00	0.00	0.00	
3,240.0	14.79	213.71	3,182.1	-397.5	-265.2	477.9	0.00	0.00	0.00	
3,280.0	14.79	213.71	3,220.8	-406.0	-270.9	488.1	0.00	0.00	0.00	
3,320.0	14.79	213.71	3,259.5	-414.5	-276.6	498.3	0.00	0.00	0.00	
3,360.0	14.79	213.71	3,298.2	-423.0	-282.2	508.5	0.00	0.00	0.00	
3,400.0	14.79	213.71	3,336.8	-431.5	-287.9	518.7	0.00	0.00	0.00	
3,440.0	14.79	213.71	3,375.5	-440.0	-293.6	528.9	0.00	0.00	0.00	
3,480.0	14.79	213.71	3,414.2	-448.4	-299.2	539.1	0.00	0.00	0.00	
3,520.0	14.79	213.71	3,452.9	-456.9	-304.9	549.3	0.00	0.00	0.00	
3,560.0	14.79	213.71	3,491.5	-465.4	-310.6	559.5	0.00	0.00	0.00	
3,600.0	14.79	213.71	3,530.2	-473.9	-316.2	569.7	0.00	0.00	0.00	
3,640.0	14.79	213.71	3,568.9	-482.4	-321.9	580.0	0.00	0.00	0.00	
3,680.0	14.79	213.71	3,607.6	-490.9	-327.6	590.2	0.00	0.00	0.00	
3,720.0	14.79	213.71	3,646.2	-499.4	-333.2	600.4	0.00	0.00	0.00	
3,760.0	14.79	213.71	3,684.9	-507.9	-338.9	610.6	0.00	0.00	0.00	
3,800.0	14.79	213.71	3,723.6	-516.4	-344.6	620.8	0.00	0.00	0.00	
3,840.0	14.79	213.71	3,762.3	-524.9	-350.2	631.0	0.00	0.00	0.00	
3,880.0	14.79	213.71	3,800.9	-533.4	-355.9	641.2	0.00	0.00	0.00	
3,920.0	14.79	213.71	3,839.6	-541.9	-361.6	651.4	0.00	0.00	0.00	
3,960.0	14.79	213.71	3,878.3	-550.3	-367.2	661.6	0.00	0.00	0.00	
4,000.0	14.79	213.71	3,917.0	-558.8	-372.9	671.8	0.00	0.00	0.00	
4,040.0	14.79	213.71	3,955.6	-567.3	-378.6	682.0	0.00	0.00	0.00	
4,080.0	14.79	213.71	3,994.3	-575.8	-384.2	692.3	0.00	0.00	0.00	
4,120.0	14.79	213.71	4,033.0	-584.3	-389.9	702.5	0.00	0.00	0.00	
4,160.0	14.79	213.71	4,071.7	-592.8	-395.6	712.7	0.00	0.00	0.00	
4,200.0	14.79	213.71	4,110.3	-601.3	-401.2	722.9	0.00	0.00	0.00	
4,240.0	14.79	213.71	4,149.0	-609.8	-406.9	733.1	0.00	0.00	0.00	



**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.25-T5N-R67W  
**Site:** Booth N25-31D Pad Sec.25-T5N-R67W  
**Well:** Booth N25-31D  
**Wellbore:** Wellbore #1  
**Design:** Noble Booth N25-31D Plan #1 (02-23-10)

**Local Co-ordinate Reference:** Well Booth N25-31D  
**TVD Reference:** WELL @ 5052.0ft (Original Well Elev)  
**MD Reference:** WELL @ 5052.0ft (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	14.79	213.71	4,187.7	-618.3	-412.6	743.3	0.00	0.00	0.00
4,320.0	14.79	213.71	4,226.4	-626.8	-418.2	753.5	0.00	0.00	0.00
4,360.0	14.79	213.71	4,265.0	-635.3	-423.9	763.7	0.00	0.00	0.00
4,400.0	14.79	213.71	4,303.7	-643.8	-429.6	773.9	0.00	0.00	0.00
4,440.0	14.79	213.71	4,342.4	-652.2	-435.2	784.1	0.00	0.00	0.00
4,480.0	14.79	213.71	4,381.1	-660.7	-440.9	794.3	0.00	0.00	0.00
4,520.0	14.79	213.71	4,419.7	-669.2	-446.6	804.5	0.00	0.00	0.00
4,560.0	14.79	213.71	4,458.4	-677.7	-452.2	814.8	0.00	0.00	0.00
4,600.0	14.79	213.71	4,497.1	-686.2	-457.9	825.0	0.00	0.00	0.00
4,640.0	14.79	213.71	4,535.8	-694.7	-463.6	835.2	0.00	0.00	0.00
4,680.0	14.79	213.71	4,574.4	-703.2	-469.2	845.4	0.00	0.00	0.00
4,720.0	14.79	213.71	4,613.1	-711.7	-474.9	855.6	0.00	0.00	0.00
4,760.0	14.79	213.71	4,651.8	-720.2	-480.6	865.8	0.00	0.00	0.00
4,800.0	14.79	213.71	4,690.5	-728.7	-486.2	876.0	0.00	0.00	0.00
4,840.0	14.79	213.71	4,729.1	-737.2	-491.9	886.2	0.00	0.00	0.00
4,880.0	14.79	213.71	4,767.8	-745.7	-497.6	896.4	0.00	0.00	0.00
4,881.1	14.79	213.71	4,768.9	-745.9	-497.7	896.7	0.00	0.00	0.00
4,920.0	14.01	213.71	4,806.6	-753.9	-503.1	906.4	2.00	-2.00	0.00
4,960.0	13.21	213.71	4,845.4	-761.8	-508.3	915.8	2.00	-2.00	0.00
5,000.0	12.41	213.71	4,884.4	-769.1	-513.2	924.7	2.00	-2.00	0.00
5,040.0	11.61	213.71	4,923.6	-776.1	-517.9	933.0	2.00	-2.00	0.00
5,080.0	10.81	213.71	4,962.8	-782.5	-522.2	940.8	2.00	-2.00	0.00
5,120.0	10.01	213.71	5,002.1	-788.5	-526.2	948.0	2.00	-2.00	0.00
5,160.0	9.21	213.71	5,041.6	-794.1	-529.9	954.7	2.00	-2.00	0.00
5,200.0	8.41	213.71	5,081.1	-799.2	-533.3	960.8	2.00	-2.00	0.00
5,240.0	7.61	213.71	5,120.7	-803.8	-536.4	966.4	2.00	-2.00	0.00
5,280.0	6.81	213.71	5,160.4	-808.0	-539.2	971.4	2.00	-2.00	0.00
5,320.0	6.01	213.71	5,200.1	-811.7	-541.6	975.8	2.00	-2.00	0.00
5,360.0	5.21	213.71	5,240.0	-815.0	-543.8	979.7	2.00	-2.00	0.00
5,400.0	4.41	213.71	5,279.8	-817.7	-545.7	983.1	2.00	-2.00	0.00
5,440.0	3.61	213.71	5,319.7	-820.1	-547.2	985.9	2.00	-2.00	0.00
5,480.0	2.81	213.71	5,359.7	-821.9	-548.5	988.1	2.00	-2.00	0.00
5,520.0	2.01	213.71	5,399.6	-823.3	-549.4	989.8	2.00	-2.00	0.00
5,560.0	1.21	213.71	5,439.6	-824.3	-550.0	990.9	2.00	-2.00	0.00
5,600.0	0.41	213.71	5,479.6	-824.7	-550.3	991.5	2.00	-2.00	0.00
5,620.4	0.00	0.00	5,500.0	-824.8	-550.4	991.6	2.00	-2.00	0.00
TARGET BHL 1340'FNL, 119'FEL									
5,640.0	0.00	0.00	5,519.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,680.0	0.00	0.00	5,559.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,720.0	0.00	0.00	5,599.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,760.0	0.00	0.00	5,639.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,679.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,840.0	0.00	0.00	5,719.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,880.0	0.00	0.00	5,759.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,920.0	0.00	0.00	5,799.6	-824.8	-550.4	991.6	0.00	0.00	0.00
5,960.0	0.00	0.00	5,839.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,879.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,040.0	0.00	0.00	5,919.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,080.0	0.00	0.00	5,959.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,120.0	0.00	0.00	5,999.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,160.0	0.00	0.00	6,039.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,079.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,240.0	0.00	0.00	6,119.6	-824.8	-550.4	991.6	0.00	0.00	0.00

# ENSIGN

## Directional

### ENSIGN DIRECTIONAL

#### Planning Report



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Booth N25-31D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Project:</b>	SEC.25-T5N-R67W	<b>MD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Site:</b>	Booth N25-31D Pad Sec.25-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Booth N25-31D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Booth N25-31D Plan #1 (02-23-10)		

#### 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	6,159.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,320.0	0.00	0.00	6,199.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,360.0	0.00	0.00	6,239.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,279.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,440.0	0.00	0.00	6,319.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,480.0	0.00	0.00	6,359.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,520.0	0.00	0.00	6,399.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,560.0	0.00	0.00	6,439.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,479.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,640.0	0.00	0.00	6,519.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,680.0	0.00	0.00	6,559.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,720.0	0.00	0.00	6,599.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,760.0	0.00	0.00	6,639.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,679.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,840.0	0.00	0.00	6,719.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,880.0	0.00	0.00	6,759.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,920.0	0.00	0.00	6,799.6	-824.8	-550.4	991.6	0.00	0.00	0.00
6,960.0	0.00	0.00	6,839.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,879.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,040.0	0.00	0.00	6,919.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,080.0	0.00	0.00	6,959.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,120.0	0.00	0.00	6,999.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,160.0	0.00	0.00	7,039.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,200.0	0.00	0.00	7,079.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,240.0	0.00	0.00	7,119.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,280.0	0.00	0.00	7,159.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,320.0	0.00	0.00	7,199.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,322.4	0.00	0.00	7,202.0	-824.8	-550.4	991.6	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 1340'FNL, 119'FEL</b>									
7,360.0	0.00	0.00	7,239.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,400.0	0.00	0.00	7,279.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,440.0	0.00	0.00	7,319.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,480.0	0.00	0.00	7,359.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,520.0	0.00	0.00	7,399.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,560.0	0.00	0.00	7,439.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,600.0	0.00	0.00	7,479.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,640.0	0.00	0.00	7,519.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,672.4	0.00	0.00	7,552.0	-824.8	-550.4	991.6	0.00	0.00	0.00
<b>CODELL</b>									
7,680.0	0.00	0.00	7,559.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,720.0	0.00	0.00	7,599.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,760.0	0.00	0.00	7,639.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,800.0	0.00	0.00	7,679.6	-824.8	-550.4	991.6	0.00	0.00	0.00
7,822.4	0.00	0.00	7,702.0	-824.8	-550.4	991.6	0.00	0.00	0.00
<b>HARDLINE 119'E OF BHL</b>									

<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Booth N25-31D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Project:</b>	SEC.25-T5N-R67W	<b>MD Reference:</b>	WELL @ 5052.0ft (Original Well Elev)
<b>Site:</b>	Booth N25-31D Pad Sec.25-T5N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Booth N25-31D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Booth N25-31D Plan #1 (02-23-10)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
HARDLINE 119'E OF	0.00	0.00	7,702.0	-924.8	-431.4	1,379,725.53	3,180,832.73	40° 22' 26.153 N	104° 51' 3.450 W
- plan misses target center by 155.4ft at 7822.4ft MD (7702.0 TVD, -824.8 N, -550.4 E)									
- Polygon									
Point 1			7,702.0	0.0	0.0	1,379,725.53	3,180,832.73		
Point 2			7,702.0	200.0	0.0	1,379,925.51	3,180,831.26		
TARGET CIRCLE 134	0.00	0.00	7,202.0	-824.8	-550.4	1,379,824.65	3,180,713.01	40° 22' 27.141 N	104° 51' 4.987 W
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1340'F	0.00	0.00	5,500.0	-824.8	-550.4	1,379,824.65	3,180,713.02	40° 22' 27.141 N	104° 51' 4.987 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
7,322.4	7,202.0	NIOBRARA		0.00		
7,672.4	7,552.0	CODELL		0.00		