

ENSIGN

Directional

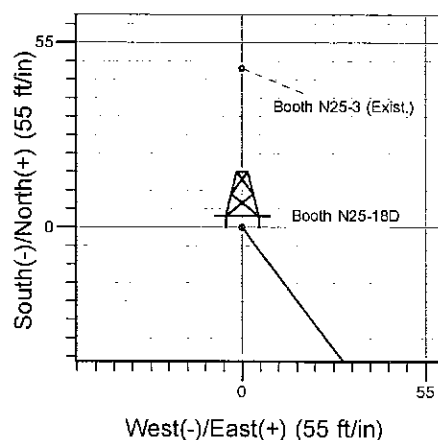
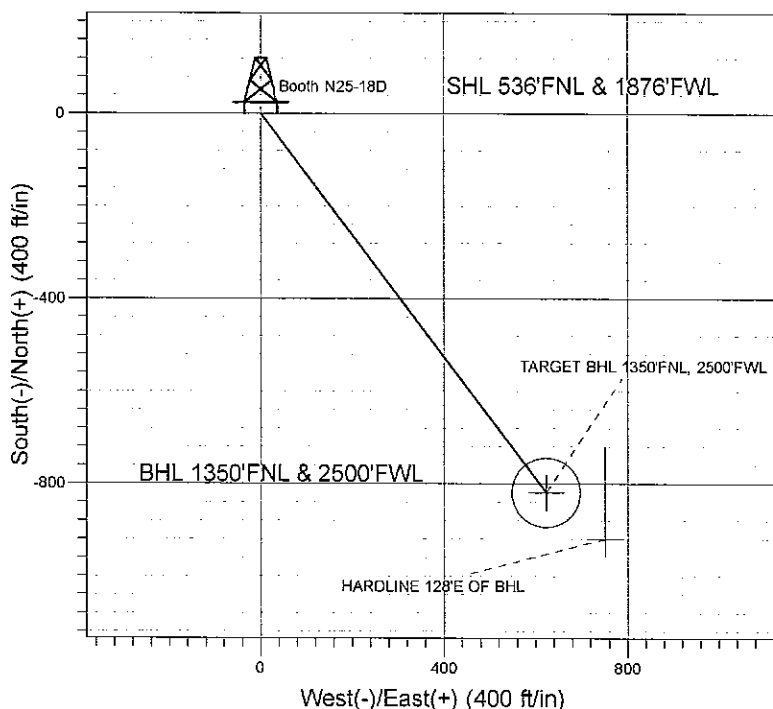
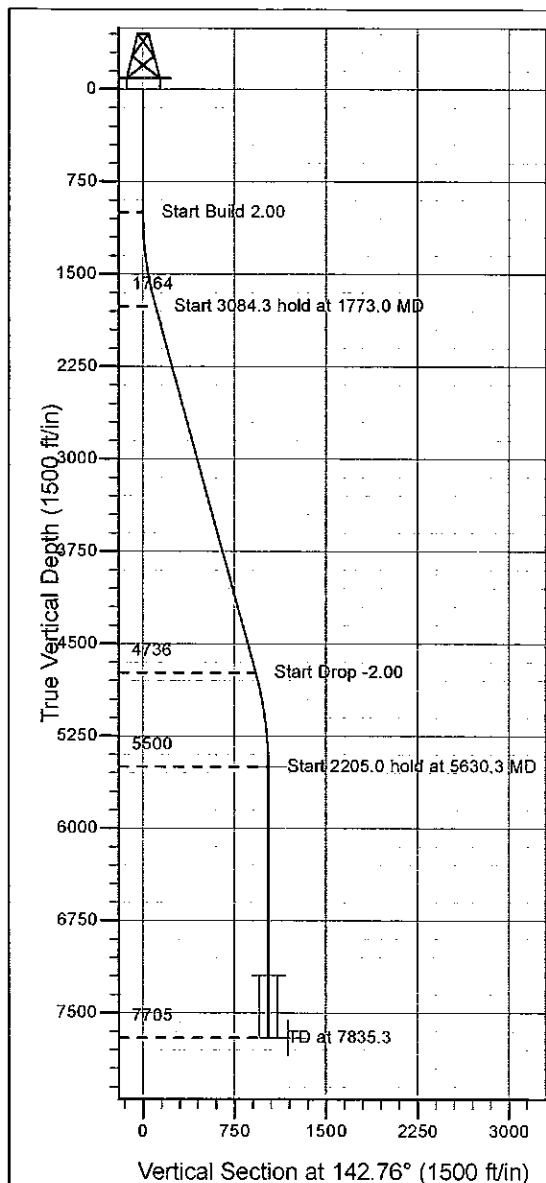
Well Name: Booth N25-18D

Surface Location: Booth N25-18D Pad Sec.25-T5N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5042.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1380627.63 3182700.73 40° 22' 34.932 N 104° 50' 39.228 W
Original Well Elev WELL @ 5055.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Booth N25-18D Pad Sec.25-T5N-R67W
Booth N25-18D
Noble Booth N25-18D Plan #1 (02-23-10)
17:49, February 23 2010



Azimuths to True North
Magnetic North: 9.06°

Magnetic Field
Strength: 53281.4snT
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 1350'FNL, 2500'FWL	5500.0	-819.6	623.0	40° 22' 26.833 N	104° 50' 31.179 W	Point
TARGET CIRCLE 1350'FNL, 2500'FWL	7195.0	-819.6	623.0	40° 22' 26.833 N	104° 50' 31.179 W	Circle (Radius: 75.0)
HARDLINE 128°E OF BHL	7705.0	-919.6	751.0	40° 22' 25.845 N	104° 50' 29.525 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	1773.0	15.46	142.76	1763.7	-82.5	62.7	2.00	142.76	103.7	
4	4857.3	15.46	142.76	4736.3	-737.1	560.3	0.00	0.00	925.8	
5	5630.3	0.00	0.00	5500.0	-819.6	623.0	2.00	180.00	1029.5	TARGET BHL 1350'FNL, 2500'FWL
6	7835.3	0.00	0.00	7705.0	-819.6	623.0	0.00	0.00	1029.5	

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**NOBLE ENERGY INC WELD
COUNTY CO**

SEC.25-T5N-R67W

Booth N25-18D Pad Sec.25-T5N-R67W

Booth N25-18D

Wellbore #1

Plan: Noble Booth N25-18D Plan #1 (02-23-10)

Standard Planning Report

23 February, 2010



ENSIGN Directional

ENSIGN DIRECTIONAL Planning Report



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.25-T5N-R67W
Site: Booth N25-18D Pad Sec.25-T5N-R67W
Well: Booth N25-18D
Wellbore: Wellbore #1
Design: Noble Booth N25-18D Plan #1 (02-23-10)

Local Co-ordinate Reference: Well Booth N25-18D
TVD Reference: WELL @ 5055.0ft (Original Well Elev)
MD Reference: WELL @ 5055.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	SEC.25-T5N-R67W, 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	Booth N25-18D Pad Sec.25-T5N-R67W		
Site Position:		Northing:	1,380,627.64 ft
From:	Lat/Long	Easting:	3,182,700.73 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 22' 34.932 N
		Longitude:	104° 50' 39.228 W
		Grid Convergence:	0.42 °

Well	Booth N25-18D		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 22' 34.932 N
		Longitude:	104° 50' 39.228 W
		Ground Level:	5,042.0 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	12/31/2009	9.06
			Dip Angle
			(°)
			67.08
			Field Strength
			(nT)
			53,281

Design: Noble Booth N25-18D Plan #1 (02-23-10)

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	142.76

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,773.0	15.46	142.76	1,763.7	-82.5	62.7	2.00	2.00	0.00	142.76	
4,857.3	15.46	142.76	4,736.3	-737.1	560.3	0.00	0.00	0.00	0.00	
5,630.3	0.00	0.00	5,500.0	-819.6	623.0	2.00	-2.00	0.00	180.00	TARGET BHL 135C
7,835.3	0.00	0.00	7,705.0	-819.6	623.0	0.00	0.00	0.00	0.00	

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Planning Report



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 Design: Noble Booth N25-18D Plan #1 (02-23-10)

Local Co-ordinate Reference: Well Booth N25-18D
 TVD Reference: WELL @ 5055.0ft (Original Well Elev)
 MD Reference: WELL @ 5055.0ft (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	142.76	1,040.0	-0.2	0.2	0.3	2.00	2.00	0.00
1,080.0	1.60	142.76	1,080.0	-0.9	0.7	1.1	2.00	2.00	0.00
1,120.0	2.40	142.76	1,120.0	-2.0	1.5	2.5	2.00	2.00	0.00
1,160.0	3.20	142.76	1,159.9	-3.6	2.7	4.5	2.00	2.00	0.00
1,200.0	4.00	142.76	1,199.8	-5.6	4.2	7.0	2.00	2.00	0.00
1,240.0	4.80	142.76	1,239.7	-8.0	6.1	10.0	2.00	2.00	0.00
1,280.0	5.60	142.76	1,279.6	-10.9	8.3	13.7	2.00	2.00	0.00
1,320.0	6.40	142.76	1,319.3	-14.2	10.8	17.9	2.00	2.00	0.00
1,360.0	7.20	142.76	1,359.1	-18.0	13.7	22.6	2.00	2.00	0.00
1,400.0	8.00	142.76	1,398.7	-22.2	16.9	27.9	2.00	2.00	0.00
1,440.0	8.80	142.76	1,438.3	-26.8	20.4	33.7	2.00	2.00	0.00
1,480.0	9.60	142.76	1,477.8	-31.9	24.3	40.1	2.00	2.00	0.00
1,520.0	10.40	142.76	1,517.1	-37.5	28.5	47.1	2.00	2.00	0.00
1,560.0	11.20	142.76	1,556.4	-43.4	33.0	54.6	2.00	2.00	0.00
1,600.0	12.00	142.76	1,595.6	-49.8	37.9	62.6	2.00	2.00	0.00
1,640.0	12.80	142.76	1,634.7	-56.7	43.1	71.2	2.00	2.00	0.00
1,680.0	13.60	142.76	1,673.6	-63.9	48.6	80.3	2.00	2.00	0.00
1,720.0	14.40	142.76	1,712.4	-71.7	54.5	90.0	2.00	2.00	0.00
1,760.0	15.20	142.76	1,751.1	-79.8	60.6	100.2	2.00	2.00	0.00
1,773.0	15.46	142.76	1,763.7	-82.5	62.7	103.7	2.00	2.00	0.00
1,800.0	15.46	142.76	1,789.7	-88.3	67.1	110.9	0.00	0.00	0.00
1,840.0	15.46	142.76	1,828.2	-96.7	73.5	121.5	0.00	0.00	0.00
1,880.0	15.46	142.76	1,866.8	-105.2	80.0	132.2	0.00	0.00	0.00
1,920.0	15.46	142.76	1,905.3	-113.7	86.4	142.8	0.00	0.00	0.00
1,960.0	15.46	142.76	1,943.9	-122.2	92.9	153.5	0.00	0.00	0.00
2,000.0	15.46	142.76	1,982.4	-130.7	99.3	164.2	0.00	0.00	0.00
2,040.0	15.46	142.76	2,021.0	-139.2	105.8	174.8	0.00	0.00	0.00
2,080.0	15.46	142.76	2,059.5	-147.7	112.3	185.5	0.00	0.00	0.00

ENSIGN Directional

ENSIGN DIRECTIONAL Planning Report



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.25-T5N-R67W
Site: Booth N25-18D Pad Sec.25-T5N-R67W
Well: Booth N25-18D
Wellbore: Wellbore #1
Design: Noble Booth N25-18D Plan #1 (02-23-10)

Local Co-ordinate Reference: Well Booth N25-18D
TVD Reference: WELL @ 5055.0ft (Original Well Elev)
MD Reference: WELL @ 5055.0ft (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	15.46	142.76	2,098.1	-156.2	118.7	196.2	0.00	0.00	0.00
2,160.0	15.46	142.76	2,136.7	-164.7	125.2	206.8	0.00	0.00	0.00
2,200.0	15.46	142.76	2,175.2	-173.1	131.6	217.5	0.00	0.00	0.00
2,240.0	15.46	142.76	2,213.8	-181.6	138.1	228.1	0.00	0.00	0.00
2,280.0	15.46	142.76	2,252.3	-190.1	144.5	238.8	0.00	0.00	0.00
2,320.0	15.46	142.76	2,290.9	-198.6	151.0	249.5	0.00	0.00	0.00
2,360.0	15.46	142.76	2,329.4	-207.1	157.4	260.1	0.00	0.00	0.00
2,400.0	15.46	142.76	2,368.0	-215.6	163.9	270.8	0.00	0.00	0.00
2,440.0	15.46	142.76	2,406.5	-224.1	170.3	281.5	0.00	0.00	0.00
2,480.0	15.46	142.76	2,445.1	-232.6	176.8	292.1	0.00	0.00	0.00
2,520.0	15.46	142.76	2,483.6	-241.0	183.2	302.8	0.00	0.00	0.00
2,560.0	15.46	142.76	2,522.2	-249.5	189.7	313.4	0.00	0.00	0.00
2,600.0	15.46	142.76	2,560.7	-258.0	196.1	324.1	0.00	0.00	0.00
2,640.0	15.46	142.76	2,599.3	-266.5	202.6	334.8	0.00	0.00	0.00
2,680.0	15.46	142.76	2,637.8	-275.0	209.0	345.4	0.00	0.00	0.00
2,720.0	15.46	142.76	2,676.4	-283.5	215.5	356.1	0.00	0.00	0.00
2,760.0	15.46	142.76	2,714.9	-292.0	221.9	366.8	0.00	0.00	0.00
2,800.0	15.46	142.76	2,753.5	-300.5	228.4	377.4	0.00	0.00	0.00
2,840.0	15.46	142.76	2,792.0	-309.0	234.9	388.1	0.00	0.00	0.00
2,880.0	15.46	142.76	2,830.6	-317.4	241.3	398.7	0.00	0.00	0.00
2,920.0	15.46	142.76	2,869.2	-325.9	247.8	409.4	0.00	0.00	0.00
2,960.0	15.46	142.76	2,907.7	-334.4	254.2	420.1	0.00	0.00	0.00
3,000.0	15.46	142.76	2,946.3	-342.9	260.7	430.7	0.00	0.00	0.00
3,040.0	15.46	142.76	2,984.8	-351.4	267.1	441.4	0.00	0.00	0.00
3,080.0	15.46	142.76	3,023.4	-359.9	273.6	452.1	0.00	0.00	0.00
3,120.0	15.46	142.76	3,061.9	-368.4	280.0	462.7	0.00	0.00	0.00
3,160.0	15.46	142.76	3,100.5	-376.9	286.5	473.4	0.00	0.00	0.00
3,200.0	15.46	142.76	3,139.0	-385.4	292.9	484.1	0.00	0.00	0.00
3,240.0	15.46	142.76	3,177.6	-393.8	299.4	494.7	0.00	0.00	0.00
3,280.0	15.46	142.76	3,216.1	-402.3	305.8	505.4	0.00	0.00	0.00
3,320.0	15.46	142.76	3,254.7	-410.8	312.3	516.0	0.00	0.00	0.00
3,360.0	15.46	142.76	3,293.2	-419.3	318.7	526.7	0.00	0.00	0.00
3,400.0	15.46	142.76	3,331.8	-427.8	325.2	537.4	0.00	0.00	0.00
3,440.0	15.46	142.76	3,370.3	-436.3	331.6	548.0	0.00	0.00	0.00
3,480.0	15.46	142.76	3,408.9	-444.8	338.1	558.7	0.00	0.00	0.00
3,520.0	15.46	142.76	3,447.4	-453.3	344.5	569.4	0.00	0.00	0.00
3,560.0	15.46	142.76	3,486.0	-461.8	351.0	580.0	0.00	0.00	0.00
3,600.0	15.46	142.76	3,524.5	-470.2	357.5	590.7	0.00	0.00	0.00
3,640.0	15.46	142.76	3,563.1	-478.7	363.9	601.3	0.00	0.00	0.00
3,680.0	15.46	142.76	3,601.7	-487.2	370.4	612.0	0.00	0.00	0.00
3,720.0	15.46	142.76	3,640.2	-495.7	376.8	622.7	0.00	0.00	0.00
3,760.0	15.46	142.76	3,678.8	-504.2	383.3	633.3	0.00	0.00	0.00
3,800.0	15.46	142.76	3,717.3	-512.7	389.7	644.0	0.00	0.00	0.00
3,840.0	15.46	142.76	3,755.9	-521.2	396.2	654.7	0.00	0.00	0.00
3,880.0	15.46	142.76	3,794.4	-529.7	402.6	665.3	0.00	0.00	0.00
3,920.0	15.46	142.76	3,833.0	-538.2	409.1	676.0	0.00	0.00	0.00
3,960.0	15.46	142.76	3,871.5	-546.6	415.5	686.6	0.00	0.00	0.00
4,000.0	15.46	142.76	3,910.1	-555.1	422.0	697.3	0.00	0.00	0.00
4,040.0	15.46	142.76	3,948.6	-563.6	428.4	708.0	0.00	0.00	0.00
4,080.0	15.46	142.76	3,987.2	-572.1	434.9	718.6	0.00	0.00	0.00
4,120.0	15.46	142.76	4,025.7	-580.6	441.3	729.3	0.00	0.00	0.00
4,160.0	15.46	142.76	4,064.3	-589.1	447.8	740.0	0.00	0.00	0.00
4,200.0	15.46	142.76	4,102.8	-597.6	454.2	750.6	0.00	0.00	0.00
4,240.0	15.46	142.76	4,141.4	-606.1	460.7	761.3	0.00	0.00	0.00

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Survey Calculation Method: Minimum Curvature

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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	15.46	142.76	4,179.9	-614.6	467.1	771.9	0.00	0.00	0.00
4,320.0	15.46	142.76	4,218.5	-623.0	473.6	782.6	0.00	0.00	0.00
4,360.0	15.46	142.76	4,257.0	-631.5	480.1	793.3	0.00	0.00	0.00
4,400.0	15.46	142.76	4,295.6	-640.0	486.5	803.9	0.00	0.00	0.00
4,440.0	15.46	142.76	4,334.2	-648.5	493.0	814.6	0.00	0.00	0.00
4,480.0	15.46	142.76	4,372.7	-657.0	499.4	825.3	0.00	0.00	0.00
4,520.0	15.46	142.76	4,411.3	-665.5	505.9	835.9	0.00	0.00	0.00
4,560.0	15.46	142.76	4,449.8	-674.0	512.3	846.6	0.00	0.00	0.00
4,600.0	15.46	142.76	4,488.4	-682.5	518.8	857.2	0.00	0.00	0.00
4,640.0	15.46	142.76	4,526.9	-690.9	525.2	867.9	0.00	0.00	0.00
4,680.0	15.46	142.76	4,565.5	-699.4	531.7	878.6	0.00	0.00	0.00
4,720.0	15.46	142.76	4,604.0	-707.9	538.1	889.2	0.00	0.00	0.00
4,760.0	15.46	142.76	4,642.6	-716.4	544.6	899.9	0.00	0.00	0.00
4,800.0	15.46	142.76	4,681.1	-724.9	551.0	910.6	0.00	0.00	0.00
4,840.0	15.46	142.76	4,719.7	-733.4	557.5	921.2	0.00	0.00	0.00
4,857.3	15.46	142.76	4,736.3	-737.1	560.3	925.8	0.00	0.00	0.00
4,880.0	15.01	142.76	4,758.3	-741.8	563.9	931.8	2.00	-2.00	0.00
4,920.0	14.21	142.76	4,797.0	-749.8	570.0	941.9	2.00	-2.00	0.00
4,960.0	13.41	142.76	4,835.8	-757.4	575.8	951.4	2.00	-2.00	0.00
5,000.0	12.61	142.76	4,874.8	-764.6	581.2	960.4	2.00	-2.00	0.00
5,040.0	11.81	142.76	4,913.9	-771.3	586.3	968.9	2.00	-2.00	0.00
5,080.0	11.01	142.76	4,953.1	-777.6	591.1	976.8	2.00	-2.00	0.00
5,120.0	10.21	142.76	4,992.4	-783.5	595.6	984.2	2.00	-2.00	0.00
5,160.0	9.41	142.76	5,031.8	-788.9	599.7	991.0	2.00	-2.00	0.00
5,200.0	8.61	142.76	5,071.3	-793.9	603.5	997.2	2.00	-2.00	0.00
5,240.0	7.81	142.76	5,110.9	-798.5	606.9	1,002.9	2.00	-2.00	0.00
5,280.0	7.01	142.76	5,150.6	-802.6	610.1	1,008.1	2.00	-2.00	0.00
5,320.0	6.21	142.76	5,190.3	-806.2	612.8	1,012.7	2.00	-2.00	0.00
5,360.0	5.41	142.76	5,230.1	-809.4	615.3	1,016.7	2.00	-2.00	0.00
5,400.0	4.61	142.76	5,270.0	-812.2	617.4	1,020.2	2.00	-2.00	0.00
5,440.0	3.81	142.76	5,309.8	-814.6	619.2	1,023.2	2.00	-2.00	0.00
5,480.0	3.01	142.76	5,349.8	-816.4	620.6	1,025.5	2.00	-2.00	0.00
5,520.0	2.21	142.76	5,389.7	-817.9	621.7	1,027.4	2.00	-2.00	0.00
5,560.0	1.41	142.76	5,429.7	-818.9	622.5	1,028.6	2.00	-2.00	0.00
5,600.0	0.61	142.76	5,469.7	-819.5	622.9	1,029.3	2.00	-2.00	0.00
5,630.3	0.00	0.00	5,500.0	-819.6	623.0	1,029.5	2.00	-2.00	0.00
TARGET BHL 1350'FNL, 2500'FWL									
5,640.0	0.00	0.00	5,509.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,680.0	0.00	0.00	5,549.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,589.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,629.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,669.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,709.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,749.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,789.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
5,960.0	0.00	0.00	5,829.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,869.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,040.0	0.00	0.00	5,909.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,080.0	0.00	0.00	5,949.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,120.0	0.00	0.00	5,989.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,160.0	0.00	0.00	6,029.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,069.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,240.0	0.00	0.00	6,109.7	-819.6	623.0	1,029.5	0.00	0.00	0.00

ENSIGN Directional

ENSIGN DIRECTIONAL Planning Report



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.25-T5N-R67W
Site: Booth N25-18D Pad Sec.25-T5N-R67W
Well: Booth N25-18D
Wellbore: Wellbore #1
Design: Noble Booth N25-18D Plan #1 (02-23-10)

Local Co-ordinate Reference: Well Booth N25-18D
TVD Reference: WELL @ 5055.0ft (Original Well Elev)
MD Reference: WELL @ 5055.0ft (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	6,149.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,189.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,229.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,269.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,309.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,349.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,389.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,429.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,469.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,509.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,549.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,589.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,629.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,669.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,709.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,749.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,789.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,829.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,869.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,909.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,949.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,989.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,160.0	0.00	0.00	7,029.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,200.0	0.00	0.00	7,069.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,240.0	0.00	0.00	7,109.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,280.0	0.00	0.00	7,149.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,320.0	0.00	0.00	7,189.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,325.3	0.00	0.00	7,195.0	-819.6	623.0	1,029.5	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1350'FNL, 2500'FWL									
7,360.0	0.00	0.00	7,229.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,269.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,440.0	0.00	0.00	7,309.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,480.0	0.00	0.00	7,349.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,520.0	0.00	0.00	7,389.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,560.0	0.00	0.00	7,429.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,469.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,640.0	0.00	0.00	7,509.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,680.0	0.00	0.00	7,549.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,685.3	0.00	0.00	7,555.0	-819.6	623.0	1,029.5	0.00	0.00	0.00
CODELL									
7,720.0	0.00	0.00	7,589.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,760.0	0.00	0.00	7,629.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,800.0	0.00	0.00	7,669.7	-819.6	623.0	1,029.5	0.00	0.00	0.00
7,835.3	0.00	0.00	7,705.0	-819.6	623.0	1,029.5	0.00	0.00	0.00
HARDLINE 128'E OF BHL									

ENSIGN Directional

ENSIGN DIRECTIONAL Planning Report



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.25-T5N-R67W
Site: Booth N25-18D Pad Sec.25-T5N-R67W
Well: Booth N25-18D
Wellbore: Wellbore #1
Design: Noble Booth N25-18D Plan #1 (02-23-10)

Local Co-ordinate Reference: Well Booth N25-18D
TVD Reference: WELL @ 5055.0ft (Original Well Elev)
MD Reference: WELL @ 5055.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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
TARGET BHL 1350'F - plan hits target center - Point	0.00	0.00	5,500.0	-819.6	623.0	1,379,812.71	3,183,329.75	40° 22' 26.833 N	104° 50' 31.179 W
TARGET CIRCLE 13' - plan hits target center - Circle (radius 75.0)	0.00	0.00	7,195.0	-819.6	623.0	1,379,812.69	3,183,329.75	40° 22' 26.833 N	104° 50' 31.179 W
HARDLINE 128'E OF - plan misses target center by 162.4ft at 7835.3ft MD (7705.0 TVD, -819.6 N, 623.0 E) - Polygon	0.00	0.00	7,705.0	-919.6	751.0	1,379,713.65	3,183,458.48	40° 22' 25.845 N	104° 50' 29.525 W
Point 1			7,705.0	0.0	0.0	1,379,713.65	3,183,458.48		
Point 2			7,705.0	200.0	0.0	1,379,913.63	3,183,457.00		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,325.3	7,195.0	NIOBRARA		0.00	
7,685.3	7,555.0	CODELL		0.00	