

ENSIGN

Directional

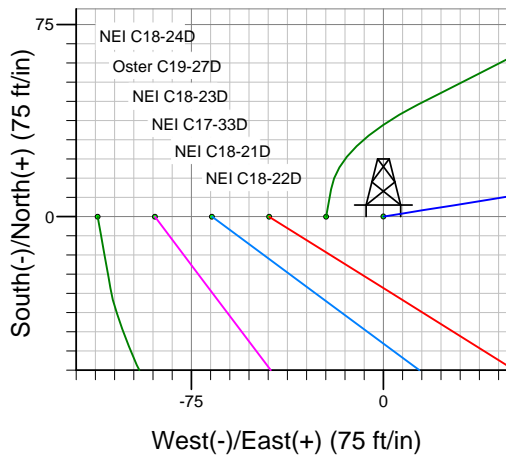
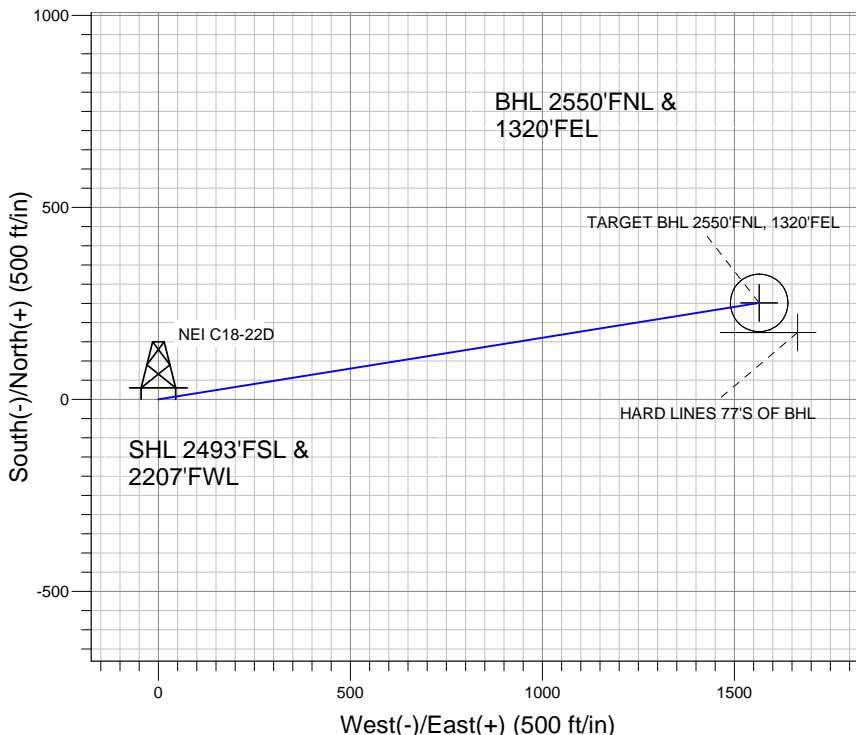
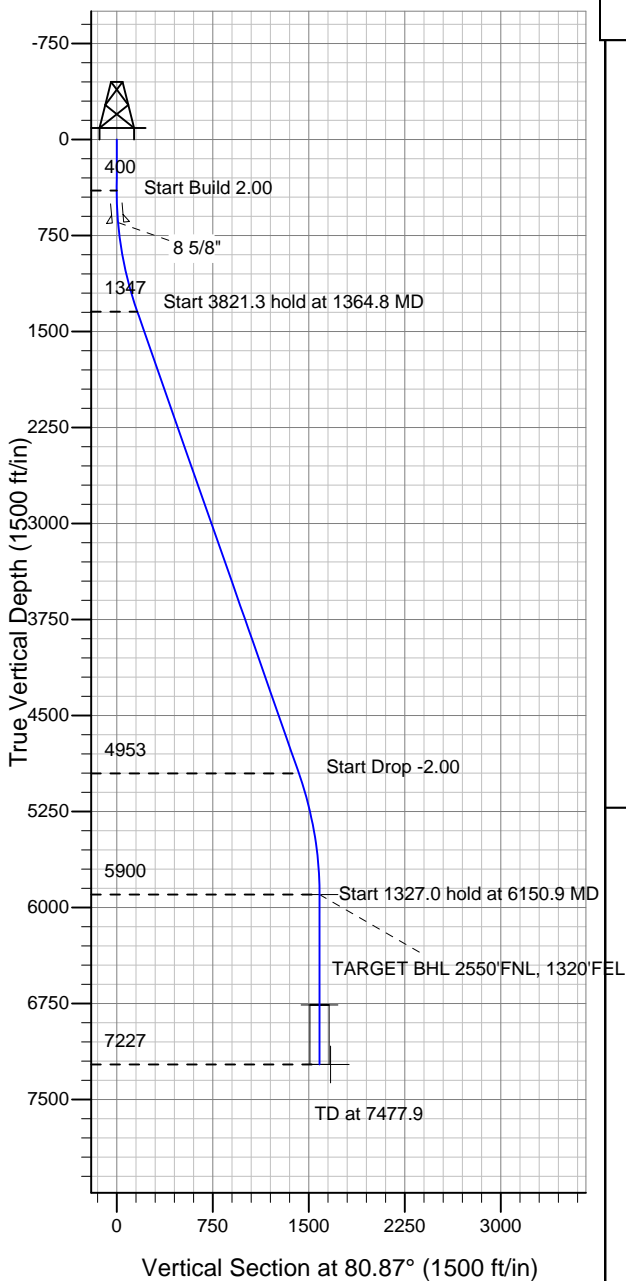
Well Name: NEI C18-22D

Surface Location: NEI C18-32 Pad Sec.18-T4N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4834.0

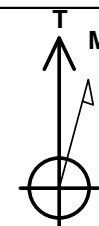
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357749.00	3252600.99	40.311880	-104.594190	

Original Well Elev WELL @ 4847.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



NEI C18-32 Pad Sec.18-T4N-R64W
 NEI C18-22D
 Noble NEI C18-22D Plan #1 (6-21-11)
 17:58, July 12 2011



Azimuths to True North
 Magnetic North: 8.76°

Magnetic Field
 Strength: 53101.8snT
 Dip Angle: 67.01°
 Date: 6/21/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2550'FNL, 1320'FEL	5900.0	251.4	1564.5	40.312570	-104.588580	Point
TARGET CIRCLE 2550'FNL & 1320'FEL	6762.0	251.4	1564.5	40.312570	-104.588580	Circle (Radius: 75.0)
HARD LINES 77'S OF BHL	7227.0	174.4	1664.5	40.312359	-104.588222	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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1364.8	19.30	80.87	1346.7	25.5	158.9	2.00	80.87	160.9	
4	5186.1	19.30	80.87	4953.3	225.9	1405.6	0.00	0.00	1423.7	
5	6150.9	0.00	0.00	5900.0	251.4	1564.5	2.00	180.00	1584.6	TARGET BHL 2550'FNL, 1320'FEL
6	7477.9	0.00	0.00	7227.0	251.4	1564.5	0.00	0.00	1584.6	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.18-T4N-R64W

NEI C18-32 Pad Sec.18-T4N-R64W

NEI C18-22D

Wellbore #1

Plan: Noble NEI C18-22D Plan #1 (6-21-11)

Standard Planning Report

12 July, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

Project	SEC.18-T4N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						NEI C18-32 Pad Sec.18-T4N-R64W											
Site Position:						Northing:			1,357,747.19ft			Latitude:			40.311880		
From:			Lat/Long			Easting:			3,252,422.52ft			Longitude:			-104.594830		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.58 °		

Well	NEI C18-22D					
Well Position	+N/-S	0.0 ft	Northing:	1,357,749.00 ft	Latitude:	40.311880
	+E/-W	178.5 ft	Easting:	3,252,600.99 ft	Longitude:	-104.594190
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,834.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/21/2011	8.76	67.01	53,102

Design	Noble NEI C18-22D Plan #1 (6-21-11)			
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	80.87

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,364.8	19.30	80.87	1,346.7	25.5	158.9	2.00	2.00	0.00	80.87	
5,186.1	19.30	80.87	4,953.3	225.9	1,405.6	0.00	0.00	0.00	0.00	
6,150.9	0.00	0.00	5,900.0	251.4	1,564.5	2.00	-2.00	0.00	180.00	TARGET BHL 255C
7,477.9	0.00	0.00	7,227.0	251.4	1,564.5	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

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	0.80	80.87	440.0	0.0	0.3	0.3	2.00	2.00	0.00
480.0	1.60	80.87	480.0	0.2	1.1	1.1	2.00	2.00	0.00
520.0	2.40	80.87	520.0	0.4	2.5	2.5	2.00	2.00	0.00
560.0	3.20	80.87	559.9	0.7	4.4	4.5	2.00	2.00	0.00
600.0	4.00	80.87	599.8	1.1	6.9	7.0	2.00	2.00	0.00
640.0	4.80	80.87	639.7	1.6	9.9	10.0	2.00	2.00	0.00
650.3	5.01	80.87	650.0	1.7	10.8	10.9	2.00	2.00	0.00
8 5/8"									
680.0	5.60	80.87	679.6	2.2	13.5	13.7	2.00	2.00	0.00
720.0	6.40	80.87	719.3	2.8	17.6	17.9	2.00	2.00	0.00
760.0	7.20	80.87	759.1	3.6	22.3	22.6	2.00	2.00	0.00
800.0	8.00	80.87	798.7	4.4	27.5	27.9	2.00	2.00	0.00
840.0	8.80	80.87	838.3	5.4	33.3	33.7	2.00	2.00	0.00
880.0	9.60	80.87	877.8	6.4	39.6	40.1	2.00	2.00	0.00
920.0	10.40	80.87	917.1	7.5	46.5	47.1	2.00	2.00	0.00
960.0	11.20	80.87	956.4	8.7	53.9	54.6	2.00	2.00	0.00
1,000.0	12.00	80.87	995.6	9.9	61.8	62.6	2.00	2.00	0.00
1,040.0	12.80	80.87	1,034.7	11.3	70.3	71.2	2.00	2.00	0.00
1,080.0	13.60	80.87	1,073.6	12.7	79.3	80.3	2.00	2.00	0.00
1,120.0	14.40	80.87	1,112.4	14.3	88.9	90.0	2.00	2.00	0.00
1,160.0	15.20	80.87	1,151.1	15.9	99.0	100.2	2.00	2.00	0.00
1,200.0	16.00	80.87	1,189.6	17.6	109.6	111.0	2.00	2.00	0.00
1,240.0	16.80	80.87	1,228.0	19.4	120.7	122.3	2.00	2.00	0.00
1,280.0	17.60	80.87	1,266.2	21.3	132.4	134.1	2.00	2.00	0.00
1,320.0	18.40	80.87	1,304.3	23.2	144.6	146.5	2.00	2.00	0.00
1,360.0	19.20	80.87	1,342.1	25.3	157.3	159.3	2.00	2.00	0.00
1,364.8	19.30	80.87	1,346.7	25.5	158.9	160.9	2.00	2.00	0.00
1,400.0	19.30	80.87	1,379.9	27.4	170.4	172.6	0.00	0.00	0.00
1,440.0	19.30	80.87	1,417.6	29.5	183.4	185.8	0.00	0.00	0.00
1,480.0	19.30	80.87	1,455.4	31.6	196.5	199.0	0.00	0.00	0.00
1,520.0	19.30	80.87	1,493.1	33.7	209.5	212.2	0.00	0.00	0.00
1,560.0	19.30	80.87	1,530.9	35.8	222.6	225.4	0.00	0.00	0.00
1,600.0	19.30	80.87	1,568.7	37.9	235.6	238.7	0.00	0.00	0.00
1,640.0	19.30	80.87	1,606.4	40.0	248.7	251.9	0.00	0.00	0.00
1,680.0	19.30	80.87	1,644.2	42.1	261.7	265.1	0.00	0.00	0.00
1,720.0	19.30	80.87	1,681.9	44.2	274.8	278.3	0.00	0.00	0.00
1,760.0	19.30	80.87	1,719.7	46.3	287.8	291.5	0.00	0.00	0.00
1,800.0	19.30	80.87	1,757.4	48.4	300.9	304.7	0.00	0.00	0.00
1,840.0	19.30	80.87	1,795.2	50.5	313.9	318.0	0.00	0.00	0.00
1,880.0	19.30	80.87	1,832.9	52.5	327.0	331.2	0.00	0.00	0.00
1,920.0	19.30	80.87	1,870.7	54.6	340.0	344.4	0.00	0.00	0.00
1,960.0	19.30	80.87	1,908.4	56.7	353.1	357.6	0.00	0.00	0.00
2,000.0	19.30	80.87	1,946.2	58.8	366.1	370.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

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)
2,040.0	19.30	80.87	1,983.9	60.9	379.2	384.0	0.00	0.00	0.00
2,080.0	19.30	80.87	2,021.7	63.0	392.2	397.3	0.00	0.00	0.00
2,120.0	19.30	80.87	2,059.4	65.1	405.3	410.5	0.00	0.00	0.00
2,160.0	19.30	80.87	2,097.2	67.2	418.3	423.7	0.00	0.00	0.00
2,200.0	19.30	80.87	2,134.9	69.3	431.4	436.9	0.00	0.00	0.00
2,240.0	19.30	80.87	2,172.7	71.4	444.4	450.1	0.00	0.00	0.00
2,280.0	19.30	80.87	2,210.5	73.5	457.5	463.4	0.00	0.00	0.00
2,320.0	19.30	80.87	2,248.2	75.6	470.5	476.6	0.00	0.00	0.00
2,360.0	19.30	80.87	2,286.0	77.7	483.6	489.8	0.00	0.00	0.00
2,400.0	19.30	80.87	2,323.7	79.8	496.6	503.0	0.00	0.00	0.00
2,440.0	19.30	80.87	2,361.5	81.9	509.7	516.2	0.00	0.00	0.00
2,480.0	19.30	80.87	2,399.2	84.0	522.7	529.4	0.00	0.00	0.00
2,520.0	19.30	80.87	2,437.0	86.1	535.8	542.7	0.00	0.00	0.00
2,560.0	19.30	80.87	2,474.7	88.2	548.8	555.9	0.00	0.00	0.00
2,600.0	19.30	80.87	2,512.5	90.3	561.9	569.1	0.00	0.00	0.00
2,640.0	19.30	80.87	2,550.2	92.4	574.9	582.3	0.00	0.00	0.00
2,680.0	19.30	80.87	2,588.0	94.5	588.0	595.5	0.00	0.00	0.00
2,720.0	19.30	80.87	2,625.7	96.6	601.0	608.8	0.00	0.00	0.00
2,760.0	19.30	80.87	2,663.5	98.7	614.1	622.0	0.00	0.00	0.00
2,800.0	19.30	80.87	2,701.2	100.8	627.1	635.2	0.00	0.00	0.00
2,840.0	19.30	80.87	2,739.0	102.9	640.2	648.4	0.00	0.00	0.00
2,880.0	19.30	80.87	2,776.7	105.0	653.2	661.6	0.00	0.00	0.00
2,920.0	19.30	80.87	2,814.5	107.1	666.3	674.8	0.00	0.00	0.00
2,960.0	19.30	80.87	2,852.3	109.2	679.3	688.1	0.00	0.00	0.00
3,000.0	19.30	80.87	2,890.0	111.3	692.4	701.3	0.00	0.00	0.00
3,040.0	19.30	80.87	2,927.8	113.4	705.4	714.5	0.00	0.00	0.00
3,080.0	19.30	80.87	2,965.5	115.5	718.5	727.7	0.00	0.00	0.00
3,120.0	19.30	80.87	3,003.3	117.6	731.5	740.9	0.00	0.00	0.00
3,160.0	19.30	80.87	3,041.0	119.7	744.6	754.1	0.00	0.00	0.00
3,200.0	19.30	80.87	3,078.8	121.8	757.6	767.4	0.00	0.00	0.00
3,240.0	19.30	80.87	3,116.5	123.9	770.7	780.6	0.00	0.00	0.00
3,280.0	19.30	80.87	3,154.3	126.0	783.7	793.8	0.00	0.00	0.00
3,320.0	19.30	80.87	3,192.0	128.1	796.8	807.0	0.00	0.00	0.00
3,360.0	19.30	80.87	3,229.8	130.2	809.8	820.2	0.00	0.00	0.00
3,400.0	19.30	80.87	3,267.5	132.2	822.9	833.5	0.00	0.00	0.00
3,440.0	19.30	80.87	3,305.3	134.3	835.9	846.7	0.00	0.00	0.00
3,480.0	19.30	80.87	3,343.0	136.4	849.0	859.9	0.00	0.00	0.00
3,520.0	19.30	80.87	3,380.8	138.5	862.0	873.1	0.00	0.00	0.00
3,560.0	19.30	80.87	3,418.6	140.6	875.1	886.3	0.00	0.00	0.00
3,600.0	19.30	80.87	3,456.3	142.7	888.1	899.5	0.00	0.00	0.00
3,640.0	19.30	80.87	3,494.1	144.8	901.2	912.8	0.00	0.00	0.00
3,680.0	19.30	80.87	3,531.8	146.9	914.2	926.0	0.00	0.00	0.00
3,720.0	19.30	80.87	3,569.6	149.0	927.3	939.2	0.00	0.00	0.00
3,760.0	19.30	80.87	3,607.3	151.1	940.3	952.4	0.00	0.00	0.00
3,800.0	19.30	80.87	3,645.1	153.2	953.4	965.6	0.00	0.00	0.00
3,840.0	19.30	80.87	3,682.8	155.3	966.4	978.8	0.00	0.00	0.00
3,880.0	19.30	80.87	3,720.6	157.4	979.5	992.1	0.00	0.00	0.00
3,920.0	19.30	80.87	3,758.3	159.5	992.5	1,005.3	0.00	0.00	0.00
3,960.0	19.30	80.87	3,796.1	161.6	1,005.6	1,018.5	0.00	0.00	0.00
4,000.0	19.30	80.87	3,833.8	163.7	1,018.6	1,031.7	0.00	0.00	0.00
4,040.0	19.30	80.87	3,871.6	165.8	1,031.7	1,044.9	0.00	0.00	0.00
4,080.0	19.30	80.87	3,909.3	167.9	1,044.7	1,058.2	0.00	0.00	0.00
4,120.0	19.30	80.87	3,947.1	170.0	1,057.8	1,071.4	0.00	0.00	0.00
4,160.0	19.30	80.87	3,984.8	172.1	1,070.9	1,084.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

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)
4,200.0	19.30	80.87	4,022.6	174.2	1,083.9	1,097.8	0.00	0.00	0.00
4,240.0	19.30	80.87	4,060.4	176.3	1,097.0	1,111.0	0.00	0.00	0.00
4,280.0	19.30	80.87	4,098.1	178.4	1,110.0	1,124.2	0.00	0.00	0.00
4,320.0	19.30	80.87	4,135.9	180.5	1,123.1	1,137.5	0.00	0.00	0.00
4,360.0	19.30	80.87	4,173.6	182.6	1,136.1	1,150.7	0.00	0.00	0.00
4,400.0	19.30	80.87	4,211.4	184.7	1,149.2	1,163.9	0.00	0.00	0.00
4,440.0	19.30	80.87	4,249.1	186.8	1,162.2	1,177.1	0.00	0.00	0.00
4,480.0	19.30	80.87	4,286.9	188.9	1,175.3	1,190.3	0.00	0.00	0.00
4,520.0	19.30	80.87	4,324.6	191.0	1,188.3	1,203.6	0.00	0.00	0.00
4,560.0	19.30	80.87	4,362.4	193.1	1,201.4	1,216.8	0.00	0.00	0.00
4,600.0	19.30	80.87	4,400.1	195.2	1,214.4	1,230.0	0.00	0.00	0.00
4,640.0	19.30	80.87	4,437.9	197.3	1,227.5	1,243.2	0.00	0.00	0.00
4,680.0	19.30	80.87	4,475.6	199.4	1,240.5	1,256.4	0.00	0.00	0.00
4,720.0	19.30	80.87	4,513.4	201.5	1,253.6	1,269.6	0.00	0.00	0.00
4,760.0	19.30	80.87	4,551.1	203.6	1,266.6	1,282.9	0.00	0.00	0.00
4,800.0	19.30	80.87	4,588.9	205.7	1,279.7	1,296.1	0.00	0.00	0.00
4,840.0	19.30	80.87	4,626.6	207.8	1,292.7	1,309.3	0.00	0.00	0.00
4,880.0	19.30	80.87	4,664.4	209.9	1,305.8	1,322.5	0.00	0.00	0.00
4,920.0	19.30	80.87	4,702.2	211.9	1,318.8	1,335.7	0.00	0.00	0.00
4,960.0	19.30	80.87	4,739.9	214.0	1,331.9	1,348.9	0.00	0.00	0.00
5,000.0	19.30	80.87	4,777.7	216.1	1,344.9	1,362.2	0.00	0.00	0.00
5,040.0	19.30	80.87	4,815.4	218.2	1,358.0	1,375.4	0.00	0.00	0.00
5,080.0	19.30	80.87	4,853.2	220.3	1,371.0	1,388.6	0.00	0.00	0.00
5,120.0	19.30	80.87	4,890.9	222.4	1,384.1	1,401.8	0.00	0.00	0.00
5,160.0	19.30	80.87	4,928.7	224.5	1,397.1	1,415.0	0.00	0.00	0.00
5,186.1	19.30	80.87	4,953.3	225.9	1,405.6	1,423.7	0.00	0.00	0.00
5,200.0	19.02	80.87	4,966.4	226.6	1,410.1	1,428.2	2.00	-2.00	0.00
5,240.0	18.22	80.87	5,004.3	228.7	1,422.7	1,441.0	2.00	-2.00	0.00
5,280.0	17.42	80.87	5,042.4	230.6	1,434.8	1,453.2	2.00	-2.00	0.00
5,320.0	16.62	80.87	5,080.7	232.4	1,446.4	1,464.9	2.00	-2.00	0.00
5,360.0	15.82	80.87	5,119.1	234.2	1,457.4	1,476.1	2.00	-2.00	0.00
5,400.0	15.02	80.87	5,157.6	235.9	1,467.9	1,486.7	2.00	-2.00	0.00
5,440.0	14.22	80.87	5,196.3	237.5	1,477.9	1,496.8	2.00	-2.00	0.00
5,480.0	13.42	80.87	5,235.2	239.0	1,487.3	1,506.4	2.00	-2.00	0.00
5,520.0	12.62	80.87	5,274.2	240.5	1,496.2	1,515.4	2.00	-2.00	0.00
5,560.0	11.82	80.87	5,313.3	241.8	1,504.6	1,523.9	2.00	-2.00	0.00
5,600.0	11.02	80.87	5,352.5	243.1	1,512.4	1,531.8	2.00	-2.00	0.00
5,640.0	10.22	80.87	5,391.8	244.2	1,519.7	1,539.2	2.00	-2.00	0.00
5,680.0	9.42	80.87	5,431.2	245.3	1,526.4	1,546.0	2.00	-2.00	0.00
5,720.0	8.62	80.87	5,470.7	246.3	1,532.6	1,552.3	2.00	-2.00	0.00
5,760.0	7.82	80.87	5,510.3	247.2	1,538.2	1,558.0	2.00	-2.00	0.00
5,800.0	7.02	80.87	5,549.9	248.0	1,543.3	1,563.1	2.00	-2.00	0.00
5,840.0	6.22	80.87	5,589.7	248.8	1,547.9	1,567.7	2.00	-2.00	0.00
5,880.0	5.42	80.87	5,629.5	249.4	1,551.9	1,571.8	2.00	-2.00	0.00
5,920.0	4.62	80.87	5,669.3	250.0	1,555.3	1,575.3	2.00	-2.00	0.00
5,960.0	3.82	80.87	5,709.2	250.4	1,558.2	1,578.2	2.00	-2.00	0.00
6,000.0	3.02	80.87	5,749.1	250.8	1,560.6	1,580.6	2.00	-2.00	0.00
6,040.0	2.22	80.87	5,789.1	251.1	1,562.4	1,582.5	2.00	-2.00	0.00
6,080.0	1.42	80.87	5,829.1	251.3	1,563.7	1,583.7	2.00	-2.00	0.00
6,120.0	0.62	80.87	5,869.1	251.4	1,564.4	1,584.4	2.00	-2.00	0.00
6,150.9	0.00	0.00	5,900.0	251.4	1,564.5	1,584.6	2.00	-2.00	0.00
TARGET BHL 2550'FNL, 1320'FEL									
6,160.0	0.00	0.00	5,909.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,949.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

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)
6,240.0	0.00	0.00	5,989.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,280.0	0.00	0.00	6,029.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,320.0	0.00	0.00	6,069.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,360.0	0.00	0.00	6,109.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,149.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,440.0	0.00	0.00	6,189.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,480.0	0.00	0.00	6,229.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,520.0	0.00	0.00	6,269.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,560.0	0.00	0.00	6,309.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,349.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,640.0	0.00	0.00	6,389.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,680.0	0.00	0.00	6,429.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,720.0	0.00	0.00	6,469.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,760.0	0.00	0.00	6,509.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,549.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,840.0	0.00	0.00	6,589.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,880.0	0.00	0.00	6,629.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,920.0	0.00	0.00	6,669.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
6,960.0	0.00	0.00	6,709.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,749.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,012.9	0.00	0.00	6,762.0	251.4	1,564.5	1,584.6	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 2550'FNL & 1320'FEL									
7,040.0	0.00	0.00	6,789.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,080.0	0.00	0.00	6,829.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,120.0	0.00	0.00	6,869.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,160.0	0.00	0.00	6,909.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,949.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,240.0	0.00	0.00	6,989.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,280.0	0.00	0.00	7,029.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,320.0	0.00	0.00	7,069.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,327.9	0.00	0.00	7,077.0	251.4	1,564.5	1,584.6	0.00	0.00	0.00
CODELL									
7,360.0	0.00	0.00	7,109.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,400.0	0.00	0.00	7,149.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,440.0	0.00	0.00	7,189.1	251.4	1,564.5	1,584.6	0.00	0.00	0.00
7,477.9	0.00	0.00	7,227.0	251.4	1,564.5	1,584.6	0.00	0.00	0.00
HARD LINES 77'S OF BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-22D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-22D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-22D Plan #1 (6-21-11)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
HARD LINES 77'S OF	0.00	0.00	7,227.0	174.4	1,664.5	1,357,940.39	3,254,263.55	40.312359	-104.588222
- plan misses target center by 126.2ft at 7477.9ft MD (7227.0 TVD, 251.4 N, 1564.5 E)									
- Polygon									
Point 1			7,227.0	0.0	0.0	1,357,940.39	3,254,263.55		
Point 2			7,227.0	0.0	-200.0	1,357,938.35	3,254,063.57		
TARGET CIRCLE 25'	0.00	0.00	6,762.0	251.4	1,564.5	1,358,016.39	3,254,162.80	40.312570	-104.588580
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 2550'F	0.00	0.00	5,900.0	251.4	1,564.5	1,358,016.39	3,254,162.80	40.312570	-104.588580
- plan hits target center									
- Point									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(ft)	(ft)	Name	(")	(")
	650.3	650.0	8 5/8"	8-5/8	12-1/4

Formations					
	Measured Depth	Vertical Depth		Dip	Dip Direction
	(ft)	(ft)	Name	(°)	(°)
	7,012.9	6,762.0	NIOBRARA	0.00	
	7,327.9	7,077.0	CODELL	0.00	