

ENSIGN

Directional

Well Name: NEI C18-21D

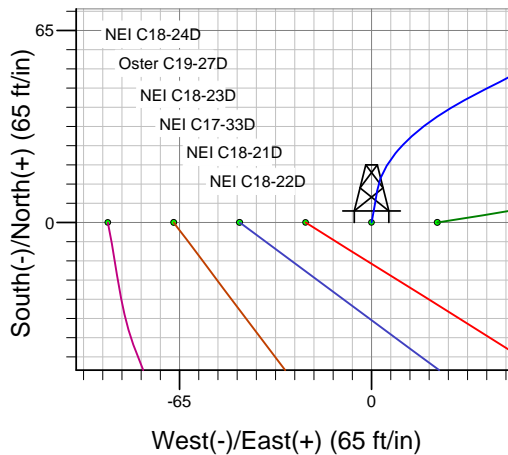
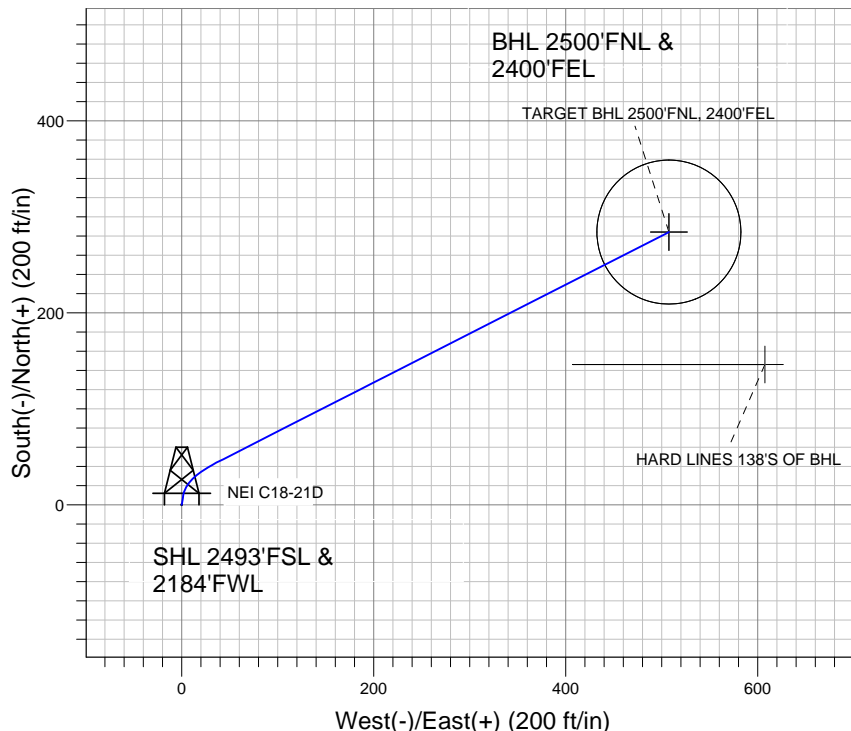
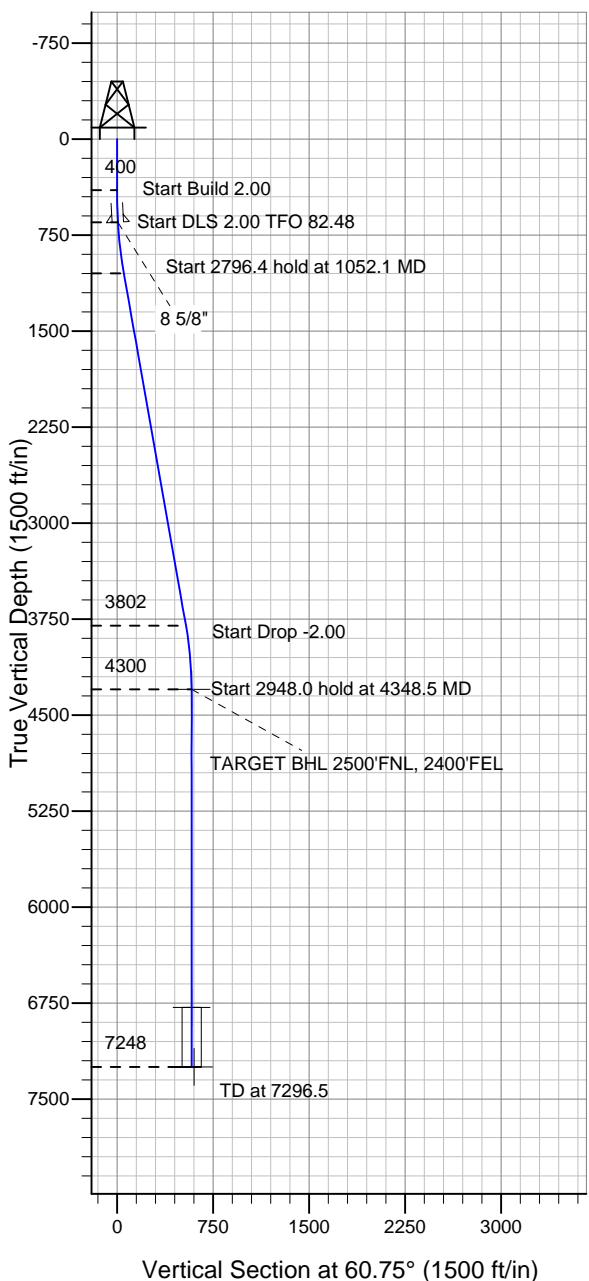
Surface Location: NEI C18-32 Pad Sec.18-T4N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4835.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357748.75	3252578.68	40.311880	-104.594270	

Original Well Elev WELL @ 4848.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



NEI C18-32 Pad Sec.18-T4N-R64W
NEI C18-21D
Noble NEI C18-21D Plan #1 (6-21-11)
17:46, 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 2500'FNL, 2400'FEL	4300.0	284.2	507.6	40.312660	-104.592450	Point
TARGET CIRCLE 2500'FNL & 2400'FEL	6783.0	284.2	507.6	40.312660	-104.592450	Circle (Radius: 75.0)
HARD LINES 138'S OF BHL	7248.0	146.2	607.6	40.312281	-104.592091	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	650.0	5.00	10.00	649.7	10.7	1.9	2.00	10.00	6.9	
4	1052.1	10.00	62.99	1048.6	43.9	36.1	2.00	82.48	52.9	
5	3848.5	10.00	62.99	3802.5	264.4	468.8	0.00	0.00	538.2	
6	4348.5	0.00	0.00	4300.0	284.2	507.6	2.00	180.00	581.7	TARGET BHL 2500'FNL, 2400'FEL
7	7296.5	0.00	0.00	7248.0	284.2	507.6	0.00	0.00	581.7	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.18-T4N-R64W

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

NEI C18-21D

Wellbore #1

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

Standard Planning Report

12 July, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D 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 C18-21D					
Well Position	+N/-S	0.0 ft	Northing:	1,357,748.75 ft	Latitude:	40.311880
	+E/-W	156.2 ft	Easting:	3,252,578.68 ft	Longitude:	-104.594270
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,835.0 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 C18-21D 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	60.75

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	
650.0	5.00	10.00	649.7	10.7	1.9	2.00	2.00	0.00	10.00	
1,052.1	10.00	62.99	1,048.6	43.9	36.1	2.00	1.24	13.18	82.48	
3,848.5	10.00	62.99	3,802.5	264.4	468.8	0.00	0.00	0.00	0.00	
4,348.5	0.00	0.00	4,300.0	284.2	507.6	2.00	-2.00	0.00	180.00	TARGET BHL 250C
7,296.5	0.00	0.00	7,248.0	284.2	507.6	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D 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	10.00	440.0	0.3	0.0	0.2	2.00	2.00	0.00
480.0	1.60	10.00	480.0	1.1	0.2	0.7	2.00	2.00	0.00
520.0	2.40	10.00	520.0	2.5	0.4	1.6	2.00	2.00	0.00
560.0	3.20	10.00	559.9	4.4	0.8	2.8	2.00	2.00	0.00
600.0	4.00	10.00	599.8	6.9	1.2	4.4	2.00	2.00	0.00
640.0	4.80	10.00	639.7	9.9	1.7	6.4	2.00	2.00	0.00
650.0	5.00	10.00	649.7	10.7	1.9	6.9	2.00	2.00	0.00
650.3	5.00	10.07	650.0	10.8	1.9	6.9	2.00	0.26	22.75
8 5/8"									
680.0	5.11	16.69	679.6	13.3	2.5	8.7	2.00	0.38	22.29
720.0	5.37	25.01	719.4	16.7	3.8	11.5	2.00	0.63	20.81
760.0	5.72	32.45	759.2	20.1	5.7	14.8	2.00	0.88	18.60
800.0	6.16	38.93	799.0	23.4	8.1	18.5	2.00	1.09	16.20
840.0	6.66	44.50	838.7	26.8	11.1	22.7	2.00	1.26	13.91
880.0	7.22	49.25	878.5	30.1	14.6	27.4	2.00	1.40	11.87
920.0	7.82	53.29	918.1	33.3	18.7	32.6	2.00	1.50	10.11
960.0	8.45	56.75	957.7	36.6	23.3	38.2	2.00	1.58	8.65
1,000.0	9.11	59.72	997.2	39.8	28.5	44.3	2.00	1.65	7.43
1,040.0	9.79	62.29	1,036.7	42.9	34.3	50.9	2.00	1.70	6.42
1,052.1	10.00	62.99	1,048.6	43.9	36.1	52.9	2.00	1.73	5.85
1,080.0	10.00	62.99	1,076.1	46.1	40.4	57.8	0.00	0.00	0.00
1,120.0	10.00	62.99	1,115.5	49.3	46.6	64.7	0.00	0.00	0.00
1,160.0	10.00	62.99	1,154.9	52.4	52.8	71.7	0.00	0.00	0.00
1,200.0	10.00	62.99	1,194.3	55.6	59.0	78.6	0.00	0.00	0.00
1,240.0	10.00	62.99	1,233.7	58.7	65.2	85.6	0.00	0.00	0.00
1,280.0	10.00	62.99	1,273.1	61.9	71.4	92.5	0.00	0.00	0.00
1,320.0	10.00	62.99	1,312.4	65.0	77.6	99.4	0.00	0.00	0.00
1,360.0	10.00	62.99	1,351.8	68.2	83.7	106.4	0.00	0.00	0.00
1,400.0	10.00	62.99	1,391.2	71.3	89.9	113.3	0.00	0.00	0.00
1,440.0	10.00	62.99	1,430.6	74.5	96.1	120.3	0.00	0.00	0.00
1,480.0	10.00	62.99	1,470.0	77.6	102.3	127.2	0.00	0.00	0.00
1,520.0	10.00	62.99	1,509.4	80.8	108.5	134.1	0.00	0.00	0.00
1,560.0	10.00	62.99	1,548.8	84.0	114.7	141.1	0.00	0.00	0.00
1,600.0	10.00	62.99	1,588.2	87.1	120.9	148.0	0.00	0.00	0.00
1,640.0	10.00	62.99	1,627.6	90.3	127.1	155.0	0.00	0.00	0.00
1,680.0	10.00	62.99	1,667.0	93.4	133.3	161.9	0.00	0.00	0.00
1,720.0	10.00	62.99	1,706.4	96.6	139.4	168.9	0.00	0.00	0.00
1,760.0	10.00	62.99	1,745.8	99.7	145.6	175.8	0.00	0.00	0.00
1,800.0	10.00	62.99	1,785.2	102.9	151.8	182.7	0.00	0.00	0.00
1,840.0	10.00	62.99	1,824.5	106.0	158.0	189.7	0.00	0.00	0.00
1,880.0	10.00	62.99	1,863.9	109.2	164.2	196.6	0.00	0.00	0.00
1,920.0	10.00	62.99	1,903.3	112.3	170.4	203.6	0.00	0.00	0.00
1,960.0	10.00	62.99	1,942.7	115.5	176.6	210.5	0.00	0.00	0.00

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Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D 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)
2,000.0	10.00	62.99	1,982.1	118.7	182.8	217.4	0.00	0.00	0.00
2,040.0	10.00	62.99	2,021.5	121.8	189.0	224.4	0.00	0.00	0.00
2,080.0	10.00	62.99	2,060.9	125.0	195.1	231.3	0.00	0.00	0.00
2,120.0	10.00	62.99	2,100.3	128.1	201.3	238.3	0.00	0.00	0.00
2,160.0	10.00	62.99	2,139.7	131.3	207.5	245.2	0.00	0.00	0.00
2,200.0	10.00	62.99	2,179.1	134.4	213.7	252.1	0.00	0.00	0.00
2,240.0	10.00	62.99	2,218.5	137.6	219.9	259.1	0.00	0.00	0.00
2,280.0	10.00	62.99	2,257.9	140.7	226.1	266.0	0.00	0.00	0.00
2,320.0	10.00	62.99	2,297.3	143.9	232.3	273.0	0.00	0.00	0.00
2,360.0	10.00	62.99	2,336.6	147.0	238.5	279.9	0.00	0.00	0.00
2,400.0	10.00	62.99	2,376.0	150.2	244.7	286.9	0.00	0.00	0.00
2,440.0	10.00	62.99	2,415.4	153.4	250.9	293.8	0.00	0.00	0.00
2,480.0	10.00	62.99	2,454.8	156.5	257.0	300.7	0.00	0.00	0.00
2,520.0	10.00	62.99	2,494.2	159.7	263.2	307.7	0.00	0.00	0.00
2,560.0	10.00	62.99	2,533.6	162.8	269.4	314.6	0.00	0.00	0.00
2,600.0	10.00	62.99	2,573.0	166.0	275.6	321.6	0.00	0.00	0.00
2,640.0	10.00	62.99	2,612.4	169.1	281.8	328.5	0.00	0.00	0.00
2,680.0	10.00	62.99	2,651.8	172.3	288.0	335.4	0.00	0.00	0.00
2,720.0	10.00	62.99	2,691.2	175.4	294.2	342.4	0.00	0.00	0.00
2,760.0	10.00	62.99	2,730.6	178.6	300.4	349.3	0.00	0.00	0.00
2,800.0	10.00	62.99	2,770.0	181.7	306.6	356.3	0.00	0.00	0.00
2,840.0	10.00	62.99	2,809.3	184.9	312.7	363.2	0.00	0.00	0.00
2,880.0	10.00	62.99	2,848.7	188.1	318.9	370.2	0.00	0.00	0.00
2,920.0	10.00	62.99	2,888.1	191.2	325.1	377.1	0.00	0.00	0.00
2,960.0	10.00	62.99	2,927.5	194.4	331.3	384.0	0.00	0.00	0.00
3,000.0	10.00	62.99	2,966.9	197.5	337.5	391.0	0.00	0.00	0.00
3,040.0	10.00	62.99	3,006.3	200.7	343.7	397.9	0.00	0.00	0.00
3,080.0	10.00	62.99	3,045.7	203.8	349.9	404.9	0.00	0.00	0.00
3,120.0	10.00	62.99	3,085.1	207.0	356.1	411.8	0.00	0.00	0.00
3,160.0	10.00	62.99	3,124.5	210.1	362.3	418.7	0.00	0.00	0.00
3,200.0	10.00	62.99	3,163.9	213.3	368.4	425.7	0.00	0.00	0.00
3,240.0	10.00	62.99	3,203.3	216.4	374.6	432.6	0.00	0.00	0.00
3,280.0	10.00	62.99	3,242.7	219.6	380.8	439.6	0.00	0.00	0.00
3,320.0	10.00	62.99	3,282.1	222.8	387.0	446.5	0.00	0.00	0.00
3,360.0	10.00	62.99	3,321.4	225.9	393.2	453.5	0.00	0.00	0.00
3,400.0	10.00	62.99	3,360.8	229.1	399.4	460.4	0.00	0.00	0.00
3,440.0	10.00	62.99	3,400.2	232.2	405.6	467.3	0.00	0.00	0.00
3,480.0	10.00	62.99	3,439.6	235.4	411.8	474.3	0.00	0.00	0.00
3,520.0	10.00	62.99	3,479.0	238.5	418.0	481.2	0.00	0.00	0.00
3,560.0	10.00	62.99	3,518.4	241.7	424.1	488.2	0.00	0.00	0.00
3,600.0	10.00	62.99	3,557.8	244.8	430.3	495.1	0.00	0.00	0.00
3,640.0	10.00	62.99	3,597.2	248.0	436.5	502.0	0.00	0.00	0.00
3,680.0	10.00	62.99	3,636.6	251.1	442.7	509.0	0.00	0.00	0.00
3,720.0	10.00	62.99	3,676.0	254.3	448.9	515.9	0.00	0.00	0.00
3,760.0	10.00	62.99	3,715.4	257.5	455.1	522.9	0.00	0.00	0.00
3,800.0	10.00	62.99	3,754.8	260.6	461.3	529.8	0.00	0.00	0.00
3,840.0	10.00	62.99	3,794.2	263.8	467.5	536.7	0.00	0.00	0.00
3,848.5	10.00	62.99	3,802.5	264.4	468.8	538.2	0.00	0.00	0.00
3,880.0	9.37	62.99	3,833.6	266.8	473.5	543.5	2.00	-2.00	0.00
3,920.0	8.57	62.99	3,873.1	269.7	479.1	549.7	2.00	-2.00	0.00
3,960.0	7.77	62.99	3,912.7	272.3	484.1	555.4	2.00	-2.00	0.00
4,000.0	6.97	62.99	3,952.3	274.6	488.7	560.6	2.00	-2.00	0.00
4,040.0	6.17	62.99	3,992.1	276.7	492.8	565.1	2.00	-2.00	0.00
4,080.0	5.37	62.99	4,031.9	278.5	496.4	569.1	2.00	-2.00	0.00

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Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D 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)
4,120.0	4.57	62.99	4,071.7	280.1	499.4	572.6	2.00	-2.00	0.00
4,160.0	3.77	62.99	4,111.6	281.4	502.0	575.5	2.00	-2.00	0.00
4,200.0	2.97	62.99	4,151.6	282.4	504.1	577.9	2.00	-2.00	0.00
4,240.0	2.17	62.99	4,191.5	283.3	505.7	579.7	2.00	-2.00	0.00
4,280.0	1.37	62.99	4,231.5	283.8	506.8	580.9	2.00	-2.00	0.00
4,320.0	0.57	62.99	4,271.5	284.1	507.4	581.6	2.00	-2.00	0.00
4,348.5	0.00	0.00	4,300.0	284.2	507.6	581.7	2.00	-2.00	0.00
TARGET BHL 2500'FNL, 2400'FEL									
4,360.0	0.00	0.00	4,311.5	284.2	507.6	581.7	0.00	0.00	0.00
4,400.0	0.00	0.00	4,351.5	284.2	507.6	581.7	0.00	0.00	0.00
4,440.0	0.00	0.00	4,391.5	284.2	507.6	581.7	0.00	0.00	0.00
4,480.0	0.00	0.00	4,431.5	284.2	507.6	581.7	0.00	0.00	0.00
4,520.0	0.00	0.00	4,471.5	284.2	507.6	581.7	0.00	0.00	0.00
4,560.0	0.00	0.00	4,511.5	284.2	507.6	581.7	0.00	0.00	0.00
4,600.0	0.00	0.00	4,551.5	284.2	507.6	581.7	0.00	0.00	0.00
4,640.0	0.00	0.00	4,591.5	284.2	507.6	581.7	0.00	0.00	0.00
4,680.0	0.00	0.00	4,631.5	284.2	507.6	581.7	0.00	0.00	0.00
4,720.0	0.00	0.00	4,671.5	284.2	507.6	581.7	0.00	0.00	0.00
4,760.0	0.00	0.00	4,711.5	284.2	507.6	581.7	0.00	0.00	0.00
4,800.0	0.00	0.00	4,751.5	284.2	507.6	581.7	0.00	0.00	0.00
4,840.0	0.00	0.00	4,791.5	284.2	507.6	581.7	0.00	0.00	0.00
4,880.0	0.00	0.00	4,831.5	284.2	507.6	581.7	0.00	0.00	0.00
4,920.0	0.00	0.00	4,871.5	284.2	507.6	581.7	0.00	0.00	0.00
4,960.0	0.00	0.00	4,911.5	284.2	507.6	581.7	0.00	0.00	0.00
5,000.0	0.00	0.00	4,951.5	284.2	507.6	581.7	0.00	0.00	0.00
5,040.0	0.00	0.00	4,991.5	284.2	507.6	581.7	0.00	0.00	0.00
5,080.0	0.00	0.00	5,031.5	284.2	507.6	581.7	0.00	0.00	0.00
5,120.0	0.00	0.00	5,071.5	284.2	507.6	581.7	0.00	0.00	0.00
5,160.0	0.00	0.00	5,111.5	284.2	507.6	581.7	0.00	0.00	0.00
5,200.0	0.00	0.00	5,151.5	284.2	507.6	581.7	0.00	0.00	0.00
5,240.0	0.00	0.00	5,191.5	284.2	507.6	581.7	0.00	0.00	0.00
5,280.0	0.00	0.00	5,231.5	284.2	507.6	581.7	0.00	0.00	0.00
5,320.0	0.00	0.00	5,271.5	284.2	507.6	581.7	0.00	0.00	0.00
5,360.0	0.00	0.00	5,311.5	284.2	507.6	581.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,351.5	284.2	507.6	581.7	0.00	0.00	0.00
5,440.0	0.00	0.00	5,391.5	284.2	507.6	581.7	0.00	0.00	0.00
5,480.0	0.00	0.00	5,431.5	284.2	507.6	581.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,471.5	284.2	507.6	581.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,511.5	284.2	507.6	581.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,551.5	284.2	507.6	581.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,591.5	284.2	507.6	581.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,631.5	284.2	507.6	581.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,671.5	284.2	507.6	581.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,711.5	284.2	507.6	581.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,751.5	284.2	507.6	581.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,791.5	284.2	507.6	581.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,831.5	284.2	507.6	581.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,871.5	284.2	507.6	581.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,911.5	284.2	507.6	581.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,951.5	284.2	507.6	581.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,991.5	284.2	507.6	581.7	0.00	0.00	0.00
6,080.0	0.00	0.00	6,031.5	284.2	507.6	581.7	0.00	0.00	0.00
6,120.0	0.00	0.00	6,071.5	284.2	507.6	581.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,111.5	284.2	507.6	581.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D 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)
6,200.0	0.00	0.00	6,151.5	284.2	507.6	581.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,191.5	284.2	507.6	581.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,231.5	284.2	507.6	581.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,271.5	284.2	507.6	581.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,311.5	284.2	507.6	581.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,351.5	284.2	507.6	581.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,391.5	284.2	507.6	581.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,431.5	284.2	507.6	581.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,471.5	284.2	507.6	581.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,511.5	284.2	507.6	581.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,551.5	284.2	507.6	581.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,591.5	284.2	507.6	581.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,631.5	284.2	507.6	581.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,671.5	284.2	507.6	581.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,711.5	284.2	507.6	581.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,751.5	284.2	507.6	581.7	0.00	0.00	0.00
6,831.5	0.00	0.00	6,783.0	284.2	507.6	581.7	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 2500'FNL & 2400'FEL									
6,840.0	0.00	0.00	6,791.5	284.2	507.6	581.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,831.5	284.2	507.6	581.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,871.5	284.2	507.6	581.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,911.5	284.2	507.6	581.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,951.5	284.2	507.6	581.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,991.5	284.2	507.6	581.7	0.00	0.00	0.00
7,080.0	0.00	0.00	7,031.5	284.2	507.6	581.7	0.00	0.00	0.00
7,120.0	0.00	0.00	7,071.5	284.2	507.6	581.7	0.00	0.00	0.00
7,146.5	0.00	0.00	7,098.0	284.2	507.6	581.7	0.00	0.00	0.00
CODELL									
7,160.0	0.00	0.00	7,111.5	284.2	507.6	581.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,151.5	284.2	507.6	581.7	0.00	0.00	0.00
7,240.0	0.00	0.00	7,191.5	284.2	507.6	581.7	0.00	0.00	0.00
7,280.0	0.00	0.00	7,231.5	284.2	507.6	581.7	0.00	0.00	0.00
7,296.5	0.00	0.00	7,248.0	284.2	507.6	581.7	0.00	0.00	0.00
HARD LINES 138'S OF BHL									

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									
HARD LINES 138'S C	0.00	0.00	7,248.0	146.2	607.6	1,357,901.14	3,253,184.73	40.312281	-104.592091
- plan misses target center by 170.4ft at 7296.5ft MD (7248.0 TVD, 284.2 N, 507.6 E)									
- Polygon									
Point 1			7,248.0	0.0	0.0	1,357,901.14	3,253,184.73		
Point 2			7,248.0	0.0	-200.0	1,357,899.10	3,252,984.75		
TARGET CIRCLE 2500'F	0.00	0.00	6,783.0	284.2	507.6	1,358,038.11	3,253,083.29	40.312660	-104.592450
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 2500'F	0.00	0.00	4,300.0	284.2	507.6	1,358,038.11	3,253,083.29	40.312660	-104.592450
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well NEI C18-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4848.0ft (Original Well Elev)
Project:	SEC.18-T4N-R64W	MD Reference:	WELL @ 4848.0ft (Original Well Elev)
Site:	NEI C18-32 Pad Sec.18-T4N-R64W	North Reference:	True
Well:	NEI C18-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble NEI C18-21D Plan #1 (6-21-11)		

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

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,831.5	6,783.0	NIOBRARA		0.00		
7,146.5	7,098.0	CODELL		0.00		