

# ENSIGN

## Directional

### Well Name: NEI C17-33D

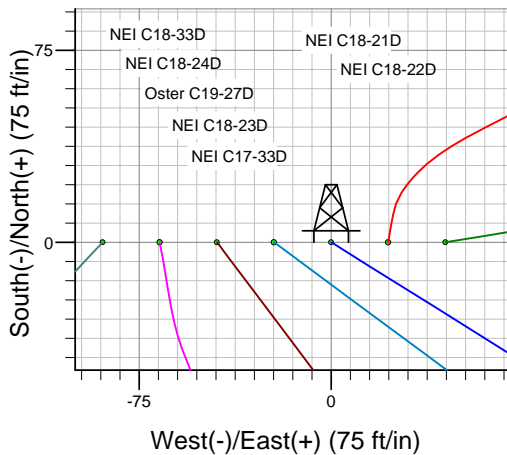
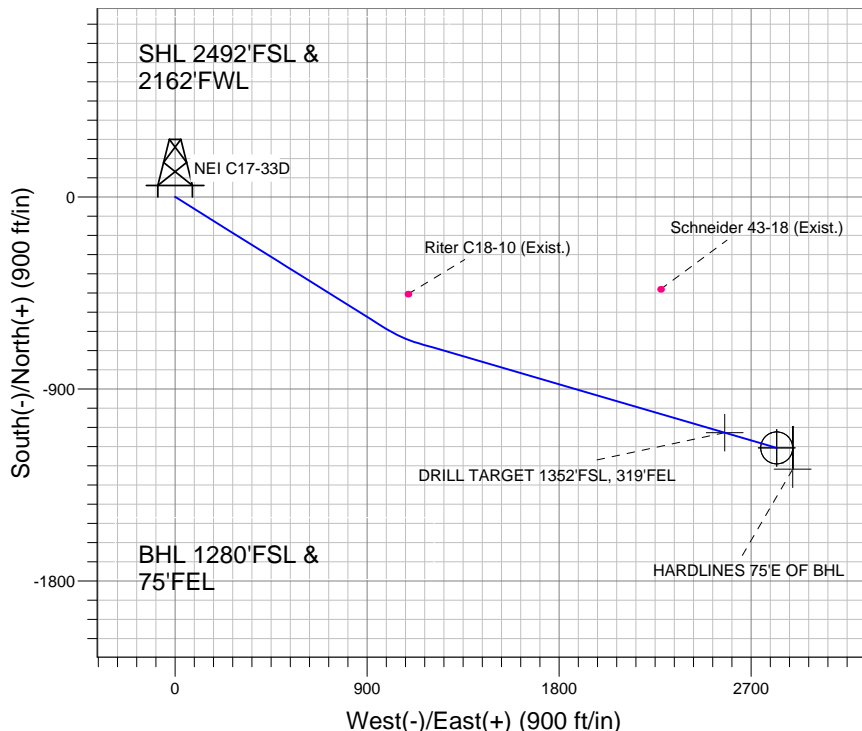
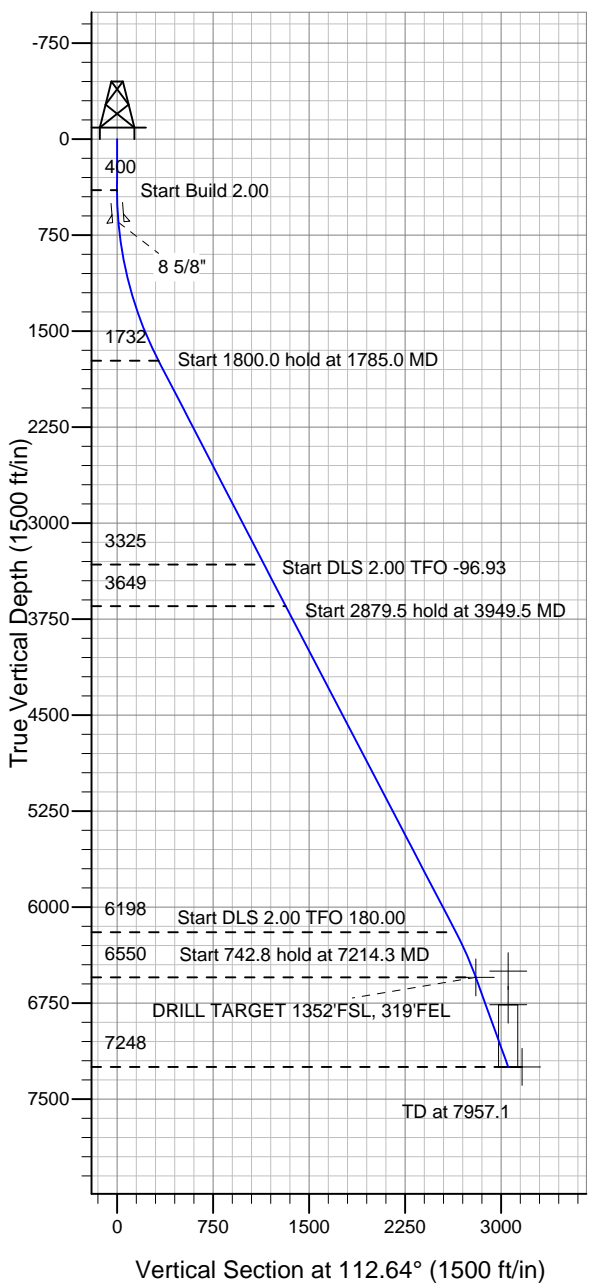
Surface Location: NEI C18-32 Pad Sec.18-T4N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4835.0

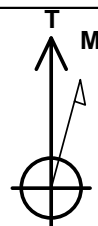
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357748.54	3252556.37	40.311880	-104.594350	

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

## NOBLE ENERGY INC WELD COUNTY CO



NEI C18-32 Pad Sec.18-T4N-R64W  
NEI C17-33D  
Noble NEI C17-33D Plan #1 (6-21-11)  
10:21, July 13 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
BHL 1280'FSL, 75'FEL	6500.0	-1176.5	2819.7	40.308650	-104.584240	Point
DRILL TARGET 1352'FSL, 319'FEL	6550.0	-1105.0	2575.9	40.308846	-104.585114	Point
TARGET CIRCLE 1280'FSL & 75'FEL	6763.0	-1176.5	2819.7	40.308650	-104.584240	Circle (Radius: 75.0)
HARDLINES 75'E OF BHL	7248.0	-1276.5	2894.7	40.308376	-104.583971	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	1785.0	27.70	122.00	1731.7	-174.0	278.4	2.00	122.00	324.0	
4	3585.0	27.70	122.00	3325.4	-617.4	988.0	0.00	0.00	1149.5	
5	3949.5	27.71	106.28	3648.6	-686.1	1141.4	2.00	-96.93	1317.6	
6	6829.0	27.71	106.28	6197.9	-1061.4	2426.5	0.00	0.00	2648.1	
7	7214.3	20.00	106.28	6550.0	-1105.0	2575.9	2.00	180.00	2802.8	DRILL TARGET 1352'FSL, 319'FEL
8	7957.1	20.00	106.28	7248.0	-1176.2	2819.8	0.00	0.00	3055.3	



**Directional**

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

**SEC.18-T4N-R64W**

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

**NEI C17-33D**

**Wellbore #1**

**Plan: Noble NEI C17-33D Plan #1 (6-21-11)**

## **Standard Planning Report**

**13 July, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32 Pad Sec.18-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D Plan #1 (6-21-11)		

<b>Project</b>	SEC.18-T4N-R64W, 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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

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

Well	NEI C17-33D					
Well Position	+N/-S	0.0 ft	Northing:	1,357,748.54 ft	Latitude:	40.311880
	+E/-W	133.9 ft	Easting:	3,252,556.37 ft	Longitude:	-104.594350
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,835.0 ft

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

<b>Design</b>	Noble NEI C17-33D Plan #1 (6-21-11)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	112.64

<b>Plan Sections</b>										
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	
1,785.0	27.70	122.00	1,731.7	-174.0	278.4	2.00	2.00	0.00	122.00	
3,585.0	27.70	122.00	3,325.4	-617.4	988.0	0.00	0.00	0.00	0.00	
3,949.5	27.71	106.28	3,648.6	-686.1	1,141.4	2.00	0.00	-4.31	-96.93	
6,829.0	27.71	106.28	6,197.9	-1,061.4	2,426.5	0.00	0.00	0.00	0.00	
7,214.3	20.00	106.28	6,550.0	-1,105.0	2,575.9	2.00	-2.00	0.00	180.00	DRILL TARGET 13
7,957.1	20.00	106.28	7,248.0	-1,176.2	2,819.8	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32 Pad Sec.18-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D 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	122.00	440.0	-0.1	0.2	0.3	2.00	2.00	0.00
480.0	1.60	122.00	480.0	-0.6	0.9	1.1	2.00	2.00	0.00
520.0	2.40	122.00	520.0	-1.3	2.1	2.5	2.00	2.00	0.00
560.0	3.20	122.00	559.9	-2.4	3.8	4.4	2.00	2.00	0.00
600.0	4.00	122.00	599.8	-3.7	5.9	6.9	2.00	2.00	0.00
640.0	4.80	122.00	639.7	-5.3	8.5	9.9	2.00	2.00	0.00
650.3	5.01	122.00	650.0	-5.8	9.3	10.8	2.00	2.00	0.00
8 5/8"									
680.0	5.60	122.00	679.6	-7.2	11.6	13.5	2.00	2.00	0.00
720.0	6.40	122.00	719.3	-9.5	15.1	17.6	2.00	2.00	0.00
760.0	7.20	122.00	759.1	-12.0	19.2	22.3	2.00	2.00	0.00
800.0	8.00	122.00	798.7	-14.8	23.6	27.5	2.00	2.00	0.00
840.0	8.80	122.00	838.3	-17.9	28.6	33.3	2.00	2.00	0.00
880.0	9.60	122.00	877.8	-21.3	34.0	39.6	2.00	2.00	0.00
920.0	10.40	122.00	917.1	-24.9	39.9	46.4	2.00	2.00	0.00
960.0	11.20	122.00	956.4	-28.9	46.3	53.8	2.00	2.00	0.00
1,000.0	12.00	122.00	995.6	-33.2	53.1	61.8	2.00	2.00	0.00
1,040.0	12.80	122.00	1,034.7	-37.7	60.4	70.2	2.00	2.00	0.00
1,080.0	13.60	122.00	1,073.6	-42.6	68.1	79.3	2.00	2.00	0.00
1,120.0	14.40	122.00	1,112.4	-47.7	76.3	88.8	2.00	2.00	0.00
1,160.0	15.20	122.00	1,151.1	-53.1	85.0	98.9	2.00	2.00	0.00
1,200.0	16.00	122.00	1,189.6	-58.8	94.1	109.5	2.00	2.00	0.00
1,240.0	16.80	122.00	1,228.0	-64.8	103.7	120.6	2.00	2.00	0.00
1,280.0	17.60	122.00	1,266.2	-71.1	113.7	132.3	2.00	2.00	0.00
1,320.0	18.40	122.00	1,304.3	-77.6	124.2	144.5	2.00	2.00	0.00
1,360.0	19.20	122.00	1,342.1	-84.4	135.1	157.2	2.00	2.00	0.00
1,400.0	20.00	122.00	1,379.8	-91.6	146.5	170.5	2.00	2.00	0.00
1,440.0	20.80	122.00	1,417.3	-98.9	158.3	184.2	2.00	2.00	0.00
1,480.0	21.60	122.00	1,454.6	-106.6	170.6	198.5	2.00	2.00	0.00
1,520.0	22.40	122.00	1,491.7	-114.5	183.3	213.3	2.00	2.00	0.00
1,560.0	23.20	122.00	1,528.6	-122.8	196.5	228.6	2.00	2.00	0.00
1,600.0	24.00	122.00	1,565.2	-131.2	210.0	244.4	2.00	2.00	0.00
1,640.0	24.80	122.00	1,601.6	-140.0	224.1	260.7	2.00	2.00	0.00
1,680.0	25.60	122.00	1,637.8	-149.0	238.5	277.5	2.00	2.00	0.00
1,720.0	26.40	122.00	1,673.8	-158.3	253.4	294.8	2.00	2.00	0.00
1,760.0	27.20	122.00	1,709.5	-167.9	268.7	312.6	2.00	2.00	0.00
1,785.0	27.70	122.00	1,731.7	-174.0	278.4	324.0	2.00	2.00	0.00
1,800.0	27.70	122.00	1,745.0	-177.7	284.3	330.8	0.00	0.00	0.00
1,840.0	27.70	122.00	1,780.4	-187.5	300.1	349.2	0.00	0.00	0.00
1,880.0	27.70	122.00	1,815.8	-197.4	315.9	367.5	0.00	0.00	0.00
1,920.0	27.70	122.00	1,851.2	-207.2	331.7	385.9	0.00	0.00	0.00
1,960.0	27.70	122.00	1,886.6	-217.1	347.4	404.2	0.00	0.00	0.00
2,000.0	27.70	122.00	1,922.0	-226.9	363.2	422.6	0.00	0.00	0.00

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<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D 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	27.70	122.00	1,957.4	-236.8	379.0	440.9	0.00	0.00	0.00
2,080.0	27.70	122.00	1,992.9	-246.7	394.7	459.3	0.00	0.00	0.00
2,120.0	27.70	122.00	2,028.3	-256.5	410.5	477.6	0.00	0.00	0.00
2,160.0	27.70	122.00	2,063.7	-266.4	426.3	495.9	0.00	0.00	0.00
2,200.0	27.70	122.00	2,099.1	-276.2	442.0	514.3	0.00	0.00	0.00
2,240.0	27.70	122.00	2,134.5	-286.1	457.8	532.6	0.00	0.00	0.00
2,280.0	27.70	122.00	2,169.9	-295.9	473.6	551.0	0.00	0.00	0.00
2,320.0	27.70	122.00	2,205.4	-305.8	489.3	569.3	0.00	0.00	0.00
2,360.0	27.70	122.00	2,240.8	-315.6	505.1	587.7	0.00	0.00	0.00
2,400.0	27.70	122.00	2,276.2	-325.5	520.9	606.0	0.00	0.00	0.00
2,440.0	27.70	122.00	2,311.6	-335.3	536.6	624.4	0.00	0.00	0.00
2,480.0	27.70	122.00	2,347.0	-345.2	552.4	642.7	0.00	0.00	0.00
2,520.0	27.70	122.00	2,382.4	-355.0	568.2	661.1	0.00	0.00	0.00
2,560.0	27.70	122.00	2,417.9	-364.9	583.9	679.4	0.00	0.00	0.00
2,600.0	27.70	122.00	2,453.3	-374.7	599.7	697.8	0.00	0.00	0.00
2,640.0	27.70	122.00	2,488.7	-384.6	615.5	716.1	0.00	0.00	0.00
2,680.0	27.70	122.00	2,524.1	-394.4	631.2	734.5	0.00	0.00	0.00
2,720.0	27.70	122.00	2,559.5	-404.3	647.0	752.8	0.00	0.00	0.00
2,760.0	27.70	122.00	2,594.9	-414.2	662.8	771.1	0.00	0.00	0.00
2,800.0	27.70	122.00	2,630.3	-424.0	678.6	789.5	0.00	0.00	0.00
2,840.0	27.70	122.00	2,665.8	-433.9	694.3	807.8	0.00	0.00	0.00
2,880.0	27.70	122.00	2,701.2	-443.7	710.1	826.2	0.00	0.00	0.00
2,920.0	27.70	122.00	2,736.6	-453.6	725.9	844.5	0.00	0.00	0.00
2,960.0	27.70	122.00	2,772.0	-463.4	741.6	862.9	0.00	0.00	0.00
3,000.0	27.70	122.00	2,807.4	-473.3	757.4	881.2	0.00	0.00	0.00
3,040.0	27.70	122.00	2,842.8	-483.1	773.2	899.6	0.00	0.00	0.00
3,080.0	27.70	122.00	2,878.3	-493.0	788.9	917.9	0.00	0.00	0.00
3,120.0	27.70	122.00	2,913.7	-502.8	804.7	936.3	0.00	0.00	0.00
3,160.0	27.70	122.00	2,949.1	-512.7	820.5	954.6	0.00	0.00	0.00
3,200.0	27.70	122.00	2,984.5	-522.5	836.2	973.0	0.00	0.00	0.00
3,240.0	27.70	122.00	3,019.9	-532.4	852.0	991.3	0.00	0.00	0.00
3,280.0	27.70	122.00	3,055.3	-542.2	867.8	1,009.6	0.00	0.00	0.00
3,320.0	27.70	122.00	3,090.8	-552.1	883.5	1,028.0	0.00	0.00	0.00
3,360.0	27.70	122.00	3,126.2	-562.0	899.3	1,046.3	0.00	0.00	0.00
3,400.0	27.70	122.00	3,161.6	-571.8	915.1	1,064.7	0.00	0.00	0.00
3,440.0	27.70	122.00	3,197.0	-581.7	930.8	1,083.0	0.00	0.00	0.00
3,480.0	27.70	122.00	3,232.4	-591.5	946.6	1,101.4	0.00	0.00	0.00
3,520.0	27.70	122.00	3,267.8	-601.4	962.4	1,119.7	0.00	0.00	0.00
3,560.0	27.70	122.00	3,303.2	-611.2	978.2	1,138.1	0.00	0.00	0.00
3,585.0	27.70	122.00	3,325.4	-617.4	988.0	1,149.5	0.00	0.00	0.00
3,600.0	27.67	121.36	3,338.7	-621.0	993.9	1,156.4	2.00	-0.23	-4.28
3,640.0	27.59	119.64	3,374.1	-630.4	1,009.9	1,174.8	2.00	-0.20	-4.29
3,680.0	27.53	117.92	3,409.6	-639.4	1,026.1	1,193.2	2.00	-0.14	-4.31
3,720.0	27.49	116.19	3,445.0	-647.8	1,042.6	1,211.6	2.00	-0.09	-4.33
3,760.0	27.48	114.45	3,480.5	-655.7	1,059.3	1,230.0	2.00	-0.04	-4.33
3,800.0	27.49	112.72	3,516.0	-663.0	1,076.2	1,248.5	2.00	0.02	-4.33
3,840.0	27.52	110.99	3,551.5	-669.9	1,093.3	1,267.0	2.00	0.07	-4.33
3,880.0	27.57	109.26	3,587.0	-676.3	1,110.7	1,285.5	2.00	0.13	-4.32
3,920.0	27.64	107.54	3,622.4	-682.1	1,128.3	1,303.9	2.00	0.18	-4.30
3,949.5	27.71	106.28	3,648.6	-686.1	1,141.4	1,317.6	2.00	0.22	-4.28
3,960.0	27.71	106.28	3,657.8	-687.5	1,146.1	1,322.4	0.00	0.00	0.00
4,000.0	27.71	106.28	3,693.2	-692.7	1,163.9	1,340.9	0.00	0.00	0.00
4,040.0	27.71	106.28	3,728.7	-697.9	1,181.8	1,359.4	0.00	0.00	0.00
4,080.0	27.71	106.28	3,764.1	-703.1	1,199.6	1,377.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32 Pad Sec.18-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D 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	27.71	106.28	3,799.5	-708.3	1,217.5	1,396.3	0.00	0.00	0.00
4,160.0	27.71	106.28	3,834.9	-713.5	1,235.3	1,414.8	0.00	0.00	0.00
4,200.0	27.71	106.28	3,870.3	-718.8	1,253.2	1,433.3	0.00	0.00	0.00
4,240.0	27.71	106.28	3,905.7	-724.0	1,271.0	1,451.8	0.00	0.00	0.00
4,280.0	27.71	106.28	3,941.1	-729.2	1,288.9	1,470.3	0.00	0.00	0.00
4,320.0	27.71	106.28	3,976.6	-734.4	1,306.7	1,488.8	0.00	0.00	0.00
4,360.0	27.71	106.28	4,012.0	-739.6	1,324.6	1,507.2	0.00	0.00	0.00
4,400.0	27.71	106.28	4,047.4	-744.8	1,342.4	1,525.7	0.00	0.00	0.00
4,440.0	27.71	106.28	4,082.8	-750.0	1,360.3	1,544.2	0.00	0.00	0.00
4,480.0	27.71	106.28	4,118.2	-755.2	1,378.1	1,562.7	0.00	0.00	0.00
4,520.0	27.71	106.28	4,153.6	-760.5	1,396.0	1,581.2	0.00	0.00	0.00
4,560.0	27.71	106.28	4,189.0	-765.7	1,413.8	1,599.6	0.00	0.00	0.00
4,600.0	27.71	106.28	4,224.5	-770.9	1,431.7	1,618.1	0.00	0.00	0.00
4,640.0	27.71	106.28	4,259.9	-776.1	1,449.6	1,636.6	0.00	0.00	0.00
4,680.0	27.71	106.28	4,295.3	-781.3	1,467.4	1,655.1	0.00	0.00	0.00
4,720.0	27.71	106.28	4,330.7	-786.5	1,485.3	1,673.6	0.00	0.00	0.00
4,760.0	27.71	106.28	4,366.1	-791.7	1,503.1	1,692.1	0.00	0.00	0.00
4,800.0	27.71	106.28	4,401.5	-796.9	1,521.0	1,710.5	0.00	0.00	0.00
4,840.0	27.71	106.28	4,436.9	-802.2	1,538.8	1,729.0	0.00	0.00	0.00
4,880.0	27.71	106.28	4,472.4	-807.4	1,556.7	1,747.5	0.00	0.00	0.00
4,920.0	27.71	106.28	4,507.8	-812.6	1,574.5	1,766.0	0.00	0.00	0.00
4,960.0	27.71	106.28	4,543.2	-817.8	1,592.4	1,784.5	0.00	0.00	0.00
5,000.0	27.71	106.28	4,578.6	-823.0	1,610.2	1,803.0	0.00	0.00	0.00
5,040.0	27.71	106.28	4,614.0	-828.2	1,628.1	1,821.4	0.00	0.00	0.00
5,080.0	27.71	106.28	4,649.4	-833.4	1,645.9	1,839.9	0.00	0.00	0.00
5,120.0	27.71	106.28	4,684.8	-838.7	1,663.8	1,858.4	0.00	0.00	0.00
5,160.0	27.71	106.28	4,720.3	-843.9	1,681.6	1,876.9	0.00	0.00	0.00
5,200.0	27.71	106.28	4,755.7	-849.1	1,699.5	1,895.4	0.00	0.00	0.00
5,240.0	27.71	106.28	4,791.1	-854.3	1,717.3	1,913.8	0.00	0.00	0.00
5,280.0	27.71	106.28	4,826.5	-859.5	1,735.2	1,932.3	0.00	0.00	0.00
5,320.0	27.71	106.28	4,861.9	-864.7	1,753.0	1,950.8	0.00	0.00	0.00
5,360.0	27.71	106.28	4,897.3	-869.9	1,770.9	1,969.3	0.00	0.00	0.00
5,400.0	27.71	106.28	4,932.7	-875.1	1,788.7	1,987.8	0.00	0.00	0.00
5,440.0	27.71	106.28	4,968.2	-880.4	1,806.6	2,006.3	0.00	0.00	0.00
5,480.0	27.71	106.28	5,003.6	-885.6	1,824.4	2,024.7	0.00	0.00	0.00
5,520.0	27.71	106.28	5,039.0	-890.8	1,842.3	2,043.2	0.00	0.00	0.00
5,560.0	27.71	106.28	5,074.4	-896.0	1,860.1	2,061.7	0.00	0.00	0.00
5,600.0	27.71	106.28	5,109.8	-901.2	1,878.0	2,080.2	0.00	0.00	0.00
5,640.0	27.71	106.28	5,145.2	-906.4	1,895.8	2,098.7	0.00	0.00	0.00
5,680.0	27.71	106.28	5,180.6	-911.6	1,913.7	2,117.1	0.00	0.00	0.00
5,720.0	27.71	106.28	5,216.1	-916.8	1,931.5	2,135.6	0.00	0.00	0.00
5,760.0	27.71	106.28	5,251.5	-922.1	1,949.4	2,154.1	0.00	0.00	0.00
5,800.0	27.71	106.28	5,286.9	-927.3	1,967.2	2,172.6	0.00	0.00	0.00
5,840.0	27.71	106.28	5,322.3	-932.5	1,985.1	2,191.1	0.00	0.00	0.00
5,880.0	27.71	106.28	5,357.7	-937.7	2,002.9	2,209.6	0.00	0.00	0.00
5,920.0	27.71	106.28	5,393.1	-942.9	2,020.8	2,228.0	0.00	0.00	0.00
5,960.0	27.71	106.28	5,428.5	-948.1	2,038.6	2,246.5	0.00	0.00	0.00
6,000.0	27.71	106.28	5,464.0	-953.3	2,056.5	2,265.0	0.00	0.00	0.00
6,040.0	27.71	106.28	5,499.4	-958.5	2,074.3	2,283.5	0.00	0.00	0.00
6,080.0	27.71	106.28	5,534.8	-963.8	2,092.2	2,302.0	0.00	0.00	0.00
6,120.0	27.71	106.28	5,570.2	-969.0	2,110.1	2,320.5	0.00	0.00	0.00
6,160.0	27.71	106.28	5,605.6	-974.2	2,127.9	2,338.9	0.00	0.00	0.00
6,200.0	27.71	106.28	5,641.0	-979.4	2,145.8	2,357.4	0.00	0.00	0.00
6,240.0	27.71	106.28	5,676.4	-984.6	2,163.6	2,375.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32 Pad Sec.18-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D 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)
6,280.0	27.71	106.28	5,711.9	-989.8	2,181.5	2,394.4	0.00	0.00	0.00
6,320.0	27.71	106.28	5,747.3	-995.0	2,199.3	2,412.9	0.00	0.00	0.00
6,360.0	27.71	106.28	5,782.7	-1,000.2	2,217.2	2,431.3	0.00	0.00	0.00
6,400.0	27.71	106.28	5,818.1	-1,005.5	2,235.0	2,449.8	0.00	0.00	0.00
6,440.0	27.71	106.28	5,853.5	-1,010.7	2,252.9	2,468.3	0.00	0.00	0.00
6,480.0	27.71	106.28	5,888.9	-1,015.9	2,270.7	2,486.8	0.00	0.00	0.00
6,520.0	27.71	106.28	5,924.3	-1,021.1	2,288.6	2,505.3	0.00	0.00	0.00
6,560.0	27.71	106.28	5,959.8	-1,026.3	2,306.4	2,523.8	0.00	0.00	0.00
6,600.0	27.71	106.28	5,995.2	-1,031.5	2,324.3	2,542.2	0.00	0.00	0.00
6,640.0	27.71	106.28	6,030.6	-1,036.7	2,342.1	2,560.7	0.00	0.00	0.00
6,680.0	27.71	106.28	6,066.0	-1,041.9	2,360.0	2,579.2	0.00	0.00	0.00
6,720.0	27.71	106.28	6,101.4	-1,047.2	2,377.8	2,597.7	0.00	0.00	0.00
6,760.0	27.71	106.28	6,136.8	-1,052.4	2,395.7	2,616.2	0.00	0.00	0.00
6,800.0	27.71	106.28	6,172.2	-1,057.6	2,413.5	2,634.6	0.00	0.00	0.00
6,829.0	27.71	106.28	6,197.9	-1,061.4	2,426.5	2,648.1	0.00	0.00	0.00
6,840.0	27.49	106.28	6,207.7	-1,062.8	2,431.4	2,653.1	2.00	-2.00	0.00
6,880.0	26.69	106.28	6,243.3	-1,067.9	2,448.8	2,671.2	2.00	-2.00	0.00
6,920.0	25.89	106.28	6,279.1	-1,072.9	2,465.8	2,688.8	2.00	-2.00	0.00
6,960.0	25.09	106.28	6,315.2	-1,077.7	2,482.4	2,705.9	2.00	-2.00	0.00
7,000.0	24.29	106.28	6,351.6	-1,082.4	2,498.4	2,722.5	2.00	-2.00	0.00
7,040.0	23.49	106.28	6,388.2	-1,086.9	2,513.9	2,738.6	2.00	-2.00	0.00
7,080.0	22.69	106.28	6,425.0	-1,091.3	2,529.0	2,754.2	2.00	-2.00	0.00
7,120.0	21.89	106.28	6,462.0	-1,095.6	2,543.6	2,769.3	2.00	-2.00	0.00
7,160.0	21.09	106.28	6,499.2	-1,099.7	2,557.6	2,783.8	2.00	-2.00	0.00
7,200.0	20.29	106.28	6,536.6	-1,103.6	2,571.2	2,797.9	2.00	-2.00	0.00
7,214.3	20.00	106.28	6,550.0	-1,105.0	2,575.9	2,802.8	2.00	-2.00	0.00
<b>DRILL TARGET 1352'FSL, 319'FEL</b>									
7,240.0	20.00	106.28	6,574.2	-1,107.5	2,584.4	2,811.5	0.00	0.00	0.00
7,254.2	20.00	106.28	6,587.5	-1,108.8	2,589.0	2,816.3	0.00	0.00	0.00
<b>BHL 1280'FSL, 75'FEL</b>									
7,280.0	20.00	106.28	6,611.8	-1,111.3	2,597.5	2,825.1	0.00	0.00	0.00
7,320.0	20.00	106.28	6,649.4	-1,115.1	2,610.6	2,838.7	0.00	0.00	0.00
7,360.0	20.00	106.28	6,687.0	-1,119.0	2,623.7	2,852.3	0.00	0.00	0.00
7,400.0	20.00	106.28	6,724.5	-1,122.8	2,636.9	2,865.9	0.00	0.00	0.00
7,440.0	20.00	106.28	6,762.1	-1,126.6	2,650.0	2,879.5	0.00	0.00	0.00
7,440.9	20.00	106.28	6,763.0	-1,126.7	2,650.3	2,879.8	0.00	0.00	0.00
<b>NIOBRARA</b>									
7,480.0	20.00	106.28	6,799.7	-1,130.5	2,663.1	2,893.1	0.00	0.00	0.00
7,501.3	20.00	106.28	6,819.7	-1,132.5	2,670.1	2,900.3	0.00	0.00	0.00
<b>TARGET CIRCLE 1280'FSL &amp; 75'FEL</b>									
7,520.0	20.00	106.28	6,837.3	-1,134.3	2,676.3	2,906.7	0.00	0.00	0.00
7,560.0	20.00	106.28	6,874.9	-1,138.1	2,689.4	2,920.3	0.00	0.00	0.00
7,600.0	20.00	106.28	6,912.5	-1,142.0	2,702.5	2,933.9	0.00	0.00	0.00
7,640.0	20.00	106.28	6,950.1	-1,145.8	2,715.7	2,947.5	0.00	0.00	0.00
7,680.0	20.00	106.28	6,987.7	-1,149.7	2,728.8	2,961.1	0.00	0.00	0.00
7,720.0	20.00	106.28	7,025.2	-1,153.5	2,741.9	2,974.7	0.00	0.00	0.00
7,760.0	20.00	106.28	7,062.8	-1,157.3	2,755.1	2,988.3	0.00	0.00	0.00
7,797.4	20.00	106.28	7,098.0	-1,160.9	2,767.4	3,001.0	0.00	0.00	0.00
<b>CODELL</b>									
7,800.0	20.00	106.28	7,100.4	-1,161.2	2,768.2	3,001.9	0.00	0.00	0.00
7,840.0	20.00	106.28	7,138.0	-1,165.0	2,781.3	3,015.5	0.00	0.00	0.00
7,880.0	20.00	106.28	7,175.6	-1,168.8	2,794.5	3,029.1	0.00	0.00	0.00
7,920.0	20.00	106.28	7,213.2	-1,172.7	2,807.6	3,042.7	0.00	0.00	0.00
7,957.1	20.00	106.28	7,248.0	-1,176.2	2,819.8	3,055.3	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Project:</b>	SEC.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32 Pad Sec.18-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	NEI C17-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble NEI C17-33D 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)	
HARDLINES 75'E OF BHL										

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARDLINES 75'E OF		0.00	0.00	7,248.0	-1,276.5	2,894.7	1,356,501.73	3,255,463.83	40.308376	-104.583971
- plan misses target center by 125.2ft at 7957.1ft MD (7248.0 TVD, -1176.2 N, 2819.8 E)										
- Polygon										
Point 1				7,248.0	0.0	0.0	1,356,501.73	3,255,463.83		
Point 2				7,248.0	200.0	0.0	1,356,701.71	3,255,461.79		
TARGET CIRCLE 128		0.00	0.00	6,763.0	-1,176.5	2,819.7	1,356,600.92	3,255,387.77	40.308650	-104.584240
- plan misses target center by 165.9ft at 7501.3ft MD (6819.7 TVD, -1132.5 N, 2670.1 E)										
- Circle (radius 75.0)										
BHL 1280'FSL, 75'FE		0.00	0.00	6,500.0	-1,176.5	2,819.7	1,356,600.92	3,255,387.77	40.308650	-104.584240
- plan misses target center by 255.8ft at 7254.2ft MD (6587.5 TVD, -1108.8 N, 2589.0 E)										
- Point										
DRILL TARGET 1352		0.00	0.00	6,550.0	-1,105.0	2,575.9	1,356,669.95	3,255,143.31	40.308846	-104.585114
- plan hits target center										
- Point										

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 (°)	
7,440.9	6,763.0	NIOBRARA		0.00		
7,797.4	7,098.0	CODELL		0.00		