

# ENSIGN

## Directional

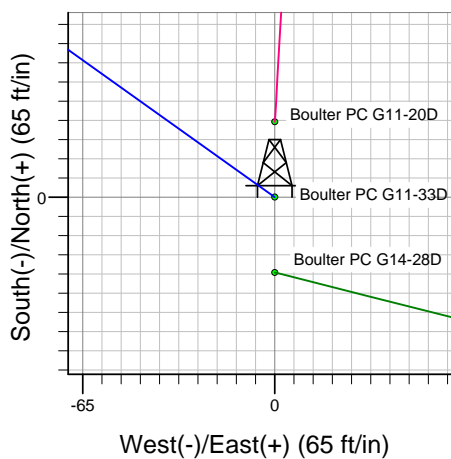
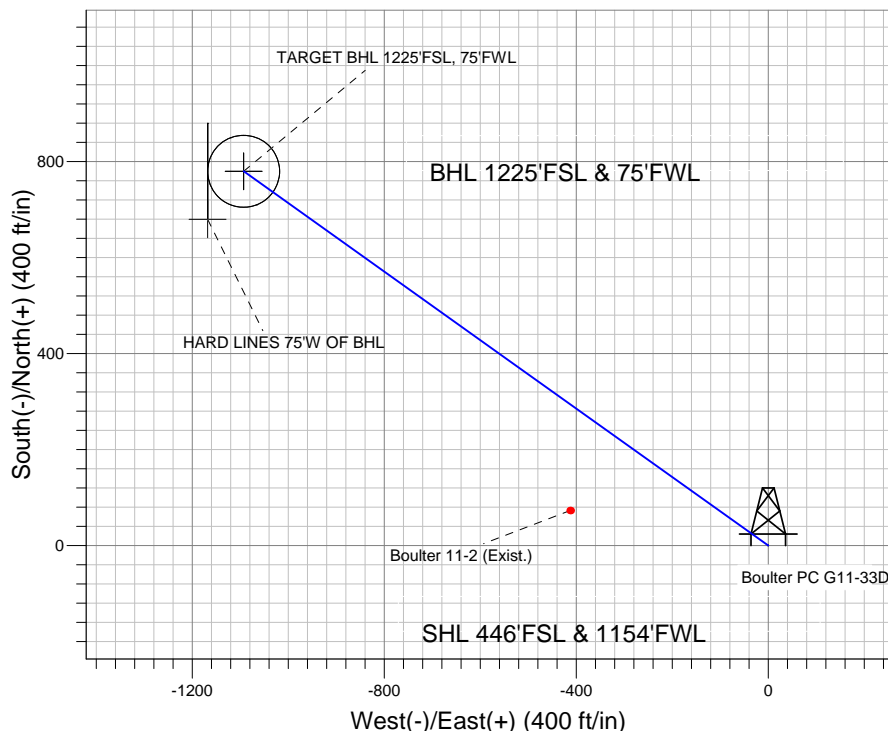
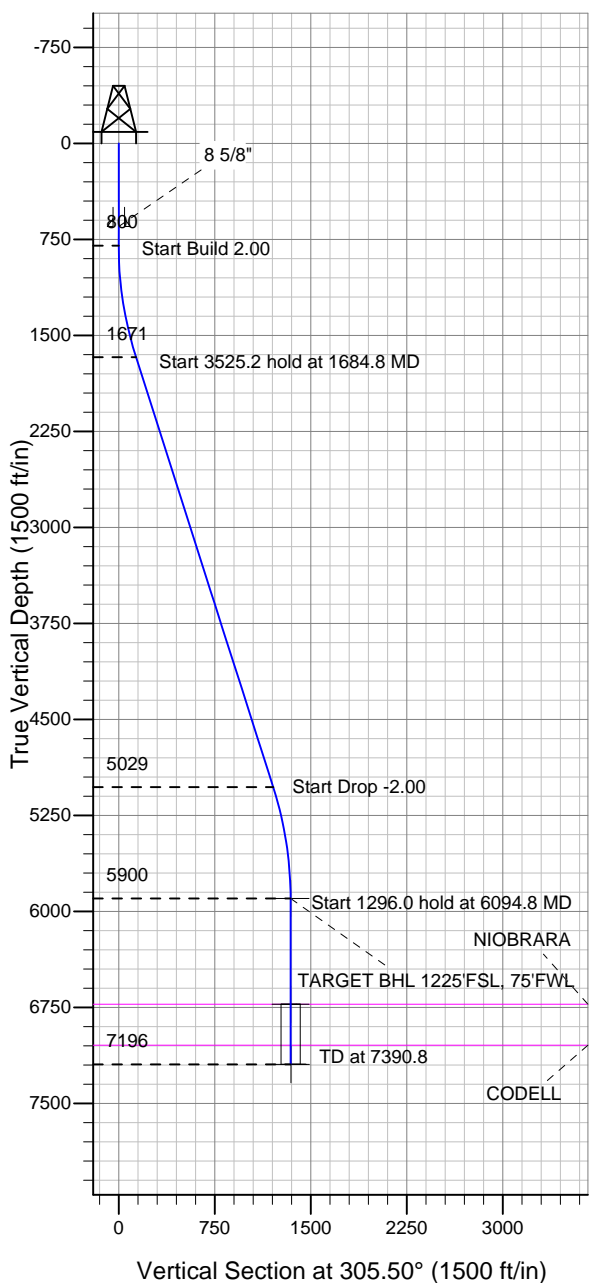
### Well Name: Boulder PC G11-33D

Surface Location: Boulder PC G11-20D Pad Sec.11-T4N-R65W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4683.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1360948.98 3241057.39 40° 19' 15.528 N 104° 38' 7.692 W  
Original Well Elev WELL @ 4696.0ft (Original Well Elev)

## NOBLE ENERGY INC WELD COUNTY CO



Boulder PC G11-20D Pad Sec.11-T4N-R65W  
Boulder PC G11-33D  
Noble Boulder PC G11-33D Plan #1 (2-10-11)  
14:17, February 16 2011



Azimuths to True North  
Magnetic North: 8.79°

Magnetic Field  
Strength: 53162.5nT  
Dip Angle: 67.03°  
Date: 2/10/2011  
Model: IGRF200510

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1225'FSL, 75'FWL	5900.0	779.7	-1093.0	40° 19' 23.232 N	104° 38' 21.804 W	Point
TARGET CIRCLE 1225'FSL & 75'FWL	6726.0	779.7	-1093.0	40° 19' 23.232 N	104° 38' 21.804 W	Circle (Radius: 75.0)
HARD LINES 75'W OF BHL	7196.0	679.6	-1168.0	40° 19' 22.243 N	104° 38' 22.772 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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1684.8	17.70	305.50	1670.8	78.7	-110.4	2.00	305.50	135.5	
4	5210.0	17.70	305.50	5029.2	700.9	-982.7	0.00	0.00	1207.1	
5	6094.8	0.00	0.00	5900.0	779.7	-1093.0	2.00	180.00	1342.6	TARGET BHL 1225'FSL, 75'FWL
6	7390.8	0.00	0.00	7196.0	779.7	-1093.0	0.00	0.00	1342.6	



## **Directional**

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

**SEC.11-T4N-R65W**

**Boulter PC G11-20D Pad Sec.11-T4N-R65W**

**Boulter PC G11-33D**

**Wellbore #1**

**Plan: Noble Boulter PC G11-33D Plan #1 (2-10-11)**

### **Standard Planning Report**

**16 February, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boulter PC G11-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

<b>Project</b>	SEC.11-T4N-R65W, 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						Boulter PC G11-20D Pad Sec.11-T4N-R65W											
Site Position:						Northing:			1,360,974.49ft			Latitude:			40° 19' 15.780 N		
From:			Lat/Long			Easting:			3,241,057.14ft			Longitude:			104° 38' 7.692 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.56 °		

Well	Boulter PC G11-33D					
Well Position	+N-S	-25.5 ft	Northing:	1,360,948.98 ft	Latitude:	40° 19' 15.528 N
	+E-W	0.0 ft	Easting:	3,241,057.39 ft	Longitude:	104° 38' 7.692 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,683.0 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>
	IGRF200510	2/10/2011	8.79	67.03	53,163

<b>Design</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)			
<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	305.50

<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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,684.8	17.70	305.50	1,670.8	78.7	-110.4	2.00	2.00	0.00	305.50	
5,210.0	17.70	305.50	5,029.2	700.9	-982.7	0.00	0.00	0.00	0.00	
6,094.8	0.00	0.00	5,900.0	779.7	-1,093.0	2.00	-2.00	0.00	180.00	TARGET BHL 1225
7,390.8	0.00	0.00	7,196.0	779.7	-1,093.0	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boulter PC G11-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

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	0.00	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
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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	0.80	305.50	840.0	0.2	-0.2	0.3	2.00	2.00	0.00
880.0	1.60	305.50	880.0	0.6	-0.9	1.1	2.00	2.00	0.00
920.0	2.40	305.50	920.0	1.5	-2.0	2.5	2.00	2.00	0.00
960.0	3.20	305.50	959.9	2.6	-3.6	4.5	2.00	2.00	0.00
1,000.0	4.00	305.50	999.8	4.1	-5.7	7.0	2.00	2.00	0.00
1,040.0	4.80	305.50	1,039.7	5.8	-8.2	10.0	2.00	2.00	0.00
1,080.0	5.60	305.50	1,079.6	7.9	-11.1	13.7	2.00	2.00	0.00
1,120.0	6.40	305.50	1,119.3	10.4	-14.5	17.9	2.00	2.00	0.00
1,160.0	7.20	305.50	1,159.1	13.1	-18.4	22.6	2.00	2.00	0.00
1,200.0	8.00	305.50	1,198.7	16.2	-22.7	27.9	2.00	2.00	0.00
1,240.0	8.80	305.50	1,238.3	19.6	-27.5	33.7	2.00	2.00	0.00
1,280.0	9.60	305.50	1,277.8	23.3	-32.7	40.1	2.00	2.00	0.00
1,320.0	10.40	305.50	1,317.1	27.3	-38.3	47.1	2.00	2.00	0.00
1,360.0	11.20	305.50	1,356.4	31.7	-44.4	54.6	2.00	2.00	0.00
1,400.0	12.00	305.50	1,395.6	36.4	-51.0	62.6	2.00	2.00	0.00
1,440.0	12.80	305.50	1,434.7	41.3	-58.0	71.2	2.00	2.00	0.00
1,480.0	13.60	305.50	1,473.6	46.6	-65.4	80.3	2.00	2.00	0.00
1,520.0	14.40	305.50	1,512.4	52.3	-73.3	90.0	2.00	2.00	0.00
1,560.0	15.20	305.50	1,551.1	58.2	-81.6	100.2	2.00	2.00	0.00
1,600.0	16.00	305.50	1,589.6	64.4	-90.3	111.0	2.00	2.00	0.00
1,640.0	16.80	305.50	1,628.0	71.0	-99.5	122.3	2.00	2.00	0.00
1,680.0	17.60	305.50	1,666.2	77.9	-109.2	134.1	2.00	2.00	0.00
1,684.8	17.70	305.50	1,670.8	78.7	-110.4	135.5	2.00	2.00	0.00
1,720.0	17.70	305.50	1,704.3	84.9	-119.1	146.3	0.00	0.00	0.00
1,760.0	17.70	305.50	1,742.4	92.0	-129.0	158.4	0.00	0.00	0.00
1,800.0	17.70	305.50	1,780.5	99.0	-138.9	170.6	0.00	0.00	0.00
1,840.0	17.70	305.50	1,818.7	106.1	-148.8	182.7	0.00	0.00	0.00
1,880.0	17.70	305.50	1,856.8	113.2	-158.7	194.9	0.00	0.00	0.00
1,920.0	17.70	305.50	1,894.9	120.2	-168.6	207.0	0.00	0.00	0.00
1,960.0	17.70	305.50	1,933.0	127.3	-178.5	219.2	0.00	0.00	0.00
2,000.0	17.70	305.50	1,971.1	134.4	-188.4	231.4	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boulter PC G11-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

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	17.70	305.50	2,009.2	141.4	-198.3	243.5	0.00	0.00	0.00
2,080.0	17.70	305.50	2,047.3	148.5	-208.2	255.7	0.00	0.00	0.00
2,120.0	17.70	305.50	2,085.4	155.5	-218.1	267.8	0.00	0.00	0.00
2,160.0	17.70	305.50	2,123.5	162.6	-227.9	280.0	0.00	0.00	0.00
2,200.0	17.70	305.50	2,161.6	169.7	-237.8	292.2	0.00	0.00	0.00
2,240.0	17.70	305.50	2,199.7	176.7	-247.7	304.3	0.00	0.00	0.00
2,280.0	17.70	305.50	2,237.8	183.8	-257.6	316.5	0.00	0.00	0.00
2,320.0	17.70	305.50	2,275.9	190.8	-267.5	328.6	0.00	0.00	0.00
2,360.0	17.70	305.50	2,314.1	197.9	-277.4	340.8	0.00	0.00	0.00
2,400.0	17.70	305.50	2,352.2	205.0	-287.3	352.9	0.00	0.00	0.00
2,440.0	17.70	305.50	2,390.3	212.0	-297.2	365.1	0.00	0.00	0.00
2,480.0	17.70	305.50	2,428.4	219.1	-307.1	377.3	0.00	0.00	0.00
2,520.0	17.70	305.50	2,466.5	226.1	-317.0	389.4	0.00	0.00	0.00
2,560.0	17.70	305.50	2,504.6	233.2	-326.9	401.6	0.00	0.00	0.00
2,600.0	17.70	305.50	2,542.7	240.3	-336.8	413.7	0.00	0.00	0.00
2,640.0	17.70	305.50	2,580.8	247.3	-346.7	425.9	0.00	0.00	0.00
2,680.0	17.70	305.50	2,618.9	254.4	-356.6	438.1	0.00	0.00	0.00
2,720.0	17.70	305.50	2,657.0	261.4	-366.5	450.2	0.00	0.00	0.00
2,760.0	17.70	305.50	2,695.1	268.5	-376.4	462.4	0.00	0.00	0.00
2,800.0	17.70	305.50	2,733.2	275.6	-386.3	474.5	0.00	0.00	0.00
2,840.0	17.70	305.50	2,771.3	282.6	-396.2	486.7	0.00	0.00	0.00
2,880.0	17.70	305.50	2,809.5	289.7	-406.1	498.8	0.00	0.00	0.00
2,920.0	17.70	305.50	2,847.6	296.7	-416.0	511.0	0.00	0.00	0.00
2,960.0	17.70	305.50	2,885.7	303.8	-425.9	523.2	0.00	0.00	0.00
3,000.0	17.70	305.50	2,923.8	310.9	-435.8	535.3	0.00	0.00	0.00
3,040.0	17.70	305.50	2,961.9	317.9	-445.7	547.5	0.00	0.00	0.00
3,080.0	17.70	305.50	3,000.0	325.0	-455.6	559.6	0.00	0.00	0.00
3,120.0	17.70	305.50	3,038.1	332.0	-465.5	571.8	0.00	0.00	0.00
3,160.0	17.70	305.50	3,076.2	339.1	-475.4	584.0	0.00	0.00	0.00
3,200.0	17.70	305.50	3,114.3	346.2	-485.3	596.1	0.00	0.00	0.00
3,240.0	17.70	305.50	3,152.4	353.2	-495.2	608.3	0.00	0.00	0.00
3,280.0	17.70	305.50	3,190.5	360.3	-505.1	620.4	0.00	0.00	0.00
3,320.0	17.70	305.50	3,228.6	367.3	-515.0	632.6	0.00	0.00	0.00
3,360.0	17.70	305.50	3,266.7	374.4	-524.9	644.7	0.00	0.00	0.00
3,400.0	17.70	305.50	3,304.8	381.5	-534.8	656.9	0.00	0.00	0.00
3,440.0	17.70	305.50	3,343.0	388.5	-544.7	669.1	0.00	0.00	0.00
3,480.0	17.70	305.50	3,381.1	395.6	-554.6	681.2	0.00	0.00	0.00
3,520.0	17.70	305.50	3,419.2	402.6	-564.5	693.4	0.00	0.00	0.00
3,560.0	17.70	305.50	3,457.3	409.7	-574.4	705.5	0.00	0.00	0.00
3,600.0	17.70	305.50	3,495.4	416.8	-584.3	717.7	0.00	0.00	0.00
3,640.0	17.70	305.50	3,533.5	423.8	-594.2	729.9	0.00	0.00	0.00
3,680.0	17.70	305.50	3,571.6	430.9	-604.1	742.0	0.00	0.00	0.00
3,720.0	17.70	305.50	3,609.7	437.9	-614.0	754.2	0.00	0.00	0.00
3,760.0	17.70	305.50	3,647.8	445.0	-623.9	766.3	0.00	0.00	0.00
3,800.0	17.70	305.50	3,685.9	452.1	-633.8	778.5	0.00	0.00	0.00
3,840.0	17.70	305.50	3,724.0	459.1	-643.7	790.6	0.00	0.00	0.00
3,880.0	17.70	305.50	3,762.1	466.2	-653.6	802.8	0.00	0.00	0.00
3,920.0	17.70	305.50	3,800.2	473.2	-663.5	815.0	0.00	0.00	0.00
3,960.0	17.70	305.50	3,838.4	480.3	-673.4	827.1	0.00	0.00	0.00
4,000.0	17.70	305.50	3,876.5	487.4	-683.3	839.3	0.00	0.00	0.00
4,040.0	17.70	305.50	3,914.6	494.4	-693.2	851.4	0.00	0.00	0.00
4,080.0	17.70	305.50	3,952.7	501.5	-703.1	863.6	0.00	0.00	0.00
4,120.0	17.70	305.50	3,990.8	508.5	-713.0	875.7	0.00	0.00	0.00
4,160.0	17.70	305.50	4,028.9	515.6	-722.9	887.9	0.00	0.00	0.00

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<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

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	17.70	305.50	4,067.0	522.7	-732.8	900.1	0.00	0.00	0.00
4,240.0	17.70	305.50	4,105.1	529.7	-742.7	912.2	0.00	0.00	0.00
4,280.0	17.70	305.50	4,143.2	536.8	-752.6	924.4	0.00	0.00	0.00
4,320.0	17.70	305.50	4,181.3	543.8	-762.5	936.5	0.00	0.00	0.00
4,360.0	17.70	305.50	4,219.4	550.9	-772.4	948.7	0.00	0.00	0.00
4,400.0	17.70	305.50	4,257.5	558.0	-782.3	960.9	0.00	0.00	0.00
4,440.0	17.70	305.50	4,295.6	565.0	-792.2	973.0	0.00	0.00	0.00
4,480.0	17.70	305.50	4,333.7	572.1	-802.0	985.2	0.00	0.00	0.00
4,520.0	17.70	305.50	4,371.9	579.1	-811.9	997.3	0.00	0.00	0.00
4,560.0	17.70	305.50	4,410.0	586.2	-821.8	1,009.5	0.00	0.00	0.00
4,600.0	17.70	305.50	4,448.1	593.3	-831.7	1,021.6	0.00	0.00	0.00
4,640.0	17.70	305.50	4,486.2	600.3	-841.6	1,033.8	0.00	0.00	0.00
4,680.0	17.70	305.50	4,524.3	607.4	-851.5	1,046.0	0.00	0.00	0.00
4,720.0	17.70	305.50	4,562.4	614.5	-861.4	1,058.1	0.00	0.00	0.00
4,760.0	17.70	305.50	4,600.5	621.5	-871.3	1,070.3	0.00	0.00	0.00
4,800.0	17.70	305.50	4,638.6	628.6	-881.2	1,082.4	0.00	0.00	0.00
4,840.0	17.70	305.50	4,676.7	635.6	-891.1	1,094.6	0.00	0.00	0.00
4,880.0	17.70	305.50	4,714.8	642.7	-901.0	1,106.8	0.00	0.00	0.00
4,920.0	17.70	305.50	4,752.9	649.8	-910.9	1,118.9	0.00	0.00	0.00
4,960.0	17.70	305.50	4,791.0	656.8	-920.8	1,131.1	0.00	0.00	0.00
5,000.0	17.70	305.50	4,829.1	663.9	-930.7	1,143.2	0.00	0.00	0.00
5,040.0	17.70	305.50	4,867.3	670.9	-940.6	1,155.4	0.00	0.00	0.00
5,080.0	17.70	305.50	4,905.4	678.0	-950.5	1,167.5	0.00	0.00	0.00
5,120.0	17.70	305.50	4,943.5	685.1	-960.4	1,179.7	0.00	0.00	0.00
5,160.0	17.70	305.50	4,981.6	692.1	-970.3	1,191.9	0.00	0.00	0.00
5,200.0	17.70	305.50	5,019.7	699.2	-980.2	1,204.0	0.00	0.00	0.00
5,210.0	17.70	305.50	5,029.2	700.9	-982.7	1,207.1	0.00	0.00	0.00
5,240.0	17.10	305.50	5,057.8	706.1	-990.0	1,216.0	2.00	-2.00	0.00
5,280.0	16.30	305.50	5,096.1	712.8	-999.3	1,227.5	2.00	-2.00	0.00
5,320.0	15.50	305.50	5,134.6	719.2	-1,008.3	1,238.5	2.00	-2.00	0.00
5,360.0	14.70	305.50	5,173.2	725.2	-1,016.7	1,248.9	2.00	-2.00	0.00
5,400.0	13.90	305.50	5,212.0	731.0	-1,024.8	1,258.8	2.00	-2.00	0.00
5,440.0	13.10	305.50	5,250.9	736.4	-1,032.4	1,268.1	2.00	-2.00	0.00
5,480.0	12.30	305.50	5,289.9	741.5	-1,039.5	1,276.9	2.00	-2.00	0.00
5,520.0	11.50	305.50	5,329.1	746.3	-1,046.3	1,285.1	2.00	-2.00	0.00
5,560.0	10.70	305.50	5,368.3	750.8	-1,052.5	1,292.8	2.00	-2.00	0.00
5,600.0	9.90	305.50	5,407.7	754.9	-1,058.3	1,300.0	2.00	-2.00	0.00
5,640.0	9.10	305.50	5,447.1	758.7	-1,063.7	1,306.6	2.00	-2.00	0.00
5,680.0	8.30	305.50	5,486.7	762.2	-1,068.6	1,312.6	2.00	-2.00	0.00
5,720.0	7.50	305.50	5,526.3	765.4	-1,073.1	1,318.1	2.00	-2.00	0.00
5,760.0	6.70	305.50	5,566.0	768.3	-1,077.1	1,323.1	2.00	-2.00	0.00
5,800.0	5.90	305.50	5,605.7	770.9	-1,080.7	1,327.5	2.00	-2.00	0.00
5,840.0	5.10	305.50	5,645.5	773.1	-1,083.8	1,331.3	2.00	-2.00	0.00
5,880.0	4.30	305.50	5,685.4	775.0	-1,086.5	1,334.6	2.00	-2.00	0.00
5,920.0	3.50	305.50	5,725.3	776.6	-1,088.7	1,337.3	2.00	-2.00	0.00
5,960.0	2.70	305.50	5,765.3	777.8	-1,090.5	1,339.4	2.00	-2.00	0.00
6,000.0	1.90	305.50	5,805.2	778.7	-1,091.8	1,341.0	2.00	-2.00	0.00
6,040.0	1.10	305.50	5,845.2	779.3	-1,092.6	1,342.1	2.00	-2.00	0.00
6,080.0	0.30	305.50	5,885.2	779.6	-1,093.0	1,342.6	2.00	-2.00	0.00
6,094.8	0.00	0.00	5,900.0	779.7	-1,093.0	1,342.6	2.00	-2.00	0.00
TARGET BHL 1225'FSL, 75'FWL									
6,120.0	0.00	0.00	5,925.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,160.0	0.00	0.00	5,965.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,005.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boulter PC G11-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

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	6,045.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,280.0	0.00	0.00	6,085.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,320.0	0.00	0.00	6,125.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,360.0	0.00	0.00	6,165.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,205.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,440.0	0.00	0.00	6,245.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,480.0	0.00	0.00	6,285.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,520.0	0.00	0.00	6,325.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,560.0	0.00	0.00	6,365.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,405.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,640.0	0.00	0.00	6,445.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,680.0	0.00	0.00	6,485.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,720.0	0.00	0.00	6,525.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,760.0	0.00	0.00	6,565.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,605.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,840.0	0.00	0.00	6,645.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,880.0	0.00	0.00	6,685.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,920.0	0.00	0.00	6,725.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
6,920.8	0.00	0.00	6,726.0	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 1225'FSL &amp; 75'FWL</b>									
6,960.0	0.00	0.00	6,765.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,805.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,040.0	0.00	0.00	6,845.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,080.0	0.00	0.00	6,885.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,120.0	0.00	0.00	6,925.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,160.0	0.00	0.00	6,965.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,200.0	0.00	0.00	7,005.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,240.0	0.00	0.00	7,045.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,240.8	0.00	0.00	7,046.0	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
<b>CODELL</b>									
7,280.0	0.00	0.00	7,085.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,320.0	0.00	0.00	7,125.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,360.0	0.00	0.00	7,165.2	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
7,390.8	0.00	0.00	7,196.0	779.7	-1,093.0	1,342.6	0.00	0.00	0.00
<b>HARD LINES 75'W OF BHL</b>									



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boulter PC G11-33D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Project:</b>	SEC.11-T4N-R65W	<b>MD Reference:</b>	WELL @ 4696.0ft (Original Well Elev)
<b>Site:</b>	Boulter PC G11-20D Pad Sec.11-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boulter PC G11-33D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boulter PC G11-33D Plan #1 (2-10-11)		

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									
TARGET BHL 1225'F:	0.00	0.00	5,900.0	779.7	-1,093.0	1,361,717.90	3,239,956.84	40° 19' 23.232 N	104° 38' 21.804 W
- plan hits target center									
- Point									
HARD LINES 75'W O	0.00	0.00	7,196.0	679.6	-1,168.0	1,361,617.13	3,239,882.87	40° 19' 22.243 N	104° 38' 22.772 W
- plan misses target center by 125.0ft at 7390.8ft MD (7196.0 TVD, 779.7 N, -1093.0 E)									
- Polygon									
Point 1			7,196.0	0.0	0.0	1,361,617.13	3,239,882.87		
Point 2			7,196.0	200.0	0.0	1,361,817.11	3,239,880.92		
TARGET CIRCLE 1225'F:	0.00	0.00	6,726.0	779.7	-1,093.0	1,361,717.90	3,239,956.84	40° 19' 23.232 N	104° 38' 21.804 W
- plan hits target center									
- Circle (radius 75.0)									

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

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,920.8	6,726.0	NIOBRARA		0.00	
7,240.8	7,046.0	CODELL		0.00	