

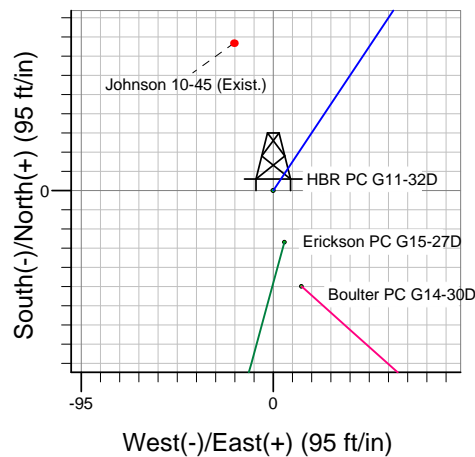
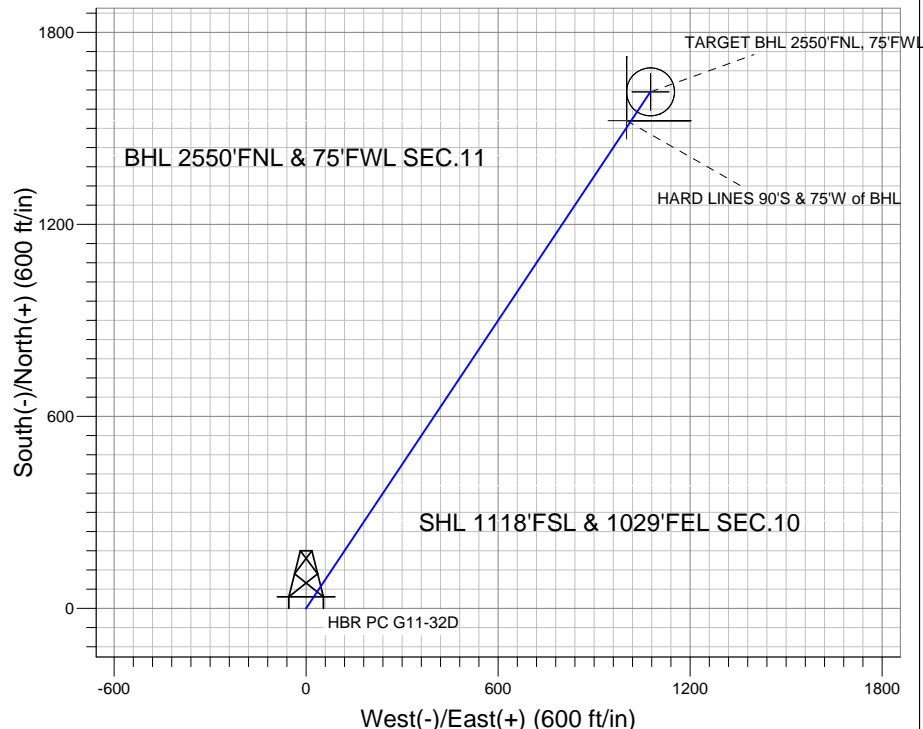
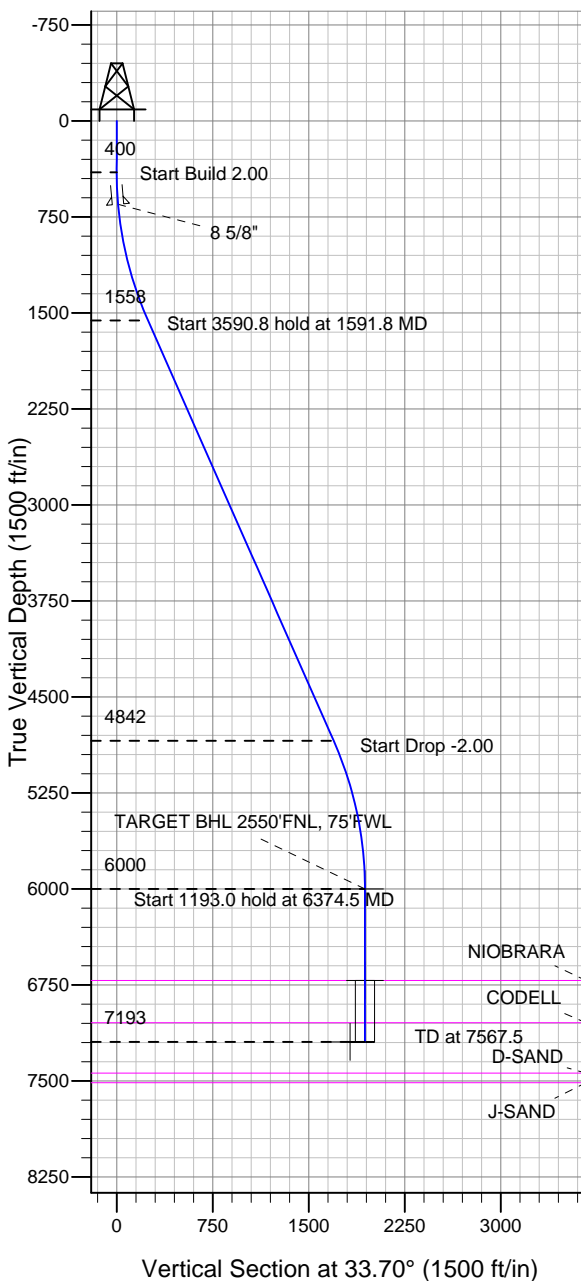
# ENSIGN

## Directional

### Well Name: HBR PC G11-32D

Surface Location: Erickson PC G15-27D Pad Sec.10-T4N-R65W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4680.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1361597.94 3238856.59 40° 19' 22.152 N 104° 38' 36.024 W  
 Original Well Elev WELL @ 4693.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Erickson PC G15-27D Pad Sec.10-T4N-R65W  
 HBR PC G11-32D  
 Noble HBR PC G11-32D Plan #2 (2-02-11)  
 8:01, February 04 2011



Azimuths to True North  
 Magnetic North: 8.84°

Magnetic Field  
 Strength: 53143.8snT  
 Dip Angle: 67.02°  
 Date: 2/2/2011  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2550'FNL, 75'FWL	6000.0	1613.9	1076.3	40° 19' 38.100 N	104° 38' 22.128 W	Point
TARGET CIRCLE 2550'FNL & 75'FWL	6713.0	1613.9	1076.3	40° 19' 38.100 N	104° 38' 22.128 W	Circle (Radius: 75.0)
HARD LINES 90'S & 75'W of BHL	7193.0	1523.9	1001.3	40° 19' 37.210 N	104° 38' 23.096 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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1591.8	23.84	33.70	1557.7	203.3	135.6	2.00	33.70	244.4	
4	5182.6	23.84	33.70	4842.3	1410.6	940.7	0.00	0.00	1695.5	
5	6374.5	0.00	0.00	6000.0	1613.9	1076.3	2.00	180.00	1939.9	TARGET BHL 2550'FNL, 75'FWL
6	7567.5	0.00	0.00	7193.0	1613.9	1076.3	0.00	0.00	1939.9	



## **Directional**

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

**SEC.10-T4N-R65W**

**Erickson PC G15-27D Pad Sec.10-T4N-R65W**

**HBR PC G11-32D**

**Wellbore #1**

**Plan: Noble HBR PC G11-32D Plan #2 (2-02-11)**

### **Standard Planning Report**

**04 February, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

<b>Project</b>	SEC.10-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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site Erickson PC G15-27D Pad Sec.10-T4N-R65W					
Site Position:		Northing:	1,361,572.51 ft	Latitude:	40° 19' 21.900 N
From:	Lat/Long	Easting:	3,238,862.41 ft	Longitude:	104° 38' 35.952 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.55 °

Well	HBR PC G11-32D					
Well Position	+N-S	25.5 ft	Northing:	1,361,597.94 ft	Latitude:	40° 19' 22.152 N
	+E-W	-5.6 ft	Easting:	3,238,856.59 ft	Longitude:	104° 38' 36.024 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,680.0 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	2/2/2011	8.84	67.02	53,144

<b>Design</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)			
<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	33.70

<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	
1,591.8	23.84	33.70	1,557.7	203.3	135.6	2.00	2.00	0.00	33.70	
5,182.6	23.84	33.70	4,842.3	1,410.6	940.7	0.00	0.00	0.00	0.00	
6,374.5	0.00	0.00	6,000.0	1,613.9	1,076.3	2.00	-2.00	0.00	180.00	TARGET BHL 255C
7,567.5	0.00	0.00	7,193.0	1,613.9	1,076.3	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

**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	33.70	440.0	0.2	0.2	0.3	2.00	2.00	0.00
480.0	1.60	33.70	480.0	0.9	0.6	1.1	2.00	2.00	0.00
520.0	2.40	33.70	520.0	2.1	1.4	2.5	2.00	2.00	0.00
560.0	3.20	33.70	559.9	3.7	2.5	4.5	2.00	2.00	0.00
600.0	4.00	33.70	599.8	5.8	3.9	7.0	2.00	2.00	0.00
640.0	4.80	33.70	639.7	8.4	5.6	10.0	2.00	2.00	0.00
650.3	5.01	33.70	650.0	9.1	6.1	10.9	2.00	2.00	0.00
<b>8 5/8"</b>									
680.0	5.60	33.70	679.6	11.4	7.6	13.7	2.00	2.00	0.00
720.0	6.40	33.70	719.3	14.9	9.9	17.9	2.00	2.00	0.00
760.0	7.20	33.70	759.1	18.8	12.5	22.6	2.00	2.00	0.00
800.0	8.00	33.70	798.7	23.2	15.5	27.9	2.00	2.00	0.00
840.0	8.80	33.70	838.3	28.1	18.7	33.7	2.00	2.00	0.00
880.0	9.60	33.70	877.8	33.4	22.3	40.1	2.00	2.00	0.00
920.0	10.40	33.70	917.1	39.2	26.1	47.1	2.00	2.00	0.00
960.0	11.20	33.70	956.4	45.4	30.3	54.6	2.00	2.00	0.00
1,000.0	12.00	33.70	995.6	52.1	34.7	62.6	2.00	2.00	0.00
1,040.0	12.80	33.70	1,034.7	59.2	39.5	71.2	2.00	2.00	0.00
1,080.0	13.60	33.70	1,073.6	66.8	44.6	80.3	2.00	2.00	0.00
1,120.0	14.40	33.70	1,112.4	74.9	49.9	90.0	2.00	2.00	0.00
1,160.0	15.20	33.70	1,151.1	83.4	55.6	100.2	2.00	2.00	0.00
1,200.0	16.00	33.70	1,189.6	92.3	61.6	111.0	2.00	2.00	0.00
1,240.0	16.80	33.70	1,228.0	101.7	67.8	122.3	2.00	2.00	0.00
1,280.0	17.60	33.70	1,266.2	111.6	74.4	134.1	2.00	2.00	0.00
1,320.0	18.40	33.70	1,304.3	121.9	81.3	146.5	2.00	2.00	0.00
1,360.0	19.20	33.70	1,342.1	132.6	88.4	159.3	2.00	2.00	0.00
1,400.0	20.00	33.70	1,379.8	143.7	95.9	172.8	2.00	2.00	0.00
1,440.0	20.80	33.70	1,417.3	155.3	103.6	186.7	2.00	2.00	0.00
1,480.0	21.60	33.70	1,454.6	167.4	111.6	201.2	2.00	2.00	0.00
1,520.0	22.40	33.70	1,491.7	179.8	119.9	216.2	2.00	2.00	0.00
1,560.0	23.20	33.70	1,528.6	192.7	128.5	231.7	2.00	2.00	0.00
1,591.8	23.84	33.70	1,557.7	203.3	135.6	244.4	2.00	2.00	0.00
1,600.0	23.84	33.70	1,565.2	206.0	137.4	247.7	0.00	0.00	0.00
1,640.0	23.84	33.70	1,601.8	219.5	146.4	263.8	0.00	0.00	0.00
1,680.0	23.84	33.70	1,638.4	232.9	155.3	280.0	0.00	0.00	0.00
1,720.0	23.84	33.70	1,675.0	246.4	164.3	296.2	0.00	0.00	0.00
1,760.0	23.84	33.70	1,711.6	259.8	173.3	312.3	0.00	0.00	0.00
1,800.0	23.84	33.70	1,748.2	273.3	182.2	328.5	0.00	0.00	0.00
1,840.0	23.84	33.70	1,784.7	286.7	191.2	344.7	0.00	0.00	0.00
1,880.0	23.84	33.70	1,821.3	300.2	200.2	360.8	0.00	0.00	0.00
1,920.0	23.84	33.70	1,857.9	313.6	209.2	377.0	0.00	0.00	0.00
1,960.0	23.84	33.70	1,894.5	327.1	218.1	393.1	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

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	23.84	33.70	1,931.1	340.5	227.1	409.3	0.00	0.00	0.00	
2,040.0	23.84	33.70	1,967.7	354.0	236.1	425.5	0.00	0.00	0.00	
2,080.0	23.84	33.70	2,004.3	367.4	245.0	441.6	0.00	0.00	0.00	
2,120.0	23.84	33.70	2,040.9	380.9	254.0	457.8	0.00	0.00	0.00	
2,160.0	23.84	33.70	2,077.5	394.3	263.0	474.0	0.00	0.00	0.00	
2,200.0	23.84	33.70	2,114.0	407.8	271.9	490.1	0.00	0.00	0.00	
2,240.0	23.84	33.70	2,150.6	421.2	280.9	506.3	0.00	0.00	0.00	
2,280.0	23.84	33.70	2,187.2	434.7	289.9	522.5	0.00	0.00	0.00	
2,320.0	23.84	33.70	2,223.8	448.1	298.8	538.6	0.00	0.00	0.00	
2,360.0	23.84	33.70	2,260.4	461.6	307.8	554.8	0.00	0.00	0.00	
2,400.0	23.84	33.70	2,297.0	475.0	316.8	571.0	0.00	0.00	0.00	
2,440.0	23.84	33.70	2,333.6	488.5	325.7	587.1	0.00	0.00	0.00	
2,480.0	23.84	33.70	2,370.2	501.9	334.7	603.3	0.00	0.00	0.00	
2,520.0	23.84	33.70	2,406.7	515.4	343.7	619.5	0.00	0.00	0.00	
2,560.0	23.84	33.70	2,443.3	528.8	352.7	635.6	0.00	0.00	0.00	
2,600.0	23.84	33.70	2,479.9	542.3	361.6	651.8	0.00	0.00	0.00	
2,640.0	23.84	33.70	2,516.5	555.7	370.6	668.0	0.00	0.00	0.00	
2,680.0	23.84	33.70	2,553.1	569.2	379.6	684.1	0.00	0.00	0.00	
2,720.0	23.84	33.70	2,589.7	582.6	388.5	700.3	0.00	0.00	0.00	
2,760.0	23.84	33.70	2,626.3	596.1	397.5	716.5	0.00	0.00	0.00	
2,800.0	23.84	33.70	2,662.9	609.5	406.5	732.6	0.00	0.00	0.00	
2,840.0	23.84	33.70	2,699.5	623.0	415.4	748.8	0.00	0.00	0.00	
2,880.0	23.84	33.70	2,736.0	636.4	424.4	764.9	0.00	0.00	0.00	
2,920.0	23.84	33.70	2,772.6	649.9	433.4	781.1	0.00	0.00	0.00	
2,960.0	23.84	33.70	2,809.2	663.3	442.3	797.3	0.00	0.00	0.00	
3,000.0	23.84	33.70	2,845.8	676.8	451.3	813.4	0.00	0.00	0.00	
3,040.0	23.84	33.70	2,882.4	690.2	460.3	829.6	0.00	0.00	0.00	
3,080.0	23.84	33.70	2,919.0	703.7	469.2	845.8	0.00	0.00	0.00	
3,120.0	23.84	33.70	2,955.6	717.1	478.2	861.9	0.00	0.00	0.00	
3,160.0	23.84	33.70	2,992.2	730.6	487.2	878.1	0.00	0.00	0.00	
3,200.0	23.84	33.70	3,028.7	744.0	496.1	894.3	0.00	0.00	0.00	
3,240.0	23.84	33.70	3,065.3	757.5	505.1	910.4	0.00	0.00	0.00	
3,280.0	23.84	33.70	3,101.9	770.9	514.1	926.6	0.00	0.00	0.00	
3,320.0	23.84	33.70	3,138.5	784.4	523.1	942.8	0.00	0.00	0.00	
3,360.0	23.84	33.70	3,175.1	797.8	532.0	958.9	0.00	0.00	0.00	
3,400.0	23.84	33.70	3,211.7	811.3	541.0	975.1	0.00	0.00	0.00	
3,440.0	23.84	33.70	3,248.3	824.7	550.0	991.3	0.00	0.00	0.00	
3,480.0	23.84	33.70	3,284.9	838.2	558.9	1,007.4	0.00	0.00	0.00	
3,520.0	23.84	33.70	3,321.4	851.6	567.9	1,023.6	0.00	0.00	0.00	
3,560.0	23.84	33.70	3,358.0	865.0	576.9	1,039.8	0.00	0.00	0.00	
3,600.0	23.84	33.70	3,394.6	878.5	585.8	1,055.9	0.00	0.00	0.00	
3,640.0	23.84	33.70	3,431.2	891.9	594.8	1,072.1	0.00	0.00	0.00	
3,680.0	23.84	33.70	3,467.8	905.4	603.8	1,088.2	0.00	0.00	0.00	
3,720.0	23.84	33.70	3,504.4	918.8	612.7	1,104.4	0.00	0.00	0.00	
3,760.0	23.84	33.70	3,541.0	932.3	621.7	1,120.6	0.00	0.00	0.00	
3,800.0	23.84	33.70	3,577.6	945.7	630.7	1,136.7	0.00	0.00	0.00	
3,840.0	23.84	33.70	3,614.2	959.2	639.6	1,152.9	0.00	0.00	0.00	
3,880.0	23.84	33.70	3,650.7	972.6	648.6	1,169.1	0.00	0.00	0.00	
3,920.0	23.84	33.70	3,687.3	986.1	657.6	1,185.2	0.00	0.00	0.00	
3,960.0	23.84	33.70	3,723.9	999.5	666.5	1,201.4	0.00	0.00	0.00	
4,000.0	23.84	33.70	3,760.5	1,013.0	675.5	1,217.6	0.00	0.00	0.00	
4,040.0	23.84	33.70	3,797.1	1,026.4	684.5	1,233.7	0.00	0.00	0.00	
4,080.0	23.84	33.70	3,833.7	1,039.9	693.5	1,249.9	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
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<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

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	23.84	33.70	3,870.3	1,053.3	702.4	1,266.1	0.00	0.00	0.00
4,160.0	23.84	33.70	3,906.9	1,066.8	711.4	1,282.2	0.00	0.00	0.00
4,200.0	23.84	33.70	3,943.4	1,080.2	720.4	1,298.4	0.00	0.00	0.00
4,240.0	23.84	33.70	3,980.0	1,093.7	729.3	1,314.6	0.00	0.00	0.00
4,280.0	23.84	33.70	4,016.6	1,107.1	738.3	1,330.7	0.00	0.00	0.00
4,320.0	23.84	33.70	4,053.2	1,120.6	747.3	1,346.9	0.00	0.00	0.00
4,360.0	23.84	33.70	4,089.8	1,134.0	756.2	1,363.1	0.00	0.00	0.00
4,400.0	23.84	33.70	4,126.4	1,147.5	765.2	1,379.2	0.00	0.00	0.00
4,440.0	23.84	33.70	4,163.0	1,160.9	774.2	1,395.4	0.00	0.00	0.00
4,480.0	23.84	33.70	4,199.6	1,174.4	783.1	1,411.5	0.00	0.00	0.00
4,520.0	23.84	33.70	4,236.2	1,187.8	792.1	1,427.7	0.00	0.00	0.00
4,560.0	23.84	33.70	4,272.7	1,201.3	801.1	1,443.9	0.00	0.00	0.00
4,600.0	23.84	33.70	4,309.3	1,214.7	810.0	1,460.0	0.00	0.00	0.00
4,640.0	23.84	33.70	4,345.9	1,228.2	819.0	1,476.2	0.00	0.00	0.00
4,680.0	23.84	33.70	4,382.5	1,241.6	828.0	1,492.4	0.00	0.00	0.00
4,720.0	23.84	33.70	4,419.1	1,255.1	837.0	1,508.5	0.00	0.00	0.00
4,760.0	23.84	33.70	4,455.7	1,268.5	845.9	1,524.7	0.00	0.00	0.00
4,800.0	23.84	33.70	4,492.3	1,282.0	854.9	1,540.9	0.00	0.00	0.00
4,840.0	23.84	33.70	4,528.9	1,295.4	863.9	1,557.0	0.00	0.00	0.00
4,880.0	23.84	33.70	4,565.4	1,308.9	872.8	1,573.2	0.00	0.00	0.00
4,920.0	23.84	33.70	4,602.0	1,322.3	881.8	1,589.4	0.00	0.00	0.00
4,960.0	23.84	33.70	4,638.6	1,335.8	890.8	1,605.5	0.00	0.00	0.00
5,000.0	23.84	33.70	4,675.2	1,349.2	899.7	1,621.7	0.00	0.00	0.00
5,040.0	23.84	33.70	4,711.8	1,362.7	908.7	1,637.9	0.00	0.00	0.00
5,080.0	23.84	33.70	4,748.4	1,376.1	917.7	1,654.0	0.00	0.00	0.00
5,120.0	23.84	33.70	4,785.0	1,389.6	926.6	1,670.2	0.00	0.00	0.00
5,160.0	23.84	33.70	4,821.6	1,403.0	935.6	1,686.4	0.00	0.00	0.00
5,182.6	23.84	33.70	4,842.3	1,410.6	940.7	1,695.5	0.00	0.00	0.00
5,200.0	23.49	33.70	4,858.2	1,416.4	944.5	1,702.5	2.00	-2.00	0.00
5,240.0	22.69	33.70	4,895.0	1,429.5	953.3	1,718.2	2.00	-2.00	0.00
5,280.0	21.89	33.70	4,932.0	1,442.1	961.7	1,733.3	2.00	-2.00	0.00
5,320.0	21.09	33.70	4,969.2	1,454.3	969.8	1,748.0	2.00	-2.00	0.00
5,360.0	20.29	33.70	5,006.6	1,466.0	977.6	1,762.1	2.00	-2.00	0.00
5,400.0	19.49	33.70	5,044.2	1,477.4	985.2	1,775.7	2.00	-2.00	0.00
5,440.0	18.69	33.70	5,082.0	1,488.2	992.4	1,788.8	2.00	-2.00	0.00
5,480.0	17.89	33.70	5,120.0	1,498.7	999.4	1,801.4	2.00	-2.00	0.00
5,520.0	17.09	33.70	5,158.2	1,508.7	1,006.1	1,813.4	2.00	-2.00	0.00
5,560.0	16.29	33.70	5,196.5	1,518.2	1,012.5	1,824.9	2.00	-2.00	0.00
5,600.0	15.49	33.70	5,234.9	1,527.4	1,018.5	1,835.8	2.00	-2.00	0.00
5,640.0	14.69	33.70	5,273.6	1,536.0	1,024.3	1,846.2	2.00	-2.00	0.00
5,680.0	13.89	33.70	5,312.3	1,544.2	1,029.8	1,856.1	2.00	-2.00	0.00
5,720.0	13.09	33.70	5,351.2	1,552.0	1,035.0	1,865.4	2.00	-2.00	0.00
5,760.0	12.29	33.70	5,390.2	1,559.3	1,039.8	1,874.2	2.00	-2.00	0.00
5,800.0	11.49	33.70	5,429.4	1,566.2	1,044.4	1,882.5	2.00	-2.00	0.00
5,840.0	10.69	33.70	5,468.6	1,572.6	1,048.7	1,890.1	2.00	-2.00	0.00
5,880.0	9.89	33.70	5,508.0	1,578.5	1,052.6	1,897.3	2.00	-2.00	0.00
5,920.0	9.09	33.70	5,547.5	1,584.0	1,056.3	1,903.9	2.00	-2.00	0.00
5,960.0	8.29	33.70	5,587.0	1,589.0	1,059.6	1,909.9	2.00	-2.00	0.00
6,000.0	7.49	33.70	5,626.6	1,593.6	1,062.7	1,915.4	2.00	-2.00	0.00
6,040.0	6.69	33.70	5,666.3	1,597.7	1,065.4	1,920.4	2.00	-2.00	0.00
6,080.0	5.89	33.70	5,706.1	1,601.3	1,067.9	1,924.7	2.00	-2.00	0.00
6,120.0	5.09	33.70	5,745.9	1,604.5	1,070.0	1,928.6	2.00	-2.00	0.00
6,160.0	4.29	33.70	5,785.7	1,607.2	1,071.8	1,931.8	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

## 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	3.49	33.70	5,825.7	1,609.5	1,073.3	1,934.5	2.00	-2.00	0.00
6,240.0	2.69	33.70	5,865.6	1,611.3	1,074.5	1,936.7	2.00	-2.00	0.00
6,280.0	1.89	33.70	5,905.6	1,612.6	1,075.4	1,938.3	2.00	-2.00	0.00
6,320.0	1.09	33.70	5,945.6	1,613.5	1,076.0	1,939.3	2.00	-2.00	0.00
6,360.0	0.29	33.70	5,985.5	1,613.9	1,076.2	1,939.8	2.00	-2.00	0.00
6,374.5	0.00	0.00	6,000.0	1,613.9	1,076.3	1,939.9	2.00	-2.00	0.00
<b>TARGET BHL 2550'FNL, 75'FWL</b>									
6,400.0	0.00	0.00	6,025.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,065.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,105.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,145.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,185.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,225.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,265.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,305.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,345.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,385.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,425.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,465.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,505.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,545.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,585.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,625.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,665.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,705.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,087.5	0.00	0.00	6,713.0	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 2550'FNL &amp; 75'FWL</b>									
7,120.0	0.00	0.00	6,745.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,160.0	0.00	0.00	6,785.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,200.0	0.00	0.00	6,825.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,240.0	0.00	0.00	6,865.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,280.0	0.00	0.00	6,905.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,320.0	0.00	0.00	6,945.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,360.0	0.00	0.00	6,985.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,025.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,417.5	0.00	0.00	7,043.0	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
<b>CODELL</b>									
7,440.0	0.00	0.00	7,065.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,105.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,520.0	0.00	0.00	7,145.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,185.5	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
7,567.5	0.00	0.00	7,193.0	1,613.9	1,076.3	1,939.9	0.00	0.00	0.00
<b>HARD LINES 90'S &amp; 75'W of BHL</b>									



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well HBR PC G11-32D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R65W	<b>MD Reference:</b>	WELL @ 4693.0ft (Original Well Elev)
<b>Site:</b>	Erickson PC G15-27D Pad Sec.10-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	HBR PC G11-32D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble HBR PC G11-32D Plan #2 (2-02-11)		

**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)		
TARGET CIRCLE 25ft - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,713.0	1,613.9	1,076.3	1,363,222.11	3,239,917.15	40° 19' 38.100 N	104° 38' 22.128 W
HARD LINES 90'S & 180'S - plan misses target center by 117.1ft at 7567.5ft MD (7193.0 TVD, 1613.9 N, 1076.3 E) - Polygon	0.00	0.00	7,193.0	1,523.9	1,001.3	1,363,131.38	3,239,843.08	40° 19' 37.210 N	104° 38' 23.096 W
Point 1			7,193.0	0.0	0.0	1,363,131.38	3,239,843.08		
Point 2			7,193.0	200.0	0.0	1,363,331.36	3,239,841.14		
Point 3			7,193.0	0.0	0.0	1,363,131.38	3,239,843.08		
Point 4			7,193.0	0.0	200.0	1,363,133.31	3,240,043.06		
TARGET BHL 2550'F - plan hits target center - Point	0.00	0.00	6,000.0	1,613.9	1,076.3	1,363,222.11	3,239,917.15	40° 19' 38.100 N	104° 38' 22.128 W

**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 (°)
7,087.5	6,713.0	NIOBRARA		0.00	
7,417.5	7,043.0	CODELL		0.00	
	7,438.0	D-SAND		0.00	
	7,513.0	J-SAND		0.00	