

ENSIGN

Directional

Well Name: Johnson PC EE33-23D

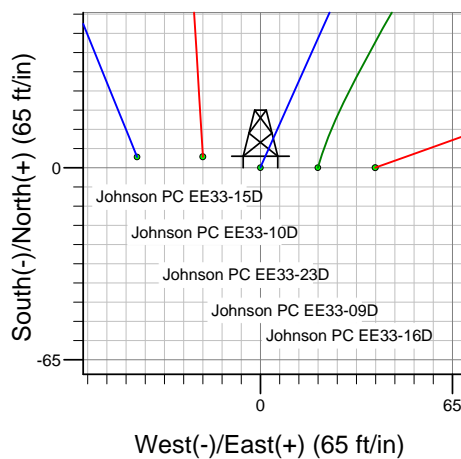
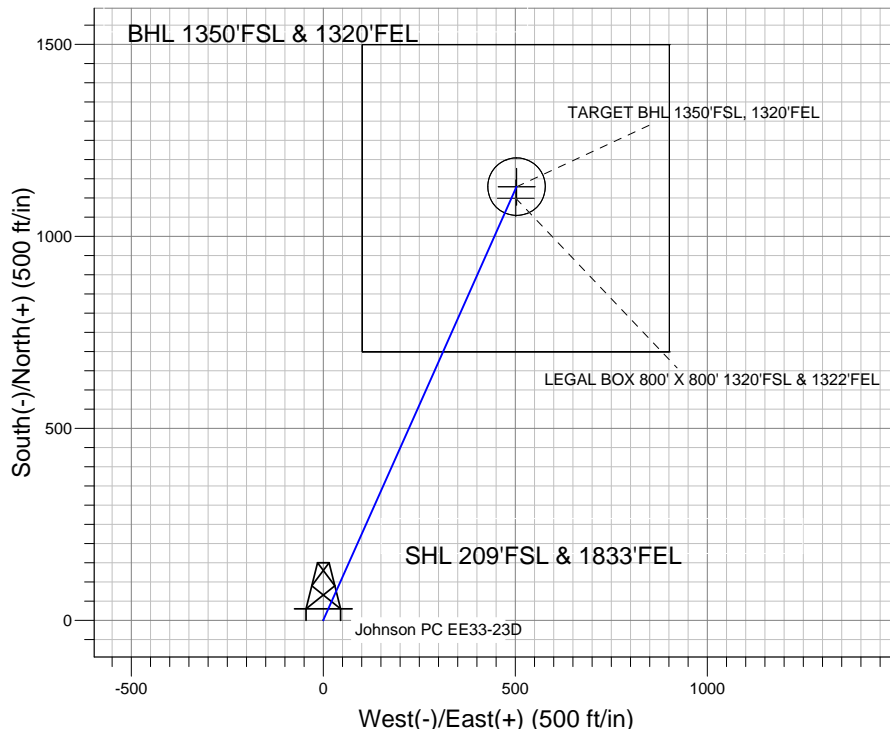
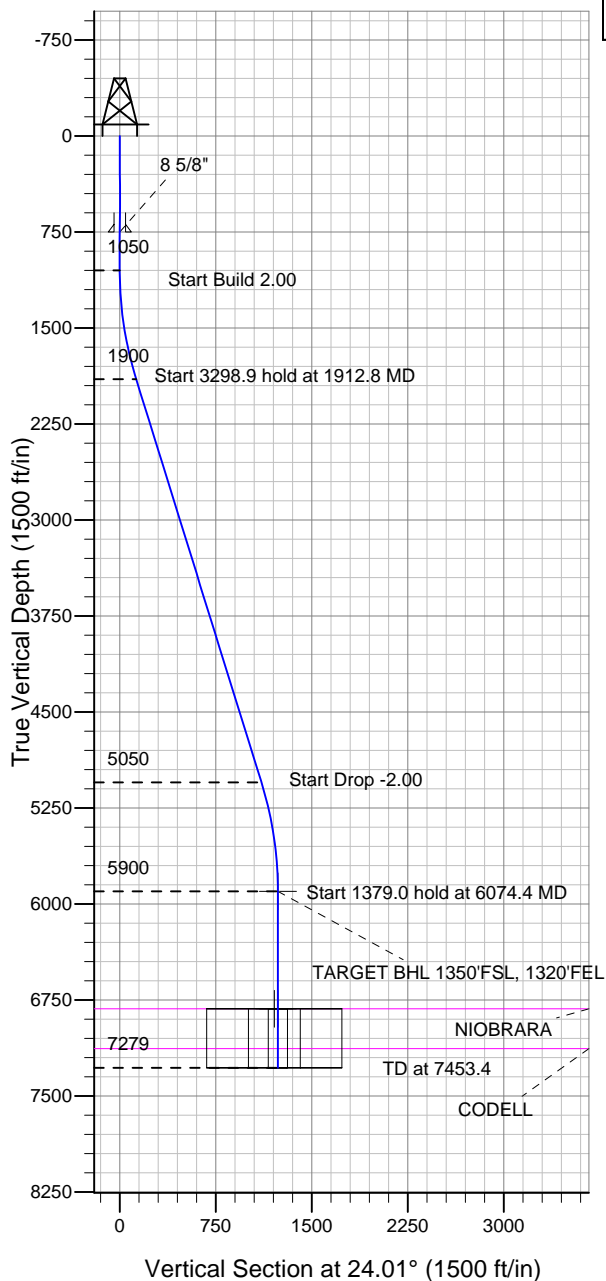
Surface Location: Johnson PC EE33-09D Pad Sec.33-T7N-R65W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4781.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1434880.53	3232035.09	40.524150	-104.665330	

Original Well Elev WELL @ 4794.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Johnson PC EE33-09D Pad Sec.33-T7N-R65W
 Johnson PC EE33-23D
 Noble Johnson EE33-23D Plan #2 (3-10-11)
 15:15, March 10 2011



Azimuths to True North
 Magnetic North: 8.86°

Magnetic Field
 Strength: 53235.6snT
 Dip Angle: 67.18°
 Date: 3/10/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1350'FSL, 1320'FEL	5900.0	1129.4	503.2	40.527250	-104.663520	Point
LEGAL BOX 800' X 800' 1320'FSL & 1322'FEL	6819.0	1099.4	501.2	40.527168	-104.663527	Rectangle (Sides: L800.0 W800.0)
TARGET CIRCLE 1350'FSL & 1320'FEL	6819.0	1129.4	503.2	40.527250	-104.663520	Circle (Radius: 75.0)

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	1050.0	0.00	0.00	1050.0	0.0	0.0	0.00	0.00	0.0	
3	1912.8	17.26	24.01	1899.8	117.8	52.5	2.00	24.01	128.9	
4	5211.7	17.26	24.01	5050.2	1011.6	450.7	0.00	0.00	1107.5	
5	6074.4	0.00	0.00	5900.0	1129.4	503.2	2.00	180.00	1236.4	TARGET BHL 1350'FSL, 1320'FEL
6	7453.4	0.00	0.00	7279.0	1129.4	503.2	0.00	0.00	1236.4	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.33-T7N-R65W

Johnson PC EE33-09D Pad Sec.33-T7N-R65W

Johnson PC EE33-23D

Wellbore #1

Plan: Noble Johnson EE33-23D Plan #2 (3-10-11)

Standard Planning Report

10 March, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Johnson PC EE33-23D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4794.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

Project	SEC.33-T7N-R65W, 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		Johnson PC EE33-09D Pad Sec.33-T7N-R65W			
Site Position:		Northing:	1,434,880.73 ft	Latitude:	40.524150
From:	Lat/Long	Easting:	3,232,054.55 ft	Longitude:	-104.665260
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.54 °

Well	Johnson PC EE33-23D					
Well Position	+N/-S	0.0 ft	Northing:	1,434,880.53 ft	Latitude:	40.524150
	+E/-W	-19.5 ft	Easting:	3,232,035.09 ft	Longitude:	-104.665330
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,781.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/10/2011	8.86	67.18	53,236

Design	Noble Johnson EE33-23D Plan #2 (3-10-11)			
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	24.01

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	
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,912.8	17.26	24.01	1,899.8	117.8	52.5	2.00	2.00	0.00	24.01	
5,211.7	17.26	24.01	5,050.2	1,011.6	450.7	0.00	0.00	0.00	0.00	
6,074.4	0.00	0.00	5,900.0	1,129.4	503.2	2.00	-2.00	0.00	180.00	TARGET BHL 135C
7,453.4	0.00	0.00	7,279.0	1,129.4	503.2	0.00	0.00	0.00	0.00	

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Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

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
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
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.60	24.01	1,080.0	0.1	0.1	0.2	2.00	2.00	0.00
1,120.0	1.40	24.01	1,120.0	0.8	0.3	0.9	2.00	2.00	0.00
1,160.0	2.20	24.01	1,160.0	1.9	0.9	2.1	2.00	2.00	0.00
1,200.0	3.00	24.01	1,199.9	3.6	1.6	3.9	2.00	2.00	0.00
1,240.0	3.80	24.01	1,239.9	5.8	2.6	6.3	2.00	2.00	0.00
1,280.0	4.60	24.01	1,279.8	8.4	3.8	9.2	2.00	2.00	0.00
1,320.0	5.40	24.01	1,319.6	11.6	5.2	12.7	2.00	2.00	0.00
1,360.0	6.20	24.01	1,359.4	15.3	6.8	16.8	2.00	2.00	0.00
1,400.0	7.00	24.01	1,399.1	19.5	8.7	21.4	2.00	2.00	0.00
1,440.0	7.80	24.01	1,438.8	24.2	10.8	26.5	2.00	2.00	0.00
1,480.0	8.60	24.01	1,478.4	29.4	13.1	32.2	2.00	2.00	0.00
1,520.0	9.40	24.01	1,517.9	35.1	15.7	38.5	2.00	2.00	0.00
1,560.0	10.20	24.01	1,557.3	41.4	18.4	45.3	2.00	2.00	0.00
1,600.0	11.00	24.01	1,596.6	48.1	21.4	52.6	2.00	2.00	0.00
1,640.0	11.80	24.01	1,635.8	55.3	24.6	60.5	2.00	2.00	0.00
1,680.0	12.60	24.01	1,674.9	63.0	28.1	69.0	2.00	2.00	0.00
1,720.0	13.40	24.01	1,713.9	71.2	31.7	78.0	2.00	2.00	0.00
1,760.0	14.20	24.01	1,752.8	80.0	35.6	87.5	2.00	2.00	0.00
1,800.0	15.00	24.01	1,791.5	89.2	39.7	97.6	2.00	2.00	0.00
1,840.0	15.80	24.01	1,830.0	98.9	44.0	108.2	2.00	2.00	0.00
1,880.0	16.60	24.01	1,868.4	109.1	48.6	119.4	2.00	2.00	0.00
1,912.8	17.26	24.01	1,899.8	117.8	52.5	128.9	2.00	2.00	0.00
1,920.0	17.26	24.01	1,906.7	119.7	53.3	131.1	0.00	0.00	0.00

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Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

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)
1,960.0	17.26	24.01	1,944.9	130.6	58.2	142.9	0.00	0.00	0.00
2,000.0	17.26	24.01	1,983.1	141.4	63.0	154.8	0.00	0.00	0.00
2,040.0	17.26	24.01	2,021.3	152.3	67.8	166.7	0.00	0.00	0.00
2,080.0	17.26	24.01	2,059.5	163.1	72.7	178.5	0.00	0.00	0.00
2,120.0	17.26	24.01	2,097.7	173.9	77.5	190.4	0.00	0.00	0.00
2,160.0	17.26	24.01	2,135.9	184.8	82.3	202.3	0.00	0.00	0.00
2,200.0	17.26	24.01	2,174.1	195.6	87.1	214.1	0.00	0.00	0.00
2,240.0	17.26	24.01	2,212.3	206.4	92.0	226.0	0.00	0.00	0.00
2,280.0	17.26	24.01	2,250.5	217.3	96.8	237.9	0.00	0.00	0.00
2,320.0	17.26	24.01	2,288.7	228.1	101.6	249.7	0.00	0.00	0.00
2,360.0	17.26	24.01	2,326.9	239.0	106.5	261.6	0.00	0.00	0.00
2,400.0	17.26	24.01	2,365.1	249.8	111.3	273.5	0.00	0.00	0.00
2,440.0	17.26	24.01	2,403.3	260.6	116.1	285.3	0.00	0.00	0.00
2,480.0	17.26	24.01	2,441.5	271.5	120.9	297.2	0.00	0.00	0.00
2,520.0	17.26	24.01	2,479.7	282.3	125.8	309.1	0.00	0.00	0.00
2,560.0	17.26	24.01	2,517.9	293.1	130.6	320.9	0.00	0.00	0.00
2,600.0	17.26	24.01	2,556.1	304.0	135.4	332.8	0.00	0.00	0.00
2,640.0	17.26	24.01	2,594.3	314.8	140.3	344.7	0.00	0.00	0.00
2,680.0	17.26	24.01	2,632.5	325.7	145.1	356.5	0.00	0.00	0.00
2,720.0	17.26	24.01	2,670.7	336.5	149.9	368.4	0.00	0.00	0.00
2,760.0	17.26	24.01	2,708.9	347.3	154.7	380.3	0.00	0.00	0.00
2,800.0	17.26	24.01	2,747.1	358.2	159.6	392.1	0.00	0.00	0.00
2,840.0	17.26	24.01	2,785.3	369.0	164.4	404.0	0.00	0.00	0.00
2,880.0	17.26	24.01	2,823.5	379.9	169.2	415.8	0.00	0.00	0.00
2,920.0	17.26	24.01	2,861.7	390.7	174.1	427.7	0.00	0.00	0.00
2,960.0	17.26	24.01	2,899.9	401.5	178.9	439.6	0.00	0.00	0.00
3,000.0	17.26	24.01	2,938.1	412.4	183.7	451.4	0.00	0.00	0.00
3,040.0	17.26	24.01	2,976.3	423.2	188.5	463.3	0.00	0.00	0.00
3,080.0	17.26	24.01	3,014.5	434.0	193.4	475.2	0.00	0.00	0.00
3,120.0	17.26	24.01	3,052.7	444.9	198.2	487.0	0.00	0.00	0.00
3,160.0	17.26	24.01	3,090.9	455.7	203.0	498.9	0.00	0.00	0.00
3,200.0	17.26	24.01	3,129.1	466.6	207.9	510.8	0.00	0.00	0.00
3,240.0	17.26	24.01	3,167.3	477.4	212.7	522.6	0.00	0.00	0.00
3,280.0	17.26	24.01	3,205.5	488.2	217.5	534.5	0.00	0.00	0.00
3,320.0	17.26	24.01	3,243.7	499.1	222.3	546.4	0.00	0.00	0.00
3,360.0	17.26	24.01	3,281.9	509.9	227.2	558.2	0.00	0.00	0.00
3,400.0	17.26	24.01	3,320.1	520.8	232.0	570.1	0.00	0.00	0.00
3,440.0	17.26	24.01	3,358.3	531.6	236.8	582.0	0.00	0.00	0.00
3,480.0	17.26	24.01	3,396.5	542.4	241.7	593.8	0.00	0.00	0.00
3,520.0	17.26	24.01	3,434.7	553.3	246.5	605.7	0.00	0.00	0.00
3,560.0	17.26	24.01	3,472.9	564.1	251.3	617.6	0.00	0.00	0.00
3,600.0	17.26	24.01	3,511.1	574.9	256.1	629.4	0.00	0.00	0.00
3,640.0	17.26	24.01	3,549.3	585.8	261.0	641.3	0.00	0.00	0.00
3,680.0	17.26	24.01	3,587.5	596.6	265.8	653.2	0.00	0.00	0.00
3,720.0	17.26	24.01	3,625.7	607.5	270.6	665.0	0.00	0.00	0.00
3,760.0	17.26	24.01	3,663.9	618.3	275.5	676.9	0.00	0.00	0.00
3,800.0	17.26	24.01	3,702.1	629.1	280.3	688.7	0.00	0.00	0.00
3,840.0	17.26	24.01	3,740.3	640.0	285.1	700.6	0.00	0.00	0.00
3,880.0	17.26	24.01	3,778.5	650.8	289.9	712.5	0.00	0.00	0.00
3,920.0	17.26	24.01	3,816.7	661.6	294.8	724.3	0.00	0.00	0.00
3,960.0	17.26	24.01	3,854.9	672.5	299.6	736.2	0.00	0.00	0.00
4,000.0	17.26	24.01	3,893.1	683.3	304.4	748.1	0.00	0.00	0.00
4,040.0	17.26	24.01	3,931.3	694.2	309.3	759.9	0.00	0.00	0.00

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Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

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)
4,080.0	17.26	24.01	3,969.5	705.0	314.1	771.8	0.00	0.00	0.00
4,120.0	17.26	24.01	4,007.7	715.8	318.9	783.7	0.00	0.00	0.00
4,160.0	17.26	24.01	4,045.9	726.7	323.7	795.5	0.00	0.00	0.00
4,200.0	17.26	24.01	4,084.1	737.5	328.6	807.4	0.00	0.00	0.00
4,240.0	17.26	24.01	4,122.3	748.4	333.4	819.3	0.00	0.00	0.00
4,280.0	17.26	24.01	4,160.5	759.2	338.2	831.1	0.00	0.00	0.00
4,320.0	17.26	24.01	4,198.7	770.0	343.1	843.0	0.00	0.00	0.00
4,360.0	17.26	24.01	4,236.9	780.9	347.9	854.9	0.00	0.00	0.00
4,400.0	17.26	24.01	4,275.1	791.7	352.7	866.7	0.00	0.00	0.00
4,440.0	17.26	24.01	4,313.3	802.5	357.5	878.6	0.00	0.00	0.00
4,480.0	17.26	24.01	4,351.5	813.4	362.4	890.5	0.00	0.00	0.00
4,520.0	17.26	24.01	4,389.7	824.2	367.2	902.3	0.00	0.00	0.00
4,560.0	17.26	24.01	4,427.9	835.1	372.0	914.2	0.00	0.00	0.00
4,600.0	17.26	24.01	4,466.1	845.9	376.9	926.0	0.00	0.00	0.00
4,640.0	17.26	24.01	4,504.3	856.7	381.7	937.9	0.00	0.00	0.00
4,680.0	17.26	24.01	4,542.5	867.6	386.5	949.8	0.00	0.00	0.00
4,720.0	17.26	24.01	4,580.7	878.4	391.3	961.6	0.00	0.00	0.00
4,760.0	17.26	24.01	4,618.9	889.2	396.2	973.5	0.00	0.00	0.00
4,800.0	17.26	24.01	4,657.1	900.1	401.0	985.4	0.00	0.00	0.00
4,840.0	17.26	24.01	4,695.3	910.9	405.8	997.2	0.00	0.00	0.00
4,880.0	17.26	24.01	4,733.5	921.8	410.7	1,009.1	0.00	0.00	0.00
4,920.0	17.26	24.01	4,771.7	932.6	415.5	1,021.0	0.00	0.00	0.00
4,960.0	17.26	24.01	4,809.9	943.4	420.3	1,032.8	0.00	0.00	0.00
5,000.0	17.26	24.01	4,848.1	954.3	425.2	1,044.7	0.00	0.00	0.00
5,040.0	17.26	24.01	4,886.3	965.1	430.0	1,056.6	0.00	0.00	0.00
5,080.0	17.26	24.01	4,924.5	976.0	434.8	1,068.4	0.00	0.00	0.00
5,120.0	17.26	24.01	4,962.7	986.8	439.6	1,080.3	0.00	0.00	0.00
5,160.0	17.26	24.01	5,000.9	997.6	444.5	1,092.2	0.00	0.00	0.00
5,200.0	17.26	24.01	5,039.1	1,008.5	449.3	1,104.0	0.00	0.00	0.00
5,211.7	17.26	24.01	5,050.2	1,011.6	450.7	1,107.5	0.00	0.00	0.00
5,240.0	16.69	24.01	5,077.3	1,019.2	454.1	1,115.8	2.00	-2.00	0.00
5,280.0	15.89	24.01	5,115.7	1,029.4	458.6	1,127.0	2.00	-2.00	0.00
5,320.0	15.09	24.01	5,154.2	1,039.2	463.0	1,137.7	2.00	-2.00	0.00
5,360.0	14.29	24.01	5,192.9	1,048.5	467.1	1,147.8	2.00	-2.00	0.00
5,400.0	13.49	24.01	5,231.8	1,057.2	471.0	1,157.4	2.00	-2.00	0.00
5,440.0	12.69	24.01	5,270.7	1,065.5	474.7	1,166.5	2.00	-2.00	0.00
5,480.0	11.89	24.01	5,309.8	1,073.3	478.2	1,175.0	2.00	-2.00	0.00
5,520.0	11.09	24.01	5,349.0	1,080.6	481.4	1,182.9	2.00	-2.00	0.00
5,560.0	10.29	24.01	5,388.3	1,087.3	484.4	1,190.4	2.00	-2.00	0.00
5,600.0	9.49	24.01	5,427.7	1,093.6	487.2	1,197.2	2.00	-2.00	0.00
5,640.0	8.69	24.01	5,467.2	1,099.4	489.8	1,203.5	2.00	-2.00	0.00
5,680.0	7.89	24.01	5,506.8	1,104.6	492.1	1,209.3	2.00	-2.00	0.00
5,720.0	7.09	24.01	5,546.5	1,109.4	494.3	1,214.5	2.00	-2.00	0.00
5,760.0	6.29	24.01	5,586.2	1,113.7	496.2	1,219.2	2.00	-2.00	0.00
5,800.0	5.49	24.01	5,626.0	1,117.4	497.8	1,223.3	2.00	-2.00	0.00
5,840.0	4.69	24.01	5,665.8	1,120.7	499.3	1,226.8	2.00	-2.00	0.00
5,880.0	3.89	24.01	5,705.7	1,123.4	500.5	1,229.8	2.00	-2.00	0.00
5,920.0	3.09	24.01	5,745.6	1,125.6	501.5	1,232.3	2.00	-2.00	0.00
5,960.0	2.29	24.01	5,785.6	1,127.3	502.2	1,234.1	2.00	-2.00	0.00
6,000.0	1.49	24.01	5,825.6	1,128.5	502.8	1,235.5	2.00	-2.00	0.00
6,040.0	0.69	24.01	5,865.6	1,129.2	503.1	1,236.2	2.00	-2.00	0.00
6,074.4	0.00	0.00	5,900.0	1,129.4	503.2	1,236.4	2.00	-2.00	0.00
TARGET BHL 1350'FSL, 1320'FEL									

Database:	Landmark	Local Co-ordinate Reference:	Well Johnson PC EE33-23D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4794.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

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)
6,080.0	0.00	0.00	5,905.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,120.0	0.00	0.00	5,945.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,160.0	0.00	0.00	5,985.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,200.0	0.00	0.00	6,025.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,240.0	0.00	0.00	6,065.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,280.0	0.00	0.00	6,105.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,320.0	0.00	0.00	6,145.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,360.0	0.00	0.00	6,185.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,400.0	0.00	0.00	6,225.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,440.0	0.00	0.00	6,265.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,480.0	0.00	0.00	6,305.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,520.0	0.00	0.00	6,345.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,560.0	0.00	0.00	6,385.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,600.0	0.00	0.00	6,425.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,640.0	0.00	0.00	6,465.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,680.0	0.00	0.00	6,505.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,720.0	0.00	0.00	6,545.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,760.0	0.00	0.00	6,585.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,800.0	0.00	0.00	6,625.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,840.0	0.00	0.00	6,665.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,880.0	0.00	0.00	6,705.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,920.0	0.00	0.00	6,745.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,960.0	0.00	0.00	6,785.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
6,993.4	0.00	0.00	6,819.0	1,129.4	503.2	1,236.4	0.00	0.00	0.00
NIORARA - LEGAL BOX 800' X 800' 1320'FSL & 1322'FEL - TARGET CIRCLE 1350'FSL & 1320'FEL									
7,000.0	0.00	0.00	6,825.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,040.0	0.00	0.00	6,865.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,080.0	0.00	0.00	6,905.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,120.0	0.00	0.00	6,945.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,160.0	0.00	0.00	6,985.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,200.0	0.00	0.00	7,025.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,240.0	0.00	0.00	7,065.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,280.0	0.00	0.00	7,105.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,303.4	0.00	0.00	7,129.0	1,129.4	503.2	1,236.4	0.00	0.00	0.00
CODELL									
7,320.0	0.00	0.00	7,145.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,360.0	0.00	0.00	7,185.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,400.0	0.00	0.00	7,225.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,440.0	0.00	0.00	7,265.6	1,129.4	503.2	1,236.4	0.00	0.00	0.00
7,453.4	0.00	0.00	7,279.0	1,129.4	503.2	1,236.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Johnson PC EE33-23D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4794.0ft (Original Well Elev)
Project:	SEC.33-T7N-R65W	MD Reference:	WELL @ 4794.0ft (Original Well Elev)
Site:	Johnson PC EE33-09D Pad Sec.33-T7N-R65W	North Reference:	True
Well:	Johnson PC EE33-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Johnson EE33-23D Plan #2 (3-10-11)		

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)		
LEGAL BOX 800' X 800'	0.00	0.00	6,819.0	1,099.4	501.2	1,435,984.59	3,232,525.91	40.527168	-104.663527
- plan misses target center by 30.0ft at 6993.4ft MD (6819.0 TVD, 1129.4 N, 503.2 E)									
- Rectangle (sides W800.0 H800.0 D460.0)									
TARGET CIRCLE 1350'	0.00	0.00	6,819.0	1,129.4	503.2	1,436,014.59	3,232,527.60	40.527250	-104.663520
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1350'F:	0.00	0.00	5,900.0	1,129.4	503.2	1,436,014.59	3,232,527.60	40.527250	-104.663520
- plan hits target center									
- Point									

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
750.0	750.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
6,993.4	6,819.0	NIOBRARA		0.00	
7,303.4	7,129.0	CODELL		0.00	