

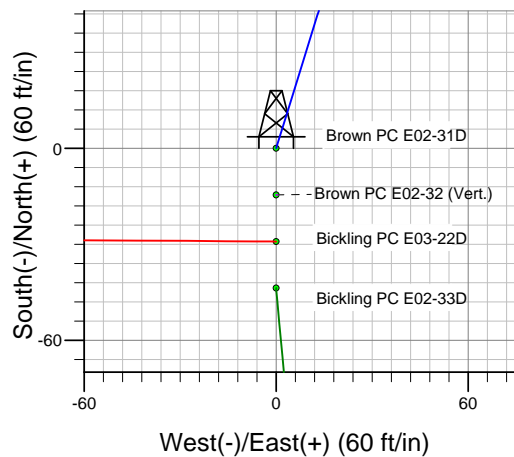
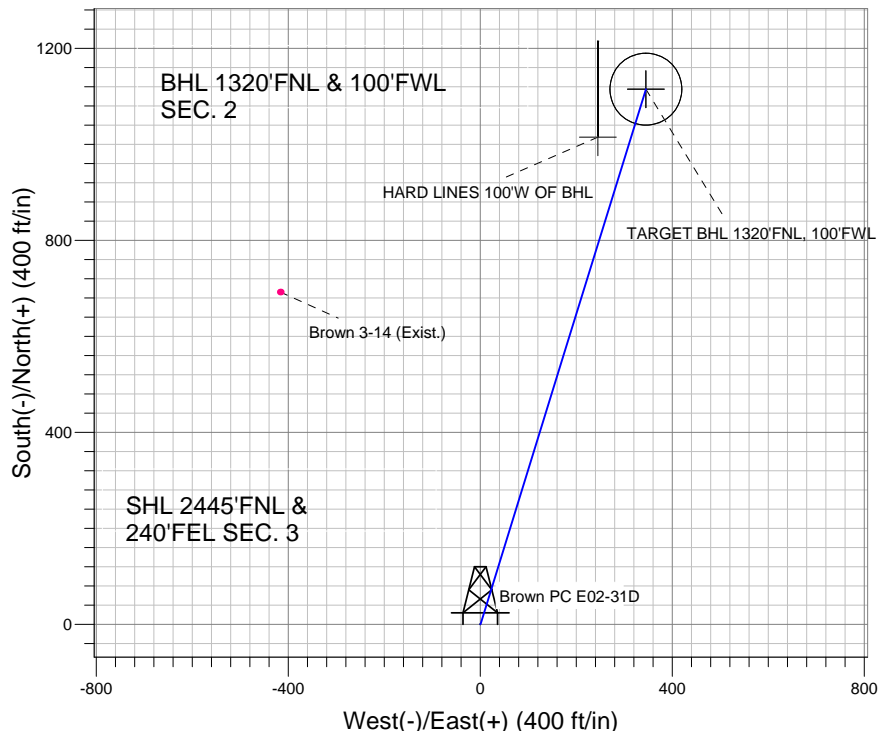
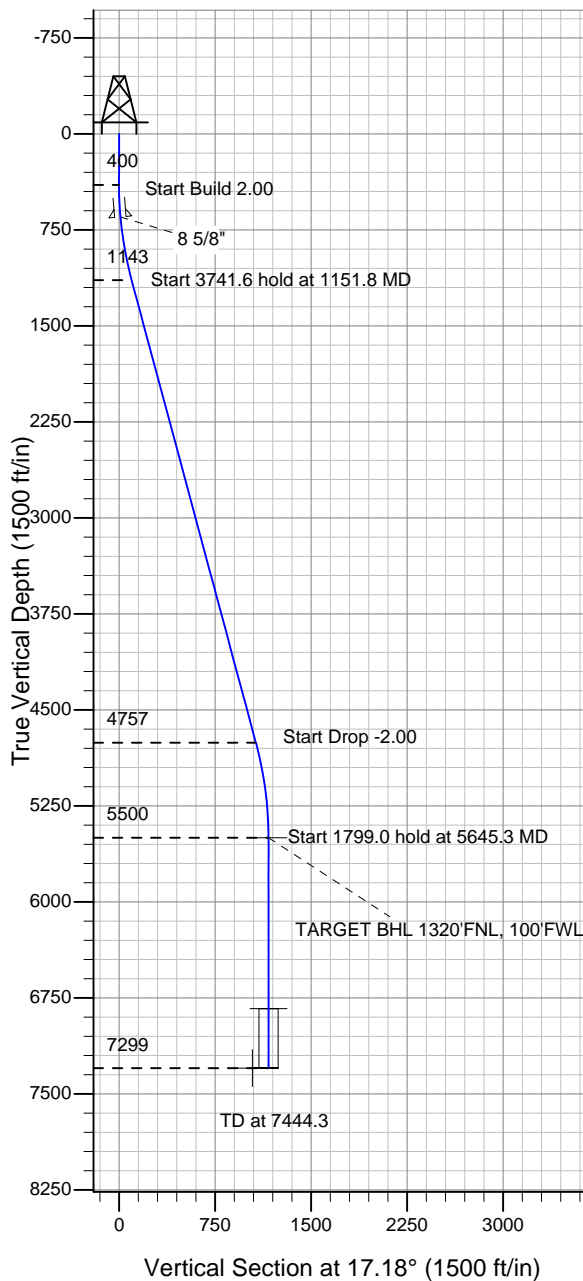
ENSIGN

Directional

Well Name: Brown PC E02-31D

Surface Location: Brown PC E02-32 Pad Sec.3-T6N-R65W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4836.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1432090.09 3238929.07 40.516310 -104.640630
 Original Well Elev WELL @ 4849.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Brown PC E02-32 Pad Sec.3-T6N-R65W
 Brown PC E02-31D
 Noble Brown PC E02-31D Plan #1 (2-07-11)
 14:53, February 11 2011



Azimuths to True North
 Magnetic North: 8.86°
 Magnetic Field
 Strength: 53242.7snT
 Dip Angle: 67.18°
 Date: 2/7/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FNL, 100'FWL	5500.0	1114.8	344.8	40.519370	-104.639390	Point
TARGET CIRCLE 1320'FNL & 100'FWL	6834.0	1114.8	344.8	40.519370	-104.639390	Circle (Radius: 75.0)
HARD LINES 100'W OF BHL	7299.0	1014.8	244.8	40.519095	-104.639750	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	1151.8	15.04	17.18	1143.2	93.7	29.0	2.00	17.18	98.1	
4	4893.5	15.04	17.18	4756.8	1021.1	315.8	0.00	0.00	1068.8	
5	5645.3	0.00	0.00	5500.0	1114.8	344.8	2.00	180.00	1166.9	TARGET BHL 1320'FNL, 100'FWL
6	7444.3	0.00	0.00	7299.0	1114.8	344.8	0.00	0.00	1166.9	



NOBLE ENERGY INC WELD COUNTY CO

SEC.3-T6N-R65W

Brown PC E02-32 Pad Sec.3-T6N-R65W

Brown PC E02-31D

Wellbore #1

Plan: Noble Brown PC E02-31D Plan #1 (2-07-11)

Standard Planning Report

11 February, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

Project	SEC.3-T6N-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						Brown PC E02-32 Pad Sec.3-T6N-R65W											
Site Position:						Northing:			1,432,075.53 ft			Latitude:			40.516270		
From:			Lat/Long			Easting:			3,238,929.21 ft			Longitude:			-104.640630		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.56 °		

Well	Brown PC E02-31D					
Well Position	+N/-S	14.6 ft	Northing:	1,432,090.09 ft	Latitude:	40.516310
	+E/-W	0.0 ft	Easting:	3,238,929.07 ft	Longitude:	-104.640630
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,836.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/7/2011	8.86	67.18	53,243

Design	Noble Brown PC E02-31D Plan #1 (2-07-11)			
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	17.18

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	
1,151.8	15.04	17.18	1,143.2	93.7	29.0	2.00	2.00	0.00	17.18	
4,893.5	15.04	17.18	4,756.8	1,021.1	315.8	0.00	0.00	0.00	0.00	
5,645.3	0.00	0.00	5,500.0	1,114.8	344.8	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,444.3	0.00	0.00	7,299.0	1,114.8	344.8	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

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	17.18	440.0	0.3	0.1	0.3	2.00	2.00	0.00
480.0	1.60	17.18	480.0	1.1	0.3	1.1	2.00	2.00	0.00
520.0	2.40	17.18	520.0	2.4	0.7	2.5	2.00	2.00	0.00
560.0	3.20	17.18	559.9	4.3	1.3	4.5	2.00	2.00	0.00
600.0	4.00	17.18	599.8	6.7	2.1	7.0	2.00	2.00	0.00
640.0	4.80	17.18	639.7	9.6	3.0	10.0	2.00	2.00	0.00
650.3	5.01	17.18	650.0	10.4	3.2	10.9	2.00	2.00	0.00
8 5/8"									
680.0	5.60	17.18	679.6	13.1	4.0	13.7	2.00	2.00	0.00
720.0	6.40	17.18	719.3	17.1	5.3	17.9	2.00	2.00	0.00
760.0	7.20	17.18	759.1	21.6	6.7	22.6	2.00	2.00	0.00
800.0	8.00	17.18	798.7	26.6	8.2	27.9	2.00	2.00	0.00
840.0	8.80	17.18	838.3	32.2	10.0	33.7	2.00	2.00	0.00
880.0	9.60	17.18	877.8	38.3	11.9	40.1	2.00	2.00	0.00
920.0	10.40	17.18	917.1	45.0	13.9	47.1	2.00	2.00	0.00
960.0	11.20	17.18	956.4	52.1	16.1	54.6	2.00	2.00	0.00
1,000.0	12.00	17.18	995.6	59.8	18.5	62.6	2.00	2.00	0.00
1,040.0	12.80	17.18	1,034.7	68.0	21.0	71.2	2.00	2.00	0.00
1,080.0	13.60	17.18	1,073.6	76.7	23.7	80.3	2.00	2.00	0.00
1,120.0	14.40	17.18	1,112.4	86.0	26.6	90.0	2.00	2.00	0.00
1,151.8	15.04	17.18	1,143.2	93.7	29.0	98.1	2.00	2.00	0.00
1,160.0	15.04	17.18	1,151.1	95.7	29.6	100.2	0.00	0.00	0.00
1,200.0	15.04	17.18	1,189.8	105.7	32.7	110.6	0.00	0.00	0.00
1,240.0	15.04	17.18	1,228.4	115.6	35.7	121.0	0.00	0.00	0.00
1,280.0	15.04	17.18	1,267.0	125.5	38.8	131.3	0.00	0.00	0.00
1,320.0	15.04	17.18	1,305.6	135.4	41.9	141.7	0.00	0.00	0.00
1,360.0	15.04	17.18	1,344.3	145.3	44.9	152.1	0.00	0.00	0.00
1,400.0	15.04	17.18	1,382.9	155.2	48.0	162.5	0.00	0.00	0.00
1,440.0	15.04	17.18	1,421.5	165.1	51.1	172.9	0.00	0.00	0.00
1,480.0	15.04	17.18	1,460.2	175.1	54.1	183.2	0.00	0.00	0.00
1,520.0	15.04	17.18	1,498.8	185.0	57.2	193.6	0.00	0.00	0.00
1,560.0	15.04	17.18	1,537.4	194.9	60.3	204.0	0.00	0.00	0.00
1,600.0	15.04	17.18	1,576.1	204.8	63.3	214.4	0.00	0.00	0.00
1,640.0	15.04	17.18	1,614.7	214.7	66.4	224.7	0.00	0.00	0.00
1,680.0	15.04	17.18	1,653.3	224.6	69.5	235.1	0.00	0.00	0.00
1,720.0	15.04	17.18	1,691.9	234.5	72.5	245.5	0.00	0.00	0.00
1,760.0	15.04	17.18	1,730.6	244.5	75.6	255.9	0.00	0.00	0.00
1,800.0	15.04	17.18	1,769.2	254.4	78.7	266.3	0.00	0.00	0.00
1,840.0	15.04	17.18	1,807.8	264.3	81.7	276.6	0.00	0.00	0.00
1,880.0	15.04	17.18	1,846.5	274.2	84.8	287.0	0.00	0.00	0.00
1,920.0	15.04	17.18	1,885.1	284.1	87.9	297.4	0.00	0.00	0.00
1,960.0	15.04	17.18	1,923.7	294.0	90.9	307.8	0.00	0.00	0.00
2,000.0	15.04	17.18	1,962.4	303.9	94.0	318.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

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	15.04	17.18	2,001.0	313.9	97.1	328.5	0.00	0.00	0.00
2,080.0	15.04	17.18	2,039.6	323.8	100.1	338.9	0.00	0.00	0.00
2,120.0	15.04	17.18	2,078.2	333.7	103.2	349.3	0.00	0.00	0.00
2,160.0	15.04	17.18	2,116.9	343.6	106.3	359.7	0.00	0.00	0.00
2,200.0	15.04	17.18	2,155.5	353.5	109.3	370.0	0.00	0.00	0.00
2,240.0	15.04	17.18	2,194.1	363.4	112.4	380.4	0.00	0.00	0.00
2,280.0	15.04	17.18	2,232.8	373.3	115.5	390.8	0.00	0.00	0.00
2,320.0	15.04	17.18	2,271.4	383.3	118.5	401.2	0.00	0.00	0.00
2,360.0	15.04	17.18	2,310.0	393.2	121.6	411.5	0.00	0.00	0.00
2,400.0	15.04	17.18	2,348.7	403.1	124.7	421.9	0.00	0.00	0.00
2,440.0	15.04	17.18	2,387.3	413.0	127.7	432.3	0.00	0.00	0.00
2,480.0	15.04	17.18	2,425.9	422.9	130.8	442.7	0.00	0.00	0.00
2,520.0	15.04	17.18	2,464.6	432.8	133.8	453.1	0.00	0.00	0.00
2,560.0	15.04	17.18	2,503.2	442.7	136.9	463.4	0.00	0.00	0.00
2,600.0	15.04	17.18	2,541.8	452.7	140.0	473.8	0.00	0.00	0.00
2,640.0	15.04	17.18	2,580.4	462.6	143.0	484.2	0.00	0.00	0.00
2,680.0	15.04	17.18	2,619.1	472.5	146.1	494.6	0.00	0.00	0.00
2,720.0	15.04	17.18	2,657.7	482.4	149.2	504.9	0.00	0.00	0.00
2,760.0	15.04	17.18	2,696.3	492.3	152.2	515.3	0.00	0.00	0.00
2,800.0	15.04	17.18	2,735.0	502.2	155.3	525.7	0.00	0.00	0.00
2,840.0	15.04	17.18	2,773.6	512.1	158.4	536.1	0.00	0.00	0.00
2,880.0	15.04	17.18	2,812.2	522.1	161.4	546.4	0.00	0.00	0.00
2,920.0	15.04	17.18	2,850.9	532.0	164.5	556.8	0.00	0.00	0.00
2,960.0	15.04	17.18	2,889.5	541.9	167.6	567.2	0.00	0.00	0.00
3,000.0	15.04	17.18	2,928.1	551.8	170.6	577.6	0.00	0.00	0.00
3,040.0	15.04	17.18	2,966.7	561.7	173.7	588.0	0.00	0.00	0.00
3,080.0	15.04	17.18	3,005.4	571.6	176.8	598.3	0.00	0.00	0.00
3,120.0	15.04	17.18	3,044.0	581.5	179.8	608.7	0.00	0.00	0.00
3,160.0	15.04	17.18	3,082.6	591.5	182.9	619.1	0.00	0.00	0.00
3,200.0	15.04	17.18	3,121.3	601.4	186.0	629.5	0.00	0.00	0.00
3,240.0	15.04	17.18	3,159.9	611.3	189.0	639.8	0.00	0.00	0.00
3,280.0	15.04	17.18	3,198.5	621.2	192.1	650.2	0.00	0.00	0.00
3,320.0	15.04	17.18	3,237.2	631.1	195.2	660.6	0.00	0.00	0.00
3,360.0	15.04	17.18	3,275.8	641.0	198.2	671.0	0.00	0.00	0.00
3,400.0	15.04	17.18	3,314.4	650.9	201.3	681.4	0.00	0.00	0.00
3,440.0	15.04	17.18	3,353.0	660.9	204.4	691.7	0.00	0.00	0.00
3,480.0	15.04	17.18	3,391.7	670.8	207.4	702.1	0.00	0.00	0.00
3,520.0	15.04	17.18	3,430.3	680.7	210.5	712.5	0.00	0.00	0.00
3,560.0	15.04	17.18	3,468.9	690.6	213.6	722.9	0.00	0.00	0.00
3,600.0	15.04	17.18	3,507.6	700.5	216.6	733.2	0.00	0.00	0.00
3,640.0	15.04	17.18	3,546.2	710.4	219.7	743.6	0.00	0.00	0.00
3,680.0	15.04	17.18	3,584.8	720.3	222.8	754.0	0.00	0.00	0.00
3,720.0	15.04	17.18	3,623.5	730.3	225.8	764.4	0.00	0.00	0.00
3,760.0	15.04	17.18	3,662.1	740.2	228.9	774.8	0.00	0.00	0.00
3,800.0	15.04	17.18	3,700.7	750.1	232.0	785.1	0.00	0.00	0.00
3,840.0	15.04	17.18	3,739.4	760.0	235.0	795.5	0.00	0.00	0.00
3,880.0	15.04	17.18	3,778.0	769.9	238.1	805.9	0.00	0.00	0.00
3,920.0	15.04	17.18	3,816.6	779.8	241.2	816.3	0.00	0.00	0.00
3,960.0	15.04	17.18	3,855.2	789.7	244.2	826.6	0.00	0.00	0.00
4,000.0	15.04	17.18	3,893.9	799.7	247.3	837.0	0.00	0.00	0.00
4,040.0	15.04	17.18	3,932.5	809.6	250.4	847.4	0.00	0.00	0.00
4,080.0	15.04	17.18	3,971.1	819.5	253.4	857.8	0.00	0.00	0.00
4,120.0	15.04	17.18	4,009.8	829.4	256.5	868.2	0.00	0.00	0.00
4,160.0	15.04	17.18	4,048.4	839.3	259.6	878.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

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	15.04	17.18	4,087.0	849.2	262.6	888.9	0.00	0.00	0.00
4,240.0	15.04	17.18	4,125.7	859.1	265.7	899.3	0.00	0.00	0.00
4,280.0	15.04	17.18	4,164.3	869.1	268.8	909.7	0.00	0.00	0.00
4,320.0	15.04	17.18	4,202.9	879.0	271.8	920.0	0.00	0.00	0.00
4,360.0	15.04	17.18	4,241.5	888.9	274.9	930.4	0.00	0.00	0.00
4,400.0	15.04	17.18	4,280.2	898.8	278.0	940.8	0.00	0.00	0.00
4,440.0	15.04	17.18	4,318.8	908.7	281.0	951.2	0.00	0.00	0.00
4,480.0	15.04	17.18	4,357.4	918.6	284.1	961.6	0.00	0.00	0.00
4,520.0	15.04	17.18	4,396.1	928.5	287.1	971.9	0.00	0.00	0.00
4,560.0	15.04	17.18	4,434.7	938.5	290.2	982.3	0.00	0.00	0.00
4,600.0	15.04	17.18	4,473.3	948.4	293.3	992.7	0.00	0.00	0.00
4,640.0	15.04	17.18	4,512.0	958.3	296.3	1,003.1	0.00	0.00	0.00
4,680.0	15.04	17.18	4,550.6	968.2	299.4	1,013.4	0.00	0.00	0.00
4,720.0	15.04	17.18	4,589.2	978.1	302.5	1,023.8	0.00	0.00	0.00
4,760.0	15.04	17.18	4,627.9	988.0	305.5	1,034.2	0.00	0.00	0.00
4,800.0	15.04	17.18	4,666.5	997.9	308.6	1,044.6	0.00	0.00	0.00
4,840.0	15.04	17.18	4,705.1	1,007.9	311.7	1,055.0	0.00	0.00	0.00
4,880.0	15.04	17.18	4,743.7	1,017.8	314.7	1,065.3	0.00	0.00	0.00
4,893.5	15.04	17.18	4,756.8	1,021.1	315.8	1,068.8	0.00	0.00	0.00
4,920.0	14.51	17.18	4,782.4	1,027.6	317.8	1,075.6	2.00	-2.00	0.00
4,960.0	13.71	17.18	4,821.2	1,036.9	320.7	1,085.3	2.00	-2.00	0.00
5,000.0	12.91	17.18	4,860.1	1,045.7	323.4	1,094.5	2.00	-2.00	0.00
5,040.0	12.11	17.18	4,899.2	1,054.0	325.9	1,103.2	2.00	-2.00	0.00
5,080.0	11.31	17.18	4,938.3	1,061.7	328.3	1,111.3	2.00	-2.00	0.00
5,120.0	10.51	17.18	4,977.6	1,068.9	330.6	1,118.9	2.00	-2.00	0.00
5,160.0	9.71	17.18	5,017.0	1,075.7	332.6	1,125.9	2.00	-2.00	0.00
5,200.0	8.91	17.18	5,056.5	1,081.8	334.6	1,132.4	2.00	-2.00	0.00
5,240.0	8.11	17.18	5,096.0	1,087.5	336.3	1,138.3	2.00	-2.00	0.00
5,280.0	7.31	17.18	5,135.7	1,092.6	337.9	1,143.7	2.00	-2.00	0.00
5,320.0	6.51	17.18	5,175.4	1,097.2	339.3	1,148.5	2.00	-2.00	0.00
5,360.0	5.71	17.18	5,215.2	1,101.3	340.6	1,152.7	2.00	-2.00	0.00
5,400.0	4.91	17.18	5,255.0	1,104.8	341.7	1,156.4	2.00	-2.00	0.00
5,440.0	4.11	17.18	5,294.9	1,107.8	342.6	1,159.6	2.00	-2.00	0.00
5,480.0	3.31	17.18	5,334.8	1,110.3	343.3	1,162.2	2.00	-2.00	0.00
5,520.0	2.51	17.18	5,374.7	1,112.2	343.9	1,164.2	2.00	-2.00	0.00
5,560.0	1.71	17.18	5,414.7	1,113.6	344.4	1,165.7	2.00	-2.00	0.00
5,600.0	0.91	17.18	5,454.7	1,114.5	344.7	1,166.6	2.00	-2.00	0.00
5,640.0	0.11	17.18	5,494.7	1,114.8	344.8	1,166.9	2.00	-2.00	0.00
5,645.3	0.00	0.00	5,500.0	1,114.8	344.8	1,166.9	2.00	-2.00	-322.98
TARGET BHL 1320'FNL, 100'FWL									
5,680.0	0.00	0.00	5,534.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,720.0	0.00	0.00	5,574.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,760.0	0.00	0.00	5,614.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,654.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,840.0	0.00	0.00	5,694.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,880.0	0.00	0.00	5,734.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,920.0	0.00	0.00	5,774.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
5,960.0	0.00	0.00	5,814.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,854.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,040.0	0.00	0.00	5,894.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,080.0	0.00	0.00	5,934.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,120.0	0.00	0.00	5,974.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,160.0	0.00	0.00	6,014.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,054.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

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	6,094.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,134.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,174.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,214.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,254.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,294.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,334.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,374.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,414.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,454.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,494.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,534.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,574.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,614.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,654.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,694.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,734.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,774.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,814.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
6,979.3	0.00	0.00	6,834.0	1,114.8	344.8	1,166.9	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1320'FNL & 100'FWL									
7,000.0	0.00	0.00	6,854.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,894.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,934.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,120.0	0.00	0.00	6,974.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,014.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,054.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,240.0	0.00	0.00	7,094.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,134.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,294.3	0.00	0.00	7,149.0	1,114.8	344.8	1,166.9	0.00	0.00	0.00
CODELL									
7,320.0	0.00	0.00	7,174.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,214.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,254.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,294.7	1,114.8	344.8	1,166.9	0.00	0.00	0.00
7,444.3	0.00	0.00	7,299.0	1,114.8	344.8	1,166.9	0.00	0.00	0.00
HARD LINES 100'W OF BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well Brown PC E02-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	SEC.3-T6N-R65W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Brown PC E02-32 Pad Sec.3-T6N-R65W	North Reference:	True
Well:	Brown PC E02-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Brown PC E02-31D Plan #1 (2-07-11)		

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 CIRCLE 132	0.00	0.00	6,834.0	1,114.8	344.8	1,433,208.17	3,239,262.99	40.519370	-104.639390
- plan hits target center									
- Circle (radius 75.0)									
HARD LINES 100'W (0.00	0.00	7,299.0	1,014.8	244.8	1,433,107.18	3,239,164.01	40.519095	-104.639750
- plan misses target center by 141.4ft at 7444.3ft MD (7299.0 TVD, 1114.8 N, 344.8 E)									
- Polygon									
Point 1			7,299.0	0.0	0.0	1,433,107.18	3,239,164.01		
Point 2			7,299.0	200.0	0.0	1,433,307.17	3,239,162.08		
TARGET BHL 1320'F	0.00	0.00	5,500.0	1,114.8	344.8	1,433,208.17	3,239,262.99	40.519370	-104.639390
- 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 (°)
6,979.3	6,834.0	NIOBRARA		0.00	
7,294.3	7,149.0	CODELL		0.00	