

# ENSIGN

## Directional

### Well Name: Drake PC MM14-08D

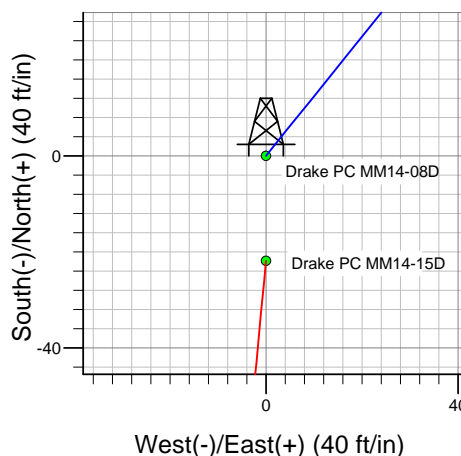
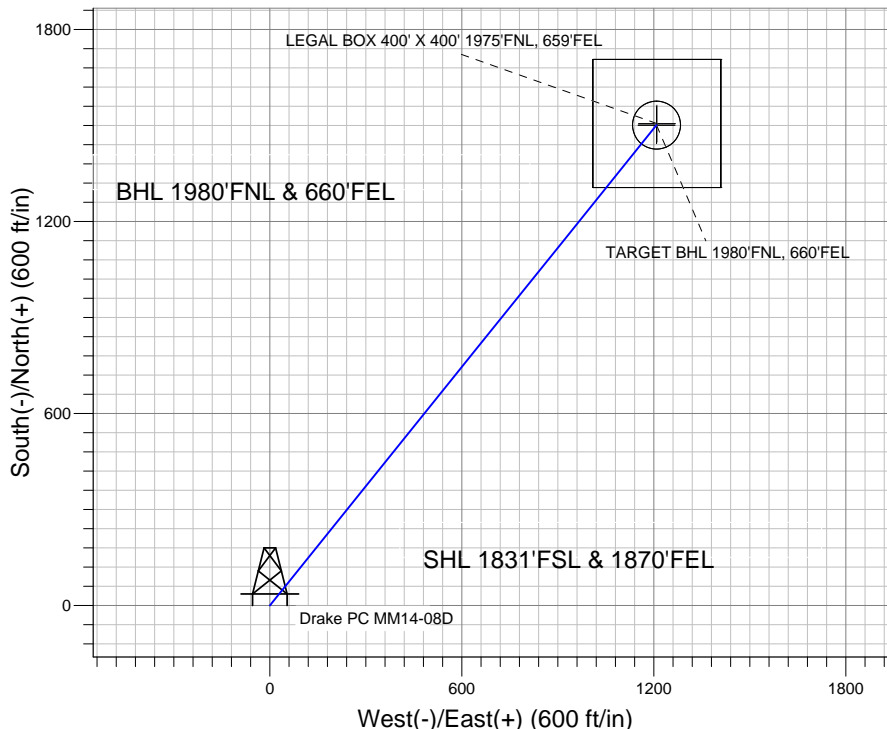
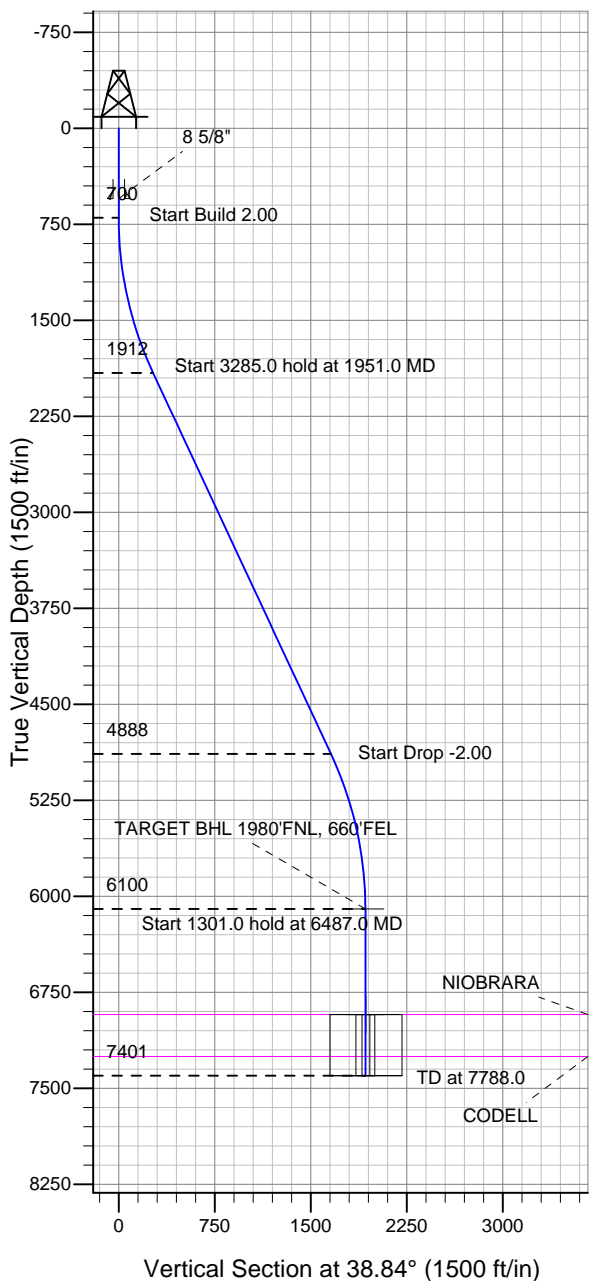
Surface Location: Drake PC MM14-08D Pad Sec.14-T7N-R67W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 5003.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1451834.36	3178459.79	40.571910	-104.857600	

Original Well Elev WELL @ 5016.0ft (Original Well Elev)

## NOBLE ENERGY INC WELD COUNTY CO



Drake PC MM14-08D Pad Sec.14-T7N-R67W  
Drake PC MM14-08D  
Noble Drake PC MM14-08D Plan #1 (5-24-11)  
8:27, May 26 2011



Azimuths to True North  
Magnetic North: 8.94°

Magnetic Field  
Strength: 53216.3snT  
Dip Angle: 67.18°  
Date: 5/24/2011  
Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1980'FNL, 660'FEL	6100.0	1501.0	1208.4	40.576030	-104.853250	Point
LEGAL BOX 400' X 400' 1975'FNL, 659'FEL	6924.0	1506.0	1209.4	40.576044	-104.853246	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 1980'FNL & 660'FEL	6924.0	1501.1	1208.4	40.576030	-104.853250	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	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1951.0	25.02	38.84	1911.6	209.4	168.6	2.00	38.84	268.8	
4	5236.0	25.02	38.84	4888.4	1291.6	1039.8	0.00	0.00	1658.2	
5	6487.0	0.00	0.00	6100.0	1501.0	1208.4	2.00	180.00	1927.0	TARGET BHL 1980'FNL, 660'FEL
6	7788.0	0.00	0.00	7401.0	1501.0	1208.4	0.00	0.00	1927.0	



## **Directional**

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

**SEC.14-T7N-R67W**

**Drake PC MM14-08D Pad Sec.14-T7N-R67W**

**Drake PC MM14-08D**

**Wellbore #1**

**Plan: Noble Drake PC MM14-08D Plan #1 (5-24-11)**

### **Standard Planning Report**

**26 May, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

<b>Project</b>	SEC.14-T7N-R67W, 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 Drake PC MM14-08D Pad Sec.14-T7N-R67W					
Site Position:		Northing:		1,451,834.37 ft	
From:	Lat/Long	Easting:		Latitude:	40.571910
		3,178,459.79 ft		Longitude:	-104.857600
Position Uncertainty:		Slot Radius:		Grid Convergence:	0.42 °
0.0 ft		"			

Well	Drake PC MM14-08D					
Well Position	+N/-S	0.0 ft	Northing:	1,451,834.36 ft	Latitude:	40.571910
	+E/-W	0.0 ft	Easting:	3,178,459.79 ft	Longitude:	-104.857600
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,003.0 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	5/24/2011	8.94	67.18	53,216

<b>Design</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)			
<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	38.84

<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	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,951.0	25.02	38.84	1,911.6	209.4	168.6	2.00	2.00	0.00	38.84	
5,236.0	25.02	38.84	4,888.4	1,291.6	1,039.8	0.00	0.00	0.00	0.00	
6,487.0	0.00	0.00	6,100.0	1,501.0	1,208.4	2.00	-2.00	0.00	180.00	TARGET BHL 198C
7,788.0	0.00	0.00	7,401.0	1,501.0	1,208.4	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

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
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.40	38.84	720.0	0.1	0.0	0.1	2.00	2.00	0.00
760.0	1.20	38.84	760.0	0.5	0.4	0.6	2.00	2.00	0.00
800.0	2.00	38.84	800.0	1.4	1.1	1.7	2.00	2.00	0.00
840.0	2.80	38.84	839.9	2.7	2.1	3.4	2.00	2.00	0.00
880.0	3.60	38.84	879.9	4.4	3.5	5.7	2.00	2.00	0.00
920.0	4.40	38.84	919.8	6.6	5.3	8.4	2.00	2.00	0.00
960.0	5.20	38.84	959.6	9.2	7.4	11.8	2.00	2.00	0.00
1,000.0	6.00	38.84	999.5	12.2	9.8	15.7	2.00	2.00	0.00
1,040.0	6.80	38.84	1,039.2	15.7	12.6	20.2	2.00	2.00	0.00
1,080.0	7.60	38.84	1,078.9	19.6	15.8	25.2	2.00	2.00	0.00
1,120.0	8.40	38.84	1,118.5	23.9	19.3	30.7	2.00	2.00	0.00
1,160.0	9.20	38.84	1,158.0	28.7	23.1	36.9	2.00	2.00	0.00
1,200.0	10.00	38.84	1,197.5	33.9	27.3	43.5	2.00	2.00	0.00
1,240.0	10.80	38.84	1,236.8	39.5	31.8	50.7	2.00	2.00	0.00
1,280.0	11.60	38.84	1,276.0	45.6	36.7	58.5	2.00	2.00	0.00
1,320.0	12.40	38.84	1,315.2	52.1	41.9	66.8	2.00	2.00	0.00
1,360.0	13.20	38.84	1,354.2	59.0	47.5	75.7	2.00	2.00	0.00
1,400.0	14.00	38.84	1,393.1	66.3	53.4	85.1	2.00	2.00	0.00
1,440.0	14.80	38.84	1,431.8	74.0	59.6	95.0	2.00	2.00	0.00
1,480.0	15.60	38.84	1,470.4	82.2	66.2	105.5	2.00	2.00	0.00
1,520.0	16.40	38.84	1,508.8	90.8	73.1	116.6	2.00	2.00	0.00
1,560.0	17.20	38.84	1,547.1	99.8	80.3	128.1	2.00	2.00	0.00
1,600.0	18.00	38.84	1,585.3	109.2	87.9	140.2	2.00	2.00	0.00
1,640.0	18.80	38.84	1,623.2	119.1	95.8	152.8	2.00	2.00	0.00
1,680.0	19.60	38.84	1,661.0	129.3	104.1	166.0	2.00	2.00	0.00
1,720.0	20.40	38.84	1,698.6	140.0	112.7	179.7	2.00	2.00	0.00
1,760.0	21.20	38.84	1,736.0	151.0	121.6	193.9	2.00	2.00	0.00
1,800.0	22.00	38.84	1,773.2	162.5	130.8	208.6	2.00	2.00	0.00
1,840.0	22.80	38.84	1,810.2	174.4	140.4	223.8	2.00	2.00	0.00
1,880.0	23.60	38.84	1,846.9	186.6	150.3	239.6	2.00	2.00	0.00
1,920.0	24.40	38.84	1,883.5	199.3	160.5	255.9	2.00	2.00	0.00
1,951.0	25.02	38.84	1,911.6	209.4	168.6	268.8	2.00	2.00	0.00
1,960.0	25.02	38.84	1,919.8	212.4	171.0	272.6	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

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	25.02	38.84	1,956.0	225.5	181.6	289.6	0.00	0.00	0.00
2,040.0	25.02	38.84	1,992.3	238.7	192.2	306.5	0.00	0.00	0.00
2,080.0	25.02	38.84	2,028.5	251.9	202.8	323.4	0.00	0.00	0.00
2,120.0	25.02	38.84	2,064.8	265.1	213.4	340.3	0.00	0.00	0.00
2,160.0	25.02	38.84	2,101.0	278.3	224.0	357.2	0.00	0.00	0.00
2,200.0	25.02	38.84	2,137.3	291.4	234.6	374.1	0.00	0.00	0.00
2,240.0	25.02	38.84	2,173.5	304.6	245.2	391.1	0.00	0.00	0.00
2,280.0	25.02	38.84	2,209.7	317.8	255.8	408.0	0.00	0.00	0.00
2,320.0	25.02	38.84	2,246.0	331.0	266.4	424.9	0.00	0.00	0.00
2,360.0	25.02	38.84	2,282.2	344.1	277.1	441.8	0.00	0.00	0.00
2,400.0	25.02	38.84	2,318.5	357.3	287.7	458.7	0.00	0.00	0.00
2,440.0	25.02	38.84	2,354.7	370.5	298.3	475.6	0.00	0.00	0.00
2,480.0	25.02	38.84	2,391.0	383.7	308.9	492.6	0.00	0.00	0.00
2,520.0	25.02	38.84	2,427.2	396.9	319.5	509.5	0.00	0.00	0.00
2,560.0	25.02	38.84	2,463.5	410.0	330.1	526.4	0.00	0.00	0.00
2,600.0	25.02	38.84	2,499.7	423.2	340.7	543.3	0.00	0.00	0.00
2,640.0	25.02	38.84	2,536.0	436.4	351.3	560.2	0.00	0.00	0.00
2,680.0	25.02	38.84	2,572.2	449.6	361.9	577.2	0.00	0.00	0.00
2,720.0	25.02	38.84	2,608.5	462.7	372.5	594.1	0.00	0.00	0.00
2,760.0	25.02	38.84	2,644.7	475.9	383.1	611.0	0.00	0.00	0.00
2,800.0	25.02	38.84	2,680.9	489.1	393.8	627.9	0.00	0.00	0.00
2,840.0	25.02	38.84	2,717.2	502.3	404.4	644.8	0.00	0.00	0.00
2,880.0	25.02	38.84	2,753.4	515.5	415.0	661.7	0.00	0.00	0.00
2,920.0	25.02	38.84	2,789.7	528.6	425.6	678.7	0.00	0.00	0.00
2,960.0	25.02	38.84	2,825.9	541.8	436.2	695.6	0.00	0.00	0.00
3,000.0	25.02	38.84	2,862.2	555.0	446.8	712.5	0.00	0.00	0.00
3,040.0	25.02	38.84	2,898.4	568.2	457.4	729.4	0.00	0.00	0.00
3,080.0	25.02	38.84	2,934.7	581.3	468.0	746.3	0.00	0.00	0.00
3,120.0	25.02	38.84	2,970.9	594.5	478.6	763.2	0.00	0.00	0.00
3,160.0	25.02	38.84	3,007.2	607.7	489.2	780.2	0.00	0.00	0.00
3,200.0	25.02	38.84	3,043.4	620.9	499.8	797.1	0.00	0.00	0.00
3,240.0	25.02	38.84	3,079.7	634.1	510.4	814.0	0.00	0.00	0.00
3,280.0	25.02	38.84	3,115.9	647.2	521.1	830.9	0.00	0.00	0.00
3,320.0	25.02	38.84	3,152.2	660.4	531.7	847.8	0.00	0.00	0.00
3,360.0	25.02	38.84	3,188.4	673.6	542.3	864.7	0.00	0.00	0.00
3,400.0	25.02	38.84	3,224.6	686.8	552.9	881.7	0.00	0.00	0.00
3,440.0	25.02	38.84	3,260.9	699.9	563.5	898.6	0.00	0.00	0.00
3,480.0	25.02	38.84	3,297.1	713.1	574.1	915.5	0.00	0.00	0.00
3,520.0	25.02	38.84	3,333.4	726.3	584.7	932.4	0.00	0.00	0.00
3,560.0	25.02	38.84	3,369.6	739.5	595.3	949.3	0.00	0.00	0.00
3,600.0	25.02	38.84	3,405.9	752.7	605.9	966.3	0.00	0.00	0.00
3,640.0	25.02	38.84	3,442.1	765.8	616.5	983.2	0.00	0.00	0.00
3,680.0	25.02	38.84	3,478.4	779.0	627.1	1,000.1	0.00	0.00	0.00
3,720.0	25.02	38.84	3,514.6	792.2	637.8	1,017.0	0.00	0.00	0.00
3,760.0	25.02	38.84	3,550.9	805.4	648.4	1,033.9	0.00	0.00	0.00
3,800.0	25.02	38.84	3,587.1	818.5	659.0	1,050.8	0.00	0.00	0.00
3,840.0	25.02	38.84	3,623.4	831.7	669.6	1,067.8	0.00	0.00	0.00
3,880.0	25.02	38.84	3,659.6	844.9	680.2	1,084.7	0.00	0.00	0.00
3,920.0	25.02	38.84	3,695.8	858.1	690.8	1,101.6	0.00	0.00	0.00
3,960.0	25.02	38.84	3,732.1	871.3	701.4	1,118.5	0.00	0.00	0.00
4,000.0	25.02	38.84	3,768.3	884.4	712.0	1,135.4	0.00	0.00	0.00
4,040.0	25.02	38.84	3,804.6	897.6	722.6	1,152.3	0.00	0.00	0.00
4,080.0	25.02	38.84	3,840.8	910.8	733.2	1,169.3	0.00	0.00	0.00
4,120.0	25.02	38.84	3,877.1	924.0	743.8	1,186.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

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)
4,160.0	25.02	38.84	3,913.3	937.2	754.4	1,203.1	0.00	0.00	0.00
4,200.0	25.02	38.84	3,949.6	950.3	765.1	1,220.0	0.00	0.00	0.00
4,240.0	25.02	38.84	3,985.8	963.5	775.7	1,236.9	0.00	0.00	0.00
4,280.0	25.02	38.84	4,022.1	976.7	786.3	1,253.8	0.00	0.00	0.00
4,320.0	25.02	38.84	4,058.3	989.9	796.9	1,270.8	0.00	0.00	0.00
4,360.0	25.02	38.84	4,094.6	1,003.0	807.5	1,287.7	0.00	0.00	0.00
4,400.0	25.02	38.84	4,130.8	1,016.2	818.1	1,304.6	0.00	0.00	0.00
4,440.0	25.02	38.84	4,167.0	1,029.4	828.7	1,321.5	0.00	0.00	0.00
4,480.0	25.02	38.84	4,203.3	1,042.6	839.3	1,338.4	0.00	0.00	0.00
4,520.0	25.02	38.84	4,239.5	1,055.8	849.9	1,355.4	0.00	0.00	0.00
4,560.0	25.02	38.84	4,275.8	1,068.9	860.5	1,372.3	0.00	0.00	0.00
4,600.0	25.02	38.84	4,312.0	1,082.1	871.1	1,389.2	0.00	0.00	0.00
4,640.0	25.02	38.84	4,348.3	1,095.3	881.8	1,406.1	0.00	0.00	0.00
4,680.0	25.02	38.84	4,384.5	1,108.5	892.4	1,423.0	0.00	0.00	0.00
4,720.0	25.02	38.84	4,420.8	1,121.6	903.0	1,439.9	0.00	0.00	0.00
4,760.0	25.02	38.84	4,457.0	1,134.8	913.6	1,456.9	0.00	0.00	0.00
4,800.0	25.02	38.84	4,493.3	1,148.0	924.2	1,473.8	0.00	0.00	0.00
4,840.0	25.02	38.84	4,529.5	1,161.2	934.8	1,490.7	0.00	0.00	0.00
4,880.0	25.02	38.84	4,565.8	1,174.4	945.4	1,507.6	0.00	0.00	0.00
4,920.0	25.02	38.84	4,602.0	1,187.5	956.0	1,524.5	0.00	0.00	0.00
4,960.0	25.02	38.84	4,638.3	1,200.7	966.6	1,541.4	0.00	0.00	0.00
5,000.0	25.02	38.84	4,674.5	1,213.9	977.2	1,558.4	0.00	0.00	0.00
5,040.0	25.02	38.84	4,710.7	1,227.1	987.8	1,575.3	0.00	0.00	0.00
5,080.0	25.02	38.84	4,747.0	1,240.2	998.4	1,592.2	0.00	0.00	0.00
5,120.0	25.02	38.84	4,783.2	1,253.4	1,009.1	1,609.1	0.00	0.00	0.00
5,160.0	25.02	38.84	4,819.5	1,266.6	1,019.7	1,626.0	0.00	0.00	0.00
5,200.0	25.02	38.84	4,855.7	1,279.8	1,030.3	1,642.9	0.00	0.00	0.00
5,236.0	25.02	38.84	4,888.4	1,291.6	1,039.8	1,658.2	0.00	0.00	0.00
5,240.0	24.94	38.84	4,892.0	1,292.9	1,040.9	1,659.9	2.00	-2.00	0.00
5,280.0	24.14	38.84	4,928.4	1,305.9	1,051.3	1,676.5	2.00	-2.00	0.00
5,320.0	23.34	38.84	4,965.0	1,318.4	1,061.4	1,692.6	2.00	-2.00	0.00
5,360.0	22.54	38.84	5,001.8	1,330.6	1,071.2	1,708.2	2.00	-2.00	0.00
5,400.0	21.74	38.84	5,038.9	1,342.3	1,080.6	1,723.2	2.00	-2.00	0.00
5,440.0	20.94	38.84	5,076.1	1,353.7	1,089.8	1,737.8	2.00	-2.00	0.00
5,480.0	20.14	38.84	5,113.6	1,364.6	1,098.6	1,751.8	2.00	-2.00	0.00
5,520.0	19.34	38.84	5,151.2	1,375.1	1,107.0	1,765.3	2.00	-2.00	0.00
5,560.0	18.54	38.84	5,189.1	1,385.2	1,115.2	1,778.3	2.00	-2.00	0.00
5,600.0	17.74	38.84	5,227.1	1,394.9	1,123.0	1,790.8	2.00	-2.00	0.00
5,640.0	16.94	38.84	5,265.3	1,404.2	1,130.5	1,802.7	2.00	-2.00	0.00
5,680.0	16.14	38.84	5,303.6	1,413.1	1,137.6	1,814.1	2.00	-2.00	0.00
5,720.0	15.34	38.84	5,342.1	1,421.5	1,144.4	1,824.9	2.00	-2.00	0.00
5,760.0	14.54	38.84	5,380.7	1,429.6	1,150.9	1,835.3	2.00	-2.00	0.00
5,800.0	13.74	38.84	5,419.5	1,437.2	1,157.0	1,845.0	2.00	-2.00	0.00
5,840.0	12.94	38.84	5,458.5	1,444.4	1,162.8	1,854.3	2.00	-2.00	0.00
5,880.0	12.14	38.84	5,497.5	1,451.1	1,168.2	1,862.9	2.00	-2.00	0.00
5,920.0	11.34	38.84	5,536.7	1,457.5	1,173.3	1,871.1	2.00	-2.00	0.00
5,960.0	10.54	38.84	5,575.9	1,463.4	1,178.1	1,878.7	2.00	-2.00	0.00
6,000.0	9.74	38.84	5,615.3	1,468.9	1,182.5	1,885.7	2.00	-2.00	0.00
6,040.0	8.94	38.84	5,654.8	1,473.9	1,186.6	1,892.2	2.00	-2.00	0.00
6,080.0	8.14	38.84	5,694.3	1,478.6	1,190.3	1,898.2	2.00	-2.00	0.00
6,120.0	7.34	38.84	5,734.0	1,482.8	1,193.7	1,903.5	2.00	-2.00	0.00
6,160.0	6.54	38.84	5,773.7	1,486.5	1,196.7	1,908.4	2.00	-2.00	0.00
6,200.0	5.74	38.84	5,813.4	1,489.9	1,199.4	1,912.7	2.00	-2.00	0.00
6,240.0	4.94	38.84	5,853.3	1,492.8	1,201.7	1,916.4	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

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	4.14	38.84	5,893.1	1,495.2	1,203.7	1,919.5	2.00	-2.00	0.00
6,320.0	3.34	38.84	5,933.1	1,497.3	1,205.4	1,922.2	2.00	-2.00	0.00
6,360.0	2.54	38.84	5,973.0	1,498.9	1,206.6	1,924.2	2.00	-2.00	0.00
6,400.0	1.74	38.84	6,013.0	1,500.0	1,207.6	1,925.7	2.00	-2.00	0.00
6,440.0	0.94	38.84	6,053.0	1,500.7	1,208.2	1,926.6	2.00	-2.00	0.00
6,480.0	0.14	38.84	6,093.0	1,501.0	1,208.4	1,927.0	2.00	-2.00	0.00
6,487.0	0.00	0.00	6,100.0	1,501.0	1,208.4	1,927.0	2.00	-2.00	-552.30
TARGET BHL 1980'FNL, 660'FEL									
6,520.0	0.00	0.00	6,133.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,173.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,213.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,253.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,293.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,333.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,373.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,413.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,453.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,493.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,533.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,573.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,613.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,653.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,693.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,733.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,160.0	0.00	0.00	6,773.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,813.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,240.0	0.00	0.00	6,853.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,280.0	0.00	0.00	6,893.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,311.0	0.00	0.00	6,924.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1980'FNL & 660'FEL - LEGAL BOX 400' X 400' 1975'FNL, 659'FEL									
7,320.0	0.00	0.00	6,933.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,360.0	0.00	0.00	6,973.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,013.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,440.0	0.00	0.00	7,053.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,093.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,133.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,173.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,213.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,638.0	0.00	0.00	7,251.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
CODELL									
7,640.0	0.00	0.00	7,253.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,293.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,333.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,760.0	0.00	0.00	7,373.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00
7,788.0	0.00	0.00	7,401.0	1,501.0	1,208.4	1,927.0	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Drake PC MM14-08D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T7N-R67W	<b>MD Reference:</b>	WELL @ 5016.0ft (Original Well Elev)
<b>Site:</b>	Drake PC MM14-08D Pad Sec.14-T7N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Drake PC MM14-08D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Drake PC MM14-08D Plan #1 (5-24-11)		

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 198'	0.00	0.00	6,924.0	1,501.1	1,208.4	1,453,344.13	3,179,657.25	40.576030	-104.853250
- plan misses target center by 0.1ft at 7311.0ft MD (6924.0 TVD, 1501.0 N, 1208.4 E)									
- Circle (radius 75.0)									
LEGAL BOX 400' X 400'	0.00	0.00	6,924.0	1,506.0	1,209.4	1,453,349.04	3,179,658.21	40.576044	-104.853246
- plan misses target center by 5.1ft at 7311.0ft MD (6924.0 TVD, 1501.0 N, 1208.4 E)									
- Rectangle (sides W400.0 H400.0 D477.0)									
TARGET BHL 1980'F	0.00	0.00	6,100.0	1,501.0	1,208.4	1,453,344.08	3,179,657.26	40.576030	-104.853250
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
550.0	550.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,311.0	6,924.0	NIOBRARA		0.00		
7,638.0	7,251.0	CODELL		0.00		