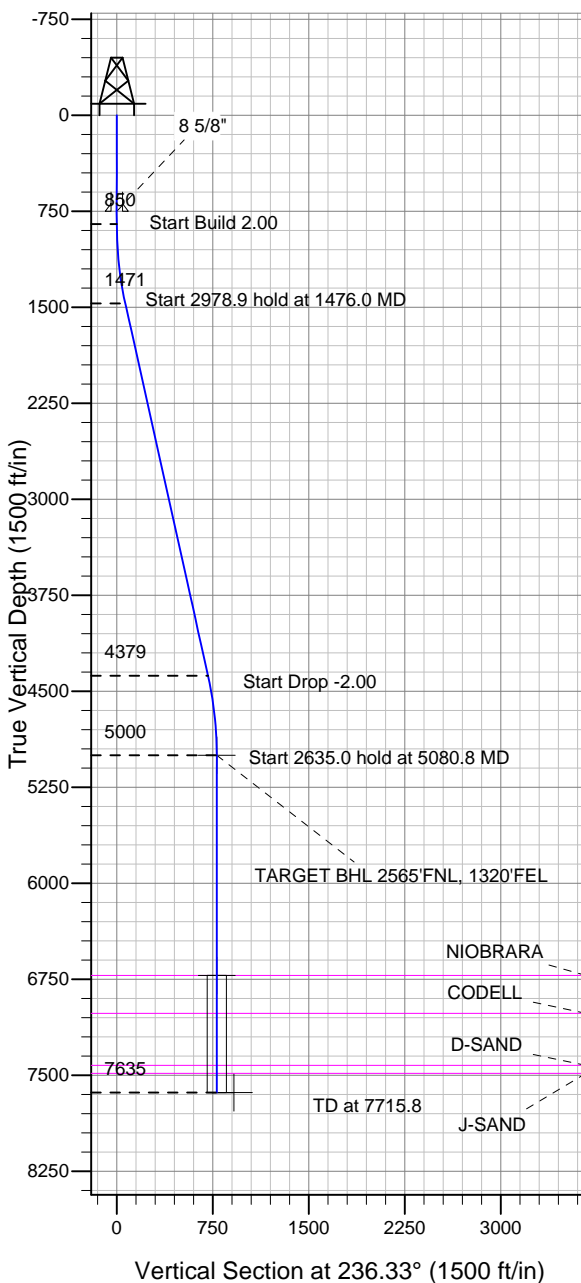


# ENSIGN

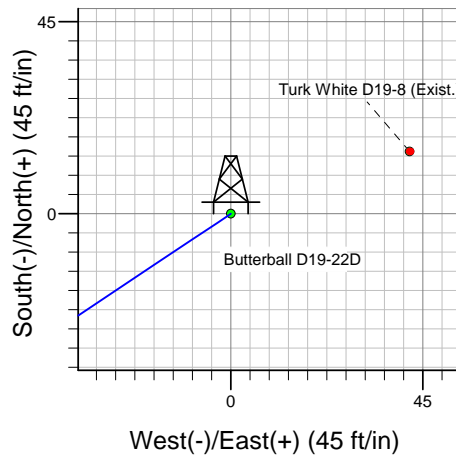
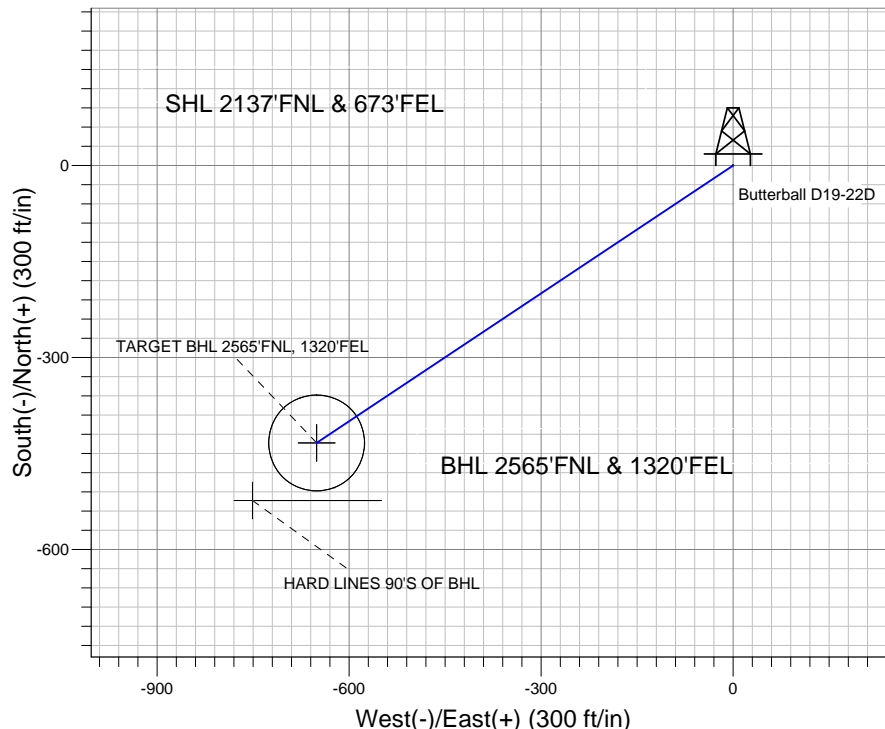
## Directional

### Well Name: Butterball D19-22D

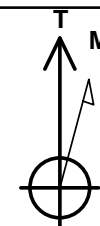
Surface Location: Butterball D19-22D Pad Sec.19-T3N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4770.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1321452.43 3255013.43 40.212180 -104.586880  
 Original Well Elev WELL @ 4783.0ft (Original Well Elev)



### NOBLE ENERGY INC WELD COUNTY CO



Butterball D19-22D Pad Sec.19-T3N-R64W  
 Butterball D19-22D  
 Noble Butterball D19-22D Plan #1 (5-24-11)  
 15:05, May 24 2011



Azimuths to True North  
 Magnetic North: 8.76°

Magnetic Field  
 Strength: 53058.8nT  
 Dip Angle: 66.93°  
 Date: 5/24/2011  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2565'FNL, 1320'FEL	5000.0	-433.5	-650.8	40.210990	-104.589210	Point
TARGET CIRCLE 2565'FNL & 1320'FEL	6720.0	-433.5	-650.8	40.210990	-104.589210	Circle (Radius: 75.0)
HARD LINES 90'S OF BHL	7635.0	-523.5	-750.8	40.210743	-104.589568	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	850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.0	
3	1476.0	12.52	236.33	1471.0	-37.8	-56.7	2.00	236.33	68.1	
4	4454.8	12.52	236.33	4379.0	-395.7	-594.1	0.00	0.00	713.8	
5	5080.8	0.00	0.00	5000.0	-433.5	-650.8	2.00	180.00	781.9	TARGET BHL 2565'FNL, 1320'FEL
6	7715.8	0.00	0.00	7635.0	-433.5	-650.8	0.00	0.00	781.9	



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.19-T3N-R64W**

**Butterball D19-22D Pad Sec.19-T3N-R64W**

**Butterball D19-22D**

**Wellbore #1**

**Plan: Noble Butterball D19-22D Plan #1 (5-24-11)**

## **Standard Planning Report**

**24 May, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D Plan #1 (5-24-11)		

<b>Project</b>	SEC.19-T3N-R64W, 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						Butterball D19-22D Pad Sec.19-T3N-R64W											
Site Position:						Northing:			1,321,452.43ft			Latitude:			40.212180		
From:			Lat/Long			Easting:			3,255,013.43ft			Longitude:			-104.586880		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.59 °		

Well	Butterball D19-22D					
Well Position	+N/-S	0.0 ft	Northing:	1,321,452.43 ft	Latitude:	40.212180
	+E/-W	0.0 ft	Easting:	3,255,013.43 ft	Longitude:	-104.586880
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,770.0 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	8.76	66.93	53,059

<b>Design</b>	Noble Butterball D19-22D 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	236.33

<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	
850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,476.0	12.52	236.33	1,471.0	-37.8	-56.7	2.00	2.00	0.00	236.33	
4,454.8	12.52	236.33	4,379.0	-395.7	-594.1	0.00	0.00	0.00	0.00	
5,080.8	0.00	0.00	5,000.0	-433.5	-650.8	2.00	-2.00	0.00	180.00	TARGET BHL 2565
7,715.8	0.00	0.00	7,635.0	-433.5	-650.8	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D 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
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
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.60	236.33	880.0	-0.1	-0.1	0.2	2.00	2.00	0.00
920.0	1.40	236.33	920.0	-0.5	-0.7	0.9	2.00	2.00	0.00
960.0	2.20	236.33	960.0	-1.2	-1.8	2.1	2.00	2.00	0.00
1,000.0	3.00	236.33	999.9	-2.2	-3.3	3.9	2.00	2.00	0.00
1,040.0	3.80	236.33	1,039.9	-3.5	-5.2	6.3	2.00	2.00	0.00
1,080.0	4.60	236.33	1,079.8	-5.1	-7.7	9.2	2.00	2.00	0.00
1,120.0	5.40	236.33	1,119.6	-7.0	-10.6	12.7	2.00	2.00	0.00
1,160.0	6.20	236.33	1,159.4	-9.3	-13.9	16.8	2.00	2.00	0.00
1,200.0	7.00	236.33	1,199.1	-11.8	-17.8	21.4	2.00	2.00	0.00
1,240.0	7.80	236.33	1,238.8	-14.7	-22.1	26.5	2.00	2.00	0.00
1,280.0	8.60	236.33	1,278.4	-17.9	-26.8	32.2	2.00	2.00	0.00
1,320.0	9.40	236.33	1,317.9	-21.3	-32.0	38.5	2.00	2.00	0.00
1,360.0	10.20	236.33	1,357.3	-25.1	-37.7	45.3	2.00	2.00	0.00
1,400.0	11.00	236.33	1,396.6	-29.2	-43.8	52.6	2.00	2.00	0.00
1,440.0	11.80	236.33	1,435.8	-33.6	-50.4	60.5	2.00	2.00	0.00
1,476.0	12.52	236.33	1,471.0	-37.8	-56.7	68.1	2.00	2.00	0.00
1,480.0	12.52	236.33	1,474.9	-38.2	-57.4	69.0	0.00	0.00	0.00
1,520.0	12.52	236.33	1,514.0	-43.1	-64.6	77.7	0.00	0.00	0.00
1,560.0	12.52	236.33	1,553.0	-47.9	-71.8	86.3	0.00	0.00	0.00
1,600.0	12.52	236.33	1,592.1	-52.7	-79.1	95.0	0.00	0.00	0.00
1,640.0	12.52	236.33	1,631.1	-57.5	-86.3	103.7	0.00	0.00	0.00
1,680.0	12.52	236.33	1,670.2	-62.3	-93.5	112.3	0.00	0.00	0.00
1,720.0	12.52	236.33	1,709.2	-67.1	-100.7	121.0	0.00	0.00	0.00
1,760.0	12.52	236.33	1,748.3	-71.9	-107.9	129.7	0.00	0.00	0.00
1,800.0	12.52	236.33	1,787.3	-76.7	-115.1	138.4	0.00	0.00	0.00
1,840.0	12.52	236.33	1,826.4	-81.5	-122.4	147.0	0.00	0.00	0.00
1,880.0	12.52	236.33	1,865.4	-86.3	-129.6	155.7	0.00	0.00	0.00
1,920.0	12.52	236.33	1,904.5	-91.1	-136.8	164.4	0.00	0.00	0.00
1,960.0	12.52	236.33	1,943.5	-95.9	-144.0	173.0	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D 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	12.52	236.33	1,982.6	-100.7	-151.2	181.7	0.00	0.00	0.00
2,040.0	12.52	236.33	2,021.6	-105.5	-158.4	190.4	0.00	0.00	0.00
2,080.0	12.52	236.33	2,060.7	-110.4	-165.7	199.0	0.00	0.00	0.00
2,120.0	12.52	236.33	2,099.7	-115.2	-172.9	207.7	0.00	0.00	0.00
2,160.0	12.52	236.33	2,138.8	-120.0	-180.1	216.4	0.00	0.00	0.00
2,200.0	12.52	236.33	2,177.8	-124.8	-187.3	225.1	0.00	0.00	0.00
2,240.0	12.52	236.33	2,216.9	-129.6	-194.5	233.7	0.00	0.00	0.00
2,280.0	12.52	236.33	2,255.9	-134.4	-201.7	242.4	0.00	0.00	0.00
2,320.0	12.52	236.33	2,295.0	-139.2	-209.0	251.1	0.00	0.00	0.00
2,360.0	12.52	236.33	2,334.0	-144.0	-216.2	259.7	0.00	0.00	0.00
2,400.0	12.52	236.33	2,373.1	-148.8	-223.4	268.4	0.00	0.00	0.00
2,440.0	12.52	236.33	2,412.1	-153.6	-230.6	277.1	0.00	0.00	0.00
2,480.0	12.52	236.33	2,451.2	-158.4	-237.8	285.8	0.00	0.00	0.00
2,520.0	12.52	236.33	2,490.2	-163.2	-245.0	294.4	0.00	0.00	0.00
2,560.0	12.52	236.33	2,529.3	-168.0	-252.3	303.1	0.00	0.00	0.00
2,600.0	12.52	236.33	2,568.3	-172.8	-259.5	311.8	0.00	0.00	0.00
2,640.0	12.52	236.33	2,607.4	-177.6	-266.7	320.4	0.00	0.00	0.00
2,680.0	12.52	236.33	2,646.4	-182.5	-273.9	329.1	0.00	0.00	0.00
2,720.0	12.52	236.33	2,685.5	-187.3	-281.1	337.8	0.00	0.00	0.00
2,760.0	12.52	236.33	2,724.5	-192.1	-288.3	346.4	0.00	0.00	0.00
2,800.0	12.52	236.33	2,763.6	-196.9	-295.5	355.1	0.00	0.00	0.00
2,840.0	12.52	236.33	2,802.6	-201.7	-302.8	363.8	0.00	0.00	0.00
2,880.0	12.52	236.33	2,841.6	-206.5	-310.0	372.5	0.00	0.00	0.00
2,920.0	12.52	236.33	2,880.7	-211.3	-317.2	381.1	0.00	0.00	0.00
2,960.0	12.52	236.33	2,919.7	-216.1	-324.4	389.8	0.00	0.00	0.00
3,000.0	12.52	236.33	2,958.8	-220.9	-331.6	398.5	0.00	0.00	0.00
3,040.0	12.52	236.33	2,997.8	-225.7	-338.8	407.1	0.00	0.00	0.00
3,080.0	12.52	236.33	3,036.9	-230.5	-346.1	415.8	0.00	0.00	0.00
3,120.0	12.52	236.33	3,075.9	-235.3	-353.3	424.5	0.00	0.00	0.00
3,160.0	12.52	236.33	3,115.0	-240.1	-360.5	433.2	0.00	0.00	0.00
3,200.0	12.52	236.33	3,154.0	-244.9	-367.7	441.8	0.00	0.00	0.00
3,240.0	12.52	236.33	3,193.1	-249.8	-374.9	450.5	0.00	0.00	0.00
3,280.0	12.52	236.33	3,232.1	-254.6	-382.1	459.2	0.00	0.00	0.00
3,320.0	12.52	236.33	3,271.2	-259.4	-389.4	467.8	0.00	0.00	0.00
3,360.0	12.52	236.33	3,310.2	-264.2	-396.6	476.5	0.00	0.00	0.00
3,400.0	12.52	236.33	3,349.3	-269.0	-403.8	485.2	0.00	0.00	0.00
3,440.0	12.52	236.33	3,388.3	-273.8	-411.0	493.8	0.00	0.00	0.00
3,480.0	12.52	236.33	3,427.4	-278.6	-418.2	502.5	0.00	0.00	0.00
3,520.0	12.52	236.33	3,466.4	-283.4	-425.4	511.2	0.00	0.00	0.00
3,560.0	12.52	236.33	3,505.5	-288.2	-432.7	519.9	0.00	0.00	0.00
3,600.0	12.52	236.33	3,544.5	-293.0	-439.9	528.5	0.00	0.00	0.00
3,640.0	12.52	236.33	3,583.6	-297.8	-447.1	537.2	0.00	0.00	0.00
3,680.0	12.52	236.33	3,622.6	-302.6	-454.3	545.9	0.00	0.00	0.00
3,720.0	12.52	236.33	3,661.7	-307.4	-461.5	554.5	0.00	0.00	0.00
3,760.0	12.52	236.33	3,700.7	-312.2	-468.7	563.2	0.00	0.00	0.00
3,800.0	12.52	236.33	3,739.8	-317.1	-476.0	571.9	0.00	0.00	0.00
3,840.0	12.52	236.33	3,778.8	-321.9	-483.2	580.6	0.00	0.00	0.00
3,880.0	12.52	236.33	3,817.9	-326.7	-490.4	589.2	0.00	0.00	0.00
3,920.0	12.52	236.33	3,856.9	-331.5	-497.6	597.9	0.00	0.00	0.00
3,960.0	12.52	236.33	3,896.0	-336.3	-504.8	606.6	0.00	0.00	0.00
4,000.0	12.52	236.33	3,935.0	-341.1	-512.0	615.2	0.00	0.00	0.00
4,040.0	12.52	236.33	3,974.1	-345.9	-519.2	623.9	0.00	0.00	0.00
4,080.0	12.52	236.33	4,013.1	-350.7	-526.5	632.6	0.00	0.00	0.00
4,120.0	12.52	236.33	4,052.2	-355.5	-533.7	641.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D 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	12.52	236.33	4,091.2	-360.3	-540.9	649.9	0.00	0.00	0.00
4,200.0	12.52	236.33	4,130.3	-365.1	-548.1	658.6	0.00	0.00	0.00
4,240.0	12.52	236.33	4,169.3	-369.9	-555.3	667.3	0.00	0.00	0.00
4,280.0	12.52	236.33	4,208.4	-374.7	-562.5	675.9	0.00	0.00	0.00
4,320.0	12.52	236.33	4,247.4	-379.5	-569.8	684.6	0.00	0.00	0.00
4,360.0	12.52	236.33	4,286.5	-384.3	-577.0	693.3	0.00	0.00	0.00
4,400.0	12.52	236.33	4,325.5	-389.2	-584.2	701.9	0.00	0.00	0.00
4,440.0	12.52	236.33	4,364.6	-394.0	-591.4	710.6	0.00	0.00	0.00
4,454.8	12.52	236.33	4,379.0	-395.7	-594.1	713.8	0.00	0.00	0.00
4,480.0	12.02	236.33	4,403.6	-398.7	-598.5	719.2	2.00	-2.00	0.00
4,520.0	11.22	236.33	4,442.8	-403.2	-605.2	727.2	2.00	-2.00	0.00
4,560.0	10.42	236.33	4,482.1	-407.3	-611.5	734.7	2.00	-2.00	0.00
4,600.0	9.62	236.33	4,521.5	-411.2	-617.3	741.7	2.00	-2.00	0.00
4,640.0	8.82	236.33	4,561.0	-414.7	-622.6	748.1	2.00	-2.00	0.00
4,680.0	8.02	236.33	4,600.5	-418.0	-627.5	754.0	2.00	-2.00	0.00
4,720.0	7.22	236.33	4,640.2	-420.9	-631.9	759.3	2.00	-2.00	0.00
4,760.0	6.42	236.33	4,679.9	-423.6	-635.8	764.0	2.00	-2.00	0.00
4,800.0	5.62	236.33	4,719.7	-425.9	-639.3	768.2	2.00	-2.00	0.00
4,840.0	4.82	236.33	4,759.5	-427.9	-642.4	771.8	2.00	-2.00	0.00
4,880.0	4.02	236.33	4,799.4	-429.6	-644.9	774.9	2.00	-2.00	0.00
4,920.0	3.22	236.33	4,839.3	-431.0	-647.0	777.4	2.00	-2.00	0.00
4,960.0	2.42	236.33	4,879.3	-432.1	-648.6	779.4	2.00	-2.00	0.00
5,000.0	1.62	236.33	4,919.2	-432.9	-649.8	780.8	2.00	-2.00	0.00
5,040.0	0.82	236.33	4,959.2	-433.3	-650.5	781.6	2.00	-2.00	0.00
5,080.0	0.02	236.33	4,999.2	-433.5	-650.8	781.9	2.00	-2.00	0.00
5,080.8	0.00	0.00	5,000.0	-433.5	-650.8	781.9	2.00	-2.00	0.00
TARGET BHL 2565'FNL, 1320'FEL									
5,120.0	0.00	0.00	5,039.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,160.0	0.00	0.00	5,079.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,119.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,240.0	0.00	0.00	5,159.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,280.0	0.00	0.00	5,199.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,320.0	0.00	0.00	5,239.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,360.0	0.00	0.00	5,279.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,319.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,440.0	0.00	0.00	5,359.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,480.0	0.00	0.00	5,399.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,520.0	0.00	0.00	5,439.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,560.0	0.00	0.00	5,479.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,519.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,640.0	0.00	0.00	5,559.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,680.0	0.00	0.00	5,599.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,720.0	0.00	0.00	5,639.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,760.0	0.00	0.00	5,679.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,719.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,840.0	0.00	0.00	5,759.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,880.0	0.00	0.00	5,799.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,920.0	0.00	0.00	5,839.2	-433.5	-650.8	781.9	0.00	0.00	0.00
5,960.0	0.00	0.00	5,879.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,919.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,040.0	0.00	0.00	5,959.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,080.0	0.00	0.00	5,999.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,120.0	0.00	0.00	6,039.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,160.0	0.00	0.00	6,079.2	-433.5	-650.8	781.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D 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)
6,200.0	0.00	0.00	6,119.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,240.0	0.00	0.00	6,159.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,199.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,239.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,279.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,319.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,359.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,399.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,439.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,479.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,519.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,559.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,599.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,639.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,679.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,719.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,800.8	0.00	0.00	6,720.0	-433.5	-650.8	781.9	0.00	0.00	0.00
<b>NIORARA - TARGET CIRCLE 2565'FNL &amp; 1320'FEL</b>									
6,840.0	0.00	0.00	6,759.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,799.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,839.2	-433.5	-650.8	781.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,879.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,919.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,959.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,999.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,096.8	0.00	0.00	7,016.0	-433.5	-650.8	781.9	0.00	0.00	0.00
<b>CODELL</b>									
7,120.0	0.00	0.00	7,039.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,079.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,119.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,240.0	0.00	0.00	7,159.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,199.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,320.0	0.00	0.00	7,239.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,279.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,319.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,359.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,399.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,503.8	0.00	0.00	7,423.0	-433.5	-650.8	781.9	0.00	0.00	0.00
<b>D-SAND</b>									
7,520.0	0.00	0.00	7,439.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,479.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,565.8	0.00	0.00	7,485.0	-433.5	-650.8	781.9	0.00	0.00	0.00
<b>J-SAND</b>									
7,600.0	0.00	0.00	7,519.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,640.0	0.00	0.00	7,559.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,680.0	0.00	0.00	7,599.2	-433.5	-650.8	781.9	0.00	0.00	0.00
7,715.8	0.00	0.00	7,635.0	-433.5	-650.8	781.9	0.00	0.00	0.00
<b>HARD LINES 90'S OF BHL</b>									



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Project:</b>	SEC.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4783.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-22D Pad Sec.19-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Butterball D19-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Butterball D19-22D 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 256'	0.00	0.00	6,720.0	-433.5	-650.8	1,321,012.27	3,254,367.19	40.210990	-104.589210
- plan hits target center									
- Circle (radius 75.0)									
HARD LINES 90'S OF	0.00	0.00	7,635.0	-523.5	-750.8	1,320,921.25	3,254,268.09	40.210743	-104.589568
- plan misses target center by 134.6ft at 7715.8ft MD (7635.0 TVD, -433.5 N, -650.8 E)									
- Polygon									
Point 1			7,635.0	0.0	0.0	1,320,921.25	3,254,268.09		
Point 2			7,635.0	0.0	200.0	1,320,923.31	3,254,468.07		
TARGET BHL 2565'F	0.00	0.00	5,000.0	-433.5	-650.8	1,321,012.27	3,254,367.19	40.210990	-104.589210
- 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)				(°)	(°)
6,800.8	6,720.0	NIOBRARA			0.00	
7,096.8	7,016.0	CODELL			0.00	
7,503.8	7,423.0	D-SAND			0.00	
7,565.8	7,485.0	J-SAND			0.00	