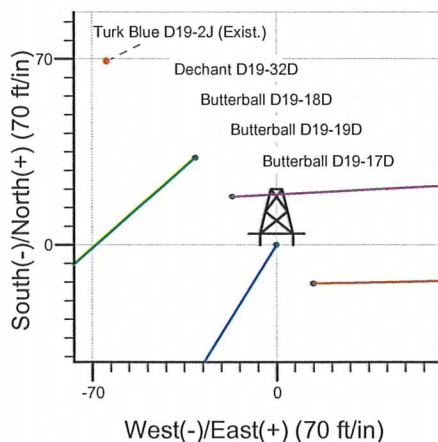
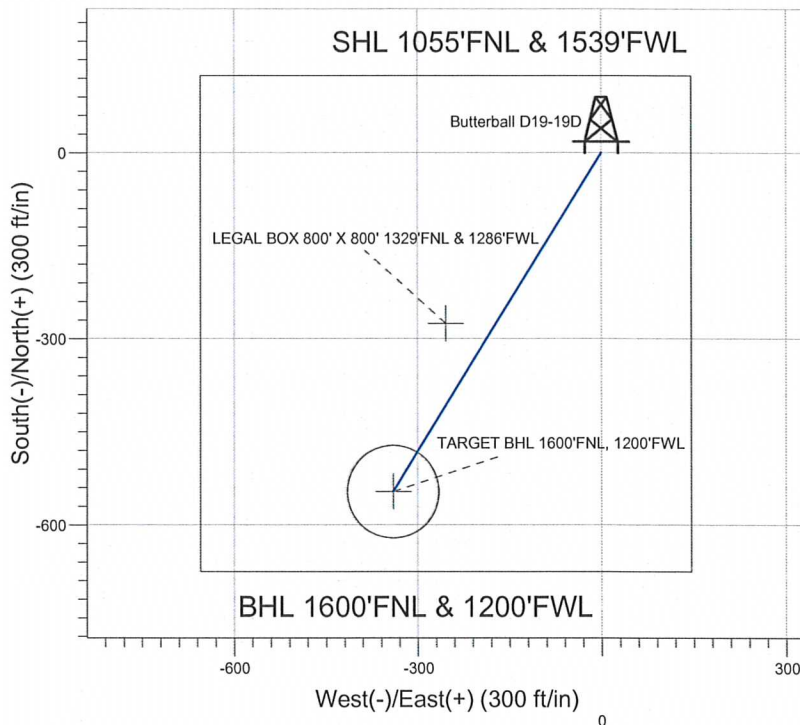
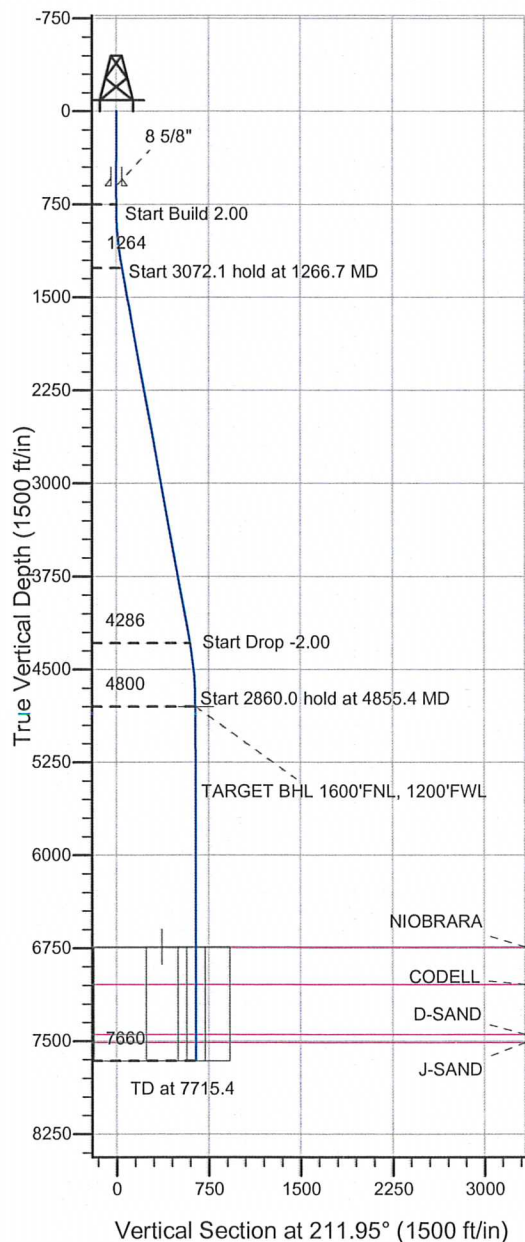


Well Name: Butterball D19-19D

Surface Location: Butterball D19-17D Pad Sec.19-T3N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4790.0

+E/-W	Northing	Easting	Latitude	Longitude
0.0	1322479.37	3252129.01	40.215080	-104.597170
	Original Well Elev	WELL @ 4803.0ft	(Original Well Elev)	

NOBLE ENERGY INC WELD COUNTY CO



Butterball D19-17D Pad Sec.19-T3N-R64W
Butterball D19-19D
Noble Butterball D19-19D Plan #1 (2-15-12)
14:45, February 22 2012



Azimuths to True North
Magnetic North: 8.67°
Magnetic Field
Strength: 52981.8nT
Dip Angle: 66.91°
Date: 2/15/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1600'FNL, 1200'FWL	4800.0	-546.4	-340.7	40.213580	-104.598390	Point
LEGAL BOX 800' X 800' 1329'FNL & 1286'FWL	6741.0	-275.4	-254.7	40.214324	-104.598082	Rectangle (Sides: L800.0 W800.0)
TARGET CIRCLE 1600'FNL & 1200'FWL	6741.0	-546.4	-340.7	40.213580	-104.598390	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	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1266.7	10.33	211.95	1263.9	-39.4	-24.6	2.00	211.95	46.5	
4	4338.8	10.33	211.95	4286.1	-507.0	-316.1	0.00	0.00	597.5	
5	4855.4	0.00	0.00	4800.0	-546.4	-340.7	2.00	180.00	644.0	TARGET BHL 1600'FNL, 1200'FWL
6	7715.4	0.00	0.00	7660.0	-546.4	-340.7	0.00	0.00	644.0	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.19-T3N-R64W

Butterball D19-17D Pad Sec.19-T3N-R64W

Butterball D19-19D

Wellbore #1

Plan: Noble Butterball D19-19D Plan #1 (2-15-12)

Standard Planning Report

22 February, 2012



Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.19-T3N-R64W
 Site: Butterball D19-17D Pad Sec.19-T3N-R64W
 Well: Butterball D19-19D
 Wellbore: Wellbore #1
 Design: Noble Butterball D19-19D Plan #1 (2-15-12)

Local Co-ordinate Reference: Well Butterball D19-19D
 TVD Reference: WELL @ 4803.0ft (Original Well Elev)
 MD Reference: WELL @ 4803.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Project	SEC.19-T3N-R64W, 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	Butterball D19-17D Pad Sec.19-T3N-R64W				
Site Position:		Northing:	1,322,464.95 ft	Latitude:	40.215040
From:	Lat/Long	Easting:	3,252,143.12 ft	Longitude:	-104.597120
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.58 °

Well	Butterball D19-19D					
Well Position	+N/-S	14.6 ft	Northing:	1,322,479.37 ft	Latitude:	40.215080
	+E/-W	-14.0 ft	Easting:	3,252,129.01 ft	Longitude:	-104.597170
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,790.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2012	8.67	66.91	52,982

Design	Noble Butterball D19-19D Plan #1 (2-15-12)			
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	211.95

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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,266.7	10.33	211.95	1,263.9	-39.4	-24.6	2.00	2.00	0.00	211.95	
4,338.8	10.33	211.95	4,286.1	-507.0	-316.1	0.00	0.00	0.00	0.00	
4,855.4	0.00	0.00	4,800.0	-546.4	-340.7	2.00	-2.00	0.00	180.00	TARGET BHL 1600
7,715.4	0.00	0.00	7,660.0	-546.4	-340.7	0.00	0.00	0.00	0.00	

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.19-T3N-R64W
 Site: Butterball D19-17D Pad Sec.19-T3N-R64W
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 Wellbore: Wellbore #1
 Design: Noble Butterball D19-19D Plan #1 (2-15-12)

Local Co-ordinate Reference: Well Butterball D19-19D
 TVD Reference: WELL @ 4803.0ft (Original Well Elev)
 MD Reference: WELL @ 4803.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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
8 5/8"									
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
760.0	0.20	211.95	760.0	0.0	0.0	0.0	2.00	2.00	0.00
800.0	1.00	211.95	800.0	-0.4	-0.2	0.4	2.00	2.00	0.00
840.0	1.80	211.95	840.0	-1.2	-0.7	1.4	2.00	2.00	0.00
880.0	2.60	211.95	880.0	-2.5	-1.6	2.9	2.00	2.00	0.00
920.0	3.40	211.95	919.9	-4.3	-2.7	5.0	2.00	2.00	0.00
960.0	4.20	211.95	959.8	-6.5	-4.1	7.7	2.00	2.00	0.00
1,000.0	5.00	211.95	999.7	-9.3	-5.8	10.9	2.00	2.00	0.00
1,040.0	5.80	211.95	1,039.5	-12.4	-7.8	14.7	2.00	2.00	0.00
1,080.0	6.60	211.95	1,079.3	-16.1	-10.0	19.0	2.00	2.00	0.00
1,120.0	7.40	211.95	1,119.0	-20.2	-12.6	23.9	2.00	2.00	0.00
1,160.0	8.20	211.95	1,158.6	-24.9	-15.5	29.3	2.00	2.00	0.00
1,200.0	9.00	211.95	1,198.2	-29.9	-18.7	35.3	2.00	2.00	0.00
1,240.0	9.80	211.95	1,237.6	-35.5	-22.1	41.8	2.00	2.00	0.00
1,266.7	10.33	211.95	1,263.9	-39.4	-24.6	46.5	2.00	2.00	0.00
1,280.0	10.33	211.95	1,277.0	-41.5	-25.9	48.9	0.00	0.00	0.00
1,320.0	10.33	211.95	1,316.3	-47.5	-29.6	56.0	0.00	0.00	0.00
1,360.0	10.33	211.95	1,355.7	-53.6	-33.4	63.2	0.00	0.00	0.00
1,400.0	10.33	211.95	1,395.0	-59.7	-37.2	70.4	0.00	0.00	0.00
1,440.0	10.33	211.95	1,434.4	-65.8	-41.0	77.6	0.00	0.00	0.00
1,480.0	10.33	211.95	1,473.7	-71.9	-44.8	84.7	0.00	0.00	0.00
1,520.0	10.33	211.95	1,513.1	-78.0	-48.6	91.9	0.00	0.00	0.00
1,560.0	10.33	211.95	1,552.4	-84.1	-52.4	99.1	0.00	0.00	0.00
1,600.0	10.33	211.95	1,591.8	-90.2	-56.2	106.3	0.00	0.00	0.00
1,640.0	10.33	211.95	1,631.1	-96.3	-60.0	113.4	0.00	0.00	0.00
1,680.0	10.33	211.95	1,670.5	-102.3	-63.8	120.6	0.00	0.00	0.00
1,720.0	10.33	211.95	1,709.9	-108.4	-67.6	127.8	0.00	0.00	0.00
1,760.0	10.33	211.95	1,749.2	-114.5	-71.4	135.0	0.00	0.00	0.00
1,800.0	10.33	211.95	1,788.6	-120.6	-75.2	142.1	0.00	0.00	0.00
1,840.0	10.33	211.95	1,827.9	-126.7	-79.0	149.3	0.00	0.00	0.00
1,880.0	10.33	211.95	1,867.3	-132.8	-82.8	156.5	0.00	0.00	0.00
1,920.0	10.33	211.95	1,906.6	-138.9	-86.6	163.7	0.00	0.00	0.00
1,960.0	10.33	211.95	1,946.0	-145.0	-90.4	170.8	0.00	0.00	0.00
2,000.0	10.33	211.95	1,985.3	-151.0	-94.2	178.0	0.00	0.00	0.00

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.19-T3N-R64W
 Site: Butterball D19-17D Pad Sec.19-T3N-R64W
 Well: Butterball D19-19D
 Wellbore: Wellbore #1
 Design: Noble Butterball D19-19D Plan #1 (2-15-12)

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 MD Reference: WELL @ 4803.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	10.33	211.95	2,024.7	-157.1	-98.0	185.2	0.00	0.00	0.00
2,080.0	10.33	211.95	2,064.0	-163.2	-101.8	192.4	0.00	0.00	0.00
2,120.0	10.33	211.95	2,103.4	-169.3	-105.6	199.5	0.00	0.00	0.00
2,160.0	10.33	211.95	2,142.7	-175.4	-109.4	206.7	0.00	0.00	0.00
2,200.0	10.33	211.95	2,182.1	-181.5	-113.2	213.9	0.00	0.00	0.00
2,240.0	10.33	211.95	2,221.4	-187.6	-117.0	221.1	0.00	0.00	0.00
2,280.0	10.33	211.95	2,260.8	-193.7	-120.8	228.2	0.00	0.00	0.00
2,320.0	10.33	211.95	2,300.1	-199.7	-124.6	235.4	0.00	0.00	0.00
2,360.0	10.33	211.95	2,339.5	-205.8	-128.3	242.6	0.00	0.00	0.00
2,400.0	10.33	211.95	2,378.8	-211.9	-132.1	249.8	0.00	0.00	0.00
2,440.0	10.33	211.95	2,418.2	-218.0	-135.9	256.9	0.00	0.00	0.00
2,480.0	10.33	211.95	2,457.5	-224.1	-139.7	264.1	0.00	0.00	0.00
2,520.0	10.33	211.95	2,496.9	-230.2	-143.5	271.3	0.00	0.00	0.00
2,560.0	10.33	211.95	2,536.2	-236.3	-147.3	278.4	0.00	0.00	0.00
2,600.0	10.33	211.95	2,575.6	-242.4	-151.1	285.6	0.00	0.00	0.00
2,640.0	10.33	211.95	2,614.9	-248.5	-154.9	292.8	0.00	0.00	0.00
2,680.0	10.33	211.95	2,654.3	-254.5	-158.7	300.0	0.00	0.00	0.00
2,720.0	10.33	211.95	2,693.6	-260.6	-162.5	307.1	0.00	0.00	0.00
2,760.0	10.33	211.95	2,733.0	-266.7	-166.3	314.3	0.00	0.00	0.00
2,800.0	10.33	211.95	2,772.3	-272.8	-170.1	321.5	0.00	0.00	0.00
2,840.0	10.33	211.95	2,811.7	-278.9	-173.9	328.7	0.00	0.00	0.00
2,880.0	10.33	211.95	2,851.0	-285.0	-177.7	335.8	0.00	0.00	0.00
2,920.0	10.33	211.95	2,890.4	-291.1	-181.5	343.0	0.00	0.00	0.00
2,960.0	10.33	211.95	2,929.7	-297.2	-185.3	350.2	0.00	0.00	0.00
3,000.0	10.33	211.95	2,969.1	-303.2	-189.1	357.4	0.00	0.00	0.00
3,040.0	10.33	211.95	3,008.4	-309.3	-192.9	364.5	0.00	0.00	0.00
3,080.0	10.33	211.95	3,047.8	-315.4	-196.7	371.7	0.00	0.00	0.00
3,120.0	10.33	211.95	3,087.1	-321.5	-200.5	378.9	0.00	0.00	0.00
3,160.0	10.33	211.95	3,126.5	-327.6	-204.3	386.1	0.00	0.00	0.00
3,200.0	10.33	211.95	3,165.8	-333.7	-208.1	393.2	0.00	0.00	0.00
3,240.0	10.33	211.95	3,205.2	-339.8	-211.9	400.4	0.00	0.00	0.00
3,280.0	10.33	211.95	3,244.6	-345.9	-215.7	407.6	0.00	0.00	0.00
3,320.0	10.33	211.95	3,283.9	-352.0	-219.5	414.8	0.00	0.00	0.00
3,360.0	10.33	211.95	3,323.3	-358.0	-223.3	421.9	0.00	0.00	0.00
3,400.0	10.33	211.95	3,362.6	-364.1	-227.1	429.1	0.00	0.00	0.00
3,440.0	10.33	211.95	3,402.0	-370.2	-230.8	436.3	0.00	0.00	0.00
3,480.0	10.33	211.95	3,441.3	-376.3	-234.6	443.5	0.00	0.00	0.00
3,520.0	10.33	211.95	3,480.7	-382.4	-238.4	450.6	0.00	0.00	0.00
3,560.0	10.33	211.95	3,520.0	-388.5	-242.2	457.8	0.00	0.00	0.00
3,600.0	10.33	211.95	3,559.4	-394.6	-246.0	465.0	0.00	0.00	0.00
3,640.0	10.33	211.95	3,598.7	-400.7	-249.8	472.2	0.00	0.00	0.00
3,680.0	10.33	211.95	3,638.1	-406.7	-253.6	479.3	0.00	0.00	0.00
3,720.0	10.33	211.95	3,677.4	-412.8	-257.4	486.5	0.00	0.00	0.00
3,760.0	10.33	211.95	3,716.8	-418.9	-261.2	493.7	0.00	0.00	0.00
3,800.0	10.33	211.95	3,756.1	-425.0	-265.0	500.9	0.00	0.00	0.00
3,840.0	10.33	211.95	3,795.5	-431.1	-268.8	508.0	0.00	0.00	0.00
3,880.0	10.33	211.95	3,834.8	-437.2	-272.6	515.2	0.00	0.00	0.00
3,920.0	10.33	211.95	3,874.2	-443.3	-276.4	522.4	0.00	0.00	0.00
3,960.0	10.33	211.95	3,913.5	-449.4	-280.2	529.6	0.00	0.00	0.00
4,000.0	10.33	211.95	3,952.9	-455.5	-284.0	536.7	0.00	0.00	0.00
4,040.0	10.33	211.95	3,992.2	-461.5	-287.8	543.9	0.00	0.00	0.00
4,080.0	10.33	211.95	4,031.6	-467.6	-291.6	551.1	0.00	0.00	0.00
4,120.0	10.33	211.95	4,070.9	-473.7	-295.4	558.3	0.00	0.00	0.00
4,160.0	10.33	211.95	4,110.3	-479.8	-299.2	565.4	0.00	0.00	0.00

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.19-T3N-R64W
 Site: Butterball D19-17D Pad Sec.19-T3N-R64W
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 Design: Noble Butterball D19-19D Plan #1 (2-15-12)

Local Co-ordinate Reference: Well Butterball D19-19D
 TVD Reference: WELL @ 4803.0ft (Original Well Elev)
 MD Reference: WELL @ 4803.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	10.33	211.95	4,149.6	-485.9	-303.0	572.6	0.00	0.00	0.00
4,240.0	10.33	211.95	4,189.0	-492.0	-306.8	579.8	0.00	0.00	0.00
4,280.0	10.33	211.95	4,228.3	-498.1	-310.6	587.0	0.00	0.00	0.00
4,320.0	10.33	211.95	4,267.7	-504.2	-314.4	594.1	0.00	0.00	0.00
4,338.8	10.33	211.95	4,286.1	-507.0	-316.1	597.5	0.00	0.00	0.00
4,360.0	9.91	211.95	4,307.0	-510.2	-318.1	601.2	2.00	-2.00	0.00
4,400.0	9.11	211.95	4,346.5	-515.8	-321.6	607.8	2.00	-2.00	0.00
4,440.0	8.31	211.95	4,386.0	-520.9	-324.8	613.9	2.00	-2.00	0.00
4,480.0	7.51	211.95	4,425.7	-525.6	-327.7	619.4	2.00	-2.00	0.00
4,520.0	6.71	211.95	4,465.3	-529.8	-330.4	624.4	2.00	-2.00	0.00
4,560.0	5.91	211.95	4,505.1	-533.5	-332.7	628.8	2.00	-2.00	0.00
4,600.0	5.11	211.95	4,544.9	-536.8	-334.7	632.6	2.00	-2.00	0.00
4,640.0	4.31	211.95	4,584.8	-539.6	-336.4	635.9	2.00	-2.00	0.00
4,680.0	3.51	211.95	4,624.7	-541.9	-337.9	638.6	2.00	-2.00	0.00
4,720.0	2.71	211.95	4,664.6	-543.7	-339.0	640.8	2.00	-2.00	0.00
4,760.0	1.91	211.95	4,704.6	-545.1	-339.9	642.4	2.00	-2.00	0.00
4,800.0	1.11	211.95	4,744.6	-546.0	-340.4	643.4	2.00	-2.00	0.00
4,840.0	0.31	211.95	4,784.6	-546.4	-340.7	643.9	2.00	-2.00	0.00
4,855.4	0.00	0.00	4,800.0	-546.4	-340.7	644.0	2.00	-2.00	0.00
TARGET BHL 1600'FNL, 1200'FWL									
4,880.0	0.00	0.00	4,824.6	-546.4	-340.7	644.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,864.6	-546.4	-340.7	644.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,904.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,944.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,040.0	0.00	0.00	4,984.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,024.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,064.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,104.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,144.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,184.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,224.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,264.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,304.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,344.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,384.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,424.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,464.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,504.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,544.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,584.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,624.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,664.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,704.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,744.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,784.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,824.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,864.6	-546.4	-340.7	644.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,904.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,944.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,984.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,080.0	0.00	0.00	6,024.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,064.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,104.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,144.6	-546.4	-340.7	644.0	0.00	0.00	0.00

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.19-T3N-R64W
 Site: Butterball D19-17D Pad Sec.19-T3N-R64W
 Well: Butterball D19-19D
 Wellbore: Wellbore #1
 Design: Noble Butterball D19-19D Plan #1 (2-15-12)

Local Co-ordinate Reference: Well Butterball D19-19D
 TVD Reference: WELL @ 4803.0ft (Original Well Elev)
 MD Reference: WELL @ 4803.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	6,184.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,224.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,264.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,304.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,344.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,384.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,424.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,464.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,504.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,544.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,584.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,624.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,664.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,704.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,796.4	0.00	0.00	6,741.0	-546.4	-340.7	644.0	0.00	0.00	0.00
NIOBRARA - LEGAL BOX 800' X 800' 1329'FNL & 1286'FWL - TARGET CIRCLE 1600'FNL & 1200'FWL									
6,800.0	0.00	0.00	6,744.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,784.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,824.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,864.6	-546.4	-340.7	644.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,904.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,944.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,984.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,080.0	0.00	0.00	7,024.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,097.4	0.00	0.00	7,042.0	-546.4	-340.7	644.0	0.00	0.00	0.00
CODELL									
7,120.0	0.00	0.00	7,064.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,160.0	0.00	0.00	7,104.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,144.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,184.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,280.0	0.00	0.00	7,224.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,264.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,304.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,344.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,440.0	0.00	0.00	7,384.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,424.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,500.4	0.00	0.00	7,445.0	-546.4	-340.7	644.0	0.00	0.00	0.00
D-SAND									
7,520.0	0.00	0.00	7,464.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,504.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,565.4	0.00	0.00	7,510.0	-546.4	-340.7	644.0	0.00	0.00	0.00
J-SAND									
7,600.0	0.00	0.00	7,544.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,584.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,624.6	-546.4	-340.7	644.0	0.00	0.00	0.00
7,715.4	0.00	0.00	7,660.0	-546.4	-340.7	644.0	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.19-T3N-R64W
Site: Butterball D19-17D Pad Sec.19-T3N-R64W
Well: Butterball D19-19D
Wellbore: Wellbore #1
Design: Noble Butterball D19-19D Plan #1 (2-15-12)

Local Co-ordinate Reference: Well Butterball D19-19D
TVD Reference: WELL @ 4803.0ft (Original Well Elev)
MD Reference: WELL @ 4803.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET BHL 1600'F - plan hits target center - Point	0.00	0.00	4,800.0	-546.4	-340.7	1,321,929.51	3,251,793.88	40.213580	-104.598390
LEGAL BOX 800' X 8' - plan misses target center by 284.4ft at 6796.4ft MD (6741.0 TVD, -546.4 N, -340.7 E) - Rectangle (sides W800.0 H800.0 D919.0)	0.00	0.00	6,741.0	-275.4	-254.7	1,322,201.40	3,251,877.14	40.214324	-104.598082
TARGET CIRCLE 16' - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,741.0	-546.4	-340.7	1,321,929.51	3,251,793.88	40.213580	-104.598390

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
600.0	600.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,796.4	6,741.0	NIOBRARA		0.00	
7,097.4	7,042.0	CODELL		0.00	
7,500.4	7,445.0	D-SAND		0.00	
7,565.4	7,510.0	J-SAND		0.00	