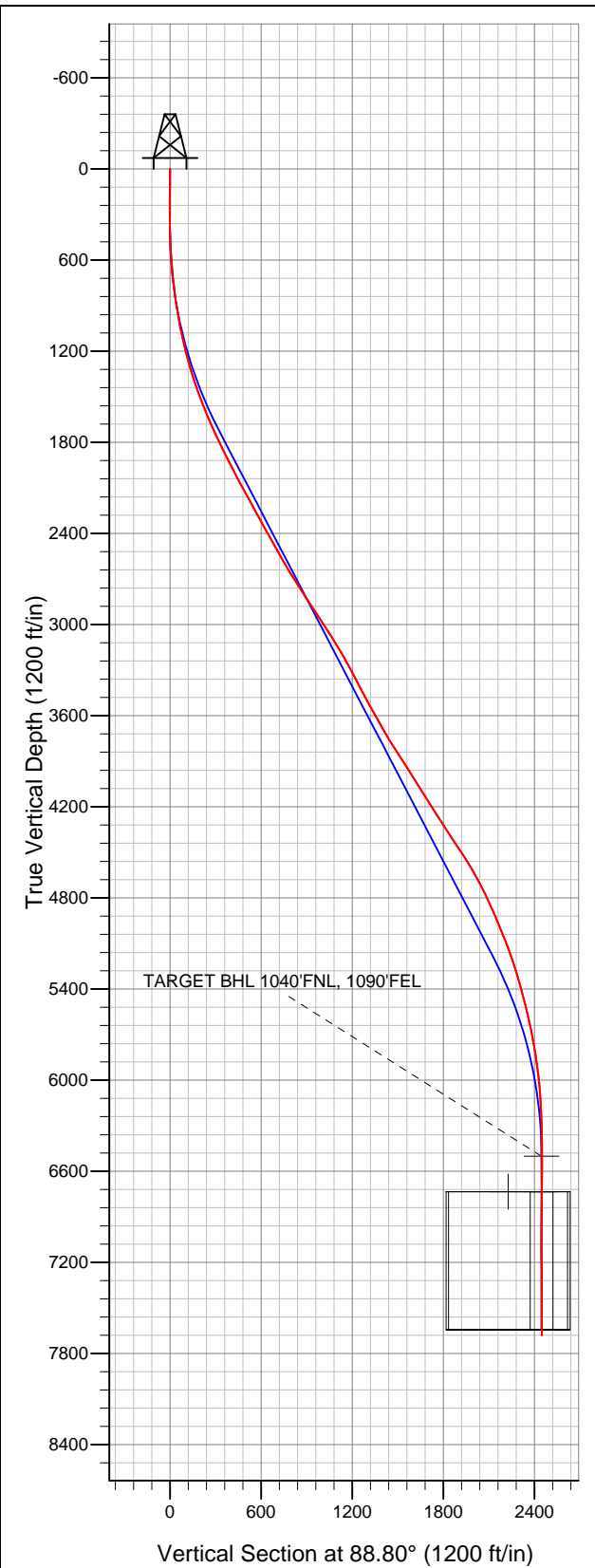


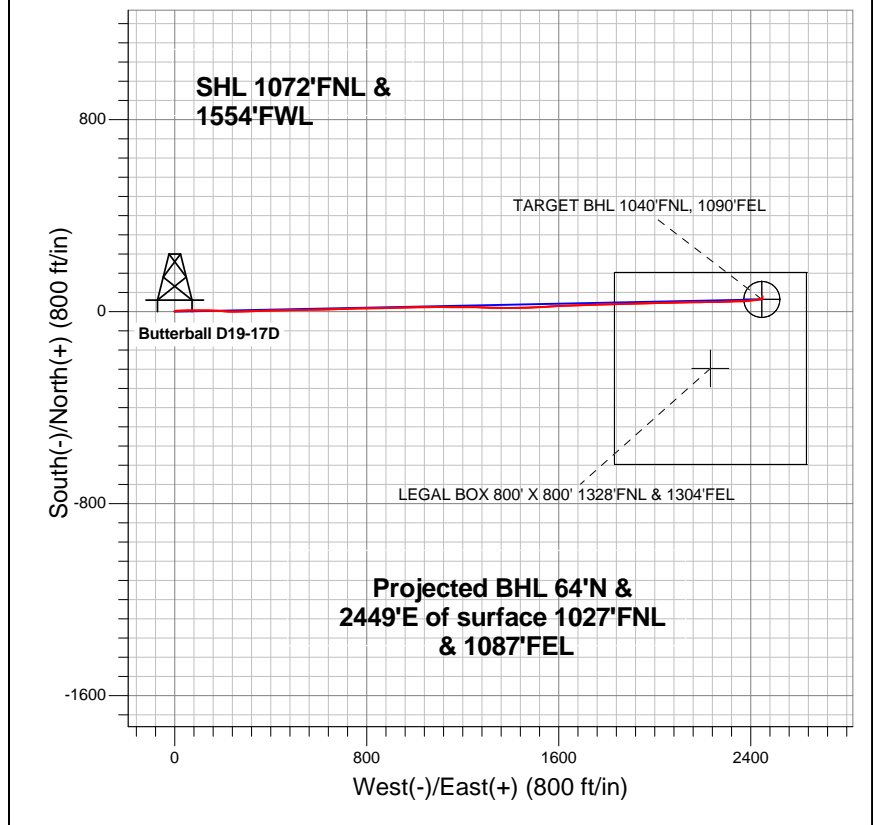
**Well Name: Butterball D19-17D**

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1322464.94	3252143.12	40.215040	-104.597120	
Original Well Elev			WELL @ 4803.0ft (Original Well Elev)			



**NOBLE ENERGY INC WELD COUNTY CO**



- LEGEND**
- Wellbore #1
  - Butterball D19-17D, Wellbore #1, Noble Butterball D19-17D Plan #2 (6-14-12) R V0
  - Survey #1

**Final Survey Plot**

Projected Final Survey -  
8265'MD & 7679'TVD @ 2450'VS  
0.50 deg Inc 51.70 deg AZ

Project: SEC.19-T3N-R64W  
Site: Butterball D19-17D Pad Sec.19-T3N-R64W  
Well: Butterball D19-17D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.19-T3N-R64W**

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

**Butterball D19-17D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**25 June, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-17D
<b>Project:</b>	SEC.19-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-17D Pad Sec.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Well:</b>	Butterball D19-17D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

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

Well	Butterball D19-17D					
Well Position	+N/-S	0.0 ft	Northing:	1,322,464.94 ft	Latitude:	40.215040
	+E/-W	0.0 ft	Easting:	3,252,143.12 ft	Longitude:	-104.597120
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,790.0 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	6/14/2012	8.62	66.89	52,947

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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>	
	6,500.0	0.0	0.0	88.80	

<b>Survey Program</b>	<b>Date</b>	6/25/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
104.0	8,265.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
104.0	0.50	334.50	104.0	0.4	-0.2	-0.2	0.48	0.48	0.00	
193.0	0.50	316.10	193.0	1.0	-0.6	-0.6	0.18	0.00	-20.67	
283.0	0.40	344.70	283.0	1.6	-1.0	-1.0	0.27	-0.11	31.78	
387.0	0.90	73.50	387.0	2.2	-0.3	-0.3	0.94	0.48	85.38	
515.0	2.80	79.30	514.9	3.1	3.7	3.8	1.49	1.48	4.53	
642.0	5.10	87.70	641.6	3.9	12.4	12.5	1.86	1.81	6.61	
685.0	6.00	87.70	684.4	4.0	16.6	16.7	2.09	2.09	0.00	
768.0	6.40	86.00	766.9	4.5	25.5	25.6	0.53	0.48	-2.05	
897.0	8.40	91.10	894.8	4.9	42.1	42.2	1.63	1.55	3.95	
1,025.0	10.60	89.50	1,021.1	4.8	63.2	63.3	1.73	1.72	-1.25	
1,153.0	13.40	87.90	1,146.3	5.4	89.8	89.9	2.20	2.19	-1.25	
1,282.0	15.80	90.40	1,271.1	5.9	122.4	122.4	1.92	1.86	1.94	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-17D
<b>Project:</b>	SEC.19-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-17D Pad Sec.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Well:</b>	Butterball D19-17D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

**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)
1,410.0	18.30	93.00	1,393.5	4.7	159.9	159.9	2.04	1.95	2.03
1,539.0	21.20	94.10	1,514.9	2.0	203.4	203.3	2.27	2.25	0.85
1,667.0	22.40	89.30	1,633.7	0.6	250.8	250.8	1.68	0.94	-3.75
1,795.0	25.20	88.60	1,750.8	1.6	302.5	302.4	2.20	2.19	-0.55
1,924.0	26.60	87.90	1,866.9	3.3	358.8	358.8	1.11	1.09	-0.54
2,052.0	27.00	88.40	1,981.1	5.2	416.5	416.5	0.36	0.31	0.39
2,181.0	27.80	89.30	2,095.6	6.3	475.8	475.8	0.70	0.62	0.70
2,309.0	29.80	89.70	2,207.8	6.9	537.5	537.5	1.57	1.56	0.31
2,437.0	29.00	86.90	2,319.3	8.7	600.3	600.3	1.24	-0.63	-2.19
2,566.0	28.80	89.10	2,432.3	10.9	662.6	662.6	0.84	-0.16	1.71
2,694.0	29.30	87.90	2,544.2	12.5	724.7	724.8	0.60	0.39	-0.94
2,823.0	31.60	89.30	2,655.4	14.1	790.0	790.2	1.87	1.78	1.09
2,951.0	32.80	88.60	2,763.7	15.4	858.2	858.4	0.98	0.94	-0.55
3,079.0	33.80	89.70	2,870.6	16.4	928.5	928.6	0.91	0.78	0.86
3,208.0	33.10	88.40	2,978.3	17.6	999.6	999.7	0.78	-0.54	-1.01
3,336.0	31.10	88.30	3,086.7	19.5	1,067.6	1,067.8	1.56	-1.56	-0.08
3,465.0	31.00	91.80	3,197.2	19.5	1,134.1	1,134.3	1.40	-0.08	2.71
3,593.0	28.00	89.30	3,308.6	18.8	1,197.1	1,197.2	2.53	-2.34	-1.95
3,721.0	27.30	90.90	3,422.0	18.7	1,256.5	1,256.6	0.80	-0.55	1.25
3,850.0	29.00	92.50	3,535.8	16.9	1,317.3	1,317.4	1.44	1.32	1.24
3,978.0	29.60	90.50	3,647.4	15.2	1,379.9	1,379.9	0.90	0.47	-1.56
4,107.0	31.00	88.30	3,758.8	15.9	1,445.0	1,445.0	1.38	1.09	-1.71
4,235.0	33.10	87.20	3,867.2	18.6	1,512.9	1,512.9	1.70	1.64	-0.86
4,363.0	33.00	86.10	3,974.5	22.7	1,582.5	1,582.7	0.48	-0.08	-0.86
4,492.0	31.00	87.90	4,083.9	26.3	1,650.8	1,651.0	1.72	-1.55	1.40
4,620.0	32.50	89.30	4,192.8	27.9	1,718.1	1,718.3	1.31	1.17	1.09
4,749.0	33.00	87.70	4,301.3	29.8	1,787.9	1,788.1	0.77	0.39	-1.24
4,877.0	34.00	88.40	4,408.0	32.2	1,858.5	1,858.8	0.84	0.78	0.55
5,005.0	33.10	88.60	4,514.7	34.0	1,929.2	1,929.5	0.71	-0.70	0.16
5,134.0	29.50	88.60	4,624.9	35.7	1,996.2	1,996.5	2.79	-2.79	0.00
5,262.0	27.40	87.90	4,737.4	37.5	2,057.1	2,057.5	1.66	-1.64	-0.55
5,391.0	23.50	88.80	4,853.9	39.1	2,112.5	2,112.9	3.04	-3.02	0.70
5,519.0	23.00	90.00	4,971.5	39.7	2,163.1	2,163.4	0.54	-0.39	0.94
5,647.0	21.40	88.80	5,090.0	40.2	2,211.4	2,211.8	1.30	-1.25	-0.94
5,776.0	18.80	90.20	5,211.1	40.6	2,255.7	2,256.1	2.05	-2.02	1.09
5,904.0	16.40	86.30	5,333.1	41.7	2,294.4	2,294.8	2.09	-1.88	-3.05
6,033.0	14.20	90.70	5,457.6	42.7	2,328.4	2,328.8	1.93	-1.71	3.41
6,161.0	13.10	87.90	5,581.9	43.0	2,358.6	2,359.0	1.00	-0.86	-2.19
6,289.0	11.30	84.40	5,707.0	44.8	2,385.6	2,386.0	1.52	-1.41	-2.73
6,418.0	8.50	82.50	5,834.1	47.2	2,407.6	2,408.1	2.18	-2.17	-1.47
6,546.0	6.80	82.60	5,961.0	49.4	2,424.5	2,425.0	1.33	-1.33	0.08
6,675.0	5.30	80.30	6,089.2	51.4	2,438.0	2,438.5	1.18	-1.16	-1.78
6,803.0	1.70	54.30	6,217.0	53.5	2,445.3	2,445.9	3.00	-2.81	-20.31
6,931.0	1.40	49.80	6,344.9	55.7	2,448.1	2,448.7	0.25	-0.23	-3.52
7,060.0	0.70	325.60	6,473.9	57.3	2,448.8	2,449.5	1.16	-0.54	-65.27
7,086.0	0.63	328.51	6,500.0	57.6	2,448.7	2,449.3	0.29	-0.26	11.19
<b>TARGET BHL 1040'FNL, 1090'FEL</b>									
7,188.0	0.40	348.90	6,601.9	58.4	2,448.3	2,449.0	0.29	-0.23	19.99
7,317.0	0.50	333.30	6,730.9	59.4	2,448.0	2,448.7	0.12	0.08	-12.09
7,318.6	0.50	333.44	6,732.5	59.4	2,448.0	2,448.7	0.10	0.07	8.48
<b>LEGAL BOX 800' X 800' 1328'FNL &amp; 1304'FEL</b>									
7,320.0	0.50	333.55	6,733.9	59.4	2,447.9	2,448.7	0.10	0.07	8.44
<b>TARGET CIRCLE 1040'FNL &amp; 1090'FEL</b>									
7,445.0	0.60	342.40	6,858.9	60.5	2,447.5	2,448.2	0.10	0.08	7.08

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Butterball D19-17D
<b>Project:</b>	SEC.19-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Site:</b>	Butterball D19-17D Pad Sec.19-T3N-R64W	<b>MD Reference:</b>	WELL @ 4803.0ft (Original Well Elev)
<b>Well:</b>	Butterball D19-17D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

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)
7,573.0	0.50	3.20	6,986.9	61.7	2,447.3	2,448.1	0.17	-0.08	16.25
7,702.0	0.30	351.40	7,115.9	62.6	2,447.3	2,448.1	0.17	-0.16	-9.15
7,830.0	0.40	205.90	7,243.9	62.5	2,447.1	2,447.8	0.52	0.08	-113.67
7,959.0	0.40	66.60	7,372.9	62.3	2,447.3	2,448.1	0.58	0.00	-107.98
8,087.0	0.40	53.80	7,500.9	62.7	2,448.1	2,448.8	0.07	0.00	-10.00
8,223.0	0.50	51.70	7,636.9	63.4	2,448.9	2,449.7	0.07	0.07	-1.54
8,265.0	0.50	51.70	7,678.9	63.6	2,449.2	2,450.0	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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