

Well Name: **Orr USX A03-15D**

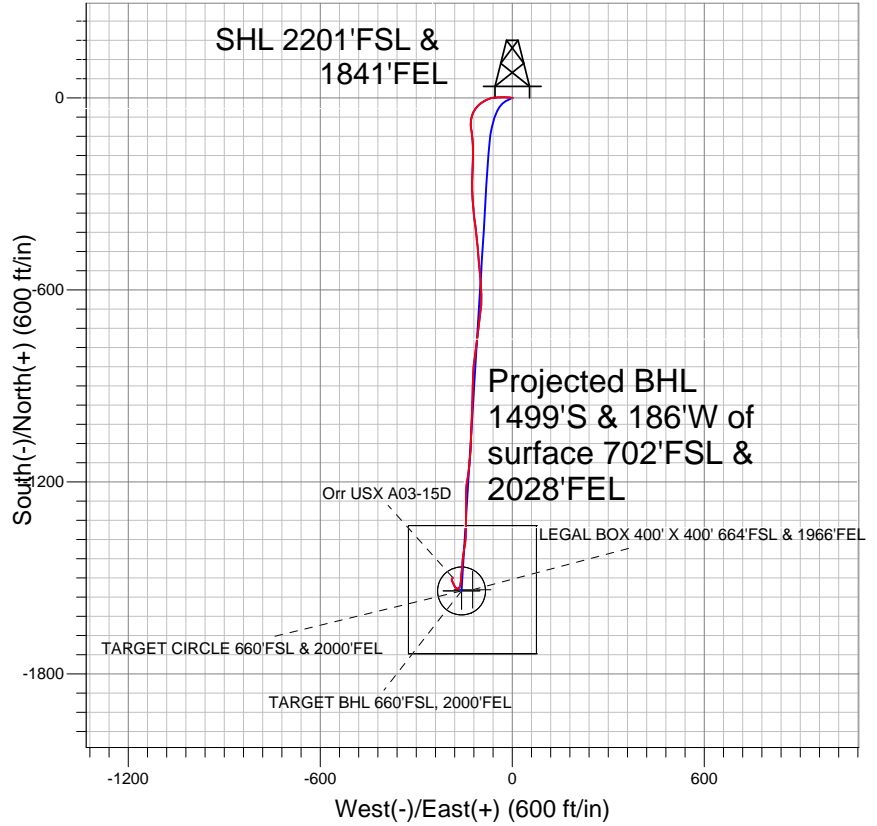
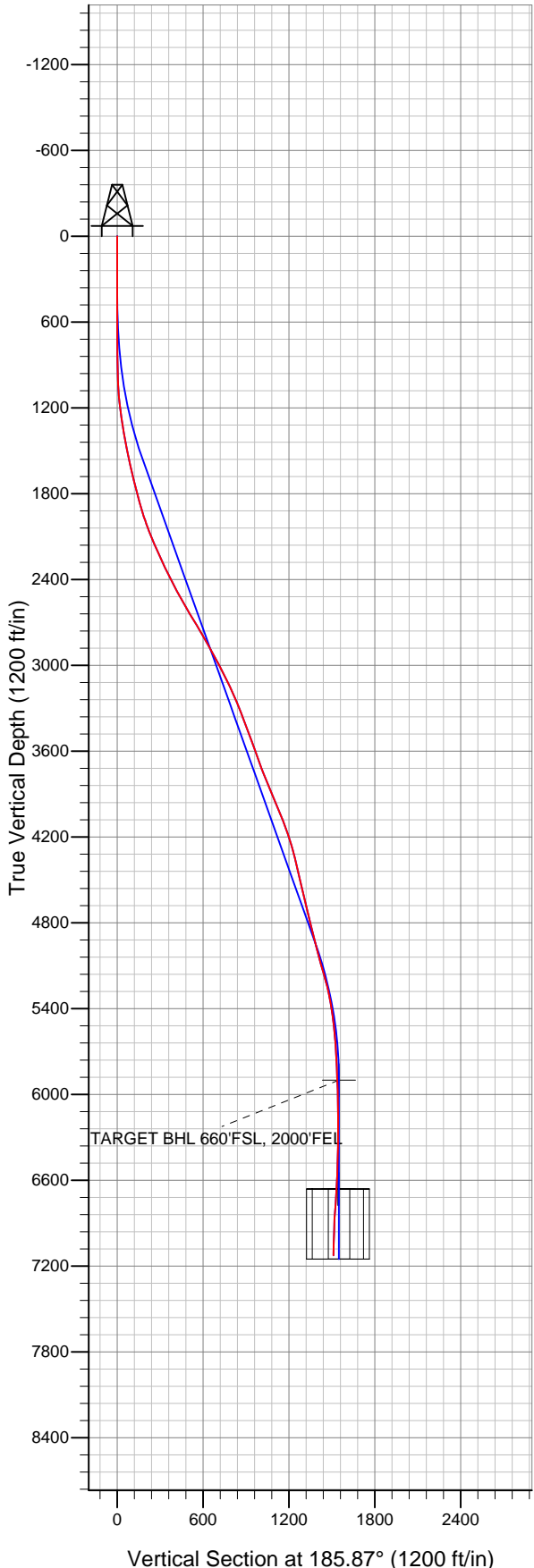
Surface Location: Rogers, Egge, and Orr Pad Sec.3-T6N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4768.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1431563.01	3268766.69	40.514020	-104.533340	

Original Well Elev WELL @ 4781.0ft (Original Well Elev)

## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Orr USX A03-15D, Wellbore #1, Noble Orr USX A03-15D Plan #1 (6-01-11) VO
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7421'MD & 7126'TVD @ 1510'VS  
 1.4 deg Inc 29.5 deg AZ

Project: SEC.3-T6N-R64W  
 Site: Rogers, Egge, and Orr Pad Sec.3-T6N-R64W  
 Well: Orr USX A03-15D  
 Plan: Wellbore #1



## Directional

# NOBLE ENERGY INC WELD COUNTY CO

SEC.3-T6N-R64W

Rogers, Egge, and Orr Pad Sec.3-T6N-R64W

Orr USX A03-15D

Wellbore #1

Survey: Survey #1

## Standard Survey Report

19 August, 2011



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Orr USX A03-15D
<b>Project:</b>	SEC.3-T6N-R64W	<b>TVD Reference:</b>	WELL @ 4781.0ft (Original Well Elev)
<b>Site:</b>	Rogers, Egge, and Orr Pad Sec.3-T6N-R64W	<b>MD Reference:</b>	WELL @ 4781.0ft (Original Well Elev)
<b>Well:</b>	Orr USX A03-15D	<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.3-T6N-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

<b>Site</b>	Rogers, Egge, and Orr Pad Sec.3-T6N-R64W				
<b>Site Position:</b>		<b>Northing:</b>	1,431,606.73ft	<b>Latitude:</b>	40.514140
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,268,766.21ft	<b>Longitude:</b>	-104.533340
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.62 °

<b>Well</b>	Orr USX A03-15D					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,431,563.01 ft	<b>Latitude:</b>	40.514020
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,268,766.69 ft	<b>Longitude:</b>	-104.533340
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,768.0 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	6/1/2011	8.76	67.18	53,220

<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>	
	0.0	0.0	0.0	185.87	

<b>Survey Program</b>	<b>Date</b>	8/19/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
102.0	7,421.0	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	0.00
102.0	0.70	98.20	102.0	-0.1	0.6	0.0	0.69	0.69	0.00	0.00
165.0	0.20	280.70	165.0	-0.1	0.9	0.0	1.43	-0.79	-281.75	-281.75
258.0	0.60	288.80	258.0	0.1	0.3	-0.1	0.43	0.43	8.71	8.71
351.0	1.60	263.10	351.0	0.1	-1.5	0.1	1.17	1.08	-27.63	-27.63
422.0	0.90	288.40	422.0	0.1	-3.0	0.2	1.23	-0.99	35.63	35.63
504.0	1.70	281.00	503.9	0.6	-4.8	-0.1	0.99	0.98	-9.02	-9.02
586.0	2.90	279.60	585.9	1.1	-8.0	-0.3	1.46	1.46	-1.71	-1.71
668.0	4.20	275.10	667.7	1.7	-13.1	-0.4	1.62	1.59	-5.49	-5.49
749.0	5.50	266.20	748.4	1.8	-19.9	0.3	1.85	1.60	-10.99	-10.99
790.0	6.20	262.10	789.2	1.3	-24.1	1.1	1.99	1.71	-10.00	-10.00
873.0	7.20	274.00	871.6	1.1	-33.7	2.4	2.06	1.20	14.34	14.34
955.0	8.40	269.60	952.9	1.4	-44.8	3.2	1.63	1.46	-5.37	-5.37

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Orr USX A03-15D
<b>Project:</b>	SEC.3-T6N-R64W	<b>TVD Reference:</b>	WELL @ 4781.0ft (Original Well Elev)
<b>Site:</b>	Rogers, Egge, and Orr Pad Sec.3-T6N-R64W	<b>MD Reference:</b>	WELL @ 4781.0ft (Original Well Elev)
<b>Well:</b>	Orr USX A03-15D	<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)	
1,036.0	10.20	263.50	1,032.8	0.5	-57.8	5.4	2.53	2.22	-7.53	
1,118.0	11.10	249.20	1,113.4	-3.1	-72.4	10.5	3.39	1.10	-17.44	
1,200.0	11.60	242.00	1,193.8	-9.8	-87.1	18.6	1.83	0.61	-8.78	
1,282.0	11.50	229.50	1,274.2	-19.0	-100.6	29.1	3.05	-0.12	-15.24	
1,363.0	12.20	219.30	1,353.5	-30.8	-112.2	42.1	2.72	0.86	-12.59	
1,445.0	11.90	207.20	1,433.7	-45.0	-121.5	57.2	3.10	-0.37	-14.76	
1,527.0	11.80	192.10	1,513.9	-60.8	-127.1	73.5	3.77	-0.12	-18.41	
1,609.0	12.40	184.40	1,594.1	-77.7	-129.6	90.6	2.10	0.73	-9.39	
1,690.0	13.10	171.30	1,673.1	-95.5	-128.8	108.2	3.66	0.86	-16.17	
1,772.0	14.10	172.40	1,752.8	-114.6	-126.1	126.9	1.26	1.22	1.34	
1,854.0	15.00	177.50	1,832.2	-135.1	-124.3	147.1	1.91	1.10	6.22	
1,936.0	17.50	176.60	1,910.9	-158.0	-123.1	169.8	3.06	3.05	-1.10	
2,017.0	19.30	181.70	1,987.8	-183.5	-122.8	195.1	2.98	2.22	6.30	
2,099.0	21.40	182.00	2,064.7	-212.0	-123.7	223.6	2.56	2.56	0.37	
2,181.0	22.90	181.90	2,140.6	-242.9	-124.8	254.4	1.83	1.83	-0.12	
2,262.0	23.70	180.10	2,215.0	-275.0	-125.3	286.3	1.32	0.99	-2.22	
2,344.0	25.70	177.00	2,289.5	-309.2	-124.4	320.3	2.91	2.44	-3.78	
2,426.0	27.10	174.70	2,362.9	-345.6	-121.8	356.2	2.11	1.71	-2.80	
2,508.0	27.90	172.40	2,435.7	-383.2	-117.5	393.2	1.62	0.98	-2.80	
2,589.0	28.80	173.80	2,507.0	-421.4	-112.9	430.7	1.38	1.11	1.73	
2,671.0	31.00	174.90	2,578.1	-462.0	-108.9	470.8	2.76	2.68	1.34	
2,753.0	31.50	174.30	2,648.2	-504.4	-104.9	512.5	0.72	0.61	-0.73	
2,835.0	30.90	175.20	2,718.3	-546.7	-101.0	554.1	0.93	-0.73	1.10	
2,916.0	29.90	176.40	2,788.2	-587.6	-98.0	594.5	1.44	-1.23	1.48	
2,998.0	29.10	180.10	2,859.5	-627.9	-96.7	634.5	2.43	-0.98	4.51	
3,080.0	29.40	187.30	2,931.1	-667.8	-99.3	674.5	4.30	0.37	8.78	
3,162.0	28.10	186.80	3,003.0	-707.0	-104.2	713.9	1.61	-1.59	-0.61	
3,243.0	26.00	186.60	3,075.1	-743.5	-108.5	750.7	2.60	-2.59	-0.25	
3,325.0	25.60	186.60	3,149.0	-779.0	-112.6	786.4	0.49	-0.49	0.00	
3,407.0	24.20	189.30	3,223.3	-813.2	-117.3	820.9	2.20	-1.71	3.29	
3,489.0	20.80	183.70	3,299.1	-844.3	-121.0	852.3	4.90	-4.15	-6.83	
3,570.0	20.60	183.10	3,374.9	-872.9	-122.7	880.9	0.36	-0.25	-0.74	
3,652.0	20.70	181.40	3,451.6	-901.8	-123.8	909.7	0.74	0.12	-2.07	
3,734.0	20.50	181.00	3,528.3	-930.6	-124.4	938.5	0.30	-0.24	-0.49	
3,816.0	19.70	183.80	3,605.4	-958.8	-125.6	966.6	1.53	-0.98	3.41	
3,897.0	19.60	181.40	3,681.6	-986.0	-126.8	993.8	1.00	-0.12	-2.96	
3,979.0	21.00	180.80	3,758.5	-1,014.4	-127.4	1,022.1	1.73	1.71	-0.73	
4,061.0	22.60	180.00	3,834.7	-1,044.9	-127.6	1,052.4	1.98	1.95	-0.98	
4,143.0	23.20	183.30	3,910.2	-1,076.8	-128.5	1,084.2	1.73	0.73	4.02	
4,224.0	23.70	184.00	3,984.5	-1,108.9	-130.6	1,116.5	0.71	0.62	0.86	
4,306.0	21.50	187.20	4,060.2	-1,140.3	-133.6	1,148.0	3.07	-2.68	3.90	
4,388.0	19.60	185.90	4,137.0	-1,168.9	-136.9	1,176.7	2.38	-2.32	-1.59	
4,469.0	17.60	189.50	4,213.8	-1,194.5	-140.3	1,202.5	2.85	-2.47	4.44	
4,551.0	15.70	184.40	4,292.3	-1,217.8	-143.2	1,226.0	2.92	-2.32	-6.22	
4,633.0	13.60	182.30	4,371.7	-1,238.4	-144.5	1,246.7	2.64	-2.56	-2.56	
4,715.0	12.70	180.50	4,451.5	-1,257.1	-144.9	1,265.3	1.21	-1.10	-2.20	
4,796.0	12.90	178.70	4,530.5	-1,275.0	-144.8	1,283.2	0.55	0.25	-2.22	
4,878.0	14.90	183.10	4,610.1	-1,294.7	-145.2	1,302.8	2.76	2.44	5.37	
4,960.0	13.30	176.30	4,689.6	-1,314.7	-145.1	1,322.6	2.81	-1.95	-8.29	
5,042.0	12.80	179.60	4,769.5	-1,333.2	-144.4	1,340.9	1.09	-0.61	4.02	
5,123.0	14.30	182.60	4,848.3	-1,352.1	-144.8	1,359.8	2.04	1.85	3.70	
5,205.0	14.80	181.20	4,927.6	-1,372.7	-145.5	1,380.4	0.75	0.61	-1.71	
5,287.0	14.40	190.50	5,007.0	-1,393.2	-147.6	1,401.0	2.90	-0.49	11.34	
5,369.0	15.70	188.80	5,086.2	-1,414.2	-151.1	1,422.2	1.67	1.59	-2.07	

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<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)	
5,450.0	16.40	185.80	5,164.0	-1,436.4	-154.0	1,444.6	1.34	0.86	-3.70	
5,532.0	13.50	184.20	5,243.2	-1,457.5	-155.8	1,465.8	3.57	-3.54	-1.95	
5,614.0	11.30	186.50	5,323.3	-1,475.0	-157.5	1,483.4	2.75	-2.68	2.80	
5,696.0	9.10	184.40	5,404.0	-1,489.5	-158.9	1,497.9	2.72	-2.68	-2.56	
5,777.0	7.20	185.80	5,484.2	-1,500.9	-159.9	1,509.4	2.36	-2.35	1.73	
5,859.0	5.30	185.60	5,565.7	-1,509.8	-160.8	1,518.3	2.32	-2.32	-0.24	
5,941.0	4.00	180.80	5,647.4	-1,516.4	-161.2	1,524.9	1.65	-1.59	-5.85	
6,023.0	3.20	192.10	5,729.3	-1,521.5	-161.7	1,530.1	1.30	-0.98	13.78	
6,104.0	2.60	201.80	5,810.2	-1,525.4	-162.8	1,534.1	0.95	-0.74	11.98	
6,186.0	2.50	209.80	5,892.1	-1,528.7	-164.4	1,537.5	0.45	-0.12	9.76	
6,194.2	2.43	210.78	5,900.2	-1,529.0	-164.6	1,537.8	1.05	-0.91	12.02	
<b>TARGET BHL 660'FSL, 2000'FEL</b>										
6,268.0	1.80	223.20	5,974.0	-1,531.2	-166.2	1,540.2	1.05	-0.85	16.82	
6,349.0	1.80	252.60	6,055.0	-1,532.5	-168.3	1,541.7	1.13	0.00	36.30	
6,431.0	1.40	241.30	6,137.0	-1,533.4	-170.4	1,542.7	0.62	-0.49	-13.78	
6,513.0	1.10	255.00	6,218.9	-1,534.0	-172.0	1,543.6	0.51	-0.37	16.71	
6,595.0	1.40	305.80	6,300.9	-1,533.7	-173.6	1,543.4	1.35	0.37	61.95	
6,676.0	1.40	305.80	6,381.9	-1,532.5	-175.2	1,542.4	0.00	0.00	0.00	
6,758.0	2.10	322.90	6,463.9	-1,530.7	-176.9	1,540.8	1.06	0.85	20.85	
6,840.0	2.60	324.60	6,545.8	-1,528.0	-178.9	1,538.3	0.62	0.61	2.07	
6,922.0	3.40	333.10	6,627.7	-1,524.3	-181.1	1,534.9	1.11	0.98	10.37	
6,952.7	3.89	334.70	6,658.4	-1,522.6	-181.9	1,533.2	1.63	1.60	5.21	
<b>LEGAL BOX 400' X 400' 664'FSL &amp; 1966'FEL</b>										
6,953.4	3.90	334.73	6,659.0	-1,522.5	-182.0	1,533.2	1.63	1.60	4.54	
<b>TARGET CIRCLE 660'FSL &amp; 2000'FEL</b>										
7,003.0	4.70	336.60	6,708.5	-1,519.1	-183.5	1,529.9	1.63	1.61	3.76	
7,085.0	6.50	332.70	6,790.1	-1,511.9	-187.0	1,523.1	2.24	2.20	-4.76	
7,167.0	2.10	0.03	6,871.8	-1,506.3	-189.1	1,517.7	5.77	-5.37	33.33	
7,249.0	1.70	33.30	6,953.8	-1,503.8	-188.4	1,515.2	1.41	-0.49	40.57	
7,330.0	1.80	22.50	7,034.8	-1,501.6	-187.3	1,512.9	0.42	0.12	-13.33	
7,370.0	1.60	26.00	7,074.7	-1,500.5	-186.8	1,511.8	0.56	-0.50	8.75	
7,421.0	1.40	29.50	7,125.7	-1,499.3	-186.2	1,510.5	0.43	-0.39	6.86	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_