



- LEGEND**
- ✕ Shaklee USX X25-08D, Wellbore #1, Noble Shaklee USX X25-08D Plan #1 (4-19-11) V0
  - △ Shaklee 32-25 (Exist.), Wellbore #1, Design #1 V0
  - Wellbore #1
  - Survey #1

## Final Survey Plot

Projected Final Survey -  
 8315'MD & 7731'TVD @ 2508'VS  
 1.3 deg Inc 83.5 deg AZ

Project: SEC.25-T2N-R65W  
 Site: Shaklee USX X25-02D Pad Sec.25-T2N-R65W  
 Well: Shaklee USX X25-08D  
 Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.25-T2N-R65W**

**Shaklee USX X25-02D Pad Sec.25-T2N-R65W**

**Shaklee USX X25-08D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**28 November, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Shaklee USX X25-08D
<b>Project:</b>	SEC.25-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4916.0ft (Original Well Elev)
<b>Site:</b>	Shaklee USX X25-02D Pad Sec.25-T2N-R65W	<b>MD Reference:</b>	WELL @ 4916.0ft (Original Well Elev)
<b>Well:</b>	Shaklee USX X25-08D	<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.25-T2N-R65W, 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>	Shaklee USX X25-02D Pad Sec.25-T2N-R65W				
<b>Site Position:</b>		<b>Northing:</b>	1,284,773.06ft	<b>Latitude:</b>	40.111700
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,247,665.57ft	<b>Longitude:</b>	-104.614500
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.57 °

<b>Well</b>	Shaklee USX X25-08D					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,284,773.93 ft	<b>Latitude:</b>	40.111700
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,247,755.06 ft	<b>Longitude:</b>	-104.614180
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,903.0 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	4/19/2011	8.78	66.85	53,012

<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	93.74	

<b>Survey Program</b>	<b>Date</b>	11/28/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
105.0	8,315.0	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	
105.0	0.20	204.40	105.0	-0.2	-0.1	-0.1	0.19	0.19	0.00	
229.0	0.20	193.20	229.0	-0.6	-0.2	-0.2	0.03	0.00	-9.03	
352.0	0.30	142.00	352.0	-1.0	-0.1	0.0	0.19	0.08	-41.63	
444.0	1.30	82.90	444.0	-1.1	1.1	1.2	1.28	1.09	-64.24	
536.0	2.70	106.00	535.9	-1.6	4.2	4.3	1.73	1.52	25.11	
628.0	4.90	114.50	627.7	-3.8	9.9	10.1	2.46	2.39	9.24	
721.0	6.50	110.40	720.3	-7.3	18.4	18.9	1.77	1.72	-4.41	
823.0	7.90	113.90	821.5	-12.1	30.3	31.0	1.44	1.37	3.43	
905.0	9.80	111.30	902.5	-16.9	41.9	42.9	2.37	2.32	-3.17	
950.0	10.70	106.70	946.8	-19.5	49.5	50.7	2.70	2.00	-10.22	
1,027.0	10.60	99.70	1,022.4	-22.8	63.3	64.7	1.68	-0.13	-9.09	
1,108.0	11.40	103.00	1,101.9	-25.8	78.5	80.0	1.26	0.99	4.07	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Shaklee USX X25-08D
<b>Project:</b>	SEC.25-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4916.0ft (Original Well Elev)
<b>Site:</b>	Shaklee USX X25-02D Pad Sec.25-T2N-R65W	<b>MD Reference:</b>	WELL @ 4916.0ft (Original Well Elev)
<b>Well:</b>	Shaklee USX X25-08D	<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)	
1,190.0	13.20	103.40	1,182.1	-29.8	95.5	97.2	2.20	2.20	0.49	
1,272.0	15.50	105.10	1,261.5	-34.9	115.2	117.2	2.85	2.80	2.07	
1,354.0	17.10	105.80	1,340.2	-41.0	137.3	139.7	1.97	1.95	0.85	
1,435.0	19.30	104.60	1,417.1	-47.6	161.8	164.5	2.76	2.72	-1.48	
1,517.0	21.20	102.60	1,494.1	-54.3	189.3	192.5	2.47	2.32	-2.44	
1,599.0	23.10	101.90	1,570.0	-60.8	219.6	223.0	2.34	2.32	-0.85	
1,680.0	24.00	103.40	1,644.3	-67.9	251.1	255.0	1.33	1.11	1.85	
1,762.0	26.20	104.60	1,718.5	-76.3	284.9	289.2	2.75	2.68	1.46	
1,844.0	26.80	107.40	1,791.9	-86.4	320.0	325.0	1.69	0.73	3.41	
1,926.0	27.20	105.50	1,865.0	-97.0	355.7	361.3	1.16	0.49	-2.32	
2,007.0	27.60	102.30	1,936.9	-105.9	391.9	398.0	1.88	0.49	-3.95	
2,089.0	28.50	103.40	2,009.3	-114.5	429.5	436.0	1.27	1.10	1.34	
2,171.0	28.70	105.10	2,081.3	-124.2	467.5	474.6	1.02	0.24	2.07	
2,253.0	27.90	103.00	2,153.5	-133.6	505.2	512.9	1.56	-0.98	-2.56	
2,334.0	27.80	102.30	2,225.1	-141.9	542.2	550.2	0.42	-0.12	-0.86	
2,416.0	29.00	103.00	2,297.2	-150.4	580.2	588.8	1.52	1.46	0.85	
2,498.0	28.80	106.30	2,369.0	-160.5	618.5	627.7	1.96	-0.24	4.02	
2,579.0	30.70	106.00	2,439.3	-171.6	657.1	666.9	2.35	2.35	-0.37	
2,661.0	30.20	105.30	2,510.0	-182.8	697.2	707.6	0.75	-0.61	-0.85	
2,743.0	29.60	103.50	2,581.1	-193.0	736.7	747.8	1.32	-0.73	-2.20	
2,825.0	28.60	102.50	2,652.7	-202.0	775.6	787.1	1.36	-1.22	-1.22	
2,906.0	28.60	102.10	2,723.9	-210.2	813.5	825.5	0.24	0.00	-0.49	
2,988.0	30.10	104.20	2,795.3	-219.4	852.6	865.1	2.22	1.83	2.56	
3,070.0	30.80	105.80	2,866.0	-230.2	892.7	905.8	1.31	0.85	1.95	
3,151.0	31.80	107.20	2,935.2	-242.1	933.1	946.9	1.53	1.23	1.73	
3,233.0	32.60	106.50	3,004.6	-254.8	974.9	989.4	1.08	0.98	-0.85	
3,315.0	32.40	106.00	3,073.8	-267.1	1,017.2	1,032.4	0.41	-0.24	-0.61	
3,397.0	32.30	103.00	3,143.1	-278.1	1,059.7	1,075.5	1.96	-0.12	-3.66	
3,478.0	30.60	100.00	3,212.2	-286.5	1,101.1	1,117.4	2.85	-2.10	-3.70	
3,560.0	30.10	96.50	3,282.9	-292.5	1,142.1	1,158.7	2.24	-0.61	-4.27	
3,642.0	29.60	93.00	3,354.1	-295.9	1,182.7	1,199.5	2.21	-0.61	-4.27	
3,723.0	28.80	90.30	3,424.8	-297.0	1,222.2	1,239.0	1.90	-0.99	-3.33	
3,805.0	27.50	88.40	3,497.1	-296.6	1,260.9	1,277.5	1.93	-1.59	-2.32	
3,887.0	26.60	84.90	3,570.1	-294.5	1,298.1	1,314.5	2.23	-1.10	-4.27	
3,969.0	26.10	79.60	3,643.6	-289.6	1,334.1	1,350.2	2.93	-0.61	-6.46	
4,050.0	27.40	79.60	3,715.9	-283.0	1,370.0	1,385.5	1.60	1.60	0.00	
4,132.0	27.50	80.00	3,788.7	-276.3	1,407.2	1,422.2	0.26	0.12	0.49	
4,214.0	27.30	82.10	3,861.5	-270.4	1,444.5	1,459.0	1.20	-0.24	2.56	
4,296.0	29.40	81.70	3,933.7	-264.9	1,483.0	1,497.1	2.57	2.56	-0.49	
4,377.0	30.80	83.30	4,003.7	-259.6	1,523.3	1,537.0	1.99	1.73	1.98	
4,459.0	31.60	83.00	4,073.9	-254.6	1,565.5	1,578.7	0.99	0.98	-0.37	
4,541.0	33.20	82.80	4,143.1	-249.1	1,609.1	1,621.9	1.96	1.95	-0.24	
4,622.0	32.40	83.50	4,211.2	-243.9	1,652.6	1,665.0	1.09	-0.99	0.86	
4,704.0	32.20	85.10	4,280.5	-239.5	1,696.2	1,708.2	1.07	-0.24	1.95	
4,786.0	32.80	84.70	4,349.7	-235.6	1,740.1	1,751.7	0.78	0.73	-0.49	
4,868.0	32.10	84.70	4,418.9	-231.6	1,783.9	1,795.2	0.85	-0.85	0.00	
4,949.0	31.70	82.40	4,487.6	-226.8	1,826.4	1,837.3	1.58	-0.49	-2.84	
5,031.0	31.70	82.10	4,557.4	-221.0	1,869.1	1,879.5	0.19	0.00	-0.37	
5,113.0	33.00	81.70	4,626.7	-214.8	1,912.6	1,922.5	1.61	1.59	-0.49	
5,194.0	31.80	80.10	4,695.0	-207.9	1,955.4	1,964.8	1.82	-1.48	-1.98	
5,276.0	29.20	81.00	4,765.7	-201.1	1,996.5	2,005.3	3.22	-3.17	1.10	
5,358.0	26.90	79.60	4,838.1	-194.6	2,034.5	2,042.8	2.92	-2.80	-1.71	
5,440.0	25.20	79.30	4,911.7	-188.0	2,069.9	2,077.7	2.08	-2.07	-0.37	
5,521.0	22.80	78.40	4,985.7	-181.6	2,102.2	2,109.6	3.00	-2.96	-1.11	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Shaklee USX X25-08D
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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

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)
5,603.0	22.00	79.10	5,061.5	-175.5	2,132.8	2,139.7	1.03	-0.98	0.85
5,685.0	20.40	79.60	5,138.0	-170.1	2,162.0	2,168.5	1.96	-1.95	0.61
5,766.0	19.90	78.40	5,214.0	-164.7	2,189.4	2,195.5	0.80	-0.62	-1.48
5,848.0	18.70	80.30	5,291.4	-159.7	2,216.0	2,221.7	1.65	-1.46	2.32
5,930.0	17.80	81.70	5,369.3	-155.7	2,241.4	2,246.7	1.22	-1.10	1.71
6,012.0	15.60	85.00	5,447.8	-152.9	2,264.7	2,269.9	2.92	-2.68	4.02
6,093.0	12.70	86.70	5,526.4	-151.5	2,284.5	2,289.5	3.62	-3.58	2.10
6,175.0	11.90	86.80	5,606.5	-150.5	2,301.9	2,306.8	0.98	-0.98	0.12
6,257.0	12.80	88.60	5,686.6	-149.8	2,319.5	2,324.3	1.19	1.10	2.20
6,339.0	13.50	87.20	5,766.4	-149.1	2,338.1	2,342.8	0.94	0.85	-1.71
6,420.0	12.10	88.20	5,845.4	-148.4	2,356.0	2,360.7	1.75	-1.73	1.23
6,502.0	11.70	90.20	5,925.7	-148.1	2,372.9	2,377.5	0.70	-0.49	2.44
6,584.0	10.90	89.60	6,006.1	-148.1	2,389.0	2,393.6	0.99	-0.98	-0.73
6,665.0	10.80	87.50	6,085.6	-147.7	2,404.2	2,408.8	0.50	-0.12	-2.59
6,747.0	8.70	85.20	6,166.4	-146.8	2,418.1	2,422.5	2.60	-2.56	-2.80
6,829.0	7.00	86.10	6,247.7	-146.0	2,429.3	2,433.6	2.08	-2.07	1.10
6,911.0	5.70	83.80	6,329.2	-145.2	2,438.3	2,442.6	1.62	-1.59	-2.80
6,992.0	4.40	83.00	6,409.8	-144.4	2,445.4	2,449.6	1.61	-1.60	-0.99
7,074.0	3.50	83.70	6,491.6	-143.7	2,451.0	2,455.1	1.10	-1.10	0.85
7,082.5	3.44	84.92	6,500.1	-143.7	2,451.5	2,455.6	1.12	-0.70	14.43
<b>TARGET BHL 1980'FNL, 750'FEL</b>									
7,156.0	3.00	97.40	6,573.5	-143.7	2,455.6	2,459.8	1.12	-0.60	16.97
7,305.0	1.60	113.20	6,722.4	-145.1	2,461.4	2,465.6	1.02	-0.94	10.60
7,418.5	1.23	99.71	6,835.8	-145.9	2,464.0	2,468.3	0.44	-0.33	-11.89
<b>TARGET CIRCLE 1980'FNL &amp; 750'FEL</b>									
7,420.4	1.22	99.42	6,837.7	-145.9	2,464.1	2,468.3	0.44	-0.29	-15.38
<b>LEGAL BOX 400' X 400' 1985'FNL &amp; 667'FEL</b>									
7,468.0	1.10	91.20	6,885.3	-146.0	2,465.0	2,469.3	0.44	-0.26	-17.26
7,591.0	1.00	116.40	7,008.3	-146.5	2,467.2	2,471.5	0.38	-0.08	20.49
7,754.0	4.00	113.90	7,171.1	-149.4	2,473.7	2,478.1	1.84	1.84	-1.53
7,917.0	5.20	117.40	7,333.6	-155.1	2,485.4	2,490.2	0.76	0.74	2.15
8,080.0	2.50	94.20	7,496.2	-158.8	2,495.5	2,500.6	1.88	-1.66	-14.23
8,246.0	1.50	86.70	7,662.1	-158.9	2,501.3	2,506.3	0.62	-0.60	-4.52
8,315.0	1.30	83.50	7,731.1	-158.8	2,503.0	2,508.0	0.31	-0.29	-4.64

Checked By: _____	Approved By: _____	Date: _____
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