

Well Name: **Sherwood L30-28D**

Surface Location: Sherwood Pad Sec.30-T3N-R66W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4820.0

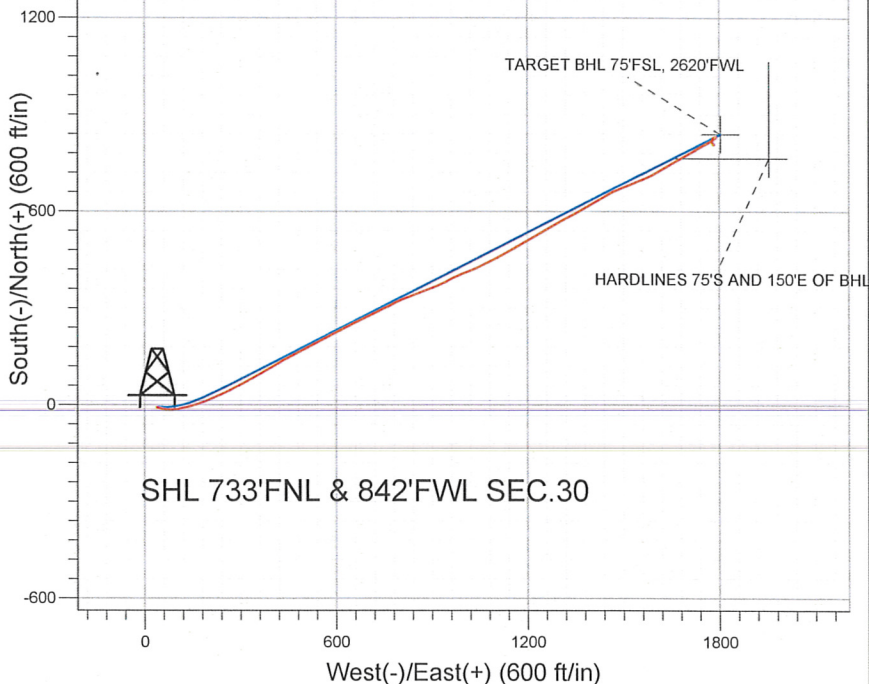
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
-7.3	39.1	1316707.12	3187969.65	40° 12' 2.880 N	104° 49' 37.416 W

Original Well Elev WELL @ 4833.0ft (Original Well Elev)

Slot

## NOBLE ENERGY INC WELD COUNTY CO

Projected BHL 808'N & 1784'E of  
 surface 36'FSL & 2639'FWL



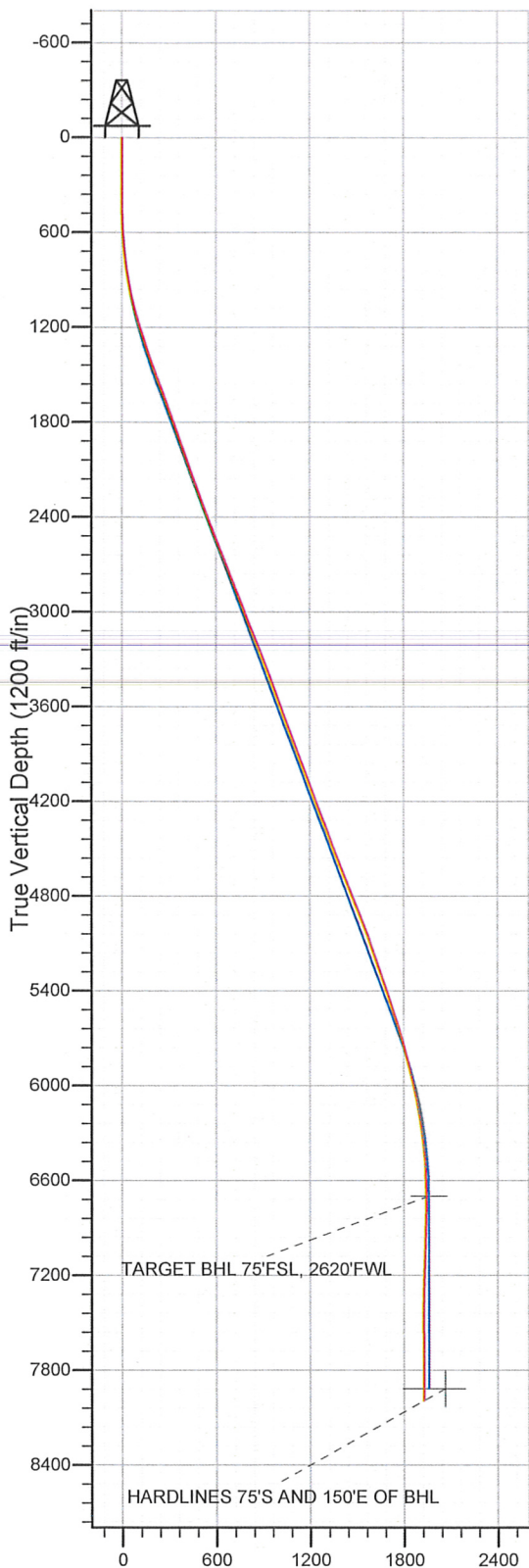
SHL 733'FNL & 842'FWL SEC.30

### LEGEND

- Sherwood L30-28D, Wellbore #1, Plan #2 (08-03-09) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 8325'MD & 7993'TVD @ 1926'VS  
 1.1 deg Inc 143.5 deg AZ



Project: SEC.30-T3N-R66W  
 Site: Sherwood Pad Sec.30-T3N-R66W  
 Well: Sherwood L30-28D  
 Plan: Wellbore #1



**Directional**

**NOBLE ENERGY INC WELD  
COUNTY CO**

**SEC.30-T3N-R66W**

**Sherwood Pad Sec.30-T3N-R66W**

**Sherwood L30-28D**

**Wellbore #1**

**Survey: Survey #1**

**Standard Survey Report**

**28 March, 2011**



**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.30-T3N-R66W  
**Site:** Sherwood Pad Sec.30-T3N-R66W  
**Well:** Sherwood L30-28D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Site Sherwood Pad Sec.30-T3N-R66W  
**TVD Reference:** WELL @ 4833.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4833.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Landmark

<b>Project</b>	SEC.30-T3N-R66W, 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** Sherwood Pad Sec.30-T3N-R66W

<b>Site Position:</b>		<b>Northing:</b>	1,316,714.12ft	<b>Latitude:</b>	40° 12' 2.952 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,187,930.49ft	<b>Longitude:</b>	104° 49' 37.920 W
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.43 °

<b>Well</b>	Sherwood L30-28D				
<b>Well Position</b>	<b>+N/-S</b>	-7.3 ft	<b>Northing:</b>	1,316,707.12 ft	<b>Latitude:</b> 40° 12' 2.880 N
	<b>+E/-W</b>	39.1 ft	<b>Easting:</b>	3,187,969.65 ft	<b>Longitude:</b> 104° 49' 37.416 W
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b> 4,820.0 ft

**Wellbore** Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/30/2009	9.11	66.95	53,245

**Design** Wellbore #1

**Audit Notes:**

**Version:** 1.0      **Phase:** ACTUAL      **Tie On Depth:** 0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	-7.3	39.1	64.84

**Survey Program** Date 3/28/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
361.0	8,325.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

**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	-7.3	39.1	0.0	0.00	0.00	0.00
361.0	0.10	305.00	361.0	-7.1	38.8	-0.2	0.03	0.03	0.00
451.0	0.70	109.30	451.0	-7.3	39.3	0.2	0.89	0.67	182.56
543.0	3.30	109.70	542.9	-8.3	42.3	2.5	2.83	2.83	0.43
600.0	5.00	104.50	599.8	-9.5	46.3	5.6	3.05	2.98	-9.12
667.0	6.20	107.30	666.5	-11.3	52.6	10.5	1.84	1.79	4.18
760.0	8.10	99.10	758.7	-13.8	63.8	19.6	2.31	2.04	-8.82
853.0	10.00	90.20	850.6	-14.9	78.4	32.3	2.53	2.04	-9.57
946.0	11.60	82.60	941.9	-13.7	95.7	48.5	2.30	1.72	-8.17
1,039.0	13.20	77.00	1,032.8	-10.1	115.3	67.8	2.15	1.72	-6.02
1,132.0	15.80	76.20	1,122.8	-4.7	138.0	90.6	2.80	2.80	-0.86
1,225.0	17.10	71.10	1,212.0	2.7	163.2	116.6	2.09	1.40	-5.48
1,318.0	19.60	68.20	1,300.3	12.9	190.6	145.8	2.86	2.69	-3.12



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**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Site Sherwood Pad Sec.30-T3N-R66W  
**TVD Reference:** WELL @ 4833.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4833.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** 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)
1,411.0	20.00	67.80	1,387.8	24.7	219.9	177.2	0.45	0.43	-0.43
1,504.0	19.60	65.70	1,475.3	37.2	248.8	208.7	0.88	-0.43	-2.26
1,606.0	19.80	63.40	1,571.3	52.0	279.8	243.1	0.78	0.20	-2.25
1,700.0	20.70	60.10	1,659.5	67.4	308.5	275.5	1.55	0.96	-3.51
1,794.0	20.10	61.20	1,747.6	83.4	337.0	308.2	0.76	-0.64	1.17
1,888.0	20.10	60.40	1,835.9	99.2	365.2	340.4	0.29	0.00	-0.85
1,982.0	19.90	60.30	1,924.2	115.1	393.2	372.5	0.22	-0.21	-0.11
2,076.0	19.80	58.80	2,012.6	131.3	420.7	404.3	0.55	-0.11	-1.60
2,170.0	19.30	62.80	2,101.2	146.6	448.1	435.6	1.52	-0.53	4.26
2,264.0	20.60	63.50	2,189.6	161.1	476.7	467.7	1.41	1.38	0.74
2,358.0	19.40	61.90	2,277.9	175.8	505.3	499.8	1.40	-1.28	-1.70
2,452.0	20.00	62.90	2,366.4	190.5	533.4	531.5	0.73	0.64	1.06
2,546.0	20.40	62.00	2,454.6	205.5	562.2	563.9	0.54	0.43	-0.96
2,640.0	21.60	64.00	2,542.4	220.8	592.2	597.6	1.49	1.28	2.13
2,733.0	21.80	61.50	2,628.8	236.5	622.7	631.9	1.02	0.22	-2.69
2,826.0	22.00	63.80	2,715.1	252.5	653.5	666.6	0.95	0.22	2.47
2,919.0	21.80	64.40	2,801.3	267.6	684.8	701.3	0.32	-0.22	0.65
3,012.0	22.00	64.70	2,887.6	282.5	716.1	736.0	0.25	0.22	0.32
3,105.0	21.10	62.60	2,974.1	297.7	746.7	770.1	1.27	-0.97	-2.26
3,198.0	22.10	64.50	3,060.6	312.9	777.3	804.3	1.31	1.08	2.04
3,291.0	22.10	63.70	3,146.8	328.2	808.8	839.3	0.32	0.00	-0.86
3,384.0	21.10	71.00	3,233.3	341.4	840.3	873.5	3.08	-1.08	7.85
3,477.0	21.60	70.30	3,319.9	352.6	872.3	907.1	0.60	0.54	-0.75
3,570.0	21.40	67.60	3,406.4	364.9	904.1	941.1	1.09	-0.22	-2.90
3,663.0	20.00	65.40	3,493.4	377.9	934.2	974.0	1.72	-1.51	-2.37
3,766.0	19.90	61.80	3,590.2	393.6	965.7	1,009.1	1.20	-0.10	-3.50
3,859.0	19.60	68.00	3,677.8	406.9	994.1	1,040.5	2.27	-0.32	6.67
3,952.0	19.90	68.60	3,765.3	418.5	1,023.3	1,071.8	0.39	0.32	0.65
4,045.0	20.30	65.60	3,852.6	430.9	1,052.7	1,103.8	1.19	0.43	-3.23
4,138.0	21.80	63.30	3,939.4	445.4	1,082.9	1,137.2	1.84	1.61	-2.47
4,236.0	21.80	61.70	4,030.4	462.2	1,115.1	1,173.5	0.61	0.00	-1.63
4,330.0	20.40	59.60	4,118.1	478.7	1,144.6	1,207.3	1.69	-1.49	-2.23
4,424.0	19.30	60.00	4,206.5	494.8	1,172.2	1,239.1	1.18	-1.17	0.43
4,517.0	21.00	62.10	4,293.8	510.3	1,200.3	1,271.0	1.99	1.83	2.26
4,611.0	20.70	58.70	4,381.7	526.8	1,229.3	1,304.4	1.33	-0.32	-3.62
4,705.0	21.60	60.90	4,469.3	543.8	1,258.7	1,338.2	1.28	0.96	2.34
4,799.0	22.50	60.80	4,556.5	561.0	1,289.5	1,373.4	0.96	0.96	-0.11
4,893.0	20.40	61.30	4,644.0	577.7	1,319.5	1,407.7	2.24	-2.23	0.53
4,987.0	20.70	62.50	4,732.0	593.2	1,348.7	1,440.6	0.55	0.32	1.28
5,081.0	22.30	60.60	4,819.4	609.6	1,378.9	1,475.0	1.86	1.70	-2.02
5,174.0	23.30	60.10	4,905.2	627.5	1,410.2	1,510.9	1.10	1.08	-0.54
5,268.0	21.30	59.70	4,992.1	645.3	1,441.1	1,546.5	2.13	-2.13	-0.43
5,363.0	18.90	63.20	5,081.3	661.0	1,469.7	1,579.0	2.82	-2.53	3.68
5,456.0	17.80	67.90	5,169.6	673.1	1,496.4	1,608.3	1.98	-1.18	5.05
5,550.0	19.50	68.10	5,258.7	684.4	1,524.2	1,638.3	1.81	1.81	0.21
5,644.0	19.10	67.60	5,347.4	696.1	1,553.0	1,669.3	0.46	-0.43	-0.53
5,738.0	19.90	64.10	5,436.0	709.0	1,581.6	1,700.7	1.51	0.85	-3.72
5,832.0	18.20	60.10	5,524.9	723.3	1,608.7	1,731.3	2.28	-1.81	-4.26
5,926.0	16.30	56.40	5,614.6	737.9	1,632.5	1,759.0	2.33	-2.02	-3.94
6,020.0	16.10	60.50	5,704.9	751.6	1,654.8	1,785.0	1.24	-0.21	4.36
6,114.0	16.00	62.30	5,795.2	764.0	1,677.6	1,811.0	0.54	-0.11	1.91
6,208.0	13.80	61.10	5,886.1	775.5	1,698.9	1,835.1	2.36	-2.34	-1.28
6,302.0	13.50	60.10	5,977.4	786.4	1,718.2	1,857.2	0.41	-0.32	-1.06
6,395.0	12.00	59.30	6,068.1	796.7	1,735.9	1,877.7	1.62	-1.61	-0.86

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6,490.0	9.10	60.60	6,161.5	805.4	1,751.0	1,895.0	3.06	-3.05	1.37
6,584.0	9.00	62.00	6,254.3	812.5	1,763.9	1,909.7	0.26	-0.11	1.49
6,678.0	6.90	58.50	6,347.4	819.0	1,775.3	1,922.7	2.29	-2.23	-3.72
6,771.0	4.70	53.40	6,439.9	824.1	1,783.1	1,932.0	2.43	-2.37	-5.48
6,864.0	2.70	40.60	6,532.7	828.1	1,787.6	1,937.7	2.31	-2.15	-13.76
6,968.0	1.60	30.00	6,636.7	831.2	1,789.9	1,941.2	1.12	-1.06	-10.19
7,031.5	0.50	353.01	6,700.1	832.2	1,790.3	1,942.0	1.95	-1.73	-58.26
<b>TARGET BHL 75'FSL, 2620'FWL</b>									
7,052.0	0.40	302.00	6,720.7	832.4	1,790.2	1,942.0	1.95	-0.50	-248.75
7,146.0	0.70	292.40	6,814.7	832.8	1,789.4	1,941.4	0.33	0.32	-10.21
7,242.0	1.80	253.40	6,910.6	832.6	1,787.4	1,939.5	1.39	1.15	-40.63
7,336.0	2.60	243.30	7,004.6	831.2	1,784.1	1,935.9	0.94	0.85	-10.74
7,430.0	2.50	214.90	7,098.5	828.5	1,781.0	1,932.0	1.33	-0.11	-30.21
7,524.0	2.50	207.10	7,192.4	825.0	1,778.9	1,928.6	0.36	0.00	-8.30
7,618.0	2.00	184.10	7,286.3	821.6	1,777.9	1,926.2	1.09	-0.53	-24.47
7,712.0	1.40	163.70	7,380.3	818.8	1,778.1	1,925.2	0.90	-0.64	-21.70
7,805.0	1.50	162.10	7,473.2	816.6	1,778.8	1,924.9	0.12	0.11	-1.72
7,899.0	1.10	149.60	7,567.2	814.6	1,779.6	1,924.8	0.52	-0.43	-13.30
7,993.0	1.30	154.70	7,661.2	812.9	1,780.5	1,924.9	0.24	0.21	5.43
8,087.0	1.10	143.50	7,755.2	811.2	1,781.5	1,925.1	0.33	-0.21	-11.91
8,171.0	1.10	143.50	7,839.2	809.9	1,782.5	1,925.4	0.00	0.00	0.00
8,252.5	1.10	143.50	7,920.6	808.6	1,783.4	1,925.7	0.00	0.00	0.00
<b>HARDLINES 75'S AND 150'E OF BHL</b>									
8,325.0	1.10	143.50	7,993.1	807.5	1,784.2	1,926.0	0.00	0.00	0.00

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