

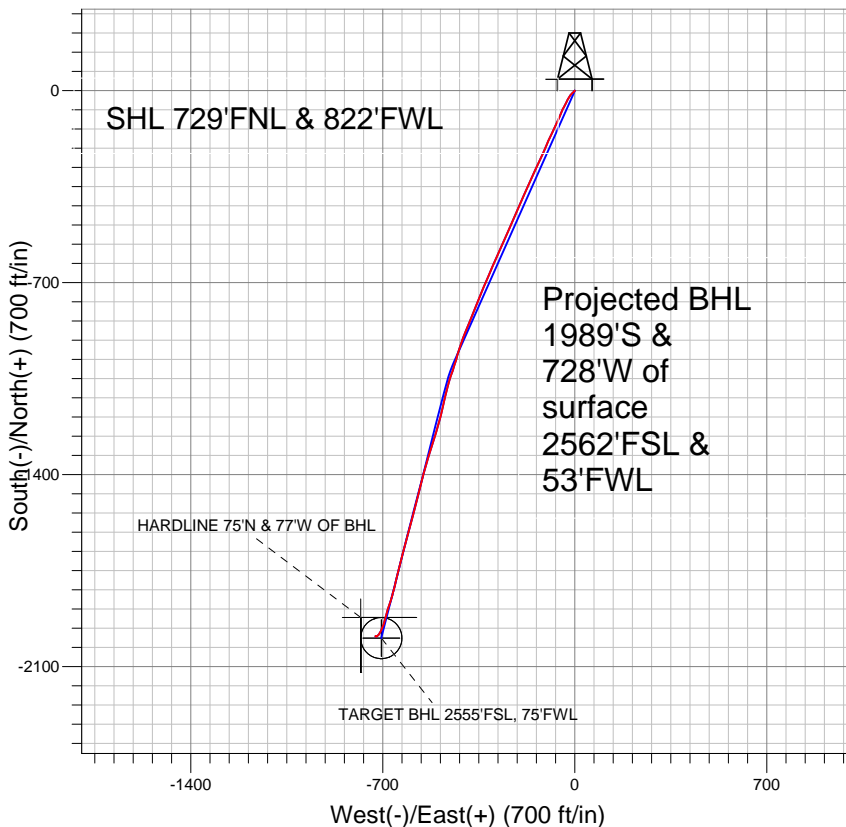
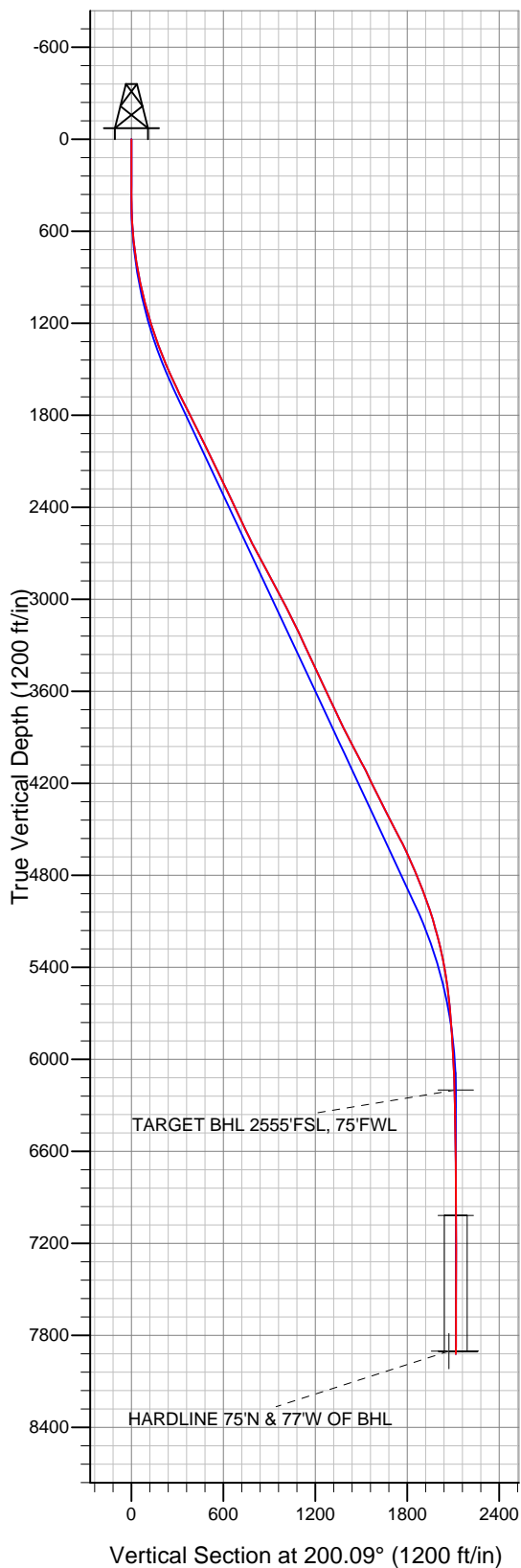
Well Name: **Sherwood L30-32D**

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	Slot
0.0	0.0	1316710.61	3187950.07	40° 12' 2.916 N	104° 49' 37.668 W	
Original Well Elev WELL @ 4833.0ft (Original Well Elev)						

## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Sherwood L30-32D, Wellbore #1, Noble Sherwood L30-32D Plan #3 (4-26-10) VO
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
8367'MD & 7921'TVD @ 2107' VS  
0.4 deg Inc 20.5 deg AZ

Project: SEC.30-T3N-R66W  
Site: Sherwood Pad Sec.30-T3N-R66W  
Well: Sherwood L30-32D  
Plan: Wellbore #1



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.30-T3N-R66W**

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

**Sherwood L30-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**03 December, 2010**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Sherwood L30-32D
<b>Project:</b>	SEC.30-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Site:</b>	Sherwood Pad Sec.30-T3N-R66W	<b>MD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Well:</b>	Sherwood L30-32D	<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.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

<b>Site</b>	Sherwood Pad Sec.30-T3N-R66W		
<b>Site Position:</b>		<b>Northing:</b>	1,316,714.12 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,187,930.49 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 12' 2.952 N
		<b>Longitude:</b>	104° 49' 37.920 W
		<b>Grid Convergence:</b>	0.43 °

<b>Well</b>	Sherwood L30-32D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 12' 2.916 N
		<b>Longitude:</b>	104° 49' 37.668 W
		<b>Ground Level:</b>	4,820.0 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	10/27/2010	8.97	66.90	53,087

<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	200.09	

<b>Survey Program</b>	<b>Date</b>	12/3/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
354.0	8,367.0	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	
354.0	0.20	221.20	354.0	-0.5	-0.4	0.6	0.06	0.06	0.00	
420.0	1.00	224.20	420.0	-1.0	-0.9	1.2	1.21	1.21	4.55	
510.0	3.10	217.00	509.9	-3.5	-2.9	4.3	2.35	2.33	-8.00	
570.0	4.30	227.20	569.8	-6.3	-5.5	7.8	2.27	2.00	17.00	
623.0	4.90	232.60	622.6	-9.0	-8.8	11.5	1.39	1.13	10.19	
717.0	7.30	218.70	716.1	-16.1	-15.7	20.5	2.98	2.55	-14.79	
827.0	10.70	206.10	824.7	-30.8	-24.6	37.3	3.56	3.09	-11.45	
917.0	11.00	207.90	913.1	-45.8	-32.3	54.1	0.50	0.33	2.00	
1,009.0	12.90	208.30	1,003.1	-62.6	-41.2	73.0	2.07	2.07	0.43	
1,107.0	16.10	203.40	1,098.0	-84.8	-51.8	97.4	3.49	3.27	-5.00	
1,197.0	17.10	201.20	1,184.3	-108.5	-61.6	123.1	1.31	1.11	-2.44	
1,291.0	18.60	206.40	1,273.7	-134.9	-73.2	151.8	2.33	1.60	5.53	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Sherwood L30-32D
<b>Project:</b>	SEC.30-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Site:</b>	Sherwood Pad Sec.30-T3N-R66W	<b>MD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Well:</b>	Sherwood L30-32D	<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)
1,385.0	21.20	206.60	1,362.1	-163.5	-87.5	183.6	2.77	2.77	0.21
1,479.0	22.60	201.50	1,449.3	-195.5	-101.7	218.5	2.51	1.49	-5.43
1,573.0	24.20	204.10	1,535.6	-229.9	-116.2	255.8	2.03	1.70	2.77
1,667.0	25.30	206.10	1,621.0	-265.5	-132.9	295.0	1.47	1.17	2.13
1,761.0	27.00	205.40	1,705.3	-302.8	-150.9	336.2	1.84	1.81	-0.74
1,855.0	27.00	203.30	1,789.1	-341.7	-168.5	378.8	1.01	0.00	-2.23
1,949.0	26.60	202.60	1,873.0	-380.7	-185.0	421.1	0.54	-0.43	-0.74
2,043.0	25.60	203.30	1,957.4	-418.8	-201.2	462.4	1.11	-1.06	0.74
2,137.0	25.50	205.50	2,042.2	-455.7	-217.9	502.9	1.01	-0.11	2.34
2,231.0	27.10	203.80	2,126.5	-493.6	-235.3	544.4	1.88	1.70	-1.81
2,325.0	25.60	203.30	2,210.7	-531.8	-251.9	586.0	1.61	-1.60	-0.53
2,419.0	26.10	204.30	2,295.3	-569.3	-268.5	626.9	0.71	0.53	1.06
2,513.0	25.80	203.30	2,379.8	-607.0	-285.1	668.0	0.56	-0.32	-1.06
2,606.0	24.90	203.90	2,463.9	-643.4	-301.0	707.7	1.01	-0.97	0.65
2,700.0	24.80	203.00	2,549.2	-679.7	-316.7	747.1	0.42	-0.11	-0.96
2,794.0	26.70	203.20	2,633.8	-717.2	-332.8	787.9	2.02	2.02	0.21
2,888.0	28.70	202.30	2,717.1	-757.5	-349.6	831.6	2.17	2.13	-0.96
2,982.0	28.80	200.70	2,799.5	-799.6	-366.2	876.8	0.83	0.11	-1.70
3,076.0	28.70	202.60	2,881.9	-841.6	-382.9	921.9	0.98	-0.11	2.02
3,170.0	26.50	202.30	2,965.2	-881.9	-399.5	965.5	2.35	-2.34	-0.32
3,264.0	27.60	199.60	3,048.9	-921.8	-414.8	1,008.2	1.75	1.17	-2.87
3,358.0	26.70	195.70	3,132.6	-962.6	-427.8	1,051.0	2.12	-0.96	-4.15
3,452.0	25.20	197.00	3,217.1	-1,002.1	-439.4	1,092.1	1.71	-1.60	1.38
3,546.0	25.10	199.60	3,302.2	-1,040.0	-451.9	1,132.0	1.18	-0.11	2.77
3,640.0	25.10	194.30	3,387.3	-1,078.1	-463.5	1,171.8	2.39	0.00	-5.64
3,734.0	25.60	192.70	3,472.3	-1,117.3	-472.9	1,211.7	0.90	0.53	-1.70
3,828.0	25.20	194.10	3,557.2	-1,156.5	-482.3	1,251.8	0.77	-0.43	1.49
3,922.0	25.40	192.60	3,642.2	-1,195.6	-491.5	1,291.7	0.71	0.21	-1.60
4,016.0	25.30	198.00	3,727.1	-1,234.4	-502.1	1,331.7	2.46	-0.11	5.74
4,110.0	25.40	197.50	3,812.1	-1,272.7	-514.4	1,371.9	0.25	0.11	-0.53
4,204.0	27.90	196.50	3,896.1	-1,313.0	-526.7	1,414.0	2.70	2.66	-1.06
4,298.0	27.00	197.00	3,979.5	-1,354.5	-539.2	1,457.3	0.99	-0.96	0.53
4,392.0	28.40	195.30	4,062.7	-1,396.5	-551.3	1,500.9	1.71	1.49	-1.81
4,486.0	26.20	194.50	4,146.2	-1,438.1	-562.4	1,543.8	2.37	-2.34	-0.85
4,580.0	25.80	193.00	4,230.7	-1,478.1	-572.2	1,584.8	0.82	-0.43	-1.60
4,674.0	27.20	195.40	4,314.9	-1,518.8	-582.5	1,626.5	1.87	1.49	2.55
4,768.0	26.70	193.90	4,398.6	-1,560.0	-593.3	1,668.9	0.90	-0.53	-1.60
4,862.0	27.50	195.30	4,482.3	-1,601.4	-604.1	1,711.5	1.09	0.85	1.49
4,956.0	27.60	195.40	4,565.7	-1,643.4	-615.6	1,754.8	0.12	0.11	0.11
5,050.0	25.10	194.60	4,649.9	-1,683.7	-626.4	1,796.4	2.69	-2.66	-0.85
5,144.0	23.80	193.50	4,735.5	-1,721.4	-635.9	1,835.1	1.47	-1.38	-1.17
5,238.0	21.70	194.80	4,822.1	-1,756.6	-644.8	1,871.2	2.30	-2.23	1.38
5,332.0	21.30	192.70	4,909.6	-1,790.1	-653.0	1,905.5	0.92	-0.43	-2.23
5,426.0	19.60	194.60	4,997.7	-1,822.0	-660.7	1,938.1	1.94	-1.81	2.02
5,520.0	16.50	195.90	5,087.0	-1,850.1	-668.3	1,967.1	3.33	-3.30	1.38
5,614.0	14.70	200.00	5,177.6	-1,874.2	-676.0	1,992.4	2.24	-1.91	4.36
5,708.0	13.50	196.20	5,268.7	-1,895.9	-683.2	2,015.2	1.61	-1.28	-4.04
5,802.0	11.10	194.70	5,360.6	-1,915.2	-688.5	2,035.2	2.58	-2.55	-1.60
5,896.0	9.50	195.30	5,453.1	-1,931.4	-692.9	2,051.9	1.71	-1.70	0.64
5,990.0	7.00	197.60	5,546.1	-1,944.4	-696.7	2,065.4	2.68	-2.66	2.45
6,084.0	5.60	200.80	5,639.5	-1,954.1	-700.0	2,075.7	1.53	-1.49	3.40
6,178.0	4.80	206.20	5,733.1	-1,961.9	-703.4	2,084.2	1.00	-0.85	5.74
6,272.0	3.90	205.60	5,826.9	-1,968.4	-706.5	2,091.3	0.96	-0.96	-0.64
6,366.0	3.20	210.30	5,920.7	-1,973.5	-709.2	2,097.0	0.81	-0.74	5.00

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Sherwood L30-32D
<b>Project:</b>	SEC.30-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Site:</b>	Sherwood Pad Sec.30-T3N-R66W	<b>MD Reference:</b>	WELL @ 4833.0ft (Original Well Elev)
<b>Well:</b>	Sherwood L30-32D	<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)
6,459.0	2.80	207.00	6,013.5	-1,977.8	-711.6	2,101.9	0.47	-0.43	-3.55
6,553.0	2.20	213.60	6,107.5	-1,981.3	-713.6	2,105.9	0.71	-0.64	7.02
6,645.7	1.31	222.00	6,200.1	-1,983.6	-715.3	2,108.6	0.99	-0.96	9.06
<b>TARGET BHL 2555'FSL, 75'FWL</b>									
6,647.0	1.30	222.20	6,201.4	-1,983.6	-715.3	2,108.6	0.99	-0.93	15.28
6,741.0	1.60	222.70	6,295.4	-1,985.4	-716.9	2,110.8	0.32	0.32	0.53
6,835.0	1.20	220.50	6,389.4	-1,987.1	-718.5	2,113.0	0.43	-0.43	-2.34
6,929.0	0.80	233.10	6,483.3	-1,988.2	-719.6	2,114.4	0.48	-0.43	13.40
7,023.0	0.90	236.40	6,577.3	-1,989.0	-720.8	2,115.6	0.12	0.11	3.51
7,117.0	0.80	212.00	6,671.3	-1,990.0	-721.7	2,116.8	0.40	-0.11	-25.96
7,211.0	0.60	236.00	6,765.3	-1,990.8	-722.5	2,117.9	0.37	-0.21	25.53
7,399.0	0.40	280.00	6,953.3	-1,991.3	-723.9	2,118.8	0.22	-0.11	23.40
7,463.6	0.33	277.14	7,017.9	-1,991.2	-724.3	2,118.8	0.11	-0.11	-4.43
<b>TARGET CIRCLE 2555'FSL, 75'FWL</b>									
7,493.0	0.30	275.40	7,047.3	-1,991.2	-724.5	2,118.9	0.11	-0.11	-5.91
7,587.0	0.20	282.80	7,141.3	-1,991.1	-724.9	2,119.0	0.11	-0.11	7.87
7,681.0	0.30	275.20	7,235.3	-1,991.1	-725.3	2,119.1	0.11	0.11	-8.09
7,775.0	0.20	265.00	7,329.3	-1,991.1	-725.7	2,119.2	0.12	-0.11	-10.85
7,869.0	0.10	238.20	7,423.3	-1,991.1	-726.0	2,119.3	0.13	-0.11	-28.51
7,963.0	0.40	354.20	7,517.3	-1,990.8	-726.1	2,119.1	0.48	0.32	123.40
8,057.0	0.60	276.60	7,611.3	-1,990.4	-726.6	2,118.9	0.69	0.21	-82.55
8,151.0	0.40	310.30	7,705.3	-1,990.2	-727.3	2,118.9	0.37	-0.21	35.85
8,245.0	0.40	344.60	7,799.3	-1,989.6	-727.7	2,118.5	0.25	0.00	36.49
8,317.0	0.40	20.50	7,871.3	-1,989.2	-727.6	2,118.1	0.34	0.00	49.86
8,349.0	0.40	20.50	7,903.3	-1,989.0	-727.6	2,117.9	0.00	0.00	0.00
<b>HARDLINE 75'N &amp; 77'W OF BHL</b>									
8,367.0	0.40	20.50	7,921.3	-1,988.8	-727.5	2,117.7	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------