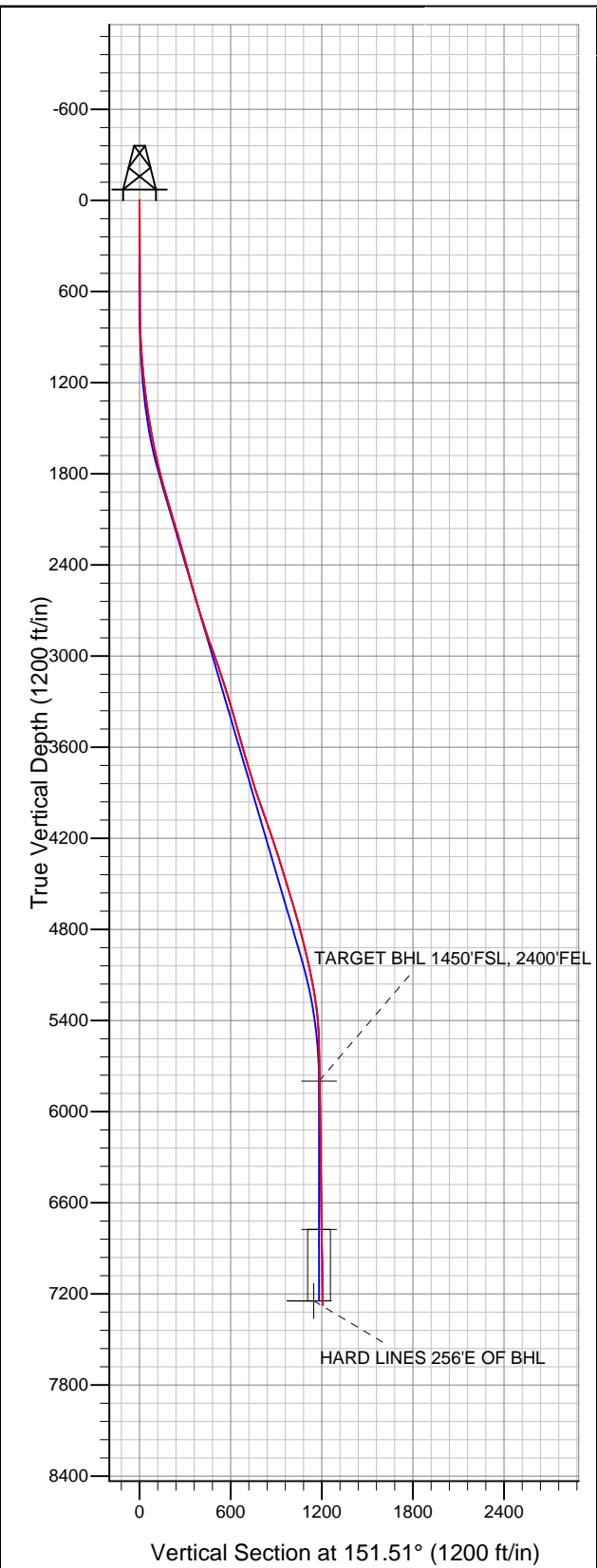


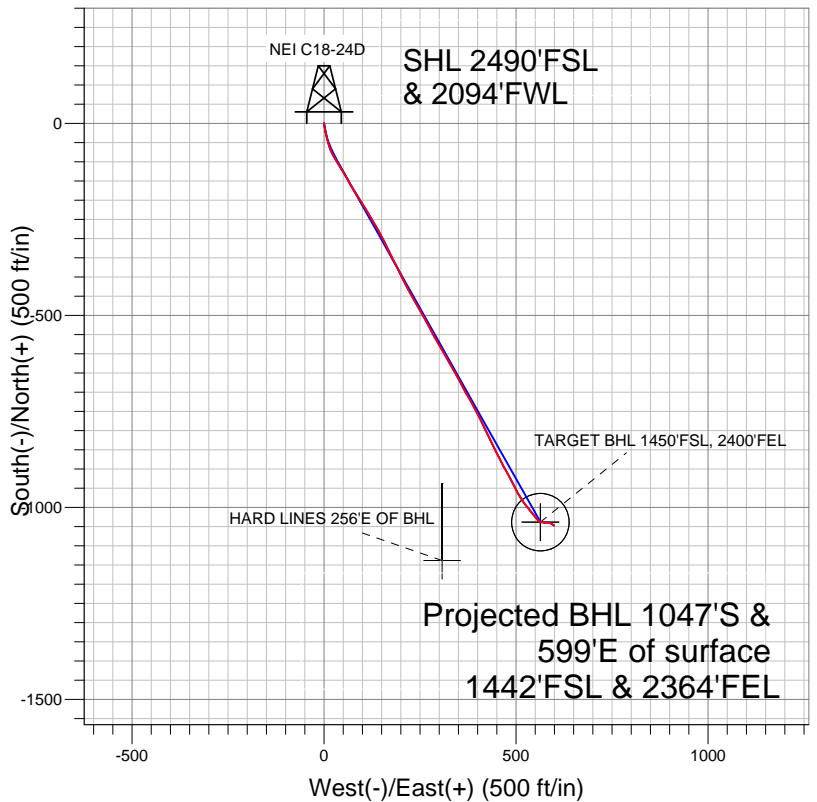


# Well Name: NEI C18-24D

Surface Location: NEI C18-32D Pad Sec.18-T4N-R64W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4834.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1357747.85 3252489.45 40.311880 -104.594590  
Original Well Elev WELL @ 4847.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- NEI C18-24D, Wellbore #1, Noble NEI C18-24D Plan #1 (6-21-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7438'MD & 7275'TVD @ 1206'VS  
1.0 deg Inc 98.0 deg AZ

Project: SEC.18-T4N-R64W  
Site: NEI C18-32D Pad Sec.18-T4N-R64W  
Well: NEI C18-24D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.18-T4N-R64W**

**NEI C18-32D Pad Sec.18-T4N-R64W**

**NEI C18-24D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**21 November, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C18-24D
<b>Project:</b>	SEC.18-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4847.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32D Pad Sec.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4847.0ft (Original Well Elev)
<b>Well:</b>	NEI C18-24D	<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.18-T4N-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>	NEI C18-32D Pad Sec.18-T4N-R64W		
<b>Site Position:</b>		<b>Northing:</b>	1,357,747.19ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,252,422.52ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.311880
		<b>Longitude:</b>	-104.594830
		<b>Grid Convergence:</b>	0.58 °

<b>Well</b>	NEI C18-24D		
<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>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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	6/21/2011	8.76	67.01	53,102

<b>Design</b>	Wellbore #1			
<b>Audit Notes:</b>				
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	5,800.0	0.0	0.0	151.51

<b>Survey Program</b>	<b>Date</b>	11/21/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
731.0	7,438.0	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
731.0	0.40	176.10	731.0	-2.5	0.2	2.3	0.05	0.05	0.00
859.0	1.80	169.10	859.0	-5.0	0.6	4.6	1.10	1.09	-5.47
987.0	4.00	170.10	986.8	-11.3	1.7	10.8	1.72	1.72	0.78
1,116.0	6.20	165.40	1,115.3	-22.5	4.3	21.8	1.73	1.71	-3.64
1,244.0	6.90	169.10	1,242.4	-36.8	7.5	35.9	0.64	0.55	2.89
1,373.0	7.80	163.40	1,370.4	-52.8	11.4	51.8	0.90	0.70	-4.42
1,501.0	9.90	158.50	1,496.9	-71.3	17.9	71.2	1.74	1.64	-3.83
1,629.0	12.00	146.60	1,622.5	-92.7	29.3	95.4	2.40	1.64	-9.30
1,758.0	13.20	149.90	1,748.4	-116.6	44.1	123.5	1.08	0.93	2.56
1,886.0	15.30	150.10	1,872.5	-143.9	59.8	155.0	1.64	1.64	0.16
2,015.0	16.40	148.80	1,996.6	-174.2	77.7	190.2	0.90	0.85	-1.01
2,143.0	16.30	146.90	2,119.4	-204.7	96.9	226.2	0.43	-0.08	-1.48

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C18-24D
<b>Project:</b>	SEC.18-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4847.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32D Pad Sec.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4847.0ft (Original Well Elev)
<b>Well:</b>	NEI C18-24D	<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)
2,271.0	16.30	149.90	2,242.3	-235.3	115.7	262.0	0.66	0.00	2.34
2,400.0	16.10	149.70	2,366.1	-266.4	133.8	298.0	0.16	-0.16	-0.16
2,528.0	15.50	151.00	2,489.3	-296.7	151.1	332.8	0.54	-0.47	1.02
2,657.0	15.40	155.90	2,613.6	-327.4	166.4	367.2	1.01	-0.08	3.80
2,785.0	17.50	152.00	2,736.4	-359.9	182.4	403.4	1.85	1.64	-3.05
2,913.0	18.80	154.30	2,858.0	-395.5	200.4	443.2	1.16	1.02	1.80
3,042.0	20.50	151.00	2,979.5	-434.0	220.4	486.6	1.57	1.32	-2.56
3,170.0	17.70	151.70	3,100.5	-470.7	240.4	528.4	2.19	-2.19	0.55
3,299.0	18.10	148.30	3,223.2	-505.1	260.3	568.0	0.87	0.31	-2.64
3,427.0	16.40	154.30	3,345.5	-538.3	278.6	606.0	1.92	-1.33	4.69
3,555.0	15.50	148.80	3,468.5	-569.2	295.3	641.1	1.37	-0.70	-4.30
3,684.0	15.70	150.10	3,592.8	-599.1	312.9	675.8	0.31	0.16	1.01
3,812.0	16.90	150.80	3,715.6	-630.3	330.6	711.7	0.95	0.94	0.55
3,941.0	17.20	151.50	3,839.0	-663.4	348.8	749.5	0.28	0.23	0.54
4,069.0	19.50	151.70	3,960.5	-698.9	368.0	789.8	1.80	1.80	0.16
4,197.0	19.60	149.60	4,081.1	-736.2	389.0	832.6	0.55	0.08	-1.64
4,326.0	18.00	155.20	4,203.2	-773.0	408.3	874.1	1.87	-1.24	4.34
4,454.0	18.20	154.30	4,324.9	-808.9	425.3	913.8	0.27	0.16	-0.70
4,583.0	16.80	153.40	4,447.9	-843.8	442.4	952.6	1.11	-1.09	-0.70
4,711.0	17.10	152.90	4,570.3	-877.1	459.2	989.9	0.26	0.23	-0.39
4,839.0	16.40	150.30	4,692.9	-909.5	476.7	1,026.8	0.80	-0.55	-2.03
4,968.0	14.10	154.60	4,817.4	-939.5	492.5	1,060.7	1.99	-1.78	3.33
5,096.0	13.60	149.70	4,941.6	-966.6	506.8	1,091.3	1.00	-0.39	-3.83
5,225.0	13.00	142.20	5,067.2	-991.2	523.3	1,120.8	1.41	-0.47	-5.81
5,353.0	9.80	141.10	5,192.6	-1,011.0	539.0	1,145.7	2.51	-2.50	-0.86
5,481.0	7.60	140.80	5,319.2	-1,026.1	551.2	1,164.7	1.72	-1.72	-0.23
5,610.0	3.90	136.50	5,447.5	-1,035.9	559.6	1,177.4	2.89	-2.87	-3.33
5,738.0	1.80	81.90	5,575.3	-1,038.7	564.6	1,182.3	2.51	-1.64	-42.66
5,867.0	1.50	87.50	5,704.3	-1,038.4	568.3	1,183.7	0.26	-0.23	4.34
5,962.5	1.93	105.33	5,799.8	-1,038.7	571.1	1,185.4	0.71	0.45	18.67
<b>TARGET BHL 1450'FSL, 2400'FEL</b>									
5,995.0	2.10	109.60	5,832.2	-1,039.1	572.2	1,186.2	0.71	0.54	13.14
6,123.0	1.70	87.90	5,960.2	-1,039.8	576.3	1,188.8	0.64	-0.31	-16.95
6,252.0	1.30	83.60	6,089.1	-1,039.6	579.6	1,190.2	0.32	-0.31	-3.33
6,380.0	1.30	79.80	6,217.1	-1,039.1	582.5	1,191.2	0.07	0.00	-2.97
6,509.0	1.30	103.10	6,346.1	-1,039.2	585.4	1,192.6	0.41	0.00	18.06
6,637.0	0.90	115.10	6,474.0	-1,040.0	587.7	1,194.4	0.36	-0.31	9.38
6,765.0	1.10	119.50	6,602.0	-1,041.0	589.7	1,196.2	0.17	0.16	3.44
6,894.0	1.10	125.30	6,731.0	-1,042.3	591.8	1,198.4	0.09	0.00	4.50
6,939.6	0.99	121.78	6,776.5	-1,042.8	592.5	1,199.1	0.28	-0.24	-7.72
<b>TARGET CIRCLE 1450'FSL &amp; 2400'FEL</b>									
7,022.0	0.80	113.00	6,859.0	-1,043.4	593.6	1,200.2	0.28	-0.23	-10.65
7,151.0	1.10	133.00	6,988.0	-1,044.6	595.3	1,202.1	0.34	0.23	15.50
7,279.0	0.70	134.40	7,115.9	-1,046.0	596.8	1,204.0	0.31	-0.31	1.09
7,386.0	0.90	98.60	7,222.9	-1,046.6	598.1	1,205.1	0.49	0.19	-33.46
<b>HARD LINES 256'E OF BHL</b>									
7,438.0	1.00	98.00	7,274.9	-1,046.7	598.9	1,205.6	0.19	0.19	-1.15

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C18-24D
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<b>Site:</b>	NEI C18-32D Pad Sec.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4847.0ft (Original Well Elev)
<b>Well:</b>	NEI C18-24D	<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

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