

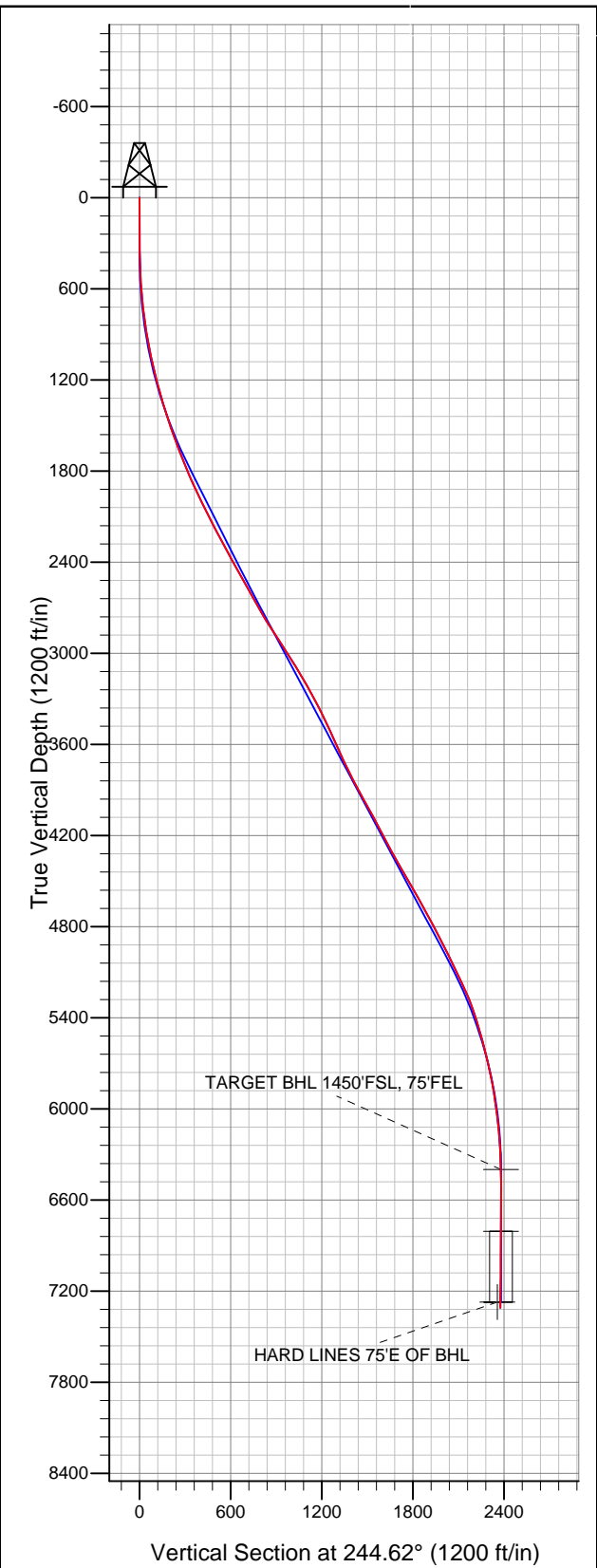


# Well Name: NEI C18-33D

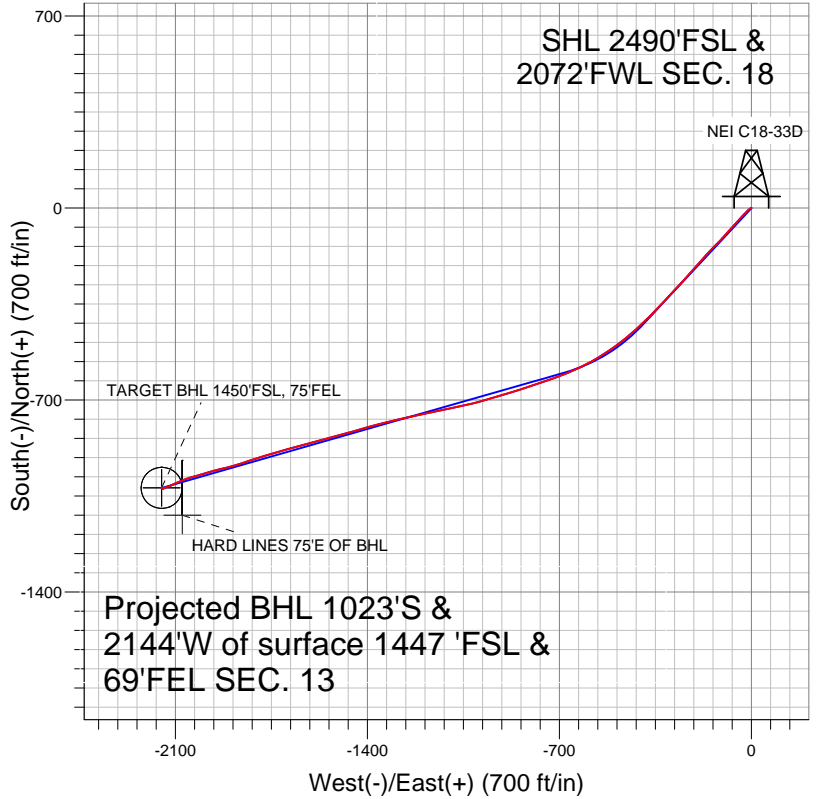
Surface Location: NEI C18-32D Pad Sec.18-T4N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4834.0  

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357747.60	3252467.14	40.311880	-104.594670	

 Original Well Elev WELL @ 4847.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- NEI C18-33D, Wellbore #1, Noble NEI C18-33D Plan #1 (6-21-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7873'MD & 7311'TVD @ 2376'VS  
 0.8 deg Inc 120.0 deg AZ

Project: SEC.18-T4N-R64W  
 Site: NEI C18-32D Pad Sec.18-T4N-R64W  
 Well: NEI C18-33D  
 Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.18-T4N-R64W**

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

**NEI C18-33D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**15 November, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C18-33D
<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 C18-33D	<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>	1,357,747.19 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,252,422.52 ft
<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 C18-33D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,357,747.60 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,252,467.14 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.311880
		<b>Longitude:</b>	-104.594670
		<b>Ground Level:</b>	4,834.0 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	6/21/2011	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>	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>	
	6,400.0	0.0	0.0	244.62	

<b>Survey Program</b>	<b>Date</b>	11/15/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
351.0	7,873.0	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	
351.0	0.50	274.50	351.0	0.1	-1.5	1.3	0.14	0.14	0.00	
479.0	2.00	235.00	479.0	-1.1	-3.9	4.0	1.29	1.17	-30.86	
607.0	4.80	233.90	606.7	-5.6	-10.1	11.5	2.19	2.19	-0.86	
649.0	5.50	227.80	648.6	-7.9	-13.0	15.1	2.11	1.67	-14.52	
731.0	6.90	223.20	730.1	-14.2	-19.3	23.5	1.81	1.71	-5.61	
859.0	9.10	222.00	856.8	-27.3	-31.3	40.0	1.72	1.72	-0.94	
987.0	12.00	222.00	982.6	-44.7	-47.0	61.6	2.27	2.27	0.00	
1,116.0	14.20	222.90	1,108.3	-66.3	-66.7	88.7	1.71	1.71	0.70	
1,244.0	16.30	222.00	1,231.8	-91.1	-89.4	119.9	1.65	1.64	-0.70	
1,373.0	17.20	223.20	1,355.3	-118.5	-114.6	154.3	0.75	0.70	0.93	
1,501.0	20.30	225.00	1,476.5	-148.0	-143.3	192.9	2.46	2.42	1.41	
1,629.0	22.30	221.10	1,595.7	-182.0	-174.9	236.1	1.91	1.56	-3.05	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C18-33D
<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 C18-33D	<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)	
1,758.0	22.30	221.30	1,715.1	-218.8	-207.2	281.0	0.06	0.00	0.16	
1,886.0	25.40	223.00	1,832.1	-257.2	-241.9	328.8	2.48	2.42	1.33	
2,015.0	26.70	221.80	1,948.0	-299.0	-280.1	381.2	1.09	1.01	-0.93	
2,143.0	28.60	224.10	2,061.4	-342.4	-320.6	436.4	1.70	1.48	1.80	
2,271.0	28.80	224.10	2,173.7	-386.6	-363.4	494.0	0.16	0.16	0.00	
2,400.0	29.80	227.20	2,286.2	-430.7	-408.5	553.7	1.41	0.78	2.40	
2,528.0	29.40	230.10	2,397.5	-472.4	-456.0	614.5	1.16	-0.31	2.27	
2,657.0	29.40	235.50	2,509.9	-510.7	-506.4	676.4	2.05	0.00	4.19	
2,785.0	29.40	238.30	2,621.4	-545.0	-559.0	738.6	1.07	0.00	2.19	
2,913.0	30.20	243.80	2,732.5	-575.7	-614.6	802.1	2.22	0.63	4.30	
3,042.0	32.80	248.30	2,842.5	-603.0	-676.2	869.4	2.72	2.02	3.49	
3,170.0	34.40	250.80	2,949.1	-627.7	-742.6	940.0	1.65	1.25	1.95	
3,299.0	30.90	251.50	3,057.7	-650.2	-808.4	1,009.1	2.73	-2.71	0.54	
3,427.0	31.30	253.30	3,167.3	-670.2	-871.5	1,074.6	0.79	0.31	1.41	
3,555.0	28.80	253.80	3,278.1	-688.3	-932.9	1,137.9	1.96	-1.95	0.39	
3,684.0	26.40	253.60	3,392.4	-705.1	-990.3	1,196.9	1.86	-1.86	-0.16	
3,812.0	25.90	257.70	3,507.3	-719.1	-1,044.9	1,252.3	1.46	-0.39	3.20	
3,941.0	24.30	259.40	3,624.2	-730.0	-1,098.5	1,305.4	1.36	-1.24	1.32	
4,069.0	26.30	257.50	3,739.9	-741.0	-1,152.1	1,358.5	1.69	1.56	-1.48	
4,197.0	28.80	257.30	3,853.4	-753.9	-1,209.9	1,416.2	1.95	1.95	-0.16	
4,326.0	29.50	258.40	3,966.0	-767.1	-1,271.3	1,477.4	0.68	0.54	0.85	
4,454.0	28.50	256.10	4,078.0	-780.8	-1,331.8	1,537.9	1.17	-0.78	-1.80	
4,583.0	28.00	253.60	4,191.6	-796.7	-1,390.7	1,598.0	1.00	-0.39	-1.94	
4,711.0	29.10	255.00	4,304.0	-813.3	-1,449.6	1,658.3	1.01	0.86	1.09	
4,839.0	30.20	254.50	4,415.3	-829.9	-1,510.7	1,720.6	0.88	0.86	-0.39	
4,968.0	30.90	255.00	4,526.4	-847.2	-1,574.0	1,785.2	0.58	0.54	0.39	
5,096.0	29.90	255.50	4,636.8	-863.7	-1,636.6	1,848.8	0.81	-0.78	0.39	
5,225.0	28.10	253.80	4,749.6	-880.2	-1,696.9	1,910.4	1.53	-1.40	-1.32	
5,353.0	27.30	253.30	4,862.9	-897.0	-1,754.0	1,969.2	0.65	-0.63	-0.39	
5,481.0	26.40	252.40	4,977.1	-914.1	-1,809.2	2,026.4	0.77	-0.70	-0.70	
5,610.0	27.00	251.70	5,092.4	-931.9	-1,864.4	2,083.9	0.53	0.47	-0.54	
5,738.0	24.50	255.90	5,207.7	-947.5	-1,917.7	2,138.8	2.42	-1.95	3.28	
5,867.0	21.00	256.40	5,326.6	-959.5	-1,966.1	2,187.6	2.72	-2.71	0.39	
5,995.0	16.00	250.30	5,448.0	-970.8	-2,005.1	2,227.7	4.18	-3.91	-4.77	
6,123.0	14.90	256.30	5,571.3	-980.7	-2,037.7	2,261.3	1.51	-0.86	4.69	
6,252.0	14.00	247.50	5,696.3	-990.6	-2,068.2	2,293.2	1.84	-0.70	-6.82	
6,380.0	10.30	246.80	5,821.4	-1,001.0	-2,093.0	2,320.1	2.89	-2.89	-0.55	
6,509.0	8.70	247.10	5,948.6	-1,009.4	-2,112.6	2,341.4	1.24	-1.24	0.23	
6,637.0	6.20	249.60	6,075.5	-1,015.5	-2,128.0	2,357.9	1.97	-1.95	1.95	
6,765.0	4.10	248.00	6,203.0	-1,019.7	-2,138.7	2,369.4	1.64	-1.64	-1.25	
6,894.0	2.70	261.90	6,331.8	-1,021.8	-2,146.0	2,376.9	1.25	-1.09	10.78	
6,962.3	1.51	265.75	6,400.0	-1,022.1	-2,148.5	2,379.2	1.75	-1.74	5.63	
TARGET BHL 1450'FSL, 75'FEL										
7,022.0	0.50	284.20	6,459.7	-1,022.1	-2,149.6	2,380.2	1.75	-1.69	30.92	
7,151.0	0.80	324.50	6,588.7	-1,021.2	-2,150.6	2,380.8	0.41	0.23	31.24	
7,279.0	0.80	8.60	6,716.7	-1,019.6	-2,151.0	2,380.4	0.47	0.00	34.45	
7,369.3	0.47	72.90	6,807.0	-1,018.9	-2,150.6	2,379.7	0.81	-0.37	71.20	
TARGET CIRCLE 1450'FSL & 75'FEL										
7,407.0	0.60	103.00	6,844.7	-1,018.9	-2,150.2	2,379.4	0.81	0.35	79.85	
7,536.0	1.00	141.10	6,973.7	-1,019.9	-2,148.9	2,378.6	0.50	0.31	29.53	
7,664.0	1.10	126.30	7,101.7	-1,021.5	-2,147.2	2,377.8	0.23	0.08	-11.56	
7,821.0	0.90	118.60	7,258.6	-1,023.0	-2,144.9	2,376.3	0.15	-0.13	-4.90	
HARD LINES 75'E OF BHL										
7,873.0	0.80	120.00	7,310.6	-1,023.4	-2,144.2	2,375.9	0.20	-0.19	2.69	

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