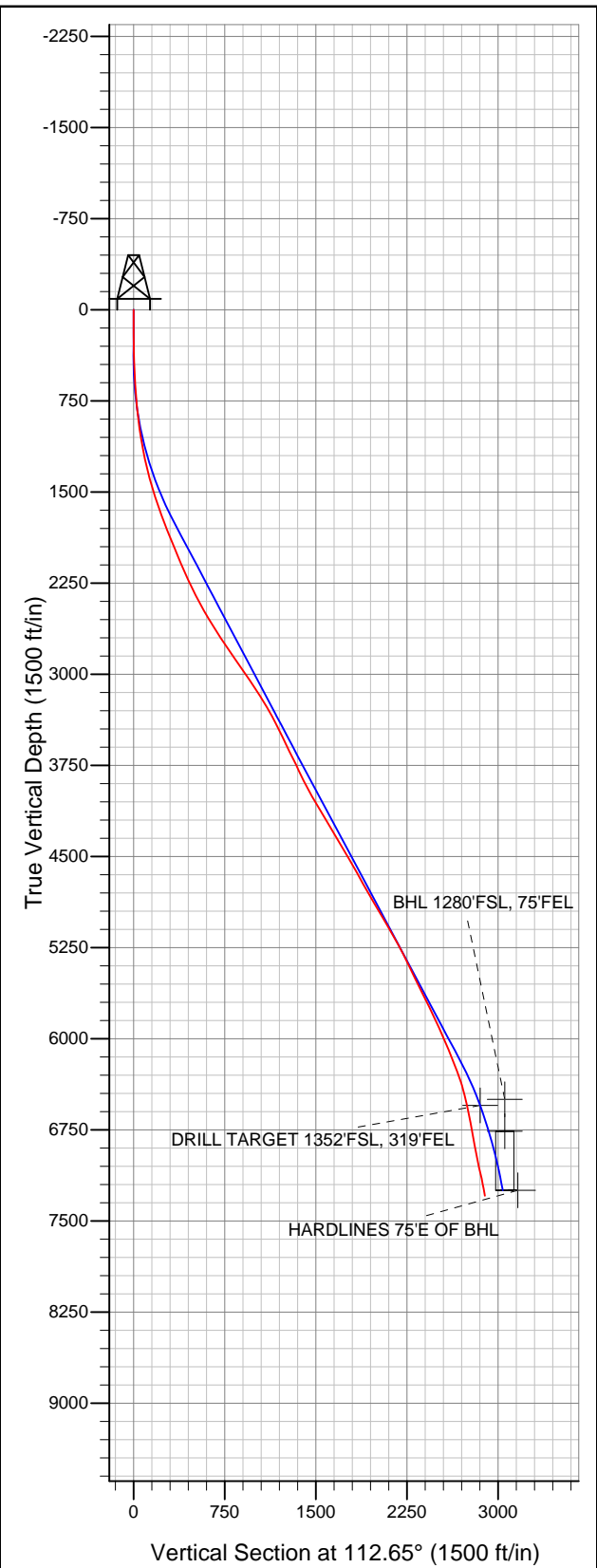
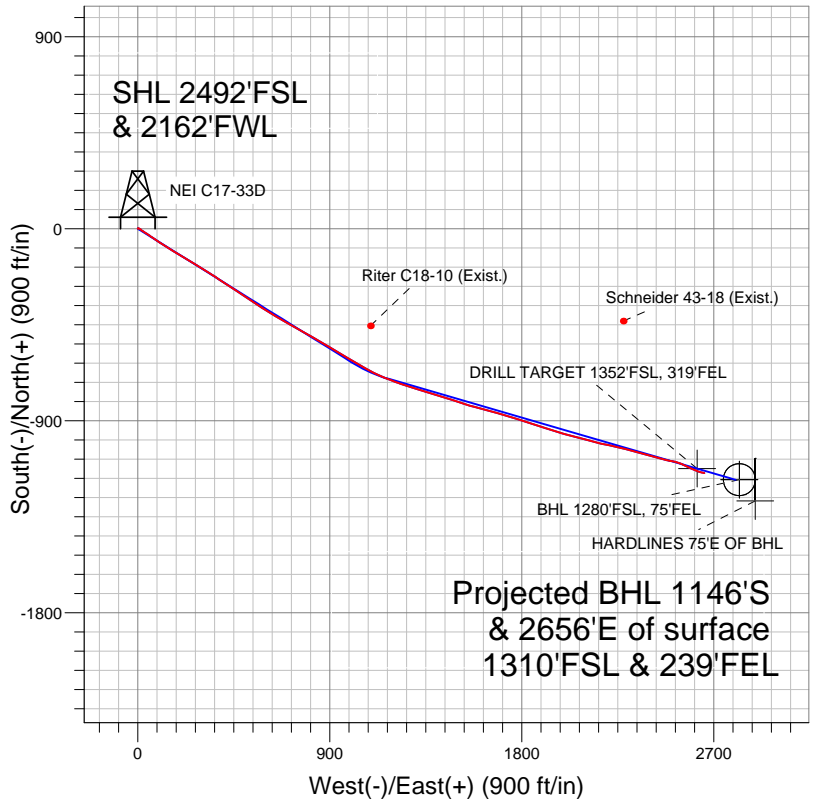


# Well Name: NEI C17-33D

Surface Location: NEI C18-32D Pad Sec.18-T4N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4835.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1357748.54 3252556.37 40.311880 -104.594350  
 Original Well Elev WELL @ 4848.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- NEI C17-33D, Wellbore #1, Noble NEI C17-33D Plan #1 (12-3-11) R2 V0
- Survey #1
- Wellbore #1

## Final Survey Plot

Projected Final Survey -  
 7975'MD & 7294'TVD @ 2892'VS  
 10.5 deg Inc 103.6 deg AZ

Project: SEC.18-T4N-R64W  
 Site: NEI C18-32D Pad Sec.18-T4N-R64W  
 Well: NEI C17-33D  
 Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.18-T4N-R64W**

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

**NEI C17-33D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**09 December, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Project:</b>	SEC.18-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32D Pad Sec.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Well:</b>	NEI C17-33D	<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>	1,357,747.19ft
<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 C17-33D		
<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>	40.311880
		<b>Longitude:</b>	-104.594350
		<b>Ground Level:</b>	4,835.0 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	11/30/2011	8.70	66.99	53,055

<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	112.65	

<b>Survey Program</b>	<b>Date</b>	12/9/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
106.0	7,975.0	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	
106.0	0.90	47.90	106.0	0.6	0.6	0.4	0.85	0.85	0.00	
195.0	0.80	28.90	195.0	1.6	1.4	0.7	0.33	-0.11	-21.35	
285.0	0.50	67.90	285.0	2.3	2.1	1.1	0.58	-0.33	43.33	
390.0	1.50	114.70	390.0	1.9	3.8	2.8	1.16	0.95	44.57	
517.0	3.00	118.90	516.9	-0.4	8.2	7.7	1.19	1.18	3.31	
653.0	4.40	128.60	652.6	-5.4	15.4	16.3	1.12	1.03	7.13	
728.0	4.70	127.50	727.3	-9.1	20.1	22.0	0.42	0.40	-1.47	
856.0	6.30	124.40	854.7	-16.2	30.0	34.0	1.27	1.25	-2.42	
985.0	8.00	121.20	982.7	-24.9	43.6	49.8	1.35	1.32	-2.48	
1,113.0	10.60	124.90	1,109.0	-36.2	60.8	70.1	2.08	2.03	2.89	
1,242.0	12.60	126.80	1,235.4	-51.5	81.8	95.3	1.58	1.55	1.47	
1,370.0	14.50	121.70	1,359.8	-68.2	106.6	124.7	1.75	1.48	-3.98	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
<b>Project:</b>	SEC.18-T4N-R64W	<b>TVD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Site:</b>	NEI C18-32D Pad Sec.18-T4N-R64W	<b>MD Reference:</b>	WELL @ 4848.0ft (Original Well Elev)
<b>Well:</b>	NEI C17-33D	<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)	
1,498.0	17.30	121.40	1,482.9	-86.6	136.5	159.3	2.19	2.19	-0.23	
1,627.0	19.90	120.90	1,605.2	-107.9	171.7	200.0	2.02	2.02	-0.39	
1,755.0	20.20	121.20	1,725.4	-130.5	209.3	243.4	0.25	0.23	0.23	
1,884.0	22.30	123.00	1,845.7	-155.4	248.9	289.6	1.70	1.63	1.40	
2,012.0	22.50	120.70	1,964.0	-181.1	290.3	337.7	0.70	0.16	-1.80	
2,140.0	23.60	121.20	2,081.8	-206.9	333.3	387.3	0.87	0.86	0.39	
2,269.0	24.70	125.80	2,199.5	-236.0	377.3	439.1	1.69	0.85	3.57	
2,397.0	26.90	121.60	2,314.7	-266.8	423.6	493.7	2.23	1.72	-3.28	
2,526.0	28.70	123.00	2,428.8	-299.0	474.5	553.0	1.48	1.40	1.09	
2,654.0	31.10	124.50	2,539.8	-334.5	527.5	615.6	1.96	1.88	1.17	
2,782.0	33.10	122.80	2,648.2	-372.1	584.1	682.4	1.71	1.56	-1.33	
2,911.0	34.40	120.70	2,755.5	-409.8	645.1	753.1	1.35	1.01	-1.63	
3,039.0	34.60	119.60	2,861.0	-446.2	707.8	825.0	0.51	0.16	-0.86	
3,168.0	35.60	120.20	2,966.5	-483.2	772.1	898.6	0.82	0.78	0.47	
3,296.0	33.20	118.90	3,072.1	-518.9	835.0	970.4	1.96	-1.88	-1.02	
3,424.0	33.20	120.30	3,179.2	-553.5	895.9	1,040.0	0.60	0.00	1.09	
3,553.0	30.60	120.30	3,288.7	-587.9	954.8	1,107.5	2.02	-2.02	0.00	
3,681.0	26.90	123.30	3,401.0	-620.2	1,007.1	1,168.3	3.10	-2.89	2.34	
3,810.0	26.30	118.40	3,516.3	-649.9	1,056.6	1,225.4	1.76	-0.47	-3.80	
3,938.0	25.90	116.60	3,631.3	-675.9	1,106.6	1,281.5	0.69	-0.31	-1.41	
4,066.0	26.60	112.40	3,746.1	-699.3	1,158.1	1,338.1	1.55	0.55	-3.28	
4,195.0	24.90	110.30	3,862.3	-719.7	1,210.3	1,394.1	1.50	-1.32	-1.63	
4,323.0	29.50	106.30	3,976.1	-737.9	1,265.8	1,452.4	3.87	3.59	-3.13	
4,452.0	31.10	108.60	4,087.5	-757.5	1,327.9	1,517.2	1.53	1.24	1.78	
4,580.0	30.50	107.10	4,197.4	-777.6	1,390.3	1,582.5	0.76	-0.47	-1.17	
4,708.0	31.00	106.10	4,307.4	-796.3	1,453.0	1,647.6	0.56	0.39	-0.78	
4,837.0	30.20	109.80	4,418.5	-816.5	1,515.4	1,713.0	1.59	-0.62	2.87	
4,965.0	30.80	105.00	4,528.8	-835.9	1,577.4	1,777.6	1.96	0.47	-3.75	
5,094.0	30.30	104.50	4,639.9	-852.6	1,640.8	1,842.6	0.43	-0.39	-0.39	
5,222.0	29.40	106.10	4,750.9	-869.4	1,702.2	1,905.7	0.94	-0.70	1.25	
5,350.0	29.70	107.50	4,862.2	-887.6	1,762.7	1,968.5	0.59	0.23	1.09	
5,479.0	29.70	107.00	4,974.3	-906.6	1,823.7	2,032.2	0.19	0.00	-0.39	
5,607.0	31.70	109.10	5,084.3	-926.8	1,885.8	2,097.3	1.77	1.56	1.64	
5,736.0	29.50	107.70	5,195.4	-947.6	1,948.1	2,162.8	1.79	-1.71	-1.09	
5,864.0	26.50	105.00	5,308.4	-964.6	2,005.7	2,222.5	2.54	-2.34	-2.11	
5,992.0	25.60	104.50	5,423.4	-978.9	2,060.1	2,278.2	0.72	-0.70	-0.39	
6,121.0	26.60	104.30	5,539.2	-993.0	2,115.0	2,334.3	0.78	0.78	-0.16	
6,249.0	27.10	104.30	5,653.4	-1,007.3	2,171.1	2,391.5	0.39	0.39	0.00	
6,378.0	26.60	101.20	5,768.5	-1,020.1	2,227.9	2,448.9	1.15	-0.39	-2.40	
6,506.0	24.10	103.60	5,884.2	-1,031.9	2,281.4	2,502.8	2.11	-1.95	1.88	
6,634.0	23.00	105.20	6,001.5	-1,044.6	2,330.9	2,553.4	0.99	-0.86	1.25	
6,763.0	23.20	106.40	6,120.2	-1,058.3	2,379.6	2,603.7	0.40	0.16	0.93	
6,891.0	21.60	104.70	6,238.5	-1,071.4	2,426.6	2,652.1	1.35	-1.25	-1.33	
7,018.0	17.90	104.20	6,358.0	-1,082.2	2,468.2	2,694.5	2.92	-2.91	-0.39	
7,146.0	14.20	99.10	6,481.0	-1,089.5	2,502.7	2,729.3	3.09	-2.89	-3.98	
7,189.0	13.20	102.00	6,522.8	-1,091.3	2,512.7	2,739.2	2.82	-2.33	6.74	
7,233.9	12.13	105.56	6,566.6	-1,093.7	2,522.3	2,748.9	2.95	-2.38	7.94	
BHL 1280'FSL, 75'FEL										
7,238.7	12.02	105.98	6,571.3	-1,093.9	2,523.3	2,749.9	2.95	-2.32	8.70	
DRILL TARGET 1352'FSL, 319'FEL										
7,275.0	11.20	109.40	6,606.9	-1,096.1	2,530.2	2,757.2	2.95	-2.26	9.42	
7,403.0	10.50	112.40	6,732.6	-1,104.7	2,552.7	2,781.3	0.70	-0.55	2.34	
7,481.4	10.19	115.26	6,809.7	-1,110.4	2,565.6	2,795.4	0.77	-0.40	3.65	
TARGET CIRCLE 1280'FSL & 75'FEL										

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well NEI C17-33D
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<b>Well:</b>	NEI C17-33D	<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)
7,532.0	10.00	117.20	6,859.5	-1,114.3	2,573.6	2,804.2	0.77	-0.37	3.83
7,660.0	12.20	113.70	6,985.1	-1,124.8	2,595.8	2,828.8	1.80	1.72	-2.73
7,788.0	12.30	111.70	7,110.2	-1,135.3	2,620.9	2,856.0	0.34	0.08	-1.56
7,917.0	10.80	103.80	7,236.6	-1,143.3	2,645.4	2,881.7	1.69	-1.16	-6.12
7,924.0	10.50	103.60	7,243.5	-1,143.6	2,646.7	2,882.9	4.32	-4.29	-2.86
7,975.0	10.50	103.60	7,293.6	-1,145.8	2,655.7	2,892.1	0.00	0.00	0.00
HARDLINES 75'E OF BHL									

Checked By: _____	Approved By: _____	Date: _____
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