

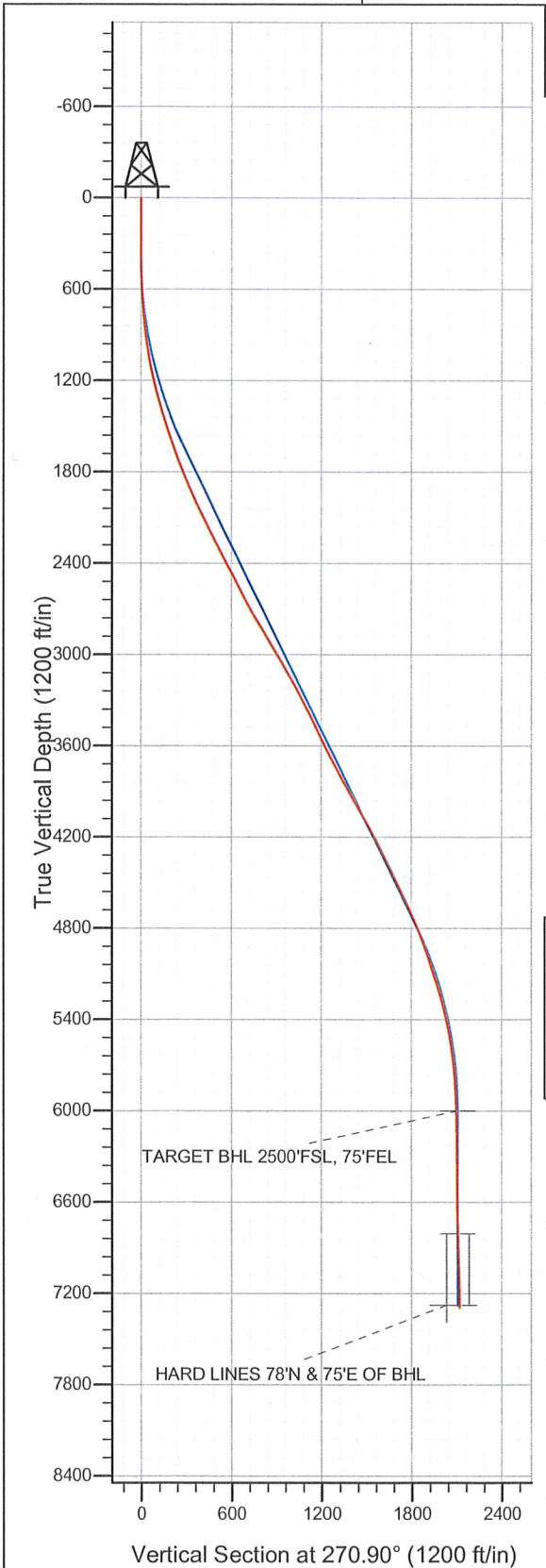
Well Name: **NEI PC C18-32D**

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

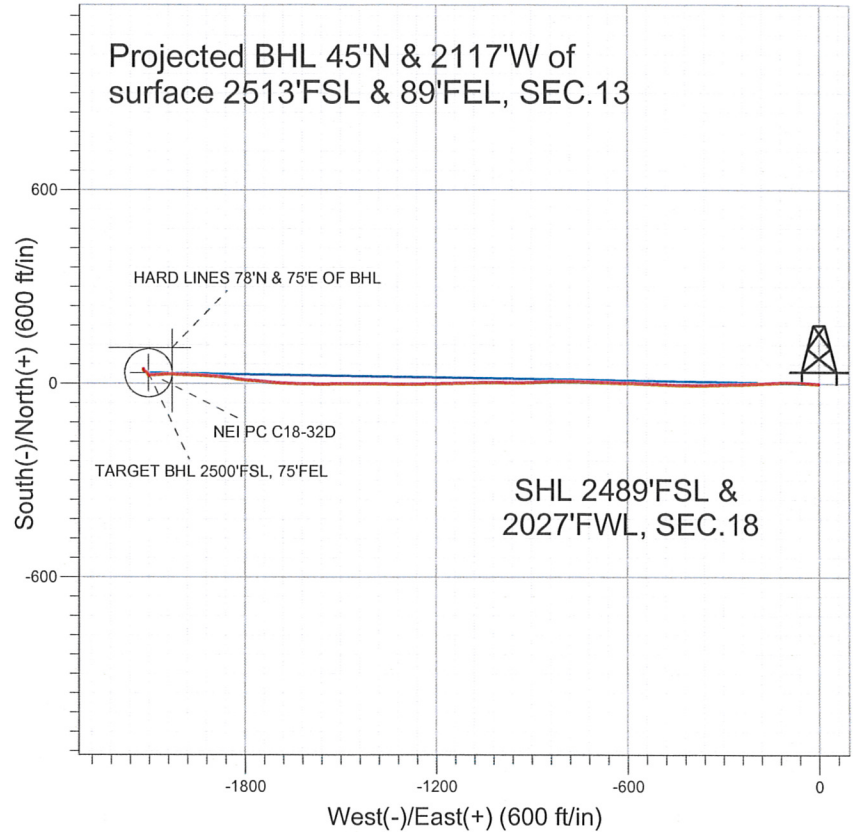
Ground Elevation: 4835.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1357747.14	3252422.52	40.311880	-104.594830	

Original Well Elev WELL @ 4848.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- NEI PC C18-32D, Wellbore #1, Noble NEI PC C18-32D Plan #1 (7-25-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7749'MD & 7291'TVD @ 2117'VS  
 1.2 deg Inc 355.0 deg AZ

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



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.18-T4N-R64W**

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

**NEI PC C18-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**04 November, 2011**



Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.18-T4N-R64W  
 Site: NEI C18-32D Pad Sec.18-T4N-R64W  
 Well: NEI PC C18-32D  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well NEI PC C18-32D  
 TVD Reference: WELL @ 4848.0ft (Original Well Elev)  
 MD Reference: WELL @ 4848.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature  
 Database: Landmark

Project	SEC.18-T4N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

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

Site Position:	Lat/Long	Northing:	1,357,747.19ft	Latitude:	40.311880
From:		Easting:	3,252,422.52ft	Longitude:	-104.594830
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.58 °

Well	NEI PC C18-32D					
Well Position	+N/-S	0.0 ft	Northing:	1,357,747.14 ft	Latitude:	40.311880
	+E/-W	0.0 ft	Easting:	3,252,422.52 ft	Longitude:	-104.594830
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,835.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/25/2011	8.75	67.00	53,092

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.90

Survey Program Date 11/4/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
289.0	7,749.0	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	0.0	0.0	0.0	0.00	0.00	0.00
289.0	0.10	280.70	289.0	0.0	-0.2	0.2	0.03	0.03	0.00
351.0	0.20	71.50	351.0	0.1	-0.2	0.2	0.47	0.16	243.23
479.0	1.30	265.00	479.0	0.0	-1.4	1.4	1.17	0.86	-130.08
607.0	3.20	281.20	606.9	0.6	-6.4	6.4	1.55	1.48	12.66
635.0	3.30	269.40	634.8	0.7	-8.0	8.0	2.41	0.36	-42.14
681.0	4.10	278.40	680.7	1.0	-10.9	10.9	2.14	1.74	19.57
810.0	5.60	277.30	809.3	2.4	-21.7	21.7	1.16	1.16	-0.85
938.0	8.40	271.00	936.3	3.4	-37.3	37.3	2.27	2.19	-4.92
1,067.0	9.80	274.90	1,063.7	4.5	-57.6	57.7	1.19	1.09	3.02
1,195.0	12.80	267.50	1,189.2	4.8	-82.6	82.7	2.60	2.34	-5.78
1,324.0	14.90	268.60	1,314.4	3.8	-113.5	113.6	1.64	1.63	0.85
1,452.0	17.30	269.30	1,437.4	3.2	-149.0	149.0	1.88	1.88	0.55



**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.18-T4N-R64W  
**Site:** NEI C18-32D Pad Sec.18-T4N-R64W  
**Well:** NEI PC C18-32D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well NEI PC C18-32D  
**TVD Reference:** WELL @ 4848.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4848.0ft (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)
1,580.0	19.40	267.10	1,558.9	1.8	-189.3	189.3	1.73	1.64	-1.72
1,709.0	19.90	266.40	1,680.4	-0.6	-232.6	232.5	0.43	0.39	-0.54
1,837.0	22.00	270.00	1,799.9	-2.0	-278.3	278.2	1.92	1.64	2.81
1,966.0	24.00	266.80	1,918.7	-3.4	-328.7	328.6	1.83	1.55	-2.48
2,094.0	25.00	270.30	2,035.1	-4.8	-381.7	381.6	1.38	0.78	2.73
2,222.0	27.50	272.80	2,149.9	-3.2	-438.3	438.2	2.14	1.95	1.95
2,351.0	28.10	271.20	2,264.1	-1.1	-498.4	498.3	0.74	0.47	-1.24
2,479.0	27.80	273.10	2,377.1	1.2	-558.3	558.3	0.73	-0.23	1.48
2,608.0	26.70	270.00	2,491.8	2.8	-617.4	617.3	1.39	-0.85	-2.40
2,736.0	28.20	273.30	2,605.4	4.5	-676.3	676.3	1.67	1.17	2.58
2,864.0	29.40	272.10	2,717.6	7.4	-737.9	737.9	1.04	0.94	-0.94
2,993.0	31.00	268.90	2,829.1	7.9	-802.8	802.8	1.76	1.24	-2.48
3,121.0	31.90	267.30	2,938.3	5.7	-869.5	869.5	0.96	0.70	-1.25
3,250.0	30.30	269.10	3,048.7	3.6	-936.1	936.0	1.43	-1.24	1.40
3,378.0	30.20	271.70	3,159.3	4.0	-1,000.6	1,000.5	1.03	-0.08	2.03
3,506.0	27.20	268.40	3,271.6	4.2	-1,062.0	1,061.9	2.65	-2.34	-2.58
3,635.0	26.70	267.90	3,386.6	2.3	-1,120.4	1,120.3	0.43	-0.39	-0.39
3,763.0	26.10	269.60	3,501.2	1.1	-1,177.3	1,177.2	0.75	-0.47	1.33
3,892.0	25.60	268.60	3,617.3	0.2	-1,233.6	1,233.4	0.51	-0.39	-0.78
4,020.0	27.20	269.80	3,731.9	-0.6	-1,290.5	1,290.3	1.32	1.25	0.94
4,148.0	29.70	271.70	3,844.5	0.2	-1,351.4	1,351.3	2.08	1.95	1.48
4,277.0	29.90	269.30	3,956.4	0.8	-1,415.5	1,415.4	0.94	0.16	-1.86
4,405.0	30.30	270.10	4,067.2	0.5	-1,479.7	1,479.6	0.44	0.31	0.63
4,534.0	27.80	270.10	4,179.9	0.6	-1,542.4	1,542.2	1.94	-1.94	0.00
4,662.0	26.80	268.40	4,293.7	-0.2	-1,601.1	1,600.9	0.99	-0.78	-1.33
4,790.0	26.20	273.30	4,408.2	0.6	-1,658.1	1,657.9	1.77	-0.47	3.83
4,919.0	26.40	275.80	4,523.9	5.2	-1,715.1	1,715.0	0.87	0.16	1.94
5,047.0	25.10	274.40	4,639.2	10.1	-1,770.5	1,770.4	1.12	-1.02	-1.09
5,176.0	23.50	277.90	4,756.8	15.8	-1,823.2	1,823.3	1.67	-1.24	2.71
5,304.0	21.20	276.60	4,875.1	21.9	-1,871.5	1,871.6	1.84	-1.80	-1.02
5,432.0	17.90	272.90	4,995.7	25.6	-1,914.2	1,914.3	2.75	-2.58	-2.89
5,561.0	17.90	272.20	5,118.5	27.4	-1,953.8	1,954.0	0.17	0.00	-0.54
5,689.0	15.70	272.40	5,241.0	28.8	-1,990.7	1,990.9	1.72	-1.72	0.16
5,818.0	13.10	271.50	5,366.0	29.9	-2,022.8	2,023.0	2.02	-2.02	-0.70
5,946.0	10.60	267.70	5,491.2	29.9	-2,049.1	2,049.3	2.05	-1.95	-2.97
6,074.0	7.30	265.00	5,617.6	28.7	-2,068.9	2,069.1	2.60	-2.58	-2.11
6,203.0	5.50	269.10	5,745.8	27.9	-2,083.3	2,083.5	1.44	-1.40	3.18
6,331.0	2.80	273.70	5,873.5	28.0	-2,092.5	2,092.7	2.12	-2.11	3.59
6,457.8	1.91	243.84	6,000.2	27.2	-2,097.5	2,097.7	1.17	-0.70	-23.56
TARGET BHL 2500'FSL, 75'FEL									
6,460.0	1.90	243.10	6,002.4	27.2	-2,097.6	2,097.7	1.17	-0.40	-33.16
6,588.0	1.00	185.20	6,130.4	25.1	-2,099.6	2,099.7	1.26	-0.70	-45.23
6,716.0	0.40	80.50	6,258.3	24.1	-2,099.2	2,099.4	0.91	-0.47	-81.80
6,845.0	1.50	320.10	6,387.3	25.5	-2,099.9	2,100.0	1.35	0.85	-93.33
6,973.0	1.00	340.30	6,515.3	27.8	-2,101.3	2,101.5	0.51	-0.39	15.78
7,102.0	2.10	333.60	6,644.3	31.0	-2,102.8	2,103.0	0.86	0.85	-5.19
7,230.0	1.70	305.60	6,772.2	34.2	-2,105.3	2,105.6	0.78	-0.31	-21.88
7,265.7	1.73	304.55	6,807.9	34.8	-2,106.2	2,106.5	0.12	0.08	-2.93
TARGET CIRCLE 2500'FSL & 75'FEL									
7,358.0	1.80	302.00	6,900.1	36.4	-2,108.6	2,108.9	0.12	0.08	-2.77
7,487.0	2.50	299.30	7,029.0	38.8	-2,112.8	2,113.1	0.55	0.54	-2.09
7,615.0	1.80	335.50	7,156.9	42.0	-2,116.0	2,116.4	1.17	-0.55	28.28
7,699.0	1.50	358.70	7,240.9	44.3	-2,116.6	2,117.0	0.86	-0.36	27.62
7,737.5	1.27	356.00	7,279.4	45.2	-2,116.6	2,117.1	0.62	-0.60	-7.00

**Company:** NOBLE ENERGY INC WELD COUNTY CO  
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**Wellbore:** Wellbore #1  
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**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)
HARD LINES 78°N & 75°E OF BHL									
7,749.0	1.20	355.00	7,290.9	45.5	-2,116.7	2,117.1	0.62	-0.60	-8.75

Checked By: _____	Approved By: _____	Date: _____
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