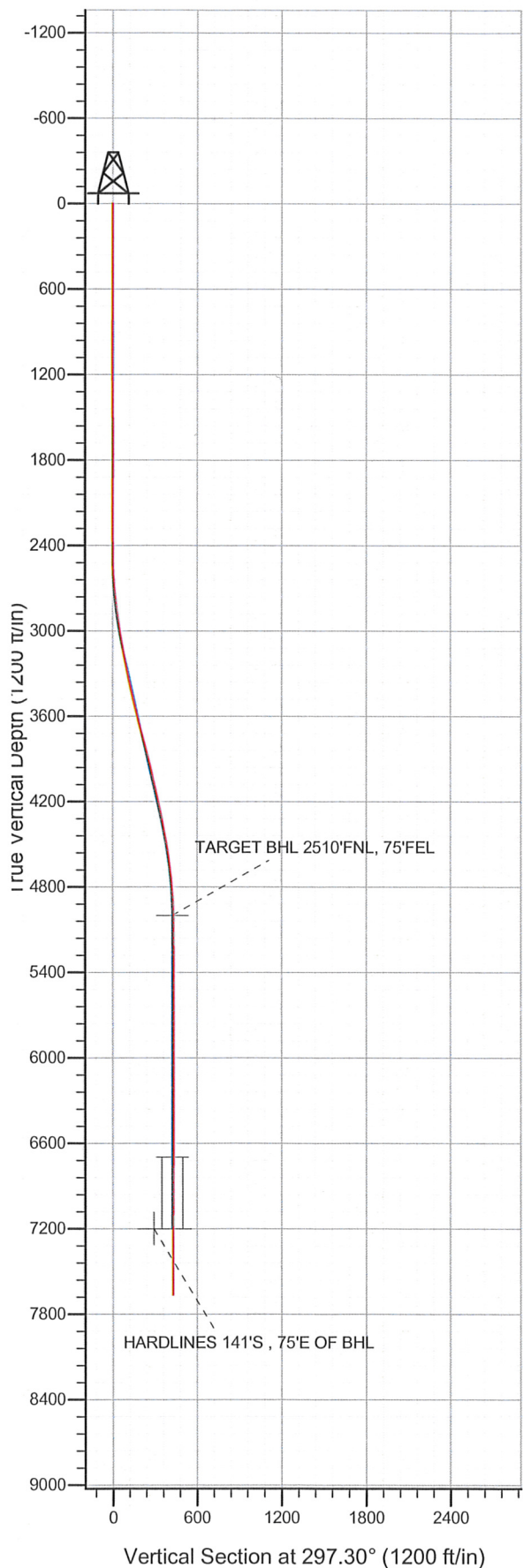


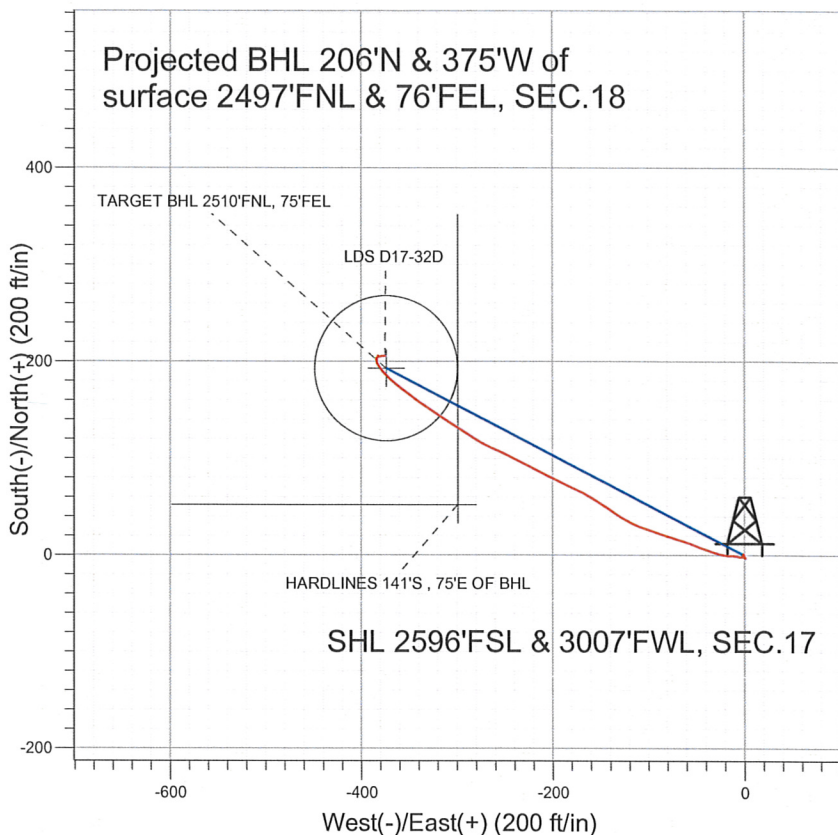
Well Name: **LDS D17-32D**  
 Surface Location: LDS D17-31D PAD Sec.17-T3N-R64W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4756.0  

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1326201.74	3255955.83	40.225190	-104.583330	

 Original Well Elev WELL @ 4769.0ft (Original Well Elev)



### NOBLE ENERGY INC WELD COUNTY CO



#### LEGEND

- ◆ LDS D17-32D, Wellbore #1, Noble LDS D17-32D Plan #2 (5-04-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7708'MD & 7664'TVD @ 428'VS  
 0.4 deg Inc 79.9 deg AZ

Project: SEC.17-T3N-R64W  
 Site: LDS D17-31D PAD Sec.17-T3N-R64W  
 Well: LDS D17-32D  
 Plan: Wellbore #1



**Directional**

**NOBLE ENERGY INC WELD  
COUNTY CO**

**SEC.17-T3N-R64W**

**LDS D17-31D PAD Sec.17-T3N-R64W**

**LDS D17-32D**

**Wellbore #1**

**Survey: Survey #1**

**Standard Survey Report**

**01 August, 2011**



**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.17-T3N-R64W  
**Site:** LDS D17-31D PAD Sec.17-T3N-R64W  
**Well:** LDS D17-32D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well LDS D17-32D  
**TVD Reference:** WELL @ 4769.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4769.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Landmark

<b>Project</b>	SEC.17-T3N-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

**Site** LDS D17-31D PAD Sec.17-T3N-R64W

<b>Site Position:</b>		<b>Northing:</b>	1,326,227.25 ft	<b>Latitude:</b>	40.225260
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,255,955.57 ft	<b>Longitude:</b>	-104.583330
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.59 °

<b>Well</b>	LDS D17-32D				
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,326,201.74 ft	<b>Latitude:</b> 40.225190
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,255,955.83 ft	<b>Longitude:</b> -104.583330
<b>Position Uncertainty</b>	0.0 ft		<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b> 4,756.0 ft

**Wellbore** 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	5/4/2011	8.77	66.94	53,072

**Design** Wellbore #1

**Audit Notes:**

<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
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<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	297.30

**Survey Program** Date 8/1/2011

<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
731.0	7,708.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

**Survey**

<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	0.30	161.90	731.0	-1.8	0.6	-1.4	0.04	0.04	0.00
817.0	0.30	137.40	817.0	-2.2	0.8	-1.7	0.15	0.00	-28.49
902.0	0.30	137.50	902.0	-2.5	1.1	-2.2	0.00	0.00	0.12
988.0	0.30	141.40	988.0	-2.9	1.4	-2.6	0.02	0.00	4.53
1,073.0	0.60	310.30	1,073.0	-2.8	1.2	-2.3	1.05	0.35	198.71
1,159.0	0.50	316.50	1,159.0	-2.2	0.6	-1.5	0.14	-0.12	7.21
1,244.0	0.50	315.80	1,244.0	-1.7	0.1	-0.8	0.01	0.00	-0.82
1,330.0	0.60	302.50	1,330.0	-1.1	-0.5	0.0	0.19	0.12	-15.47
1,416.0	0.60	290.30	1,416.0	-0.7	-1.3	0.9	0.15	0.00	-14.19
1,501.0	0.40	344.20	1,501.0	-0.3	-1.8	1.5	0.57	-0.24	63.41
1,587.0	0.80	27.10	1,587.0	0.5	-1.7	1.7	0.67	0.47	49.88
1,672.0	0.40	23.40	1,672.0	1.3	-1.3	1.7	0.47	-0.47	-4.35

Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.17-T3N-R64W  
 Site: LDS D17-31D PAD Sec.17-T3N-R64W  
 Well: LDS D17-32D  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well LDS D17-32D  
 TVD Reference: WELL @ 4769.0ft (Original Well Elev)  
 MD Reference: WELL @ 4769.0ft (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)
1,758.0	0.10	145.60	1,758.0	1.5	-1.1	1.7	0.54	-0.35	142.09
1,843.0	0.30	103.50	1,843.0	1.4	-0.8	1.4	0.28	0.24	-49.53
1,929.0	0.50	151.10	1,929.0	1.0	-0.4	0.9	0.43	0.23	55.35
2,014.0	0.40	139.30	2,014.0	0.5	-0.1	0.3	0.16	-0.12	-13.88
2,100.0	0.20	188.60	2,100.0	0.1	0.1	0.0	0.36	-0.23	57.33
2,185.0	0.40	234.50	2,185.0	-0.2	-0.2	0.1	0.35	0.24	54.00
2,271.0	0.40	239.70	2,271.0	-0.5	-0.7	0.3	0.04	0.00	6.05
2,356.0	0.40	175.10	2,356.0	-1.0	-0.9	0.3	0.50	0.00	-76.00
2,442.0	0.80	224.40	2,441.9	-1.7	-1.3	0.4	0.72	0.47	57.33
2,527.0	2.20	281.70	2,526.9	-1.8	-3.3	2.1	2.23	1.65	67.41
2,613.0	3.40	280.50	2,612.8	-1.0	-7.4	6.1	1.40	1.40	-1.40
2,698.0	4.80	272.40	2,697.6	-0.4	-13.5	11.8	1.78	1.65	-9.53
2,784.0	6.30	278.10	2,783.2	0.4	-21.7	19.5	1.86	1.74	6.63
2,869.0	7.70	289.20	2,867.6	3.0	-31.7	29.5	2.28	1.65	13.06
2,955.0	9.00	291.10	2,952.6	7.3	-43.4	41.9	1.55	1.51	2.21
3,040.0	9.50	289.30	3,036.5	12.0	-56.3	55.5	0.68	0.59	-2.12
3,126.0	11.20	287.90	3,121.1	16.9	-70.9	70.8	2.00	1.98	-1.63
3,211.0	10.80	288.00	3,204.6	21.9	-86.3	86.8	0.47	-0.47	0.12
3,297.0	11.30	287.90	3,289.0	27.0	-102.0	103.0	0.58	0.58	-0.12
3,382.0	11.60	295.80	3,372.3	33.3	-117.6	119.8	1.88	0.35	9.29
3,468.0	12.90	303.70	3,456.3	42.3	-133.4	138.0	2.46	1.51	9.19
3,554.0	13.70	304.30	3,540.0	53.4	-149.8	157.6	0.94	0.93	0.70
3,639.0	14.60	297.80	3,622.5	64.1	-167.6	178.3	2.15	1.06	-7.65
3,725.0	14.50	294.50	3,705.7	73.6	-187.0	199.9	0.97	-0.12	-3.84
3,810.0	15.80	296.30	3,787.7	83.1	-207.1	222.1	1.63	1.53	2.12
3,896.0	15.30	297.20	3,870.6	93.5	-227.6	245.2	0.65	-0.58	1.05
3,981.0	13.80	296.00	3,952.9	103.1	-246.7	266.5	1.80	-1.76	-1.41
4,067.0	12.30	293.60	4,036.6	111.2	-264.3	285.9	1.85	-1.74	-2.79
4,152.0	13.10	302.70	4,119.6	120.1	-280.7	304.6	2.53	0.94	10.71
4,238.0	12.40	302.70	4,203.5	130.3	-296.7	323.4	0.81	-0.81	0.00
4,323.0	11.40	303.40	4,286.6	139.9	-311.4	340.9	1.19	-1.18	0.82
4,409.0	11.50	303.60	4,370.9	149.3	-325.6	357.9	0.13	0.12	0.23
4,494.0	11.10	304.70	4,454.3	158.7	-339.4	374.4	0.53	-0.47	1.29
4,580.0	9.10	308.90	4,538.9	167.6	-351.5	389.3	2.48	-2.33	4.88
4,665.0	6.90	305.40	4,623.1	174.8	-360.9	400.9	2.65	-2.59	-4.12
4,751.0	7.20	310.90	4,708.5	181.3	-369.2	411.3	0.86	0.35	6.40
4,836.0	5.40	319.60	4,792.9	187.9	-375.8	420.1	2.39	-2.12	10.24
4,922.0	3.70	322.20	4,878.7	193.1	-380.2	426.4	1.99	-1.98	3.02
5,007.0	2.60	329.90	4,963.5	197.0	-382.8	430.5	1.38	-1.29	9.06
5,043.2	1.92	336.97	4,999.7	198.3	-383.5	431.7	2.03	-1.88	19.50
TARGET BHL 2510'FNL, 75'FEL									
5,093.0	1.10	0.50	5,049.5	199.5	-383.8	432.5	2.03	-1.64	47.29
5,178.0	0.80	0.80	5,134.5	200.9	-383.8	433.2	0.35	-0.35	0.35
5,264.0	0.00	72.80	5,220.5	201.5	-383.7	433.4	0.93	-0.93	0.00
5,349.0	0.20	113.50	5,305.5	201.4	-383.6	433.3	0.24	0.24	0.00
5,435.0	0.40	157.80	5,391.5	201.1	-383.4	432.9	0.34	0.23	51.51
5,520.0	0.30	272.20	5,476.5	200.8	-383.5	432.9	0.70	-0.12	134.59
5,606.0	0.80	322.50	5,562.5	201.3	-384.1	433.6	0.76	0.58	58.49
5,692.0	0.40	356.40	5,648.5	202.1	-384.4	434.3	0.60	-0.47	39.42
5,777.0	0.40	23.40	5,733.5	202.7	-384.3	434.5	0.22	0.00	31.76
5,863.0	0.50	52.80	5,819.5	203.2	-383.9	434.4	0.29	0.12	34.19
5,948.0	0.40	62.00	5,904.5	203.5	-383.4	434.0	0.14	-0.12	10.82
6,034.0	0.70	32.60	5,990.5	204.1	-382.8	433.8	0.47	0.35	-34.19
6,119.0	0.40	5.61	6,075.4	204.9	-382.5	433.9	0.46	-0.35	-31.75

**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.17-T3N-R64W  
**Site:** LDS D17-31D PAD Sec.17-T3N-R64W  
**Well:** LDS D17-32D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well LDS D17-32D  
**TVD Reference:** WELL @ 4769.0ft (Original Well Elev)  
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**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)
6,205.0	0.20	357.30	6,161.4	205.3	-382.5	434.1	0.24	-0.23	-9.66
6,290.0	0.30	349.30	6,246.4	205.7	-382.5	434.3	0.12	0.12	-9.41
6,376.0	0.10	116.80	6,332.4	205.9	-382.5	434.3	0.43	-0.23	148.26
6,461.0	0.30	145.70	6,417.4	205.6	-382.3	434.1	0.26	0.24	34.00
6,547.0	0.20	227.60	6,503.4	205.4	-382.3	433.9	0.39	-0.12	95.23
6,632.0	0.10	25.10	6,588.4	205.3	-382.4	434.0	0.35	-0.12	185.29
6,718.0	0.10	103.30	6,674.4	205.4	-382.3	433.9	0.15	0.00	90.93
6,738.6	0.10	108.41	6,695.0	205.4	-382.2	433.9	0.04	-0.01	24.83
<b>TARGET CIRCLE 2510'FNL, 75'FEL</b>									
6,803.0	0.10	124.60	6,759.4	205.3	-382.1	433.7	0.04	0.00	25.13
6,889.0	0.10	106.50	6,845.4	205.2	-382.0	433.6	0.04	0.00	-21.05
6,974.0	0.30	124.20	6,930.4	205.1	-381.8	433.3	0.24	0.24	20.82
7,060.0	0.50	84.90	7,016.4	205.0	-381.2	432.8	0.38	0.23	-45.70
7,145.0	0.60	81.50	7,101.4	205.1	-380.4	432.1	0.12	0.12	-4.00
7,231.0	0.40	74.20	7,187.4	205.3	-379.7	431.5	0.24	-0.23	-8.49
7,242.7	0.44	71.34	7,199.1	205.3	-379.6	431.4	0.38	0.34	-24.54
<b>HARDLINES 141'S, 75'E OF BHL</b>									
7,316.0	0.70	61.00	7,272.4	205.6	-378.9	431.0	0.38	0.36	-14.10
7,402.0	0.60	94.10	7,358.4	205.8	-378.0	430.3	0.44	-0.12	38.49
7,487.0	0.50	90.40	7,443.4	205.8	-377.2	429.6	0.12	-0.12	-4.35
7,573.0	0.60	89.80	7,529.4	205.8	-376.4	428.8	0.12	0.12	-0.70
7,664.0	0.40	79.90	7,620.4	205.8	-375.6	428.1	0.24	-0.22	-10.88
7,708.0	0.40	79.90	7,664.4	205.9	-375.3	427.9	0.00	0.00	0.00

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