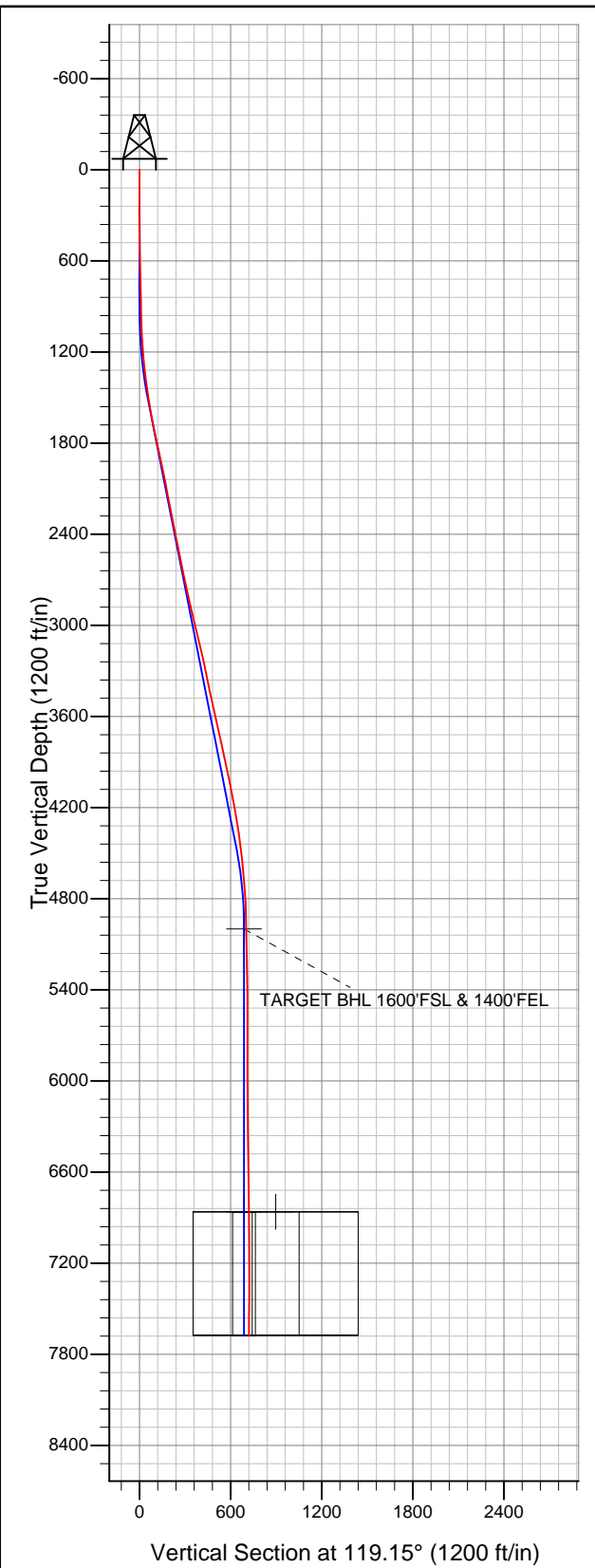


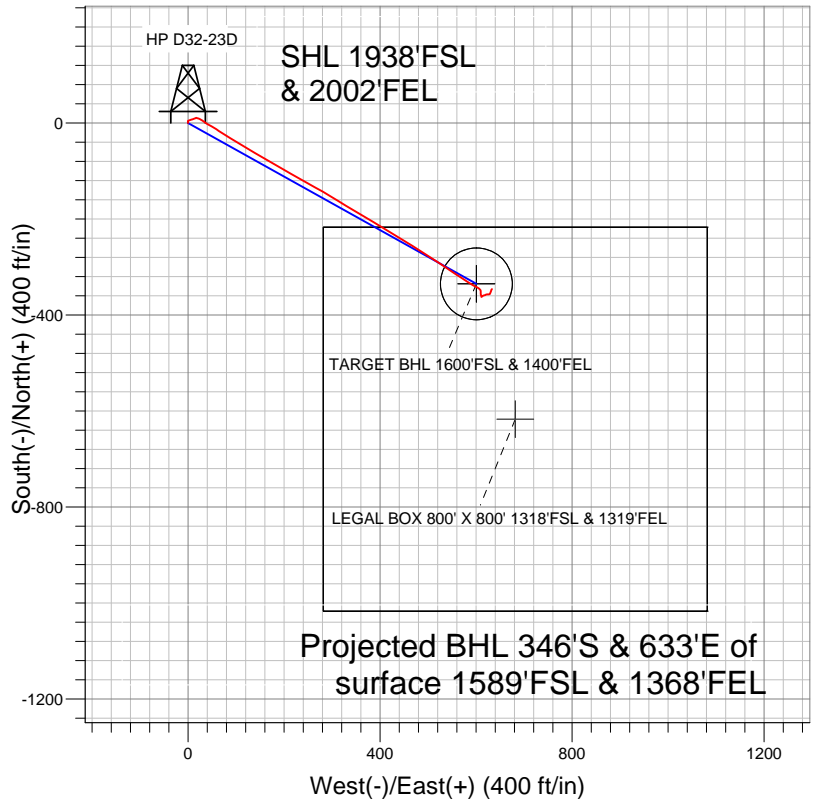


# Well Name: HP D32-23D

Surface Location: HP D32-21D Pad Sec.32-T3N-R64W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4854.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1309716.22 3259032.33 40.179850 -104.572930  
Original Well Elev WELL @ 4867.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- HP D32-23D, Wellbore #1, Noble HP D32-23D Plan #1 (4-13-12) R V0
- Wellbore #1

## Final Survey Plot

Projected Final Survey -  
7746'MD & 7679'TVD @ 721'VS  
1.0 deg Inc 20.4 deg AZ

Project: SEC.32-T3N-R64W  
Site: HP D32-21D Pad Sec.32-T3N-R64W  
Well: HP D32-23D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.32-T3N-R64W**

**HP D32-21D Pad Sec.32-T3N-R64W**

**HP D32-23D**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**26 April, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well HP D32-23D
<b>Project:</b>	SEC.32-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Site:</b>	HP D32-21D Pad Sec.32-T3N-R64W	<b>MD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Well:</b>	HP D32-23D	<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.32-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

<b>Site</b>	HP D32-21D Pad Sec.32-T3N-R64W		
<b>Site Position:</b>		<b>Northing:</b>	1,309,738.06ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,259,029.30ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.179910
		<b>Longitude:</b>	-104.572940
		<b>Grid Convergence:</b>	0.60 °

<b>Well</b>	HP D32-23D		
<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>	40.179850
		<b>Longitude:</b>	-104.572930
		<b>Ground Level:</b>	4,854.0 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	4/13/2012	8.63	66.88	52,949

<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>	
	5,000.0	0.0	0.0	119.15	

<b>Survey Program</b>	<b>Date</b>	4/26/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
111.0	7,746.0	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	
111.0	1.30	357.00	111.0	1.3	-0.1	-0.7	1.17	1.17	0.00	
205.0	1.30	4.20	205.0	3.4	0.0	-1.7	0.17	0.00	7.66	
300.0	0.10	164.50	300.0	4.4	0.1	-2.1	1.47	-1.26	168.74	
394.0	1.60	63.60	393.9	4.9	1.3	-1.3	1.73	1.60	-107.34	
490.0	1.80	71.40	489.9	6.0	3.9	0.5	0.32	0.21	8.13	
585.0	1.70	72.10	584.9	6.9	6.6	2.5	0.11	-0.11	0.74	
680.0	1.90	72.40	679.8	7.8	9.5	4.5	0.21	0.21	0.32	
774.0	1.90	67.20	773.8	8.9	12.4	6.5	0.18	0.00	-5.53	
849.0	1.80	67.50	848.7	9.8	14.6	8.0	0.13	-0.13	0.40	
931.0	1.30	77.70	930.7	10.5	16.7	9.5	0.69	-0.61	12.44	
1,012.0	2.10	103.90	1,011.7	10.3	19.1	11.6	1.35	0.99	32.35	
1,094.0	3.10	113.40	1,093.6	9.1	22.6	15.3	1.32	1.22	11.59	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well HP D32-23D
<b>Project:</b>	SEC.32-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Site:</b>	HP D32-21D Pad Sec.32-T3N-R64W	<b>MD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Well:</b>	HP D32-23D	<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)
1,176.0	4.10	122.00	1,175.4	6.6	27.1	20.4	1.38	1.22	10.49
1,258.0	5.40	125.30	1,257.1	2.9	32.7	27.2	1.62	1.59	4.02
1,339.0	6.70	120.30	1,337.7	-1.7	39.9	35.7	1.73	1.60	-6.17
1,421.0	7.90	121.70	1,419.0	-7.1	48.8	46.1	1.48	1.46	1.71
1,503.0	8.70	121.10	1,500.1	-13.3	58.9	57.9	0.98	0.98	-0.73
1,585.0	9.80	122.70	1,581.1	-20.2	70.1	71.1	1.38	1.34	1.95
1,667.0	11.00	122.20	1,661.7	-28.2	82.6	85.9	1.47	1.46	-0.61
1,749.0	12.00	121.80	1,742.1	-36.8	96.5	102.2	1.22	1.22	-0.49
1,830.0	12.40	121.00	1,821.3	-45.8	111.1	119.3	0.54	0.49	-0.99
1,912.0	11.90	121.00	1,901.4	-54.6	125.9	136.6	0.61	-0.61	0.00
1,994.0	12.00	120.60	1,981.6	-63.3	140.5	153.5	0.16	0.12	-0.49
2,076.0	10.90	119.40	2,062.0	-71.5	154.6	169.8	1.37	-1.34	-1.46
2,157.0	10.70	119.70	2,141.6	-79.0	167.8	185.0	0.26	-0.25	0.37
2,239.0	10.90	120.80	2,222.1	-86.7	181.0	200.3	0.35	0.24	1.34
2,321.0	11.00	120.10	2,302.6	-94.6	194.5	215.9	0.20	0.12	-0.85
2,403.0	11.70	120.40	2,383.0	-102.7	208.4	232.1	0.86	0.85	0.37
2,484.0	11.60	119.00	2,462.4	-110.8	222.6	248.4	0.37	-0.12	-1.73
2,566.0	11.30	119.70	2,542.7	-118.8	236.8	264.7	0.40	-0.37	0.85
2,648.0	11.40	119.00	2,623.1	-126.7	250.9	280.8	0.21	0.12	-0.85
2,729.0	12.20	118.10	2,702.4	-134.6	265.4	297.4	1.01	0.99	-1.11
2,811.0	12.20	120.30	2,782.6	-143.1	280.5	314.7	0.57	0.00	2.68
2,893.0	13.20	120.60	2,862.5	-152.2	296.1	332.7	1.22	1.22	0.37
2,975.0	13.50	121.10	2,942.3	-161.9	312.3	351.7	0.39	0.37	0.61
3,057.0	13.40	123.20	3,022.1	-172.1	328.5	370.7	0.61	-0.12	2.56
3,138.0	13.60	120.40	3,100.8	-182.0	344.6	389.6	0.84	0.25	-3.46
3,220.0	13.40	122.40	3,180.6	-192.0	360.9	408.7	0.62	-0.24	2.44
3,302.0	12.00	117.50	3,260.6	-201.0	376.5	426.7	2.15	-1.71	-5.98
3,384.0	12.10	119.50	3,340.8	-209.2	391.5	443.8	0.52	0.12	2.44
3,466.0	11.90	122.00	3,421.0	-217.9	406.2	460.9	0.68	-0.24	3.05
3,547.0	11.90	121.50	3,500.2	-226.7	420.4	477.6	0.13	0.00	-0.62
3,629.0	12.20	122.00	3,580.4	-235.7	434.9	494.7	0.39	0.37	0.61
3,711.0	12.60	121.80	3,660.5	-245.0	449.9	512.2	0.49	0.49	-0.24
3,794.0	12.20	125.00	3,741.6	-254.8	464.8	530.0	0.96	-0.48	3.86
3,875.0	12.10	120.30	3,820.8	-264.0	479.1	547.0	1.23	-0.12	-5.80
3,956.0	12.10	121.70	3,900.0	-272.8	493.6	564.0	0.36	0.00	1.73
4,038.0	12.00	122.40	3,980.2	-281.8	508.2	581.1	0.22	-0.12	0.85
4,120.0	12.10	123.80	4,060.4	-291.2	522.5	598.2	0.38	0.12	1.71
4,201.0	11.30	124.50	4,139.7	-300.4	536.1	614.5	1.00	-0.99	0.86
4,283.0	10.00	124.30	4,220.3	-309.0	548.6	629.6	1.59	-1.59	-0.24
4,365.0	8.70	123.80	4,301.2	-316.4	559.6	642.9	1.59	-1.59	-0.61
4,447.0	8.30	120.30	4,382.3	-322.9	569.9	655.0	0.80	-0.49	-4.27
4,529.0	6.90	125.30	4,463.5	-328.7	579.0	665.8	1.89	-1.71	6.10
4,610.0	6.20	121.70	4,544.0	-333.8	586.7	675.0	1.00	-0.86	-4.44
4,692.0	5.00	119.20	4,625.6	-337.9	593.6	683.0	1.49	-1.46	-3.05
4,774.0	4.50	115.50	4,707.3	-341.0	599.6	689.8	0.71	-0.61	-4.51
4,856.0	3.60	127.30	4,789.1	-344.0	604.6	695.6	1.49	-1.10	14.39
4,938.0	2.50	136.20	4,871.0	-346.8	607.9	699.8	1.46	-1.34	10.85
5,019.0	1.00	156.50	4,952.0	-348.7	609.4	702.1	1.98	-1.85	25.06
5,066.6	1.33	170.55	4,999.6	-349.7	609.6	702.7	0.92	0.70	29.51
<b>TARGET BHL 1600'FSL &amp; 1400'FEL</b>									
5,183.0	2.30	185.50	5,115.9	-353.3	609.6	704.5	0.92	0.83	12.85
5,347.0	1.50	150.30	5,279.8	-358.5	610.4	707.7	0.84	-0.49	-21.46
5,510.0	0.40	160.00	5,442.8	-360.9	611.6	709.9	0.68	-0.67	5.95
5,673.0	0.50	209.50	5,605.8	-362.0	611.5	710.4	0.24	0.06	30.37

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well HP D32-23D
<b>Project:</b>	SEC.32-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Site:</b>	HP D32-21D Pad Sec.32-T3N-R64W	<b>MD Reference:</b>	WELL @ 4867.0ft (Original Well Elev)
<b>Well:</b>	HP D32-23D	<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)
5,837.0	0.20	13.00	5,769.8	-362.3	611.2	710.3	0.42	-0.18	99.70
6,000.0	0.50	55.60	5,932.8	-361.7	611.8	710.5	0.23	0.18	26.14
6,164.0	0.90	61.00	6,096.8	-360.6	613.5	711.5	0.25	0.24	3.29
6,327.0	0.90	68.40	6,259.8	-359.5	615.9	713.0	0.07	0.00	4.54
6,491.0	1.10	72.60	6,423.7	-358.6	618.6	714.9	0.13	0.12	2.56
6,654.0	0.90	60.80	6,586.7	-357.5	621.2	716.6	0.18	-0.12	-7.24
6,818.0	1.10	93.20	6,750.7	-357.0	623.9	718.7	0.36	0.12	19.76
6,928.8	0.96	97.45	6,861.5	-357.2	625.9	720.6	0.14	-0.12	3.84
<b>TARGET CIRCLE 1600'FSL &amp; 1400'FEL</b>									
6,930.8	0.96	97.54	6,863.5	-357.2	625.9	720.6	0.14	-0.12	4.39
<b>LEGAL BOX 800' X 800' 1318'FSL &amp; 1319'FEL</b>									
6,981.0	0.90	99.90	6,913.7	-357.3	626.7	721.3	0.14	-0.12	4.70
7,145.0	0.90	35.90	7,077.6	-356.5	628.7	722.7	0.58	0.00	-39.02
7,308.0	1.10	15.70	7,240.6	-353.9	629.9	722.5	0.25	0.12	-12.39
7,472.0	1.30	20.40	7,404.6	-350.7	631.0	721.9	0.14	0.12	2.87
7,635.0	1.00	23.70	7,567.6	-347.6	632.2	721.4	0.19	-0.18	2.02
7,700.0	1.00	20.40	7,632.5	-346.6	632.6	721.3	0.09	0.00	-5.08
7,746.0	1.00	20.40	7,678.5	-345.8	632.9	721.2	0.00	0.00	0.00

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