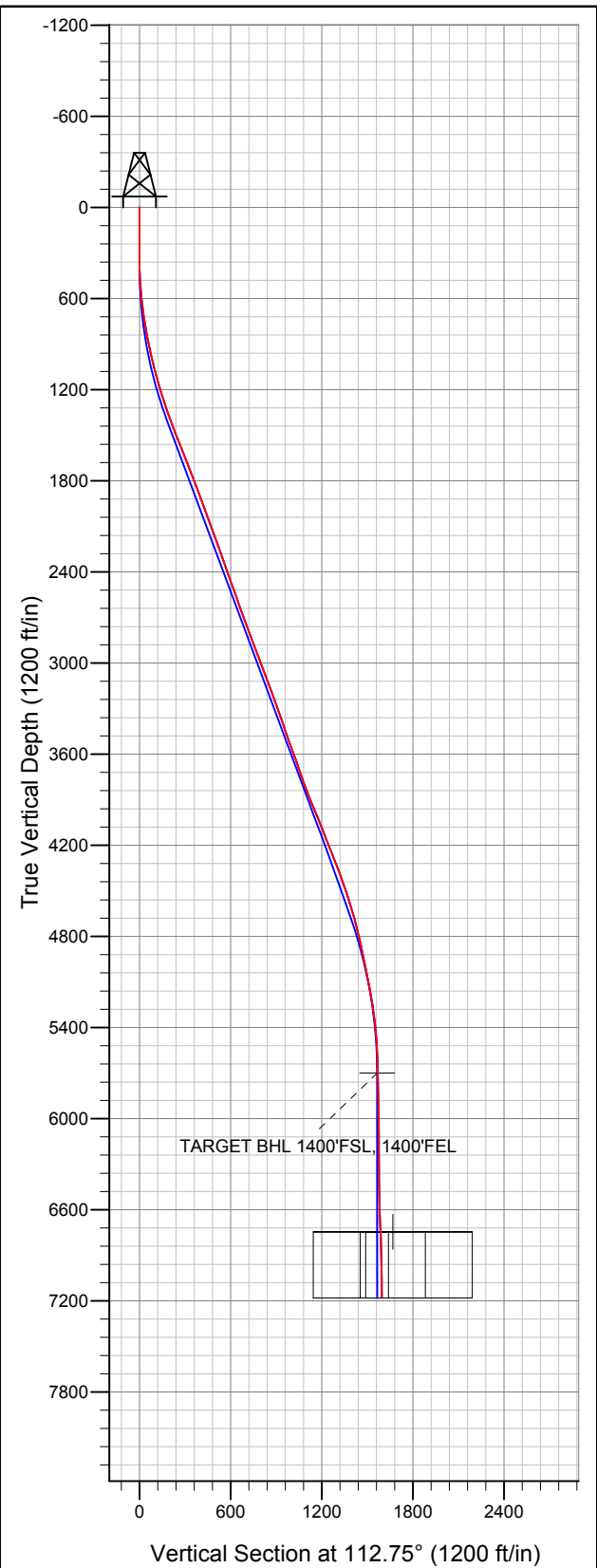




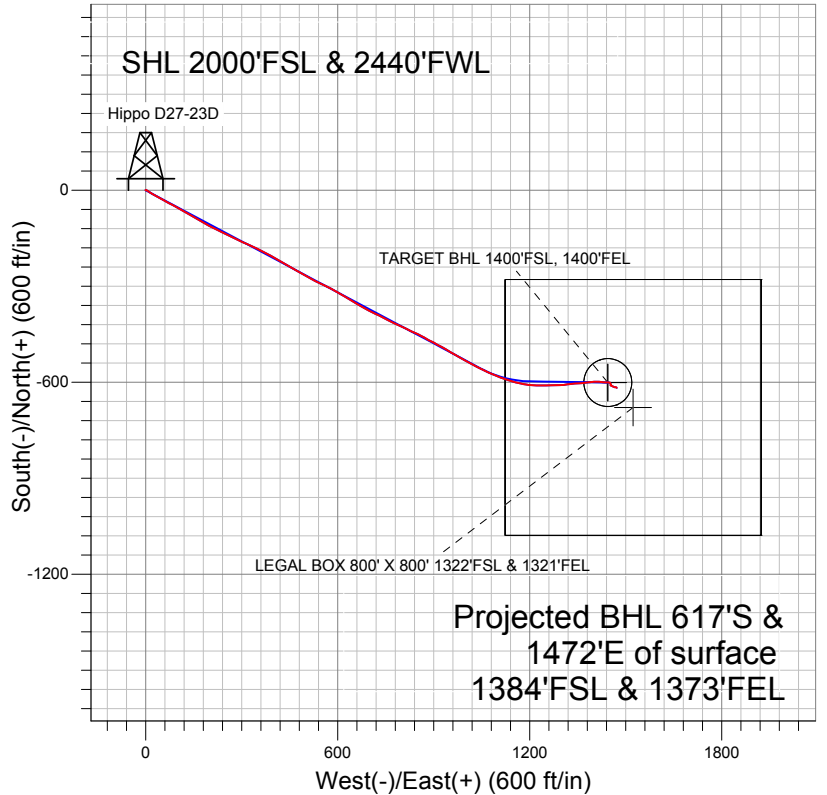
# Well Name: Hippo D27-23D

Surface Location: Hippo D27-25D Pad Sec.27-T3N-R64W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4874.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1315195.84	3268660.77	40.194610	-104.538260	
Original Well EleWELL @ 4887.0ft (Original Well Elev)						



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Hippo D27-23D, Wellbore #1, Noble Hippo D27-23D Plan #2 (5-02-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7438'MD & 7174'TVD @ 1596' VS  
1.0 deg Inc 137.4 deg AZ

Project: SEC.27-T3N-R64W  
Site: Hippo D27-25D Pad Sec.27-T3N-R64W  
Well: Hippo D27-23D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.27-T3N-R64W**

**Hippo D27-25D Pad Sec.27-T3N-R64W**

**Hippo D27-23D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**14 September, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-23D
<b>Project:</b>	SEC.27-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Site:</b>	Hippo D27-25D Pad Sec.27-T3N-R64W	<b>MD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Well:</b>	Hippo D27-23D	<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.27-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>	Hippo D27-25D Pad Sec.27-T3N-R64W		
<b>Site Position:</b>		<b>Northing:</b>	1,315,194.44 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,268,526.69 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.194610
		<b>Longitude:</b>	-104.538740
		<b>Grid Convergence:</b>	0.62 °

<b>Well</b>	Hippo D27-23D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,315,195.84 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,268,660.77 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.194610
		<b>Longitude:</b>	-104.538260
		<b>Ground Level:</b>	4,874.0 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	5/2/2011	8.74	66.93	53,060

<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	112.75	

<b>Survey Program</b>	<b>Date</b>	9/14/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
221.0	7,438.0	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	
221.0	0.20	303.80	221.0	0.2	-0.3	-0.4	0.09	0.09	0.00	
313.0	0.50	11.00	313.0	0.7	-0.4	-0.6	0.50	0.33	73.04	
404.0	1.30	98.90	404.0	0.9	0.7	0.3	1.51	0.88	96.59	
495.0	3.30	123.70	494.9	-0.7	3.9	3.9	2.41	2.20	27.25	
586.0	6.00	123.00	585.6	-4.7	10.1	11.1	2.97	2.97	-0.77	
678.0	7.60	121.90	677.0	-10.6	19.3	21.9	1.74	1.74	-1.20	
774.0	9.80	118.20	771.8	-17.8	31.9	36.3	2.36	2.29	-3.85	
868.0	11.00	119.30	864.3	-25.9	46.7	53.1	1.29	1.28	1.17	
961.0	13.00	119.60	955.3	-35.5	63.6	72.3	2.15	2.15	0.32	
1,054.0	14.10	116.60	1,045.7	-45.7	82.8	94.0	1.40	1.18	-3.23	
1,148.0	15.20	118.60	1,136.6	-56.7	103.9	117.7	1.29	1.17	2.13	
1,242.0	17.50	121.20	1,226.8	-69.9	126.8	144.0	2.57	2.45	2.77	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-23D
<b>Project:</b>	SEC.27-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Site:</b>	Hippo D27-25D Pad Sec.27-T3N-R64W	<b>MD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Well:</b>	Hippo D27-23D	<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)
1,337.0	19.70	119.50	1,316.8	-85.2	152.9	174.0	2.38	2.32	-1.79
1,430.0	19.60	120.50	1,404.4	-100.9	180.0	205.0	0.38	-0.11	1.08
1,524.0	21.50	116.50	1,492.4	-116.6	209.0	237.8	2.51	2.02	-4.26
1,617.0	22.20	115.80	1,578.8	-131.8	240.1	272.4	0.80	0.75	-0.75
1,711.0	21.40	115.80	1,666.0	-147.0	271.5	307.2	0.85	-0.85	0.00
1,805.0	21.00	115.10	1,753.7	-161.6	302.2	341.2	0.50	-0.43	-0.74
1,898.0	21.00	115.10	1,840.5	-175.7	332.4	374.5	0.00	0.00	0.00
1,991.0	21.20	115.90	1,927.3	-190.2	362.6	407.9	0.38	0.22	0.86
2,084.0	19.70	119.10	2,014.4	-205.1	391.4	440.3	2.01	-1.61	3.44
2,178.0	19.80	118.60	2,102.9	-220.5	419.3	471.9	0.21	0.11	-0.53
2,271.0	19.30	121.00	2,190.5	-235.9	446.3	502.8	1.02	-0.54	2.58
2,365.0	19.60	121.20	2,279.2	-252.1	473.1	533.7	0.33	0.32	0.21
2,459.0	20.40	119.10	2,367.5	-268.2	500.9	565.6	1.14	0.85	-2.23
2,553.0	20.00	117.20	2,455.7	-283.5	529.5	597.9	0.82	-0.43	-2.02
2,646.0	19.40	112.60	2,543.3	-296.7	557.9	629.2	1.79	-0.65	-4.95
2,739.0	19.50	120.20	2,631.0	-310.5	585.6	660.1	2.72	0.11	8.17
2,832.0	20.40	122.10	2,718.4	-326.9	612.7	691.5	1.19	0.97	2.04
2,926.0	20.60	120.60	2,806.4	-344.0	640.8	724.0	0.60	0.21	-1.60
3,019.0	21.50	119.10	2,893.2	-360.6	669.8	757.2	1.13	0.97	-1.61
3,113.0	21.50	116.60	2,980.7	-376.7	700.3	791.5	0.97	0.00	-2.66
3,207.0	19.60	117.20	3,068.7	-391.7	729.7	824.4	2.03	-2.02	0.64
3,301.0	19.70	117.50	3,157.2	-406.2	757.8	855.9	0.15	0.11	0.32
3,396.0	20.80	113.70	3,246.4	-420.4	787.4	888.7	1.80	1.16	-4.00
3,486.0	19.70	115.90	3,330.8	-433.4	815.7	919.8	1.49	-1.22	2.44
3,579.0	18.60	114.20	3,418.7	-446.3	843.3	950.3	1.33	-1.18	-1.83
3,672.0	19.70	120.50	3,506.5	-460.4	870.4	980.7	2.52	1.18	6.77
3,766.0	20.70	117.00	3,594.7	-476.0	898.8	1,012.9	1.67	1.06	-3.72
3,859.0	18.90	118.40	3,682.2	-490.6	926.7	1,044.3	2.00	-1.94	1.51
3,953.0	19.40	121.90	3,771.0	-506.1	953.4	1,074.9	1.33	0.53	3.72
4,046.0	21.20	119.50	3,858.3	-522.5	981.1	1,106.8	2.13	1.94	-2.58
4,140.0	23.40	117.70	3,945.2	-539.6	1,012.4	1,142.3	2.45	2.34	-1.91
4,234.0	22.20	118.40	4,031.9	-556.7	1,044.6	1,178.6	1.31	-1.28	0.74
4,327.0	21.50	112.20	4,118.2	-571.5	1,075.8	1,213.1	2.59	-0.75	-6.67
4,420.0	21.40	112.60	4,204.8	-584.4	1,107.3	1,247.1	0.19	-0.11	0.43
4,514.0	21.80	105.60	4,292.2	-595.7	1,139.9	1,281.6	2.77	0.43	-7.45
4,608.0	20.80	103.10	4,379.8	-604.2	1,173.0	1,315.4	1.44	-1.06	-2.66
4,702.0	20.00	93.80	4,467.9	-609.1	1,205.3	1,347.0	3.55	-0.85	-9.89
4,796.0	19.30	90.10	4,556.4	-610.2	1,236.9	1,376.6	1.52	-0.74	-3.94
4,890.0	18.10	88.20	4,645.5	-609.7	1,267.0	1,404.2	1.43	-1.28	-2.02
4,986.0	15.00	87.80	4,737.5	-608.8	1,294.3	1,429.0	3.23	-3.23	-0.42
5,080.0	14.50	81.80	4,828.4	-606.6	1,318.1	1,450.2	1.71	-0.53	-6.38
5,173.0	13.60	86.10	4,918.6	-604.2	1,340.5	1,469.9	1.48	-0.97	4.62
5,267.0	12.80	85.70	5,010.1	-602.7	1,362.0	1,489.1	0.86	-0.85	-0.43
5,360.0	12.20	82.20	5,100.9	-600.6	1,382.0	1,506.7	1.04	-0.65	-3.76
5,455.0	11.20	86.90	5,193.9	-598.7	1,401.1	1,523.7	1.45	-1.05	4.95
5,548.0	9.00	93.80	5,285.5	-598.7	1,417.4	1,538.7	2.70	-2.37	7.42
5,641.0	6.10	94.70	5,377.7	-599.6	1,429.6	1,550.2	3.12	-3.12	0.97
5,736.0	4.90	94.70	5,472.2	-600.4	1,438.7	1,558.9	1.26	-1.26	0.00
5,829.0	2.00	81.80	5,565.1	-600.4	1,444.2	1,564.1	3.21	-3.12	-13.87
5,924.0	1.90	96.60	5,660.0	-600.4	1,447.4	1,567.0	0.54	-0.11	15.58
5,963.9	1.62	102.26	5,699.9	-600.6	1,448.6	1,568.2	0.82	-0.69	14.18
<b>TARGET BHL 1400'FSL, 1400'FEL</b>									
6,016.0	1.30	113.10	5,752.0	-601.0	1,449.9	1,569.5	0.82	-0.62	20.81
6,109.0	1.10	120.90	5,844.9	-601.8	1,451.6	1,571.5	0.28	-0.22	8.39

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-23D
<b>Project:</b>	SEC.27-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Site:</b>	Hippo D27-25D Pad Sec.27-T3N-R64W	<b>MD Reference:</b>	WELL @ 4887.0ft (Original Well Elev)
<b>Well:</b>	Hippo D27-23D	<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)	
6,203.0	0.90	167.80	5,938.9	-603.0	1,452.6	1,572.8	0.87	-0.21	49.89	
6,296.0	1.20	167.30	6,031.9	-604.7	1,452.9	1,573.8	0.32	0.32	-0.54	
6,386.0	1.80	173.20	6,121.9	-607.0	1,453.3	1,575.0	0.69	0.67	6.56	
6,480.0	1.10	196.80	6,215.9	-609.4	1,453.2	1,575.8	0.96	-0.74	25.11	
6,573.0	0.30	73.90	6,308.8	-610.1	1,453.2	1,576.1	1.38	-0.86	-132.15	
6,667.0	0.80	96.60	6,402.8	-610.1	1,454.1	1,576.9	0.57	0.53	24.15	
6,763.0	1.10	120.70	6,498.8	-610.7	1,455.6	1,578.5	0.51	0.31	25.10	
6,858.0	1.70	114.20	6,593.8	-611.7	1,457.6	1,580.8	0.65	0.63	-6.84	
6,953.0	2.50	121.70	6,688.7	-613.4	1,460.7	1,584.2	0.89	0.84	7.89	
7,008.4	2.37	115.02	6,744.1	-614.5	1,462.7	1,586.6	0.56	-0.24	-12.05	
TARGET CIRCLE 1400'FSL & 1400'FEL										
7,012.6	2.36	114.49	6,748.3	-614.6	1,462.9	1,586.8	0.56	-0.20	-12.74	
LEGAL BOX 800' X 800' 1322'FSL & 1321'FEL										
7,046.0	2.30	110.10	6,781.7	-615.1	1,464.2	1,588.1	0.56	-0.18	-13.13	
7,140.0	1.30	82.20	6,875.6	-615.6	1,467.0	1,590.9	1.38	-1.06	-29.68	
7,234.0	1.00	94.10	6,969.6	-615.5	1,468.9	1,592.6	0.41	-0.32	12.66	
7,328.0	1.00	115.40	7,063.6	-615.9	1,470.4	1,594.2	0.39	0.00	22.66	
7,386.0	1.00	137.40	7,121.6	-616.5	1,471.2	1,595.2	0.66	0.00	37.93	
7,438.0	1.00	137.40	7,173.6	-617.2	1,471.8	1,596.0	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------