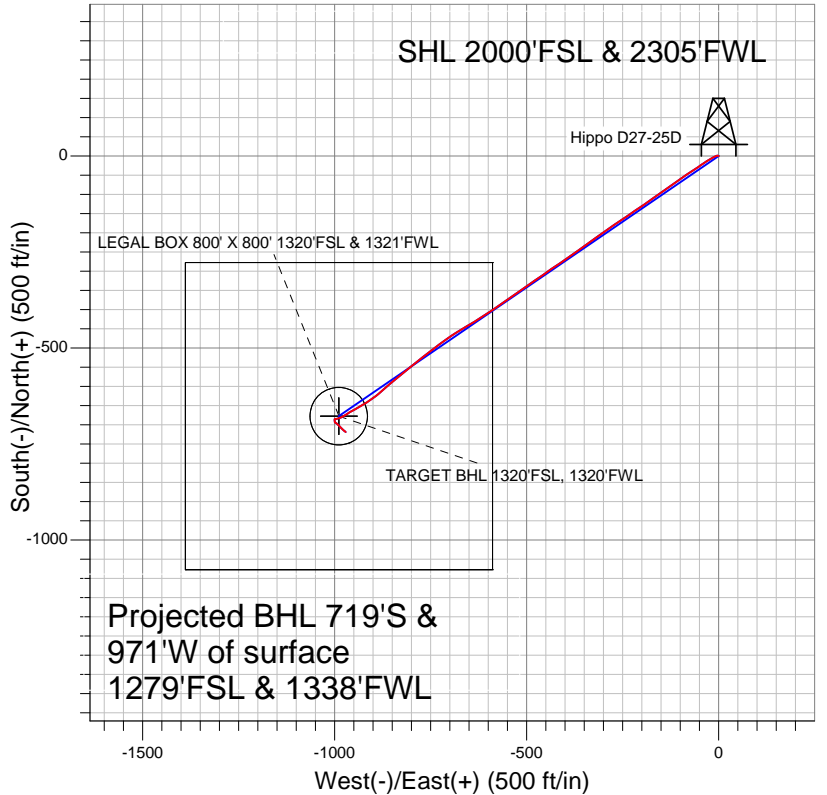


## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Hippo D27-25D, Wellbore #1, Noble Hippo D27-25D Plan #1 (5-02-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7404'MD & 7239'TVD @ 1207' VS  
3.2 deg Inc 129.5 deg AZ

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



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.27-T3N-R64W**

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

**Hippo D27-25D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**10 October, 2011**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-25D
<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 D27-25D	<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 D27-25D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,315,194.43 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,268,526.69 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.194610
		<b>Longitude:</b>	-104.538740
		<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>	
	5,800.0	0.0	0.0	235.58	

<b>Survey Program</b>	<b>Date</b>	10/10/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
867.0	7,404.0	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	
867.0	0.40	284.70	867.0	0.8	-2.9	2.0	0.05	0.05	0.00	
962.0	2.50	253.60	962.0	0.3	-5.2	4.2	2.28	2.21	-32.74	
1,057.0	4.20	244.80	1,056.8	-1.8	-10.4	9.6	1.86	1.79	-9.26	
1,150.0	5.70	240.60	1,149.4	-5.5	-17.5	17.5	1.66	1.61	-4.52	
1,243.0	7.80	239.50	1,241.8	-11.0	-26.9	28.4	2.26	2.26	-1.18	
1,337.0	9.80	233.50	1,334.7	-19.0	-38.9	42.8	2.34	2.13	-6.38	
1,430.0	11.30	237.20	1,426.1	-28.6	-52.9	59.8	1.77	1.61	3.98	
1,525.0	12.70	235.50	1,519.0	-39.6	-69.3	79.6	1.52	1.47	-1.79	
1,619.0	14.10	236.90	1,610.5	-51.7	-87.4	101.3	1.53	1.49	1.49	
1,712.0	14.90	233.50	1,700.5	-65.0	-106.5	124.6	1.26	0.86	-3.66	
1,805.0	16.60	235.30	1,790.0	-79.7	-127.1	149.9	1.90	1.83	1.94	
1,899.0	17.60	235.50	1,879.9	-95.4	-149.8	177.5	1.07	1.06	0.21	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-25D
<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 D27-25D	<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)
1,992.0	16.80	233.70	1,968.7	-111.3	-172.2	205.0	1.03	-0.86	-1.94
2,087.0	16.30	236.30	2,059.8	-126.8	-194.4	232.0	0.94	-0.53	2.74
2,182.0	15.80	234.40	2,151.1	-141.7	-216.0	258.3	0.76	-0.53	-2.00
2,275.0	16.10	236.50	2,240.5	-156.2	-237.0	283.8	0.70	0.32	2.26
2,368.0	17.60	237.60	2,329.5	-170.9	-259.7	310.8	1.65	1.61	1.18
2,461.0	16.60	233.50	2,418.4	-186.3	-282.2	338.1	1.68	-1.08	-4.41
2,555.0	16.00	234.20	2,508.6	-201.9	-303.5	364.5	0.67	-0.64	0.74
2,648.0	16.40	235.30	2,597.9	-216.8	-324.7	390.4	0.54	0.43	1.18
2,741.0	17.10	234.10	2,687.0	-232.3	-346.6	417.2	0.84	0.75	-1.29
2,834.0	17.10	233.90	2,775.9	-248.4	-368.7	444.6	0.06	0.00	-0.22
2,927.0	16.70	234.90	2,864.8	-264.1	-390.7	471.6	0.53	-0.43	1.08
3,022.0	17.00	236.50	2,955.8	-279.7	-413.4	499.1	0.58	0.32	1.68
3,115.0	16.40	234.80	3,044.8	-294.7	-435.5	525.9	0.83	-0.65	-1.83
3,208.0	16.60	235.50	3,134.0	-309.8	-457.2	552.3	0.30	0.22	0.75
3,301.0	15.90	234.80	3,223.3	-324.7	-478.5	578.3	0.78	-0.75	-0.75
3,394.0	16.00	235.10	3,312.7	-339.4	-499.5	603.8	0.14	0.11	0.32
3,488.0	15.70	235.10	3,403.1	-354.1	-520.5	629.5	0.32	-0.32	0.00
3,581.0	16.20	236.00	3,492.6	-368.5	-541.6	655.1	0.60	0.54	0.97
3,674.0	17.30	235.80	3,581.6	-383.5	-563.8	681.9	1.18	1.18	-0.22
3,769.0	16.40	234.10	3,672.5	-399.3	-586.3	709.4	1.08	-0.95	-1.79
3,863.0	17.00	236.30	3,762.6	-414.8	-608.5	736.4	0.93	0.64	2.34
3,957.0	18.10	239.90	3,852.2	-429.7	-632.6	764.7	1.64	1.17	3.83
4,051.0	18.30	238.80	3,941.5	-444.7	-657.8	794.0	0.42	0.21	-1.17
4,144.0	17.60	238.10	4,030.0	-459.7	-682.3	822.6	0.79	-0.75	-0.75
4,237.0	16.40	234.20	4,118.9	-474.8	-704.8	849.8	1.78	-1.29	-4.19
4,332.0	16.60	233.00	4,210.0	-490.8	-726.6	876.8	0.42	0.21	-1.26
4,425.0	17.10	232.80	4,299.0	-507.0	-748.1	903.7	0.54	0.54	-0.22
4,518.0	17.30	233.50	4,387.8	-523.5	-770.1	931.2	0.31	0.22	0.75
4,611.0	17.70	230.00	4,476.5	-540.9	-792.0	959.1	1.21	0.43	-3.76
4,705.0	17.10	229.50	4,566.2	-559.0	-813.5	987.0	0.66	-0.64	-0.53
4,798.0	15.80	232.70	4,655.4	-575.6	-833.9	1,013.3	1.70	-1.40	3.44
4,891.0	15.50	230.00	4,745.0	-591.2	-853.5	1,038.3	0.85	-0.32	-2.90
4,985.0	16.20	226.00	4,835.4	-608.4	-872.6	1,063.7	1.38	0.74	-4.26
5,079.0	15.70	233.70	4,925.8	-625.0	-892.3	1,089.4	2.31	-0.53	8.19
5,172.0	14.50	236.50	5,015.6	-638.9	-912.1	1,113.6	1.51	-1.29	3.01
5,265.0	13.80	239.70	5,105.8	-650.9	-931.4	1,136.3	1.13	-0.75	3.44
5,358.0	10.20	241.10	5,196.7	-660.5	-948.2	1,155.6	3.88	-3.87	1.51
5,451.0	7.80	239.20	5,288.6	-667.7	-960.8	1,170.0	2.60	-2.58	-2.04
5,545.0	6.50	237.00	5,381.8	-673.9	-970.8	1,181.7	1.41	-1.38	-2.34
5,639.0	5.30	240.90	5,475.3	-678.9	-979.0	1,191.4	1.35	-1.28	4.15
5,733.0	3.00	251.80	5,569.1	-681.8	-985.2	1,198.1	2.58	-2.45	11.60
5,827.0	1.80	253.70	5,663.0	-683.0	-988.9	1,201.8	1.28	-1.28	2.02
5,920.0	1.80	247.90	5,756.0	-683.9	-991.7	1,204.6	0.20	0.00	-6.24
5,963.9	1.58	257.76	5,799.9	-684.3	-992.9	1,205.9	0.83	-0.51	22.45
<b>TARGET BHL 1320'FSL, 1320'FWL</b>									
6,013.0	1.40	272.00	5,848.9	-684.4	-994.2	1,207.0	0.83	-0.36	29.02
6,108.0	1.30	265.40	5,943.9	-684.5	-996.4	1,208.9	0.19	-0.11	-6.95
6,201.0	1.50	253.70	6,036.9	-684.9	-998.6	1,210.9	0.37	0.22	-12.58
6,295.0	0.10	118.90	6,130.9	-685.3	-999.7	1,212.1	1.67	-1.49	-143.40
6,388.0	0.60	188.40	6,223.8	-685.8	-999.7	1,212.3	0.62	0.54	74.73
6,482.0	1.10	177.10	6,317.8	-687.2	-999.7	1,213.2	0.56	0.53	-12.02
6,576.0	1.40	179.70	6,411.8	-689.3	-999.7	1,214.3	0.32	0.32	2.77
6,669.0	1.70	171.00	6,504.8	-691.8	-999.5	1,215.5	0.41	0.32	-9.35
6,763.0	1.80	125.30	6,598.7	-694.0	-998.1	1,215.6	1.45	0.11	-48.62

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Hippo D27-25D
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<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 D27-25D	<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)	
6,856.0	1.70	128.80	6,691.7	-695.7	-995.8	1,214.7	0.16	-0.11	3.76	
6,939.1	2.22	127.53	6,774.7	-697.5	-993.5	1,213.8	0.63	0.63	-1.52	
LEGAL BOX 800' X 800' 1320'FSL & 1321'FWL - TARGET CIRCLE 1320'FSL & 1320'FWL										
6,951.0	2.30	127.40	6,786.6	-697.7	-993.2	1,213.7	0.63	0.63	-1.13	
7,045.0	3.80	135.60	6,880.5	-701.1	-989.5	1,212.6	1.66	1.60	8.72	
7,138.0	5.50	134.70	6,973.2	-706.4	-984.2	1,211.2	1.83	1.83	-0.97	
7,232.0	4.00	135.30	7,066.9	-711.9	-978.7	1,209.7	1.60	-1.60	0.64	
7,325.0	3.20	128.10	7,159.7	-715.9	-974.3	1,208.4	0.99	-0.86	-7.74	
7,352.0	3.20	129.50	7,186.6	-716.8	-973.2	1,207.9	0.29	0.00	5.19	
7,404.0	3.20	129.50	7,238.6	-718.6	-970.9	1,207.1	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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