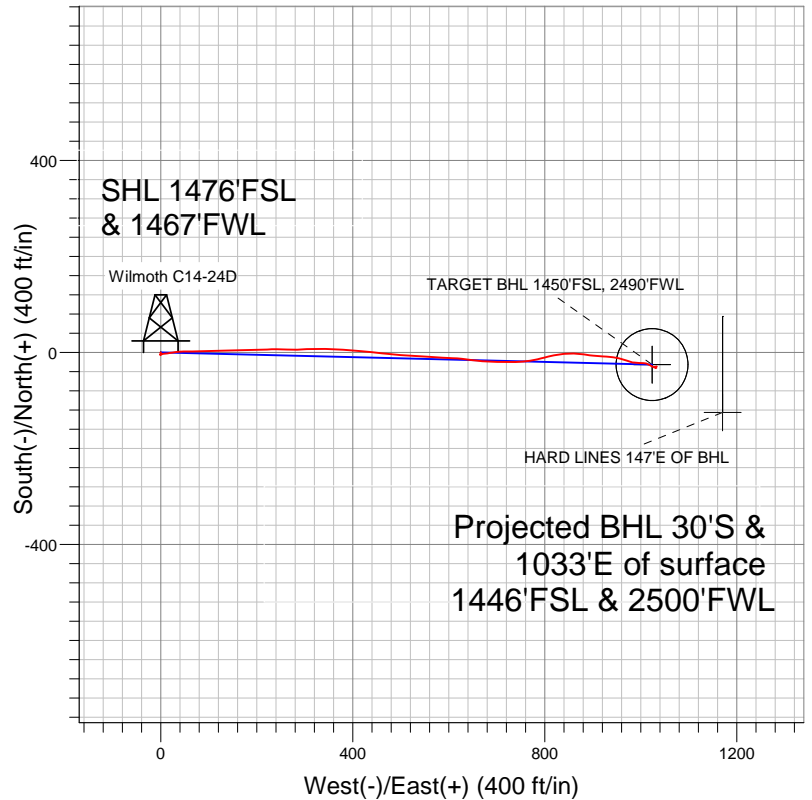
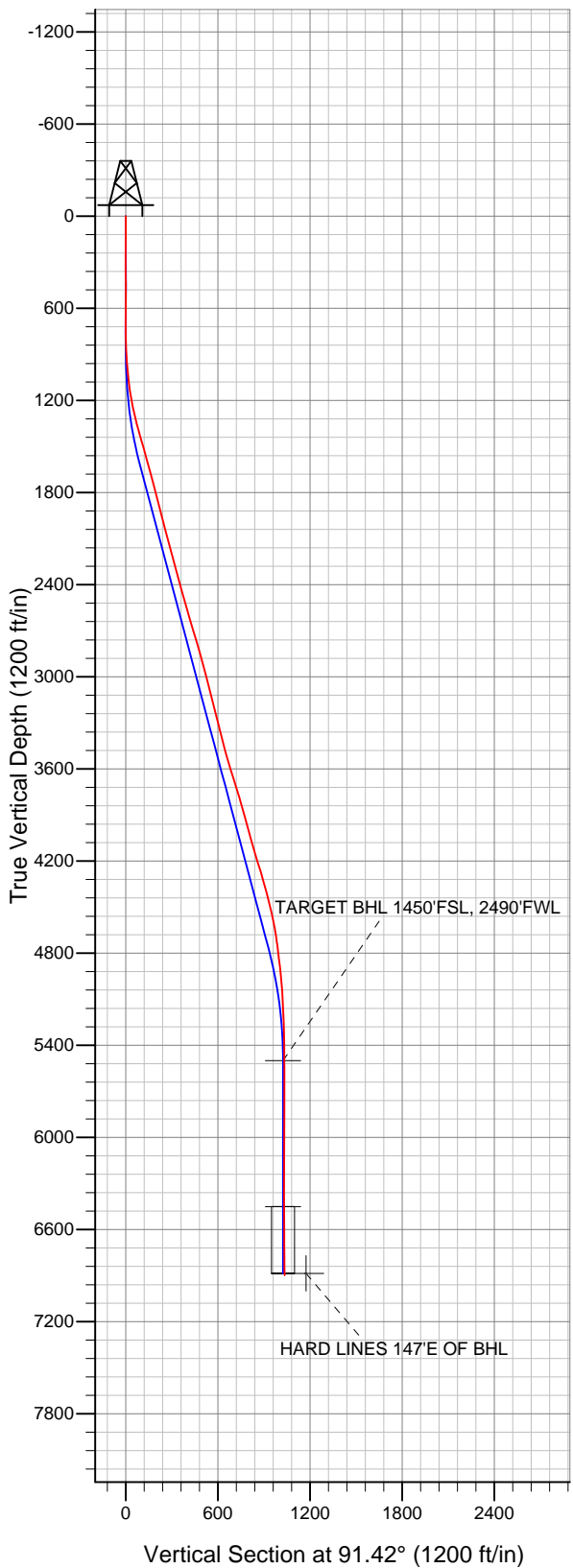




Well Name: Wilmoth C14-24D

Surface Location: Burough C14-13D Pad Sec.14-T4N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4648.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1357015.53 3272725.36 40.309280 -104.522060
Original Well Elev WELL @ 4661.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Wilmoth C14-24D, Wellbore #1, Noble Wilmoth C14-24D Plan #2 (11-28-11) R V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7030'MD & 6898'TVD @ 1034'VS
0.6 deg Inc 114.2 deg AZ

Project: SEC.14-T4N-R64W
Site: Burough C14-13D Pad Sec.14-T4N-R64W
Well: Wilmoth C14-24D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.14-T4N-R64W

Borough C14-13D Pad Sec.14-T4N-R64W

Wilmoth C14-24D

Wellbore #1

Design: Wellbore #1

Standard Survey Report

05 December, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Wilmoth C14-24D
Project:	SEC.14-T4N-R64W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Borough C14-13D Pad Sec.14-T4N-R64W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Wilmoth C14-24D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.14-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	Borough C14-13D Pad Sec.14-T4N-R64W		
Site Position:		Northing:	1,357,015.08 ft
From:	Lat/Long	Easting:	3,272,680.74 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.309280
		Longitude:	-104.522220
		Grid Convergence:	0.63 °

Well	Wilmoth C14-24D		
Well Position	+N/-S	0.0 ft	Northing: 1,357,015.53 ft
	+E/-W	0.0 ft	Easting: 3,272,725.36 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.309280
		Longitude:	-104.522060
		Ground Level:	4,648.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/28/2011	8.72	67.02	53,110

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	5,500.0	0.0	0.0	91.42	

Survey Program	Date	12/5/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
74.0	7,030.0	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	
74.0	0.50	218.60	74.0	-0.3	-0.2	-0.2	0.68	0.68	0.00	
168.0	0.30	293.80	168.0	-0.5	-0.7	-0.7	0.55	-0.21	80.00	
260.0	0.40	186.10	260.0	-0.7	-0.9	-0.9	0.62	0.11	-117.07	
363.0	0.60	166.40	363.0	-1.6	-0.8	-0.8	0.25	0.19	-19.13	
445.0	0.70	152.70	445.0	-2.4	-0.5	-0.5	0.22	0.12	-16.71	
526.0	0.40	180.10	526.0	-3.2	-0.3	-0.2	0.48	-0.37	33.83	
608.0	0.60	174.30	608.0	-3.9	-0.2	-0.2	0.25	0.24	-7.07	
629.0	0.70	187.00	629.0	-4.1	-0.3	-0.2	0.83	0.48	60.48	
708.0	1.00	227.60	708.0	-5.1	-0.8	-0.7	0.83	0.38	51.39	
789.0	0.90	55.30	789.0	-5.2	-0.8	-0.7	2.34	-0.12	-212.72	
871.0	3.10	69.20	870.9	-4.0	1.8	1.9	2.73	2.68	16.95	
953.0	4.30	83.10	952.7	-2.9	6.9	7.0	1.82	1.46	16.95	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Wilmoth C14-24D
Project:	SEC.14-T4N-R64W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Borough C14-13D Pad Sec.14-T4N-R64W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Wilmoth C14-24D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)	
1,034.0	6.20	82.90	1,033.4	-2.0	14.3	14.3	2.35	2.35	-0.25	
1,116.0	8.10	81.80	1,114.8	-0.6	24.4	24.4	2.32	2.32	-1.34	
1,198.0	9.90	83.10	1,195.7	1.1	37.1	37.1	2.21	2.20	1.59	
1,280.0	12.30	90.30	1,276.2	1.9	52.8	52.8	3.37	2.93	8.78	
1,361.0	15.00	87.60	1,354.9	2.3	71.9	71.9	3.42	3.33	-3.33	
1,443.0	16.20	90.30	1,433.9	2.7	94.0	93.9	1.71	1.46	3.29	
1,525.0	15.30	89.60	1,512.8	2.7	116.2	116.1	1.12	-1.10	-0.85	
1,607.0	15.60	86.90	1,591.9	3.4	138.1	137.9	0.95	0.37	-3.29	
1,688.0	15.30	87.50	1,669.9	4.4	159.6	159.5	0.42	-0.37	0.74	
1,770.0	14.40	89.60	1,749.2	5.0	180.6	180.4	1.28	-1.10	2.56	
1,852.0	14.70	88.50	1,828.6	5.3	201.2	201.0	0.50	0.37	-1.34	
1,934.0	14.00	87.30	1,908.0	6.0	221.5	221.3	0.93	-0.85	-1.46	
2,015.0	15.10	90.80	1,986.4	6.4	241.9	241.6	1.74	1.36	4.32	
2,097.0	15.10	91.00	2,065.6	6.0	263.2	263.0	0.06	0.00	0.24	
2,179.0	14.50	90.50	2,144.8	5.7	284.2	283.9	0.75	-0.73	-0.61	
2,261.0	15.20	86.20	2,224.1	6.4	305.2	304.9	1.59	0.85	-5.24	
2,342.0	15.50	89.10	2,302.2	7.2	326.6	326.3	1.02	0.37	3.58	
2,424.0	14.70	91.70	2,381.4	7.1	347.9	347.6	1.28	-0.98	3.17	
2,506.0	15.70	94.30	2,460.5	6.0	369.4	369.1	1.48	1.22	3.17	
2,588.0	16.40	94.10	2,539.3	4.3	392.0	391.8	0.86	0.85	-0.24	
2,669.0	16.80	95.70	2,616.9	2.3	415.1	414.9	0.75	0.49	1.98	
2,751.0	16.40	94.40	2,695.5	0.3	438.4	438.2	0.67	-0.49	-1.59	
2,833.0	17.20	96.40	2,774.0	-2.0	462.0	461.9	1.20	0.98	2.44	
2,914.0	14.30	94.50	2,852.0	-4.1	483.9	483.8	3.64	-3.58	-2.35	
2,996.0	15.50	95.70	2,931.2	-6.0	504.9	504.9	1.51	1.46	1.46	
3,078.0	15.20	93.30	3,010.3	-7.7	526.5	526.5	0.86	-0.37	-2.93	
3,160.0	14.20	91.50	3,089.6	-8.6	547.3	547.3	1.34	-1.22	-2.20	
3,241.0	13.80	95.40	3,168.2	-9.7	566.8	566.9	1.26	-0.49	4.81	
3,323.0	14.40	92.20	3,247.7	-11.1	586.8	586.8	1.20	0.73	-3.90	
3,405.0	14.50	92.40	3,327.1	-11.9	607.2	607.3	0.14	0.12	0.24	
3,487.0	14.60	97.10	3,406.5	-13.6	627.7	627.9	1.44	0.12	5.73	
3,568.0	14.70	96.80	3,484.9	-16.1	648.0	648.2	0.15	0.12	-0.37	
3,650.0	16.40	95.60	3,563.9	-18.4	669.9	670.2	2.11	2.07	-1.46	
3,732.0	17.70	91.00	3,642.3	-19.8	693.9	694.2	2.28	1.59	-5.61	
3,814.0	17.70	90.50	3,720.4	-20.1	718.8	719.1	0.19	0.00	-0.61	
3,895.0	16.40	88.90	3,797.8	-20.0	742.6	742.8	1.71	-1.60	-1.98	
3,977.0	15.30	80.10	3,876.7	-17.9	764.8	765.0	3.22	-1.34	-10.73	
4,059.0	14.60	77.80	3,956.0	-13.9	785.6	785.7	1.12	-0.85	-2.80	
4,141.0	16.70	75.90	4,034.9	-8.8	807.1	807.1	2.64	2.56	-2.32	
4,222.0	17.10	81.80	4,112.4	-4.3	830.2	830.0	2.17	0.49	7.28	
4,304.0	16.90	89.00	4,190.8	-2.3	854.0	853.8	2.58	-0.24	8.78	
4,386.0	17.20	98.20	4,269.3	-3.9	877.9	877.8	3.31	0.37	11.22	
4,468.0	14.80	95.70	4,348.1	-6.6	900.4	900.3	3.04	-2.93	-3.05	
4,549.0	15.50	94.10	4,426.3	-8.4	921.5	921.4	1.01	0.86	-1.98	
4,631.0	13.50	96.40	4,505.6	-10.3	941.9	941.9	2.54	-2.44	2.80	
4,713.0	12.10	106.10	4,585.6	-13.7	959.7	959.7	3.12	-1.71	11.83	
4,795.0	9.40	111.20	4,666.2	-18.5	974.2	974.3	3.49	-3.29	6.22	
4,876.0	7.50	94.90	4,746.3	-21.4	985.6	985.8	3.75	-2.35	-20.12	
4,958.0	7.20	91.70	4,827.6	-22.0	996.1	996.3	0.62	-0.37	-3.90	
5,040.0	6.30	93.80	4,909.1	-22.5	1,005.7	1,006.0	1.14	-1.10	2.56	
5,121.0	5.10	111.30	4,989.7	-24.1	1,013.5	1,013.8	2.59	-1.48	21.60	
5,203.0	3.90	120.90	5,071.4	-26.8	1,019.3	1,019.6	1.72	-1.46	11.71	
5,285.0	2.80	118.10	5,153.3	-29.2	1,023.4	1,023.9	1.36	-1.34	-3.41	
5,367.0	2.60	113.00	5,235.2	-30.9	1,026.9	1,027.4	0.38	-0.24	-6.22	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Wilmoth C14-24D
Project:	SEC.14-T4N-R64W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site:	Borough C14-13D Pad Sec.14-T4N-R64W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Well:	Wilmoth C14-24D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
5,448.0	1.10	95.40	5,316.1	-31.6	1,029.4	1,029.9	1.96	-1.85	-21.73
5,530.0	0.80	97.50	5,398.1	-31.8	1,030.7	1,031.2	0.37	-0.37	2.56
5,612.0	0.60	132.10	5,480.1	-32.2	1,031.6	1,032.1	0.56	-0.24	42.20
5,631.8	0.56	125.25	5,499.9	-32.3	1,031.8	1,032.3	0.40	-0.20	-34.63
TARGET BHL 1450'FSL, 2490'FWL									
5,694.0	0.50	98.50	5,562.1	-32.5	1,032.3	1,032.8	0.40	-0.10	-43.00
5,775.0	0.10	39.00	5,643.1	-32.5	1,032.7	1,033.2	0.56	-0.49	-73.46
5,857.0	0.50	283.50	5,725.1	-32.4	1,032.4	1,032.9	0.67	0.49	-140.85
5,939.0	0.40	346.00	5,807.1	-32.0	1,032.0	1,032.4	0.58	-0.12	76.22
6,021.0	0.50	272.60	5,889.1	-31.7	1,031.5	1,032.0	0.66	0.12	-89.51
6,102.0	0.40	278.00	5,970.1	-31.6	1,030.9	1,031.4	0.13	-0.12	6.67
6,184.0	0.40	305.10	6,052.1	-31.4	1,030.4	1,030.9	0.23	0.00	33.05
6,266.0	0.40	314.20	6,134.1	-31.1	1,030.0	1,030.4	0.08	0.00	11.10
6,348.0	0.30	54.10	6,216.1	-30.8	1,029.9	1,030.4	0.66	-0.12	121.83
6,429.0	0.40	53.20	6,297.1	-30.5	1,030.3	1,030.8	0.12	0.12	-1.11
6,511.0	0.10	232.70	6,379.1	-30.3	1,030.5	1,030.9	0.61	-0.37	218.90
6,582.9	0.08	337.72	6,451.0	-30.3	1,030.4	1,030.9	0.20	-0.02	146.03
TARGET CIRCLE 1450'FSL & 2490'FWL									
6,593.0	0.10	345.50	6,461.1	-30.3	1,030.4	1,030.9	0.20	0.16	77.19
6,675.0	0.40	67.10	6,543.1	-30.1	1,030.7	1,031.1	0.49	0.37	99.51
6,756.0	0.40	85.00	6,624.1	-30.0	1,031.2	1,031.6	0.15	0.00	22.10
6,838.0	0.50	54.40	6,706.1	-29.8	1,031.8	1,032.2	0.31	0.12	-37.32
6,920.0	0.50	108.70	6,788.1	-29.7	1,032.4	1,032.8	0.56	0.00	66.22
6,979.0	0.60	59.90	6,847.1	-29.6	1,032.9	1,033.3	0.79	0.17	-82.71
7,019.2	0.56	103.47	6,887.2	-29.5	1,033.3	1,033.7	1.07	-0.11	108.51
HARD LINES 147'E OF BHL									
7,030.0	0.60	114.20	6,898.1	-29.6	1,033.4	1,033.8	1.07	0.40	98.93

Checked By: _____	Approved By: _____	Date: _____
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