

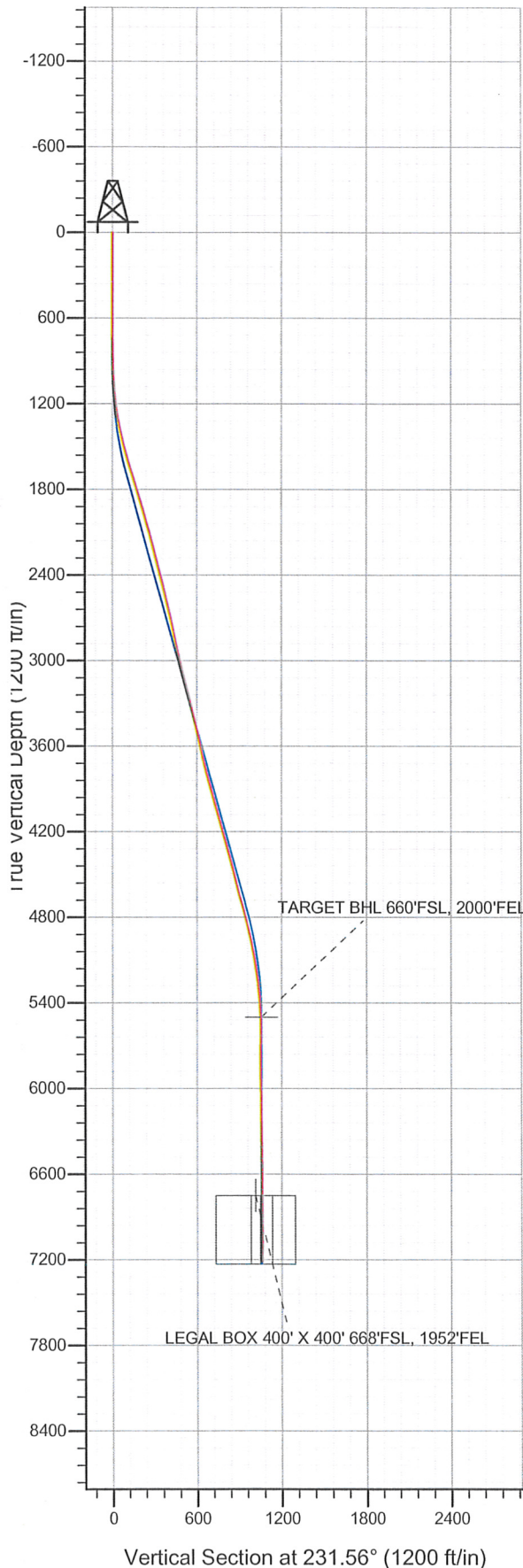
Well Name: **Howard USX A09-15D**

Surface Location: Howard USX A09-14D Pad Sec.9-T6N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

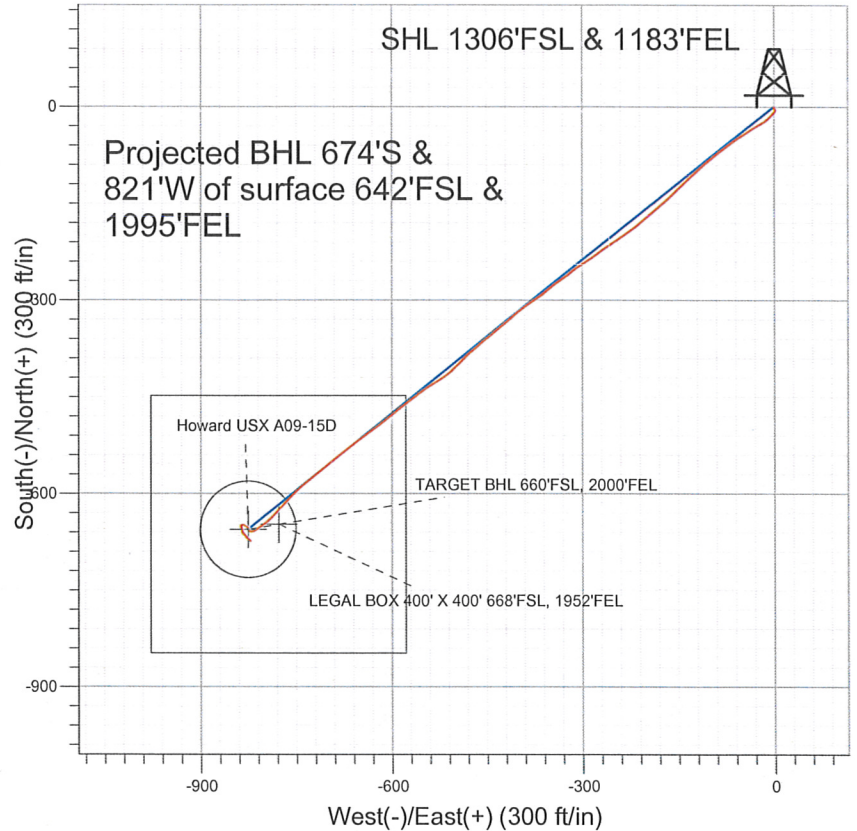
Ground Elevation: 4847.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1425294.70	3264209.74	40.496950	-104.549970	

Original Well Elev WELL @ 4860.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Howard USX A09-15D, Wellbore #1, Noble Howard USX A09-15D Plan #1 (4-11-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7342'MD & 7212'TVD @ 1062'VS
0.8 deg Inc 123.8 deg AZ

Project: SEC.9-T6N-R64W
Site: Howard USX A09-14D Pad Sec.9-T6N-R64W
Well: Howard USX A09-15D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.9-T6N-R64W

Howard USX A09-14D Pad Sec.9-T6N-R64W

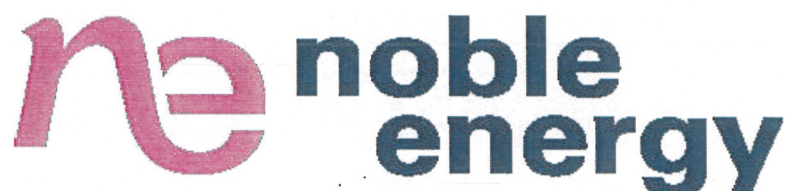
Howard USX A09-15D

Wellbore #1

Survey: Survey #1

Standard Survey Report

21 July, 2011



Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T6N-R64W
Site: Howard USX A09-14D Pad Sec.9-T6N-R64W
Well: Howard USX A09-15D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Howard USX A09-15D
TVD Reference: WELL @ 4860.0ft (Original Well Elev)
MD Reference: WELL @ 4860.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

Project	SEC.9-T6N-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 Howard USX A09-14D Pad Sec.9-T6N-R64W

Site Position:		Northing:	1,425,294.44 ft	Latitude:	40.496950
From:	Lat/Long	Easting:	3,264,184.72 ft	Longitude:	-104.550060
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.61 °

Well	Howard USX A09-15D					
Well Position	+N/-S	0.0 ft	Northing:	1,425,294.70 ft	Latitude:	40.496950
	+E/-W	0.0 ft	Easting:	3,264,209.74 ft	Longitude:	-104.549970
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,847.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/11/2011	8.78	67.17	53,224

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	231.56

Survey Program Date 7/21/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
752.0	7,342.0	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
752.0	0.70	154.20	752.0	-4.1	2.0	1.0	0.09	0.09	0.00
834.0	0.90	166.60	834.0	-5.2	2.4	1.4	0.32	0.24	15.12
915.0	1.90	217.40	915.0	-6.9	1.7	3.0	1.86	1.23	62.72
997.0	3.00	220.20	996.9	-9.6	-0.5	6.4	1.35	1.34	3.41
1,079.0	4.90	224.60	1,078.7	-13.8	-4.4	12.0	2.34	2.32	5.37
1,161.0	6.70	226.80	1,160.3	-19.5	-10.3	20.2	2.21	2.20	2.68
1,242.0	8.50	241.00	1,240.5	-25.7	-19.0	30.8	3.20	2.22	17.53
1,324.0	10.60	238.80	1,321.4	-32.5	-30.7	44.3	2.60	2.56	-2.68
1,406.0	12.30	236.50	1,401.8	-41.2	-44.5	60.5	2.15	2.07	-2.80
1,488.0	14.00	235.10	1,481.6	-51.7	-59.9	79.1	2.11	2.07	-1.71
1,569.0	16.00	232.60	1,559.9	-64.1	-76.8	100.0	2.59	2.47	-3.09
1,651.0	17.50	231.30	1,638.4	-78.7	-95.4	123.6	1.89	1.83	-1.59

Company: NOBLE ENERGY INC WELD COUNTY CO
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Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Howard USX A09-15D
TVD Reference: WELL @ 4860.0ft (Original Well Elev)
MD Reference: WELL @ 4860.0ft (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)
1,733.0	18.00	228.70	1,716.5	-94.8	-114.5	148.6	1.14	0.61	-3.17
1,814.0	17.90	226.70	1,793.5	-111.6	-133.0	173.5	0.77	-0.12	-2.47
1,896.0	16.90	225.30	1,871.8	-128.6	-150.6	197.9	1.32	-1.22	-1.71
1,978.0	16.00	228.20	1,950.4	-144.5	-167.5	221.1	1.49	-1.10	3.54
2,060.0	16.10	229.70	2,029.2	-159.4	-184.6	243.7	0.52	0.12	1.83
2,141.0	15.40	230.10	2,107.2	-173.6	-201.5	265.7	0.87	-0.86	0.49
2,223.0	14.50	231.10	2,186.4	-187.0	-217.8	286.8	1.14	-1.10	1.22
2,305.0	14.20	236.90	2,265.9	-198.9	-234.2	307.1	1.79	-0.37	7.07
2,387.0	14.90	234.10	2,345.2	-210.6	-251.2	327.7	1.21	0.85	-3.41
2,468.0	14.40	235.30	2,423.6	-222.4	-267.9	348.1	0.72	-0.62	1.48
2,550.0	12.70	234.90	2,503.3	-233.4	-283.7	367.3	2.08	-2.07	-0.49
2,632.0	13.40	236.90	2,583.2	-243.8	-299.0	385.8	1.02	0.85	2.44
2,714.0	13.20	231.30	2,663.0	-254.8	-314.3	404.6	1.59	-0.24	-6.83
2,795.0	12.50	236.50	2,742.0	-265.5	-328.8	422.6	1.67	-0.86	6.42
2,877.0	12.30	233.00	2,822.1	-275.6	-343.2	440.1	0.95	-0.24	-4.27
2,959.0	12.10	228.40	2,902.2	-286.6	-356.6	457.4	1.21	-0.24	-5.61
3,041.0	13.10	236.50	2,982.2	-297.4	-370.7	475.3	2.47	1.22	9.88
3,122.0	13.10	235.10	3,061.1	-307.7	-385.9	493.6	0.39	0.00	-1.73
3,204.0	13.90	231.30	3,140.9	-319.2	-401.2	512.7	1.46	0.98	-4.63
3,286.0	15.40	229.90	3,220.2	-332.4	-417.2	533.5	1.88	1.83	-1.71
3,368.0	14.20	230.40	3,299.5	-345.8	-433.3	554.4	1.47	-1.46	0.61
3,449.0	14.30	230.80	3,378.0	-358.5	-448.7	574.3	0.17	0.12	0.49
3,531.0	13.20	229.40	3,457.6	-371.0	-463.7	593.8	1.40	-1.34	-1.71
3,613.0	13.10	228.60	3,537.5	-383.2	-477.8	612.4	0.25	-0.12	-0.98
3,694.0	12.40	223.40	3,616.5	-395.6	-490.6	630.2	1.66	-0.86	-6.42
3,776.0	12.50	227.70	3,696.6	-407.9	-503.2	647.8	1.14	0.12	5.24
3,858.0	15.10	236.30	3,776.2	-419.9	-518.7	667.3	4.03	3.17	10.49
3,940.0	15.90	238.00	3,855.2	-431.7	-537.1	689.1	1.12	0.98	2.07
4,021.0	15.40	232.80	3,933.2	-444.1	-555.1	710.9	1.84	-0.62	-6.42
4,103.0	15.60	233.20	4,012.2	-457.3	-572.6	732.8	0.28	0.24	0.49
4,185.0	16.20	232.30	4,091.1	-470.9	-590.5	755.2	0.79	0.73	-1.10
4,267.0	14.90	231.40	4,170.1	-484.5	-607.8	777.2	1.61	-1.59	-1.10
4,348.0	15.30	233.50	4,248.3	-497.3	-624.5	798.3	0.84	0.49	2.59
4,430.0	15.70	234.20	4,327.3	-510.3	-642.2	820.2	0.54	0.49	0.85
4,512.0	15.70	232.10	4,406.2	-523.6	-659.9	842.4	0.69	0.00	-2.56
4,594.0	13.80	230.60	4,485.5	-536.6	-676.2	863.3	2.36	-2.32	-1.83
4,675.0	14.70	232.60	4,564.0	-549.0	-691.9	883.2	1.27	1.11	2.47
4,757.0	14.60	230.40	4,643.4	-561.9	-708.1	903.9	0.69	-0.12	-2.68
4,839.0	16.20	231.40	4,722.4	-575.6	-725.0	925.7	1.98	1.95	1.22
4,921.0	14.60	229.00	4,801.5	-589.5	-741.8	947.5	2.10	-1.95	-2.93
5,002.0	13.70	223.00	4,880.0	-603.2	-756.0	967.2	2.12	-1.11	-7.41
5,084.0	12.10	225.30	4,960.0	-616.4	-768.7	985.3	2.05	-1.95	2.80
5,166.0	10.00	220.60	5,040.4	-627.8	-779.5	1,000.8	2.78	-2.56	-5.73
5,248.0	9.40	225.10	5,121.3	-638.0	-788.9	1,014.5	1.18	-0.73	5.49
5,329.0	8.30	234.20	5,201.3	-646.0	-798.3	1,026.9	2.19	-1.36	11.23
5,411.0	6.10	237.60	5,282.7	-651.8	-806.8	1,037.1	2.73	-2.68	4.15
5,493.0	5.30	234.00	5,364.3	-656.4	-813.5	1,045.3	1.07	-0.98	-4.39
5,575.0	3.20	260.10	5,446.0	-659.0	-818.8	1,051.1	3.42	-2.56	31.83
5,629.2	1.88	278.46	5,500.2	-659.1	-821.2	1,053.0	2.83	-2.43	33.87
TARGET BHL 660'FSL, 2000'FEL									
5,656.0	1.40	299.30	5,527.0	-658.9	-821.9	1,053.4	2.83	-1.79	77.79
5,738.0	2.20	339.60	5,608.9	-657.0	-823.3	1,053.3	1.77	0.98	49.15
5,820.0	1.70	326.60	5,690.9	-654.5	-824.6	1,052.7	0.81	-0.61	-15.85
5,901.0	1.80	314.30	5,771.8	-652.6	-826.1	1,052.8	0.48	0.12	-15.19

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5,983.0	1.50	306.40	5,853.8	-651.0	-827.9	1,053.2	0.46	-0.37	-9.63
6,065.0	1.20	297.30	5,935.8	-650.0	-829.5	1,053.8	0.45	-0.37	-11.10
6,147.0	1.60	299.20	6,017.8	-649.1	-831.3	1,054.6	0.49	0.49	2.32
6,228.0	1.30	257.00	6,098.7	-648.7	-833.2	1,055.9	1.33	-0.37	-52.10
6,310.0	0.70	274.90	6,180.7	-648.9	-834.6	1,057.1	0.82	-0.73	21.83
6,392.0	1.00	240.70	6,262.7	-649.2	-835.7	1,058.2	0.70	0.37	-41.71
6,474.0	1.20	176.70	6,344.7	-650.4	-836.3	1,059.4	1.44	0.24	-78.05
6,555.0	1.10	163.60	6,425.7	-652.0	-836.0	1,060.2	0.35	-0.12	-16.17
6,637.0	1.90	159.00	6,507.7	-654.0	-835.3	1,060.9	0.99	0.98	-5.61
6,719.0	2.10	169.50	6,589.6	-656.8	-834.5	1,062.0	0.51	0.24	12.80
6,801.0	2.30	161.90	6,671.5	-659.8	-833.8	1,063.2	0.43	0.24	-9.27
6,879.4	1.81	133.25	6,749.9	-662.1	-832.4	1,063.6	1.43	-0.63	-36.53
TARGET CIRCLE 660'FSL, 2000'FEL									
6,880.0	1.80	132.97	6,750.5	-662.2	-832.4	1,063.6	1.43	-0.27	-44.63
LEGAL BOX 400' X 400' 668'FSL, 1952'FEL									
6,882.0	1.80	132.10	6,752.5	-662.2	-832.3	1,063.6	1.43	-0.25	-44.80
6,964.0	2.00	145.70	6,834.5	-664.2	-830.5	1,063.5	0.60	0.24	16.59
7,046.0	1.80	135.20	6,916.4	-666.3	-828.8	1,063.5	0.49	-0.24	-12.80
7,128.0	2.80	139.50	6,998.3	-668.8	-826.6	1,063.2	1.24	1.22	5.24
7,260.0	1.90	127.30	7,130.2	-672.6	-822.8	1,062.6	0.78	-0.68	-9.24
7,291.0	1.40	125.00	7,161.2	-673.1	-822.1	1,062.3	1.63	-1.61	-7.42
7,342.0	0.80	123.80	7,212.2	-673.6	-821.3	1,062.1	1.18	-1.18	-2.35

Checked By: _____ Approved By: _____ Date: _____