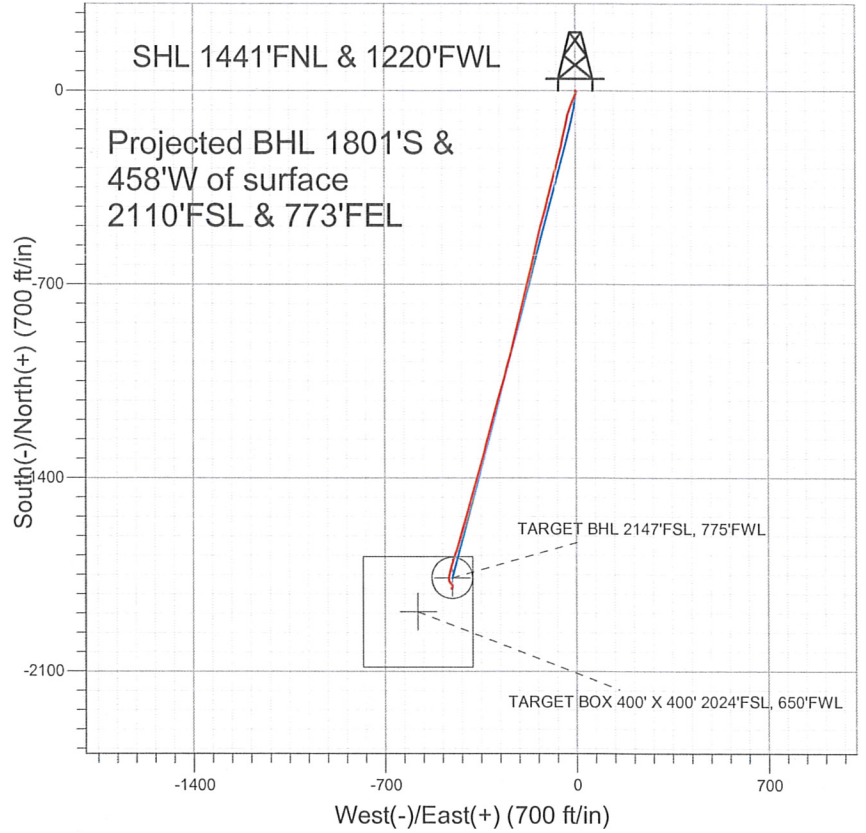


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Howard USX A09-12D, Wellbore #1, Noble Howard USX A09-12D Plan #1 (4-11-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7665'MD & 7269'TVD @ 1858'VS
 0.5 deg Inc 291.5 deg AZ

Project: SEC.9-T6N-R64W
 Site: Howard USX A09-12D Pad Sec.9-T6N-R64W
 Well: Howard USX A09-12D
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.9-T6N-R64W

Howard USX A09-12D Pad Sec.9-T6N-R64W

Howard USX A09-12D

Wellbore #1

Survey: Survey #1

Standard Survey Report

27 June, 2011



Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T6N-R64W
Site: Howard USX A09-12D Pad Sec.9-T6N-R64W
Well: Howard USX A09-12D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Howard USX A09-12D
TVD Reference: WELL @ 4880.0ft (Original Well Elev)
MD Reference: WELL @ 4880.0ft (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 A09-12D Pad Sec.9-T6N-R64W

Site Position:		Northing:	1,427,836.92 ft	Latitude:	40.504010
From:	Lat/Long	Easting:	3,261,401.52 ft	Longitude:	-104.559970
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.61 °

Well	Howard USX A09-12D				
Well Position	+N/-S	0.0 ft	Northing:	1,427,836.91 ft	Latitude: 40.504010
	+E/-W	0.0 ft	Easting:	3,261,401.52 ft	Longitude: -104.559970
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level: 4,867.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/11/2011	8.79	67.18	53,226

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	194.50

Survey Program Date 6/27/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
790.0	7,665.0	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
790.0	0.80	131.50	790.0	-3.7	4.1	2.5	0.10	0.10	0.00
872.0	1.30	188.60	872.0	-5.0	4.4	3.7	1.34	0.61	69.63
953.0	2.80	207.30	952.9	-7.6	3.4	6.5	2.00	1.85	23.09
1,035.0	3.90	201.70	1,034.8	-12.0	1.4	11.3	1.40	1.34	-6.83
1,117.0	5.50	210.80	1,116.5	-18.0	-1.6	17.8	2.15	1.95	11.10
1,198.0	6.50	201.60	1,197.0	-25.6	-5.3	26.1	1.71	1.23	-11.36
1,280.0	9.80	201.60	1,278.2	-36.4	-9.6	37.6	4.02	4.02	0.00
1,362.0	11.00	200.70	1,358.9	-50.2	-14.9	52.3	1.48	1.46	-1.10
1,443.0	13.00	200.10	1,438.1	-66.0	-20.8	69.1	2.47	2.47	-0.74
1,525.0	14.20	197.00	1,517.8	-84.2	-26.9	88.3	1.71	1.46	-3.78
1,607.0	15.90	191.20	1,597.0	-104.9	-32.0	109.5	2.77	2.07	-7.07
1,688.0	17.40	192.80	1,674.6	-127.6	-36.8	132.7	1.94	1.85	1.98

Company: NOBLE ENERGY INC WELD COUNTY CO
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Wellbore: Wellbore #1
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MD Reference: WELL @ 4880.0ft (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)
1,770.0	18.00	192.00	1,752.7	-151.9	-42.2	157.6	0.79	0.73	-0.98
1,852.0	18.80	192.00	1,830.5	-177.2	-47.6	183.5	0.98	0.98	0.00
1,933.0	18.50	192.10	1,907.2	-202.6	-53.0	209.4	0.37	-0.37	0.12
2,015.0	19.60	194.40	1,984.8	-228.6	-59.1	236.1	1.62	1.34	2.80
2,097.0	21.50	195.00	2,061.5	-256.5	-66.4	264.9	2.33	2.32	0.73
2,178.0	21.60	195.90	2,136.9	-285.1	-74.4	294.7	0.43	0.12	1.11
2,260.0	22.20	194.90	2,213.0	-314.6	-82.5	325.2	0.86	0.73	-1.22
2,342.0	22.10	192.90	2,288.9	-344.6	-89.9	356.2	0.93	-0.12	-2.44
2,423.0	23.30	195.60	2,363.6	-374.9	-97.6	387.4	1.96	1.48	3.33
2,505.0	23.60	191.90	2,438.9	-406.6	-105.4	420.0	1.83	0.37	-4.51
2,587.0	22.50	195.80	2,514.3	-437.7	-113.0	452.1	2.29	-1.34	4.76
2,669.0	22.90	195.30	2,590.0	-468.2	-121.5	483.7	0.54	0.49	-0.61
2,750.0	24.60	195.00	2,664.1	-499.7	-130.0	516.4	2.10	2.10	-0.37
2,832.0	25.10	194.80	2,738.5	-533.0	-138.9	550.8	0.62	0.61	-0.24
2,914.0	25.90	191.90	2,812.5	-567.4	-147.0	586.1	1.81	0.98	-3.54
2,995.0	28.40	192.70	2,884.6	-603.5	-154.9	623.0	3.12	3.09	0.99
3,077.0	28.50	191.80	2,956.7	-641.6	-163.2	662.1	0.54	0.12	-1.10
3,159.0	30.60	194.20	3,028.0	-681.0	-172.3	702.5	2.94	2.56	2.93
3,240.0	30.30	194.80	3,097.9	-720.8	-182.6	743.5	0.53	-0.37	0.74
3,322.0	29.50	194.10	3,168.9	-760.4	-192.8	784.4	1.06	-0.98	-0.85
3,404.0	29.40	194.20	3,240.3	-799.5	-202.7	824.7	0.14	-0.12	0.12
3,485.0	29.90	192.00	3,310.7	-838.5	-211.7	864.8	1.48	0.62	-2.72
3,567.0	26.90	195.00	3,382.9	-876.4	-220.8	903.8	4.05	-3.66	3.66
3,650.0	22.90	192.00	3,458.1	-910.3	-229.0	938.7	5.05	-4.82	-3.61
3,730.0	23.60	193.70	3,531.6	-941.1	-236.0	970.2	1.21	0.88	2.13
3,812.0	23.60	198.10	3,606.8	-972.7	-245.0	1,003.0	2.15	0.00	5.37
3,894.0	23.00	194.30	3,682.1	-1,003.8	-254.1	1,035.4	1.97	-0.73	-4.63
3,975.0	24.60	193.50	3,756.2	-1,035.5	-261.9	1,068.1	2.02	1.98	-0.99
4,057.0	28.00	197.70	3,829.7	-1,070.5	-271.8	1,104.4	4.72	4.15	5.12
4,139.0	30.20	197.30	3,901.4	-1,108.5	-283.7	1,144.3	2.69	2.68	-0.49
4,220.0	32.40	194.00	3,970.6	-1,149.0	-295.1	1,186.3	3.44	2.72	-4.07
4,302.0	34.40	195.40	4,039.0	-1,192.7	-306.5	1,231.4	2.61	2.44	1.71
4,384.0	35.30	194.70	4,106.3	-1,237.9	-318.7	1,278.3	1.20	1.10	-0.85
4,465.0	34.20	192.70	4,172.9	-1,282.8	-329.6	1,324.5	1.96	-1.36	-2.47
4,547.0	32.50	195.60	4,241.4	-1,326.5	-340.6	1,369.5	2.84	-2.07	3.54
4,629.0	31.40	195.90	4,311.0	-1,368.2	-352.4	1,412.9	1.36	-1.34	0.37
4,711.0	29.40	196.70	4,381.7	-1,408.1	-364.0	1,454.4	2.49	-2.44	0.98
4,792.0	27.30	196.10	4,453.0	-1,445.0	-374.9	1,492.8	2.62	-2.59	-0.74
4,874.0	25.90	197.10	4,526.3	-1,480.2	-385.4	1,529.5	1.79	-1.71	1.22
4,956.0	24.10	195.10	4,600.6	-1,513.4	-395.0	1,564.1	2.42	-2.20	-2.44
5,037.0	24.80	194.90	4,674.3	-1,545.8	-403.7	1,597.7	0.87	0.86	-0.25
5,119.0	23.10	195.80	4,749.3	-1,577.9	-412.5	1,630.9	2.12	-2.07	1.10
5,201.0	21.80	198.20	4,825.1	-1,607.9	-421.6	1,662.2	1.94	-1.59	2.93
5,282.0	18.50	197.10	4,901.1	-1,634.4	-430.1	1,690.1	4.10	-4.07	-1.36
5,364.0	15.90	197.30	4,979.4	-1,657.6	-437.3	1,714.3	3.17	-3.17	0.24
5,446.0	13.20	197.90	5,058.8	-1,677.2	-443.5	1,734.9	3.30	-3.29	0.73
5,527.0	14.00	198.00	5,137.5	-1,695.4	-449.4	1,753.9	0.99	0.99	0.12
5,609.0	12.30	196.40	5,217.4	-1,713.2	-454.9	1,772.5	2.12	-2.07	-1.95
5,691.0	9.50	196.00	5,297.9	-1,728.1	-459.2	1,788.0	3.42	-3.41	-0.49
5,772.0	7.10	190.40	5,378.0	-1,739.4	-462.0	1,799.7	3.12	-2.96	-6.91
5,854.0	5.50	196.00	5,459.5	-1,748.2	-464.0	1,808.7	2.09	-1.95	6.83
5,936.0	4.70	195.10	5,541.2	-1,755.2	-465.9	1,816.0	0.98	-0.98	-1.10
6,017.0	3.60	184.60	5,622.0	-1,760.9	-467.0	1,821.8	1.65	-1.36	-12.96
6,099.0	3.50	179.40	5,703.8	-1,766.0	-467.2	1,826.7	0.41	-0.12	-6.34

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6,181.0	1.80	173.10	5,785.7	-1,769.8	-467.0	1,830.3	2.10	-2.07	-7.68
6,262.0	1.70	163.50	5,866.7	-1,772.2	-466.5	1,832.6	0.38	-0.12	-11.85
6,344.0	1.70	152.00	5,948.7	-1,774.4	-465.6	1,834.5	0.42	0.00	-14.02
6,395.2	1.63	146.51	5,999.8	-1,775.7	-464.8	1,835.5	0.34	-0.13	-10.73
TARGET BHL 2147'FSL, 775'FWL									
6,426.0	1.60	143.00	6,030.6	-1,776.4	-464.3	1,836.1	0.34	-0.11	-11.39
6,507.0	1.60	149.70	6,111.6	-1,778.3	-463.1	1,837.6	0.23	0.00	8.27
6,589.0	1.50	141.70	6,193.6	-1,780.1	-461.8	1,839.1	0.29	-0.12	-9.76
6,671.0	1.60	147.40	6,275.5	-1,781.9	-460.6	1,840.5	0.22	0.12	6.95
6,753.0	2.00	133.00	6,357.5	-1,783.9	-458.9	1,842.0	0.73	0.49	-17.56
6,834.0	2.10	142.40	6,438.4	-1,786.0	-457.0	1,843.6	0.43	0.12	11.60
6,916.0	1.60	137.30	6,520.4	-1,788.1	-455.3	1,845.1	0.64	-0.61	-6.22
6,998.0	1.40	168.60	6,602.4	-1,789.9	-454.3	1,846.6	1.01	-0.24	38.17
7,079.0	2.20	181.30	6,683.3	-1,792.4	-454.1	1,849.0	1.10	0.99	15.68
7,161.0	2.90	186.40	6,765.2	-1,796.0	-454.4	1,852.6	0.90	0.85	6.22
7,169.4	2.81	187.67	6,773.6	-1,796.5	-454.4	1,853.0	1.32	-1.08	15.19
TARGET CIRCLE 2147'FSL, 775'FWL									
7,175.8	2.74	188.70	6,780.0	-1,796.8	-454.5	1,853.3	1.32	-1.06	16.06
TARGET BOX 400' X 400' 2024'FSL, 650'FWL									
7,243.0	2.10	203.30	6,847.2	-1,799.5	-455.2	1,856.1	1.32	-0.95	21.72
7,324.0	0.70	226.10	6,928.1	-1,801.2	-456.2	1,858.0	1.83	-1.73	28.15
7,406.0	0.60	286.60	7,010.1	-1,801.4	-456.9	1,858.4	0.81	-0.12	73.78
7,488.0	0.10	50.90	7,092.1	-1,801.2	-457.3	1,858.4	0.81	-0.61	151.59
7,569.0	0.50	309.30	7,173.1	-1,801.0	-457.5	1,858.2	0.65	0.49	-125.43
7,615.0	0.50	293.60	7,219.1	-1,800.8	-457.8	1,858.0	0.30	0.00	-34.13
7,665.0	0.50	291.50	7,269.1	-1,800.6	-458.2	1,858.0	0.04	0.00	-4.20

Checked By: _____ Approved By: _____ Date: _____