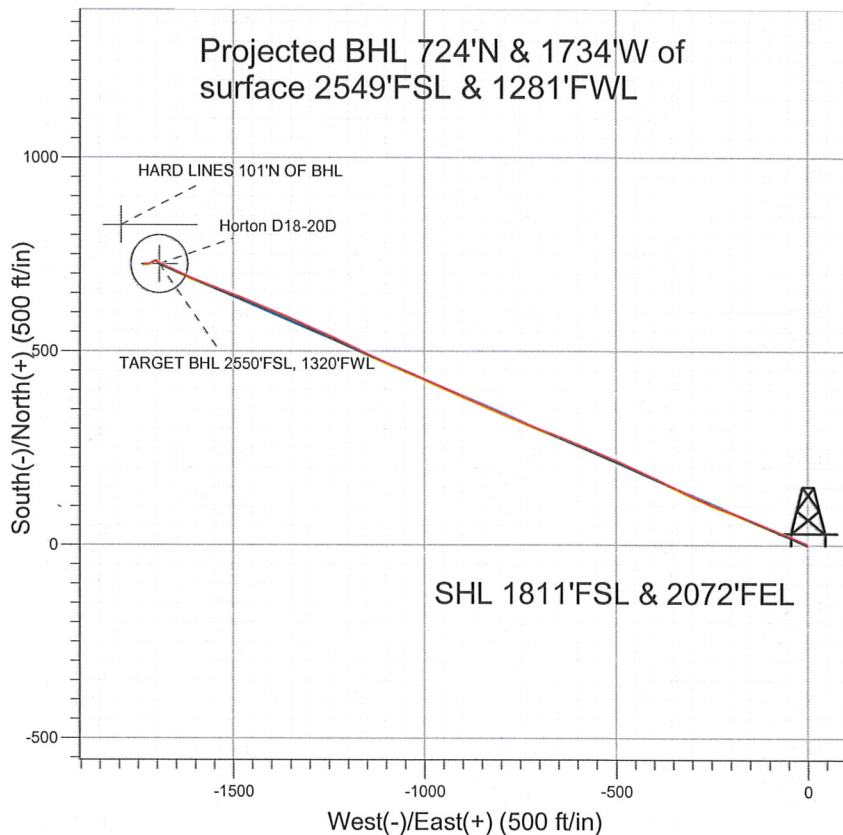


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Horton D18-20D, Wellbore #1, Noble Horton D18-20D Plan #1 (4-04-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8058'MD & 7682'TVD @ 1879'VS
0.6 deg Inc 285.1 deg AZ

Project: SEC.18-T3N-R64W
Site: Horton D18-22D Pad Sec.18-T3N-R64W
Well: Horton D18-20D
Plan: Wellbore #1



Directional

**NOBLE ENERGY INC WELD
COUNTY CO**

SEC.18-T3N-R64W

Horton D18-22D Pad Sec.18-T3N-R64W

Horton D18-20D

Wellbore #1

Survey: Survey #1

Standard Survey Report

17 August, 2011



Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.18-T3N-R64W
 Site: Horton D18-22D Pad Sec.18-T3N-R64W
 Well: Horton D18-20D
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Horton D18-20D
 TVD Reference: WELL @ 4788.0ft (Original Well Elev)
 MD Reference: WELL @ 4788.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: Landmark

Project SEC.18-T3N-R64W, Weld County, Colorado

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: Colorado Northern Zone

System Datum: Mean Sea Level
 Using geodetic scale factor

Site Horton D18-22D Pad Sec.18-T3N-R64W

Site Position:		Northing:	1,325,368.91 ft	Latitude:	40.222970
From:	Lat/Long	Easting:	3,253,615.93 ft	Longitude:	-104.591740
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well Horton D18-20D

Well Position	+N/-S	0.0 ft	Northing:	1,325,372.29 ft	Latitude:	40.222980
	+E/-W	0.0 ft	Easting:	3,253,590.76 ft	Longitude:	-104.591830
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,775.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/4/2011	8.78	66.94	53,078

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 (°)
	0.0	0.0	0.0	293.16

Survey Program Date 8/17/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
775.0	8,058.0	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
775.0	0.40	330.40	775.0	2.4	-1.3	2.2	0.05	0.05	0.00
860.0	0.40	327.20	860.0	2.9	-1.6	2.6	0.03	0.00	-3.76
946.0	0.40	300.60	946.0	3.3	-2.1	3.2	0.21	0.00	-30.93
1,031.0	1.30	297.70	1,031.0	3.9	-3.2	4.4	1.06	1.06	-3.41
1,117.0	2.70	290.00	1,116.9	5.0	-5.9	7.4	1.65	1.63	-8.95
1,202.0	4.20	292.40	1,201.8	6.9	-10.7	12.5	1.77	1.76	2.82
1,288.0	5.50	290.00	1,287.5	9.5	-17.5	19.8	1.53	1.51	-2.79
1,373.0	6.40	291.40	1,372.0	12.6	-25.7	28.6	1.07	1.06	1.65
1,459.0	7.70	294.20	1,457.3	16.7	-35.4	39.2	1.56	1.51	3.26
1,544.0	9.30	293.00	1,541.4	21.7	-47.0	51.7	1.89	1.88	-1.41
1,630.0	10.20	292.50	1,626.2	27.4	-60.4	66.3	1.05	1.05	-0.58
1,715.0	11.70	291.90	1,709.6	33.5	-75.3	82.4	1.77	1.76	-0.71

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

Local Co-ordinate Reference: Well Horton D18-20D
TVD Reference: WELL @ 4788.0ft (Original Well Elev)
MD Reference: WELL @ 4788.0ft (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)
1,801.0	13.60	291.60	1,793.5	40.4	-92.8	101.3	2.21	2.21	-0.35
1,886.0	14.60	292.90	1,876.0	48.3	-112.0	122.0	1.23	1.18	1.53
1,972.0	15.90	294.70	1,958.9	57.4	-132.7	144.6	1.61	1.51	2.09
2,057.0	17.10	291.40	2,040.4	66.9	-154.9	168.7	1.79	1.41	-3.88
2,143.0	18.50	291.20	2,122.3	76.4	-179.4	195.0	1.63	1.63	-0.23
2,228.0	19.60	290.50	2,202.7	86.3	-205.3	222.7	1.32	1.29	-0.82
2,314.0	20.40	292.50	2,283.5	97.1	-232.7	252.1	1.22	0.93	2.33
2,399.0	21.50	292.50	2,362.9	108.7	-260.8	282.5	1.29	1.29	0.00
2,485.0	22.70	295.00	2,442.5	121.7	-290.4	314.8	1.77	1.40	2.91
2,570.0	24.80	295.00	2,520.3	136.2	-321.4	349.1	2.47	2.47	0.00
2,656.0	28.60	294.90	2,597.1	152.5	-356.4	387.7	4.42	4.42	-0.12
2,741.0	28.10	295.00	2,672.0	169.5	-393.0	428.0	0.59	-0.59	0.12
2,827.0	28.80	295.20	2,747.6	186.9	-430.1	469.0	0.82	0.81	0.23
2,913.0	31.10	294.10	2,822.1	204.8	-469.1	511.9	2.75	2.67	-1.28
2,998.0	30.50	293.20	2,895.1	222.3	-509.0	555.4	0.89	-0.71	-1.06
3,084.0	29.00	292.40	2,969.8	238.8	-548.3	598.1	1.80	-1.74	-0.93
3,169.0	29.50	291.90	3,043.9	254.5	-586.8	639.6	0.65	0.59	-0.59
3,255.0	28.60	292.40	3,119.1	270.2	-625.5	681.3	1.08	-1.05	0.58
3,340.0	26.90	291.60	3,194.3	285.0	-662.2	720.9	2.05	-2.00	-0.94
3,426.0	25.50	290.00	3,271.5	298.5	-697.7	758.8	1.82	-1.63	-1.86
3,511.0	25.50	291.80	3,348.2	311.6	-731.8	795.4	0.91	0.00	2.12
3,597.0	26.20	294.30	3,425.6	326.3	-766.3	832.9	1.51	0.81	2.91
3,682.0	25.80	293.00	3,502.0	341.2	-800.5	870.2	0.82	-0.47	-1.53
3,768.0	25.40	292.90	3,579.6	355.7	-834.7	907.3	0.47	-0.47	-0.12
3,853.0	26.00	293.30	3,656.1	370.2	-868.6	944.2	0.73	0.71	0.47
3,939.0	27.60	293.30	3,732.9	385.5	-904.2	982.9	1.86	1.86	0.00
4,024.0	28.00	294.30	3,808.1	401.5	-940.5	1,022.6	0.72	0.47	1.18
4,110.0	27.90	294.40	3,884.1	418.1	-977.2	1,062.9	0.13	-0.12	0.12
4,195.0	26.40	293.80	3,959.7	434.0	-1,012.6	1,101.7	1.79	-1.76	-0.71
4,281.0	24.60	291.40	4,037.3	448.2	-1,046.8	1,138.7	2.41	-2.09	-2.79
4,366.0	25.30	293.40	4,114.4	461.9	-1,079.9	1,174.5	1.29	0.82	2.35
4,452.0	27.20	294.00	4,191.5	477.2	-1,114.7	1,212.6	2.23	2.21	0.70
4,537.0	26.30	296.50	4,267.4	493.5	-1,149.3	1,250.8	1.69	-1.06	2.94
4,623.0	27.30	295.20	4,344.2	510.4	-1,184.2	1,289.5	1.35	1.16	-1.51
4,708.0	27.50	295.00	4,419.6	527.0	-1,219.6	1,328.6	0.26	0.24	-0.24
4,794.0	27.70	293.80	4,495.9	543.4	-1,255.9	1,368.4	0.69	0.23	-1.40
4,879.0	26.60	293.60	4,571.5	559.0	-1,291.4	1,407.2	1.30	-1.29	-0.24
4,965.0	24.20	294.60	4,649.2	574.1	-1,325.1	1,444.1	2.83	-2.79	1.16
5,051.0	23.00	292.20	4,728.0	587.8	-1,356.7	1,478.5	1.79	-1.40	-2.79
5,136.0	21.60	293.30	4,806.6	600.2	-1,386.4	1,510.8	1.72	-1.65	1.29
5,222.0	19.80	292.90	4,887.1	612.2	-1,414.4	1,541.2	2.10	-2.09	-0.47
5,307.0	21.00	292.40	4,966.7	623.6	-1,441.7	1,570.8	1.43	1.41	-0.59
5,393.0	21.90	291.90	5,046.8	635.4	-1,470.9	1,602.2	1.07	1.05	-0.58
5,478.0	20.20	292.10	5,126.1	646.8	-1,499.2	1,632.8	2.00	-2.00	0.24
5,564.0	19.00	289.80	5,207.1	657.2	-1,526.1	1,661.6	1.66	-1.40	-2.67
5,649.0	16.20	290.90	5,288.1	666.1	-1,550.2	1,687.3	3.32	-3.29	1.29
5,735.0	13.80	291.40	5,371.2	674.1	-1,571.0	1,709.5	2.79	-2.79	0.58
5,820.0	12.00	289.00	5,454.0	680.7	-1,588.8	1,728.4	2.21	-2.12	-2.82
5,906.0	10.90	291.80	5,538.3	686.6	-1,604.8	1,745.5	1.43	-1.28	3.26
5,992.0	10.10	294.20	5,622.9	692.7	-1,619.2	1,761.2	1.06	-0.93	2.79
6,077.0	10.00	296.50	5,706.6	699.1	-1,632.6	1,776.0	0.49	-0.12	2.71
6,162.0	9.80	296.00	5,790.3	705.5	-1,645.7	1,790.6	0.26	-0.24	-0.59
6,248.0	9.90	291.60	5,875.1	711.5	-1,659.2	1,805.3	0.88	0.12	-5.12
6,333.0	8.40	294.60	5,959.0	716.8	-1,671.6	1,818.8	1.85	-1.76	3.53

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6,419.0	7.00	297.50	6,044.2	721.8	-1,682.0	1,830.3	1.69	-1.63	3.37
6,475.9	5.60	296.97	6,100.7	724.6	-1,687.5	1,836.5	2.47	-2.47	-0.93
TARGET BHL 2550'FSL, 1320'FWL									
6,504.0	4.90	296.60	6,128.7	725.8	-1,689.8	1,839.1	2.47	-2.47	-1.32
6,590.0	3.70	297.50	6,214.5	728.7	-1,695.5	1,845.5	1.40	-1.40	1.05
6,675.0	2.20	330.40	6,299.4	731.4	-1,698.8	1,849.5	2.59	-1.76	38.71
6,761.0	1.30	295.50	6,385.3	733.3	-1,700.5	1,851.8	1.58	-1.05	-40.58
6,846.0	1.50	266.70	6,470.3	733.6	-1,702.5	1,853.8	0.85	0.24	-33.88
6,932.0	1.30	239.60	6,556.3	733.1	-1,704.4	1,855.4	0.80	-0.23	-31.51
7,017.0	1.70	238.20	6,641.3	731.9	-1,706.3	1,856.7	0.47	0.47	-1.65
7,095.5	1.88	236.82	6,719.7	730.6	-1,708.4	1,858.1	0.24	0.23	-1.76
TARGET CIRCLE 2550'FSL & 1320'FWL									
7,103.0	1.90	236.70	6,727.2	730.5	-1,708.6	1,858.2	0.24	0.23	-1.57
7,189.0	1.70	241.40	6,813.2	729.1	-1,710.9	1,859.8	0.29	-0.23	5.47
7,274.0	2.30	251.50	6,898.1	727.9	-1,713.6	1,861.8	0.82	0.71	11.88
7,360.0	2.30	246.60	6,984.1	726.7	-1,716.9	1,864.3	0.23	0.00	-5.70
7,445.0	2.30	249.20	7,069.0	725.4	-1,720.0	1,866.7	0.12	0.00	3.06
7,531.0	2.20	261.60	7,154.9	724.5	-1,723.3	1,869.4	0.58	-0.12	14.42
7,616.0	2.00	267.10	7,239.9	724.2	-1,726.4	1,872.1	0.33	-0.24	6.47
7,702.0	1.70	269.20	7,325.8	724.1	-1,729.1	1,874.6	0.36	-0.35	2.44
7,787.0	0.80	259.30	7,410.8	724.0	-1,731.0	1,876.2	1.08	-1.06	-11.65
7,873.0	0.80	273.20	7,496.8	723.9	-1,732.2	1,877.3	0.23	0.00	16.16
7,958.0	0.70	266.70	7,581.8	723.9	-1,733.3	1,878.3	0.15	-0.12	-7.65
8,006.0	0.61	281.83	7,629.8	724.0	-1,733.8	1,878.8	0.40	-0.19	31.52
HARD LINES 101'N OF BHL									
8,015.0	0.60	285.10	7,638.8	724.0	-1,733.9	1,878.9	0.40	-0.12	36.36
8,058.0	0.60	285.10	7,681.8	724.1	-1,734.4	1,879.4	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____