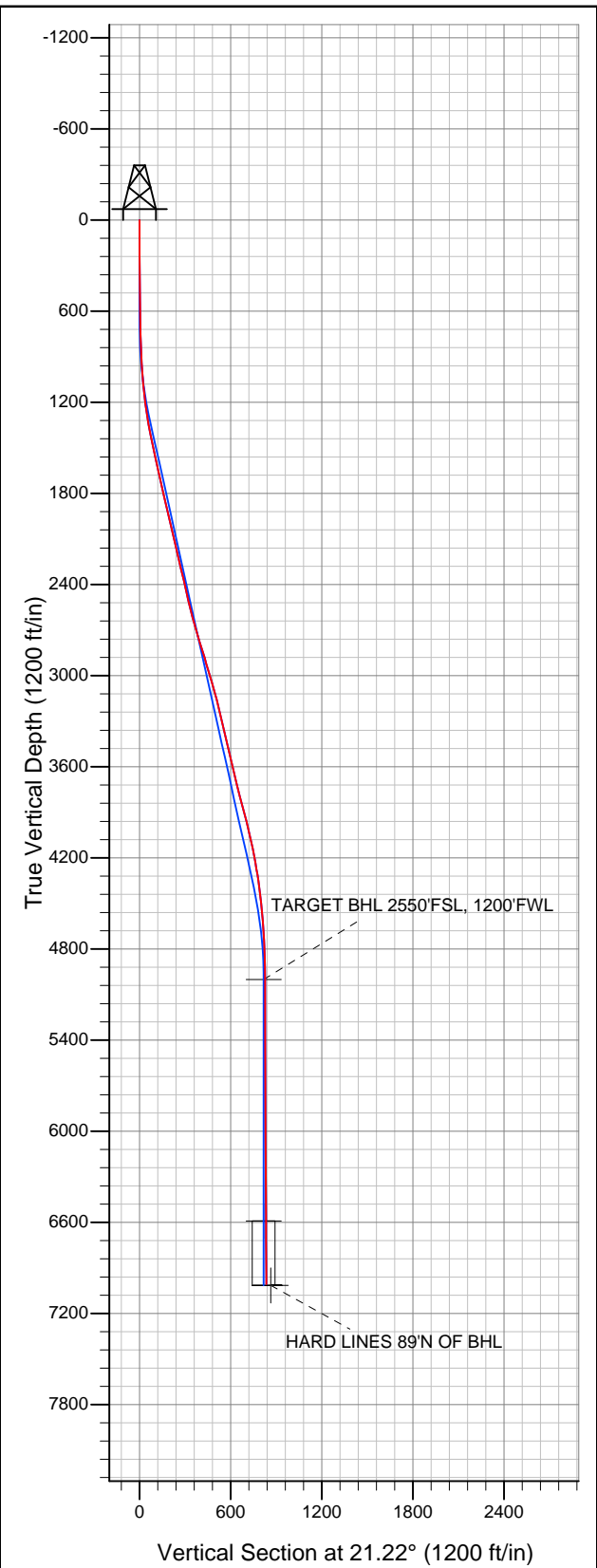


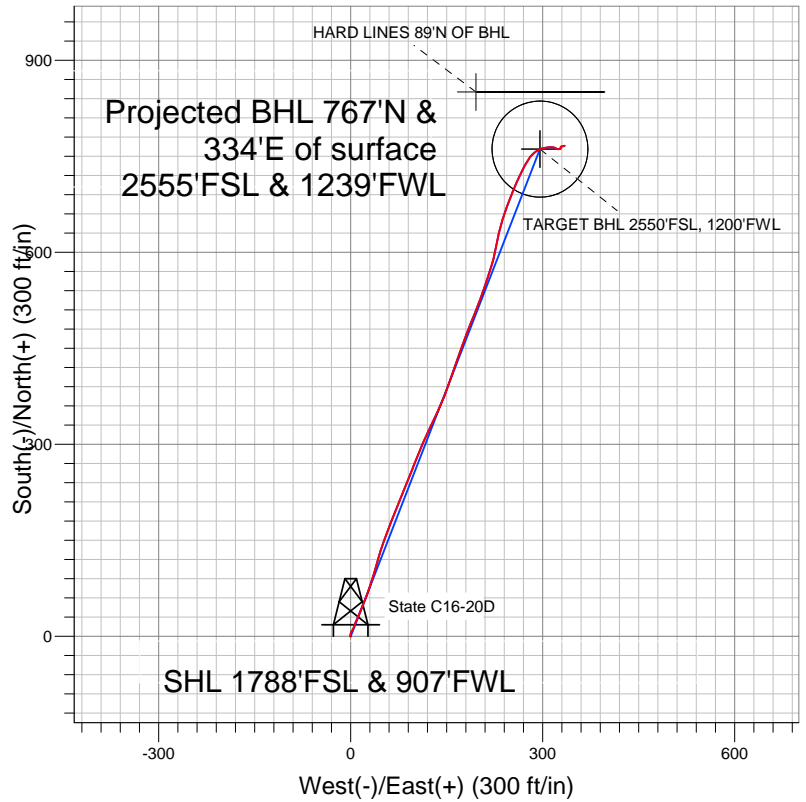


Well Name: State C16-20D

Surface Location: State C16-20D Pad Sec.16-T4N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4684.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1357187.06 3261623.38 40.310080 -104.561860
Original Well Elev WELL @ 4697.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- State C16-20D, Wellbore #1, Noble State C16-20D Plan #1 (7-13-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7100'MD & 7006'TVD @ 836'VS
1.3 deg Inc 77.5 deg AZ

Project: SEC.16-T4N-R64W
Site: State C16-20D Pad Sec.16-T4N-R64W
Well: State C16-20D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T4N-R64W

State C16-20D Pad Sec.16-T4N-R64W

State C16-20D

Wellbore #1

Survey: Survey #1

Standard Survey Report

08 December, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well State C16-20D
Project:	SEC.16-T4N-R64W	TVD Reference:	WELL @ 4697.0ft (Original Well Elev)
Site:	State C16-20D Pad Sec.16-T4N-R64W	MD Reference:	WELL @ 4697.0ft (Original Well Elev)
Well:	State C16-20D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.16-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	State C16-20D Pad Sec.16-T4N-R64W		
Site Position:		Northing:	1,357,187.07 ft
From:	Lat/Long	Easting:	3,261,623.38 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.310080
		Longitude:	-104.561860
		Grid Convergence:	0.61 °

Well	State C16-20D		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/15/2011	8.69	67.00	53,063

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 (°)	
	5,000.0	0.0	0.0	21.22	

Survey Program	Date	12/8/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
138.0	7,100.0	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	
138.0	0.20	267.90	138.0	0.0	-0.2	-0.1	0.14	0.14	0.00	
233.0	0.40	5.00	233.0	0.3	-0.4	0.2	0.49	0.21	102.21	
328.0	0.40	7.40	328.0	1.0	-0.3	0.8	0.02	0.00	2.53	
423.0	0.50	5.70	423.0	1.7	-0.2	1.5	0.11	0.11	-1.79	
518.0	0.70	356.20	518.0	2.7	-0.2	2.4	0.23	0.21	-10.00	
613.0	1.00	16.80	613.0	4.1	0.0	3.8	0.45	0.32	21.68	
653.0	1.10	17.40	653.0	4.8	0.2	4.5	0.25	0.25	1.50	
764.0	1.30	20.20	763.9	7.0	1.0	6.9	0.19	0.18	2.52	
845.0	1.90	38.70	844.9	8.9	2.1	9.0	0.97	0.74	22.84	
927.0	2.90	25.20	926.8	11.8	3.8	12.4	1.39	1.22	-16.46	
1,009.0	4.10	17.90	1,008.7	16.5	5.6	17.4	1.56	1.46	-8.90	
1,090.0	5.40	23.10	1,089.4	22.8	8.0	24.1	1.69	1.60	6.42	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well State C16-20D
Project:	SEC.16-T4N-R64W	TVD Reference:	WELL @ 4697.0ft (Original Well Elev)
Site:	State C16-20D Pad Sec.16-T4N-R64W	MD Reference:	WELL @ 4697.0ft (Original Well Elev)
Well:	State C16-20D	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)
1,172.0	6.90	23.80	1,170.9	30.8	11.5	32.9	1.83	1.83	0.85
1,254.0	8.50	22.50	1,252.2	40.9	15.8	43.9	1.96	1.95	-1.59
1,336.0	9.90	21.50	1,333.1	53.1	20.7	57.0	1.72	1.71	-1.22
1,417.0	11.30	19.80	1,412.8	67.0	26.0	71.9	1.77	1.73	-2.10
1,499.0	11.90	18.50	1,493.1	82.6	31.4	88.4	0.80	0.73	-1.59
1,581.0	12.20	15.90	1,573.3	98.9	36.4	105.4	0.76	0.37	-3.17
1,663.0	12.70	16.30	1,653.3	115.9	41.3	123.0	0.62	0.61	0.49
1,745.0	12.80	17.10	1,733.3	133.3	46.5	141.1	0.25	0.12	0.98
1,827.0	13.00	19.20	1,813.3	150.7	52.2	159.3	0.62	0.24	2.56
1,908.0	13.00	22.30	1,892.2	167.7	58.7	177.6	0.86	0.00	3.83
1,990.0	13.30	22.10	1,972.0	185.0	65.7	196.2	0.37	0.37	-0.24
2,072.0	13.50	21.60	2,051.8	202.6	72.8	215.2	0.28	0.24	-0.61
2,154.0	13.50	20.40	2,131.5	220.5	79.7	234.4	0.34	0.00	-1.46
2,235.0	13.00	22.60	2,210.4	237.7	86.5	252.9	0.88	-0.62	2.72
2,317.0	12.90	22.70	2,290.3	254.7	93.5	271.3	0.12	-0.12	0.12
2,399.0	13.10	21.90	2,370.2	271.8	100.5	289.7	0.33	0.24	-0.98
2,481.0	12.80	21.40	2,450.1	288.8	107.3	308.1	0.39	-0.37	-0.61
2,562.0	13.30	23.90	2,529.0	305.7	114.4	326.4	0.93	0.62	3.09
2,644.0	14.90	26.40	2,608.5	323.8	122.9	346.3	2.09	1.95	3.05
2,726.0	16.10	24.90	2,687.6	343.5	132.4	368.2	1.54	1.46	-1.83
2,807.0	17.00	22.40	2,765.2	364.7	141.6	391.2	1.42	1.11	-3.09
2,889.0	17.70	20.40	2,843.5	387.4	150.5	415.7	1.12	0.85	-2.44
2,971.0	16.20	19.60	2,921.9	409.9	158.7	439.6	1.85	-1.83	-0.98
3,053.0	17.10	19.50	3,000.5	432.1	166.5	463.0	1.10	1.10	-0.12
3,135.0	15.90	19.00	3,079.1	454.0	174.2	486.3	1.47	-1.46	-0.61
3,216.0	14.20	21.00	3,157.3	473.8	181.4	507.3	2.19	-2.10	2.47
3,298.0	13.50	22.20	3,236.9	492.1	188.6	527.0	0.92	-0.85	1.46
3,380.0	13.40	22.50	3,316.7	509.7	195.9	546.0	0.15	-0.12	0.37
3,462.0	13.10	20.00	3,396.5	527.2	202.7	564.8	0.79	-0.37	-3.05
3,544.0	13.10	17.00	3,476.4	544.8	208.6	583.4	0.83	0.00	-3.66
3,625.0	13.40	20.60	3,555.2	562.4	214.6	601.9	1.08	0.37	4.44
3,707.0	12.90	15.70	3,635.1	580.1	220.4	620.5	1.49	-0.61	-5.98
3,789.0	14.10	12.30	3,714.8	598.7	225.0	639.5	1.75	1.46	-4.15
3,871.0	15.00	10.90	3,794.2	618.8	229.1	659.8	1.18	1.10	-1.71
3,952.0	15.30	15.10	3,872.3	639.5	233.9	680.8	1.40	0.37	5.19
4,034.0	14.60	18.00	3,951.6	659.7	239.9	701.8	1.25	-0.85	3.54
4,116.0	13.20	21.80	4,031.2	678.3	246.6	721.5	2.04	-1.71	4.63
4,198.0	12.10	22.30	4,111.2	694.9	253.3	739.5	1.35	-1.34	0.61
4,280.0	10.50	23.60	4,191.6	709.7	259.6	755.5	1.98	-1.95	1.59
4,361.0	9.40	25.60	4,271.4	722.4	265.4	769.5	1.42	-1.36	2.47
4,443.0	8.00	27.20	4,352.4	733.5	270.9	781.9	1.73	-1.71	1.95
4,525.0	7.10	32.50	4,433.7	742.9	276.2	792.5	1.39	-1.10	6.46
4,607.0	6.10	39.50	4,515.2	750.5	281.7	801.6	1.56	-1.22	8.54
4,688.0	5.90	52.80	4,595.7	756.4	287.8	809.2	1.73	-0.25	16.42
4,770.0	5.50	64.40	4,677.3	760.6	294.7	815.7	1.48	-0.49	14.15
4,852.0	4.50	79.70	4,759.0	762.9	301.4	820.2	2.02	-1.22	18.66
4,934.0	4.00	80.00	4,840.8	764.0	307.4	823.4	0.61	-0.61	0.37
5,016.0	2.70	91.30	4,922.6	764.4	312.1	825.6	1.77	-1.59	13.78
5,092.5	2.51	96.66	4,999.1	764.2	315.6	826.6	0.40	-0.25	7.01
TARGET BHL 2550'FSL, 1200'FWL									
5,097.0	2.50	97.00	5,003.6	764.2	315.8	826.6	0.40	-0.23	7.56
5,179.0	1.30	113.10	5,085.5	763.6	318.4	827.0	1.59	-1.46	19.63
5,343.0	0.90	134.40	5,249.5	761.9	321.0	826.5	0.34	-0.24	12.99
5,506.0	1.20	82.60	5,412.5	761.3	323.6	826.8	0.59	0.18	-31.78

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well State C16-20D
Project:	SEC.16-T4N-R64W	TVD Reference:	WELL @ 4697.0ft (Original Well Elev)
Site:	State C16-20D Pad Sec.16-T4N-R64W	MD Reference:	WELL @ 4697.0ft (Original Well Elev)
Well:	State C16-20D	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)
5,670.0	0.70	78.30	5,576.4	761.7	326.3	828.2	0.31	-0.30	-2.62
5,833.0	0.20	95.80	5,739.4	761.9	327.6	828.8	0.31	-0.31	10.74
5,997.0	0.00	209.00	5,903.4	761.8	327.9	828.8	0.12	-0.12	0.00
6,160.0	0.30	3.00	6,066.4	762.3	327.9	829.3	0.18	0.18	0.00
6,324.0	0.50	3.10	6,230.4	763.4	327.9	830.3	0.12	0.12	0.06
6,487.0	0.30	22.50	6,393.4	764.5	328.1	831.4	0.15	-0.12	11.90
6,650.0	0.20	56.80	6,556.4	765.1	328.6	832.1	0.11	-0.06	21.04
6,683.4	0.26	62.28	6,589.8	765.1	328.7	832.2	0.19	0.18	16.40
TARGET CIRCLE 2550'FSL & 1200'FWL									
6,813.0	0.50	70.80	6,719.4	765.4	329.5	832.8	0.19	0.19	6.58
7,054.0	1.30	77.50	6,960.4	766.4	333.1	835.0	0.33	0.33	2.78
7,100.0	1.30	77.50	7,006.4	766.6	334.1	835.6	0.00	0.00	0.00
HARD LINES 89'N OF BHL									

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------