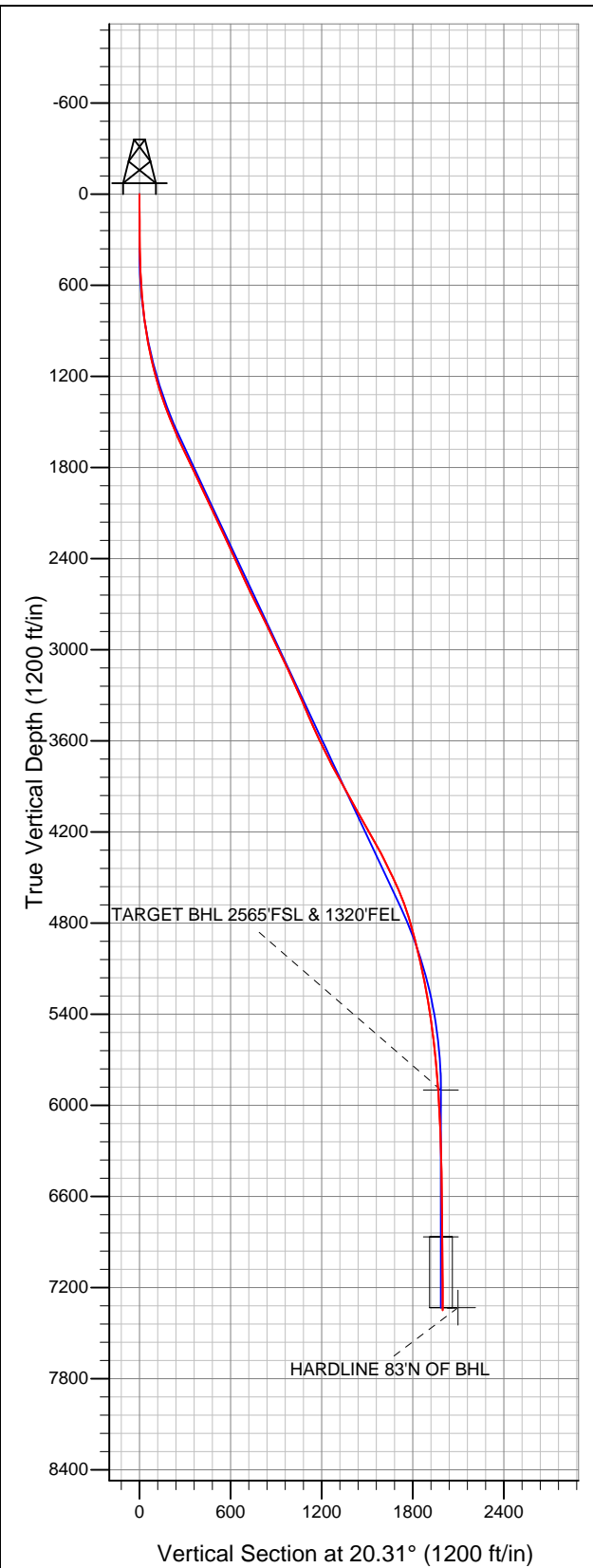




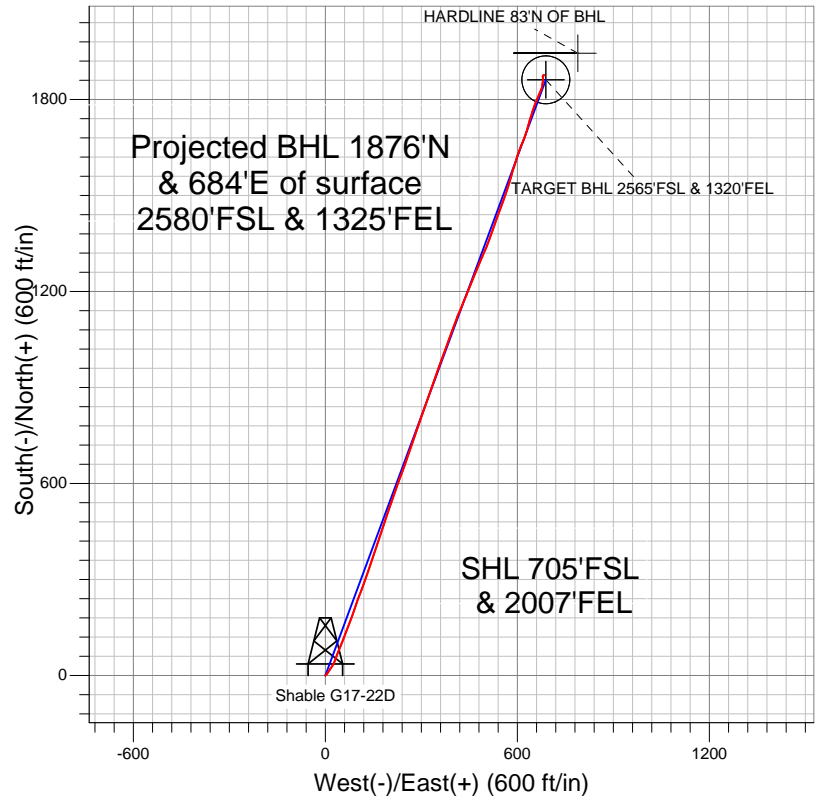
Well Name: Shable G17-22D

Surface Location: Shable G17-24D Pad Sec.17-T4N-R65W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4759.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1355762.82	3227377.45	40.307100	-104.684700	
		Original Well Elev	WELL @ 4772.0ft (Original Well Elev)			



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Survey #1
- Shable G17-22D, Wellbore #1, Noble Shable G17-22D Plan #1 (1-24-12) R V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7754'MD & 7350'TVD @ 1997'VS
0.40 deg Inc 43.10 deg AZ

Project: SEC.17-T4N-R65W
Site: Shable G17-24D Pad Sec.17-T4N-R65W
Well: Shable G17-22D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T4N-R65W

Shable G17-24D Pad Sec.17-T4N-R65W

Shable G17-22D

Wellbore #1

Survey: Survey #1

Standard Survey Report

31 January, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-22D
Project:	SEC.17-T4N-R65W	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	Shable G17-24D Pad Sec.17-T4N-R65W	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Well:	Shable G17-22D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.17-T4N-R65W, Weld County, CO		
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	Shable G17-24D Pad Sec.17-T4N-R65W		
Site Position:		Northing:	1,355,777.25 ft
From:	Lat/Long	Easting:	3,227,360.58 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.307140
		Longitude:	-104.684760
		Grid Convergence:	0.53 °

Well	Shable G17-22D		
Well Position	+N/-S	0.0 ft	Northing: 1,355,762.82 ft
	+E/-W	0.0 ft	Easting: 3,227,377.45 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.307100
		Longitude:	-104.684700
		Ground Level:	4,759.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/24/2012	8.73	66.97	53,027

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	20.31	

Survey Program	Date	1/31/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
79.0	7,754.0	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	
79.0	0.30	51.60	79.0	0.1	0.2	0.2	0.38	0.38	0.00	
174.0	0.40	59.70	174.0	0.5	0.6	0.6	0.12	0.11	8.53	
269.0	0.80	35.40	269.0	1.2	1.3	1.5	0.49	0.42	-25.58	
364.0	0.80	57.10	364.0	2.1	2.3	2.7	0.32	0.00	22.84	
458.0	1.60	47.70	458.0	3.3	3.8	4.4	0.87	0.85	-10.00	
553.0	3.60	31.00	552.9	6.7	6.3	8.5	2.23	2.11	-17.58	
594.0	4.00	28.90	593.8	9.1	7.6	11.2	1.03	0.98	-5.12	
723.0	4.90	35.40	722.4	17.5	13.0	21.0	0.80	0.70	5.04	
805.0	6.90	34.60	803.9	24.4	17.8	29.1	2.44	2.44	-0.98	
886.0	8.50	31.80	884.2	33.5	23.8	39.7	2.03	1.98	-3.46	
968.0	10.30	19.90	965.1	45.6	29.4	53.0	3.22	2.20	-14.51	
1,050.0	12.00	20.30	1,045.6	60.5	34.9	68.8	2.08	2.07	0.49	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-22D
Project:	SEC.17-T4N-R65W	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	Shable G17-24D Pad Sec.17-T4N-R65W	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Well:	Shable G17-22D	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)	
1,131.0	13.40	21.70	1,124.6	77.1	41.3	86.6	1.77	1.73	1.73	
1,213.0	15.80	23.20	1,203.9	96.2	49.2	107.3	2.96	2.93	1.83	
1,295.0	17.30	19.40	1,282.5	117.9	57.7	130.6	2.25	1.83	-4.63	
1,377.0	19.70	22.10	1,360.3	142.3	66.9	156.6	3.11	2.93	3.29	
1,458.0	21.30	20.50	1,436.2	168.7	77.2	185.0	2.09	1.98	-1.98	
1,540.0	21.70	19.10	1,512.5	197.0	87.4	215.0	0.79	0.49	-1.71	
1,622.0	23.10	18.70	1,588.3	226.5	97.5	246.3	1.72	1.71	-0.49	
1,704.0	25.20	21.60	1,663.1	258.0	109.1	279.8	2.94	2.56	3.54	
1,786.0	25.80	19.30	1,737.1	291.1	121.4	315.1	1.41	0.73	-2.80	
1,868.0	25.80	18.70	1,810.9	324.8	133.0	350.8	0.32	0.00	-0.73	
1,949.0	25.50	19.50	1,883.9	357.9	144.5	385.8	0.57	-0.37	0.99	
2,031.0	25.40	18.80	1,958.0	391.2	156.0	421.1	0.39	-0.12	-0.85	
2,113.0	25.00	17.80	2,032.2	424.4	167.0	456.0	0.71	-0.49	-1.22	
2,195.0	25.60	18.30	2,106.3	457.7	177.9	491.0	0.78	0.73	0.61	
2,276.0	25.50	18.30	2,179.4	490.9	188.8	525.9	0.12	-0.12	0.00	
2,358.0	24.90	19.00	2,253.6	523.9	200.0	560.8	0.82	-0.73	0.85	
2,440.0	24.20	18.90	2,328.2	556.2	211.1	594.9	0.86	-0.85	-0.12	
2,522.0	24.20	20.20	2,403.0	587.8	222.3	628.5	0.65	0.00	1.59	
2,603.0	24.60	20.50	2,476.7	619.2	234.0	661.9	0.52	0.49	0.37	
2,685.0	25.40	19.20	2,551.1	651.8	245.7	696.6	1.18	0.98	-1.59	
2,767.0	26.30	19.50	2,624.8	685.5	257.6	732.3	1.11	1.10	0.37	
2,849.0	26.00	18.10	2,698.5	719.8	269.2	768.4	0.84	-0.37	-1.71	
2,930.0	26.80	19.30	2,771.0	753.9	280.8	804.4	1.19	0.99	1.48	
3,012.0	26.30	19.00	2,844.4	788.5	292.8	841.1	0.63	-0.61	-0.37	
3,094.0	24.90	19.00	2,918.3	822.0	304.3	876.5	1.71	-1.71	0.00	
3,176.0	26.20	20.10	2,992.3	855.3	316.2	911.9	1.69	1.59	1.34	
3,257.0	25.40	20.10	3,065.2	888.4	328.3	947.1	0.99	-0.99	0.00	
3,339.0	25.10	19.00	3,139.4	921.4	340.0	982.1	0.68	-0.37	-1.34	
3,421.0	23.30	18.50	3,214.2	953.2	350.8	1,015.7	2.21	-2.20	-0.61	
3,503.0	24.00	20.30	3,289.3	984.2	361.7	1,048.6	1.23	0.85	2.20	
3,585.0	23.30	19.50	3,364.4	1,015.2	372.9	1,081.5	0.94	-0.85	-0.98	
3,666.0	23.90	21.60	3,438.6	1,045.5	384.3	1,113.9	1.28	0.74	2.59	
3,748.0	24.30	19.60	3,513.5	1,076.8	396.1	1,147.4	1.11	0.49	-2.44	
3,830.0	25.10	20.60	3,588.0	1,109.0	407.9	1,181.6	1.10	0.98	1.22	
3,912.0	26.40	22.60	3,661.8	1,142.1	421.0	1,217.3	1.91	1.59	2.44	
3,993.0	26.70	22.90	3,734.3	1,175.5	435.0	1,253.4	0.41	0.37	0.37	
4,075.0	29.00	21.80	3,806.8	1,211.0	449.5	1,291.7	2.87	2.80	-1.34	
4,157.0	29.00	22.40	3,878.5	1,247.8	464.5	1,331.4	0.35	0.00	0.73	
4,239.0	29.50	22.70	3,950.0	1,284.8	479.9	1,371.5	0.64	0.61	0.37	
4,321.0	28.90	23.60	4,021.6	1,321.6	495.6	1,411.4	0.91	-0.73	1.10	
4,402.0	28.60	20.80	4,092.6	1,357.6	510.3	1,450.4	1.70	-0.37	-3.46	
4,484.0	29.20	19.30	4,164.4	1,394.9	523.9	1,490.0	1.15	0.73	-1.83	
4,566.0	30.70	19.80	4,235.5	1,433.4	537.6	1,530.9	1.85	1.83	0.61	
4,648.0	28.50	20.40	4,306.8	1,471.5	551.5	1,571.4	2.71	-2.68	0.73	
4,729.0	26.90	19.10	4,378.5	1,506.9	564.2	1,609.1	2.11	-1.98	-1.60	
4,811.0	26.10	15.40	4,451.9	1,541.8	575.1	1,645.6	2.24	-0.98	-4.51	
4,893.0	25.00	17.20	4,525.9	1,575.8	585.0	1,680.9	1.64	-1.34	2.20	
4,975.0	22.90	17.50	4,600.8	1,607.5	594.9	1,714.1	2.57	-2.56	0.37	
5,057.0	19.70	19.10	4,677.2	1,635.8	604.3	1,743.9	3.97	-3.90	1.95	
5,138.0	17.70	22.20	4,753.9	1,660.1	613.4	1,769.8	2.76	-2.47	3.83	
5,220.0	15.10	22.20	4,832.6	1,681.6	622.1	1,793.0	3.17	-3.17	0.00	
5,302.0	14.40	16.60	4,911.9	1,701.2	629.1	1,813.8	1.94	-0.85	-6.83	
5,384.0	13.70	14.60	4,991.4	1,720.4	634.4	1,833.6	1.04	-0.85	-2.44	
5,466.0	13.20	16.10	5,071.2	1,738.8	639.5	1,852.6	0.74	-0.61	1.83	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-22D
Project:	SEC.17-T4N-R65W	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	Shable G17-24D Pad Sec.17-T4N-R65W	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Well:	Shable G17-22D	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)
5,547.0	11.10	19.40	5,150.3	1,755.0	644.6	1,869.7	2.73	-2.59	4.07
5,629.0	10.10	18.00	5,230.9	1,769.3	649.5	1,884.7	1.26	-1.22	-1.71
5,711.0	9.30	20.40	5,311.8	1,782.4	654.0	1,898.6	1.09	-0.98	2.93
5,792.0	8.70	22.80	5,391.8	1,794.1	658.7	1,911.2	0.87	-0.74	2.96
5,874.0	8.10	20.90	5,472.9	1,805.3	663.1	1,923.2	0.81	-0.73	-2.32
5,956.0	7.20	26.70	5,554.2	1,815.2	667.5	1,934.1	1.44	-1.10	7.07
6,038.0	6.80	22.20	5,635.6	1,824.3	671.6	1,944.0	0.83	-0.49	-5.49
6,119.0	5.60	19.50	5,716.1	1,832.5	674.8	1,952.8	1.52	-1.48	-3.33
6,201.0	4.40	11.00	5,797.8	1,839.4	676.7	1,959.9	1.72	-1.46	-10.37
6,283.0	4.00	12.50	5,879.6	1,845.2	677.9	1,965.8	0.51	-0.49	1.83
6,304.6	3.86	10.88	5,901.1	1,846.7	678.2	1,967.3	0.82	-0.63	-7.50
TARGET BHL 2565'FSL & 1320'FEL									
6,365.0	3.50	5.70	5,961.4	1,850.5	678.8	1,971.1	0.82	-0.60	-8.58
6,446.0	2.90	9.00	6,042.2	1,855.0	679.4	1,975.5	0.77	-0.74	4.07
6,528.0	2.50	3.90	6,124.2	1,858.8	679.8	1,979.2	0.57	-0.49	-6.22
6,610.0	2.10	1.20	6,206.1	1,862.1	680.0	1,982.4	0.51	-0.49	-3.29
6,692.0	1.70	359.20	6,288.0	1,864.8	680.0	1,984.9	0.49	-0.49	-2.44
6,774.0	1.40	355.60	6,370.0	1,867.1	679.9	1,987.0	0.38	-0.37	-4.39
6,855.0	1.20	350.50	6,451.0	1,868.9	679.7	1,988.6	0.29	-0.25	-6.30
6,937.0	1.20	356.30	6,533.0	1,870.6	679.5	1,990.1	0.15	0.00	7.07
7,019.0	0.90	359.60	6,615.0	1,872.1	679.4	1,991.5	0.37	-0.37	4.02
7,101.0	0.70	357.70	6,697.0	1,873.2	679.4	1,992.6	0.25	-0.24	-2.32
7,182.0	0.40	9.30	6,778.0	1,874.0	679.4	1,993.3	0.39	-0.37	14.32
7,264.0	0.40	47.80	6,859.9	1,874.5	679.7	1,993.8	0.32	0.00	46.95
7,271.0	0.43	48.21	6,867.0	1,874.5	679.7	1,993.9	0.37	0.36	5.81
TARGET CIRCLE 2565'FSL & 1320'FEL									
7,346.0	0.70	50.70	6,941.9	1,875.0	680.3	1,994.5	0.37	0.37	3.32
7,427.0	0.70	73.00	7,022.9	1,875.4	681.1	1,995.3	0.33	0.00	27.53
7,509.0	0.60	81.90	7,104.9	1,875.6	682.0	1,995.8	0.17	-0.12	10.85
7,591.0	0.70	91.90	7,186.9	1,875.7	683.0	1,996.1	0.18	0.12	12.20
7,708.0	0.40	43.10	7,303.9	1,876.0	684.0	1,996.7	0.45	-0.26	-41.71
7,736.9	0.40	43.10	7,332.8	1,876.1	684.1	1,996.9	0.00	0.00	0.00
HARDLINE 83'N OF BHL									
7,754.0	0.40	43.10	7,349.9	1,876.2	684.2	1,997.0	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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