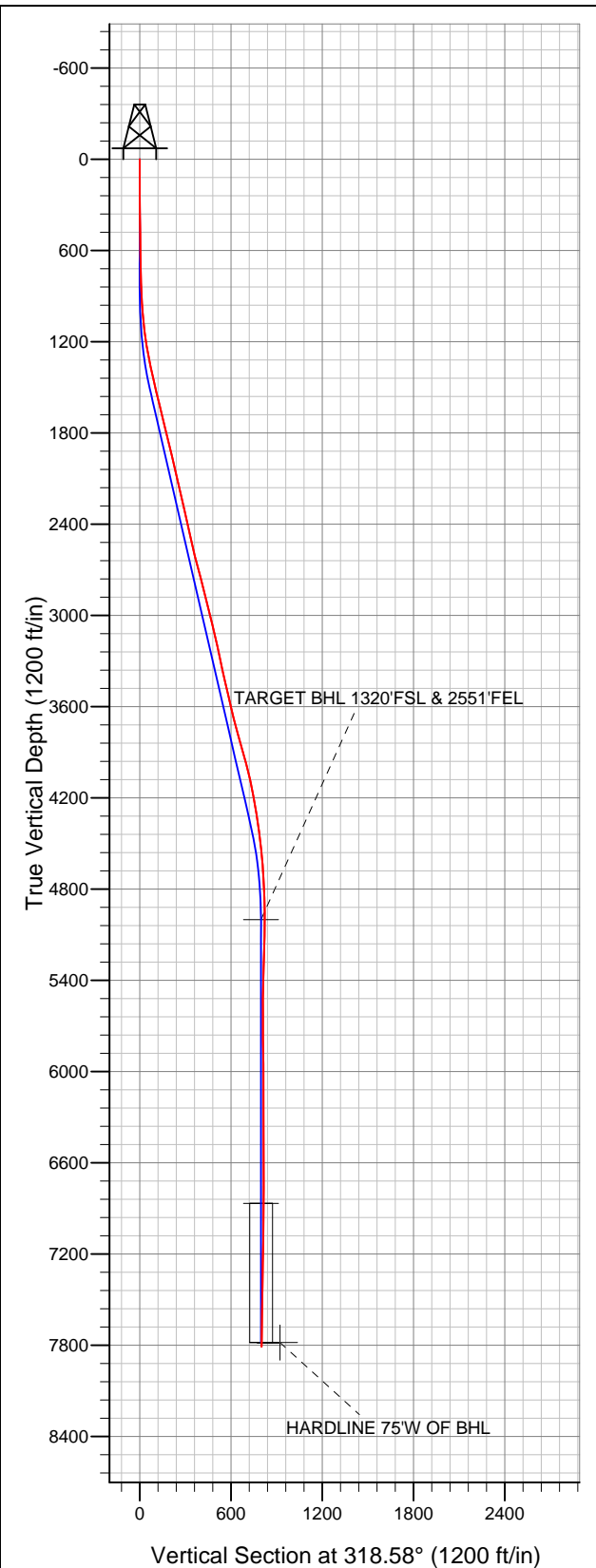




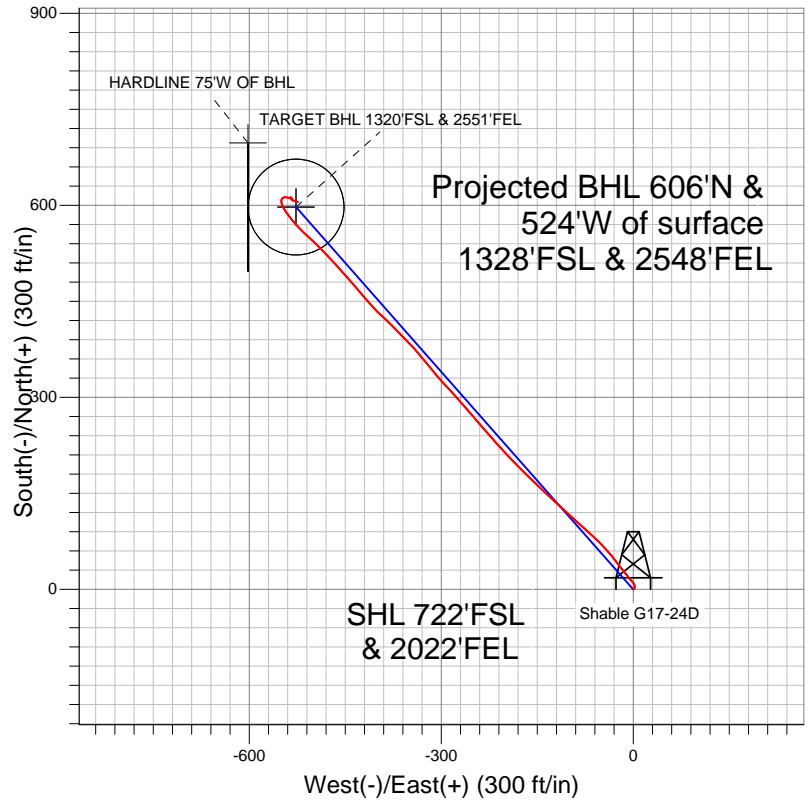
Well Name: Shable G17-24D

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	1355777.24	3227360.58	40.307140	-104.684760	
		Original Well Elev	WELL @ 4772.0ft (Original Well Elev)			



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Survey #1
- Shable G17-24D, Wellbore #1, Noble Shable G17-24D Plan #2 (1-31-12) R V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7900'MD & 7810'TVD @ 801'VS
0.80 deg Inc 98.50 deg AZ

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



NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T4N-R65W

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

Shable G17-24D

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 February, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-24D
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 G17-24D	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 G17-24D		
Well Position	+N/-S	0.0 ft	Northing: 1,355,777.24 ft
	+E/-W	0.0 ft	Easting: 3,227,360.58 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.307140
		Longitude:	-104.684760
		Ground Level:	4,759.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/20/2012	8.73	66.97	53,029

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	318.58	

Survey Program	Date	2/6/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
111.0	7,900.0	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	
111.0	0.60	51.80	111.0	0.4	0.5	0.0	0.54	0.54	0.00	
237.0	0.60	40.80	237.0	1.3	1.4	0.0	0.09	0.00	-8.73	
364.0	0.90	15.50	364.0	2.7	2.1	0.7	0.35	0.24	-19.92	
490.0	0.70	6.10	490.0	4.5	2.5	1.7	0.19	-0.16	-7.46	
616.0	1.30	335.50	615.9	6.5	1.9	3.6	0.62	0.48	-24.29	
723.0	1.40	331.40	722.9	8.8	0.8	6.0	0.13	0.09	-3.83	
805.0	1.40	326.40	804.9	10.5	-0.2	8.0	0.15	0.00	-6.10	
886.0	2.80	317.60	885.8	12.8	-2.1	11.0	1.77	1.73	-10.86	
968.0	4.00	318.20	967.7	16.4	-5.4	15.8	1.46	1.46	0.73	
1,050.0	5.40	323.70	1,049.4	21.6	-9.5	22.5	1.79	1.71	6.71	
1,131.0	6.90	319.80	1,129.9	28.4	-14.9	31.2	1.92	1.85	-4.81	
1,213.0	8.70	323.40	1,211.2	37.2	-21.8	42.3	2.27	2.20	4.39	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-24D
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 G17-24D	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)
1,295.0	10.90	320.70	1,292.0	48.1	-30.4	56.2	2.74	2.68	-3.29
1,377.0	12.40	319.10	1,372.3	60.8	-41.1	72.8	1.87	1.83	-1.95
1,458.0	13.40	315.30	1,451.2	74.0	-53.4	90.8	1.62	1.23	-4.69
1,540.0	13.20	309.80	1,531.1	86.8	-67.3	109.6	1.56	-0.24	-6.71
1,622.0	13.20	313.40	1,610.9	99.2	-81.3	128.2	1.00	0.00	4.39
1,704.0	14.20	313.10	1,690.6	112.5	-95.4	147.5	1.22	1.22	-0.37
1,786.0	13.70	311.50	1,770.1	125.8	-110.0	167.1	0.77	-0.61	-1.95
1,868.0	13.70	313.40	1,849.8	138.9	-124.4	186.5	0.55	0.00	2.32
1,949.0	13.70	312.80	1,928.5	152.0	-138.4	205.6	0.18	0.00	-0.74
2,031.0	13.10	313.50	2,008.3	165.0	-152.2	224.5	0.76	-0.73	0.85
2,113.0	13.10	314.60	2,088.1	177.9	-165.6	243.0	0.30	0.00	1.34
2,195.0	12.80	316.10	2,168.0	191.0	-178.5	261.3	0.55	-0.37	1.83
2,276.0	12.80	316.10	2,247.0	203.9	-191.0	279.3	0.00	0.00	0.00
2,358.0	12.70	316.60	2,327.0	217.0	-203.5	297.4	0.18	-0.12	0.61
2,440.0	12.40	317.60	2,407.1	230.1	-215.6	315.2	0.45	-0.37	1.22
2,522.0	12.70	318.70	2,487.1	243.4	-227.5	333.0	0.47	0.37	1.34
2,603.0	13.50	321.30	2,566.0	257.4	-239.3	351.3	1.23	0.99	3.21
2,685.0	14.70	319.10	2,645.5	272.8	-252.1	371.3	1.60	1.46	-2.68
2,767.0	14.60	317.00	2,724.8	288.2	-265.9	392.0	0.66	-0.12	-2.56
2,849.0	15.00	318.50	2,804.1	303.7	-280.0	413.0	0.68	0.49	1.83
2,930.0	14.40	317.60	2,882.5	319.0	-293.7	433.5	0.79	-0.74	-1.11
3,012.0	12.90	319.80	2,962.2	333.5	-306.5	452.9	1.94	-1.83	2.68
3,094.0	13.70	321.00	3,042.0	348.0	-318.5	471.7	1.03	0.98	1.46
3,176.0	13.50	320.30	3,121.7	363.0	-330.8	491.0	0.32	-0.24	-0.85
3,257.0	12.70	317.50	3,200.6	376.8	-342.8	509.3	1.26	-0.99	-3.46
3,339.0	12.00	314.10	3,280.7	389.4	-355.0	526.9	1.23	-0.85	-4.15
3,421.0	12.10	316.80	3,360.8	401.6	-367.0	543.9	0.70	0.12	3.29
3,503.0	12.90	316.30	3,440.9	414.5	-379.2	561.7	0.98	0.98	-0.61
3,585.0	13.10	310.80	3,520.8	427.1	-392.6	580.0	1.53	0.24	-6.71
3,666.0	13.50	317.00	3,599.6	440.1	-406.0	598.6	1.83	0.49	7.65
3,748.0	13.80	320.00	3,679.3	454.5	-418.8	617.9	0.94	0.37	3.66
3,830.0	15.60	320.00	3,758.6	470.5	-432.2	638.7	2.20	2.20	0.00
3,912.0	15.70	318.20	3,837.6	487.2	-446.7	660.8	0.60	0.12	-2.20
3,993.0	15.50	318.00	3,915.6	503.4	-461.2	682.6	0.26	-0.25	-0.25
4,075.0	14.50	316.90	3,994.8	519.1	-475.6	703.8	1.27	-1.22	-1.34
4,157.0	12.70	314.90	4,074.5	532.9	-489.0	723.1	2.27	-2.20	-2.44
4,239.0	10.70	313.80	4,154.8	544.5	-500.8	739.7	2.45	-2.44	-1.34
4,321.0	10.40	311.60	4,235.4	554.7	-511.9	754.6	0.61	-0.37	-2.68
4,402.0	9.50	317.90	4,315.2	564.5	-521.8	768.6	1.74	-1.11	7.78
4,484.0	7.80	316.10	4,396.3	573.6	-530.2	780.9	2.10	-2.07	-2.20
4,566.0	6.40	323.70	4,477.6	581.3	-536.8	791.0	2.05	-1.71	9.27
4,648.0	6.10	326.50	4,559.2	588.6	-541.9	799.9	0.52	-0.37	3.41
4,729.0	4.30	329.10	4,639.8	594.8	-545.8	807.1	2.24	-2.22	3.21
4,811.0	3.30	334.70	4,721.6	599.6	-548.4	812.4	1.30	-1.22	6.83
4,893.0	3.80	351.90	4,803.5	604.4	-549.8	816.9	1.43	0.61	20.98
4,975.0	2.70	18.90	4,885.4	608.9	-549.6	820.2	2.26	-1.34	32.93
5,057.0	1.50	54.90	4,967.3	611.3	-548.1	821.0	2.11	-1.46	43.90
5,089.9	1.50	55.10	5,000.2	611.8	-547.3	820.9	0.02	0.00	0.62
TARGET BHL 1320'FSL & 2551'FEL									
5,138.0	1.50	55.40	5,048.3	612.5	-546.3	820.8	0.02	0.00	0.62
5,220.0	2.40	97.30	5,130.2	612.9	-543.7	819.3	1.99	1.10	51.10
5,384.0	1.80	102.90	5,294.1	611.9	-537.8	814.7	0.39	-0.37	3.41
5,547.0	0.90	107.20	5,457.1	611.0	-534.1	811.5	0.56	-0.55	2.64
5,711.0	0.30	127.60	5,621.1	610.3	-532.5	810.0	0.38	-0.37	12.44

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-24D
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 G17-24D	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)	
5,874.0	0.50	276.90	5,784.1	610.2	-532.9	810.1	0.47	0.12	91.60	
6,038.0	0.70	307.10	5,948.0	610.9	-534.4	811.6	0.22	0.12	18.41	
6,201.0	0.30	323.90	6,111.0	611.8	-535.4	813.0	0.26	-0.25	10.31	
6,365.0	0.20	37.30	6,275.0	612.4	-535.5	813.5	0.19	-0.06	44.76	
6,528.0	0.20	29.70	6,438.0	612.8	-535.2	813.6	0.02	0.00	-4.66	
6,692.0	0.00	137.30	6,602.0	613.1	-535.1	813.7	0.12	-0.12	0.00	
6,855.0	0.10	178.90	6,765.0	613.0	-535.1	813.6	0.06	0.06	0.00	
6,957.0	0.19	253.43	6,867.0	612.8	-535.2	813.6	0.19	0.09	73.10	
TARGET CIRCLE 1320'FSL & 2551'FEL										
7,019.0	0.30	264.70	6,929.0	612.8	-535.5	813.8	0.19	0.17	18.17	
7,182.0	1.40	151.90	7,092.0	611.0	-535.0	812.1	0.95	0.67	-69.20	
7,346.0	1.10	125.10	7,256.0	608.3	-532.7	808.6	0.40	-0.18	-16.34	
7,509.0	1.30	100.80	7,419.0	607.1	-529.6	805.6	0.33	0.12	-14.91	
7,672.0	0.70	115.50	7,581.9	606.3	-526.9	803.2	0.40	-0.37	9.02	
7,854.0	0.80	98.50	7,763.9	605.6	-524.7	801.2	0.13	0.05	-9.34	
HARDLINE 75'W OF BHL										
7,900.0	0.80	98.50	7,809.9	605.5	-524.0	800.8	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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