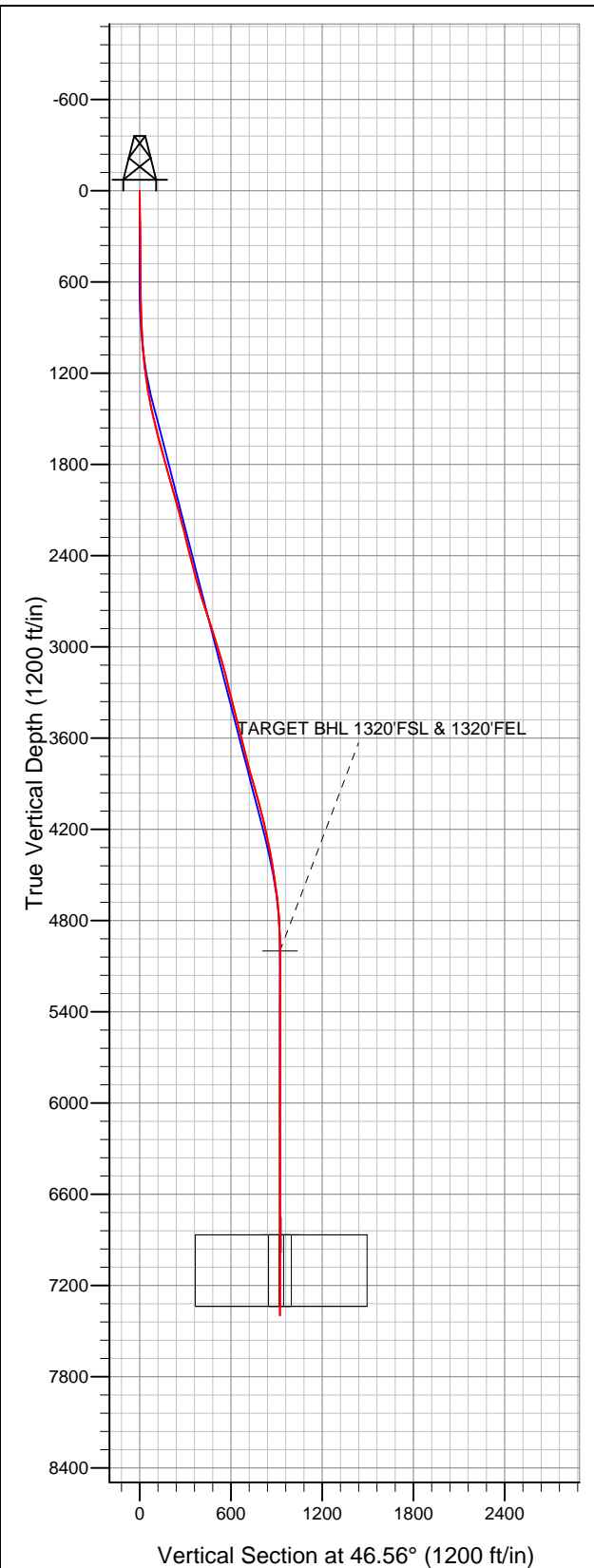


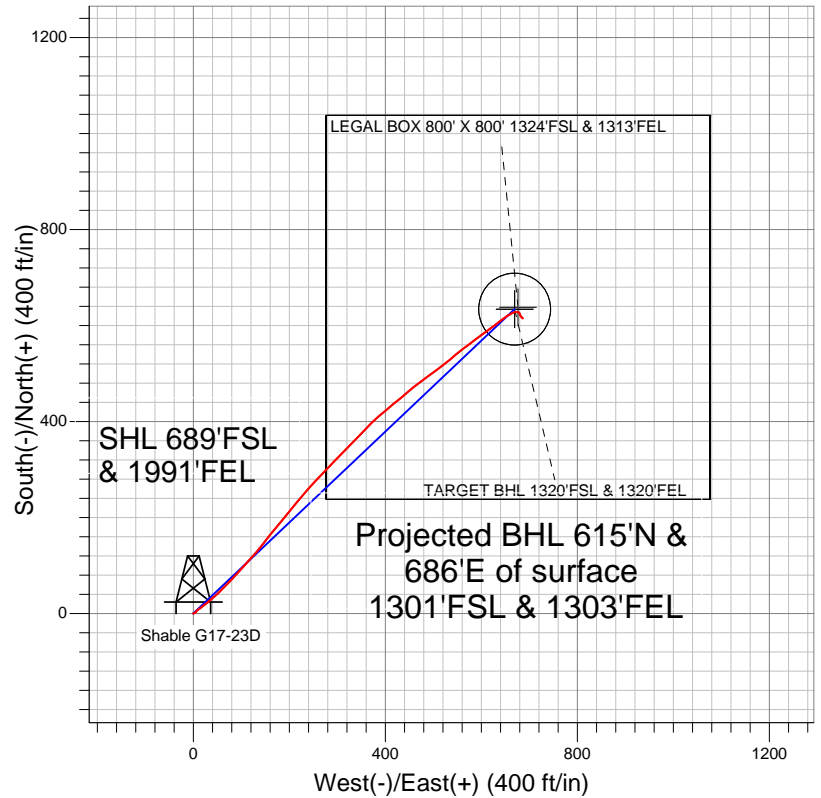
Well Name: Shable G17-23D

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	1355744.76	3227394.35	40.307050	-104.684640	
		Original Well Elev	WELL @ 4772.0ft (Original Well Elev)			



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Survey #1
- + Shable G17-23D, Wellbore #1, Noble Shable G17-23D Plan #1 (9-16-11) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7510'MD & 7396'TVD @ 921'VS
0.10 deg Inc 174.10 deg AZ

Project: SEC.17-T4N-R65W
Site: Shable G17-24D Pad Sec.17-T4N-R65W
Well: Shable G17-23D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T4N-R65W

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

Shable G17-23D

Wellbore #1

Survey: Survey #1

Standard Survey Report

25 January, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-23D
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 G17-23D	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:	1,355,777.25ft	Latitude:	40.307140
From:	Lat/Long	Easting:	3,227,360.58ft	Longitude:	-104.684760
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.53 °

Well	Shable G17-23D					
Well Position	+N/-S	0.0 ft	Northing:	1,355,744.76 ft	Latitude:	40.307050
	+E/-W	0.0 ft	Easting:	3,227,394.35 ft	Longitude:	-104.684640
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,759.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/19/2011	8.78	66.98	53,064

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	46.56	

Survey Program	Date	1/25/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
142.0	7,510.0	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	
142.0	0.60	82.90	142.0	0.1	0.7	0.6	0.42	0.42	0.00	
237.0	0.90	73.60	237.0	0.4	1.9	1.7	0.34	0.32	-9.79	
332.0	0.80	45.70	332.0	1.0	3.1	3.0	0.44	-0.11	-29.37	
427.0	0.80	48.60	427.0	1.9	4.1	4.3	0.04	0.00	3.05	
522.0	0.70	50.00	522.0	2.8	5.1	5.6	0.11	-0.11	1.47	
606.0	0.70	30.40	606.0	3.5	5.7	6.6	0.28	0.00	-23.33	
721.0	0.20	355.60	721.0	4.3	6.0	7.4	0.48	-0.43	-30.26	
803.0	1.10	41.20	802.9	5.1	6.6	8.2	1.18	1.10	55.61	
885.0	2.60	50.20	884.9	6.8	8.5	10.9	1.86	1.83	10.98	
967.0	3.80	51.10	966.8	9.7	12.0	15.4	1.46	1.46	1.10	
1,048.0	4.90	56.10	1,047.5	13.4	17.0	21.5	1.44	1.36	6.17	
1,130.0	6.20	54.60	1,129.2	17.9	23.5	29.4	1.60	1.59	-1.83	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-23D
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 G17-23D	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)
1,212.0	7.10	50.20	1,210.6	23.7	31.0	38.8	1.26	1.10	-5.37
1,294.0	9.10	47.80	1,291.8	31.3	39.7	50.4	2.47	2.44	-2.93
1,374.0	10.70	46.90	1,370.6	40.6	49.8	64.1	2.01	2.00	-1.13
1,457.0	12.40	45.90	1,451.9	52.1	61.9	80.7	2.06	2.05	-1.20
1,539.0	13.60	43.30	1,531.8	65.2	74.8	99.2	1.63	1.46	-3.17
1,621.0	14.50	41.40	1,611.3	79.9	88.2	119.0	1.23	1.10	-2.32
1,703.0	15.60	42.20	1,690.5	95.8	102.4	140.2	1.37	1.34	0.98
1,784.0	15.60	43.40	1,768.5	111.8	117.2	162.0	0.40	0.00	1.48
1,866.0	15.70	39.90	1,847.5	128.3	131.9	184.0	1.16	0.12	-4.27
1,948.0	16.00	37.70	1,926.4	145.8	145.9	206.2	0.82	0.37	-2.68
2,030.0	15.40	39.10	2,005.3	163.2	159.7	228.1	0.87	-0.73	1.71
2,111.0	15.40	38.60	2,083.4	179.9	173.2	249.4	0.16	0.00	-0.62
2,193.0	15.20	40.60	2,162.5	196.6	187.0	270.9	0.69	-0.24	2.44
2,275.0	14.10	40.30	2,241.9	212.4	200.4	291.5	1.34	-1.34	-0.37
2,357.0	13.80	37.70	2,321.4	227.7	212.9	311.1	0.85	-0.37	-3.17
2,438.0	14.30	39.70	2,400.0	243.1	225.2	330.6	0.86	0.62	2.47
2,520.0	14.80	43.40	2,479.4	258.5	238.8	351.1	1.29	0.61	4.51
2,602.0	15.30	42.00	2,558.6	274.1	253.3	372.4	0.75	0.61	-1.71
2,684.0	16.90	44.00	2,637.4	290.7	268.8	395.1	2.06	1.95	2.44
2,765.0	17.30	43.00	2,714.8	308.0	285.2	418.8	0.61	0.49	-1.23
2,847.0	18.40	44.90	2,792.8	326.1	302.6	444.0	1.52	1.34	2.32
2,929.0	18.30	44.70	2,870.7	344.4	320.8	469.8	0.14	-0.12	-0.24
3,011.0	17.10	43.30	2,948.8	362.3	338.1	494.7	1.55	-1.46	-1.71
3,092.0	17.10	43.10	3,026.2	379.7	354.4	518.4	0.07	0.00	-0.25
3,174.0	16.00	45.50	3,104.8	396.4	370.7	541.8	1.58	-1.34	2.93
3,256.0	14.60	49.90	3,183.9	411.0	386.7	563.4	2.22	-1.71	5.37
3,338.0	13.50	49.80	3,263.4	423.8	401.9	583.3	1.34	-1.34	-0.12
3,420.0	13.80	51.20	3,343.1	436.1	416.9	602.6	0.54	0.37	1.71
3,501.0	14.50	50.70	3,421.7	448.6	432.2	622.3	0.88	0.86	-0.62
3,583.0	14.80	48.10	3,501.0	462.1	448.0	643.0	0.88	0.37	-3.17
3,665.0	14.70	51.90	3,580.3	475.5	464.0	663.8	1.19	-0.12	4.63
3,747.0	13.50	54.00	3,659.8	487.6	479.9	683.7	1.59	-1.46	2.56
3,829.0	14.10	54.40	3,739.5	499.0	495.8	703.1	0.74	0.73	0.49
3,910.0	15.90	52.20	3,817.7	511.6	512.5	723.9	2.33	2.22	-2.72
3,992.0	16.10	51.00	3,896.5	525.6	530.3	746.4	0.47	0.24	-1.46
4,074.0	15.60	51.10	3,975.4	539.7	547.7	768.7	0.61	-0.61	0.12
4,156.0	15.30	52.00	4,054.4	553.3	564.8	790.5	0.47	-0.37	1.10
4,237.0	13.30	53.70	4,132.9	565.4	580.7	810.4	2.52	-2.47	2.10
4,319.0	12.80	52.70	4,212.8	576.4	595.5	828.8	0.67	-0.61	-1.22
4,401.0	11.40	53.80	4,293.0	586.7	609.3	845.8	1.73	-1.71	1.34
4,483.0	10.40	53.30	4,373.5	595.9	621.8	861.2	1.22	-1.22	-0.61
4,564.0	9.30	53.10	4,453.3	604.2	632.9	875.0	1.36	-1.36	-0.25
4,646.0	8.30	52.90	4,534.3	611.8	642.9	887.5	1.22	-1.22	-0.24
4,728.0	7.30	56.20	4,615.6	618.3	651.9	898.5	1.34	-1.22	4.02
4,810.0	5.80	60.20	4,697.0	623.2	659.9	907.6	1.91	-1.83	4.88
4,892.0	4.50	67.70	4,778.7	626.5	666.4	914.7	1.78	-1.59	9.15
4,974.0	2.80	87.70	4,860.5	627.8	671.4	919.2	2.56	-2.07	24.39
5,055.0	1.90	96.10	4,941.5	627.7	674.7	921.5	1.19	-1.11	10.37
5,113.3	1.75	102.02	4,999.7	627.4	676.6	922.7	0.41	-0.25	10.15
TARGET BHL 1320'FSL & 1320'FEL									
5,137.0	1.70	104.70	5,023.4	627.3	677.3	923.1	0.41	-0.23	11.32
5,219.0	1.00	147.50	5,105.4	626.4	678.8	923.6	1.44	-0.85	52.20
5,382.0	0.70	151.80	5,268.4	624.3	680.1	923.0	0.19	-0.18	2.64
5,546.0	0.40	152.50	5,432.4	622.9	680.8	922.6	0.18	-0.18	0.43

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Shable G17-23D
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 G17-23D	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)	
5,709.0	0.30	237.10	5,595.4	622.2	680.7	922.0	0.29	-0.06	51.90	
5,873.0	0.20	122.50	5,759.4	621.8	680.6	921.7	0.26	-0.06	-69.88	
6,036.0	0.40	157.50	5,922.4	621.1	681.0	921.6	0.16	0.12	21.47	
6,200.0	0.30	138.40	6,086.4	620.2	681.5	921.3	0.09	-0.06	-11.65	
6,363.0	0.40	161.20	6,249.4	619.4	682.0	921.1	0.10	0.06	13.99	
6,527.0	0.40	149.30	6,413.4	618.4	682.5	920.7	0.05	0.00	-7.26	
6,690.0	0.40	105.30	6,576.4	617.7	683.3	920.9	0.18	0.00	-26.99	
6,854.0	0.40	138.30	6,740.4	617.1	684.3	921.2	0.14	0.00	20.12	
6,980.5	0.32	146.32	6,866.9	616.5	684.7	921.1	0.07	-0.06	6.34	
LEGAL BOX 800' X 800' 1324'FSL & 1313'FEL - TARGET CIRCLE 1320'FSL & 1320'FEL										
7,017.0	0.30	149.40	6,903.4	616.3	684.9	921.1	0.07	-0.06	8.43	
7,181.0	0.40	139.50	7,067.4	615.5	685.4	920.9	0.07	0.06	-6.04	
7,344.0	0.20	108.00	7,230.4	615.0	686.1	921.0	0.15	-0.12	-19.33	
7,464.0	0.10	174.40	7,350.4	614.9	686.3	921.1	0.15	-0.08	55.33	
7,510.0	0.10	174.10	7,396.4	614.8	686.3	921.0	0.00	0.00	-0.65	

Checked By: _____	Approved By: _____	Date: _____
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