

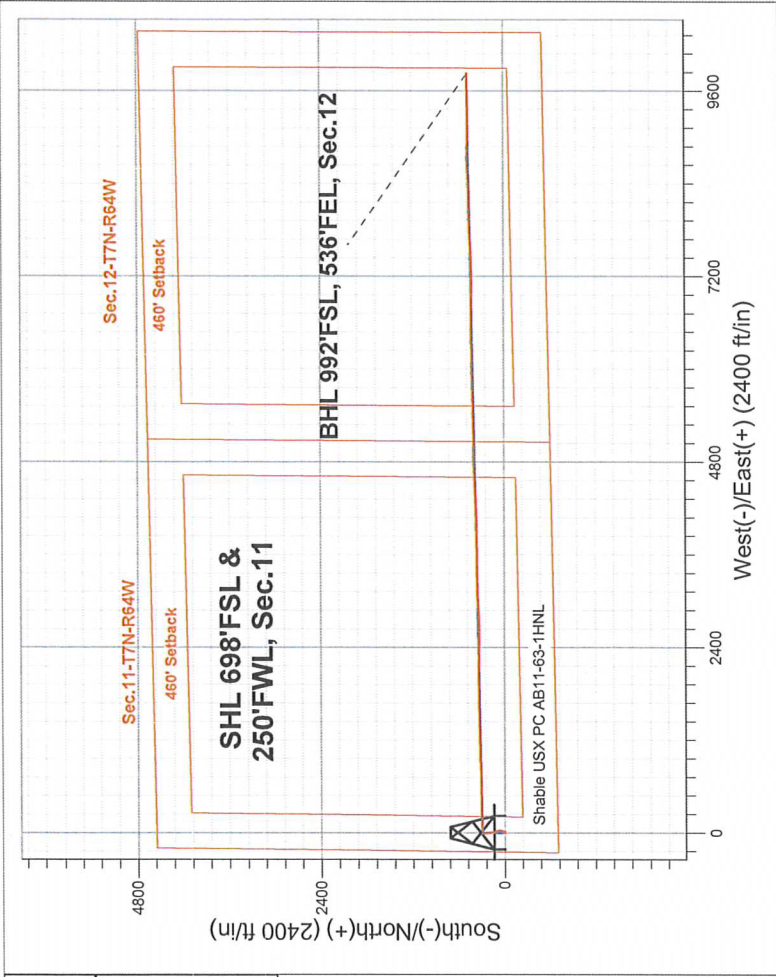
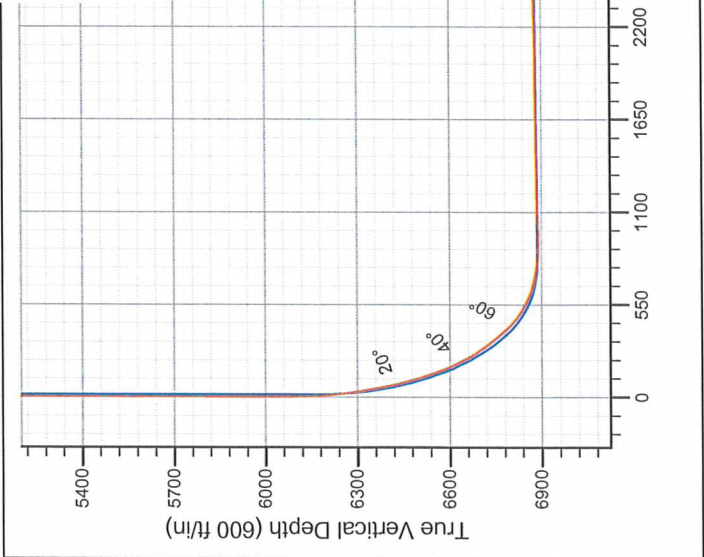
Noble Energy Inc.- Weld County, CO (Grid North)

Well Name: **Shable USX PC AB11-63-1HNL**
Surface Location: Shable AB11 Pad Sec.11-T7N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4818.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1456483.25 3270758.91 40.582360 -104.525190
Precision 828 RKB - 16' WELL @ 4834.0ft (Precision 828 RKB - 16')

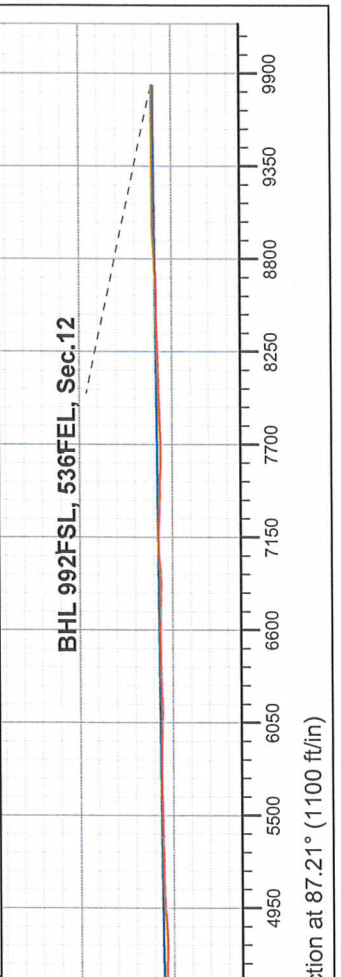
FINAL SURVEY

Projected Bottom Hole Location
16399'MD 6836'TVD 479'N &
9814'E of SHL 90.30 degree Incl
@ 87.70 degree AZM

ENSIGN
Directional



Shable AB11 Pad Sec.11-T7N-R64W Shable USX PC AB11-63-1HNL Wellbore #1 11:08, June 03 2013	ANNOTATIONS
	No annotation data is available.
LEGEND	
Shable USX PC AB11-63-1HNL, Wellbore #1, Plan A - Rev 1 (Updated 5-15-13) V0	
Wellbore #1 Survey #1	





Directional

Noble Energy Inc.- Weld County, CO (Grid North)

Sec.11-T7N-R64W

Shable AB11 Pad Sec.11-T7N-R64W

Shable USX PC AB11-63-1HNL

Wellbore #1

Survey: Survey #1

Standard Survey Report

03 June, 2013

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Shable USX PC AB11-63-1HNL
Project:	Sec.11-T7N-R64W	TVD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Site:	Shable AB11 Pad Sec.11-T7N-R64W	MD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Well:	Shable USX PC AB11-63-1HNL	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	Sec.11-T7N-R64W, 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 AB11 Pad Sec.11-T7N-R64W			
Site Position:		Northing:	1,456,443.19ft	Latitude:	40.582250
From:	Lat/Long	Easting:	3,270,759.35ft	Longitude:	-104.525190
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.63 °

Well	Shable USX PC AB11-63-1HNL					
Well Position	+N/-S	0.0 ft	Northing:	1,456,483.25 ft	Latitude:	40.582360
	+E/-W	0.0 ft	Easting:	3,270,758.91 ft	Longitude:	-104.525190
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,818.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/15/2013	8.49	67.17	53,050

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	87.21

Survey Program	Date 6/3/2013				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
802.0	16,399.0	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	
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
Shable USX AB11-14P - Shable USX AB11-16P										
802.0	0.00	0.00	802.0	0.0	0.0	0.0	0.00	0.00	0.00	
838.0	0.60	301.10	838.0	0.1	-0.2	-0.2	1.67	1.67	0.00	
928.0	1.50	297.00	928.0	0.9	-1.6	-1.6	1.00	1.00	-4.56	
1,018.0	1.20	327.40	1,018.0	2.2	-3.2	-3.1	0.85	-0.33	33.78	
1,095.0	1.10	332.50	1,094.9	3.5	-3.9	-3.8	0.19	-0.13	6.62	
1,190.0	0.50	194.50	1,189.9	3.9	-4.5	-4.3	1.59	-0.63	-145.26	
1,285.0	1.00	144.30	1,284.9	2.9	-4.1	-3.9	0.82	0.53	-52.84	
1,380.0	1.00	109.60	1,379.9	1.9	-2.8	-2.7	0.63	0.00	-36.53	
1,475.0	1.30	84.00	1,474.9	1.8	-1.0	-0.9	0.62	0.32	-26.95	

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Shable USX PC AB11-63-1HNL
Project:	Sec.11-T7N-R64W	TVD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Site:	Shable AB11 Pad Sec.11-T7N-R64W	MD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Well:	Shable USX PC AB11-63-1HNL	North Reference:	Grid
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)
1,569.0	1.20	99.10	1,568.9	1.7	1.1	1.1	0.36	-0.11	16.06
1,664.0	0.90	88.00	1,663.9	1.6	2.8	2.9	0.38	-0.32	-11.68
1,759.0	0.70	82.80	1,758.9	1.7	4.1	4.2	0.22	-0.21	-5.47
1,854.0	1.30	7.20	1,853.8	2.8	4.8	4.9	1.38	0.63	-79.58
1,949.0	2.20	345.70	1,948.8	5.7	4.5	4.8	1.16	0.95	-22.63
2,042.0	1.50	358.00	2,041.7	8.6	4.0	4.4	0.86	-0.75	13.23
2,132.0	2.60	30.40	2,131.7	11.5	5.0	5.6	1.73	1.22	36.00
2,222.0	3.00	23.70	2,221.6	15.5	7.0	7.7	0.57	0.44	-7.44
2,312.0	4.10	34.20	2,311.4	20.3	9.7	10.7	1.41	1.22	11.67
2,402.0	7.30	37.60	2,401.0	27.5	15.0	16.4	3.57	3.56	3.78
2,491.0	8.20	22.80	2,489.1	37.8	21.0	22.8	2.45	1.01	-16.63
2,581.0	8.50	13.30	2,578.2	50.2	25.0	27.4	1.57	0.33	-10.56
2,671.0	9.00	0.70	2,667.2	63.7	26.6	29.7	2.20	0.56	-14.00
2,761.0	8.40	351.20	2,756.1	77.2	25.7	29.4	1.73	-0.67	-10.56
2,851.0	8.40	347.00	2,845.2	90.1	23.2	27.5	0.68	0.00	-4.67
2,941.0	7.40	340.10	2,934.3	102.0	19.7	24.7	1.53	-1.11	-7.67
3,030.0	6.90	337.50	3,022.6	112.3	15.7	21.2	0.67	-0.56	-2.92
3,120.0	6.60	353.30	3,112.0	122.5	13.1	19.0	2.08	-0.33	17.56
3,210.0	6.10	348.40	3,201.5	132.3	11.5	17.9	0.82	-0.56	-5.44
3,300.0	6.50	337.80	3,290.9	141.7	8.6	15.5	1.36	0.44	-11.78
3,390.0	7.10	342.90	3,380.3	151.7	5.1	12.4	0.95	0.67	5.67
3,480.0	5.20	345.50	3,469.8	161.0	2.4	10.2	2.13	-2.11	2.89
3,570.0	4.70	355.90	3,559.4	168.6	1.1	9.3	1.14	-0.56	11.56
3,659.0	6.30	351.00	3,648.0	177.1	0.1	8.7	1.87	1.80	-5.51
3,749.0	7.40	352.40	3,737.4	187.7	-1.5	7.7	1.24	1.22	1.56
3,839.0	7.60	355.40	3,826.6	199.4	-2.7	7.0	0.49	0.22	3.33
3,929.0	7.80	355.40	3,915.8	211.4	-3.7	6.6	0.22	0.22	0.00
4,019.0	8.30	351.90	4,004.9	223.9	-5.1	5.8	0.78	0.56	-3.89
4,109.0	8.30	351.50	4,094.0	236.8	-6.9	4.6	0.06	0.00	-0.44
4,198.0	7.40	350.10	4,182.1	248.8	-8.9	3.2	1.03	-1.01	-1.57
4,288.0	6.50	349.20	4,271.5	259.5	-10.8	1.8	1.01	-1.00	-1.00
4,378.0	4.70	5.20	4,361.0	268.2	-11.5	1.6	2.63	-2.00	17.78
4,468.0	4.40	0.80	4,450.7	275.3	-11.1	2.3	0.51	-0.33	-4.89
4,558.0	4.00	356.60	4,540.5	281.9	-11.2	2.5	0.56	-0.44	-4.67
4,648.0	3.30	347.80	4,630.3	287.5	-11.9	2.1	0.99	-0.78	-9.78
4,738.0	2.00	348.40	4,720.2	291.6	-12.8	1.4	1.44	-1.44	0.67
4,828.0	1.20	325.30	4,810.2	293.9	-13.7	0.7	1.12	-0.89	-25.67
4,917.0	0.60	73.60	4,899.2	294.8	-13.7	0.6	1.69	-0.67	121.69
5,007.0	0.20	57.10	4,989.2	295.0	-13.2	1.2	0.46	-0.44	-18.33
5,097.0	0.30	333.60	5,079.2	295.3	-13.1	1.2	0.38	0.11	-92.78
5,187.0	0.40	312.30	5,169.2	295.7	-13.5	0.9	0.18	0.11	-23.67
5,277.0	0.10	273.10	5,259.2	296.0	-13.8	0.6	0.37	-0.33	-43.56
5,366.0	0.20	171.30	5,348.2	295.8	-13.8	0.6	0.27	0.11	-114.38
5,456.0	0.40	175.90	5,438.2	295.3	-13.8	0.6	0.22	0.22	5.11
5,546.0	0.40	148.80	5,528.2	294.8	-13.6	0.8	0.21	0.00	-30.11
5,636.0	0.50	156.20	5,618.2	294.1	-13.3	1.0	0.13	0.11	8.22
5,726.0	0.40	180.30	5,708.2	293.5	-13.1	1.2	0.24	-0.11	26.78
5,816.0	0.50	198.40	5,798.2	292.8	-13.2	1.0	0.19	0.11	20.11
5,906.0	0.70	205.80	5,888.2	291.9	-13.6	0.6	0.24	0.22	8.22
5,996.0	0.90	213.00	5,978.2	290.8	-14.2	-0.1	0.25	0.22	8.00
6,085.0	0.80	116.30	6,067.1	290.0	-14.1	0.1	1.43	-0.11	-108.65
6,175.0	4.40	81.00	6,157.0	290.2	-10.1	4.0	4.19	4.00	-39.22
6,220.0	8.30	77.30	6,201.8	291.2	-5.2	9.0	8.71	8.67	-8.22
6,265.0	12.50	82.00	6,246.0	292.6	2.8	17.0	9.51	9.33	10.44

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Site:	Shable AB11 Pad Sec.11-T7N-R64W	MD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Well:	Shable USX PC AB11-63-1HNL	North Reference:	Grid
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)
6,310.0	15.80	79.80	6,289.6	294.4	13.6	27.9	7.43	7.33	-4.89
6,355.0	17.50	82.20	6,332.7	296.4	26.4	40.8	4.07	3.78	5.33
6,400.0	18.10	87.50	6,375.6	297.6	40.1	54.5	3.84	1.33	11.78
6,445.0	21.80	88.40	6,417.9	298.1	55.4	69.8	8.25	8.22	2.00
6,490.0	25.30	87.10	6,459.1	298.8	73.4	87.8	7.86	7.78	-2.89
6,535.0	29.70	87.30	6,499.0	299.9	94.1	108.6	9.78	9.78	0.44
6,579.0	33.40	88.60	6,536.5	300.7	117.1	131.6	8.55	8.41	2.95
6,624.0	36.10	87.70	6,573.5	301.5	142.8	157.2	6.11	6.00	-2.00
6,669.0	39.50	87.10	6,609.1	302.8	170.3	184.8	7.60	7.56	-1.33
6,714.0	43.90	88.70	6,642.6	303.8	200.2	214.7	10.06	9.78	3.56
6,759.0	47.80	90.30	6,674.0	304.1	232.5	247.0	9.03	8.67	3.56
6,804.0	51.20	90.70	6,703.2	303.8	266.7	281.2	7.59	7.56	0.89
6,849.0	54.20	90.50	6,730.5	303.4	302.5	316.9	6.68	6.67	-0.44
6,894.0	56.30	90.50	6,756.1	303.1	339.5	353.8	4.67	4.67	0.00
6,939.0	59.50	89.60	6,780.0	303.1	377.6	391.9	7.31	7.11	-2.00
6,984.0	62.30	90.10	6,801.9	303.2	416.9	431.1	6.30	6.22	1.11
7,029.0	66.90	89.80	6,821.2	303.2	457.5	471.7	10.24	10.22	-0.67
7,074.0	70.90	88.40	6,837.4	303.9	499.5	513.7	9.35	8.89	-3.11
7,119.0	74.60	88.00	6,850.7	305.2	542.4	556.6	8.27	8.22	-0.89
7,164.0	77.00	87.90	6,861.8	306.8	586.0	600.3	5.34	5.33	-0.22
7,204.0	81.00	88.90	6,869.4	307.9	625.3	639.5	10.30	10.00	2.50
7,295.0	83.90	88.70	6,881.4	309.8	715.5	729.7	3.19	3.19	-0.22
7,374.2	86.98	88.26	6,887.7	311.9	794.4	808.6	3.93	3.89	-0.56
Shable USX PC AB11-63-1HNL Landing Pt.									
7,385.0	87.40	88.20	6,888.2	312.2	805.2	819.4	3.93	3.89	-0.55
7,475.0	89.50	87.30	6,890.6	315.7	895.0	909.3	2.54	2.33	-1.00
7,565.0	92.20	88.90	6,889.3	318.7	985.0	999.3	3.49	3.00	1.78
7,655.0	91.50	88.70	6,886.4	320.6	1,074.9	1,089.2	0.81	-0.78	-0.22
7,744.0	90.50	89.40	6,884.8	322.1	1,163.9	1,178.2	1.37	-1.12	0.79
7,834.0	89.80	89.30	6,884.6	323.1	1,253.9	1,268.1	0.79	-0.78	-0.11
7,924.0	90.70	88.40	6,884.2	324.9	1,343.9	1,358.1	1.41	1.00	-1.00
8,014.0	89.70	88.20	6,883.9	327.6	1,433.8	1,448.0	1.13	-1.11	-0.22
8,104.0	90.20	87.70	6,884.0	330.8	1,523.8	1,538.0	0.79	0.56	-0.56
8,194.0	90.50	89.40	6,883.4	333.1	1,613.7	1,628.0	1.92	0.33	1.89
8,284.0	90.90	88.70	6,882.3	334.6	1,703.7	1,718.0	0.90	0.44	-0.78
8,374.0	90.80	89.60	6,881.0	335.9	1,793.7	1,807.9	1.01	-0.11	1.00
8,463.0	90.40	90.00	6,880.1	336.2	1,882.7	1,896.8	0.64	-0.45	0.45
8,553.0	88.90	89.30	6,880.6	336.8	1,972.7	1,986.7	1.84	-1.67	-0.78
8,643.0	90.70	91.00	6,880.9	336.5	2,062.7	2,076.6	2.75	2.00	1.89
8,733.0	90.70	89.60	6,879.8	336.1	2,152.6	2,166.4	1.56	0.00	-1.56
8,823.0	90.90	90.70	6,878.6	335.8	2,242.6	2,256.3	1.24	0.22	1.22
8,912.0	90.80	91.20	6,877.2	334.3	2,331.6	2,345.1	0.57	-0.11	0.56
9,002.0	91.00	90.80	6,875.8	332.8	2,421.6	2,434.9	0.50	0.22	-0.44
9,092.0	90.00	91.20	6,875.0	331.2	2,511.6	2,524.7	1.20	-1.11	0.44
9,182.0	89.60	89.40	6,875.4	330.7	2,601.6	2,614.6	2.05	-0.44	-2.00
9,272.0	90.50	87.90	6,875.3	332.8	2,691.5	2,704.5	1.94	1.00	-1.67
9,362.0	90.90	88.70	6,874.2	335.5	2,781.5	2,794.5	0.99	0.44	0.89
9,452.0	89.20	86.80	6,874.1	339.1	2,871.4	2,884.5	2.83	-1.89	-2.11
9,542.0	89.40	85.60	6,875.2	345.0	2,961.2	2,974.5	1.35	0.22	-1.33
9,631.0	91.80	87.90	6,874.3	350.1	3,050.0	3,063.5	3.73	2.70	2.58
9,721.0	90.50	87.70	6,872.5	353.5	3,140.0	3,153.4	1.46	-1.44	-0.22
9,811.0	90.80	90.30	6,871.4	355.1	3,229.9	3,243.4	2.91	0.33	2.89
9,901.0	89.10	89.30	6,871.5	355.4	3,319.9	3,333.3	2.19	-1.89	-1.11

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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)
9,991.0	90.60	89.80	6,871.8	356.1	3,409.9	3,423.2	1.76	1.67	0.56
10,081.0	88.90	89.40	6,872.2	356.7	3,499.9	3,513.1	1.94	-1.89	-0.44
10,171.0	88.50	89.30	6,874.2	357.8	3,589.9	3,603.0	0.46	-0.44	-0.11
10,265.0	90.30	88.20	6,875.2	359.8	3,683.9	3,697.0	2.24	1.91	-1.17
10,359.0	91.00	88.60	6,874.1	362.4	3,777.8	3,791.0	0.86	0.74	0.43
10,453.0	91.10	91.70	6,872.4	362.2	3,871.8	3,884.8	3.30	0.11	3.30
10,548.0	87.30	90.00	6,873.7	360.8	3,966.7	3,979.6	4.38	-4.00	-1.79
10,642.0	87.10	87.30	6,878.3	363.0	4,060.6	4,073.4	2.88	-0.21	-2.87
10,735.0	90.00	86.10	6,880.7	368.3	4,153.4	4,166.4	3.37	3.12	-1.29
10,830.0	91.20	88.00	6,879.7	373.2	4,248.3	4,261.4	2.37	1.26	2.00
10,923.0	90.60	89.30	6,878.2	375.4	4,341.2	4,354.3	1.54	-0.65	1.40
11,017.0	90.00	88.60	6,877.7	377.1	4,435.2	4,448.3	0.98	-0.64	-0.74
11,111.0	89.80	87.50	6,877.9	380.3	4,529.1	4,542.3	1.19	-0.21	-1.17
11,204.0	89.80	86.80	6,878.2	385.0	4,622.0	4,635.3	0.75	0.00	-0.75
11,297.0	89.60	84.70	6,878.7	391.9	4,714.8	4,728.2	2.27	-0.22	-2.26
11,390.0	91.70	88.90	6,877.6	397.0	4,807.6	4,821.2	5.05	2.26	4.52
11,485.0	92.90	90.50	6,873.8	397.5	4,902.5	4,916.0	2.10	1.26	1.68
11,578.0	91.20	90.30	6,870.5	396.9	4,995.4	5,008.8	1.84	-1.83	-0.22
11,672.0	90.20	89.60	6,869.3	397.0	5,089.4	5,102.7	1.30	-1.06	-0.74
11,766.0	90.40	88.40	6,868.9	398.6	5,183.4	5,196.7	1.29	0.21	-1.28
11,859.0	90.50	89.10	6,868.1	400.6	5,276.4	5,289.6	0.76	0.11	0.75
11,953.0	91.00	88.70	6,866.9	402.5	5,370.4	5,383.6	0.68	0.53	-0.43
12,046.0	90.30	89.40	6,865.8	404.0	5,463.3	5,476.5	1.06	-0.75	0.75
12,139.0	90.90	89.80	6,864.9	404.6	5,556.3	5,569.4	0.78	0.65	0.43
12,233.0	90.40	88.60	6,863.8	406.0	5,650.3	5,663.4	1.38	-0.53	-1.28
12,323.0	90.20	88.00	6,863.3	408.6	5,740.3	5,753.4	0.70	-0.22	-0.67
12,413.0	90.00	87.90	6,863.2	411.8	5,830.2	5,843.4	0.25	-0.22	-0.11
12,503.0	89.10	87.10	6,863.9	415.8	5,920.1	5,933.3	1.34	-1.00	-0.89
12,593.0	89.00	88.40	6,865.4	419.3	6,010.0	6,023.3	1.45	-0.11	1.44
12,682.0	90.20	89.80	6,866.0	420.7	6,099.0	6,112.3	2.07	1.35	1.57
12,772.0	91.20	90.50	6,864.9	420.5	6,189.0	6,202.1	1.36	1.11	0.78
12,862.0	90.40	87.50	6,863.6	422.0	6,279.0	6,292.1	3.45	-0.89	-3.33
12,952.0	91.20	88.90	6,862.4	424.9	6,368.9	6,382.1	1.79	0.89	1.56
13,042.0	90.90	89.10	6,860.7	426.4	6,458.9	6,472.0	0.40	-0.33	0.22
13,132.0	90.30	89.60	6,859.8	427.5	6,548.9	6,561.9	0.87	-0.67	0.56
13,221.0	89.20	90.80	6,860.2	427.1	6,637.9	6,650.8	1.83	-1.24	1.35
13,311.0	89.10	90.50	6,861.5	426.1	6,727.9	6,740.6	0.35	-0.11	-0.33
13,401.0	89.30	90.50	6,862.8	425.3	6,817.9	6,830.5	0.22	0.22	0.00
13,491.0	91.70	91.40	6,862.0	423.8	6,907.8	6,920.3	2.85	2.67	1.00
13,581.0	93.70	91.20	6,857.7	421.8	6,997.7	7,009.9	2.23	2.22	-0.22
13,671.0	90.60	90.50	6,854.4	420.5	7,087.6	7,099.7	3.53	-3.44	-0.78
13,761.0	88.40	89.60	6,855.1	420.4	7,177.6	7,189.6	2.64	-2.44	-1.00
13,850.0	88.30	88.40	6,857.7	421.9	7,266.6	7,278.5	1.35	-0.11	-1.35
13,940.0	89.90	88.20	6,859.1	424.6	7,356.5	7,368.5	1.79	1.78	-0.22
14,030.0	89.10	87.50	6,859.9	428.0	7,446.4	7,458.4	1.18	-0.89	-0.78
14,120.0	89.00	87.00	6,861.4	432.3	7,536.3	7,548.4	0.57	-0.11	-0.56
14,210.0	89.70	87.50	6,862.4	436.6	7,626.2	7,638.4	0.96	0.78	0.56
14,300.0	90.90	86.30	6,862.0	441.5	7,716.1	7,728.4	1.89	1.33	-1.33
14,390.0	91.60	87.90	6,860.0	446.0	7,805.9	7,818.4	1.94	0.78	1.78
14,480.0	90.70	87.90	6,858.2	449.3	7,895.9	7,908.4	1.00	-1.00	0.00
14,570.0	90.70	88.00	6,857.1	452.6	7,985.8	7,998.4	0.11	0.00	0.11
14,659.0	91.00	89.30	6,855.8	454.7	8,074.8	8,087.3	1.50	0.34	1.46
14,749.0	90.70	89.30	6,854.4	455.8	8,164.7	8,177.2	0.33	-0.33	0.00

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Shable USX PC AB11-63-1HNL
Project:	Sec.11-T7N-R64W	TVD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Site:	Shable AB11 Pad Sec.11-T7N-R64W	MD Reference:	WELL @ 4834.0ft (Precision 828 RKB - 16')
Well:	Shable USX PC AB11-63-1HNL	North Reference:	Grid
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)
14,839.0	91.40	91.40	6,852.8	455.2	8,254.7	8,267.1	2.46	0.78	2.33
14,929.0	91.70	89.10	6,850.3	454.8	8,344.7	8,356.9	2.58	0.33	-2.56
15,019.0	90.60	87.10	6,848.5	457.8	8,434.6	8,446.9	2.54	-1.22	-2.22
15,109.0	89.80	86.60	6,848.2	462.7	8,524.5	8,536.9	1.05	-0.89	-0.56
15,199.0	90.80	86.10	6,847.8	468.5	8,614.3	8,626.9	1.24	1.11	-0.56
15,289.0	91.90	88.60	6,845.6	472.6	8,704.2	8,716.8	3.03	1.22	2.78
15,378.0	91.60	91.50	6,842.9	472.6	8,793.1	8,805.7	3.27	-0.34	3.26
15,468.0	91.80	92.20	6,840.2	469.7	8,883.0	8,895.3	0.81	0.22	0.78
15,558.0	90.70	91.20	6,838.3	467.0	8,972.9	8,985.0	1.65	-1.22	-1.11
15,648.0	90.50	91.40	6,837.3	464.9	9,062.9	9,074.8	0.31	-0.22	0.22
15,738.0	89.60	89.80	6,837.3	464.0	9,152.9	9,164.6	2.04	-1.00	-1.78
15,828.0	90.20	89.30	6,837.4	464.7	9,242.9	9,254.6	0.87	0.67	-0.56
15,918.0	90.90	88.60	6,836.6	466.4	9,332.9	9,344.5	1.10	0.78	-0.78
16,007.0	89.80	88.90	6,836.0	468.3	9,421.9	9,433.5	1.28	-1.24	0.34
16,097.0	90.00	88.60	6,836.2	470.3	9,511.8	9,523.5	0.40	0.22	-0.33
16,187.0	89.70	88.40	6,836.4	472.6	9,601.8	9,613.4	0.40	-0.33	-0.22
16,277.0	89.80	88.60	6,836.8	475.0	9,691.8	9,703.4	0.25	0.11	0.22
16,346.0	90.30	87.70	6,836.7	477.2	9,760.7	9,772.4	1.49	0.72	-1.30
16,399.0	90.30	87.70	6,836.5	479.3	9,813.7	9,825.4	0.00	0.00	0.00

Shable USX PC AB11-63-1HNL BHL 990'FSL & 535'FEL

Checked By: _____	Approved By: _____	Date: _____
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