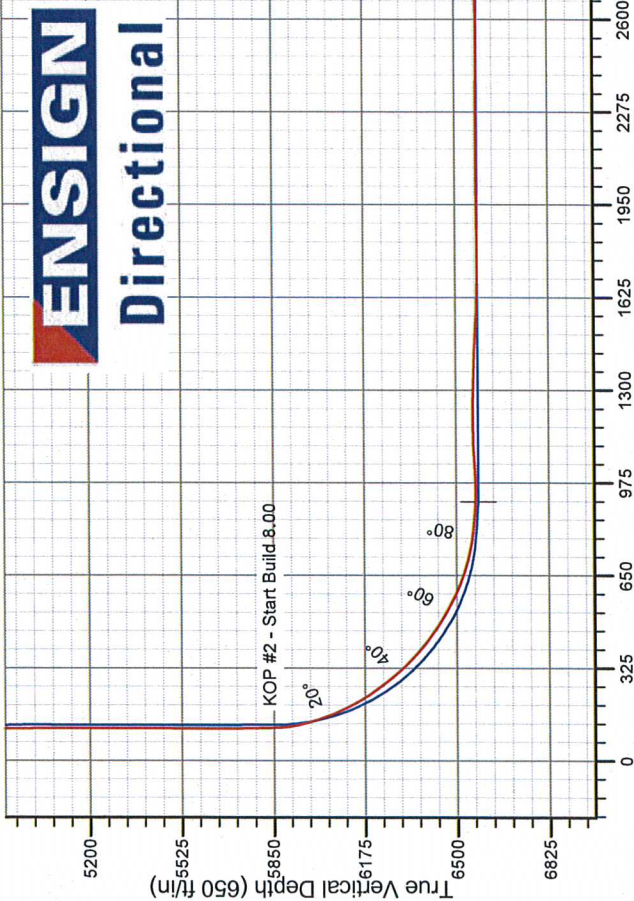
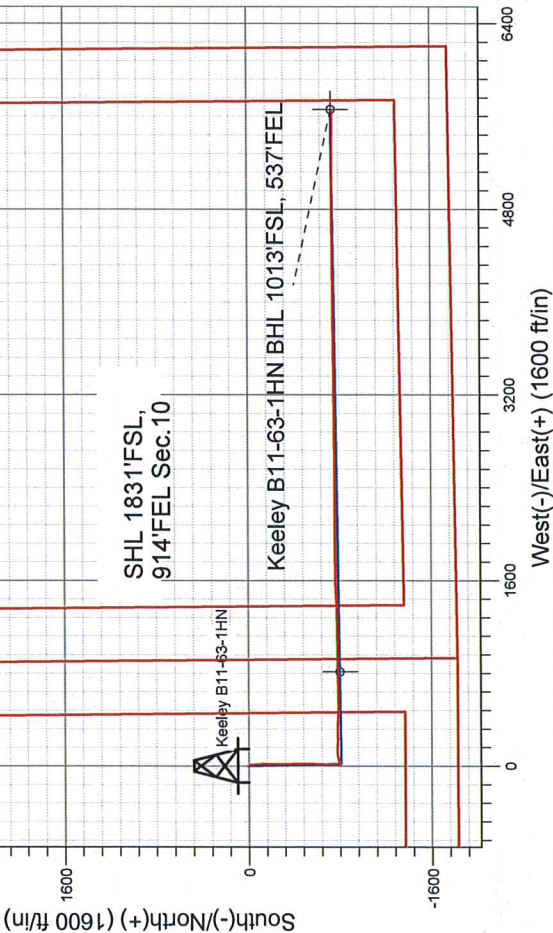


Noble Energy Inc.- Weld County, CO (Grid North)

Well Name: Keeley B11-63-1HN			
Surface Location: Keeley B11-63-1HN Pad Sec.10-T5N-R64W			
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone			
Ground Elevation: 4603.0			
+N/-S	+E/-W	Northing	Eastng
0.0	0.0	1394229.73	3270009.12
Original Well Elev		WELL @ 4616.0ft (Original Well Elev)	Slot
		Longitude	
		Latitude	
		-104.530340	

FINAL SURVEY

Projected Bottom Hole Location  
11961' MD 5705.48' TVD 746'S &  
5656.5'E of SHL  
90.0 degree Incl @ 90.2 degree AZM



LEGEND

- Keeley B11-63-1HN, Wellbore #1, Plan A - Rev 3 (Tied to Curve) V0
- Keeley B11-63-1HN, Wellbore #1, Plan A - Rev 3 V0
- Wellbore #1
- Survey #1

Keeley B11-63-1HN Pad Sec.10-T5N-R64W  
Keeley B11-63-1HN  
Wellbore #1  
18.04, November 26 2012



## **Directional**

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

**Sec.10-T5N-R64W**

**Keeley B11-63-1HN Pad Sec.10-T5N-R64W**

**Keeley B11-63-1HN**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**26 November, 2012**



<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Keeley B11-63-1HN
<b>Project:</b>	Sec.10-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Site:</b>	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	<b>MD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Well:</b>	Keeley B11-63-1HN	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	Sec.10-T5N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Keeley B11-63-1HN Pad Sec.10-T5N-R64W			
Site Position:		Northing:	1,394,229.74 ft	Latitude:	40.411510
From:	Lat/Long	Easting:	3,270,009.12 ft	Longitude:	-104.530340
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.63 °

Well	Keeley B11-63-1HN					
Well Position	+N/-S	0.0 ft	Northing:	1,394,229.73 ft	Latitude:	40.411510
	+E/-W	0.0 ft	Easting:	3,270,009.12 ft	Longitude:	-104.530340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,603.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/9/2012	8.55	67.05	53,016

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	97.44	

<b>Survey Program</b>	Date 11/26/2012				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
655.0	11,961.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
11.0	0.00	0.00	11.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Trebor B11-23</b>										
655.0	0.00	0.00	655.0	0.0	0.0	0.0	0.00	0.00	0.00	
738.0	0.90	346.30	738.0	0.6	-0.2	-0.2	1.08	1.08	0.00	
832.0	0.50	227.50	832.0	1.1	-0.6	-0.8	1.30	-0.43	-126.38	
925.0	0.70	227.00	925.0	0.4	-1.3	-1.4	0.22	0.22	-0.54	
1,018.0	2.20	146.80	1,018.0	-1.5	-0.8	-0.6	2.36	1.61	-86.24	
1,111.0	3.30	147.70	1,110.9	-5.2	1.6	2.3	1.18	1.18	0.97	
1,211.0	4.70	151.40	1,210.6	-11.3	5.1	6.5	1.42	1.40	3.70	
1,306.0	5.50	159.50	1,305.2	-18.9	8.6	11.0	1.13	0.84	8.53	
1,401.0	7.30	178.10	1,399.6	-29.2	10.4	14.1	2.87	1.89	19.58	



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Keeley B11-63-1HN
Project:	Sec.10-T5N-R64W	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Well:	Keeley B11-63-1HN	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)
1,494.0	7.70	172.50	1,491.9	-41.3	11.4	16.6	0.90	0.43	-6.02
1,589.0	8.40	176.50	1,585.9	-54.6	12.6	19.6	0.94	0.74	4.21
1,684.0	9.10	182.70	1,679.8	-69.0	12.7	21.5	1.24	0.74	6.53
1,763.0	9.90	172.30	1,757.7	-82.0	13.3	23.8	2.39	1.01	-13.16
1,858.0	12.00	172.60	1,851.0	-99.8	15.7	28.5	2.21	2.21	0.32
1,953.0	12.00	173.20	1,943.9	-119.4	18.1	33.4	0.13	0.00	0.63
2,047.0	13.40	180.00	2,035.6	-140.0	19.3	37.3	2.18	1.49	7.23
2,142.0	13.70	178.30	2,128.0	-162.3	19.6	40.5	0.52	0.32	-1.79
2,237.0	12.60	182.10	2,220.5	-183.9	19.6	43.2	1.47	-1.16	4.00
2,332.0	14.30	182.70	2,312.9	-206.0	18.6	45.2	1.80	1.79	0.63
2,427.0	16.00	181.40	2,404.6	-230.8	17.8	47.5	1.82	1.79	-1.37
2,522.0	15.70	182.10	2,496.0	-256.7	17.0	50.1	0.37	-0.32	0.74
2,616.0	14.80	179.70	2,586.7	-281.4	16.6	52.9	1.17	-0.96	-2.55
2,711.0	14.70	179.50	2,678.5	-305.6	16.7	56.2	0.12	-0.11	-0.21
2,806.0	14.20	177.20	2,770.5	-329.3	17.4	59.9	0.80	-0.53	-2.42
2,901.0	15.40	180.00	2,862.4	-353.6	18.0	63.6	1.47	1.26	2.95
2,996.0	15.10	180.60	2,954.0	-378.6	17.9	66.7	0.36	-0.32	0.63
3,091.0	14.00	178.60	3,046.0	-402.4	18.0	70.0	1.27	-1.16	-2.11
3,186.0	14.00	178.10	3,138.2	-425.4	18.7	73.6	0.13	0.00	-0.53
3,281.0	13.90	180.60	3,230.4	-448.3	18.9	76.8	0.64	-0.11	2.63
3,376.0	12.40	177.20	3,322.9	-469.9	19.3	80.0	1.78	-1.58	-3.58
3,470.0	12.80	175.10	3,414.6	-490.3	20.7	84.0	0.65	0.43	-2.23
3,565.0	14.10	177.40	3,507.0	-512.4	22.1	88.3	1.48	1.37	2.42
3,660.0	14.30	184.80	3,599.1	-535.6	21.7	90.8	1.92	0.21	7.79
3,755.0	14.60	185.10	3,691.1	-559.3	19.6	91.9	0.33	0.32	0.32
3,850.0	14.60	183.20	3,783.0	-583.1	17.9	93.2	0.50	0.00	-2.00
3,945.0	14.00	181.80	3,875.1	-606.6	16.9	95.3	0.73	-0.63	-1.47
4,040.0	13.40	184.20	3,967.4	-629.0	15.7	97.0	0.87	-0.63	2.53
4,135.0	12.70	184.60	4,059.9	-650.4	14.0	98.2	0.74	-0.74	0.42
4,230.0	11.50	183.20	4,152.8	-670.3	12.7	99.4	1.30	-1.26	-1.47
4,325.0	10.70	181.40	4,246.0	-688.6	11.9	101.0	0.92	-0.84	-1.89
4,420.0	10.10	180.20	4,339.5	-705.7	11.7	103.0	0.67	-0.63	-1.26
4,515.0	9.60	178.80	4,433.1	-722.0	11.8	105.2	0.58	-0.53	-1.47
4,610.0	8.10	177.40	4,526.9	-736.6	12.3	107.6	1.60	-1.58	-1.47
4,705.0	7.00	176.00	4,621.1	-749.0	13.0	109.9	1.17	-1.16	-1.47
4,800.0	5.80	184.80	4,715.5	-759.6	13.0	111.3	1.63	-1.26	9.26
4,895.0	5.20	183.50	4,810.1	-768.7	12.3	111.8	0.65	-0.63	-1.37
4,990.0	4.70	182.00	4,904.7	-776.9	11.9	112.4	0.54	-0.53	-1.58
5,084.0	3.80	185.10	4,998.5	-783.8	11.5	112.9	0.99	-0.96	3.30
5,179.0	3.30	183.70	5,093.3	-789.7	11.1	113.2	0.53	-0.53	-1.47
5,274.0	2.60	183.20	5,188.2	-794.5	10.8	113.6	0.74	-0.74	-0.53
5,369.0	1.90	173.40	5,283.1	-798.3	10.8	114.1	0.84	-0.74	-10.32
5,464.0	1.00	221.90	5,378.1	-800.4	10.5	114.0	1.52	-0.95	51.05
5,559.0	1.00	193.60	5,473.0	-801.9	9.7	113.5	0.51	0.00	-29.79
5,654.0	0.50	183.70	5,568.0	-803.1	9.5	113.4	0.54	-0.53	-10.42
5,749.0	0.30	189.90	5,663.0	-803.7	9.4	113.4	0.22	-0.21	6.53
5,844.0	0.40	227.00	5,758.0	-804.2	9.1	113.2	0.25	0.11	39.05
5,938.0	2.20	73.20	5,852.0	-803.9	10.6	114.6	2.73	1.91	-163.62
6,033.0	13.50	74.00	5,946.0	-800.3	23.1	126.5	11.90	11.89	0.84
6,129.0	23.20	72.10	6,037.0	-791.4	51.9	154.0	10.12	10.10	-1.98
6,223.0	27.50	80.00	6,121.9	-781.9	90.9	191.4	5.81	4.57	8.40
6,318.0	34.20	91.40	6,203.5	-778.8	139.3	239.0	9.33	7.05	12.00
6,413.0	40.20	94.20	6,279.2	-781.7	196.6	296.2	6.56	6.32	2.95
6,508.0	46.30	88.30	6,348.3	-782.9	261.6	360.8	7.70	6.42	-6.21



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Keeley B11-63-1HN
Project:	Sec.10-T5N-R64W	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Well:	Keeley B11-63-1HN	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)
6,603.0	54.10	90.00	6,409.1	-781.9	334.6	433.0	8.32	8.21	1.79
6,698.0	60.10	94.60	6,460.7	-785.2	414.2	512.4	7.51	6.32	4.84
6,793.0	66.60	92.70	6,503.3	-790.6	498.9	597.0	7.07	6.84	-2.00
6,888.0	73.30	88.60	6,535.9	-791.5	588.0	685.6	8.13	7.05	-4.32
6,935.0	77.40	87.20	6,547.7	-789.8	633.5	730.4	9.19	8.72	-2.98
6,985.0	82.30	87.70	6,556.6	-787.6	682.6	778.9	9.85	9.80	1.00
7,035.0	85.00	88.20	6,562.1	-785.9	732.3	827.9	5.49	5.40	1.00
7,091.0	84.90	87.60	6,567.0	-783.8	788.0	882.9	1.08	-0.18	-1.07
7,113.9	86.81	88.52	6,568.7	-783.0	810.9	905.4	9.23	8.31	4.01
Keeley B11-63-1HN Landing Pt.									
7,186.0	92.80	91.40	6,568.9	-783.0	882.9	976.9	9.23	8.32	4.00
7,281.0	93.10	90.60	6,564.0	-784.6	977.8	1,071.1	0.90	0.32	-0.84
7,376.0	91.20	88.60	6,560.5	-784.0	1,072.7	1,165.2	2.90	-2.00	-2.11
7,471.0	88.50	89.30	6,560.7	-782.2	1,167.7	1,259.1	2.94	-2.84	0.74
7,566.0	88.60	87.70	6,563.1	-779.8	1,262.6	1,352.9	1.69	0.11	-1.68
7,660.0	87.20	86.70	6,566.6	-775.2	1,356.4	1,445.4	1.83	-1.49	-1.06
7,755.0	86.60	87.60	6,571.7	-770.5	1,451.1	1,538.7	1.14	-0.63	0.95
7,850.0	88.60	88.30	6,575.7	-767.1	1,546.0	1,632.3	2.23	2.11	0.74
7,945.0	89.90	88.30	6,576.9	-764.2	1,640.9	1,726.1	1.37	1.37	0.00
8,040.0	90.70	89.30	6,576.4	-762.3	1,735.9	1,820.0	1.35	0.84	1.05
8,135.0	90.90	90.70	6,575.1	-762.3	1,830.9	1,914.2	1.49	0.21	1.47
8,230.0	90.70	91.10	6,573.8	-763.7	1,925.9	2,008.6	0.47	-0.21	0.42
8,325.0	90.00	90.00	6,573.2	-764.7	2,020.9	2,102.9	1.37	-0.74	-1.16
8,420.0	90.10	89.90	6,573.1	-764.6	2,115.9	2,197.1	0.15	0.11	-0.11
8,515.0	89.10	90.20	6,573.8	-764.7	2,210.9	2,291.3	1.10	-1.05	-0.32
8,610.0	89.80	90.00	6,574.7	-764.8	2,305.9	2,385.5	0.77	0.74	-0.21
8,704.0	89.30	88.80	6,575.4	-763.8	2,399.9	2,478.6	1.38	-0.53	-1.28
8,799.0	90.30	89.30	6,575.8	-762.3	2,494.8	2,572.5	1.18	1.05	0.53
8,894.0	91.30	89.30	6,574.4	-761.1	2,589.8	2,666.6	1.05	1.05	0.00
8,989.0	90.30	89.50	6,573.1	-760.1	2,684.8	2,760.6	1.07	-1.05	0.21
9,084.0	91.30	90.70	6,571.8	-760.3	2,779.8	2,854.8	1.64	1.05	1.26
9,179.0	90.00	90.70	6,570.7	-761.4	2,874.8	2,949.2	1.37	-1.37	0.00
9,274.0	89.60	89.30	6,571.0	-761.4	2,969.8	3,043.4	1.53	-0.42	-1.47
9,369.0	90.50	89.20	6,570.9	-760.2	3,064.8	3,137.4	0.95	0.95	-0.11
9,464.0	89.90	88.60	6,570.6	-758.4	3,159.8	3,231.4	0.89	-0.63	-0.63
9,559.0	90.00	89.90	6,570.7	-757.1	3,254.7	3,325.4	1.37	0.11	1.37
9,654.0	89.60	89.70	6,571.0	-756.8	3,349.7	3,419.5	0.47	-0.42	-0.21
9,748.0	90.00	89.90	6,571.4	-756.5	3,443.7	3,512.7	0.48	0.43	0.21
9,843.0	90.00	89.20	6,571.4	-755.7	3,538.7	3,606.8	0.74	0.00	-0.74
9,938.0	90.00	89.00	6,571.4	-754.2	3,633.7	3,700.8	0.21	0.00	-0.21
10,033.0	90.00	89.50	6,571.4	-753.0	3,728.7	3,794.8	0.53	0.00	0.53
10,128.0	89.40	89.70	6,571.9	-752.3	3,823.7	3,888.9	0.67	-0.63	0.21
10,223.0	88.80	89.30	6,573.3	-751.5	3,918.7	3,983.0	0.76	-0.63	-0.42
10,318.0	90.00	89.30	6,574.3	-750.3	4,013.7	4,077.1	1.26	1.26	0.00
10,413.0	88.80	89.70	6,575.3	-749.5	4,108.7	4,171.1	1.33	-1.26	0.42
10,508.0	90.00	89.50	6,576.3	-748.8	4,203.7	4,265.2	1.28	1.26	-0.21
10,603.0	90.10	89.70	6,576.3	-748.2	4,298.7	4,359.4	0.24	0.11	0.21
10,697.0	90.20	90.00	6,576.0	-747.9	4,392.7	4,452.5	0.34	0.11	0.32
10,792.0	89.40	89.50	6,576.3	-747.5	4,487.7	4,546.7	0.99	-0.84	-0.53
10,887.0	91.30	89.50	6,575.8	-746.7	4,582.6	4,640.8	2.00	2.00	0.00
10,982.0	90.10	89.20	6,574.6	-745.6	4,677.6	4,734.8	1.30	-1.26	-0.32
11,077.0	89.70	89.70	6,574.8	-744.7	4,772.6	4,828.9	0.67	-0.42	0.53
11,172.0	89.00	90.90	6,575.8	-745.2	4,867.6	4,923.1	1.46	-0.74	1.26



<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Keeley B11-63-1HN
<b>Project:</b>	Sec.10-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Site:</b>	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	<b>MD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Well:</b>	Keeley B11-63-1HN	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
11,267.0	90.50	90.90	6,576.3	-746.7	4,962.6	5,017.5	1.58	1.58	0.00
11,361.0	90.00	90.00	6,575.8	-747.4	5,056.6	5,110.8	1.10	-0.53	-0.96
11,458.0	89.70	88.80	6,576.1	-746.4	5,153.6	5,206.9	1.28	-0.31	-1.24
11,552.0	90.80	89.00	6,575.7	-744.6	5,247.6	5,299.8	1.19	1.17	0.21
11,647.0	90.30	90.70	6,574.8	-744.4	5,342.6	5,394.0	1.87	-0.53	1.79
11,742.0	89.20	91.10	6,575.2	-745.8	5,437.5	5,488.3	1.23	-1.16	0.42
11,837.0	89.30	89.70	6,576.4	-746.5	5,532.5	5,582.6	1.48	0.11	-1.47
11,908.0	90.00	90.20	6,576.9	-746.4	5,603.5	5,653.0	1.21	0.99	0.70
11,961.0	90.00	90.20	6,576.9	-746.6	5,656.5	5,705.6	0.00	0.00	0.00
Keeley B11-63-1HN BHL 1020'FSL, 535'FEL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Keeley B11-63-1HN L	0.00	0.00	6,576.0	-800.9	810.9	1,393,428.86	3,270,819.99	40.409287	-104.527460
- survey misses target center by 19.3ft at 7113.9ft MD (6568.7 TVD, -783.0 N, 810.8 E)									
- Circle (radius 35.0)									
Keeley B11-63-1HN E	0.00	0.00	6,576.0	-739.0	5,658.9	1,393,490.77	3,275,667.74	40.409310	-104.510050
- survey misses target center by 8.0ft at 11961.0ft MD (6576.9 TVD, -746.6 N, 5656.5 E)									
- Circle (radius 35.0)									

Checked By: _____	Approved By: _____	Date: _____
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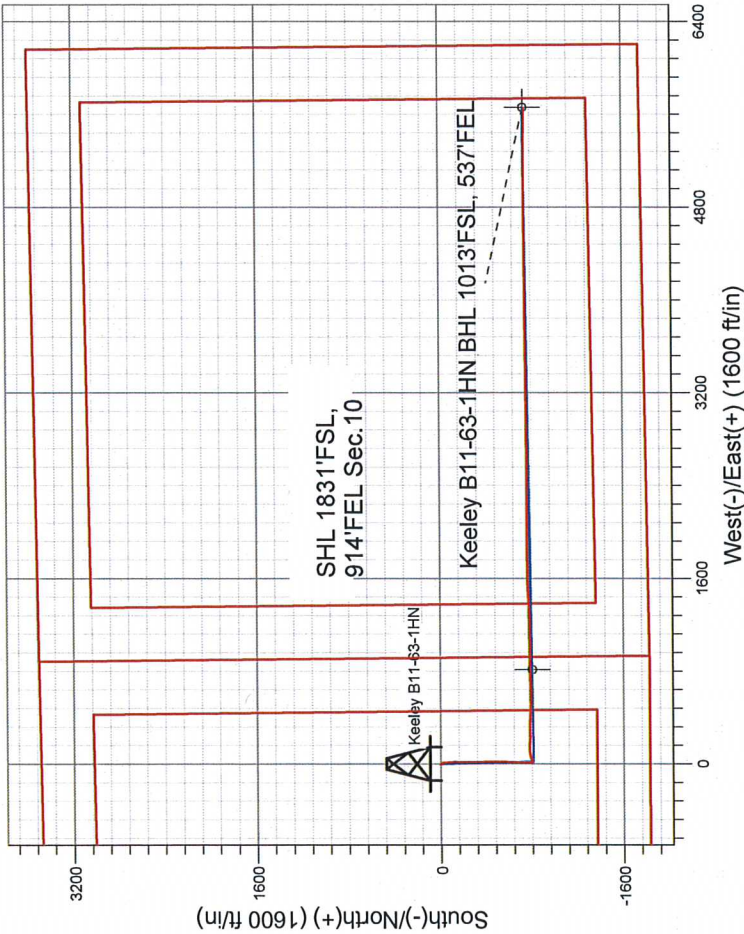


Noble Energy Inc.- Weld County, CO (Grid North)

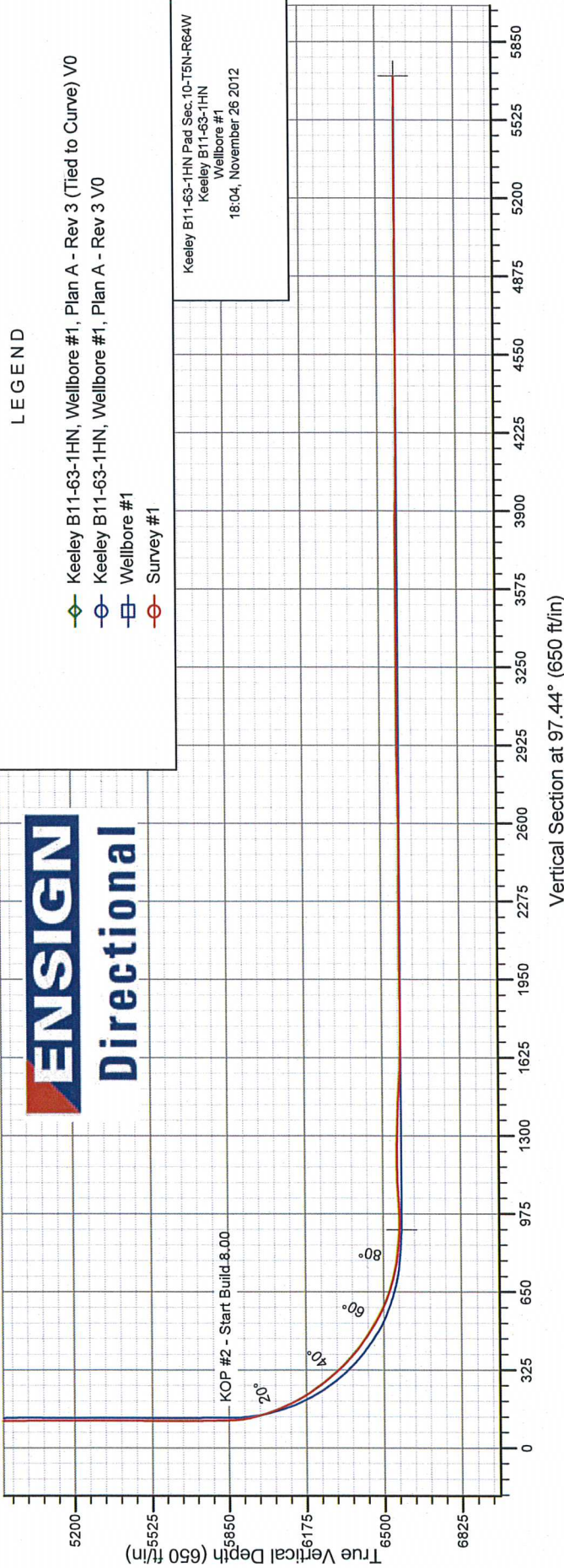
Well Name: <b>Keeley B11-63-1HN</b>			
Surface Location: Keeley B11-63-1HN Pad Sec.10-T5N-R64W			
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone			
Ground Elevation: 4603.0			
+N/-S	+E/-W	Northing	Longitude
0.0	0.0	1394229.73	327009.12
Original Well Elev		WELL @ 4616.0ft (Original Well Elev)	Slot

FINAL SURVEY

Projected Bottom Hole Location  
11961' MD 5705.48' TVD 746'S &  
5656.5'E of SHL  
90.0 degree Incl @ 90.2 degree AZM



ENSIGN  
Directional





## **Directional**

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

**Sec.10-T5N-R64W**

**Keeley B11-63-1HN Pad Sec.10-T5N-R64W**

**Keeley B11-63-1HN**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**26 November, 2012**



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Keeley B11-63-1HN
Project:	Sec.10-T5N-R64W	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Well:	Keeley B11-63-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	Sec.10-T5N-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		Keeley B11-63-1HN Pad Sec.10-T5N-R64W			
Site Position:		Northing:	1,394,229.74 ft	Latitude:	40.411510
From:	Lat/Long	Easting:	3,270,009.12 ft	Longitude:	-104.530340
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.63 °

Well	Keeley B11-63-1HN					
Well Position	+N/-S	0.0 ft	Northing:	1,394,229.73 ft	Latitude:	40.411510
	+E/-W	0.0 ft	Easting:	3,270,009.12 ft	Longitude:	-104.530340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,603.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/9/2012	8.55	67.05	53,016

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	97.44

Survey Program	Date 11/26/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
655.0	11,961.0	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	
11.0	0.00	0.00	11.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Trebor B11-23</b>										
655.0	0.00	0.00	655.0	0.0	0.0	0.0	0.00	0.00	0.00	
738.0	0.90	346.30	738.0	0.6	-0.2	-0.2	1.08	1.08	0.00	
832.0	0.50	227.50	832.0	1.1	-0.6	-0.8	1.30	-0.43	-126.38	
925.0	0.70	227.00	925.0	0.4	-1.3	-1.4	0.22	0.22	-0.54	
1,018.0	2.20	146.80	1,018.0	-1.5	-0.8	-0.6	2.36	1.61	-86.24	
1,111.0	3.30	147.70	1,110.9	-5.2	1.6	2.3	1.18	1.18	0.97	
1,211.0	4.70	151.40	1,210.6	-11.3	5.1	6.5	1.42	1.40	3.70	
1,306.0	5.50	159.50	1,305.2	-18.9	8.6	11.0	1.13	0.84	8.53	
1,401.0	7.30	178.10	1,399.6	-29.2	10.4	14.1	2.87	1.89	19.58	



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Keeley B11-63-1HN
Project:	Sec.10-T5N-R64W	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Well:	Keeley B11-63-1HN	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)
1,494.0	7.70	172.50	1,491.9	-41.3	11.4	16.6	0.90	0.43	-6.02
1,589.0	8.40	176.50	1,585.9	-54.6	12.6	19.6	0.94	0.74	4.21
1,684.0	9.10	182.70	1,679.8	-69.0	12.7	21.5	1.24	0.74	6.53
1,763.0	9.90	172.30	1,757.7	-82.0	13.3	23.8	2.39	1.01	-13.16
1,858.0	12.00	172.60	1,851.0	-99.8	15.7	28.5	2.21	2.21	0.32
1,953.0	12.00	173.20	1,943.9	-119.4	18.1	33.4	0.13	0.00	0.63
2,047.0	13.40	180.00	2,035.6	-140.0	19.3	37.3	2.18	1.49	7.23
2,142.0	13.70	178.30	2,128.0	-162.3	19.6	40.5	0.52	0.32	-1.79
2,237.0	12.60	182.10	2,220.5	-183.9	19.6	43.2	1.47	-1.16	4.00
2,332.0	14.30	182.70	2,312.9	-206.0	18.6	45.2	1.80	1.79	0.63
2,427.0	16.00	181.40	2,404.6	-230.8	17.8	47.5	1.82	1.79	-1.37
2,522.0	15.70	182.10	2,496.0	-256.7	17.0	50.1	0.37	-0.32	0.74
2,616.0	14.80	179.70	2,586.7	-281.4	16.6	52.9	1.17	-0.96	-2.55
2,711.0	14.70	179.50	2,678.5	-305.6	16.7	56.2	0.12	-0.11	-0.21
2,806.0	14.20	177.20	2,770.5	-329.3	17.4	59.9	0.80	-0.53	-2.42
2,901.0	15.40	180.00	2,862.4	-353.6	18.0	63.6	1.47	1.26	2.95
2,996.0	15.10	180.60	2,954.0	-378.6	17.9	66.7	0.36	-0.32	0.63
3,091.0	14.00	178.60	3,046.0	-402.4	18.0	70.0	1.27	-1.16	-2.11
3,186.0	14.00	178.10	3,138.2	-425.4	18.7	73.6	0.13	0.00	-0.53
3,281.0	13.90	180.60	3,230.4	-448.3	18.9	76.8	0.64	-0.11	2.63
3,376.0	12.40	177.20	3,322.9	-469.9	19.3	80.0	1.78	-1.58	-3.58
3,470.0	12.80	175.10	3,414.6	-490.3	20.7	84.0	0.65	0.43	-2.23
3,565.0	14.10	177.40	3,507.0	-512.4	22.1	88.3	1.48	1.37	2.42
3,660.0	14.30	184.80	3,599.1	-535.6	21.7	90.8	1.92	0.21	7.79
3,755.0	14.60	185.10	3,691.1	-559.3	19.6	91.9	0.33	0.32	0.32
3,850.0	14.60	183.20	3,783.0	-583.1	17.9	93.2	0.50	0.00	-2.00
3,945.0	14.00	181.80	3,875.1	-606.6	16.9	95.3	0.73	-0.63	-1.47
4,040.0	13.40	184.20	3,967.4	-629.0	15.7	97.0	0.87	-0.63	2.53
4,135.0	12.70	184.60	4,059.9	-650.4	14.0	98.2	0.74	-0.74	0.42
4,230.0	11.50	183.20	4,152.8	-670.3	12.7	99.4	1.30	-1.26	-1.47
4,325.0	10.70	181.40	4,246.0	-688.6	11.9	101.0	0.92	-0.84	-1.89
4,420.0	10.10	180.20	4,339.5	-705.7	11.7	103.0	0.67	-0.63	-1.26
4,515.0	9.60	178.80	4,433.1	-722.0	11.8	105.2	0.58	-0.53	-1.47
4,610.0	8.10	177.40	4,526.9	-736.6	12.3	107.6	1.60	-1.58	-1.47
4,705.0	7.00	176.00	4,621.1	-749.0	13.0	109.9	1.17	-1.16	-1.47
4,800.0	5.80	184.80	4,715.5	-759.6	13.0	111.3	1.63	-1.26	9.26
4,895.0	5.20	183.50	4,810.1	-768.7	12.3	111.8	0.65	-0.63	-1.37
4,990.0	4.70	182.00	4,904.7	-776.9	11.9	112.4	0.54	-0.53	-1.58
5,084.0	3.80	185.10	4,998.5	-783.8	11.5	112.9	0.99	-0.96	3.30
5,179.0	3.30	183.70	5,093.3	-789.7	11.1	113.2	0.53	-0.53	-1.47
5,274.0	2.60	183.20	5,188.2	-794.5	10.8	113.6	0.74	-0.74	-0.53
5,369.0	1.90	173.40	5,283.1	-798.3	10.8	114.1	0.84	-0.74	-10.32
5,464.0	1.00	221.90	5,378.1	-800.4	10.5	114.0	1.52	-0.95	51.05
5,559.0	1.00	193.60	5,473.0	-801.9	9.7	113.5	0.51	0.00	-29.79
5,654.0	0.50	183.70	5,568.0	-803.1	9.5	113.4	0.54	-0.53	-10.42
5,749.0	0.30	189.90	5,663.0	-803.7	9.4	113.4	0.22	-0.21	6.53
5,844.0	0.40	227.00	5,758.0	-804.2	9.1	113.2	0.25	0.11	39.05
5,938.0	2.20	73.20	5,852.0	-803.9	10.6	114.6	2.73	1.91	-163.62
6,033.0	13.50	74.00	5,946.0	-800.3	23.1	126.5	11.90	11.89	0.84
6,129.0	23.20	72.10	6,037.0	-791.4	51.9	154.0	10.12	10.10	-1.98
6,223.0	27.50	80.00	6,121.9	-781.9	90.9	191.4	5.81	4.57	8.40
6,318.0	34.20	91.40	6,203.5	-778.8	139.3	239.0	9.33	7.05	12.00
6,413.0	40.20	94.20	6,279.2	-781.7	196.6	296.2	6.56	6.32	2.95
6,508.0	46.30	88.30	6,348.3	-782.9	261.6	360.8	7.70	6.42	-6.21



<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Keeley B11-63-1HN
<b>Project:</b>	Sec.10-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Site:</b>	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	<b>MD Reference:</b>	WELL @ 4616.0ft (Original Well Elev)
<b>Well:</b>	Keeley B11-63-1HN	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
6,603.0	54.10	90.00	6,409.1	-781.9	334.6	433.0	8.32	8.21	1.79
6,698.0	60.10	94.60	6,460.7	-785.2	414.2	512.4	7.51	6.32	4.84
6,793.0	66.60	92.70	6,503.3	-790.6	498.9	597.0	7.07	6.84	-2.00
6,888.0	73.30	88.60	6,535.9	-791.5	588.0	685.6	8.13	7.05	-4.32
6,935.0	77.40	87.20	6,547.7	-789.8	633.5	730.4	9.19	8.72	-2.98
6,985.0	82.30	87.70	6,556.6	-787.6	682.6	778.9	9.85	9.80	1.00
7,035.0	85.00	88.20	6,562.1	-785.9	732.3	827.9	5.49	5.40	1.00
7,091.0	84.90	87.60	6,567.0	-783.8	788.0	882.9	1.08	-0.18	-1.07
7,113.9	86.81	88.52	6,568.7	-783.0	810.9	905.4	9.23	8.31	4.01
<b>Keeley B11-63-1HN Landing Pt.</b>									
7,186.0	92.80	91.40	6,568.9	-783.0	882.9	976.9	9.23	8.32	4.00
7,281.0	93.10	90.60	6,564.0	-784.6	977.8	1,071.1	0.90	0.32	-0.84
7,376.0	91.20	88.60	6,560.5	-784.0	1,072.7	1,165.2	2.90	-2.00	-2.11
7,471.0	88.50	89.30	6,560.7	-782.2	1,167.7	1,259.1	2.94	-2.84	0.74
7,566.0	88.60	87.70	6,563.1	-779.8	1,262.6	1,352.9	1.69	0.11	-1.68
7,660.0	87.20	86.70	6,566.6	-775.2	1,356.4	1,445.4	1.83	-1.49	-1.06
7,755.0	86.60	87.60	6,571.7	-770.5	1,451.1	1,538.7	1.14	-0.63	0.95
7,850.0	88.60	88.30	6,575.7	-767.1	1,546.0	1,632.3	2.23	2.11	0.74
7,945.0	89.90	88.30	6,576.9	-764.2	1,640.9	1,726.1	1.37	1.37	0.00
8,040.0	90.70	89.30	6,576.4	-762.3	1,735.9	1,820.0	1.35	0.84	1.05
8,135.0	90.90	90.70	6,575.1	-762.3	1,830.9	1,914.2	1.49	0.21	1.47
8,230.0	90.70	91.10	6,573.8	-763.7	1,925.9	2,008.6	0.47	-0.21	0.42
8,325.0	90.00	90.00	6,573.2	-764.7	2,020.9	2,102.9	1.37	-0.74	-1.16
8,420.0	90.10	89.90	6,573.1	-764.6	2,115.9	2,197.1	0.15	0.11	-0.11
8,515.0	89.10	90.20	6,573.8	-764.7	2,210.9	2,291.3	1.10	-1.05	0.32
8,610.0	89.80	90.00	6,574.7	-764.8	2,305.9	2,385.5	0.77	0.74	-0.21
8,704.0	89.30	88.80	6,575.4	-763.8	2,399.9	2,478.6	1.38	-0.53	-1.28
8,799.0	90.30	89.30	6,575.8	-762.3	2,494.8	2,572.5	1.18	1.05	0.53
8,894.0	91.30	89.30	6,574.4	-761.1	2,589.8	2,666.6	1.05	1.05	0.00
8,989.0	90.30	89.50	6,573.1	-760.1	2,684.8	2,760.6	1.07	-1.05	0.21
9,084.0	91.30	90.70	6,571.8	-760.3	2,779.8	2,854.8	1.64	1.05	1.26
9,179.0	90.00	90.70	6,570.7	-761.4	2,874.8	2,949.2	1.37	-1.37	0.00
9,274.0	89.60	89.30	6,571.0	-761.4	2,969.8	3,043.4	1.53	-0.42	-1.47
9,369.0	90.50	89.20	6,570.9	-760.2	3,064.8	3,137.4	0.95	0.95	-0.11
9,464.0	89.90	88.60	6,570.6	-758.4	3,159.8	3,231.4	0.89	-0.63	-0.63
9,559.0	90.00	89.90	6,570.7	-757.1	3,254.7	3,325.4	1.37	0.11	1.37
9,654.0	89.60	89.70	6,571.0	-756.8	3,349.7	3,419.5	0.47	-0.42	-0.21
9,748.0	90.00	89.90	6,571.4	-756.5	3,443.7	3,512.7	0.48	0.43	0.21
9,843.0	90.00	89.20	6,571.4	-755.7	3,538.7	3,606.8	0.74	0.00	-0.74
9,938.0	90.00	89.00	6,571.4	-754.2	3,633.7	3,700.8	0.21	0.00	-0.21
10,033.0	90.00	89.50	6,571.4	-753.0	3,728.7	3,794.8	0.53	0.00	0.53
10,128.0	89.40	89.70	6,571.9	-752.3	3,823.7	3,888.9	0.67	-0.63	0.21
10,223.0	88.80	89.30	6,573.3	-751.5	3,918.7	3,983.0	0.76	-0.63	-0.42
10,318.0	90.00	89.30	6,574.3	-750.3	4,013.7	4,077.1	1.26	1.26	0.00
10,413.0	88.80	89.70	6,575.3	-749.5	4,108.7	4,171.1	1.33	-1.26	0.42
10,508.0	90.00	89.50	6,576.3	-748.8	4,203.7	4,265.2	1.28	1.26	-0.21
10,603.0	90.10	89.70	6,576.3	-748.2	4,298.7	4,359.4	0.24	0.11	0.21
10,697.0	90.20	90.00	6,576.0	-747.9	4,392.7	4,452.5	0.34	0.11	0.32
10,792.0	89.40	89.50	6,576.3	-747.5	4,487.7	4,546.7	0.99	-0.84	-0.53
10,887.0	91.30	89.50	6,575.8	-746.7	4,582.6	4,640.8	2.00	2.00	0.00
10,982.0	90.10	89.20	6,574.6	-745.6	4,677.6	4,734.8	1.30	-1.26	-0.32
11,077.0	89.70	89.70	6,574.8	-744.7	4,772.6	4,828.9	0.67	-0.42	0.53
11,172.0	89.00	90.90	6,575.8	-745.2	4,867.6	4,923.1	1.46	-0.74	1.26



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Keeley B11-63-1HN
Project:	Sec.10-T5N-R64W	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Keeley B11-63-1HN Pad Sec.10-T5N-R64W	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Well:	Keeley B11-63-1HN	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)
11,267.0	90.50	90.90	6,576.3	-746.7	4,962.6	5,017.5	1.58	1.58	0.00
11,361.0	90.00	90.00	6,575.8	-747.4	5,056.6	5,110.8	1.10	-0.53	-0.96
11,458.0	89.70	88.80	6,576.1	-746.4	5,153.6	5,206.9	1.28	-0.31	-1.24
11,552.0	90.80	89.00	6,575.7	-744.6	5,247.6	5,299.8	1.19	1.17	0.21
11,647.0	90.30	90.70	6,574.8	-744.4	5,342.6	5,394.0	1.87	-0.53	1.79
11,742.0	89.20	91.10	6,575.2	-745.8	5,437.5	5,488.3	1.23	-1.16	0.42
11,837.0	89.30	89.70	6,576.4	-746.5	5,532.5	5,582.6	1.48	0.11	-1.47
11,908.0	90.00	90.20	6,576.9	-746.4	5,603.5	5,653.0	1.21	0.99	0.70
11,961.0	90.00	90.20	6,576.9	-746.6	5,656.5	5,705.6	0.00	0.00	0.00
Keeley B11-63-1HN BHL 1020'FSL, 535'FEL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Keeley B11-63-1HN L	0.00	0.00	6,576.0	-800.9	810.9	1,393,428.86	3,270,819.99	40.409287	-104.527460
- hit/miss target									
- Shape									
- survey misses target center by 19.3ft at 7113.9ft MD (6568.7 TVD, -783.0 N, 810.8 E)									
- Circle (radius 35.0)									
Keeley B11-63-1HN E	0.00	0.00	6,576.0	-739.0	5,658.9	1,393,490.77	3,275,667.74	40.409310	-104.510050
- hit/miss target									
- Shape									
- survey misses target center by 8.0ft at 11961.0ft MD (6576.9 TVD, -746.6 N, 5656.5 E)									
- Circle (radius 35.0)									

Checked By: _____	Approved By: _____	Date: _____
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