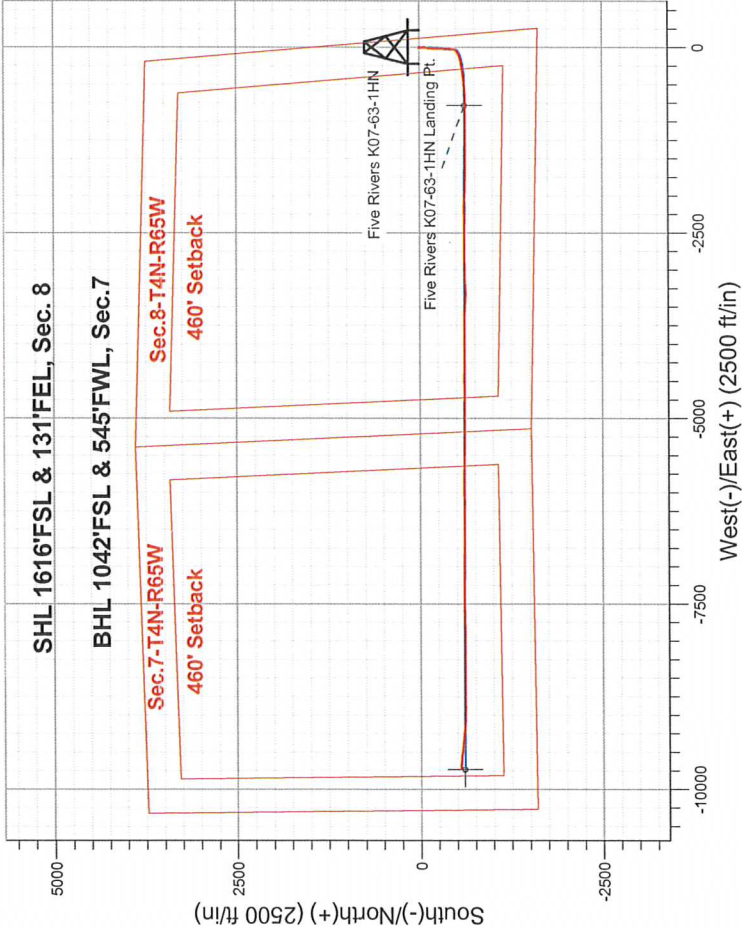


Noble Energy Inc.- Weld County, CO (Grid North)

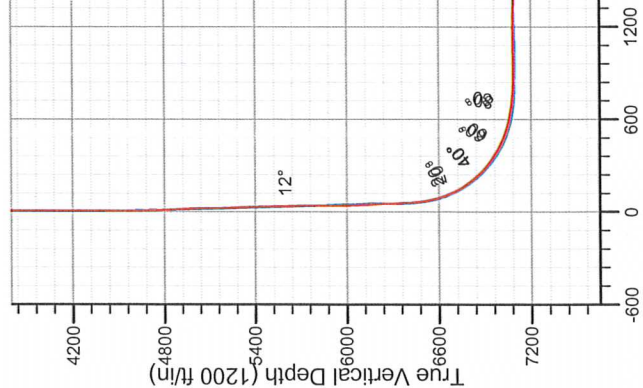
Well Name: Five Rivers K07-63-1HN			
Surface Location: Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W			
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone			
Ground Elevation: 4701.0			
+N/-S	+E/-W	Northing	Longitude
0.0	0.0	1361427.04	40.323360
		Easting	Latitude
		3197163.58	-104.792870
Precision 829 - RKB 16' WELL @ 4717.0ft (Precision 829 - RKB 16')			

FINAL SURVEY

Projected Bottom Hole Location  
16550'MD 7044'TVD 548'S & 9725'W of SHL  
91.2 degree Incl @ 273.66 degree AZM



Directional



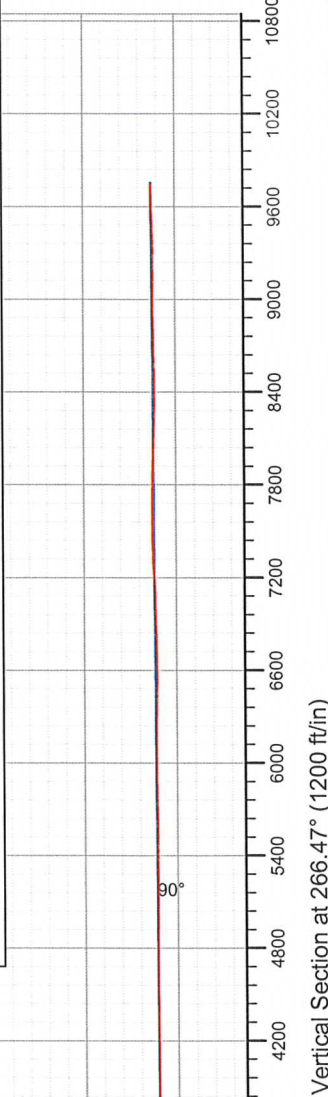
Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W  
Five Rivers K07-63-1HN  
14:53, February 10 2014  
Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- Five Rivers K07-63-1HN, Wellbore #1, Plan A - Rev 2 V0
- Wellbore #1





## **Directional**

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

**Sec.8-T4N-R66W**

**Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W**

**Five Rivers K07-63-1HN**

**Wellbore #1**

**Design: Wellbore #1**

### **Standard Survey Report**

**10 February, 2014**



## Survey Report

<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Five Rivers K07-63-1HN
<b>Project:</b>	Sec.8-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Site:</b>	Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W	<b>MD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Well:</b>	Five Rivers K07-63-1HN	<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.8-T4N-R66W, 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

<b>Site</b>		Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W			
<b>Site Position:</b>		<b>Northing:</b>	1,361,427.04ft	<b>Latitude:</b>	40.323360
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,197,163.58ft	<b>Longitude:</b>	-104.792870
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.46 °

<b>Well</b>	Five Rivers K07-63-1HN				
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,361,427.04 ft	<b>Latitude:</b> 40.323360
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,197,163.58 ft	<b>Longitude:</b> -104.792870
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b> 4,701.0 ft

Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/5/2013	8.54	66.90	52,829

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 (°)
	7,043.9	0.0	0.0	266.47

Survey Program		Date	2/10/2014	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
321.0	600.0	Surface (Wellbore #1)	Flexi-Shot	VES Flexi-Shot Tool
705.0	7,459.0	Intermediate (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction
7,539.0	16,550.0	Lateral (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction

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)
Survey A	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	321.0	0.60	202.92	321.0	-1.5	-0.7	0.7	0.19	0.19	0.00
	600.0	1.00	299.12	600.0	-1.7	-3.4	3.4	0.44	0.14	34.48
	705.0	1.00	355.44	705.0	-0.3	-4.2	4.2	0.90	0.00	53.64
	750.0	0.80	324.29	750.0	0.3	-4.4	4.4	1.16	-0.44	-69.22
	840.0	4.00	187.26	839.9	-2.3	-5.2	5.3	5.13	3.56	-152.26
	929.0	4.10	182.15	928.7	-8.6	-5.7	6.2	0.42	0.11	-5.74
	1,019.0	5.10	181.35	1,018.4	-15.8	-5.9	6.9	1.11	1.11	-0.89
	1,108.0	5.10	180.23	1,107.0	-23.7	-6.0	7.5	0.11	0.00	-1.26
	1,203.0	4.90	180.48	1,201.7	-32.0	-6.1	8.0	0.21	-0.21	0.26

<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Five Rivers K07-63-1HN
<b>Project:</b>	Sec.8-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Site:</b>	Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W	<b>MD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Well:</b>	Five Rivers K07-63-1HN	<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)
1,298.0	4.50	177.11	1,296.3	-39.8	-5.9	8.4	0.51	-0.42	-3.55
1,396.0	5.20	177.70	1,394.0	-48.0	-5.6	8.5	0.72	0.71	0.60
1,490.0	3.40	163.50	1,487.7	-55.0	-4.6	8.0	2.21	-1.91	-15.11
1,584.0	2.80	168.93	1,581.6	-59.9	-3.4	7.0	0.71	-0.64	5.78
1,679.0	1.20	201.85	1,676.5	-63.1	-3.3	7.2	2.01	-1.68	34.65
1,773.0	1.00	229.93	1,770.5	-64.5	-4.3	8.2	0.60	-0.21	29.87
1,867.0	1.20	125.64	1,864.5	-65.6	-4.1	8.1	1.85	0.21	-110.95
1,961.0	1.10	116.34	1,958.5	-66.6	-2.5	6.6	0.22	-0.11	-9.89
2,056.0	1.10	91.61	2,053.5	-67.0	-0.8	4.9	0.50	0.00	-26.03
2,150.0	1.20	77.94	2,147.5	-66.9	1.1	3.0	0.31	0.11	-14.54
2,244.0	1.00	67.46	2,241.4	-66.3	2.8	1.3	0.30	-0.21	-11.15
2,338.0	0.60	44.45	2,335.4	-65.7	3.9	0.1	0.54	-0.43	-24.48
2,432.0	0.60	340.39	2,429.4	-64.9	4.1	-0.1	0.68	0.00	-68.15
2,525.0	0.60	344.03	2,522.4	-63.9	3.8	0.1	0.04	0.00	3.91
2,601.0	0.90	338.11	2,598.4	-63.0	3.5	0.4	0.41	0.39	-7.79
2,690.0	0.90	338.35	2,687.4	-61.7	2.9	0.9	0.00	0.00	0.27
2,780.0	0.80	341.50	2,777.4	-60.4	2.5	1.2	0.12	-0.11	3.50
2,870.0	1.10	328.29	2,867.4	-59.1	1.8	1.8	0.41	0.33	-14.68
2,959.0	1.20	321.87	2,956.4	-57.6	0.8	2.7	0.18	0.11	-7.21
3,049.0	0.60	266.05	3,046.3	-56.9	-0.2	3.8	1.11	-0.67	-62.02
3,138.0	0.70	217.99	3,135.3	-57.4	-1.0	4.6	0.60	0.11	-54.00
3,228.0	0.90	194.03	3,225.3	-58.5	-1.6	5.2	0.43	0.22	-26.62
3,318.0	1.10	183.60	3,315.3	-60.1	-1.8	5.5	0.30	0.22	-11.59
3,407.0	0.90	194.29	3,404.3	-61.6	-2.0	5.8	0.31	-0.22	12.01
3,497.0	0.50	208.24	3,494.3	-62.6	-2.4	6.2	0.48	-0.44	15.50
3,586.0	0.30	148.67	3,583.3	-63.2	-2.4	6.3	0.49	-0.22	-66.93
3,676.0	0.40	11.28	3,673.3	-63.1	-2.2	6.1	0.73	0.11	-152.66
3,766.0	0.40	349.64	3,763.3	-62.4	-2.2	6.1	0.17	0.00	-24.04
3,856.0	0.40	346.24	3,853.3	-61.8	-2.4	6.2	0.03	0.00	-3.78
3,945.0	0.60	328.05	3,942.3	-61.1	-2.7	6.5	0.28	0.22	-20.44
4,035.0	0.90	337.93	4,032.3	-60.1	-3.2	6.9	0.36	0.33	10.98
4,125.0	1.40	343.28	4,122.3	-58.4	-3.8	7.4	0.57	0.56	5.94
4,214.0	0.60	162.70	4,211.3	-57.8	-4.0	7.5	2.25	-0.90	201.60
4,304.0	2.20	169.05	4,301.2	-59.9	-3.5	7.2	1.78	1.78	7.06
4,393.0	3.40	178.90	4,390.1	-64.2	-3.1	7.1	1.45	1.35	11.07
4,483.0	5.10	187.46	4,479.9	-70.9	-3.6	7.9	2.01	1.89	9.51
4,573.0	6.00	184.93	4,569.4	-79.5	-4.5	9.4	1.04	1.00	-2.81
4,662.0	6.70	183.34	4,657.9	-89.3	-5.2	10.7	0.81	0.79	-1.79
4,752.0	7.30	187.81	4,747.2	-100.2	-6.3	12.5	0.90	0.67	4.97
4,842.0	11.70	193.08	4,836.0	-114.8	-9.1	16.2	4.98	4.89	5.86
4,931.0	12.40	186.74	4,923.0	-133.1	-12.3	20.5	1.68	0.79	-7.12
5,021.0	13.40	179.94	5,010.7	-153.1	-13.4	22.8	2.02	1.11	-7.56
5,110.0	13.40	181.46	5,097.3	-173.7	-13.7	24.3	0.40	0.00	1.71
5,200.0	14.30	183.59	5,184.7	-195.3	-14.6	26.6	1.15	1.00	2.37
5,290.0	14.60	184.91	5,271.9	-217.6	-16.3	29.7	0.50	0.33	1.47
5,379.0	14.70	185.03	5,358.0	-240.1	-18.3	33.0	0.12	0.11	0.13
5,469.0	14.00	181.06	5,445.2	-262.3	-19.5	35.6	1.34	-0.78	-4.41
5,559.0	14.90	179.39	5,532.3	-284.8	-19.5	37.0	1.10	1.00	-1.86
5,648.0	13.90	183.11	5,618.5	-306.9	-20.0	38.9	1.53	-1.12	4.18
5,738.0	11.80	178.30	5,706.3	-326.9	-20.3	40.4	2.62	-2.33	-5.34
5,827.0	12.60	180.25	5,793.3	-345.7	-20.1	41.3	1.01	0.90	2.19
5,917.0	13.00	179.63	5,881.0	-365.6	-20.1	42.5	0.47	0.44	-0.69
6,007.0	13.40	176.99	5,968.6	-386.2	-19.5	43.2	0.80	0.44	-2.93
6,097.0	12.80	182.49	6,056.3	-406.6	-19.3	44.3	1.54	-0.67	6.11



<b>Company:</b>	Noble Energy Inc.- Weld County, CO (Grid North)	<b>Local Co-ordinate Reference:</b>	Well Five Rivers K07-63-1HN
<b>Project:</b>	Sec.8-T4N-R66W	<b>TVD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Site:</b>	Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W	<b>MD Reference:</b>	WELL @ 4717.0ft (Precision 829 - RKB 16')
<b>Well:</b>	Five Rivers K07-63-1HN	<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)
6,186.0	12.50	190.26	6,143.1	-425.9	-21.5	47.7	1.94	-0.34	8.73
6,276.0	13.00	188.94	6,230.9	-445.5	-24.8	52.2	0.64	0.56	-1.47
6,366.0	12.90	187.36	6,318.6	-465.4	-27.6	56.2	0.41	-0.11	-1.76
6,411.0	11.90	187.23	6,362.6	-475.0	-28.9	58.1	2.22	-2.22	-0.29
6,456.0	12.20	187.86	6,406.6	-484.3	-30.1	59.9	0.73	0.67	1.40
6,500.0	12.70	201.82	6,449.6	-493.4	-32.5	62.9	6.92	1.14	31.73
6,545.0	13.30	218.67	6,493.4	-502.1	-37.6	68.4	8.50	1.33	37.44
6,590.0	15.30	228.37	6,537.0	-510.1	-45.3	76.6	6.92	4.44	21.56
6,635.0	17.10	231.45	6,580.3	-518.1	-54.9	86.7	4.43	4.00	6.84
6,680.0	20.00	237.31	6,622.9	-526.4	-66.6	98.8	7.65	6.44	13.02
6,725.0	24.30	243.00	6,664.6	-534.8	-81.3	114.1	10.67	9.56	12.64
6,769.0	28.30	246.68	6,704.0	-543.0	-98.9	132.2	9.81	9.09	8.36
6,814.0	32.30	251.25	6,742.9	-551.1	-120.1	153.8	10.25	8.89	10.16
6,859.0	35.10	252.98	6,780.3	-558.8	-143.9	178.0	6.58	6.22	3.84
6,904.0	38.50	256.69	6,816.3	-565.8	-169.9	204.4	9.02	7.56	8.24
6,949.0	42.00	260.56	6,850.7	-571.5	-198.4	233.2	9.56	7.78	8.60
6,994.0	45.90	262.70	6,883.1	-576.0	-229.3	264.3	9.27	8.67	4.76
7,038.0	50.80	261.30	6,912.3	-580.6	-261.8	297.1	11.39	11.14	-3.18
7,083.0	54.20	261.91	6,939.7	-585.8	-297.2	332.6	7.63	7.56	1.36
7,128.0	58.00	261.65	6,964.8	-591.1	-334.1	369.9	8.46	8.44	-0.58
7,173.0	61.80	260.60	6,987.4	-597.1	-372.6	408.6	8.68	8.44	-2.33
7,218.0	65.90	261.92	7,007.2	-603.3	-412.5	448.8	9.48	9.11	2.93
7,262.0	69.20	263.35	7,024.0	-608.5	-452.8	489.4	8.08	7.50	3.25
7,307.0	72.00	264.91	7,038.9	-612.8	-495.0	531.8	7.03	6.22	3.47
7,352.0	74.20	265.50	7,052.0	-616.4	-537.9	574.9	5.05	4.89	1.31
7,397.0	78.60	267.22	7,062.6	-619.2	-581.6	618.6	10.46	9.78	3.82
7,442.0	81.40	267.23	7,070.4	-621.3	-625.8	662.9	6.22	6.22	0.02
7,459.0	81.80	267.35	7,072.9	-622.1	-642.6	679.7	2.45	2.35	0.71
7,539.0	84.70	268.64	7,082.3	-624.9	-722.0	759.1	3.96	3.63	1.61
7,584.0	86.90	269.92	7,085.6	-625.5	-766.9	803.9	5.65	4.89	2.84
7,604.3	87.62	270.99	7,086.6	-625.3	-787.2	824.2	6.35	3.55	5.27
Five Rivers K07-63-1HN Landing Pt.									
7,629.0	88.50	272.29	7,087.4	-624.6	-811.8	848.7	6.35	3.56	5.26
7,673.0	89.00	272.46	7,088.4	-622.8	-855.8	892.5	1.20	1.14	0.39
7,718.0	90.60	271.82	7,088.5	-621.1	-900.8	937.3	3.83	3.56	-1.42
7,808.0	91.40	270.77	7,087.0	-619.1	-990.7	1,026.9	1.47	0.89	-1.17
7,898.0	91.20	269.40	7,084.9	-618.9	-1,080.7	1,116.7	1.54	-0.22	-1.52
7,987.0	89.40	268.99	7,084.4	-620.2	-1,169.7	1,205.6	2.07	-2.02	-0.46
8,077.0	87.70	267.97	7,086.7	-622.6	-1,259.6	1,295.5	2.20	-1.89	-1.13
8,167.0	89.10	269.09	7,089.2	-624.9	-1,349.5	1,385.4	1.99	1.56	1.24
8,256.0	90.50	269.67	7,089.5	-625.8	-1,438.5	1,474.3	1.70	1.57	0.65
8,346.0	89.20	269.08	7,089.8	-626.8	-1,528.5	1,564.2	1.59	-1.44	-0.66
8,436.0	90.40	270.89	7,090.1	-626.8	-1,618.5	1,654.0	2.41	1.33	2.01
8,525.0	92.40	272.31	7,087.9	-624.3	-1,707.5	1,742.6	2.76	2.25	1.60
8,615.0	91.40	270.99	7,084.9	-621.8	-1,797.4	1,832.2	1.84	-1.11	-1.47
8,705.0	90.00	270.37	7,083.8	-620.7	-1,887.4	1,922.0	1.70	-1.56	-0.69
8,794.0	90.80	274.03	7,083.2	-617.3	-1,976.3	2,010.5	4.21	0.90	4.11
8,884.0	89.80	273.34	7,082.7	-611.5	-2,066.1	2,099.8	1.35	-1.11	-0.77
8,974.0	89.70	272.00	7,083.1	-607.3	-2,156.0	2,189.3	1.49	-0.11	-1.49
9,063.0	90.40	270.31	7,083.1	-605.5	-2,245.0	2,278.0	2.06	0.79	-1.90
9,153.0	89.20	268.98	7,083.4	-606.1	-2,334.9	2,367.8	1.99	-1.33	-1.48
9,243.0	89.10	268.74	7,084.7	-607.9	-2,424.9	2,457.7	0.29	-0.11	-0.27
9,333.0	89.30	269.64	7,086.0	-609.1	-2,514.9	2,547.6	1.02	0.22	1.00

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Five Rivers K07-63-1HN
Project:	Sec.8-T4N-R66W	TVD Reference:	WELL @ 4717.0ft (Precision 829 - RKB 16')
Site:	Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W	MD Reference:	WELL @ 4717.0ft (Precision 829 - RKB 16')
Well:	Five Rivers K07-63-1HN	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)
9,422.0	90.90	270.43	7,085.8	-609.1	-2,603.9	2,636.4	2.00	1.80	0.89
9,512.0	90.00	270.04	7,085.1	-608.7	-2,693.9	2,726.3	1.09	-1.00	-0.43
9,602.0	90.90	269.21	7,084.4	-609.3	-2,783.9	2,816.1	1.36	1.00	-0.92
9,691.0	92.20	269.29	7,082.0	-610.5	-2,872.8	2,905.0	1.46	1.46	0.09
9,781.0	90.40	267.64	7,079.9	-612.9	-2,962.8	2,994.9	2.71	-2.00	-1.83
9,871.0	91.50	268.06	7,078.5	-616.2	-3,052.7	3,084.8	1.31	1.22	0.47
9,960.0	91.40	268.16	7,076.2	-619.2	-3,141.6	3,173.8	0.16	-0.11	0.11
10,050.0	90.00	266.78	7,075.1	-623.1	-3,231.5	3,263.8	2.18	-1.56	-1.53
10,126.0	88.40	268.62	7,076.2	-626.2	-3,307.5	3,339.7	3.21	-2.11	2.42
10,220.0	86.40	272.33	7,080.4	-625.4	-3,401.3	3,433.4	4.48	-2.13	3.95
10,315.0	89.40	275.56	7,083.9	-618.9	-3,496.0	3,527.5	4.64	3.16	3.40
10,409.0	93.00	274.05	7,081.9	-611.0	-3,589.7	3,620.5	4.15	3.83	-1.61
10,503.0	92.30	269.93	7,077.6	-607.8	-3,683.5	3,713.9	4.44	-0.74	-4.38
10,597.0	90.20	269.90	7,075.5	-607.9	-3,777.4	3,807.7	2.23	-2.23	-0.03
10,692.0	89.60	270.48	7,075.7	-607.6	-3,872.4	3,902.5	0.88	-0.63	0.61
10,786.0	90.70	269.27	7,075.5	-607.8	-3,966.4	3,996.3	1.74	1.17	-1.29
10,880.0	89.60	269.50	7,075.2	-608.8	-4,060.4	4,090.2	1.20	-1.17	0.24
10,974.0	89.40	270.94	7,076.0	-608.4	-4,154.4	4,184.0	1.55	-0.21	1.53
11,068.0	90.50	270.56	7,076.1	-607.2	-4,248.4	4,277.7	1.24	1.17	-0.40
11,163.0	91.60	271.26	7,074.4	-605.7	-4,343.4	4,372.4	1.37	1.16	0.74
11,256.0	91.20	269.81	7,072.1	-604.8	-4,436.4	4,465.2	1.62	-0.43	-1.56
11,350.0	90.70	269.29	7,070.5	-605.6	-4,530.3	4,559.0	0.77	-0.53	-0.55
11,442.0	89.60	268.61	7,070.3	-607.3	-4,622.3	4,650.9	1.41	-1.20	-0.74
11,535.0	89.10	269.53	7,071.4	-608.8	-4,715.3	4,743.8	1.13	-0.54	0.99
11,627.0	89.20	270.45	7,072.7	-608.8	-4,807.3	4,835.6	1.01	0.11	1.00
11,719.0	89.40	269.58	7,073.9	-608.8	-4,899.3	4,927.5	0.97	0.22	-0.95
11,813.0	89.90	270.87	7,074.4	-608.4	-4,993.3	5,021.3	1.47	0.53	1.37
11,906.0	89.70	270.97	7,074.8	-606.9	-5,086.3	5,114.0	0.24	-0.22	0.11
11,998.0	90.40	270.49	7,074.7	-605.7	-5,178.3	5,205.7	0.92	0.76	-0.52
12,090.0	90.00	269.15	7,074.4	-606.0	-5,270.3	5,297.6	1.52	-0.43	-1.46
12,184.0	89.60	268.60	7,074.7	-607.9	-5,364.2	5,391.5	0.72	-0.43	-0.59
12,277.0	88.90	270.24	7,075.9	-608.8	-5,457.2	5,484.3	1.92	-0.75	1.76
12,370.0	91.00	272.06	7,076.0	-606.9	-5,550.2	5,577.0	2.99	2.26	1.96
12,465.0	91.20	271.65	7,074.2	-603.9	-5,645.1	5,671.6	0.48	0.21	-0.43
12,559.0	91.50	270.77	7,071.9	-601.9	-5,739.1	5,765.2	0.99	0.32	-0.94
12,648.0	91.50	270.76	7,069.6	-600.7	-5,828.0	5,854.0	0.01	0.00	-0.01
12,738.0	91.30	269.52	7,067.4	-600.5	-5,918.0	5,943.7	1.40	-0.22	-1.38
12,827.0	89.50	268.42	7,066.8	-602.1	-6,007.0	6,032.7	2.37	-2.02	-1.24
12,917.0	90.60	267.92	7,066.7	-604.9	-6,096.9	6,122.6	1.34	1.22	-0.56
13,007.0	88.70	268.00	7,067.3	-608.1	-6,186.9	6,212.6	2.11	-2.11	0.09
13,096.0	87.90	269.14	7,069.9	-610.4	-6,275.8	6,301.5	1.56	-0.90	1.28
13,186.0	88.50	269.82	7,072.7	-611.2	-6,365.8	6,391.3	1.01	0.67	0.76
13,276.0	89.60	271.08	7,074.2	-610.5	-6,455.7	6,481.1	1.86	1.22	1.40
13,365.0	90.10	270.92	7,074.5	-608.9	-6,544.7	6,569.8	0.59	0.56	-0.18
13,455.0	90.70	270.89	7,073.8	-607.5	-6,634.7	6,659.5	0.67	0.67	-0.03
13,545.0	91.90	271.38	7,071.8	-605.7	-6,724.7	6,749.2	1.44	1.33	0.54
13,635.0	92.40	270.98	7,068.4	-603.9	-6,814.6	6,838.8	0.71	0.56	-0.44
13,724.0	90.80	270.55	7,065.9	-602.7	-6,903.5	6,927.5	1.86	-1.80	-0.48
13,814.0	90.30	270.35	7,065.1	-602.0	-6,993.5	7,017.3	0.60	-0.56	-0.22
13,904.0	91.90	271.06	7,063.3	-600.9	-7,083.5	7,107.1	1.94	1.78	0.79
13,994.0	93.30	270.73	7,059.2	-599.5	-7,173.4	7,196.7	1.60	1.56	-0.37
14,083.0	93.00	270.75	7,054.4	-598.3	-7,262.3	7,285.3	0.34	-0.34	0.02
14,173.0	92.10	268.47	7,050.4	-598.9	-7,352.2	7,375.1	2.72	-1.00	-2.53
14,262.0	90.70	267.62	7,048.2	-602.0	-7,441.1	7,464.0	1.84	-1.57	-0.96



Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Five Rivers K07-63-1HN
Project:	Sec.8-T4N-R66W	TVD Reference:	WELL @ 4717.0ft (Precision 829 - RKB 16')
Site:	Five Rivers K07-63-1HN Pad Sec.8-T4N-R66W	MD Reference:	WELL @ 4717.0ft (Precision 829 - RKB 16')
Well:	Five Rivers K07-63-1HN	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)
14,352.0	89.50	270.42	7,048.0	-603.5	-7,531.1	7,553.9	3.38	-1.33	3.11
14,442.0	91.20	269.79	7,047.5	-603.3	-7,621.0	7,643.7	2.01	1.89	-0.70
14,532.0	89.30	269.06	7,047.1	-604.2	-7,711.0	7,733.6	2.26	-2.11	-0.81
14,620.0	88.30	268.37	7,048.9	-606.2	-7,799.0	7,821.5	1.38	-1.14	-0.78
14,710.0	88.50	270.16	7,051.4	-607.4	-7,888.9	7,911.4	2.00	0.22	1.99
14,800.0	87.70	270.34	7,054.4	-607.0	-7,978.9	8,001.1	0.91	-0.89	0.20
14,889.0	88.40	270.15	7,057.4	-606.6	-8,067.8	8,089.9	0.81	0.79	-0.21
14,979.0	88.80	270.16	7,059.6	-606.3	-8,157.8	8,179.7	0.44	0.44	0.01
15,068.0	88.90	270.13	7,061.4	-606.1	-8,246.8	8,268.5	0.12	0.11	-0.03
15,158.0	90.20	270.76	7,062.1	-605.4	-8,336.8	8,358.2	1.61	1.44	0.70
15,248.0	89.60	270.01	7,062.3	-604.8	-8,426.8	8,448.0	1.07	-0.67	-0.83
15,337.0	90.60	268.78	7,062.1	-605.8	-8,515.8	8,536.9	1.78	1.12	-1.38
15,427.0	91.80	268.61	7,060.3	-607.8	-8,605.7	8,626.8	1.35	1.33	-0.19
15,516.0	91.50	268.37	7,057.7	-610.1	-8,694.7	8,715.7	0.43	-0.34	-0.27
15,606.0	90.70	269.12	7,056.0	-612.1	-8,784.6	8,805.6	1.22	-0.89	0.83
15,696.0	90.70	269.03	7,054.9	-613.6	-8,874.6	8,895.5	0.10	0.00	-0.10
15,785.0	90.00	270.66	7,054.3	-613.8	-8,963.6	8,984.4	1.99	-0.79	1.83
15,875.0	89.30	272.01	7,054.9	-611.7	-9,053.6	9,074.1	1.69	-0.78	1.50
15,965.0	89.20	273.94	7,056.0	-607.0	-9,143.4	9,163.5	2.15	-0.11	2.14
16,054.0	89.90	276.31	7,056.7	-599.1	-9,232.1	9,251.4	2.78	0.79	2.66
16,144.0	91.40	276.76	7,055.7	-588.9	-9,321.5	9,340.1	1.74	1.67	0.50
16,233.0	92.00	276.64	7,053.1	-578.5	-9,409.8	9,427.6	0.69	0.67	-0.13
16,323.0	92.00	276.95	7,049.9	-567.8	-9,499.1	9,516.1	0.34	0.00	0.34
16,413.0	91.40	275.32	7,047.3	-558.2	-9,588.6	9,604.8	1.93	-0.67	-1.81
16,488.0	91.20	273.66	7,045.6	-552.4	-9,663.3	9,679.0	2.23	-0.27	-2.21
16,550.0	91.20	273.66	7,044.3	-548.4	-9,725.2	9,740.5	0.00	0.00	0.00
Five Rivers K07-63-1HN BHL 990'FSL & 535'FWL									

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_