

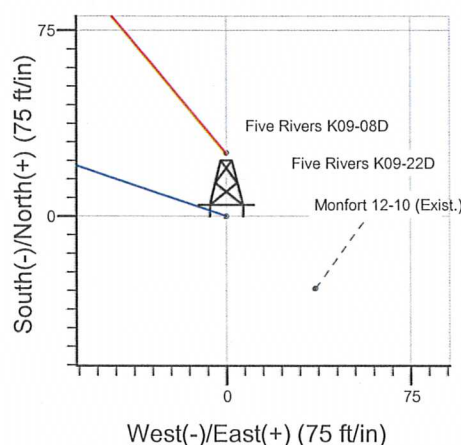
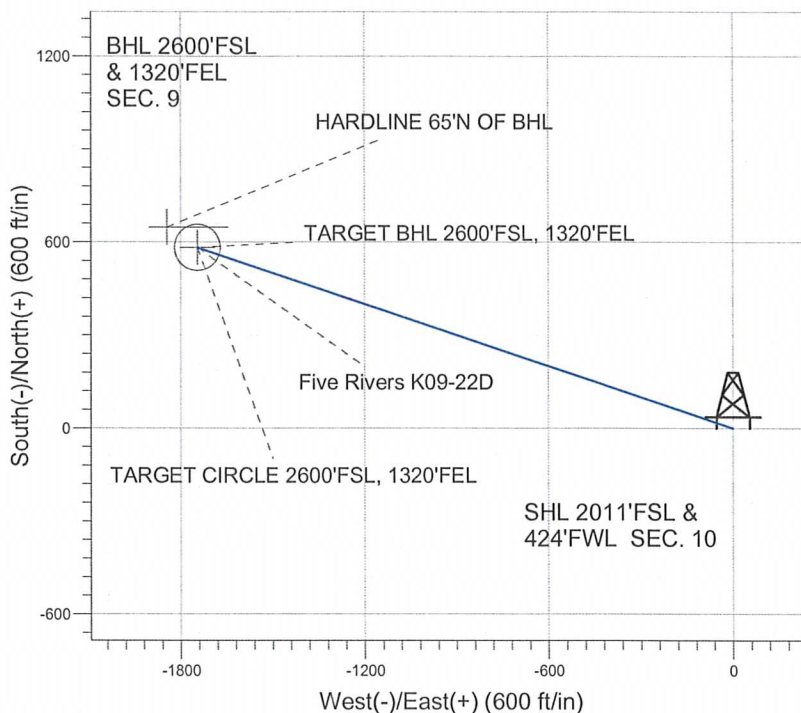
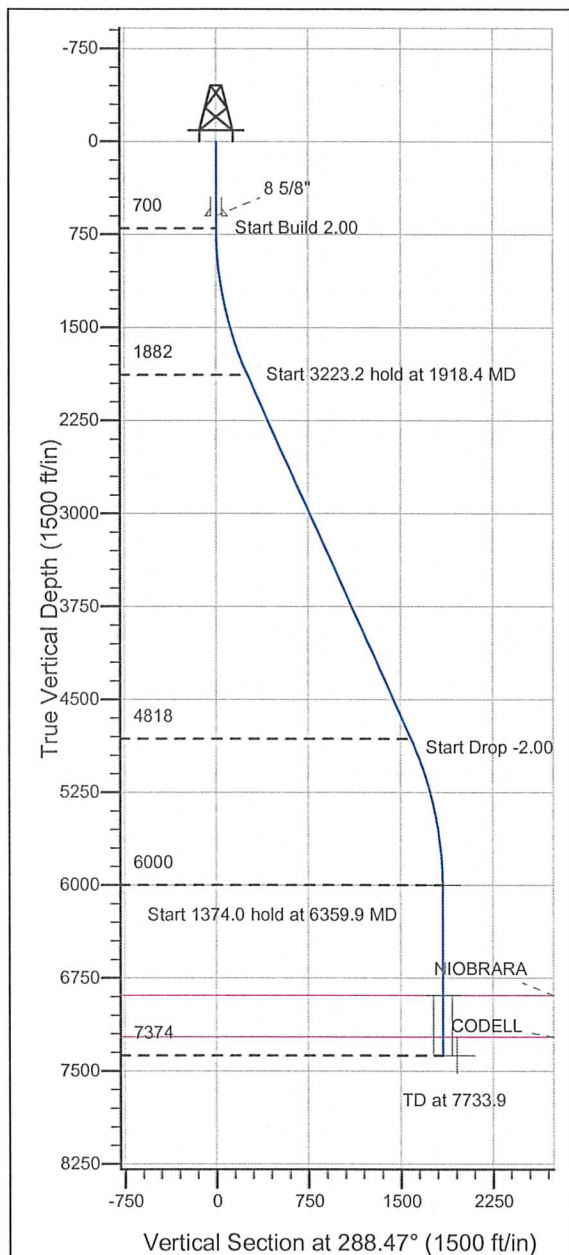
Well Name: **Five Rivers K09-22D**

Surface Location: Five Rivers K09-22D Pad Sec.10-T4N-R66W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4726.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1361875.38 3203046.10 40° 19' 28.056 N 104° 46' 18.336 W  
Original Well Elev WELL @ 4739.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Five Rivers K09-22D  
Noble Five Rivers K09-22D Plan #1 (06-27-10)  
8:40, June 28 2010



Azimuths to True North  
Magnetic North: 8.99°  
Magnetic Field  
Strength: 53196.5nT  
Dip Angle: 67.02°  
Date: 6/18/2010  
Model: IGRF2010

#### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2600'FSL, 1320'FEL	6000.0	583.0	-1745.5	40° 19' 33.816 N	104° 46' 40.872 W	Point
TARGET CIRCLE 2600'FSL, 1320'FEL	6889.0	583.0	-1745.5	40° 19' 33.816 N	104° 46' 40.873 W	Circle (Radius: 75.0)
HARDLINE 65°N OF BHL	7374.0	648.0	-1845.5	40° 19' 34.459 N	104° 46' 42.164 W	Polygon

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1918.4	24.37	288.47	1882.0	80.8	-242.1	2.00	288.47	255.2	
4	5141.6	24.37	288.47	4818.0	502.1	-1503.4	0.00	0.00	1585.0	
5	6359.9	0.00	0.00	6000.0	583.0	-1745.5	2.00	180.00	1840.2	TARGET BHL 2600'FSL, 1320'FEL
6	7733.9	0.00	0.00	7374.0	583.0	-1745.5	0.00	0.00	1840.2	



## **Directional**

### **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.10-T4N-R66W**

**Five Rivers K09-22D Pad Sec.10-T4N-R66W**

**Five Rivers K09-22D**

**Wellbore #1**

**Plan: Noble Five Rivers K09-22D Plan #1 (06-27-10)**

### **Standard Planning Report**

**28 June, 2010**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Five Rivers K09-22D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Project:</b>	SEC.10-T4N-R66W	<b>MD Reference:</b>	WELL @ 4739.0ft (Original Well Elev)
<b>Site:</b>	Five Rivers K09-22D Pad Sec.10-T4N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Five Rivers K09-22D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Five Rivers K09-22D Plan #1 (06-27-10)		

<b>Project</b>	SEC.10-T4N-R66W, Weld County, Colorado		
<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	Five Rivers K09-22D Pad Sec.10-T4N-R66W				
Site Position:		Northing:	1,361,875.38 ft	Latitude:	40° 19' 28.056 N
From:	Lat/Long	Easting:	3,203,046.10 ft	Longitude:	104° 46' 18.336 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.47 °

Well	Five Rivers K09-22D					
Well Position	+N/-S	0.0 ft	Northing:	1,361,875.38 ft	Latitude:	40° 19' 28.056 N
	+E/-W	0.0 ft	Easting:	3,203,046.10 ft	Longitude:	104° 46' 18.336 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,726.0 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	6/18/2010	9.00	67.02	53,196

<b>Design</b>	Noble Five Rivers K09-22D Plan #1 (06-27-10)				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	288.47	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,918.4	24.37	288.47	1,882.0	80.8	-242.1	2.00	2.00	0.00	288.47	
5,141.6	24.37	288.47	4,818.0	502.1	-1,503.4	0.00	0.00	0.00	0.00	
6,359.9	0.00	0.00	6,000.0	583.0	-1,745.5	2.00	-2.00	0.00	180.00	TARGET BHL 260C
7,733.9	0.00	0.00	7,374.0	583.0	-1,745.5	0.00	0.00	0.00	0.00	



Database: Landmark  
Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.10-T4N-R66W  
Site: Five Rivers K09-22D Pad Sec.10-T4N-R66W  
Well: Five Rivers K09-22D  
Wellbore: Wellbore #1  
Design: Noble Five Rivers K09-22D Plan #1 (06-27-10)

Local Co-ordinate Reference: Well Five Rivers K09-22D  
TVD Reference: WELL @ 4739.0ft (Original Well Elev)  
MD Reference: WELL @ 4739.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

## Planned 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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.40	288.47	720.0	0.0	-0.1	0.1	2.00	2.00	0.00
760.0	1.20	288.47	760.0	0.2	-0.6	0.6	2.00	2.00	0.00
800.0	2.00	288.47	800.0	0.6	-1.7	1.7	2.00	2.00	0.00
840.0	2.80	288.47	839.9	1.1	-3.2	3.4	2.00	2.00	0.00
880.0	3.60	288.47	879.9	1.8	-5.4	5.7	2.00	2.00	0.00
920.0	4.40	288.47	919.8	2.7	-8.0	8.4	2.00	2.00	0.00
960.0	5.20	288.47	959.6	3.7	-11.2	11.8	2.00	2.00	0.00
1,000.0	6.00	288.47	999.5	5.0	-14.9	15.7	2.00	2.00	0.00
1,040.0	6.80	288.47	1,039.2	6.4	-19.1	20.2	2.00	2.00	0.00
1,080.0	7.60	288.47	1,078.9	8.0	-23.9	25.2	2.00	2.00	0.00
1,120.0	8.40	288.47	1,118.5	9.7	-29.1	30.7	2.00	2.00	0.00
1,160.0	9.20	288.47	1,158.0	11.7	-35.0	36.9	2.00	2.00	0.00
1,200.0	10.00	288.47	1,197.5	13.8	-41.3	43.5	2.00	2.00	0.00
1,240.0	10.80	288.47	1,236.8	16.1	-48.1	50.7	2.00	2.00	0.00
1,280.0	11.60	288.47	1,276.0	18.5	-55.5	58.5	2.00	2.00	0.00
1,320.0	12.40	288.47	1,315.2	21.2	-63.4	66.8	2.00	2.00	0.00
1,360.0	13.20	288.47	1,354.2	24.0	-71.8	75.7	2.00	2.00	0.00
1,400.0	14.00	288.47	1,393.1	27.0	-80.7	85.1	2.00	2.00	0.00
1,440.0	14.80	288.47	1,431.8	30.1	-90.1	95.0	2.00	2.00	0.00
1,480.0	15.60	288.47	1,470.4	33.4	-100.1	105.5	2.00	2.00	0.00
1,520.0	16.40	288.47	1,508.8	36.9	-110.6	116.6	2.00	2.00	0.00
1,560.0	17.20	288.47	1,547.1	40.6	-121.5	128.1	2.00	2.00	0.00
1,600.0	18.00	288.47	1,585.3	44.4	-133.0	140.2	2.00	2.00	0.00
1,640.0	18.80	288.47	1,623.2	48.4	-145.0	152.8	2.00	2.00	0.00
1,680.0	19.60	288.47	1,661.0	52.6	-157.4	166.0	2.00	2.00	0.00
1,720.0	20.40	288.47	1,698.6	56.9	-170.4	179.7	2.00	2.00	0.00
1,760.0	21.20	288.47	1,736.0	61.4	-183.9	193.9	2.00	2.00	0.00
1,800.0	22.00	288.47	1,773.2	66.1	-197.9	208.6	2.00	2.00	0.00
1,840.0	22.80	288.47	1,810.2	70.9	-212.3	223.8	2.00	2.00	0.00
1,880.0	23.60	288.47	1,846.9	75.9	-227.3	239.6	2.00	2.00	0.00
1,918.4	24.37	288.47	1,882.0	80.8	-242.1	255.2	2.00	2.00	0.00
1,920.0	24.37	288.47	1,883.5	81.1	-242.7	255.9	0.00	0.00	0.00
1,960.0	24.37	288.47	1,919.9	86.3	-258.3	272.4	0.00	0.00	0.00
2,000.0	24.37	288.47	1,956.3	91.5	-274.0	288.9	0.00	0.00	0.00

Database: Landmark  
Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.10-T4N-R66W  
Site: Five Rivers K09-22D Pad Sec.10-T4N-R66W  
Well: Five Rivers K09-22D  
Wellbore: Wellbore #1  
Design: Noble Five Rivers K09-22D Plan #1 (06-27-10)

Local Co-ordinate Reference: Well Five Rivers K09-22D  
TVD Reference: WELL @ 4739.0ft (Original Well Elev)  
MD Reference: WELL @ 4739.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

## Planned 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)
2,040.0	24.37	288.47	1,992.8	96.7	-289.7	305.4	0.00	0.00	0.00
2,080.0	24.37	288.47	2,029.2	102.0	-305.3	321.9	0.00	0.00	0.00
2,120.0	24.37	288.47	2,065.6	107.2	-321.0	338.4	0.00	0.00	0.00
2,160.0	24.37	288.47	2,102.1	112.4	-336.6	354.9	0.00	0.00	0.00
2,200.0	24.37	288.47	2,138.5	117.7	-352.3	371.4	0.00	0.00	0.00
2,240.0	24.37	288.47	2,175.0	122.9	-367.9	387.9	0.00	0.00	0.00
2,280.0	24.37	288.47	2,211.4	128.1	-383.6	404.4	0.00	0.00	0.00
2,320.0	24.37	288.47	2,247.8	133.3	-399.2	420.9	0.00	0.00	0.00
2,360.0	24.37	288.47	2,284.3	138.6	-414.9	437.4	0.00	0.00	0.00
2,400.0	24.37	288.47	2,320.7	143.8	-430.5	453.9	0.00	0.00	0.00
2,440.0	24.37	288.47	2,357.1	149.0	-446.2	470.4	0.00	0.00	0.00
2,480.0	24.37	288.47	2,393.6	154.2	-461.8	486.9	0.00	0.00	0.00
2,520.0	24.37	288.47	2,430.0	159.5	-477.5	503.4	0.00	0.00	0.00
2,560.0	24.37	288.47	2,466.4	164.7	-493.1	519.9	0.00	0.00	0.00
2,600.0	24.37	288.47	2,502.9	169.9	-508.8	536.4	0.00	0.00	0.00
2,640.0	24.37	288.47	2,539.3	175.2	-524.5	552.9	0.00	0.00	0.00
2,680.0	24.37	288.47	2,575.8	180.4	-540.1	569.4	0.00	0.00	0.00
2,720.0	24.37	288.47	2,612.2	185.6	-555.8	585.9	0.00	0.00	0.00
2,760.0	24.37	288.47	2,648.6	190.8	-571.4	602.4	0.00	0.00	0.00
2,800.0	24.37	288.47	2,685.1	196.1	-587.1	618.9	0.00	0.00	0.00
2,840.0	24.37	288.47	2,721.5	201.3	-602.7	635.4	0.00	0.00	0.00
2,880.0	24.37	288.47	2,757.9	206.5	-618.4	652.0	0.00	0.00	0.00
2,920.0	24.37	288.47	2,794.4	211.8	-634.0	668.5	0.00	0.00	0.00
2,960.0	24.37	288.47	2,830.8	217.0	-649.7	685.0	0.00	0.00	0.00
3,000.0	24.37	288.47	2,867.3	222.2	-665.3	701.5	0.00	0.00	0.00
3,040.0	24.37	288.47	2,903.7	227.4	-681.0	718.0	0.00	0.00	0.00
3,080.0	24.37	288.47	2,940.1	232.7	-696.6	734.5	0.00	0.00	0.00
3,120.0	24.37	288.47	2,976.6	237.9	-712.3	751.0	0.00	0.00	0.00
3,160.0	24.37	288.47	3,013.0	243.1	-727.9	767.5	0.00	0.00	0.00
3,200.0	24.37	288.47	3,049.4	248.4	-743.6	784.0	0.00	0.00	0.00
3,240.0	24.37	288.47	3,085.9	253.6	-759.3	800.5	0.00	0.00	0.00
3,280.0	24.37	288.47	3,122.3	258.8	-774.9	817.0	0.00	0.00	0.00
3,320.0	24.37	288.47	3,158.7	264.0	-790.6	833.5	0.00	0.00	0.00
3,360.0	24.37	288.47	3,195.2	269.3	-806.2	850.0	0.00	0.00	0.00
3,400.0	24.37	288.47	3,231.6	274.5	-821.9	866.5	0.00	0.00	0.00
3,440.0	24.37	288.47	3,268.1	279.7	-837.5	883.0	0.00	0.00	0.00
3,480.0	24.37	288.47	3,304.5	285.0	-853.2	899.5	0.00	0.00	0.00
3,520.0	24.37	288.47	3,340.9	290.2	-868.8	916.0	0.00	0.00	0.00
3,560.0	24.37	288.47	3,377.4	295.4	-884.5	932.5	0.00	0.00	0.00
3,600.0	24.37	288.47	3,413.8	300.6	-900.1	949.0	0.00	0.00	0.00
3,640.0	24.37	288.47	3,450.2	305.9	-915.8	965.5	0.00	0.00	0.00
3,680.0	24.37	288.47	3,486.7	311.1	-931.4	982.0	0.00	0.00	0.00
3,720.0	24.37	288.47	3,523.1	316.3	-947.1	998.5	0.00	0.00	0.00
3,760.0	24.37	288.47	3,559.5	321.5	-962.8	1,015.0	0.00	0.00	0.00
3,800.0	24.37	288.47	3,596.0	326.8	-978.4	1,031.5	0.00	0.00	0.00
3,840.0	24.37	288.47	3,632.4	332.0	-994.1	1,048.0	0.00	0.00	0.00
3,880.0	24.37	288.47	3,668.9	337.2	-1,009.7	1,064.5	0.00	0.00	0.00
3,920.0	24.37	288.47	3,705.3	342.5	-1,025.4	1,081.0	0.00	0.00	0.00
3,960.0	24.37	288.47	3,741.7	347.7	-1,041.0	1,097.5	0.00	0.00	0.00
4,000.0	24.37	288.47	3,778.2	352.9	-1,056.7	1,114.0	0.00	0.00	0.00
4,040.0	24.37	288.47	3,814.6	358.1	-1,072.3	1,130.6	0.00	0.00	0.00
4,080.0	24.37	288.47	3,851.0	363.4	-1,088.0	1,147.1	0.00	0.00	0.00
4,120.0	24.37	288.47	3,887.5	368.6	-1,103.6	1,163.6	0.00	0.00	0.00
4,160.0	24.37	288.47	3,923.9	373.8	-1,119.3	1,180.1	0.00	0.00	0.00



Database: Landmark  
Company: NOBLE ENERGY INC WELD COUNTY CO  
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MD Reference: WELL @ 4739.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

## Planned 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)
4,200.0	24.37	288.47	3,960.4	379.1	-1,134.9	1,196.6	0.00	0.00	0.00
4,240.0	24.37	288.47	3,996.8	384.3	-1,150.6	1,213.1	0.00	0.00	0.00
4,280.0	24.37	288.47	4,033.2	389.5	-1,166.2	1,229.6	0.00	0.00	0.00
4,320.0	24.37	288.47	4,069.7	394.7	-1,181.9	1,246.1	0.00	0.00	0.00
4,360.0	24.37	288.47	4,106.1	400.0	-1,197.6	1,262.6	0.00	0.00	0.00
4,400.0	24.37	288.47	4,142.5	405.2	-1,213.2	1,279.1	0.00	0.00	0.00
4,440.0	24.37	288.47	4,179.0	410.4	-1,228.9	1,295.6	0.00	0.00	0.00
4,480.0	24.37	288.47	4,215.4	415.7	-1,244.5	1,312.1	0.00	0.00	0.00
4,520.0	24.37	288.47	4,251.8	420.9	-1,260.2	1,328.6	0.00	0.00	0.00
4,560.0	24.37	288.47	4,288.3	426.1	-1,275.8	1,345.1	0.00	0.00	0.00
4,600.0	24.37	288.47	4,324.7	431.3	-1,291.5	1,361.6	0.00	0.00	0.00
4,640.0	24.37	288.47	4,361.2	436.6	-1,307.1	1,378.1	0.00	0.00	0.00
4,680.0	24.37	288.47	4,397.6	441.8	-1,322.8	1,394.6	0.00	0.00	0.00
4,720.0	24.37	288.47	4,434.0	447.0	-1,338.4	1,411.1	0.00	0.00	0.00
4,760.0	24.37	288.47	4,470.5	452.2	-1,354.1	1,427.6	0.00	0.00	0.00
4,800.0	24.37	288.47	4,506.9	457.5	-1,369.7	1,444.1	0.00	0.00	0.00
4,840.0	24.37	288.47	4,543.3	462.7	-1,385.4	1,460.6	0.00	0.00	0.00
4,880.0	24.37	288.47	4,579.8	467.9	-1,401.0	1,477.1	0.00	0.00	0.00
4,920.0	24.37	288.47	4,616.2	473.2	-1,416.7	1,493.6	0.00	0.00	0.00
4,960.0	24.37	288.47	4,652.7	478.4	-1,432.4	1,510.1	0.00	0.00	0.00
5,000.0	24.37	288.47	4,689.1	483.6	-1,448.0	1,526.6	0.00	0.00	0.00
5,040.0	24.37	288.47	4,725.5	488.8	-1,463.7	1,543.1	0.00	0.00	0.00
5,080.0	24.37	288.47	4,762.0	494.1	-1,479.3	1,559.6	0.00	0.00	0.00
5,120.0	24.37	288.47	4,798.4	499.3	-1,495.0	1,576.1	0.00	0.00	0.00
5,141.6	24.37	288.47	4,818.0	502.1	-1,503.4	1,585.0	0.00	0.00	0.00
5,160.0	24.00	288.47	4,834.9	504.5	-1,510.6	1,592.6	2.00	-2.00	0.00
5,200.0	23.20	288.47	4,871.5	509.6	-1,525.8	1,608.6	2.00	-2.00	0.00
5,240.0	22.40	288.47	4,908.4	514.5	-1,540.5	1,624.1	2.00	-2.00	0.00
5,280.0	21.60	288.47	4,945.5	519.2	-1,554.7	1,639.1	2.00	-2.00	0.00
5,320.0	20.80	288.47	4,982.8	523.8	-1,568.4	1,653.6	2.00	-2.00	0.00
5,360.0	20.00	288.47	5,020.3	528.2	-1,581.6	1,667.5	2.00	-2.00	0.00
5,400.0	19.20	288.47	5,057.9	532.5	-1,594.3	1,680.9	2.00	-2.00	0.00
5,440.0	18.40	288.47	5,095.8	536.6	-1,606.6	1,693.8	2.00	-2.00	0.00
5,480.0	17.60	288.47	5,133.9	540.5	-1,618.3	1,706.2	2.00	-2.00	0.00
5,520.0	16.80	288.47	5,172.1	544.2	-1,629.5	1,718.0	2.00	-2.00	0.00
5,560.0	16.00	288.47	5,210.4	547.8	-1,640.2	1,729.3	2.00	-2.00	0.00
5,600.0	15.20	288.47	5,249.0	551.2	-1,650.4	1,740.0	2.00	-2.00	0.00
5,640.0	14.40	288.47	5,287.6	554.5	-1,660.1	1,750.2	2.00	-2.00	0.00
5,680.0	13.60	288.47	5,326.4	557.5	-1,669.3	1,759.9	2.00	-2.00	0.00
5,720.0	12.80	288.47	5,365.4	560.4	-1,677.9	1,769.1	2.00	-2.00	0.00
5,760.0	12.00	288.47	5,404.5	563.1	-1,686.1	1,777.6	2.00	-2.00	0.00
5,800.0	11.20	288.47	5,443.6	565.7	-1,693.7	1,785.7	2.00	-2.00	0.00
5,840.0	10.40	288.47	5,482.9	568.1	-1,700.8	1,793.2	2.00	-2.00	0.00
5,880.0	9.60	288.47	5,522.3	570.3	-1,707.4	1,800.1	2.00	-2.00	0.00
5,920.0	8.80	288.47	5,561.8	572.3	-1,713.5	1,806.5	2.00	-2.00	0.00
5,960.0	8.00	288.47	5,601.4	574.1	-1,719.0	1,812.4	2.00	-2.00	0.00
6,000.0	7.20	288.47	5,641.0	575.8	-1,724.0	1,817.7	2.00	-2.00	0.00
6,040.0	6.40	288.47	5,680.7	577.3	-1,728.5	1,822.4	2.00	-2.00	0.00
6,080.0	5.60	288.47	5,720.5	578.6	-1,732.5	1,826.6	2.00	-2.00	0.00
6,120.0	4.80	288.47	5,760.4	579.8	-1,735.9	1,830.2	2.00	-2.00	0.00
6,160.0	4.00	288.47	5,800.2	580.8	-1,738.8	1,833.3	2.00	-2.00	0.00
6,200.0	3.20	288.47	5,840.2	581.5	-1,741.2	1,835.8	2.00	-2.00	0.00
6,240.0	2.40	288.47	5,880.1	582.2	-1,743.1	1,837.7	2.00	-2.00	0.00
6,280.0	1.60	288.47	5,920.1	582.6	-1,744.4	1,839.1	2.00	-2.00	0.00

Database: Landmark  
Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.10-T4N-R66W  
Site: Five Rivers K09-22D Pad Sec.10-T4N-R66W  
Well: Five Rivers K09-22D  
Wellbore: Wellbore #1  
Design: Noble Five Rivers K09-22D Plan #1 (06-27-10)

Local Co-ordinate Reference: Well Five Rivers K09-22D  
TVD Reference: WELL @ 4739.0ft (Original Well Elev)  
MD Reference: WELL @ 4739.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

## Planned 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)
6,320.0	0.80	288.47	5,960.1	582.9	-1,745.2	1,840.0	2.00	-2.00	0.00
6,359.9	0.00	0.00	6,000.0	583.0	-1,745.5	1,840.2	2.00	-2.00	179.20
<b>TARGET BHL 2600'FSL, 1320'FEL</b>									
6,360.0	0.00	0.00	6,000.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,040.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,080.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,120.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,160.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,200.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,240.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,280.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,320.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,360.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,400.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,440.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,480.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,520.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,560.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,600.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,640.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,040.0	0.00	0.00	6,680.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,080.0	0.00	0.00	6,720.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,760.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,160.0	0.00	0.00	6,800.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,200.0	0.00	0.00	6,840.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,240.0	0.00	0.00	6,880.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,248.9	0.00	0.00	6,889.0	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 2600'FSL, 1320'FEL</b>									
7,280.0	0.00	0.00	6,920.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,320.0	0.00	0.00	6,960.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,360.0	0.00	0.00	7,000.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,040.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,440.0	0.00	0.00	7,080.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,480.0	0.00	0.00	7,120.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,520.0	0.00	0.00	7,160.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,560.0	0.00	0.00	7,200.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,583.9	0.00	0.00	7,224.0	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
<b>CODELL</b>									
7,600.0	0.00	0.00	7,240.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,640.0	0.00	0.00	7,280.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,680.0	0.00	0.00	7,320.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,720.0	0.00	0.00	7,360.1	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
7,733.9	0.00	0.00	7,374.0	583.0	-1,745.5	1,840.2	0.00	0.00	0.00
<b>HARDLINE 65'N OF BHL</b>									



**Database:** Landmark  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.10-T4N-R66W  
**Site:** Five Rivers K09-22D Pad Sec.10-T4N-R66W  
**Well:** Five Rivers K09-22D  
**Wellbore:** Wellbore #1  
**Design:** Noble Five Rivers K09-22D Plan #1 (06-27-10)

**Local Co-ordinate Reference:** Well Five Rivers K09-22D  
**TVD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET BHL 2600'F - plan hits target - Point	0.00	0.00	6,000.0	583.0	-1,745.5	1,362,443.96	3,201,295.99	40° 19' 33.816 N	104° 46' 40.872 W
HARDLINE 65'N OF E - plan misses by 119.3ft at 7733.9ft MD (7374.0 TVD, 583.0 N, -1745.5 E) - Polygon	0.00	0.00	7,374.0	648.0	-1,845.5	1,362,508.17	3,201,195.42	40° 19' 34.459 N	104° 46' 42.164 W
Point 1			7,374.0	0.0	0.0	1,362,508.17	3,201,195.42		
Point 2			7,374.0	0.0	200.0	1,362,509.81	3,201,395.40		
TARGET CIRCLE 26' - plan misses by 0.1ft at 7248.9ft MD (6889.0 TVD, 583.0 N, -1745.5 E) - Circle (radius 75.0)	0.00	0.00	6,889.0	583.0	-1,745.5	1,362,444.00	3,201,295.95	40° 19' 33.816 N	104° 46' 40.873 W

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
600.0	600.0	8 5/8"	8-5/8	12-1/4

## Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,248.9	6,889.0	NIOBRARA		0.00	
7,583.9	7,224.0	CODELL		0.00	