

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
0.0 0.0

Northing
1361875.38

Easting
3203046.10

Latitude
40° 19' 28.056 N

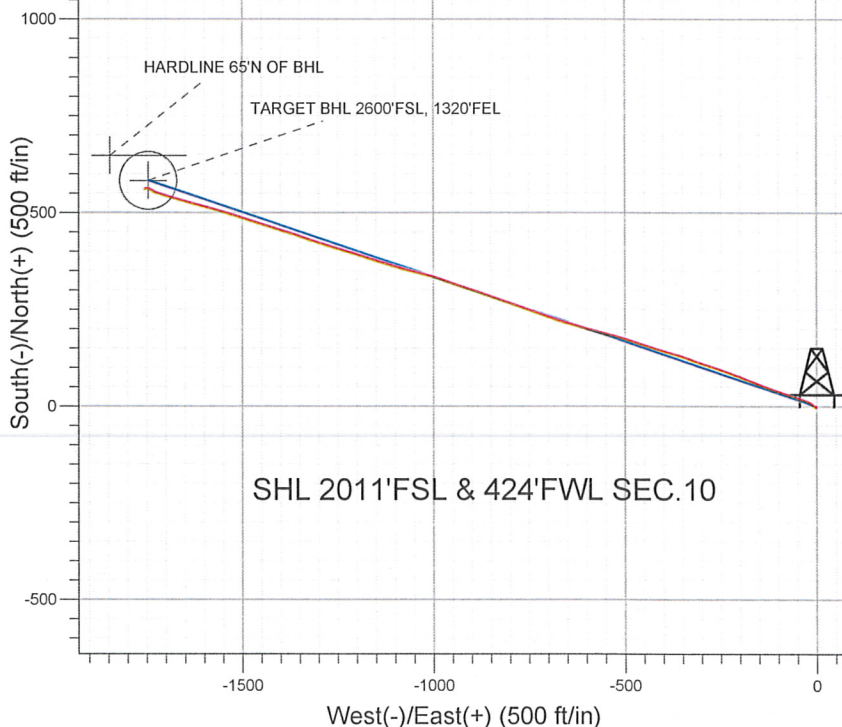
Longitude
104° 46' 18.336 W

Slot

Original Well Elev WELL @ 4739.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO

Projected BHL 563'N & 1754'W of
surface 2580'FSL & 1329'FEL SEC.9



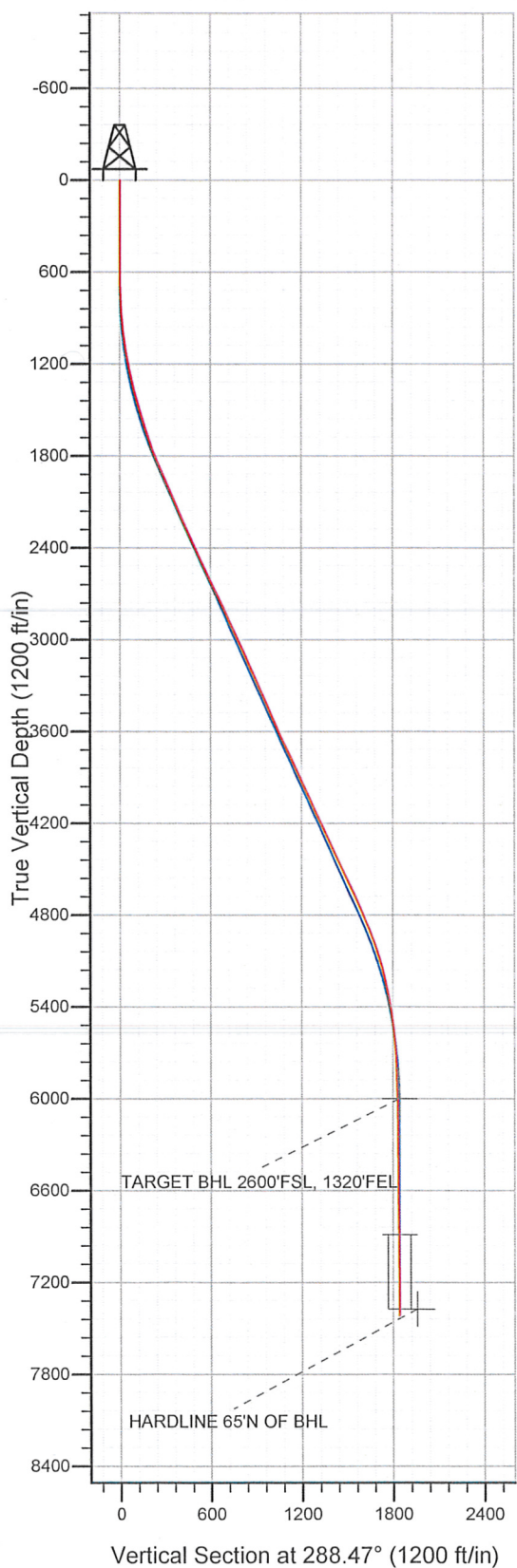
SHL 2011'FSL & 424'FWL SEC.10

LEGEND

- Five Rivers K09-22D, Wellbore #1, Noble Five Rivers K09-22D Plan #1 (06-27-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7776'MD & 7415'TVD @ 1842'VS
0.4 deg Inc 12.0 deg AZ



Project: SEC.10-T4N-R66W
Site: Five Rivers K09-22D Pad Sec.10-T4N-R66W
Well: Five Rivers K09-22D
Plan: Wellbore #1

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: Wellbore #1

Local Co-ordinate Reference: Site Five Rivers K09-22D Pad Sec.10-T4N-R66W
TVD Reference: WELL @ 4739.0ft (Original Well Elev)
MD Reference: WELL @ 4739.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

Project SEC.10-T4N-R66W, Weld County, Colorado

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 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	

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/18/2010	9.00	67.02	53,196

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	288.47

Survey Program Date 5/6/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
600.0	7,776.0	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
600.0	0.40	202.40	600.0	-1.9	-0.8	0.1	0.07	0.07	0.00
694.0	1.10	306.10	694.0	-1.7	-1.7	1.0	1.34	0.74	110.32
787.0	2.70	310.90	786.9	0.2	-4.0	3.9	1.73	1.72	5.16
881.0	4.90	309.20	880.7	4.2	-8.8	9.7	2.34	2.34	-1.81
974.0	6.90	301.90	973.2	9.7	-16.6	18.9	2.29	2.15	-7.85
1,068.0	8.60	288.80	1,066.4	14.9	-28.1	31.4	2.60	1.81	-13.94
1,161.0	11.30	289.20	1,158.0	20.2	-43.3	47.4	2.90	2.90	0.43
1,255.0	12.10	288.70	1,250.0	26.4	-61.3	66.5	0.86	0.85	-0.53
1,349.0	13.30	287.20	1,341.7	32.7	-81.0	87.2	1.32	1.28	-1.60
1,442.0	14.90	287.70	1,431.9	39.5	-102.6	109.8	1.73	1.72	0.54
1,536.0	16.50	292.30	1,522.4	48.3	-126.4	135.2	2.16	1.70	4.89

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Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Site Five Rivers K09-22D Pad
 Sec.10-T4N-R66W
TVD Reference: WELL @ 4739.0ft (Original Well Elev)
MD Reference: WELL @ 4739.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)
1,629.0	18.20	289.50	1,611.2	58.1	-152.4	162.9	2.04	1.83	-3.01
1,723.0	18.70	292.80	1,700.3	68.9	-180.1	192.6	1.23	0.53	3.51
1,816.0	21.80	290.60	1,787.6	80.7	-210.0	224.8	3.43	3.33	-2.37
1,910.0	23.10	288.00	1,874.5	92.6	-243.9	260.6	1.74	1.38	-2.77
2,004.0	23.70	287.50	1,960.7	103.9	-279.4	298.0	0.67	0.64	-0.53
2,097.0	24.50	290.20	2,045.6	116.2	-315.4	335.9	1.46	0.86	2.90
2,191.0	24.30	287.40	2,131.2	128.7	-352.1	374.8	1.25	-0.21	-2.98
2,285.0	23.90	286.80	2,217.0	140.0	-388.8	413.1	0.50	-0.43	-0.64
2,378.0	24.30	286.90	2,301.9	151.0	-425.1	451.1	0.43	0.43	0.11
2,472.0	24.20	288.00	2,387.6	162.6	-462.0	489.7	0.49	-0.11	1.17
2,565.0	24.50	285.80	2,472.4	173.7	-498.6	528.0	1.03	0.32	-2.37
2,659.0	26.00	286.10	2,557.4	184.8	-537.2	568.1	1.60	1.60	0.32
2,753.0	26.70	284.50	2,641.6	195.8	-577.4	609.7	1.06	0.74	-1.70
2,846.0	26.40	286.70	2,724.8	206.9	-617.5	651.2	1.11	-0.32	2.37
2,940.0	24.60	285.20	2,809.6	218.1	-656.4	691.7	2.03	-1.91	-1.60
3,033.0	25.20	289.70	2,894.0	229.8	-693.7	730.8	2.14	0.65	4.84
3,127.0	25.10	290.20	2,979.1	243.5	-731.3	770.7	0.25	-0.11	0.53
3,220.0	25.20	289.40	3,063.3	256.8	-768.4	810.2	0.38	0.11	-0.86
3,314.0	23.60	289.30	3,148.9	269.7	-805.1	849.1	1.70	-1.70	-0.11
3,408.0	24.50	288.70	3,234.7	282.2	-841.3	887.4	0.99	0.96	-0.64
3,501.0	24.00	288.10	3,319.5	294.2	-877.5	925.6	0.60	-0.54	-0.65
3,595.0	23.10	287.70	3,405.7	305.8	-913.3	963.1	0.97	-0.96	-0.43
3,689.0	24.10	288.90	3,491.8	317.6	-949.0	1,000.7	1.18	1.06	1.28
3,782.0	23.80	288.80	3,576.8	329.8	-984.7	1,038.5	0.33	-0.32	-0.11
3,876.0	25.50	284.50	3,662.3	341.0	-1,022.3	1,077.7	2.63	1.81	-4.57
3,970.0	25.60	284.70	3,747.1	351.2	-1,061.5	1,118.1	0.14	0.11	0.21
4,063.0	25.00	285.20	3,831.1	361.5	-1,099.9	1,157.8	0.68	-0.65	0.54
4,157.0	24.80	287.30	3,916.4	372.5	-1,137.9	1,197.3	0.96	-0.21	2.23
4,250.0	24.60	288.00	4,000.9	384.3	-1,174.9	1,236.2	0.38	-0.22	0.75
4,344.0	23.80	289.30	4,086.6	396.6	-1,211.4	1,274.7	1.02	-0.85	1.38
4,437.0	25.70	285.20	4,171.1	408.1	-1,248.6	1,313.6	2.75	2.04	-4.41
4,531.0	24.80	286.90	4,256.1	419.2	-1,287.2	1,353.7	1.23	-0.96	1.81
4,624.0	24.90	288.70	4,340.5	431.1	-1,324.4	1,392.7	0.82	0.11	1.94
4,718.0	25.50	288.50	4,425.6	443.9	-1,362.3	1,432.8	0.64	0.64	-0.21
4,811.0	25.30	286.80	4,509.6	456.0	-1,400.3	1,472.6	0.81	-0.22	-1.83
4,905.0	25.90	287.40	4,594.3	467.9	-1,439.1	1,513.2	0.70	0.64	0.64
4,999.0	24.80	288.00	4,679.3	480.2	-1,477.5	1,553.5	1.20	-1.17	0.64
5,092.0	22.30	287.90	4,764.5	491.6	-1,512.8	1,590.6	2.69	-2.69	-0.11
5,186.0	23.50	285.90	4,851.1	502.2	-1,547.8	1,627.2	1.52	1.28	-2.13
5,279.0	21.20	285.80	4,937.1	511.9	-1,581.8	1,662.5	2.47	-2.47	-0.11
5,373.0	18.60	285.20	5,025.5	520.5	-1,612.6	1,694.5	2.77	-2.77	-0.64
5,466.0	15.70	283.50	5,114.4	527.3	-1,639.2	1,721.8	3.16	-3.12	-1.83
5,560.0	13.30	287.10	5,205.4	533.4	-1,661.9	1,745.3	2.73	-2.55	3.83
5,654.0	11.30	284.70	5,297.2	539.0	-1,681.2	1,765.3	2.20	-2.13	-2.55
5,747.0	9.60	288.50	5,388.7	543.7	-1,697.3	1,782.2	1.97	-1.83	4.09
5,841.0	8.00	286.30	5,481.6	548.1	-1,711.0	1,796.5	1.74	-1.70	-2.34
5,934.0	6.40	293.50	5,573.8	551.9	-1,722.0	1,808.2	1.97	-1.72	7.74
6,028.0	4.80	294.30	5,667.4	555.6	-1,730.4	1,817.3	1.70	-1.70	0.85
6,122.0	3.60	301.10	5,761.1	558.8	-1,736.5	1,824.1	1.38	-1.28	7.23
6,215.0	1.90	300.40	5,854.0	561.1	-1,740.3	1,828.4	1.83	-1.83	-0.75
6,309.0	0.80	288.30	5,948.0	562.1	-1,742.3	1,830.6	1.20	-1.17	-12.87
6,361.2	0.80	293.01	6,000.1	562.3	-1,743.0	1,831.3	0.13	0.00	9.03

TARGET BHL 2600'FSL, 1320'FEL

Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.10-T4N-R66W
 Site: Five Rivers K09-22D Pad Sec.10-T4N-R66W
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 Survey Calculation Method: Minimum Curvature
 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)
6,402.0	0.80	296.70	6,041.0	562.6	-1,743.5	1,831.9	0.13	0.01	9.03
6,496.0	0.60	299.50	6,135.0	563.1	-1,744.5	1,833.0	0.22	-0.21	2.98
6,590.0	0.50	286.70	6,229.0	563.5	-1,745.3	1,833.9	0.17	-0.11	-13.62
6,715.0	0.40	276.00	6,354.0	563.7	-1,746.3	1,834.9	0.10	-0.08	-8.56
6,839.0	0.50	267.90	6,477.9	563.7	-1,747.3	1,835.8	0.10	0.08	-6.53
6,964.0	0.60	262.90	6,602.9	563.6	-1,748.5	1,836.9	0.09	0.08	-4.00
7,089.0	0.80	255.40	6,727.9	563.3	-1,749.9	1,838.3	0.18	0.16	-6.00
7,214.0	0.70	256.50	6,852.9	562.9	-1,751.5	1,839.6	0.08	-0.08	0.88
7,249.9	0.70	255.37	6,888.9	562.8	-1,752.0	1,840.0	0.04	0.00	-3.14
TARGET CIRCLE 2600'FSL, 1320'FEL									
7,338.0	0.70	252.60	6,976.9	562.5	-1,753.0	1,840.9	0.04	0.00	-3.15
7,463.0	0.40	256.20	7,101.9	562.2	-1,754.1	1,841.9	0.24	-0.24	2.88
7,731.0	0.40	56.40	7,369.9	562.5	-1,754.3	1,842.1	0.29	0.00	59.78
HARDLINE 65'N OF BHL									
7,776.0	0.40	12.00	7,414.9	562.7	-1,754.1	1,842.0	0.67	0.00	-98.67

Checked By: _____ Approved By: _____ Date: _____