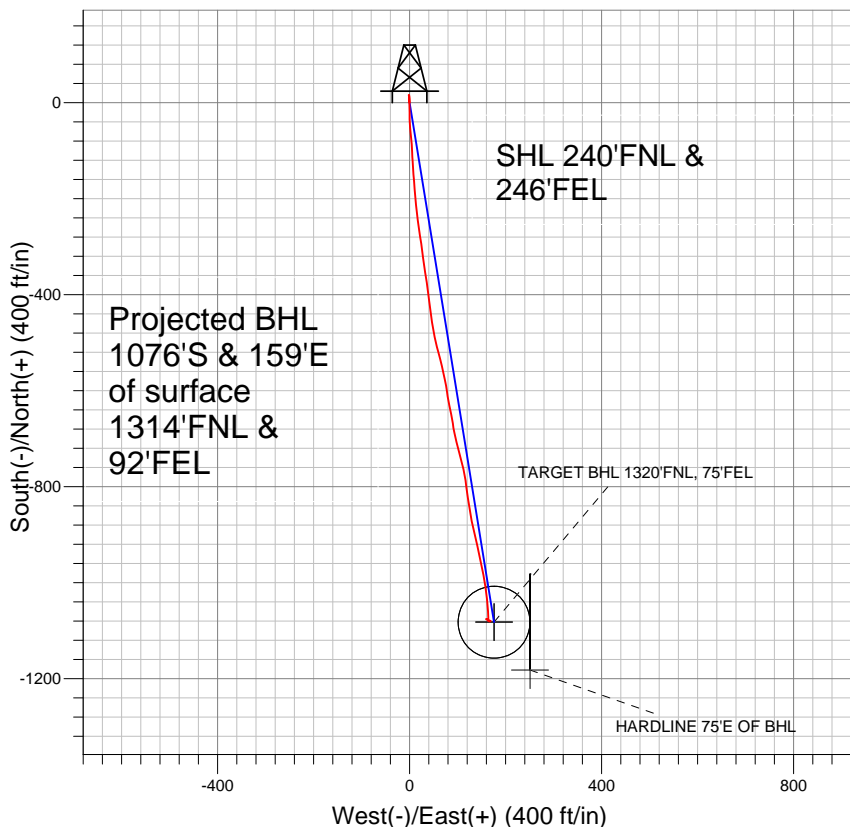
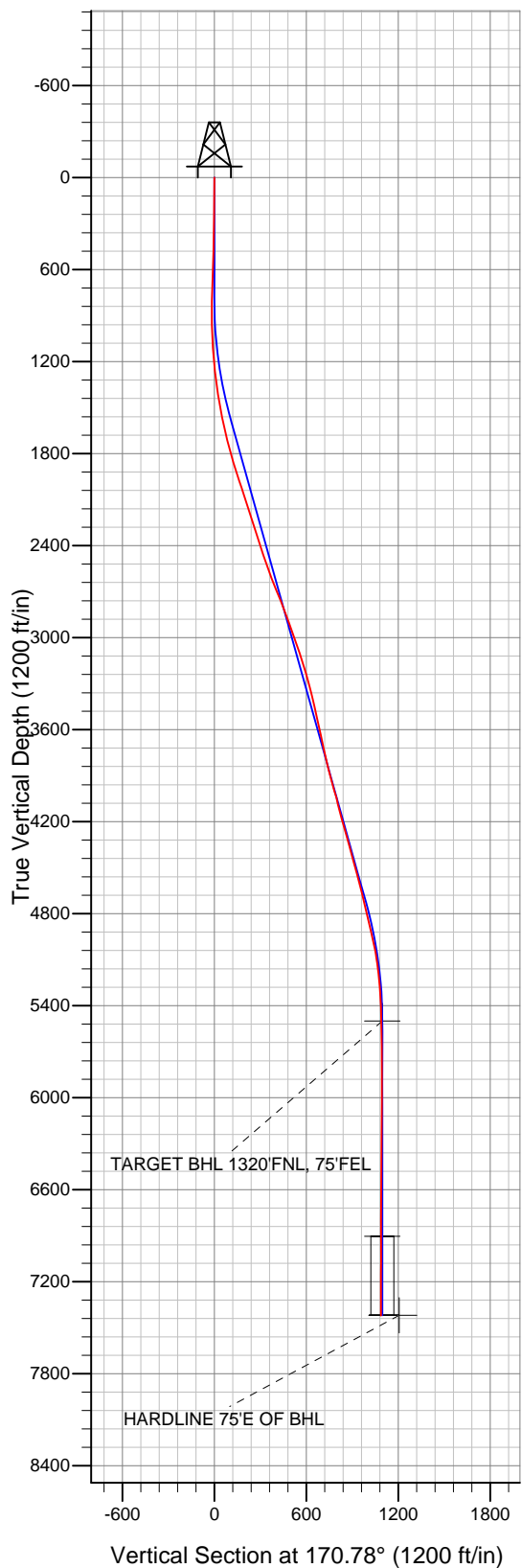


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Five Rivers K15-31D, Wellbore #1, Noble Five Rivers K15-31D Plan #1 (06-22-10) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7573'MD & 7421'TVD @ 1087' VS
0.2 deg Inc 315.5 deg AZ

Project: SEC.16-T4N-R66W
Site: Five Rivers K15-30D Pad Sec.16-T4N-R66W
Well: Five Rivers K15-31D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T4N-R66W

Five Rivers K15-30D Pad Sec.16-T4N-R66W

Five Rivers K15-31D

Wellbore #1

Design: Wellbore #1

Standard Survey Report

10 February, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Five Rivers K15-31D
Project:	SEC.16-T4N-R66W	TVD Reference:	WELL @ 4743.0ft (Original Well Elev)
Site:	Five Rivers K15-30D Pad Sec.16-T4N-R66W	MD Reference:	WELL @ 4743.0ft (Original Well Elev)
Well:	Five Rivers K15-31D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.16-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 K15-30D Pad Sec.16-T4N-R66W		
Site Position:		Northing:	1,359,636.94 ft
From:	Lat/Long	Easting:	3,202,403.59 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 19' 5.988 N
		Longitude:	104° 46' 26.868 W
		Grid Convergence:	0.47 °

Well	Five Rivers K15-31D		
Well Position	+N-S	0.0 ft	Northing:
	+E-W	0.0 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2011	8.91	67.00	53,127

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	171.31	

Survey Program	Date	2/10/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
729.0	7,573.0	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	
729.0	2.10	355.30	728.8	13.3	-1.1	-13.3	0.29	0.29	0.00	
823.0	1.30	341.70	822.8	16.0	-1.6	-16.1	0.95	-0.85	-14.47	
917.0	0.50	177.10	916.8	16.6	-1.9	-16.7	1.90	-0.85	-175.11	
1,011.0	2.70	172.80	1,010.7	14.0	-1.6	-14.1	2.34	2.34	-4.57	
1,105.0	3.50	175.20	1,104.6	9.0	-1.1	-9.0	0.86	0.85	2.55	
1,199.0	5.10	177.80	1,198.3	1.9	-0.7	-2.0	1.71	1.70	2.77	
1,293.0	7.00	179.90	1,291.8	-8.0	-0.5	7.8	2.03	2.02	2.23	
1,387.0	8.10	177.60	1,385.0	-20.3	-0.2	20.0	1.21	1.17	-2.45	
1,481.0	9.60	180.50	1,477.9	-34.8	0.0	34.4	1.66	1.60	3.09	
1,575.0	12.10	174.30	1,570.2	-52.4	0.9	51.9	2.93	2.66	-6.60	
1,669.0	13.30	174.30	1,661.9	-73.0	3.0	72.6	1.28	1.28	0.00	
1,763.0	14.90	177.90	1,753.1	-95.8	4.5	95.4	1.94	1.70	3.83	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Five Rivers K15-31D
Project:	SEC.16-T4N-R66W	TVD Reference:	WELL @ 4743.0ft (Original Well Elev)
Site:	Five Rivers K15-30D Pad Sec.16-T4N-R66W	MD Reference:	WELL @ 4743.0ft (Original Well Elev)
Well:	Five Rivers K15-31D	North Reference:	True
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)
1,857.0	16.80	175.20	1,843.5	-121.4	6.1	120.9	2.17	2.02	-2.87
1,951.0	17.60	177.00	1,933.3	-149.1	7.9	148.6	1.02	0.85	1.91
2,045.0	18.90	175.00	2,022.5	-178.5	10.0	178.0	1.53	1.38	-2.13
2,139.0	17.70	174.10	2,111.8	-207.9	12.8	207.4	1.31	-1.28	-0.96
2,233.0	17.80	173.80	2,201.3	-236.4	15.8	236.1	0.14	0.11	-0.32
2,327.0	18.00	170.50	2,290.8	-265.0	19.8	264.9	1.10	0.21	-3.51
2,421.0	18.10	172.70	2,380.1	-293.8	24.0	294.1	0.73	0.11	2.34
2,515.0	17.90	171.90	2,469.5	-322.6	27.9	323.1	0.34	-0.21	-0.85
2,609.0	20.40	171.90	2,558.3	-353.1	32.3	353.9	2.66	2.66	0.00
2,703.0	21.50	171.90	2,646.1	-386.4	37.0	387.5	1.17	1.17	0.00
2,797.0	22.50	172.70	2,733.3	-421.3	41.7	422.7	1.11	1.06	0.85
2,891.0	20.00	172.70	2,820.9	-455.1	46.0	456.8	2.66	-2.66	0.00
2,985.0	20.50	167.30	2,909.1	-487.1	51.7	489.3	2.06	0.53	-5.74
3,079.0	19.80	165.10	2,997.3	-518.5	59.4	521.5	1.10	-0.74	-2.34
3,173.0	18.60	166.60	3,086.1	-548.5	67.0	552.3	1.38	-1.28	1.60
3,267.0	16.80	168.50	3,175.6	-576.4	73.2	580.8	2.01	-1.91	2.02
3,361.0	15.70	172.10	3,265.9	-602.3	77.6	607.1	1.59	-1.17	3.83
3,455.0	14.30	167.70	3,356.7	-626.2	81.8	631.4	1.92	-1.49	-4.68
3,549.0	12.70	168.90	3,448.1	-647.7	86.3	653.3	1.73	-1.70	1.28
3,643.0	12.50	172.30	3,539.8	-667.9	89.7	673.8	0.82	-0.21	3.62
3,737.0	11.90	167.90	3,631.7	-687.5	93.1	693.7	1.18	-0.64	-4.68
3,830.0	12.60	166.80	3,722.6	-706.8	97.4	713.4	0.79	0.75	-1.18
3,925.0	13.70	164.80	3,815.1	-727.7	102.7	734.9	1.25	1.16	-2.11
4,019.0	15.10	164.60	3,906.1	-750.2	108.9	758.1	1.49	1.49	-0.21
4,113.0	15.80	170.80	3,996.7	-774.7	114.2	783.0	1.91	0.74	6.60
4,207.0	14.40	173.00	4,087.5	-798.9	117.6	807.5	1.61	-1.49	2.34
4,301.0	15.10	170.50	4,178.4	-822.6	121.1	831.4	1.01	0.74	-2.66
4,395.0	15.50	171.80	4,269.1	-847.1	124.9	856.3	0.56	0.43	1.38
4,489.0	15.20	169.20	4,359.7	-871.6	129.0	881.1	0.80	-0.32	-2.77
4,582.0	15.60	166.40	4,449.4	-895.8	134.2	905.8	0.91	0.43	-3.01
4,676.0	15.30	167.50	4,540.0	-920.2	139.9	930.7	0.45	-0.32	1.17
4,770.0	14.40	165.50	4,630.8	-943.6	145.5	954.7	1.10	-0.96	-2.13
4,864.0	12.60	169.30	4,722.2	-965.0	150.3	976.6	2.13	-1.91	4.04
4,958.0	13.70	169.90	4,813.8	-986.0	154.2	998.0	1.18	1.17	0.64
5,052.0	13.80	172.40	4,905.1	-1,008.1	157.6	1,020.3	0.64	0.11	2.66
5,146.0	12.00	172.90	4,996.7	-1,028.9	160.3	1,041.3	1.92	-1.91	0.53
5,240.0	8.50	176.30	5,089.2	-1,045.5	162.0	1,058.0	3.78	-3.72	3.62
5,334.0	6.50	176.90	5,182.4	-1,057.8	162.7	1,070.2	2.13	-2.13	0.64
5,428.0	4.70	176.50	5,275.9	-1,066.9	163.2	1,079.4	1.92	-1.91	-0.43
5,522.0	3.00	174.30	5,369.7	-1,073.2	163.7	1,085.6	1.81	-1.81	-2.34
5,616.0	2.00	172.70	5,463.6	-1,077.3	164.1	1,089.7	1.07	-1.06	-1.70
5,652.6	1.29	153.36	5,500.2	-1,078.3	164.4	1,090.8	2.43	-1.93	-52.86
TARGET BHL 1320'FNL, 75'FEL									
5,710.0	1.10	82.50	5,557.6	-1,078.8	165.2	1,091.4	2.43	-0.34	-123.42
5,850.0	1.20	111.30	5,697.6	-1,079.2	167.9	1,092.2	0.41	0.07	20.57
5,898.0	0.70	169.60	5,745.6	-1,079.6	168.5	1,092.7	2.13	-1.04	121.46
5,992.0	0.70	249.50	5,839.6	-1,080.4	168.0	1,093.4	0.96	0.00	85.00
6,086.0	0.40	269.40	5,933.6	-1,080.6	167.2	1,093.5	0.37	-0.32	21.17
6,180.0	0.80	285.50	6,027.5	-1,080.4	166.2	1,093.2	0.46	0.43	17.13
6,274.0	0.60	301.20	6,121.5	-1,080.0	165.2	1,092.6	0.29	-0.21	16.70
6,367.0	0.80	276.80	6,214.5	-1,079.7	164.1	1,092.1	0.38	0.22	-26.24
6,461.0	0.60	329.20	6,308.5	-1,079.2	163.2	1,091.4	0.68	-0.21	55.74
6,555.0	0.70	358.60	6,402.5	-1,078.2	162.9	1,090.4	0.37	0.11	31.28
6,649.0	0.50	1.20	6,496.5	-1,077.2	162.9	1,089.5	0.21	-0.21	2.77

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Five Rivers K15-31D
Project:	SEC.16-T4N-R66W	TVD Reference:	WELL @ 4743.0ft (Original Well Elev)
Site:	Five Rivers K15-30D Pad Sec.16-T4N-R66W	MD Reference:	WELL @ 4743.0ft (Original Well Elev)
Well:	Five Rivers K15-31D	North Reference:	True
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)
6,743.0	0.40	296.10	6,590.5	-1,076.6	162.6	1,088.9	0.52	-0.11	-69.26
6,837.0	0.30	52.40	6,684.5	-1,076.4	162.5	1,088.6	0.64	-0.11	123.72
6,931.0	0.10	36.10	6,778.5	-1,076.1	162.8	1,088.4	0.22	-0.21	-17.34
7,025.0	0.40	228.40	6,872.5	-1,076.3	162.6	1,088.5	0.53	0.32	-178.40
7,055.4	0.42	237.60	6,902.9	-1,076.4	162.4	1,088.6	0.23	0.08	30.24
TARGET CIRCLE 1320'FNL, 75'FEL									
7,119.0	0.50	253.10	6,966.5	-1,076.6	161.9	1,088.7	0.23	0.12	24.38
7,213.0	0.60	277.00	7,060.5	-1,076.7	161.1	1,088.7	0.26	0.11	25.43
7,307.0	0.70	299.10	7,154.5	-1,076.3	160.1	1,088.2	0.28	0.11	23.51
7,401.0	0.20	300.20	7,248.5	-1,076.0	159.4	1,087.7	0.53	-0.53	1.17
7,494.0	0.20	315.50	7,341.5	-1,075.8	159.2	1,087.5	0.06	0.00	16.45
7,570.0	0.20	315.50	7,417.5	-1,075.6	159.0	1,087.3	0.00	0.00	0.00
HARDLINE 75'E OF BHL									
7,573.0	0.20	315.50	7,420.5	-1,075.6	159.0	1,087.3	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____