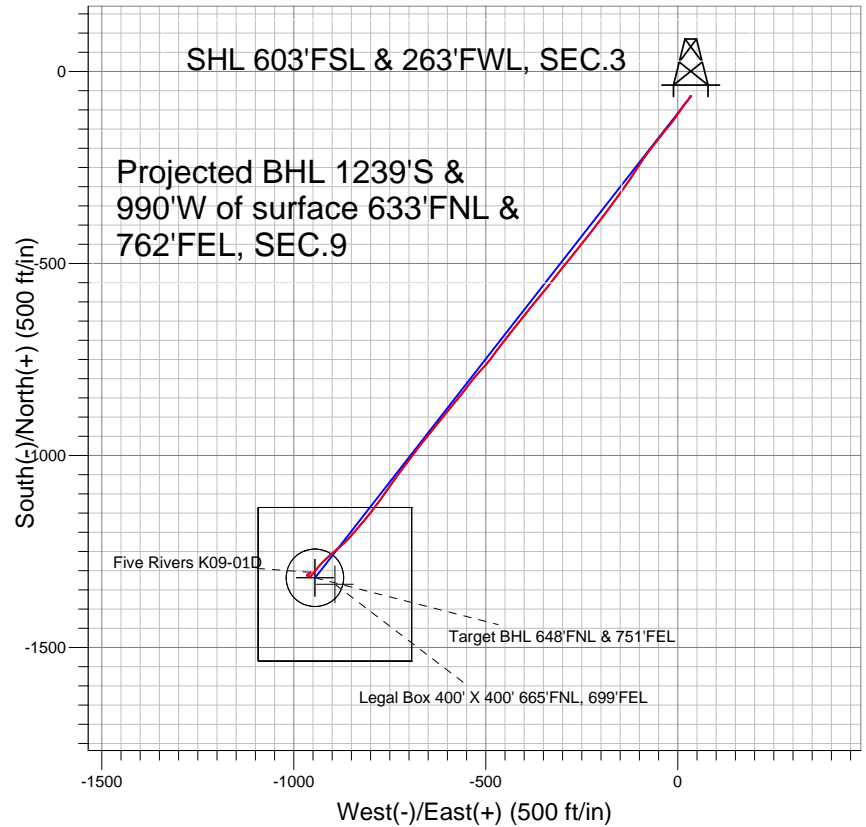


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Five Rivers K09-01D, Wellbore #1, Noble Five Rivers K09-01D Plan#1 (6-29-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7718'MD & 7435'TVD @ 1586'VS
0.6 deg Inc 30.0 deg AZ

Project: SEC.3-T4N-R66W
Site: Five Rivers K03-33D Pad Sec.3-T4N-R66W
Well: Five Rivers K09-01D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.3-T4N-R66W

Five Rivers K03-33D Pad Sec.3-T4N-R66W

Five Rivers K09-01D

Wellbore #1

Survey: Survey #1

Standard Survey Report

12 July, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Five Rivers K03-33D Pad Sec.3-T4N-R66W
Project:	SEC.3-T4N-R66W	TVD Reference:	WELL @ 4734.0ft (Original Well Elev)
Site:	Five Rivers K03-33D Pad Sec.3-T4N-R66W	MD Reference:	WELL @ 4734.0ft (Original Well Elev)
Well:	Five Rivers K09-01D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.3-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 K03-33D Pad Sec.3-T4N-R66W		
Site Position:		Northing:	1,365,851.35ft
From:	Lat/Long	Easting:	3,202,773.69ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 20' 7.368 N
		Longitude:	104° 46' 21.432 W
		Grid Convergence:	0.47 °

Well	Five Rivers K09-01D		
Well Position	+N-S	-65.6 ft	Northing:
	+E-W	33.5 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			ft
			Latitude:
			40° 20' 6.720 N
			Longitude:
			104° 46' 21.000 W
			Ground Level:
			4,721.0ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/17/2011	8.86	67.00	53,097

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 (°)	
	5,900.0	-65.6	33.5	217.99	

Survey Program	Date	7/12/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
602.0	7,718.0	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	-65.6	33.5	0.0	0.00	0.00	0.00	
602.0	0.30	5.70	602.0	-64.0	33.6	-1.3	0.05	0.05	0.00	
687.0	0.20	325.80	687.0	-63.7	33.5	-1.6	0.23	-0.12	-46.94	
773.0	0.50	215.50	773.0	-63.9	33.2	-1.2	0.70	0.35	-128.26	
858.0	2.40	212.30	858.0	-65.7	32.1	0.9	2.24	2.24	-3.76	
944.0	4.00	208.90	943.8	-69.8	29.7	5.7	1.87	1.86	-3.95	
1,029.0	6.00	217.30	1,028.5	-75.9	25.5	13.0	2.50	2.35	9.88	
1,115.0	7.60	220.90	1,113.9	-83.8	19.1	23.2	1.92	1.86	4.19	
1,200.0	9.00	213.90	1,198.0	-93.6	11.7	35.5	2.03	1.65	-8.24	
1,286.0	10.60	213.60	1,282.7	-105.8	3.6	50.0	1.86	1.86	-0.35	
1,371.0	11.80	215.60	1,366.1	-119.3	-5.8	66.5	1.48	1.41	2.35	
1,457.0	12.40	217.10	1,450.2	-133.8	-16.5	84.5	0.79	0.70	1.74	
1,542.0	14.50	220.50	1,532.9	-149.2	-28.9	104.3	2.64	2.47	4.00	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Site Five Rivers K03-33D Pad Sec.3-T4N-R66W
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Site:	Five Rivers K03-33D Pad Sec.3-T4N-R66W	MD Reference:	WELL @ 4734.0ft (Original Well Elev)
Well:	Five Rivers K09-01D	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)
1,628.0	15.60	219.50	1,615.9	-166.3	-43.3	126.6	1.31	1.28	-1.16
1,713.0	17.10	217.70	1,697.5	-185.0	-58.2	150.5	1.86	1.76	-2.12
1,799.0	18.60	216.40	1,779.3	-206.1	-74.0	176.9	1.80	1.74	-1.51
1,884.0	19.80	214.90	1,859.6	-228.8	-90.3	204.8	1.53	1.41	-1.76
1,970.0	20.70	212.60	1,940.3	-253.6	-106.9	234.5	1.40	1.05	-2.67
2,055.0	22.30	214.30	2,019.4	-279.5	-124.0	265.6	2.02	1.88	2.00
2,141.0	23.10	216.10	2,098.7	-306.6	-143.2	298.7	1.23	0.93	2.09
2,226.0	22.30	216.20	2,177.1	-333.1	-162.5	331.5	0.94	-0.94	0.12
2,312.0	21.80	214.70	2,256.9	-359.4	-181.2	363.7	0.88	-0.58	-1.74
2,398.0	21.60	216.80	2,336.8	-385.2	-199.8	395.5	0.93	-0.23	2.44
2,483.0	21.60	218.50	2,415.8	-410.0	-218.9	426.8	0.74	0.00	2.00
2,569.0	21.70	219.40	2,495.7	-434.7	-238.9	458.5	0.40	0.12	1.05
2,654.0	22.90	219.40	2,574.4	-459.6	-259.4	490.8	1.41	1.41	0.00
2,740.0	23.30	218.40	2,653.5	-485.9	-280.5	524.5	0.65	0.47	-1.16
2,825.0	23.60	218.30	2,731.4	-512.4	-301.5	558.3	0.36	0.35	-0.12
2,911.0	21.00	217.40	2,811.0	-538.1	-321.6	590.9	3.05	-3.02	-1.05
2,996.0	20.80	218.80	2,890.4	-562.0	-340.3	621.3	0.63	-0.24	1.65
3,082.0	21.70	219.50	2,970.6	-586.2	-359.9	652.4	1.09	1.05	0.81
3,167.0	21.80	219.00	3,049.5	-610.6	-379.9	683.9	0.25	0.12	-0.59
3,253.0	20.60	218.50	3,129.7	-634.8	-399.3	715.0	1.41	-1.40	-0.58
3,338.0	19.60	217.30	3,209.5	-657.9	-417.3	744.2	1.27	-1.18	-1.41
3,424.0	19.90	220.60	3,290.5	-680.4	-435.6	773.3	1.34	0.35	3.84
3,509.0	19.60	217.20	3,370.5	-702.8	-453.6	802.0	1.40	-0.35	-4.00
3,595.0	20.30	216.00	3,451.3	-726.3	-471.1	831.3	0.94	0.81	-1.40
3,680.0	20.40	217.40	3,531.0	-750.0	-488.7	860.9	0.58	0.12	1.65
3,766.0	19.30	223.30	3,611.9	-772.3	-507.6	890.0	2.66	-1.28	6.86
3,851.0	19.30	220.70	3,692.1	-793.2	-526.4	918.0	1.01	0.00	-3.06
3,937.0	22.20	217.60	3,772.5	-816.8	-545.6	948.5	3.60	3.37	-3.60
4,022.0	22.10	217.00	3,851.3	-842.3	-565.0	980.5	0.29	-0.12	-0.71
4,108.0	22.80	218.50	3,930.7	-868.3	-585.1	1,013.4	1.05	0.81	1.74
4,193.0	22.60	220.10	4,009.2	-893.7	-605.9	1,046.1	0.76	-0.24	1.88
4,279.0	22.30	220.10	4,088.6	-918.8	-627.0	1,079.0	0.35	-0.35	0.00
4,364.0	22.50	219.00	4,167.2	-943.8	-647.7	1,111.3	0.55	0.24	-1.29
4,450.0	24.40	217.70	4,246.1	-970.6	-668.9	1,145.6	2.29	2.21	-1.51
4,536.0	24.70	217.20	4,324.4	-999.0	-690.6	1,181.3	0.42	0.35	-0.58
4,621.0	24.70	216.20	4,401.6	-1,027.4	-711.8	1,216.8	0.49	0.00	-1.18
4,707.0	26.10	215.30	4,479.3	-1,057.4	-733.4	1,253.7	1.69	1.63	-1.05
4,792.0	26.30	216.30	4,555.5	-1,087.8	-755.3	1,291.2	0.57	0.24	1.18
4,878.0	23.40	214.80	4,633.6	-1,117.2	-776.4	1,327.3	3.45	-3.37	-1.74
4,963.0	22.30	217.30	4,711.9	-1,143.9	-795.8	1,360.2	1.73	-1.29	2.94
5,049.0	20.50	220.90	4,792.0	-1,168.3	-815.5	1,391.6	2.59	-2.09	4.19
5,134.0	20.80	220.80	4,871.5	-1,190.9	-835.1	1,421.5	0.36	0.35	-0.12
5,220.0	18.40	222.40	4,952.5	-1,212.5	-854.3	1,450.3	2.86	-2.79	1.86
5,305.0	16.50	227.00	5,033.6	-1,230.7	-872.1	1,475.6	2.76	-2.24	5.41
5,391.0	13.00	229.60	5,116.8	-1,245.3	-888.4	1,497.2	4.14	-4.07	3.02
5,476.0	12.80	229.50	5,199.6	-1,257.6	-902.9	1,515.8	0.24	-0.24	-0.12
5,562.0	10.90	227.80	5,283.8	-1,269.2	-916.1	1,533.1	2.25	-2.21	-1.98
5,647.0	9.90	223.90	5,367.4	-1,279.9	-927.2	1,548.3	1.44	-1.18	-4.59
5,733.0	8.30	218.70	5,452.3	-1,290.1	-936.2	1,561.9	2.09	-1.86	-6.05
5,818.0	7.80	218.50	5,536.5	-1,299.4	-943.6	1,573.8	0.59	-0.59	-0.24
5,904.0	5.50	218.90	5,621.9	-1,307.1	-949.8	1,583.7	2.67	-2.67	0.47
5,989.0	4.70	228.70	5,706.5	-1,312.6	-955.0	1,591.2	1.39	-0.94	11.53
6,075.0	2.30	246.30	5,792.4	-1,315.6	-959.2	1,596.2	3.03	-2.79	20.47
6,160.0	1.40	295.90	5,877.3	-1,315.9	-961.7	1,597.9	2.06	-1.06	58.35

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
6,182.4	1.16	302.92	5,899.8	-1,315.6	-962.2	1,598.0	1.28	-1.08	31.32
Target BHL 648'FNL & 751'FEL									
6,246.0	0.70	346.80	5,963.3	-1,314.9	-962.8	1,597.8	1.28	-0.72	69.02
6,331.0	0.10	1.30	6,048.3	-1,314.3	-962.9	1,597.4	0.71	-0.71	17.06
6,417.0	0.30	275.30	6,134.3	-1,314.2	-963.1	1,597.5	0.36	0.23	-100.00
6,502.0	0.50	307.60	6,219.3	-1,314.0	-963.6	1,597.6	0.35	0.24	38.00
6,588.0	0.40	287.30	6,305.3	-1,313.6	-964.2	1,597.7	0.22	-0.12	-23.60
6,674.0	0.60	311.10	6,391.3	-1,313.3	-964.8	1,597.8	0.33	0.23	27.67
6,759.0	0.50	329.10	6,476.3	-1,312.7	-965.4	1,597.6	0.23	-0.12	21.18
6,845.0	0.30	15.30	6,562.3	-1,312.1	-965.5	1,597.3	0.42	-0.23	53.72
6,930.0	0.40	16.20	6,647.3	-1,311.6	-965.4	1,596.8	0.12	0.12	1.06
7,016.0	0.40	31.50	6,733.3	-1,311.1	-965.1	1,596.2	0.12	0.00	17.79
7,101.0	0.40	37.30	6,818.3	-1,310.6	-964.8	1,595.6	0.05	0.00	6.82
7,177.1	0.66	67.85	6,894.4	-1,310.2	-964.2	1,595.0	0.49	0.34	40.12
Legal Box 400' X 400' 665'FNL, 699'FEL									
7,187.0	0.70	70.00	6,904.3	-1,310.2	-964.1	1,594.9	0.49	0.42	21.86
7,272.0	1.40	59.60	6,989.3	-1,309.5	-962.7	1,593.5	0.85	0.82	-12.24
7,358.0	1.50	56.50	7,075.2	-1,308.3	-960.9	1,591.5	0.15	0.12	-3.60
7,443.0	1.10	51.00	7,160.2	-1,307.2	-959.3	1,589.6	0.49	-0.47	-6.47
7,529.0	0.90	51.00	7,246.2	-1,306.2	-958.2	1,588.1	0.23	-0.23	0.00
7,614.0	0.90	37.70	7,331.2	-1,305.3	-957.2	1,586.8	0.25	0.00	-15.65
7,666.7	0.72	30.50	7,383.9	-1,304.7	-956.8	1,586.1	0.39	-0.34	-13.66
Target Circle 648'FNL & 751'FEL									
7,673.0	0.70	29.40	7,390.2	-1,304.6	-956.8	1,586.0	0.39	-0.33	-17.52
7,718.0	0.60	30.00	7,435.2	-1,304.2	-956.5	1,585.5	0.22	-0.22	1.33

Checked By: _____ Approved By: _____ Date: _____