

Well Name: **Rhino D27-27D**

Surface Location: Rhino D27-20D Pad Sec.27-T3N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

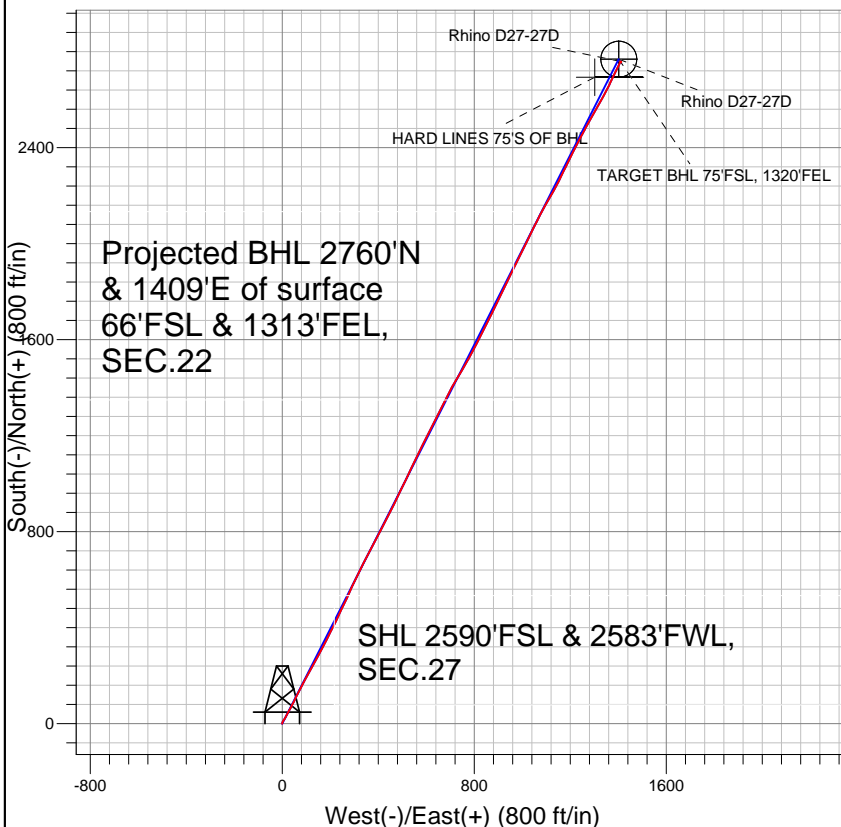
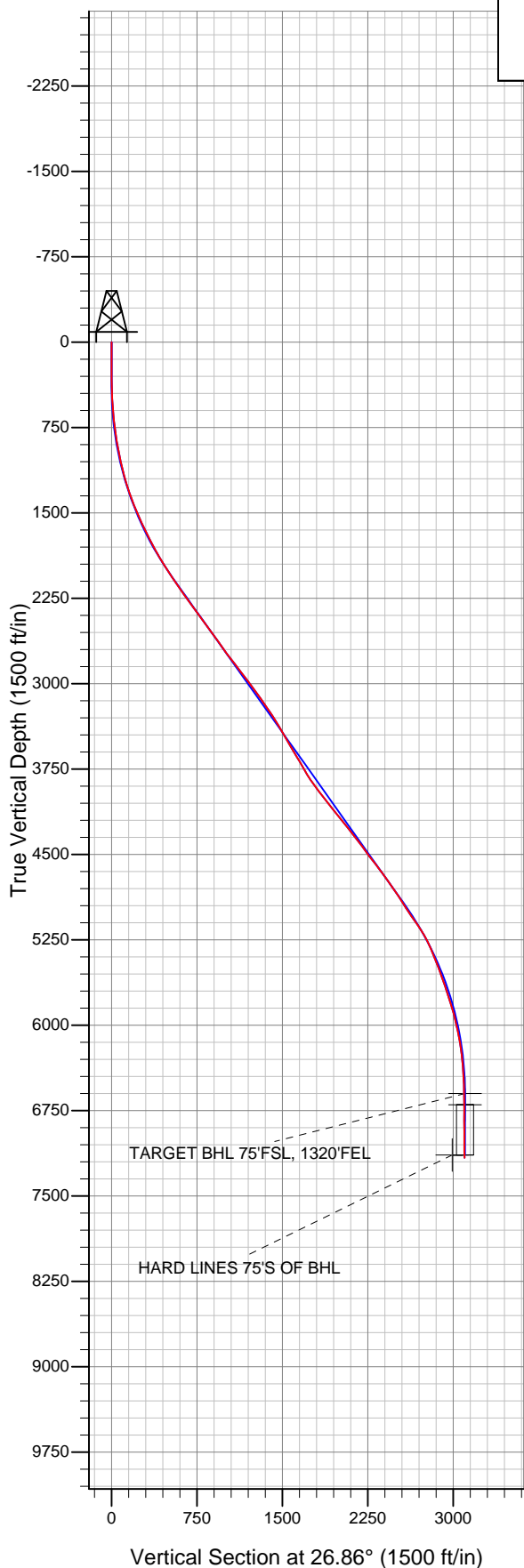
Ground Elevation: 4866.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1315787.52	3268799.63	40.196230	-104.537740

Original Well Elev WELL @ 4879.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Rhino D27-27D, Wellbore #1, Noble Rhino D27-27D Plan #1 (5-02-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8034'MD & 7164'TVD @ 3099'VS
0.9 deg Inc 313.7 deg AZ

Project: SEC.27-T3N-R64W
Site: Rhino D27-20D Pad Sec.27-T3N-R64W
Well: Rhino D27-27D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.27-T3N-R64W

Rhino D27-20D Pad Sec.27-T3N-R64W

Rhino D27-27D

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 September, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Rhino D27-27D
Project:	SEC.27-T3N-R64W	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	Rhino D27-20D Pad Sec.27-T3N-R64W	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Well:	Rhino D27-27D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.27-T3N-R64W, 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	Rhino D27-20D Pad Sec.27-T3N-R64W		
Site Position:		Northing:	1,315,786.36ft
From:	Lat/Long	Easting:	3,268,687.89ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.196230
		Longitude:	-104.538140
		Grid Convergence:	0.62 °

Well	Rhino D27-27D		
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	5/2/2011	8.74	66.93	53,061

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	26.86

Survey Program	Date	9/6/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
130.0	8,034.0	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
130.0	0.30	302.30	130.0	0.2	-0.3	0.0	0.23	0.23	0.00
222.0	0.30	339.90	222.0	0.5	-0.6	0.2	0.21	0.00	40.87
313.0	0.40	346.00	313.0	1.1	-0.7	0.6	0.12	0.11	6.70
405.0	1.30	20.50	405.0	2.4	-0.4	1.9	1.08	0.98	37.50
496.0	2.80	18.20	495.9	5.4	0.6	5.1	1.65	1.65	-2.53
588.0	4.40	29.10	587.7	10.7	3.0	10.9	1.88	1.74	11.85
682.0	6.30	37.70	681.3	17.9	7.9	19.5	2.19	2.02	9.15
775.0	7.90	28.20	773.6	27.6	14.1	30.9	2.13	1.72	-10.22
870.0	9.20	26.10	867.6	40.1	20.5	45.1	1.41	1.37	-2.21
963.0	10.70	29.50	959.2	54.3	28.0	61.1	1.73	1.61	3.66
1,056.0	12.50	29.10	1,050.3	70.6	37.2	79.8	1.94	1.94	-0.43
1,150.0	14.30	26.30	1,141.7	89.9	47.3	101.6	2.03	1.91	-2.98

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Rhino D27-27D
Project:	SEC.27-T3N-R64W	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	Rhino D27-20D Pad Sec.27-T3N-R64W	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Well:	Rhino D27-27D	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)
1,244.0	17.00	26.50	1,232.2	112.6	58.5	126.9	2.87	2.87	0.21
1,339.0	19.30	26.50	1,322.5	139.1	71.7	156.5	2.42	2.42	0.00
1,432.0	20.80	29.20	1,409.8	167.3	86.7	188.4	1.89	1.61	2.90
1,526.0	23.10	27.50	1,497.0	198.2	103.3	223.5	2.54	2.45	-1.81
1,619.0	25.10	29.80	1,581.9	231.5	121.5	261.5	2.38	2.15	2.47
1,713.0	26.50	27.90	1,666.5	267.4	141.3	302.3	1.73	1.49	-2.02
1,807.0	26.70	28.00	1,750.6	304.5	161.0	344.4	0.22	0.21	0.11
1,900.0	29.00	27.30	1,832.8	343.0	181.2	387.9	2.50	2.47	-0.75
1,993.0	31.90	27.20	1,913.0	384.9	202.7	435.0	3.12	3.12	-0.11
2,086.0	32.50	25.60	1,991.7	429.3	224.8	484.5	1.12	0.65	-1.72
2,180.0	33.20	25.20	2,070.6	475.4	246.6	535.5	0.78	0.74	-0.43
2,273.0	34.00	25.60	2,148.1	521.9	268.7	587.0	0.89	0.86	0.43
2,367.0	35.30	23.80	2,225.4	570.4	291.0	640.4	1.76	1.38	-1.91
2,461.0	37.70	25.90	2,301.0	621.1	314.5	696.2	2.88	2.55	2.23
2,555.0	36.80	27.00	2,375.8	672.1	339.9	753.1	1.19	-0.96	1.17
2,648.0	35.70	28.20	2,450.8	720.8	365.3	808.1	1.41	-1.18	1.29
2,741.0	35.10	27.20	2,526.6	768.5	390.4	862.0	0.90	-0.65	-1.08
2,834.0	35.10	28.00	2,602.7	815.9	415.2	915.4	0.49	0.00	0.86
2,927.0	35.20	27.00	2,678.7	863.4	439.9	969.0	0.63	0.11	-1.08
3,021.0	38.30	26.50	2,754.1	913.6	465.2	1,025.2	3.31	3.30	-0.53
3,115.0	37.60	25.60	2,828.2	965.5	490.6	1,083.0	0.95	-0.74	-0.96
3,209.0	37.00	24.90	2,903.0	1,017.1	514.9	1,140.0	0.78	-0.64	-0.74
3,303.0	37.30	25.80	2,977.9	1,068.4	539.2	1,196.7	0.66	0.32	0.96
3,398.0	36.70	26.60	3,053.7	1,119.7	564.4	1,253.9	0.81	-0.63	0.84
3,491.0	34.60	25.40	3,129.3	1,168.4	588.2	1,308.1	2.38	-2.26	-1.29
3,584.0	34.60	26.30	3,205.9	1,215.9	611.2	1,360.9	0.55	0.00	0.97
3,677.0	33.20	28.70	3,283.1	1,261.9	635.1	1,412.7	2.08	-1.51	2.58
3,771.0	30.60	27.90	3,362.9	1,305.6	658.7	1,462.4	2.80	-2.77	-0.85
3,864.0	30.20	25.20	3,443.1	1,347.7	679.7	1,509.4	1.53	-0.43	-2.90
3,957.0	30.60	27.30	3,523.3	1,389.9	700.6	1,556.5	1.22	0.43	2.26
4,051.0	30.80	31.90	3,604.1	1,431.6	724.3	1,604.4	2.51	0.21	4.89
4,145.0	29.60	29.60	3,685.4	1,472.2	748.4	1,651.5	1.77	-1.28	-2.45
4,238.0	30.30	29.80	3,766.0	1,512.6	771.4	1,697.9	0.76	0.75	0.22
4,332.0	33.50	27.20	3,845.7	1,556.2	795.1	1,747.6	3.70	3.40	-2.77
4,425.0	37.80	27.20	3,921.3	1,604.4	819.9	1,801.7	4.62	4.62	0.00
4,519.0	38.20	26.60	3,995.4	1,656.0	846.0	1,859.6	0.58	0.43	-0.64
4,613.0	38.10	27.30	4,069.3	1,707.8	872.4	1,917.7	0.47	-0.11	0.74
4,707.0	37.80	25.10	4,143.4	1,759.6	897.9	1,975.5	1.47	-0.32	-2.34
4,800.0	39.90	25.80	4,215.8	1,812.3	923.0	2,033.8	2.31	2.26	0.75
4,894.0	38.40	25.90	4,288.7	1,865.7	948.8	2,093.1	1.60	-1.60	0.11
4,988.0	36.10	25.80	4,363.6	1,916.9	973.6	2,150.0	2.45	-2.45	-0.11
5,081.0	36.80	26.50	4,438.4	1,966.5	998.0	2,205.3	0.88	0.75	0.75
5,174.0	37.60	25.80	4,512.4	2,017.0	1,022.8	2,261.5	0.97	0.86	-0.75
5,268.0	37.90	26.60	4,586.8	2,068.6	1,048.2	2,319.0	0.61	0.32	0.85
5,362.0	36.60	28.40	4,661.6	2,119.1	1,074.4	2,375.9	1.80	-1.38	1.91
5,456.0	34.80	28.60	4,737.9	2,167.3	1,100.6	2,430.7	1.92	-1.91	0.21
5,549.0	34.50	29.80	4,814.4	2,213.5	1,126.4	2,483.6	0.80	-0.32	1.29
5,642.0	33.10	27.30	4,891.7	2,258.9	1,151.1	2,535.3	2.12	-1.51	-2.69
5,737.0	32.10	24.70	4,971.8	2,304.9	1,173.6	2,586.4	1.81	-1.05	-2.74
5,831.0	35.30	27.20	5,049.9	2,351.7	1,196.4	2,638.6	3.71	3.40	2.66
5,925.0	34.60	26.80	5,127.0	2,399.7	1,220.9	2,692.4	0.78	-0.74	-0.43
6,017.0	30.00	27.20	5,204.7	2,443.5	1,243.2	2,741.6	5.01	-5.00	0.43
6,111.0	25.30	28.40	5,288.0	2,482.1	1,263.5	2,785.2	5.03	-5.00	1.28
6,204.0	22.20	30.70	5,373.1	2,514.7	1,281.9	2,822.6	3.48	-3.33	2.47

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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)	
6,297.0	20.70	28.90	5,459.7	2,544.2	1,298.8	2,856.5	1.76	-1.61	-1.94	
6,390.0	19.90	29.30	5,546.9	2,572.4	1,314.5	2,888.8	0.87	-0.86	0.43	
6,484.0	18.80	28.00	5,635.6	2,599.7	1,329.5	2,919.9	1.26	-1.17	-1.38	
6,577.0	18.50	29.60	5,723.7	2,625.8	1,343.8	2,949.6	0.64	-0.32	1.72	
6,671.0	17.90	26.30	5,813.0	2,651.7	1,357.6	2,979.0	1.27	-0.64	-3.51	
6,767.0	14.50	24.40	5,905.2	2,675.9	1,369.1	3,005.7	3.58	-3.54	-1.98	
6,861.0	12.70	27.50	5,996.5	2,695.7	1,378.7	3,027.8	2.07	-1.91	3.30	
6,957.0	10.60	26.50	6,090.5	2,713.0	1,387.5	3,047.2	2.20	-2.19	-1.04	
7,050.0	9.20	26.50	6,182.1	2,727.3	1,394.6	3,063.2	1.51	-1.51	0.00	
7,144.0	6.70	24.70	6,275.2	2,739.0	1,400.3	3,076.2	2.67	-2.66	-1.91	
7,238.0	4.30	25.10	6,368.8	2,747.2	1,404.1	3,085.2	2.55	-2.55	0.43	
7,332.0	2.60	24.20	6,462.6	2,752.3	1,406.5	3,090.8	1.81	-1.81	-0.96	
7,427.0	1.50	35.10	6,557.6	2,755.3	1,408.0	3,094.2	1.22	-1.16	11.47	
7,469.5	1.22	46.74	6,600.1	2,756.1	1,408.7	3,095.2	0.92	-0.65	27.38	
TARGET BHL 75'FSL, 1320'FEL										
7,520.0	1.00	67.80	6,650.5	2,756.6	1,409.5	3,096.0	0.92	-0.44	41.72	
7,567.3	1.00	103.13	6,697.8	2,756.7	1,410.3	3,096.5	1.28	0.00	74.71	
TARGET CIRCLE 75'FSL & 1320'FEL										
7,613.0	1.30	128.60	6,743.5	2,756.3	1,411.1	3,096.4	1.28	0.66	55.72	
7,706.0	0.40	355.90	6,836.5	2,755.9	1,411.9	3,096.5	1.72	-0.97	-142.69	
7,799.0	0.90	329.50	6,929.5	2,756.9	1,411.5	3,097.2	0.61	0.54	-28.39	
7,892.0	0.90	318.80	7,022.5	2,758.1	1,410.6	3,097.8	0.18	0.00	-11.51	
7,982.0	0.90	313.70	7,112.5	2,759.1	1,409.7	3,098.3	0.09	0.00	-5.67	
8,010.0	0.90	313.70	7,140.5	2,759.4	1,409.3	3,098.4	0.00	0.00	0.00	
HARD LINES 75'S OF BHL										
8,034.0	0.90	313.70	7,164.5	2,759.7	1,409.1	3,098.6	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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