

Well Name: **Marley C01-31D**

Surface Location: Marley C01-30D Pad Sec.1-T4N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

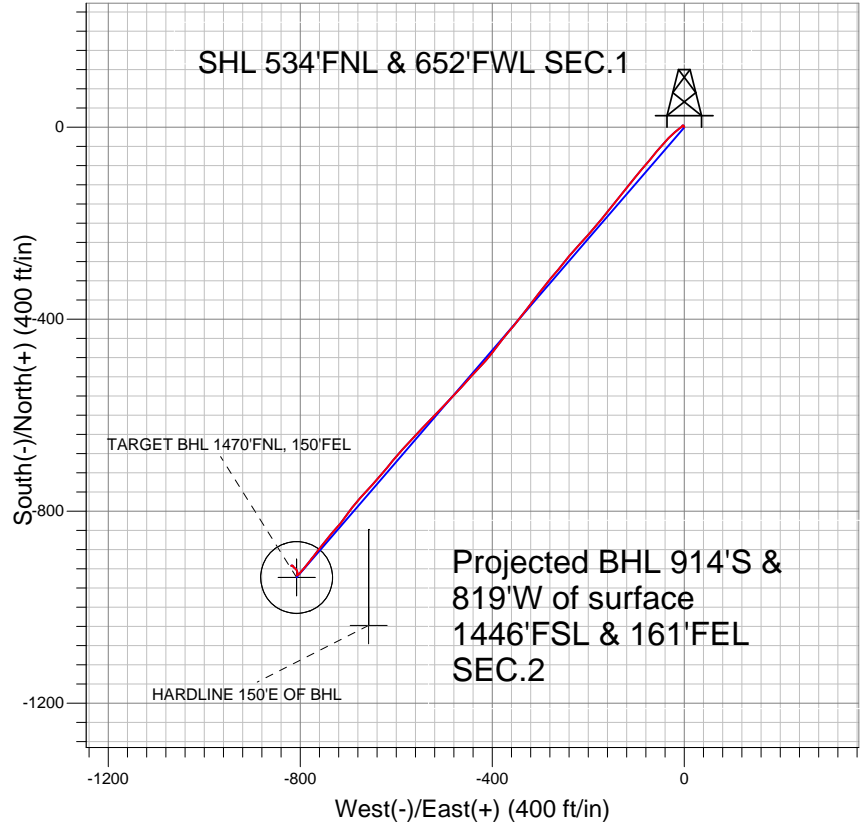
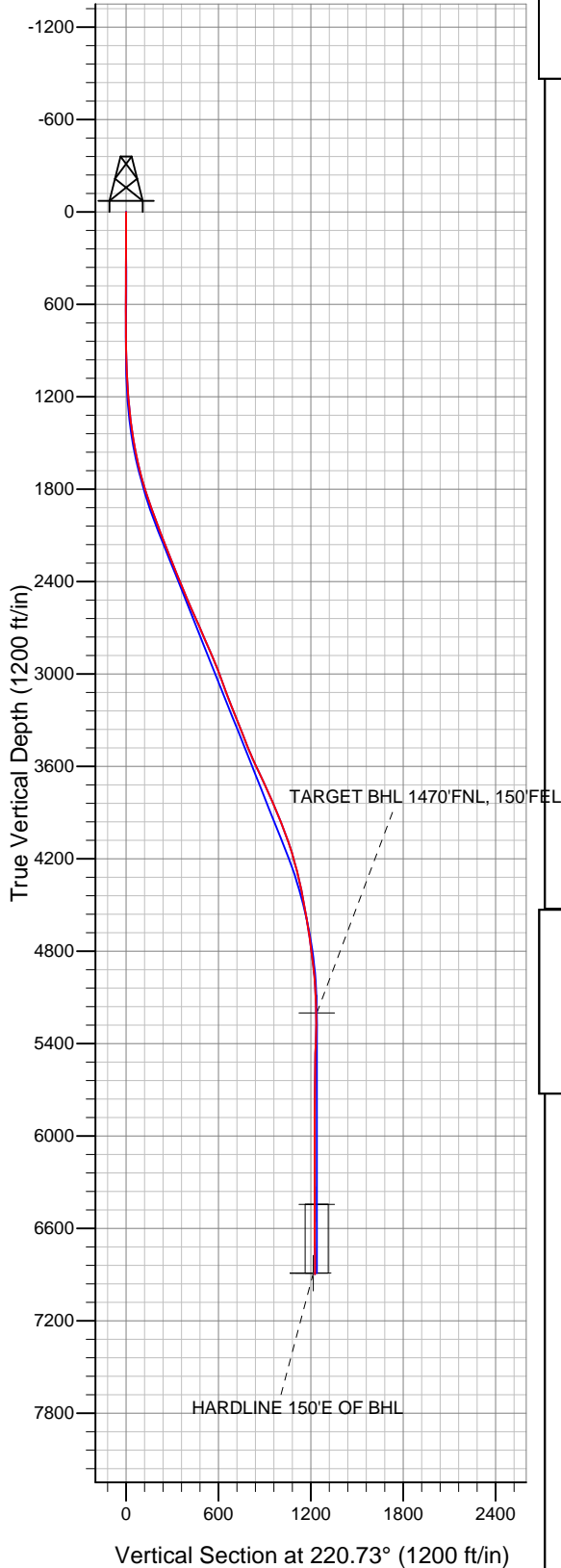
Ground Elevation: 4607.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1370875.37	3277102.10	40.347190	-104.505810

Original Well Elev WELL @ 4620.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Marley C01-31D, Wellbore #1, Noble Marley C01-31D Plan #1 11-18-09 V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7110'MD & 6897'TVD @ 1227'VS
 0.6 deg Inc 146.6 deg AZ

Project: SEC.1-T4N-R64W
 Site: Marley C01-30D Pad Sec.1-T4N-R64W
 Well: Marley C01-31D
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.1-T4N-R64W

Marley C01-30D Pad Sec.1-T4N-R64W

Marley C01-31D

Wellbore #1

Survey: Survey #1

Standard Survey Report

18 April, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Marley C01-31D
Project:	SEC.1-T4N-R64W	TVD Reference:	WELL @ 4620.0ft (Original Well Elev)
Site:	Marley C01-30D Pad Sec.1-T4N-R64W	MD Reference:	WELL @ 4620.0ft (Original Well Elev)
Well:	Marley C01-31D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.1-T4N-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	Marley C01-30D Pad Sec.1-T4N-R64W		
Site Position:		Northing:	1,370,900.88 ft
From:	Lat/Long	Easting:	3,277,101.81 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.347260
		Longitude:	-104.505810
		Grid Convergence:	0.64 °

Well	Marley C01-31D		
Well Position	+N/-S	0.0 ft	Northing: 1,370,875.37 ft
	+E/-W	0.0 ft	Easting: 3,277,102.10 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.347190
		Longitude:	-104.505810
		Ground Level:	4,607.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/18/2009	8.89	67.11	53,318

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	220.73	

Survey Program	Date	4/18/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
206.0	7,110.0	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	
206.0	0.50	331.10	206.0	0.8	-0.4	-0.3	0.24	0.24	0.00	
359.0	0.80	345.00	359.0	2.4	-1.0	-1.1	0.22	0.20	9.08	
480.0	0.60	297.60	480.0	3.5	-1.8	-1.5	0.49	-0.17	-39.17	
560.0	0.40	267.00	560.0	3.7	-2.5	-1.2	0.41	-0.25	-38.25	
694.0	0.40	275.00	694.0	3.7	-3.4	-0.6	0.04	0.00	5.97	
788.0	0.40	207.50	788.0	3.4	-3.9	-0.1	0.47	0.00	-71.81	
882.0	0.60	207.10	882.0	2.7	-4.3	0.7	0.21	0.21	-0.43	
976.0	1.40	222.80	976.0	1.4	-5.3	2.3	0.89	0.85	16.70	
1,070.0	2.20	240.00	1,069.9	-0.3	-7.6	5.2	1.02	0.85	18.30	
1,164.0	3.80	224.20	1,163.8	-3.4	-11.3	10.0	1.90	1.70	-16.81	
1,258.0	6.00	230.80	1,257.4	-8.8	-17.3	18.0	2.41	2.34	7.02	
1,352.0	7.50	229.00	1,350.8	-15.9	-25.7	28.9	1.61	1.60	-1.91	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Marley C01-31D
Project:	SEC.1-T4N-R64W	TVD Reference:	WELL @ 4620.0ft (Original Well Elev)
Site:	Marley C01-30D Pad Sec.1-T4N-R64W	MD Reference:	WELL @ 4620.0ft (Original Well Elev)
Well:	Marley C01-31D	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)
1,446.0	8.80	222.50	1,443.8	-25.2	-35.2	42.1	1.69	1.38	-6.91
1,540.0	10.80	222.30	1,536.4	-37.1	-46.0	58.1	2.13	2.13	-0.21
1,634.0	12.70	218.70	1,628.5	-51.6	-58.4	77.2	2.17	2.02	-3.83
1,728.0	14.90	220.10	1,719.8	-68.9	-72.7	99.7	2.37	2.34	1.49
1,822.0	17.30	220.50	1,810.1	-88.8	-89.5	125.7	2.56	2.55	0.43
1,916.0	19.60	218.20	1,899.2	-111.8	-108.4	155.5	2.57	2.45	-2.45
2,010.0	20.30	219.20	1,987.6	-136.9	-128.4	187.5	0.83	0.74	1.06
2,104.0	21.60	218.80	2,075.4	-163.0	-149.6	221.1	1.39	1.38	-0.43
2,198.0	21.10	218.40	2,162.9	-189.7	-170.9	255.3	0.55	-0.53	-0.43
2,292.0	21.10	222.20	2,250.6	-215.5	-192.8	289.1	1.46	0.00	4.04
2,386.0	22.30	221.90	2,338.0	-241.3	-216.1	323.9	1.28	1.28	-0.32
2,480.0	22.60	220.10	2,424.8	-268.4	-239.6	359.8	0.80	0.32	-1.91
2,574.0	23.10	219.10	2,511.5	-296.6	-262.9	396.3	0.67	0.53	-1.06
2,667.0	23.60	219.60	2,596.8	-325.1	-286.2	433.1	0.58	0.54	0.54
2,761.0	24.20	217.20	2,682.8	-354.9	-309.9	471.1	1.22	0.64	-2.55
2,855.0	23.50	216.90	2,768.8	-385.2	-332.8	509.1	0.76	-0.74	-0.32
2,949.0	23.60	220.70	2,854.9	-414.5	-356.3	546.6	1.62	0.11	4.04
3,043.0	22.30	217.60	2,941.5	-442.9	-379.5	583.2	1.89	-1.38	-3.30
3,137.0	19.80	217.40	3,029.2	-469.7	-400.0	616.9	2.66	-2.66	-0.21
3,231.0	20.40	223.30	3,117.5	-494.2	-420.9	649.2	2.25	0.64	6.28
3,325.0	21.30	223.20	3,205.3	-518.6	-443.9	682.6	0.96	0.96	-0.11
3,419.0	21.90	221.80	3,292.7	-544.1	-467.2	717.2	0.84	0.64	-1.49
3,513.0	21.70	223.70	3,380.0	-569.8	-490.9	752.1	0.78	-0.21	2.02
3,607.0	22.00	223.30	3,467.3	-595.1	-515.0	787.0	0.36	0.32	-0.43
3,700.0	24.10	224.20	3,552.8	-621.4	-540.2	823.4	2.29	2.26	0.97
3,794.0	25.30	223.40	3,638.2	-649.8	-567.4	862.6	1.33	1.28	-0.85
3,888.0	25.10	221.30	3,723.3	-679.4	-594.3	902.6	0.97	-0.21	-2.23
3,982.0	23.50	218.70	3,809.0	-709.0	-619.2	941.3	2.05	-1.70	-2.77
4,076.0	22.50	222.20	3,895.5	-736.9	-643.0	978.0	1.80	-1.06	3.72
4,170.0	21.80	222.60	3,982.6	-763.1	-666.9	1,013.4	0.76	-0.74	0.43
4,264.0	19.70	217.90	4,070.5	-788.4	-688.5	1,046.7	2.85	-2.23	-5.00
4,358.0	16.80	215.70	4,159.7	-812.0	-706.1	1,076.1	3.17	-3.09	-2.34
4,452.0	14.70	221.10	4,250.2	-832.0	-721.9	1,101.5	2.72	-2.23	5.74
4,546.0	13.30	220.70	4,341.4	-849.2	-736.8	1,124.3	1.49	-1.49	-0.43
4,640.0	11.00	217.90	4,433.3	-864.5	-749.3	1,144.0	2.53	-2.45	-2.98
4,734.0	10.20	216.70	4,525.7	-878.2	-759.8	1,161.3	0.88	-0.85	-1.28
4,828.0	9.50	220.40	4,618.3	-890.8	-769.8	1,177.3	1.00	-0.74	3.94
4,922.0	7.50	216.20	4,711.3	-901.7	-778.5	1,191.2	2.23	-2.13	-4.47
5,016.0	7.60	220.40	4,804.4	-911.3	-786.1	1,203.6	0.60	0.11	4.47
5,110.0	7.10	219.40	4,897.7	-920.6	-793.8	1,215.6	0.55	-0.53	-1.06
5,204.0	4.40	222.70	4,991.2	-927.7	-800.0	1,225.0	2.89	-2.87	3.51
5,298.0	2.10	229.30	5,085.0	-931.5	-803.7	1,230.3	2.47	-2.45	7.02
5,392.0	1.70	236.40	5,179.0	-933.4	-806.2	1,233.3	0.49	-0.43	7.55
5,413.1	1.19	237.57	5,200.0	-933.7	-806.6	1,233.9	2.44	-2.44	5.56
TARGET BHL 1470'FNL, 150'FEL									
5,486.0	0.60	46.00	5,273.0	-933.8	-807.0	1,234.2	2.44	-0.81	230.89
5,580.0	2.00	15.90	5,366.9	-931.9	-806.2	1,232.2	1.61	1.49	-32.02
5,674.0	2.70	354.50	5,460.9	-928.1	-806.0	1,229.2	1.18	0.74	-22.77
5,768.0	1.90	336.40	5,554.8	-924.5	-806.8	1,227.0	1.14	-0.85	-19.26
5,862.0	1.20	334.50	5,648.8	-922.2	-807.8	1,225.9	0.75	-0.74	-2.02
5,956.0	1.10	309.20	5,742.7	-920.7	-809.0	1,225.5	0.55	-0.11	-26.91
6,049.0	1.20	320.20	5,835.7	-919.4	-810.3	1,225.4	0.26	0.11	11.83
6,143.0	0.30	299.90	5,929.7	-918.5	-811.1	1,225.3	0.98	-0.96	-21.60
6,237.0	1.10	297.70	6,023.7	-918.0	-812.1	1,225.5	0.85	0.85	-2.34

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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)
6,330.0	1.40	319.30	6,116.7	-916.7	-813.7	1,225.6	0.60	0.32	23.23
6,424.0	0.20	158.30	6,210.7	-916.0	-814.4	1,225.5	1.69	-1.28	-171.28
6,518.0	0.40	12.30	6,304.7	-915.8	-814.2	1,225.3	0.61	0.21	-155.32
6,612.0	0.40	349.00	6,398.7	-915.2	-814.2	1,224.8	0.17	0.00	-24.79
6,657.1	0.65	319.17	6,443.7	-914.8	-814.4	1,224.6	0.80	0.55	-66.17
TARGET CIRCLE 1470'FNL, 150'FEL									
6,706.0	1.00	306.70	6,492.7	-914.3	-814.9	1,224.6	0.80	0.72	-25.49
6,800.0	0.80	313.40	6,586.7	-913.4	-816.1	1,224.7	0.24	-0.21	7.13
6,894.0	0.60	282.60	6,680.6	-912.8	-817.0	1,224.9	0.45	-0.21	-32.77
6,988.0	1.10	251.60	6,774.6	-913.0	-818.4	1,225.9	0.70	0.53	-32.98
7,060.0	0.60	146.60	6,846.6	-913.6	-818.8	1,226.6	1.92	-0.69	-145.83
7,105.4	0.60	146.60	6,892.0	-914.0	-818.6	1,226.7	0.00	0.00	0.00
HARDLINE 150'E OF BHL									
7,110.0	0.60	146.60	6,896.6	-914.0	-818.5	1,226.7	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____