

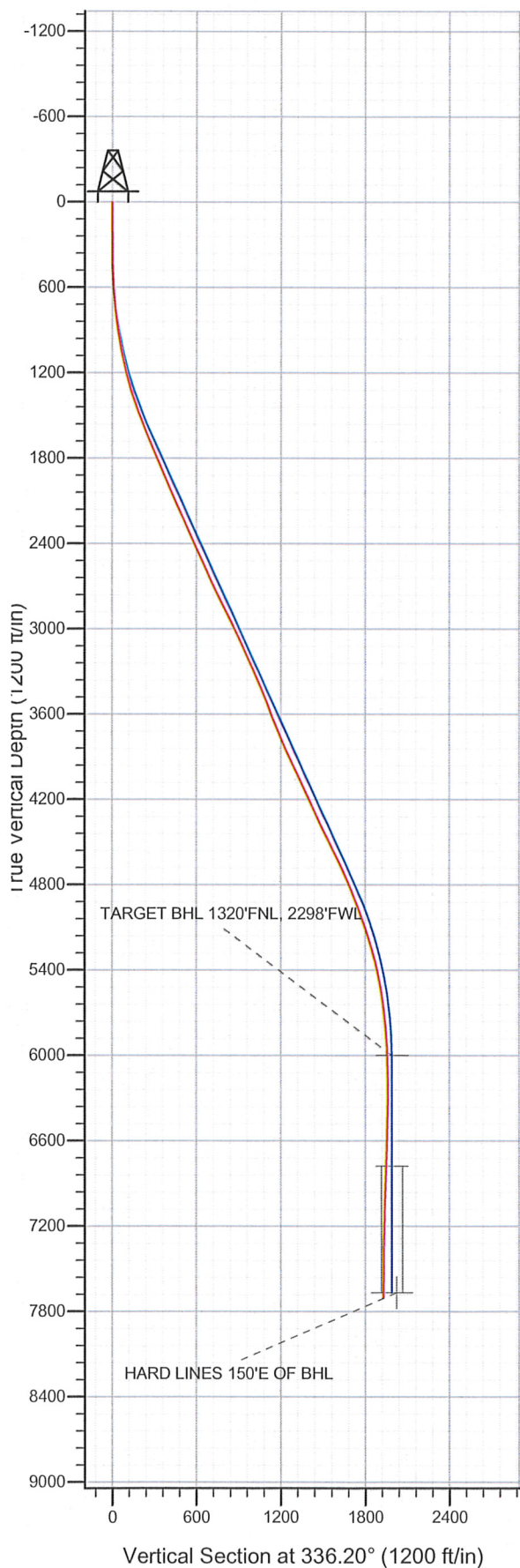
Well Name: **Dechant D31-18D**

Surface Location: Dechant D31-21D Pad Sec.31-T3N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

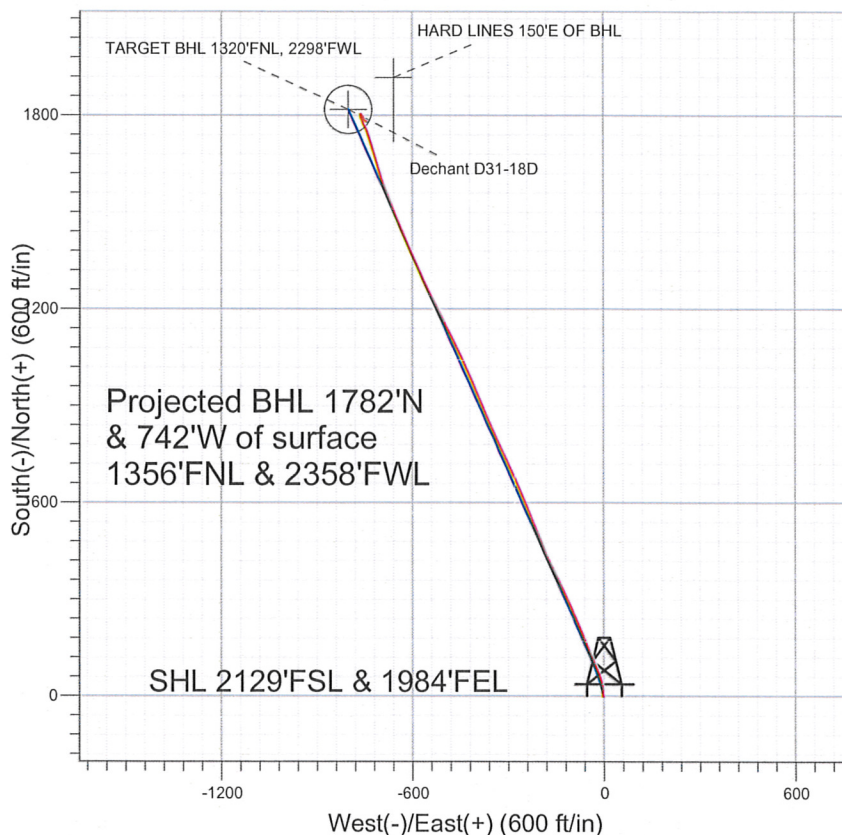
Ground Elevation: 4811.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1309814.82	3253775.25	40.180270	-104.591740	

Original Well Elev WELL @ 4824.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Dechant D31-18D, Wellbore #1, Noble Dechant D31-18D Plan #1 (4-29-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 8084'MD & 7700'TVD @ 1930'VS
 0.7 deg Inc 112.8 deg AZ

Project: SEC.31-T3N-R64W
 Site: Dechant D31-21D Pad Sec.31-T3N-R64W
 Well: Dechant D31-18D
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.31-T3N-R64W

Dechant D31-21D Pad Sec.31-T3N-R64W

Dechant D31-18D

Wellbore #1

Survey: Survey #1

Standard Survey Report

09 September, 2011



Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.31-T3N-R64W
 Site: Dechant D31-21D Pad Sec.31-T3N-R64W
 Well: Dechant D31-18D
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Dechant D31-18D
 TVD Reference: WELL @ 4824.0ft (Original Well Elev)
 MD Reference: WELL @ 4824.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: Landmark

Project	SEC.31-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 Dechant D31-21D Pad Sec.31-T3N-R64W

Site Position:		Northing:	1,309,796.48 ft	Latitude:	40.180220
From:	Lat/Long	Easting:	3,253,761.47 ft	Longitude:	-104.591790
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Dechant D31-18D					
Well Position	+N/-S	0.0 ft	Northing:	1,309,814.82 ft	Latitude:	40.180270
	+E/-W	0.0 ft	Easting:	3,253,775.25 ft	Longitude:	-104.591740
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,811.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/5/2011	8.77	66.91	53,047

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	336.20

Survey Program Date 9/9/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
119.0	8,084.0	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
119.0	0.40	317.10	119.0	0.3	-0.3	0.4	0.34	0.34	0.00
207.0	0.50	295.10	207.0	0.7	-0.8	1.0	0.22	0.11	-25.00
297.0	0.40	19.10	297.0	1.2	-1.1	1.5	0.67	-0.11	93.33
389.0	0.60	10.70	389.0	1.9	-0.9	2.1	0.23	0.22	-9.13
482.0	1.60	358.80	482.0	3.7	-0.8	3.7	1.10	1.08	-12.80
574.0	3.60	2.60	573.9	7.9	-0.7	7.5	2.18	2.17	4.13
666.0	5.00	355.80	665.6	14.8	-0.9	13.9	1.62	1.52	-7.39
758.0	6.80	353.80	757.1	24.2	-1.8	22.8	1.97	1.96	-2.17
834.0	6.70	351.50	832.6	33.0	-2.9	31.4	0.38	-0.13	-3.03
928.0	9.00	343.60	925.7	45.5	-5.8	44.0	2.70	2.45	-8.40
1,022.0	10.50	341.90	1,018.4	60.7	-10.5	59.8	1.62	1.60	-1.81
1,116.0	12.80	336.60	1,110.4	78.4	-17.3	78.7	2.70	2.45	-5.64

Company: NOBLE ENERGY INC WELD COUNTY CO
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Well: Dechant D31-18D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Dechant D31-18D
TVD Reference: WELL @ 4824.0ft (Original Well Elev)
MD Reference: WELL @ 4824.0ft (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)
1,210.0	14.90	337.30	1,201.7	99.1	-26.1	101.2	2.24	2.23	0.74
1,303.0	16.50	334.80	1,291.2	122.1	-36.4	126.4	1.87	1.72	-2.69
1,397.0	18.50	338.70	1,380.8	148.1	-47.5	154.6	2.47	2.13	4.15
1,491.0	20.30	338.00	1,469.5	177.1	-59.0	185.8	1.93	1.91	-0.74
1,585.0	21.20	337.80	1,557.4	207.9	-71.5	219.1	0.96	0.96	-0.21
1,679.0	22.70	336.40	1,644.6	240.3	-85.2	254.3	1.69	1.60	-1.49
1,773.0	23.20	335.50	1,731.2	273.8	-100.2	290.9	0.65	0.53	-0.96
1,867.0	23.20	335.40	1,817.6	307.5	-115.5	327.9	0.04	0.00	-0.11
1,961.0	24.00	334.30	1,903.7	341.5	-131.5	365.6	0.97	0.85	-1.17
2,055.0	23.20	332.60	1,989.8	375.2	-148.4	403.1	1.12	-0.85	-1.81
2,149.0	23.80	334.70	2,076.0	408.8	-165.0	440.6	1.10	0.64	2.23
2,243.0	23.50	336.80	2,162.1	443.1	-180.5	478.3	0.95	-0.32	2.23
2,337.0	24.60	337.30	2,248.0	478.4	-195.4	516.6	1.19	1.17	0.53
2,431.0	25.10	338.50	2,333.3	515.0	-210.3	556.1	0.76	0.53	1.28
2,525.0	24.80	337.00	2,418.5	551.7	-225.3	595.7	0.74	-0.32	-1.60
2,619.0	24.60	338.40	2,503.9	588.1	-240.2	635.0	0.66	-0.21	1.49
2,713.0	24.60	337.10	2,589.4	624.3	-255.0	674.1	0.58	0.00	-1.38
2,806.0	25.00	336.80	2,673.8	660.2	-270.3	713.1	0.45	0.43	-0.32
2,900.0	26.10	335.20	2,758.6	697.2	-286.8	753.6	1.38	1.17	-1.70
2,994.0	26.80	334.50	2,842.8	735.1	-304.6	795.5	0.82	0.74	-0.74
3,088.0	25.40	334.80	2,927.2	772.5	-322.3	836.8	1.50	-1.49	0.32
3,182.0	25.00	335.50	3,012.2	808.8	-339.1	876.8	0.53	-0.43	0.74
3,276.0	25.30	335.90	3,097.3	845.2	-355.5	916.8	0.37	0.32	0.43
3,370.0	25.10	337.30	3,182.4	881.9	-371.4	956.8	0.67	-0.21	1.49
3,464.0	24.80	336.30	3,267.6	918.4	-387.0	996.5	0.55	-0.32	-1.06
3,558.0	23.30	337.80	3,353.4	953.6	-402.0	1,034.8	1.72	-1.60	1.60
3,652.0	22.30	335.50	3,440.1	987.1	-416.4	1,071.2	1.42	-1.06	-2.45
3,746.0	21.20	336.30	3,527.4	1,018.9	-430.6	1,106.0	1.21	-1.17	0.85
3,840.0	21.40	334.10	3,615.0	1,049.9	-445.0	1,140.1	0.88	0.21	-2.34
3,934.0	22.10	334.70	3,702.3	1,081.3	-460.0	1,175.0	0.78	0.74	0.64
4,028.0	22.90	334.00	3,789.1	1,113.7	-475.6	1,210.9	0.90	0.85	-0.74
4,122.0	25.60	333.10	3,874.8	1,148.2	-492.8	1,249.5	2.90	2.87	-0.96
4,216.0	25.90	332.90	3,959.5	1,184.6	-511.3	1,290.2	0.33	0.32	-0.21
4,310.0	24.70	332.90	4,044.5	1,220.4	-529.6	1,330.3	1.28	-1.28	0.00
4,404.0	24.00	334.50	4,130.1	1,255.1	-546.8	1,369.1	1.02	-0.74	1.70
4,497.0	25.90	335.70	4,214.4	1,290.7	-563.3	1,408.3	2.11	2.04	1.29
4,591.0	25.70	335.40	4,299.1	1,328.0	-580.2	1,449.2	0.25	-0.21	-0.32
4,685.0	25.00	335.20	4,384.0	1,364.5	-597.1	1,489.4	0.75	-0.74	-0.21
4,779.0	25.10	335.70	4,469.2	1,400.7	-613.6	1,529.2	0.25	0.11	0.53
4,873.0	26.60	337.00	4,553.8	1,438.3	-630.0	1,570.2	1.71	1.60	1.38
4,967.0	26.20	336.30	4,638.0	1,476.6	-646.6	1,612.0	0.54	-0.43	-0.74
5,061.0	24.40	337.00	4,722.9	1,513.5	-662.5	1,652.2	1.94	-1.91	0.74
5,155.0	22.90	339.80	4,809.0	1,548.6	-676.4	1,689.8	1.99	-1.60	2.98
5,249.0	21.80	339.80	4,896.0	1,582.1	-688.8	1,725.5	1.17	-1.17	0.00
5,343.0	19.50	344.30	4,983.9	1,613.6	-699.0	1,758.5	2.97	-2.45	4.79
5,437.0	19.70	343.10	5,072.5	1,643.9	-707.9	1,789.7	0.48	0.21	-1.28
5,530.0	18.10	343.30	5,160.5	1,672.7	-716.6	1,819.6	1.72	-1.72	0.22
5,625.0	16.30	343.30	5,251.2	1,699.6	-724.7	1,847.5	1.89	-1.89	0.00
5,719.0	14.80	342.20	5,341.8	1,723.7	-732.1	1,872.5	1.63	-1.60	-1.17
5,813.0	11.30	339.60	5,433.3	1,743.7	-739.0	1,893.7	3.77	-3.72	-2.77
5,907.0	9.80	334.70	5,525.8	1,759.6	-745.6	1,910.9	1.86	-1.60	-5.21
6,000.0	7.90	334.70	5,617.6	1,772.5	-751.8	1,925.2	2.04	-2.04	0.00
6,094.0	5.90	339.10	5,711.0	1,782.9	-756.2	1,936.5	2.20	-2.13	4.68
6,188.0	5.10	340.30	5,804.5	1,791.3	-759.4	1,945.4	0.86	-0.85	1.28

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6,282.0	3.80	337.70	5,898.2	1,798.2	-762.0	1,952.7	1.40	-1.38	-2.77
6,376.0	1.70	357.30	5,992.1	1,802.4	-763.2	1,957.1	2.42	-2.23	20.85
6,384.1	1.63	358.94	6,000.2	1,802.7	-763.2	1,957.4	1.08	-0.91	20.30
TARGET BHL 1320'FNL, 2298'FWL									
6,470.0	1.00	30.10	6,086.1	1,804.5	-762.9	1,958.9	1.08	-0.73	36.26
6,595.0	0.20	226.20	6,211.1	1,805.3	-762.5	1,959.5	0.95	-0.64	-131.12
6,720.0	0.60	46.50	6,336.1	1,805.6	-762.2	1,959.6	0.64	0.32	-143.76
6,846.0	0.90	153.80	6,462.1	1,805.2	-761.2	1,958.9	0.97	0.24	85.16
6,971.0	1.60	143.10	6,587.1	1,802.9	-759.8	1,956.2	0.59	0.56	-8.56
7,096.0	1.80	141.80	6,712.0	1,800.0	-757.5	1,952.6	0.16	0.16	-1.04
7,159.3	2.35	145.52	6,775.3	1,798.1	-756.2	1,950.4	0.89	0.87	5.87
TARGET CIRCLE 1320'FNL & 2298'FWL									
7,222.0	2.90	147.80	6,837.9	1,795.7	-754.6	1,947.5	0.89	0.88	3.64
7,347.0	2.30	151.50	6,962.8	1,790.8	-751.7	1,941.9	0.50	-0.48	2.96
7,472.0	2.10	145.20	7,087.7	1,786.8	-749.2	1,937.1	0.25	-0.16	-5.04
7,597.0	0.70	97.70	7,212.6	1,784.8	-747.1	1,934.5	1.37	-1.12	-38.00
7,723.0	1.10	173.70	7,338.6	1,783.5	-746.2	1,932.9	0.91	0.32	60.32
7,848.0	1.10	93.10	7,463.6	1,782.2	-744.9	1,931.3	1.14	0.00	-64.48
7,973.0	0.50	104.20	7,588.6	1,782.0	-743.2	1,930.4	0.49	-0.48	8.88
8,038.0	0.70	112.80	7,653.6	1,781.8	-742.5	1,929.9	0.34	0.31	13.23
HARD LINES 150'E OF BHL									
8,084.0	0.70	112.80	7,699.6	1,781.6	-742.0	1,929.5	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____