

Well Name: **Dechant D31-22D**

Surface Location: Dechant D31-22D Pad Sec. 31-T3N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

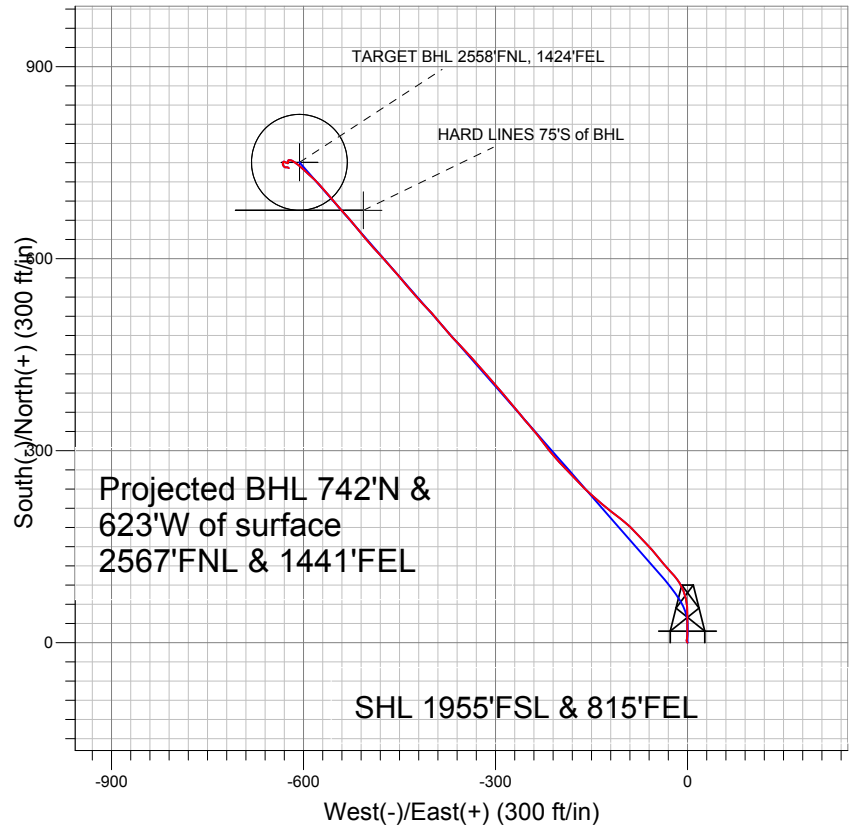
Ground Elevation: 4815.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1309659.25	3254944.86	40.179810	-104.587560

Original Well Elev WELL @ 4828.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



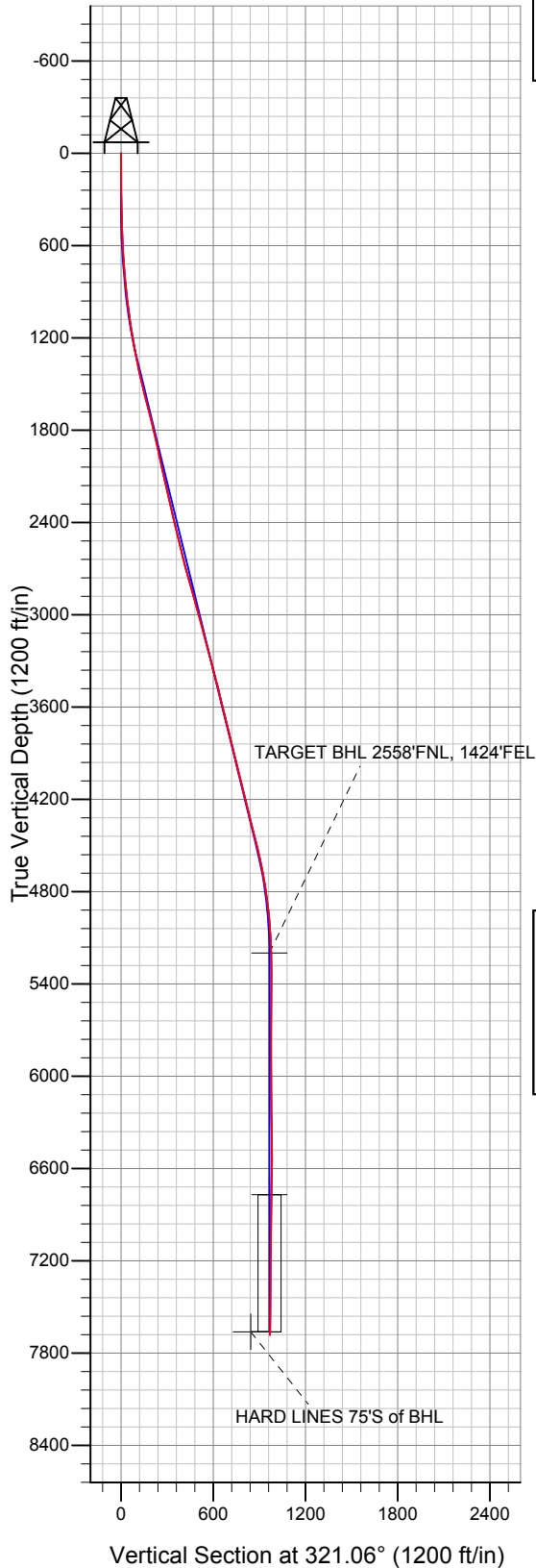
LEGEND

- Dechant D31-22D, Wellbore #1, Noble Dechant D31-22D Plan #2 (4-06-11) VO
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7795'MD & 7683'TVD @ 968'VS
1.0 deg Inc 114.5 deg AZ

Project: SEC.31-T3N-R64W
Site: Dechant D31-22D Pad Sec. 31-T3N-R64W
Well: Dechant D31-22D
Plan: Wellbore #1





Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.31-T3N-R64W

Dechant D31-22D Pad Sec. 31-T3N-R64W

Dechant D31-22D

Wellbore #1

Survey: Survey #1

Standard Survey Report

23 June, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-22D
Project:	SEC.31-T3N-R64W	TVD Reference:	WELL @ 4828.0ft (Original Well Elev)
Site:	Dechant D31-22D Pad Sec. 31-T3N-R64W	MD Reference:	WELL @ 4828.0ft (Original Well Elev)
Well:	Dechant D31-22D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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 D31-22D Pad Sec. 31-T3N-R64W				
Site Position:		Northing:	1,309,659.26 ft	Latitude:	40.179810
From:	Lat/Long	Easting:	3,254,944.86 ft	Longitude:	-104.587560
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Dechant D31-22D					
Well Position	+N/-S	0.0 ft	Northing:	1,309,659.25 ft	Latitude:	40.179810
	+E/-W	0.0 ft	Easting:	3,254,944.86 ft	Longitude:	-104.587560
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,815.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/30/2010	8.82	66.92	53,092

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	321.06	

Survey Program	Date	6/23/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
255.0	7,795.0	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	
255.0	0.70	329.60	255.0	1.3	-0.8	1.5	0.27	0.27	0.00	
347.0	0.70	343.20	347.0	2.4	-1.2	2.6	0.18	0.00	14.78	
439.0	1.70	10.50	439.0	4.2	-1.1	4.0	1.22	1.09	29.67	
531.0	3.00	6.80	530.9	8.0	-0.6	6.6	1.42	1.41	-4.02	
623.0	5.10	1.40	622.7	14.5	-0.2	11.4	2.32	2.28	-5.87	
715.0	6.10	359.60	714.2	23.4	-0.2	18.3	1.10	1.09	-1.96	
771.0	6.50	358.80	769.9	29.6	-0.3	23.2	0.73	0.71	-1.43	
863.0	6.50	0.80	861.3	40.0	-0.3	31.3	0.25	0.00	2.17	
944.0	7.30	358.10	941.7	49.7	-0.4	38.9	1.07	0.99	-3.33	
1,026.0	8.00	353.70	1,023.0	60.6	-1.2	47.9	1.11	0.85	-5.37	
1,108.0	9.30	345.30	1,104.0	72.7	-3.5	58.7	2.21	1.59	-10.24	
1,189.0	10.10	335.10	1,183.9	85.5	-8.2	71.6	2.34	0.99	-12.59	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-22D
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Site:	Dechant D31-22D Pad Sec. 31-T3N-R64W	MD Reference:	WELL @ 4828.0ft (Original Well Elev)
Well:	Dechant D31-22D	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)
1,271.0	10.90	323.40	1,264.5	98.2	-15.8	86.3	2.77	0.98	-14.27
1,353.0	11.80	316.80	1,344.9	110.5	-26.2	102.4	1.93	1.10	-8.05
1,435.0	12.40	320.00	1,425.1	123.4	-37.6	119.6	1.10	0.73	3.90
1,516.0	13.40	320.80	1,504.0	137.3	-49.1	137.7	1.25	1.23	0.99
1,598.0	14.40	316.90	1,583.6	152.1	-62.1	157.3	1.67	1.22	-4.76
1,680.0	14.40	316.30	1,663.1	167.0	-76.1	177.7	0.18	0.00	-0.73
1,761.0	14.00	314.40	1,741.6	181.1	-90.0	197.4	0.76	-0.49	-2.35
1,843.0	13.40	306.70	1,821.3	193.7	-104.7	216.5	2.34	-0.73	-9.39
1,925.0	12.80	308.40	1,901.1	205.0	-119.5	234.6	0.87	-0.73	2.07
2,007.0	12.00	310.90	1,981.2	216.3	-133.0	251.8	1.17	-0.98	3.05
2,088.0	12.90	311.10	2,060.3	227.7	-146.2	269.0	1.11	1.11	0.25
2,170.0	12.80	313.50	2,140.3	240.0	-159.7	287.0	0.66	-0.12	2.93
2,252.0	13.50	317.00	2,220.1	253.2	-172.8	305.6	1.29	0.85	4.27
2,333.0	12.50	317.10	2,299.0	266.6	-185.2	323.8	1.23	-1.23	0.12
2,415.0	13.10	315.00	2,379.0	279.6	-197.8	341.9	0.93	0.73	-2.56
2,497.0	13.20	320.40	2,458.9	293.4	-210.4	360.5	1.50	0.12	6.59
2,579.0	14.30	322.70	2,538.5	308.7	-222.5	379.9	1.50	1.34	2.80
2,660.0	14.20	322.20	2,617.0	324.5	-234.6	399.9	0.20	-0.12	-0.62
2,742.0	14.50	318.70	2,696.5	340.2	-247.6	420.2	1.12	0.37	-4.27
2,824.0	16.00	320.70	2,775.6	356.6	-261.5	441.8	1.94	1.83	2.44
2,906.0	15.40	320.50	2,854.5	373.8	-275.6	463.9	0.73	-0.73	-0.24
2,987.0	15.20	320.00	2,932.6	390.2	-289.3	485.3	0.30	-0.25	-0.62
3,069.0	16.30	318.50	3,011.6	407.1	-303.8	507.6	1.43	1.34	-1.83
3,151.0	14.50	318.40	3,090.6	423.4	-318.2	529.3	2.20	-2.20	-0.12
3,232.0	14.90	318.50	3,169.0	438.7	-331.9	549.8	0.49	0.49	0.12
3,314.0	15.00	318.20	3,248.2	454.5	-345.9	571.0	0.15	0.12	-0.37
3,396.0	14.30	314.40	3,327.5	469.5	-360.2	591.6	1.45	-0.85	-4.63
3,478.0	14.40	319.60	3,407.0	484.4	-374.1	611.9	1.58	0.12	6.34
3,559.0	13.80	320.70	3,485.5	499.5	-386.7	631.6	0.81	-0.74	1.36
3,641.0	14.20	318.30	3,565.1	514.6	-399.6	651.4	0.86	0.49	-2.93
3,723.0	14.10	315.30	3,644.6	529.2	-413.3	671.4	0.90	-0.12	-3.66
3,804.0	13.40	320.30	3,723.3	543.5	-426.3	690.6	1.70	-0.86	6.17
3,886.0	13.90	320.00	3,803.0	558.3	-438.7	710.0	0.62	0.61	-0.37
3,968.0	14.30	318.60	3,882.5	573.5	-451.7	729.9	0.64	0.49	-1.71
4,050.0	13.60	318.80	3,962.1	588.3	-464.7	749.7	0.86	-0.85	0.24
4,131.0	13.80	317.10	4,040.8	602.6	-477.6	768.8	0.55	0.25	-2.10
4,213.0	13.50	318.70	4,120.5	616.9	-490.6	788.2	0.59	-0.37	1.95
4,295.0	14.30	320.00	4,200.1	631.9	-503.4	807.8	1.05	0.98	1.59
4,376.0	13.70	321.00	4,278.6	647.0	-515.9	827.4	0.80	-0.74	1.23
4,458.0	13.50	319.60	4,358.3	661.8	-528.2	846.7	0.47	-0.24	-1.71
4,540.0	14.50	318.80	4,437.9	676.8	-541.1	866.5	1.24	1.22	-0.98
4,622.0	13.90	317.70	4,517.4	691.8	-554.5	886.6	0.80	-0.73	-1.34
4,703.0	12.50	320.60	4,596.3	705.8	-566.6	905.1	1.91	-1.73	3.58
4,785.0	10.30	316.40	4,676.6	718.0	-577.3	921.3	2.87	-2.68	-5.12
4,867.0	9.20	312.00	4,757.5	727.7	-587.3	935.1	1.62	-1.34	-5.37
4,949.0	8.00	313.30	4,838.5	736.0	-596.3	947.2	1.48	-1.46	1.59
5,030.0	5.90	309.00	4,918.9	742.4	-603.6	956.9	2.67	-2.59	-5.31
5,112.0	5.10	309.60	5,000.6	747.4	-609.7	964.6	0.98	-0.98	0.73
5,194.0	4.00	305.50	5,082.3	751.4	-614.8	970.9	1.40	-1.34	-5.00
5,275.0	2.20	283.60	5,163.2	753.4	-618.7	974.8	2.62	-2.22	-27.04
5,311.4	1.84	280.94	5,199.6	753.7	-619.9	975.8	1.02	-0.99	-7.31
TARGET BHL 2558'FNL, 1424'FEL									
5,357.0	1.40	275.70	5,245.1	753.9	-621.2	976.8	1.02	-0.97	-11.49
5,439.0	1.20	256.70	5,327.1	753.8	-623.0	977.9	0.58	-0.24	-23.17

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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)
5,521.0	0.50	211.50	5,409.1	753.3	-624.0	978.1	1.12	-0.85	-55.12
5,684.0	0.80	152.30	5,572.1	751.7	-623.9	976.8	0.43	0.18	-36.32
5,847.0	0.50	189.00	5,735.1	750.0	-623.5	975.2	0.31	-0.18	22.52
6,011.0	0.60	262.60	5,899.1	749.1	-624.4	975.1	0.40	0.06	44.88
6,174.0	0.60	306.30	6,062.1	749.5	-626.0	976.4	0.27	0.00	26.81
6,337.0	0.90	272.10	6,225.1	750.1	-627.9	978.1	0.32	0.18	-20.98
6,500.0	1.00	324.20	6,388.0	751.3	-630.0	980.3	0.51	0.06	31.96
6,664.0	1.10	204.90	6,552.0	751.0	-631.5	981.1	1.11	0.06	-72.74
6,828.0	1.20	184.60	6,716.0	747.9	-632.3	979.1	0.25	0.06	-12.38
6,883.1	1.06	171.14	6,771.1	746.8	-632.3	978.3	0.55	-0.26	-24.44
TARGET CIRCLE 2558'FNL, 1424'FEL									
6,992.0	1.00	137.60	6,880.0	745.1	-631.5	976.5	0.55	-0.05	-30.79
7,155.0	0.70	133.80	7,043.0	743.4	-629.8	974.1	0.19	-0.18	-2.33
7,318.0	0.30	98.50	7,205.9	742.6	-628.7	972.8	0.30	-0.25	-21.66
7,482.0	0.70	78.30	7,369.9	742.8	-627.3	972.0	0.26	0.24	-12.32
7,645.0	0.80	108.60	7,532.9	742.6	-625.2	970.6	0.25	0.06	18.59
7,745.0	1.00	114.50	7,632.9	742.0	-623.8	969.2	0.22	0.20	5.90
7,776.4	1.00	114.50	7,664.3	741.8	-623.3	968.7	0.00	0.00	0.00
HARD LINES 75'S of BHL									
7,795.0	1.00	114.50	7,682.9	741.7	-623.0	968.4	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____