

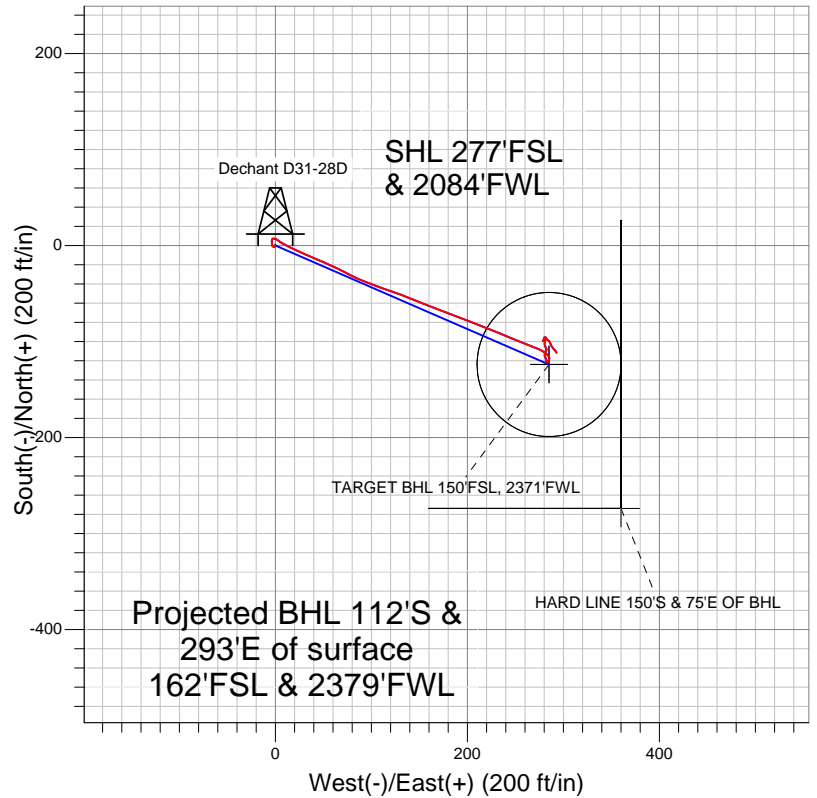
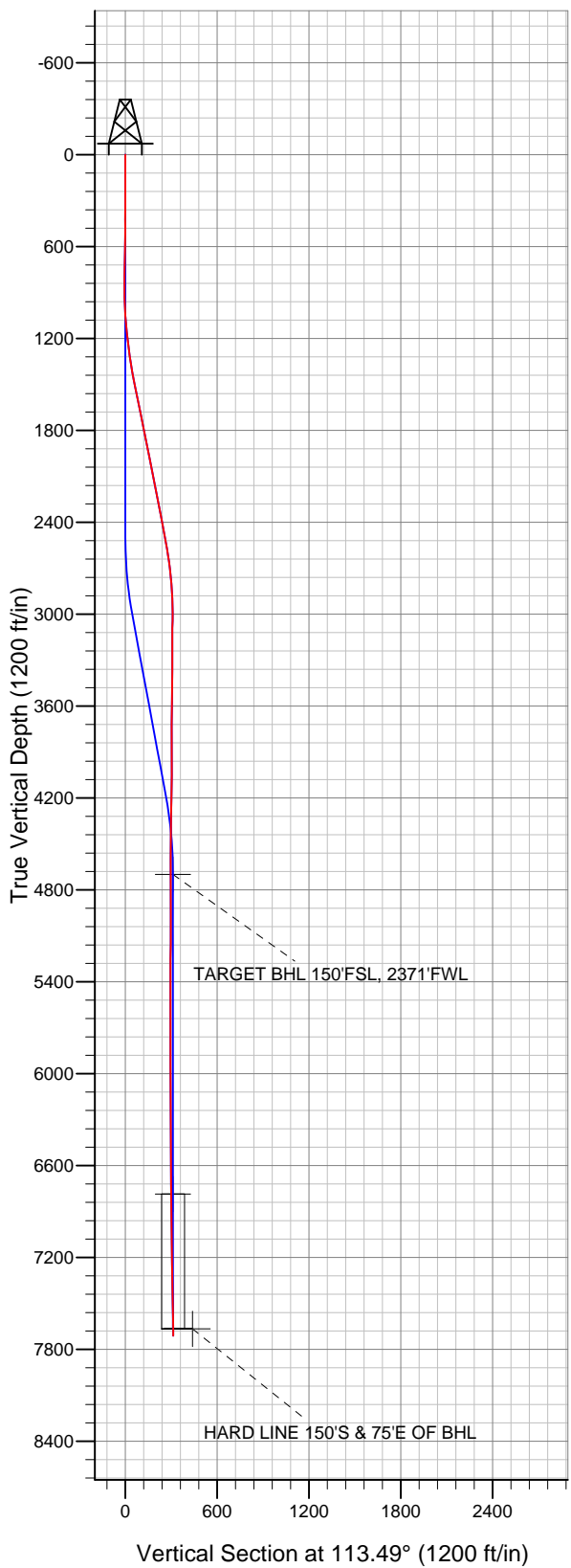


# Well Name: Dechant D31-28D

Surface Location: Dechant D30-24D Pad Sec.30-T3N-R64W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4801.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1313217.66	3252731.80	40.189640	-104.595350	
Original Well Elev WELL @ 4814.0ft (Original Well Elev)						

## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Survey #1
- Dechant D31-28D, Wellbore #1, Noble Dechant D31-28D Plan #1 (12-19-11) R V0
- Wellbore #1

## Final Survey Plot

Projected Final Survey -  
7740'MD & 7712'TVD @ 313'VS  
1.00 deg Inc 152 deg AZ

Project: SEC.30-T3N-R64W  
Site: Dechant D30-24D Pad Sec.30-T3N-R64W  
Well: Dechant D31-28D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.30-T3N-R64W**

**Dechant D30-24D Pad Sec.30-T3N-R64W**

**Dechant D31-28D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**03 January, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D31-28D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-24D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Well:</b>	Dechant D31-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.30-T3N-R64W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Dechant D30-24D Pad Sec.30-T3N-R64W		
<b>Site Position:</b>		<b>Northing:</b>	1,313,330.59ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,252,730.65ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.189950
		<b>Longitude:</b>	-104.595350
		<b>Grid Convergence:</b>	0.58 °

<b>Well</b>	Dechant D31-28D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,313,217.66 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,252,731.80 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.189640
		<b>Longitude:</b>	-104.595350
		<b>Ground Level:</b>	4,801.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/24/2011	8.71	66.90	53,001

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	113.49	

<b>Survey Program</b>	<b>Date</b>	1/3/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
122.0	7,740.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
122.0	0.40	232.30	122.0	-0.3	-0.3	-0.2	0.33	0.33	0.00	
238.0	0.30	212.40	238.0	-0.8	-0.8	-0.4	0.13	-0.09	-17.16	
331.0	0.40	212.70	331.0	-1.2	-1.1	-0.5	0.11	0.11	0.32	
424.0	0.40	283.10	424.0	-1.4	-1.6	-0.9	0.50	0.00	75.70	
516.0	0.60	304.90	516.0	-1.1	-2.3	-1.7	0.30	0.22	23.70	
608.0	0.40	313.80	608.0	-0.6	-3.0	-2.5	0.23	-0.22	9.67	
701.0	1.10	343.20	701.0	0.5	-3.4	-3.4	0.84	0.75	31.61	
792.0	1.90	357.40	791.9	2.8	-3.8	-4.6	0.96	0.88	15.60	
864.0	2.10	359.00	863.9	5.3	-3.8	-5.7	0.29	0.28	2.22	
958.0	2.20	82.30	957.9	7.3	-2.1	-4.8	3.04	0.11	88.62	
1,052.0	4.40	125.80	1,051.7	5.4	2.6	0.2	3.39	2.34	46.28	
1,146.0	5.50	120.00	1,145.4	1.1	9.5	8.2	1.28	1.17	-6.17	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D31-28D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-24D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Well:</b>	Dechant D31-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
1,240.0	6.90	113.50	1,238.8	-3.4	18.5	18.4	1.66	1.49	-6.91	
1,334.0	8.40	113.60	1,332.0	-8.4	30.0	30.9	1.60	1.60	0.11	
1,428.0	10.20	113.60	1,424.7	-14.5	43.9	46.1	1.91	1.91	0.00	
1,522.0	11.50	115.70	1,517.0	-21.9	60.0	63.8	1.45	1.38	2.23	
1,615.0	11.90	116.60	1,608.1	-30.2	76.9	82.6	0.47	0.43	0.97	
1,709.0	11.30	111.90	1,700.2	-38.0	94.1	101.5	1.19	-0.64	-5.00	
1,803.0	11.30	108.70	1,792.4	-44.4	111.4	119.9	0.67	0.00	-3.40	
1,897.0	11.90	110.10	1,884.5	-50.7	129.2	138.7	0.71	0.64	1.49	
1,991.0	11.30	112.90	1,976.5	-57.6	146.8	157.6	0.88	-0.64	2.98	
2,085.0	10.90	111.30	2,068.8	-64.4	163.6	175.7	0.54	-0.43	-1.70	
2,179.0	10.60	109.20	2,161.1	-70.5	180.0	193.2	0.52	-0.32	-2.23	
2,273.0	11.60	112.20	2,253.4	-76.9	196.9	211.3	1.23	1.06	3.19	
2,367.0	11.20	111.70	2,345.5	-83.8	214.2	229.8	0.44	-0.43	-0.53	
2,461.0	10.50	111.70	2,437.8	-90.4	230.6	247.5	0.74	-0.74	0.00	
2,555.0	10.30	112.40	2,530.3	-96.7	246.3	264.5	0.25	-0.21	0.74	
2,649.0	8.50	111.50	2,623.0	-102.5	260.6	279.8	1.92	-1.91	-0.96	
2,743.0	6.50	111.90	2,716.2	-107.0	272.0	292.1	2.13	-2.13	0.43	
2,836.0	5.00	123.50	2,808.7	-111.2	280.2	301.3	2.03	-1.61	12.47	
2,930.0	2.90	153.20	2,902.5	-115.6	284.7	307.2	3.05	-2.23	31.60	
3,024.0	2.30	221.00	2,996.4	-119.2	284.6	308.5	3.13	-0.64	72.13	
3,118.0	1.10	223.30	3,090.4	-121.2	282.7	307.6	1.28	-1.28	2.45	
3,212.0	0.50	349.50	3,184.4	-121.5	282.0	307.1	1.55	-0.64	134.26	
3,306.0	0.40	17.00	3,278.4	-120.8	282.0	306.8	0.25	-0.11	29.26	
3,400.0	0.40	358.50	3,372.4	-120.1	282.1	306.6	0.14	0.00	-19.68	
3,494.0	1.30	349.20	3,466.4	-118.8	281.9	305.9	0.97	0.96	-9.89	
3,588.0	1.40	328.30	3,560.4	-116.7	281.1	304.3	0.53	0.11	-22.23	
3,682.0	1.40	353.20	3,654.3	-114.6	280.4	302.8	0.64	0.00	26.49	
3,776.0	1.50	17.00	3,748.3	-112.3	280.6	302.1	0.64	0.11	25.32	
3,870.0	1.00	24.50	3,842.3	-110.4	281.3	302.0	0.56	-0.53	7.98	
3,964.0	1.00	20.80	3,936.3	-108.9	281.9	302.0	0.07	0.00	-3.94	
4,058.0	0.50	136.70	4,030.3	-108.4	282.5	302.3	1.38	-0.53	123.30	
4,152.0	0.50	317.20	4,124.3	-108.4	282.5	302.3	1.06	0.00	-190.96	
4,246.0	1.80	338.60	4,218.2	-106.7	281.7	300.9	1.43	1.38	22.77	
4,340.0	1.90	340.60	4,312.2	-103.9	280.6	298.8	0.13	0.11	2.13	
4,434.0	1.30	10.30	4,406.2	-101.3	280.3	297.5	1.07	-0.64	31.60	
4,528.0	0.40	18.40	4,500.1	-100.0	280.6	297.2	0.96	-0.96	8.62	
4,621.0	1.50	335.10	4,593.1	-98.6	280.2	296.3	1.33	1.18	-46.56	
4,715.0	1.30	4.30	4,687.1	-96.4	279.7	295.0	0.78	-0.21	31.06	
4,727.7	1.14	11.78	4,699.8	-96.1	279.8	294.9	1.79	-1.28	59.09	
TARGET BHL 150'FSL, 2371'FWL										
4,809.0	1.10	93.10	4,781.1	-95.4	280.7	295.5	1.79	-0.05	99.97	
4,903.0	1.10	151.10	4,875.1	-96.2	282.1	297.0	1.13	0.00	61.70	
4,997.0	0.90	238.60	4,969.1	-97.4	281.9	297.3	1.48	-0.21	93.09	
5,091.0	1.10	236.30	5,063.0	-98.3	280.5	296.4	0.22	0.21	-2.45	
5,185.0	0.40	263.70	5,157.0	-98.8	279.4	295.6	0.82	-0.74	29.15	
5,279.0	0.40	242.50	5,251.0	-99.0	278.8	295.2	0.16	0.00	-22.55	
5,373.0	0.10	44.90	5,345.0	-99.1	278.6	295.0	0.53	-0.32	172.77	
5,467.0	0.02	105.20	5,439.0	-99.0	278.6	295.0	0.10	-0.09	64.15	
5,561.0	0.40	15.70	5,533.0	-98.7	278.7	295.0	0.43	0.40	-95.21	
5,655.0	0.40	73.40	5,627.0	-98.3	279.1	295.2	0.41	0.00	61.38	
5,749.0	0.10	62.30	5,721.0	-98.2	279.5	295.5	0.32	-0.32	-11.81	
5,843.0	0.40	2.40	5,815.0	-97.8	279.6	295.4	0.38	0.32	-63.72	
5,937.0	0.40	77.20	5,909.0	-97.4	280.0	295.6	0.52	0.00	79.57	
6,030.0	0.10	185.00	6,002.0	-97.4	280.3	295.9	0.47	-0.32	115.91	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D31-28D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-24D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4814.0ft (Original Well Elev)
<b>Well:</b>	Dechant D31-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
6,124.0	0.20	249.30	6,096.0	-97.6	280.1	295.8	0.19	0.11	68.40
6,218.0	0.30	232.10	6,190.0	-97.8	279.8	295.5	0.13	0.11	-18.30
6,312.0	0.10	98.30	6,284.0	-97.9	279.6	295.5	0.40	-0.21	-142.34
6,406.0	0.10	69.70	6,378.0	-97.9	279.8	295.6	0.05	0.00	-30.43
6,500.0	0.70	84.50	6,472.0	-97.8	280.4	296.2	0.64	0.64	15.74
6,594.0	0.70	73.60	6,566.0	-97.6	281.6	297.1	0.14	0.00	-11.60
6,688.0	0.70	138.60	6,660.0	-97.9	282.5	298.1	0.80	0.00	69.15
6,782.0	0.70	102.70	6,754.0	-98.5	283.4	299.2	0.46	0.00	-38.19
6,814.2	0.67	113.76	6,786.2	-98.6	283.8	299.6	0.42	-0.08	34.38
TARGET CIRCLE 150'FSL, 2371'FWL									
6,876.0	0.70	135.40	6,848.0	-99.0	284.4	300.3	0.42	0.04	35.00
6,970.0	0.70	145.60	6,942.0	-99.9	285.1	301.3	0.13	0.00	10.85
7,064.0	0.80	150.00	7,036.0	-100.9	285.8	302.3	0.12	0.11	4.68
7,158.0	0.80	155.30	7,130.0	-102.1	286.4	303.3	0.08	0.00	5.64
7,252.0	1.10	154.80	7,224.0	-103.5	287.0	304.5	0.32	0.32	-0.53
7,346.0	1.40	147.60	7,317.9	-105.3	288.0	306.1	0.36	0.32	-7.66
7,440.0	1.20	146.40	7,411.9	-107.1	289.2	307.9	0.21	-0.21	-1.28
7,533.0	1.10	128.20	7,504.9	-108.4	290.4	309.6	0.41	-0.11	-19.57
7,627.0	1.20	143.00	7,598.9	-109.8	291.7	311.3	0.33	0.11	15.74
7,695.0	1.00	152.00	7,666.9	-110.9	292.5	312.4	0.39	-0.29	13.24
HARD LINE 150'S & 75'E OF BHL									
7,740.0	1.00	152.00	7,711.9	-111.6	292.8	313.0	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_