

# ENSIGN

## Directional

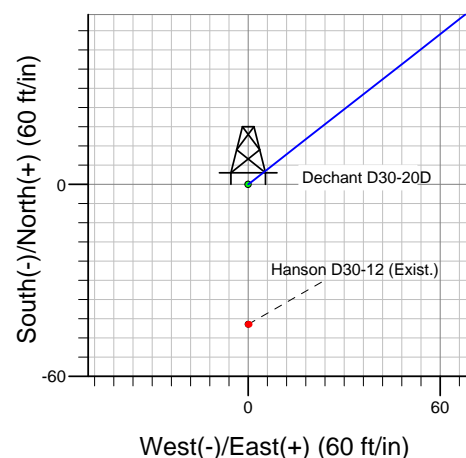
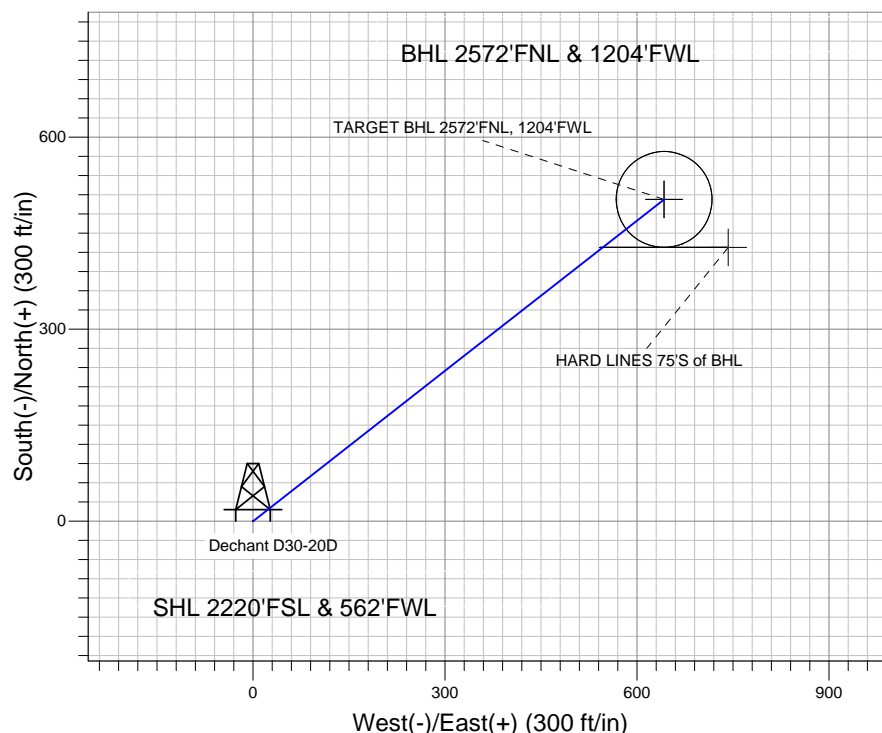
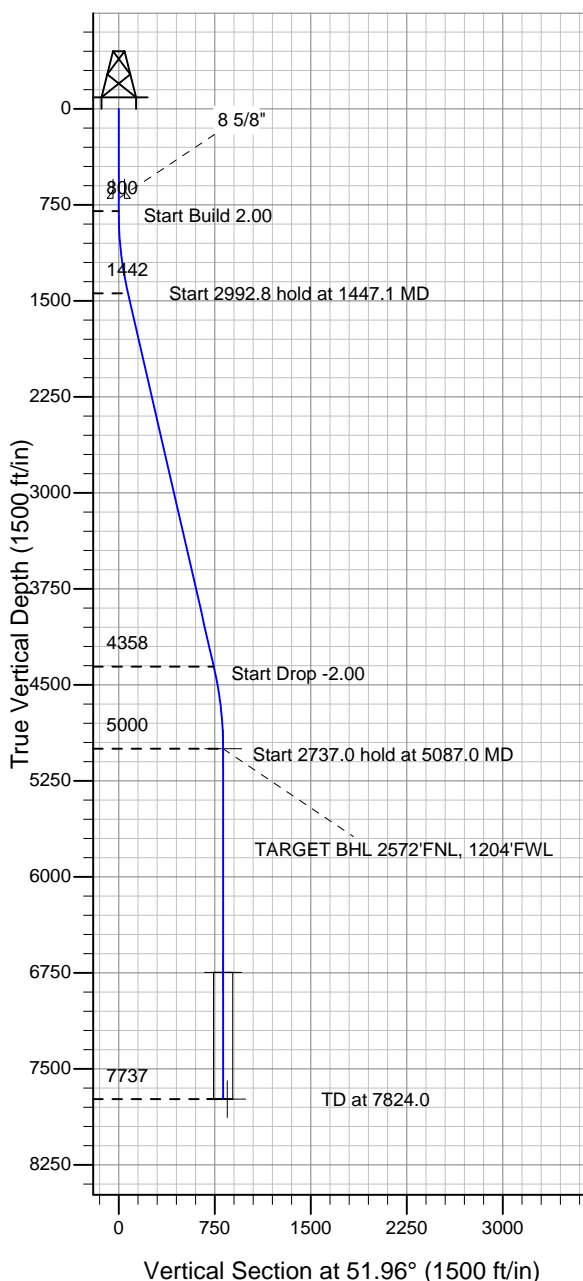
### Well Name: Dechant D30-20D

Surface Location: Dechant D30-20D Pad Sec.30-T3N-R64W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

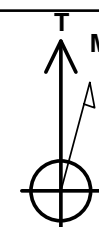
Ground Elevation: 4794.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1315143.78 3251197.98 40° 11' 41.892 N 104° 36' 2.772 W  
Original Well Elev WELL @ 4807.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Dechant D30-20D Pad Sec.30-T3N-R64W  
Dechant D30-20D  
Noble Dechant D30-20D Plan #1 (11-16-10)  
8:10, November 17 2010



Azimuths to True North  
Magnetic North: 8.84°

Magnetic Field  
Strength: 53102.7nT  
Dip Angle: 66.93°  
Date: 11/16/2010  
Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2572'FNL, 1204'FWL	5000.0	502.8	642.5	40° 11' 46.860 N	104° 35' 54.492 W	Point
TARGET CIRCLE 2572'FNL & 1204'FWL	6747.0	502.8	642.5	40° 11' 46.860 N	104° 35' 54.492 W	Circle (Radius: 75.0)
HARD LINES 75'S of BHL	7737.0	427.8	742.5	40° 11' 46.119 N	104° 35' 53.204 W	Polygon

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1447.1	12.94	51.96	1441.6	44.8	57.3	2.00	51.96	72.8	
4	4439.9	12.94	51.96	4358.4	457.9	585.2	0.00	0.00	743.1	
5	5087.0	0.00	0.00	5000.0	502.8	642.5	2.00	180.00	815.8	TARGET BHL 2572'FNL, 1204'FWL
6	7824.0	0.00	0.00	7737.0	502.8	642.5	0.00	0.00	815.8	



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.30-T3N-R64W**

**Dechant D30-20D Pad Sec.30-T3N-R64W**

**Dechant D30-20D**

**Wellbore #1**

**Plan: Noble Dechant D30-20D Plan #1 (11-16-10)**

## **Standard Survey Report**

**17 November, 2010**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

<b>Project</b>	SEC.30-T3N-R64W		
<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

Site	Dechant D30-20D Pad Sec.30-T3N-R64W				
Site Position:		Northing:	1,315,143.80ft	Latitude:	40° 11' 41.892 N
From:	Lat/Long	Easting:	3,251,197.98ft	Longitude:	104° 36' 2.772 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.58 °

Well	Dechant D30-20D					
Well Position	+N/-S	0.0 ft	Northing:	1,315,143.78 ft	Latitude:	40° 11' 41.892 N
	+E/-W	0.0 ft	Easting:	3,251,197.98 ft	Longitude:	104° 36' 2.772 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,794.0 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	11/16/2010	8.84	66.93	53,103

<b>Design</b>	Noble Dechant D30-20D Plan #1 (11-16-10)				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	51.96	

<b>Survey Tool Program</b>	<b>Date</b>	11/17/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	7,824.0	Noble Dechant D30-20D Plan #1 (11-16-1	MWD	MWD - Standard	

<b>Planned 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	
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00	
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00	
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00	
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00	
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00	
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00	
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

Planned 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)
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.80	51.96	840.0	0.2	0.2	0.3	2.00	2.00	0.00
880.0	1.60	51.96	880.0	0.7	0.9	1.1	2.00	2.00	0.00
920.0	2.40	51.96	920.0	1.5	2.0	2.5	2.00	2.00	0.00
960.0	3.20	51.96	959.9	2.8	3.5	4.5	2.00	2.00	0.00
1,000.0	4.00	51.96	999.8	4.3	5.5	7.0	2.00	2.00	0.00
1,040.0	4.80	51.96	1,039.7	6.2	7.9	10.0	2.00	2.00	0.00
1,080.0	5.60	51.96	1,079.6	8.4	10.8	13.7	2.00	2.00	0.00
1,120.0	6.40	51.96	1,119.3	11.0	14.1	17.9	2.00	2.00	0.00
1,160.0	7.20	51.96	1,159.1	13.9	17.8	22.6	2.00	2.00	0.00
1,200.0	8.00	51.96	1,198.7	17.2	22.0	27.9	2.00	2.00	0.00
1,240.0	8.80	51.96	1,238.3	20.8	26.6	33.7	2.00	2.00	0.00
1,280.0	9.60	51.96	1,277.8	24.7	31.6	40.1	2.00	2.00	0.00
1,320.0	10.40	51.96	1,317.1	29.0	37.1	47.1	2.00	2.00	0.00
1,360.0	11.20	51.96	1,356.4	33.6	43.0	54.6	2.00	2.00	0.00
1,400.0	12.00	51.96	1,395.6	38.6	49.3	62.6	2.00	2.00	0.00
1,440.0	12.80	51.96	1,434.7	43.9	56.1	71.2	2.00	2.00	0.00
1,447.1	12.94	51.96	1,441.6	44.8	57.3	72.8	2.00	2.00	0.00
1,480.0	12.94	51.96	1,473.7	49.4	63.1	80.1	0.00	0.00	0.00
1,520.0	12.94	51.96	1,512.7	54.9	70.2	89.1	0.00	0.00	0.00
1,560.0	12.94	51.96	1,551.6	60.4	77.2	98.1	0.00	0.00	0.00
1,600.0	12.94	51.96	1,590.6	65.9	84.3	107.0	0.00	0.00	0.00
1,640.0	12.94	51.96	1,629.6	71.5	91.3	116.0	0.00	0.00	0.00
1,680.0	12.94	51.96	1,668.6	77.0	98.4	124.9	0.00	0.00	0.00
1,720.0	12.94	51.96	1,707.6	82.5	105.5	133.9	0.00	0.00	0.00
1,760.0	12.94	51.96	1,746.6	88.0	112.5	142.9	0.00	0.00	0.00
1,800.0	12.94	51.96	1,785.5	93.6	119.6	151.8	0.00	0.00	0.00
1,840.0	12.94	51.96	1,824.5	99.1	126.6	160.8	0.00	0.00	0.00
1,880.0	12.94	51.96	1,863.5	104.6	133.7	169.7	0.00	0.00	0.00
1,920.0	12.94	51.96	1,902.5	110.1	140.7	178.7	0.00	0.00	0.00
1,960.0	12.94	51.96	1,941.5	115.6	147.8	187.6	0.00	0.00	0.00
2,000.0	12.94	51.96	1,980.5	121.2	154.8	196.6	0.00	0.00	0.00
2,040.0	12.94	51.96	2,019.4	126.7	161.9	205.6	0.00	0.00	0.00
2,080.0	12.94	51.96	2,058.4	132.2	169.0	214.5	0.00	0.00	0.00
2,120.0	12.94	51.96	2,097.4	137.7	176.0	223.5	0.00	0.00	0.00
2,160.0	12.94	51.96	2,136.4	143.2	183.1	232.4	0.00	0.00	0.00
2,200.0	12.94	51.96	2,175.4	148.8	190.1	241.4	0.00	0.00	0.00
2,240.0	12.94	51.96	2,214.4	154.3	197.2	250.4	0.00	0.00	0.00
2,280.0	12.94	51.96	2,253.4	159.8	204.2	259.3	0.00	0.00	0.00
2,320.0	12.94	51.96	2,292.3	165.3	211.3	268.3	0.00	0.00	0.00
2,360.0	12.94	51.96	2,331.3	170.8	218.3	277.2	0.00	0.00	0.00
2,400.0	12.94	51.96	2,370.3	176.4	225.4	286.2	0.00	0.00	0.00
2,440.0	12.94	51.96	2,409.3	181.9	232.5	295.2	0.00	0.00	0.00
2,480.0	12.94	51.96	2,448.3	187.4	239.5	304.1	0.00	0.00	0.00
2,520.0	12.94	51.96	2,487.3	192.9	246.6	313.1	0.00	0.00	0.00

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

Planned 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)
2,560.0	12.94	51.96	2,526.2	198.4	253.6	322.0	0.00	0.00	0.00
2,600.0	12.94	51.96	2,565.2	204.0	260.7	331.0	0.00	0.00	0.00
2,640.0	12.94	51.96	2,604.2	209.5	267.7	339.9	0.00	0.00	0.00
2,680.0	12.94	51.96	2,643.2	215.0	274.8	348.9	0.00	0.00	0.00
2,720.0	12.94	51.96	2,682.2	220.5	281.8	357.9	0.00	0.00	0.00
2,760.0	12.94	51.96	2,721.2	226.1	288.9	366.8	0.00	0.00	0.00
2,800.0	12.94	51.96	2,760.1	231.6	296.0	375.8	0.00	0.00	0.00
2,840.0	12.94	51.96	2,799.1	237.1	303.0	384.7	0.00	0.00	0.00
2,880.0	12.94	51.96	2,838.1	242.6	310.1	393.7	0.00	0.00	0.00
2,920.0	12.94	51.96	2,877.1	248.1	317.1	402.7	0.00	0.00	0.00
2,960.0	12.94	51.96	2,916.1	253.7	324.2	411.6	0.00	0.00	0.00
3,000.0	12.94	51.96	2,955.1	259.2	331.2	420.6	0.00	0.00	0.00
3,040.0	12.94	51.96	2,994.0	264.7	338.3	429.5	0.00	0.00	0.00
3,080.0	12.94	51.96	3,033.0	270.2	345.3	438.5	0.00	0.00	0.00
3,120.0	12.94	51.96	3,072.0	275.7	352.4	447.5	0.00	0.00	0.00
3,160.0	12.94	51.96	3,111.0	281.3	359.5	456.4	0.00	0.00	0.00
3,200.0	12.94	51.96	3,150.0	286.8	366.5	465.4	0.00	0.00	0.00
3,240.0	12.94	51.96	3,189.0	292.3	373.6	474.3	0.00	0.00	0.00
3,280.0	12.94	51.96	3,227.9	297.8	380.6	483.3	0.00	0.00	0.00
3,320.0	12.94	51.96	3,266.9	303.3	387.7	492.2	0.00	0.00	0.00
3,360.0	12.94	51.96	3,305.9	308.9	394.7	501.2	0.00	0.00	0.00
3,400.0	12.94	51.96	3,344.9	314.4	401.8	510.2	0.00	0.00	0.00
3,440.0	12.94	51.96	3,383.9	319.9	408.8	519.1	0.00	0.00	0.00
3,480.0	12.94	51.96	3,422.9	325.4	415.9	528.1	0.00	0.00	0.00
3,520.0	12.94	51.96	3,461.9	330.9	423.0	537.0	0.00	0.00	0.00
3,560.0	12.94	51.96	3,500.8	336.5	430.0	546.0	0.00	0.00	0.00
3,600.0	12.94	51.96	3,539.8	342.0	437.1	555.0	0.00	0.00	0.00
3,640.0	12.94	51.96	3,578.8	347.5	444.1	563.9	0.00	0.00	0.00
3,680.0	12.94	51.96	3,617.8	353.0	451.2	572.9	0.00	0.00	0.00
3,720.0	12.94	51.96	3,656.8	358.5	458.2	581.8	0.00	0.00	0.00
3,760.0	12.94	51.96	3,695.8	364.1	465.3	590.8	0.00	0.00	0.00
3,800.0	12.94	51.96	3,734.7	369.6	472.3	599.8	0.00	0.00	0.00
3,840.0	12.94	51.96	3,773.7	375.1	479.4	608.7	0.00	0.00	0.00
3,880.0	12.94	51.96	3,812.7	380.6	486.5	617.7	0.00	0.00	0.00
3,920.0	12.94	51.96	3,851.7	386.2	493.5	626.6	0.00	0.00	0.00
3,960.0	12.94	51.96	3,890.7	391.7	500.6	635.6	0.00	0.00	0.00
4,000.0	12.94	51.96	3,929.7	397.2	507.6	644.5	0.00	0.00	0.00
4,040.0	12.94	51.96	3,968.6	402.7	514.7	653.5	0.00	0.00	0.00
4,080.0	12.94	51.96	4,007.6	408.2	521.7	662.5	0.00	0.00	0.00
4,120.0	12.94	51.96	4,046.6	413.8	528.8	671.4	0.00	0.00	0.00
4,160.0	12.94	51.96	4,085.6	419.3	535.8	680.4	0.00	0.00	0.00
4,200.0	12.94	51.96	4,124.6	424.8	542.9	689.3	0.00	0.00	0.00
4,240.0	12.94	51.96	4,163.6	430.3	550.0	698.3	0.00	0.00	0.00
4,280.0	12.94	51.96	4,202.5	435.8	557.0	707.3	0.00	0.00	0.00
4,320.0	12.94	51.96	4,241.5	441.4	564.1	716.2	0.00	0.00	0.00
4,360.0	12.94	51.96	4,280.5	446.9	571.1	725.2	0.00	0.00	0.00
4,400.0	12.94	51.96	4,319.5	452.4	578.2	734.1	0.00	0.00	0.00
4,439.9	12.94	51.96	4,358.4	457.9	585.2	743.1	0.00	0.00	0.00
4,440.0	12.94	51.96	4,358.5	457.9	585.2	743.1	0.00	0.00	0.00
4,480.0	12.14	51.96	4,397.5	463.3	592.1	751.8	2.01	-2.01	0.00
4,520.0	11.34	51.96	4,436.7	468.3	598.5	759.9	2.00	-2.00	0.00
4,560.0	10.54	51.96	4,476.0	473.0	604.5	767.5	2.00	-2.00	0.00
4,600.0	9.74	51.96	4,515.3	477.3	610.0	774.5	2.00	-2.00	0.00
4,640.0	8.94	51.96	4,554.8	481.3	615.1	781.0	2.00	-2.00	0.00

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

Planned 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)
4,680.0	8.14	51.96	4,594.4	485.0	619.8	787.0	2.00	-2.00	0.00
4,720.0	7.34	51.96	4,634.0	488.3	624.0	792.4	2.00	-2.00	0.00
4,760.0	6.54	51.96	4,673.7	491.3	627.8	797.2	2.00	-2.00	0.00
4,800.0	5.74	51.96	4,713.5	493.9	631.2	801.5	2.00	-2.00	0.00
4,840.0	4.94	51.96	4,753.3	496.2	634.1	805.2	2.00	-2.00	0.00
4,880.0	4.14	51.96	4,793.2	498.1	636.6	808.4	2.00	-2.00	0.00
4,920.0	3.34	51.96	4,833.1	499.8	638.7	811.0	2.00	-2.00	0.00
4,960.0	2.54	51.96	4,873.0	501.0	640.3	813.0	2.00	-2.00	0.00
5,000.0	1.74	51.96	4,913.0	501.9	641.5	814.5	2.00	-2.00	0.00
5,040.0	0.94	51.96	4,953.0	502.5	642.2	815.5	2.00	-2.00	0.00
5,080.0	0.14	51.96	4,993.0	502.7	642.5	815.8	2.00	-2.00	0.00
5,087.0	0.00	0.00	5,000.0	502.8	642.5	815.8	2.00	-2.00	0.00
TARGET BHL 2572'FNL, 1204'FWL									
5,120.0	0.00	0.00	5,033.0	502.8	642.5	815.8	0.00	0.00	0.00
5,160.0	0.00	0.00	5,073.0	502.8	642.5	815.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,113.0	502.8	642.5	815.8	0.00	0.00	0.00
5,240.0	0.00	0.00	5,153.0	502.8	642.5	815.8	0.00	0.00	0.00
5,280.0	0.00	0.00	5,193.0	502.8	642.5	815.8	0.00	0.00	0.00
5,320.0	0.00	0.00	5,233.0	502.8	642.5	815.8	0.00	0.00	0.00
5,360.0	0.00	0.00	5,273.0	502.8	642.5	815.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,313.0	502.8	642.5	815.8	0.00	0.00	0.00
5,440.0	0.00	0.00	5,353.0	502.8	642.5	815.8	0.00	0.00	0.00
5,480.0	0.00	0.00	5,393.0	502.8	642.5	815.8	0.00	0.00	0.00
5,520.0	0.00	0.00	5,433.0	502.8	642.5	815.8	0.00	0.00	0.00
5,560.0	0.00	0.00	5,473.0	502.8	642.5	815.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,513.0	502.8	642.5	815.8	0.00	0.00	0.00
5,640.0	0.00	0.00	5,553.0	502.8	642.5	815.8	0.00	0.00	0.00
5,680.0	0.00	0.00	5,593.0	502.8	642.5	815.8	0.00	0.00	0.00
5,720.0	0.00	0.00	5,633.0	502.8	642.5	815.8	0.00	0.00	0.00
5,760.0	0.00	0.00	5,673.0	502.8	642.5	815.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,713.0	502.8	642.5	815.8	0.00	0.00	0.00
5,840.0	0.00	0.00	5,753.0	502.8	642.5	815.8	0.00	0.00	0.00
5,880.0	0.00	0.00	5,793.0	502.8	642.5	815.8	0.00	0.00	0.00
5,920.0	0.00	0.00	5,833.0	502.8	642.5	815.8	0.00	0.00	0.00
5,960.0	0.00	0.00	5,873.0	502.8	642.5	815.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,913.0	502.8	642.5	815.8	0.00	0.00	0.00
6,040.0	0.00	0.00	5,953.0	502.8	642.5	815.8	0.00	0.00	0.00
6,080.0	0.00	0.00	5,993.0	502.8	642.5	815.8	0.00	0.00	0.00
6,120.0	0.00	0.00	6,033.0	502.8	642.5	815.8	0.00	0.00	0.00
6,160.0	0.00	0.00	6,073.0	502.8	642.5	815.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,113.0	502.8	642.5	815.8	0.00	0.00	0.00
6,240.0	0.00	0.00	6,153.0	502.8	642.5	815.8	0.00	0.00	0.00
6,280.0	0.00	0.00	6,193.0	502.8	642.5	815.8	0.00	0.00	0.00
6,320.0	0.00	0.00	6,233.0	502.8	642.5	815.8	0.00	0.00	0.00
6,360.0	0.00	0.00	6,273.0	502.8	642.5	815.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,313.0	502.8	642.5	815.8	0.00	0.00	0.00
6,440.0	0.00	0.00	6,353.0	502.8	642.5	815.8	0.00	0.00	0.00
6,480.0	0.00	0.00	6,393.0	502.8	642.5	815.8	0.00	0.00	0.00
6,520.0	0.00	0.00	6,433.0	502.8	642.5	815.8	0.00	0.00	0.00
6,560.0	0.00	0.00	6,473.0	502.8	642.5	815.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,513.0	502.8	642.5	815.8	0.00	0.00	0.00
6,640.0	0.00	0.00	6,553.0	502.8	642.5	815.8	0.00	0.00	0.00
6,680.0	0.00	0.00	6,593.0	502.8	642.5	815.8	0.00	0.00	0.00
6,720.0	0.00	0.00	6,633.0	502.8	642.5	815.8	0.00	0.00	0.00

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

Planned 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)
6,760.0	0.00	0.00	6,673.0	502.8	642.5	815.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,713.0	502.8	642.5	815.8	0.00	0.00	0.00
6,834.0	0.00	0.00	6,747.0	502.8	642.5	815.8	0.00	0.00	0.00
<b>NIORARA - TARGET CIRCLE 2572'FNL &amp; 1204'FWL</b>									
6,840.0	0.00	0.00	6,753.0	502.8	642.5	815.8	0.00	0.00	0.00
6,880.0	0.00	0.00	6,793.0	502.8	642.5	815.8	0.00	0.00	0.00
6,920.0	0.00	0.00	6,833.0	502.8	642.5	815.8	0.00	0.00	0.00
6,960.0	0.00	0.00	6,873.0	502.8	642.5	815.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,913.0	502.8	642.5	815.8	0.00	0.00	0.00
7,040.0	0.00	0.00	6,953.0	502.8	642.5	815.8	0.00	0.00	0.00
7,080.0	0.00	0.00	6,993.0	502.8	642.5	815.8	0.00	0.00	0.00
7,120.0	0.00	0.00	7,033.0	502.8	642.5	815.8	0.00	0.00	0.00
7,144.0	0.00	0.00	7,057.0	502.8	642.5	815.8	0.00	0.00	0.00
<b>CODELL</b>									
7,160.0	0.00	0.00	7,073.0	502.8	642.5	815.8	0.00	0.00	0.00
7,200.0	0.00	0.00	7,113.0	502.8	642.5	815.8	0.00	0.00	0.00
7,240.0	0.00	0.00	7,153.0	502.8	642.5	815.8	0.00	0.00	0.00
7,280.0	0.00	0.00	7,193.0	502.8	642.5	815.8	0.00	0.00	0.00
7,320.0	0.00	0.00	7,233.0	502.8	642.5	815.8	0.00	0.00	0.00
7,360.0	0.00	0.00	7,273.0	502.8	642.5	815.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,313.0	502.8	642.5	815.8	0.00	0.00	0.00
7,440.0	0.00	0.00	7,353.0	502.8	642.5	815.8	0.00	0.00	0.00
7,480.0	0.00	0.00	7,393.0	502.8	642.5	815.8	0.00	0.00	0.00
7,520.0	0.00	0.00	7,433.0	502.8	642.5	815.8	0.00	0.00	0.00
7,554.0	0.00	0.00	7,467.0	502.8	642.5	815.8	0.00	0.00	0.00
<b>D-SAND</b>									
7,560.0	0.00	0.00	7,473.0	502.8	642.5	815.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,513.0	502.8	642.5	815.8	0.00	0.00	0.00
7,624.0	0.00	0.00	7,537.0	502.8	642.5	815.8	0.00	0.00	0.00
<b>J-SAND</b>									
7,640.0	0.00	0.00	7,553.0	502.8	642.5	815.8	0.00	0.00	0.00
7,680.0	0.00	0.00	7,593.0	502.8	642.5	815.8	0.00	0.00	0.00
7,720.0	0.00	0.00	7,633.0	502.8	642.5	815.8	0.00	0.00	0.00
7,760.0	0.00	0.00	7,673.0	502.8	642.5	815.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,713.0	502.8	642.5	815.8	0.00	0.00	0.00
7,824.0	0.00	0.00	7,737.0	502.8	642.5	815.8	0.00	0.00	0.00
<b>HARD LINES 75'S of BHL</b>									



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Dechant D30-20D
<b>Project:</b>	SEC.30-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Site:</b>	Dechant D30-20D Pad Sec.30-T3N-R64W	<b>MD Reference:</b>	WELL @ 4807.0ft (Original Well Elev)
<b>Well:</b>	Dechant D30-20D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Noble Dechant D30-20D Plan #1 (11-16-10)	<b>Database:</b>	Landmark

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET BHL 2572'F - plan hits target - Point	0.00	0.00	5,000.0	502.8	642.5	1,315,653.01	3,251,835.35	40° 11' 46.860 N	104° 35' 54.492 W
TARGET CIRCLE 257 - plan hits target - Circle (radius 75.0)	0.00	0.00	6,747.0	502.8	642.5	1,315,653.01	3,251,835.35	40° 11' 46.860 N	104° 35' 54.492 W
HARD LINES 75'S of - plan misses by 125.0ft at 7824.0ft MD (7737.0 TVD, 502.8 N, 642.5 E) - Polygon	0.00	0.00	7,737.0	427.8	742.5	1,315,579.07	3,251,936.07	40° 11' 46.119 N	104° 35' 53.204 W
Point 1			7,737.0	0.0	0.0	1,315,579.07	3,251,936.07		
Point 2			7,737.0	0.0	-200.0	1,315,577.04	3,251,736.09		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
700.0	700.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,834.0	6,747.0	NIOBRARA		0.00		
7,144.0	7,057.0	CODELL		0.00		
7,554.0	7,467.0	D-SAND		0.00		
7,624.0	7,537.0	J-SAND		0.00		

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------