

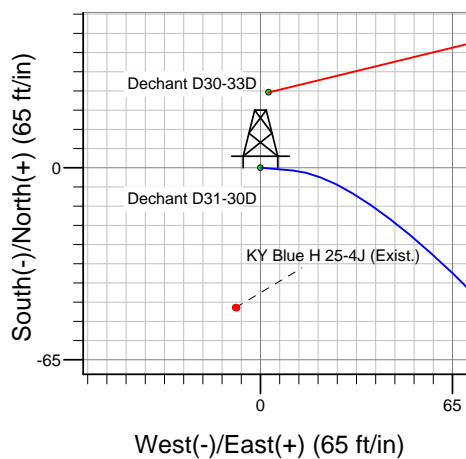
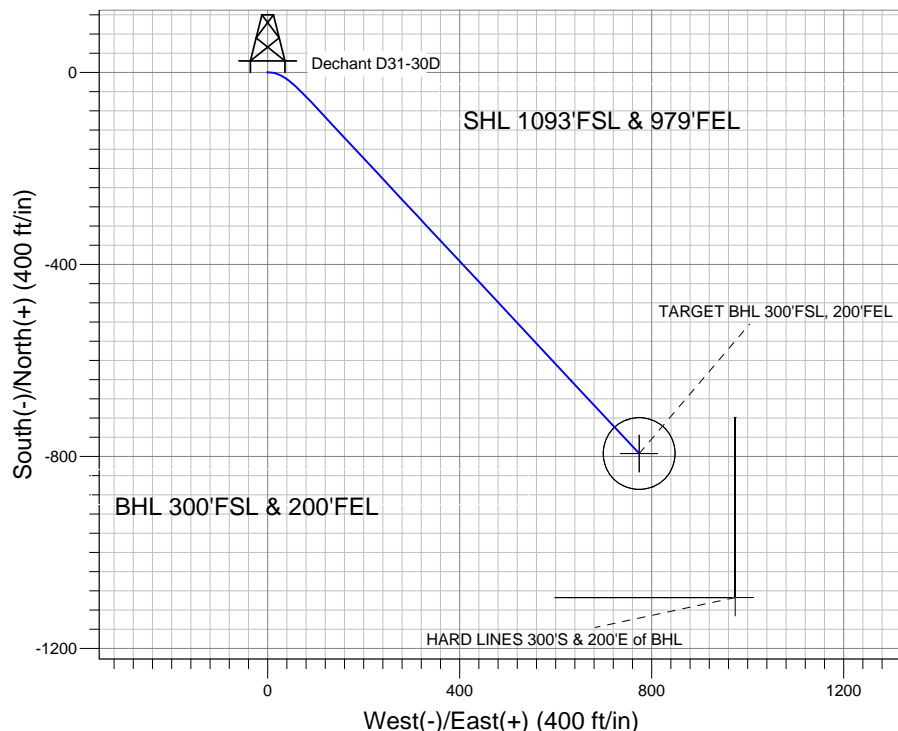
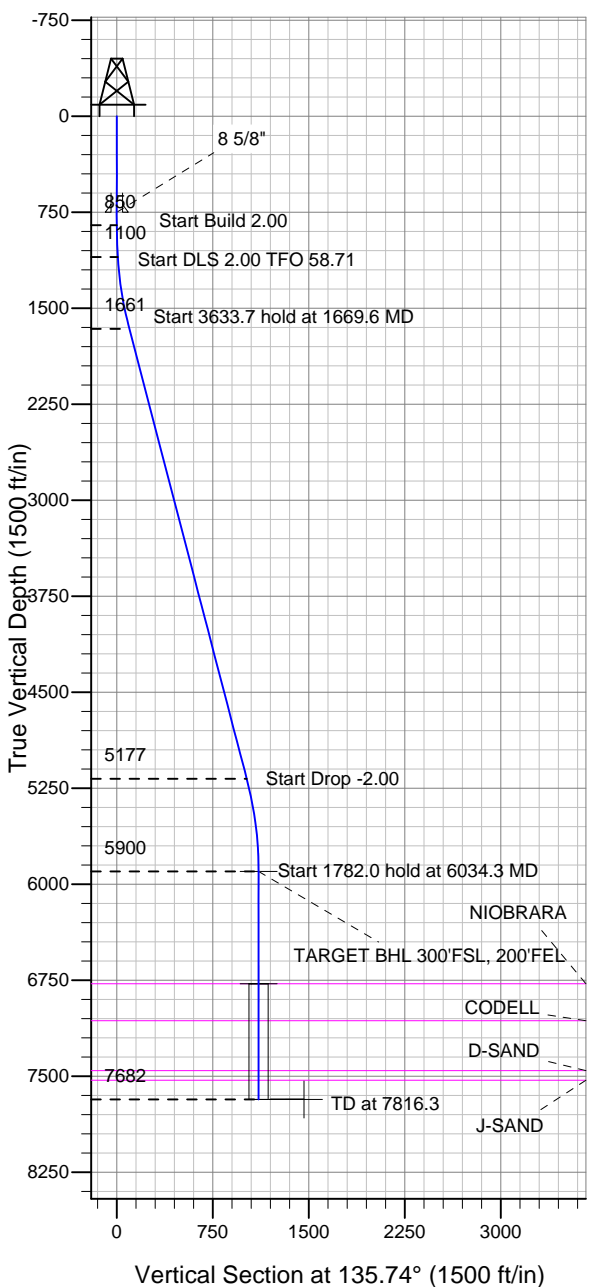
ENSIGN

Directional

Well Name: Dechant D31-30D

Surface Location: Dechant D31-30D Pad Sec.25-T3N-R65W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4799.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1314002.59 3249664.58 40° 11' 30.768 N 104° 36' 22.680 W
 Original Well Elev WELL @ 4812.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Dechant D31-30D Pad Sec.25-T3N-R65W
 Dechant D31-30D
 Noble Dechant D31-30D Plan #2 (2-03-11)
 7:45, February 04 2011



Azimuths to True North
 Magnetic North: 8.81°

Magnetic Field
 Strength: 53077.6snT
 Dip Angle: 66.92°
 Date: 2/3/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 300'FSL, 200'FEL	5900.0	-794.1	773.9	40° 11' 22.920 N	104° 36' 12.708 W	Point
TARGET CIRCLE 300'FSL & 200'FEL	6777.0	-794.1	773.9	40° 11' 22.920 N	104° 36' 12.708 W	Circle (Radius: 75.0)
HARD LINES 300'S & 200'E of BHL	7682.0	-1094.1	973.9	40° 11' 19.956 N	104° 36' 10.131 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	850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.0	
3	1100.0	5.00	95.00	1099.7	-1.0	10.9	2.00	95.00	8.3	
4	1669.6	14.62	136.98	1660.9	-55.8	84.9	2.00	58.71	99.2	
5	5303.4	14.62	136.98	5177.0	-726.3	710.6	0.00	0.00	1016.1	
6	6034.3	0.00	0.00	5900.0	-794.1	773.9	2.00	180.00	1108.9	TARGET BHL 300'FSL, 200'FEL
7	7816.3	0.00	0.00	7682.0	-794.1	773.9	0.00	0.00	1108.9	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.25-T3N-R65W

Dechant D31-30D Pad Sec.25-T3N-R65W

Dechant D31-30D

Wellbore #1

Plan: Noble Dechant D31-30D Plan #2 (2-03-11)

Standard Planning Report

04 February, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

Project	SEC.25-T3N-R65W, 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 D31-30D Pad Sec.25-T3N-R65W											
Site Position:						Northing:			1,314,002.60ft			Latitude:			40° 11' 30.768 N		
From:			Lat/Long			Easting:			3,249,664.58ft			Longitude:			104° 36' 22.680 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.58 °		

Well	Dechant D31-30D					
Well Position	+N-S	0.0 ft	Northing:	1,314,002.59 ft	Latitude:	40° 11' 30.768 N
	+E-W	0.0 ft	Easting:	3,249,664.58 ft	Longitude:	104° 36' 22.680 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,799.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/3/2011	8.81	66.92	53,078

Design	Noble Dechant D31-30D Plan #2 (2-03-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	135.74

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	5.00	95.00	1,099.7	-1.0	10.9	2.00	2.00	0.00	95.00	
1,669.6	14.62	136.98	1,660.9	-55.8	84.9	2.00	1.69	7.37	58.71	
5,303.4	14.62	136.98	5,177.0	-726.3	710.6	0.00	0.00	0.00	0.00	
6,034.3	0.00	0.00	5,900.0	-794.1	773.9	2.00	-2.00	0.00	180.00	TARGET BHL 300'I
7,816.3	0.00	0.00	7,682.0	-794.1	773.9	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

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)
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
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
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.60	95.00	880.0	0.0	0.2	0.1	2.00	2.00	0.00
920.0	1.40	95.00	920.0	-0.1	0.9	0.6	2.00	2.00	0.00
960.0	2.20	95.00	960.0	-0.2	2.1	1.6	2.00	2.00	0.00
1,000.0	3.00	95.00	999.9	-0.3	3.9	3.0	2.00	2.00	0.00
1,040.0	3.80	95.00	1,039.9	-0.5	6.3	4.8	2.00	2.00	0.00
1,080.0	4.60	95.00	1,079.8	-0.8	9.2	7.0	2.00	2.00	0.00
1,100.0	5.00	95.00	1,099.7	-1.0	10.9	8.3	2.00	2.00	0.00
1,120.0	5.22	98.76	1,119.6	-1.2	12.6	9.6	2.00	1.09	18.80
1,160.0	5.72	105.35	1,159.4	-2.0	16.3	12.8	2.00	1.24	16.48
1,200.0	6.28	110.83	1,199.2	-3.3	20.3	16.5	2.00	1.40	13.70
1,240.0	6.88	115.39	1,238.9	-5.1	24.5	20.7	2.00	1.52	11.38
1,280.0	7.53	119.19	1,278.6	-7.4	29.0	25.5	2.00	1.61	9.50
1,320.0	8.20	122.38	1,318.2	-10.2	33.7	30.8	2.00	1.68	7.98
1,360.0	8.89	125.09	1,357.8	-13.5	38.6	36.6	2.00	1.73	6.77
1,400.0	9.60	127.40	1,397.3	-17.3	43.8	42.9	2.00	1.77	5.78
1,440.0	10.32	129.40	1,436.7	-21.6	49.2	49.8	2.00	1.80	4.99
1,480.0	11.05	131.13	1,476.0	-26.4	54.9	57.2	2.00	1.83	4.34
1,520.0	11.79	132.65	1,515.2	-31.7	60.7	65.1	2.00	1.85	3.80
1,560.0	12.54	134.00	1,554.3	-37.5	66.9	73.5	2.00	1.87	3.36
1,600.0	13.29	135.19	1,593.3	-43.7	73.2	82.4	2.00	1.89	2.98
1,640.0	14.05	136.26	1,632.2	-50.5	79.8	91.9	2.00	1.90	2.67
1,669.6	14.62	136.98	1,660.9	-55.8	84.9	99.2	2.00	1.91	2.43
1,680.0	14.62	136.98	1,670.9	-57.8	86.7	101.9	0.00	0.00	0.00
1,720.0	14.62	136.98	1,709.6	-65.1	93.6	111.9	0.00	0.00	0.00
1,760.0	14.62	136.98	1,748.3	-72.5	100.4	122.0	0.00	0.00	0.00
1,800.0	14.62	136.98	1,787.0	-79.9	107.3	132.1	0.00	0.00	0.00
1,840.0	14.62	136.98	1,825.7	-87.3	114.2	142.2	0.00	0.00	0.00
1,880.0	14.62	136.98	1,864.4	-94.7	121.1	152.3	0.00	0.00	0.00
1,920.0	14.62	136.98	1,903.1	-102.0	128.0	162.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

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)
1,960.0	14.62	136.98	1,941.8	-109.4	134.9	172.5	0.00	0.00	0.00
2,000.0	14.62	136.98	1,980.5	-116.8	141.8	182.6	0.00	0.00	0.00
2,040.0	14.62	136.98	2,019.2	-124.2	148.7	192.7	0.00	0.00	0.00
2,080.0	14.62	136.98	2,057.9	-131.6	155.5	202.8	0.00	0.00	0.00
2,120.0	14.62	136.98	2,096.6	-138.9	162.4	212.9	0.00	0.00	0.00
2,160.0	14.62	136.98	2,135.4	-146.3	169.3	223.0	0.00	0.00	0.00
2,200.0	14.62	136.98	2,174.1	-153.7	176.2	233.1	0.00	0.00	0.00
2,240.0	14.62	136.98	2,212.8	-161.1	183.1	243.2	0.00	0.00	0.00
2,280.0	14.62	136.98	2,251.5	-168.5	190.0	253.3	0.00	0.00	0.00
2,320.0	14.62	136.98	2,290.2	-175.9	196.9	263.3	0.00	0.00	0.00
2,360.0	14.62	136.98	2,328.9	-183.2	203.8	273.4	0.00	0.00	0.00
2,400.0	14.62	136.98	2,367.6	-190.6	210.7	283.5	0.00	0.00	0.00
2,440.0	14.62	136.98	2,406.3	-198.0	217.5	293.6	0.00	0.00	0.00
2,480.0	14.62	136.98	2,445.0	-205.4	224.4	303.7	0.00	0.00	0.00
2,520.0	14.62	136.98	2,483.7	-212.8	231.3	313.8	0.00	0.00	0.00
2,560.0	14.62	136.98	2,522.4	-220.1	238.2	323.9	0.00	0.00	0.00
2,600.0	14.62	136.98	2,561.1	-227.5	245.1	334.0	0.00	0.00	0.00
2,640.0	14.62	136.98	2,599.8	-234.9	252.0	344.1	0.00	0.00	0.00
2,680.0	14.62	136.98	2,638.5	-242.3	258.9	354.2	0.00	0.00	0.00
2,720.0	14.62	136.98	2,677.2	-249.7	265.8	364.3	0.00	0.00	0.00
2,760.0	14.62	136.98	2,715.9	-257.0	272.6	374.4	0.00	0.00	0.00
2,800.0	14.62	136.98	2,754.6	-264.4	279.5	384.5	0.00	0.00	0.00
2,840.0	14.62	136.98	2,793.3	-271.8	286.4	394.6	0.00	0.00	0.00
2,880.0	14.62	136.98	2,832.0	-279.2	293.3	404.7	0.00	0.00	0.00
2,920.0	14.62	136.98	2,870.7	-286.6	300.2	414.7	0.00	0.00	0.00
2,960.0	14.62	136.98	2,909.5	-293.9	307.1	424.8	0.00	0.00	0.00
3,000.0	14.62	136.98	2,948.2	-301.3	314.0	434.9	0.00	0.00	0.00
3,040.0	14.62	136.98	2,986.9	-308.7	320.9	445.0	0.00	0.00	0.00
3,080.0	14.62	136.98	3,025.6	-316.1	327.7	455.1	0.00	0.00	0.00
3,120.0	14.62	136.98	3,064.3	-323.5	334.6	465.2	0.00	0.00	0.00
3,160.0	14.62	136.98	3,103.0	-330.8	341.5	475.3	0.00	0.00	0.00
3,200.0	14.62	136.98	3,141.7	-338.2	348.4	485.4	0.00	0.00	0.00
3,240.0	14.62	136.98	3,180.4	-345.6	355.3	495.5	0.00	0.00	0.00
3,280.0	14.62	136.98	3,219.1	-353.0	362.2	505.6	0.00	0.00	0.00
3,320.0	14.62	136.98	3,257.8	-360.4	369.1	515.7	0.00	0.00	0.00
3,360.0	14.62	136.98	3,296.5	-367.8	376.0	525.8	0.00	0.00	0.00
3,400.0	14.62	136.98	3,335.2	-375.1	382.9	535.9	0.00	0.00	0.00
3,440.0	14.62	136.98	3,373.9	-382.5	389.7	546.0	0.00	0.00	0.00
3,480.0	14.62	136.98	3,412.6	-389.9	396.6	556.1	0.00	0.00	0.00
3,520.0	14.62	136.98	3,451.3	-397.3	403.5	566.1	0.00	0.00	0.00
3,560.0	14.62	136.98	3,490.0	-404.7	410.4	576.2	0.00	0.00	0.00
3,600.0	14.62	136.98	3,528.7	-412.0	417.3	586.3	0.00	0.00	0.00
3,640.0	14.62	136.98	3,567.4	-419.4	424.2	596.4	0.00	0.00	0.00
3,680.0	14.62	136.98	3,606.1	-426.8	431.1	606.5	0.00	0.00	0.00
3,720.0	14.62	136.98	3,644.8	-434.2	438.0	616.6	0.00	0.00	0.00
3,760.0	14.62	136.98	3,683.6	-441.6	444.8	626.7	0.00	0.00	0.00
3,800.0	14.62	136.98	3,722.3	-448.9	451.7	636.8	0.00	0.00	0.00
3,840.0	14.62	136.98	3,761.0	-456.3	458.6	646.9	0.00	0.00	0.00
3,880.0	14.62	136.98	3,799.7	-463.7	465.5	657.0	0.00	0.00	0.00
3,920.0	14.62	136.98	3,838.4	-471.1	472.4	667.1	0.00	0.00	0.00
3,960.0	14.62	136.98	3,877.1	-478.5	479.3	677.2	0.00	0.00	0.00
4,000.0	14.62	136.98	3,915.8	-485.8	486.2	687.3	0.00	0.00	0.00
4,040.0	14.62	136.98	3,954.5	-493.2	493.1	697.4	0.00	0.00	0.00
4,080.0	14.62	136.98	3,993.2	-500.6	500.0	707.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

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)
4,120.0	14.62	136.98	4,031.9	-508.0	506.8	717.5	0.00	0.00	0.00
4,160.0	14.62	136.98	4,070.6	-515.4	513.7	727.6	0.00	0.00	0.00
4,200.0	14.62	136.98	4,109.3	-522.7	520.6	737.7	0.00	0.00	0.00
4,240.0	14.62	136.98	4,148.0	-530.1	527.5	747.8	0.00	0.00	0.00
4,280.0	14.62	136.98	4,186.7	-537.5	534.4	757.9	0.00	0.00	0.00
4,320.0	14.62	136.98	4,225.4	-544.9	541.3	768.0	0.00	0.00	0.00
4,360.0	14.62	136.98	4,264.1	-552.3	548.2	778.1	0.00	0.00	0.00
4,400.0	14.62	136.98	4,302.8	-559.7	555.1	788.2	0.00	0.00	0.00
4,440.0	14.62	136.98	4,341.5	-567.0	561.9	798.3	0.00	0.00	0.00
4,480.0	14.62	136.98	4,380.2	-574.4	568.8	808.4	0.00	0.00	0.00
4,520.0	14.62	136.98	4,418.9	-581.8	575.7	818.5	0.00	0.00	0.00
4,560.0	14.62	136.98	4,457.7	-589.2	582.6	828.6	0.00	0.00	0.00
4,600.0	14.62	136.98	4,496.4	-596.6	589.5	838.7	0.00	0.00	0.00
4,640.0	14.62	136.98	4,535.1	-603.9	596.4	848.8	0.00	0.00	0.00
4,680.0	14.62	136.98	4,573.8	-611.3	603.3	858.8	0.00	0.00	0.00
4,720.0	14.62	136.98	4,612.5	-618.7	610.2	868.9	0.00	0.00	0.00
4,760.0	14.62	136.98	4,651.2	-626.1	617.1	879.0	0.00	0.00	0.00
4,800.0	14.62	136.98	4,689.9	-633.5	623.9	889.1	0.00	0.00	0.00
4,840.0	14.62	136.98	4,728.6	-640.8	630.8	899.2	0.00	0.00	0.00
4,880.0	14.62	136.98	4,767.3	-648.2	637.7	909.3	0.00	0.00	0.00
4,920.0	14.62	136.98	4,806.0	-655.6	644.6	919.4	0.00	0.00	0.00
4,960.0	14.62	136.98	4,844.7	-663.0	651.5	929.5	0.00	0.00	0.00
5,000.0	14.62	136.98	4,883.4	-670.4	658.4	939.6	0.00	0.00	0.00
5,040.0	14.62	136.98	4,922.1	-677.7	665.3	949.7	0.00	0.00	0.00
5,080.0	14.62	136.98	4,960.8	-685.1	672.2	959.8	0.00	0.00	0.00
5,120.0	14.62	136.98	4,999.5	-692.5	679.0	969.9	0.00	0.00	0.00
5,160.0	14.62	136.98	5,038.2	-699.9	685.9	980.0	0.00	0.00	0.00
5,200.0	14.62	136.98	5,076.9	-707.3	692.8	990.1	0.00	0.00	0.00
5,240.0	14.62	136.98	5,115.6	-714.6	699.7	1,000.2	0.00	0.00	0.00
5,280.0	14.62	136.98	5,154.3	-722.0	706.6	1,010.2	0.00	0.00	0.00
5,303.4	14.62	136.98	5,177.0	-726.3	710.6	1,016.1	0.00	0.00	0.00
5,320.0	14.29	136.98	5,193.1	-729.4	713.5	1,020.3	2.00	-2.00	0.00
5,360.0	13.49	136.98	5,231.9	-736.4	720.0	1,029.9	2.00	-2.00	0.00
5,400.0	12.69	136.98	5,270.9	-743.0	726.2	1,038.9	2.00	-2.00	0.00
5,440.0	11.89	136.98	5,309.9	-749.2	732.0	1,047.5	2.00	-2.00	0.00
5,480.0	11.09	136.98	5,349.1	-755.1	737.4	1,055.4	2.00	-2.00	0.00
5,520.0	10.29	136.98	5,388.4	-760.5	742.5	1,062.8	2.00	-2.00	0.00
5,560.0	9.49	136.98	5,427.8	-765.5	747.2	1,069.7	2.00	-2.00	0.00
5,600.0	8.69	136.98	5,467.3	-770.1	751.5	1,076.0	2.00	-2.00	0.00
5,640.0	7.89	136.98	5,506.9	-774.3	755.4	1,081.8	2.00	-2.00	0.00
5,680.0	7.09	136.98	5,546.6	-778.1	759.0	1,087.0	2.00	-2.00	0.00
5,720.0	6.29	136.98	5,586.3	-781.6	762.1	1,091.6	2.00	-2.00	0.00
5,760.0	5.49	136.98	5,626.1	-784.6	764.9	1,095.7	2.00	-2.00	0.00
5,800.0	4.69	136.98	5,665.9	-787.1	767.4	1,099.3	2.00	-2.00	0.00
5,840.0	3.89	136.98	5,705.8	-789.3	769.4	1,102.3	2.00	-2.00	0.00
5,880.0	3.09	136.98	5,745.8	-791.1	771.1	1,104.7	2.00	-2.00	0.00
5,920.0	2.29	136.98	5,785.7	-792.5	772.3	1,106.6	2.00	-2.00	0.00
5,960.0	1.49	136.98	5,825.7	-793.4	773.2	1,107.9	2.00	-2.00	0.00
6,000.0	0.69	136.98	5,865.7	-794.0	773.8	1,108.7	2.00	-2.00	0.00
6,034.3	0.00	0.00	5,900.0	-794.1	773.9	1,108.9	2.00	-2.00	0.00
TARGET BHL 300'FSL, 200'FEL									
6,040.0	0.00	0.00	5,905.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,080.0	0.00	0.00	5,945.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,120.0	0.00	0.00	5,985.7	-794.1	773.9	1,108.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

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)
6,160.0	0.00	0.00	6,025.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,065.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,240.0	0.00	0.00	6,105.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,145.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,185.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,225.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,265.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,305.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,345.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,385.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,425.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,465.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,505.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,545.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,585.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,625.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,665.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,705.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,745.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,911.3	0.00	0.00	6,777.0	-794.1	773.9	1,108.9	0.00	0.00	0.00
NOBRARA - TARGET CIRCLE 300'FSL & 200'FEL									
6,920.0	0.00	0.00	6,785.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,825.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,865.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,905.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,945.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,120.0	0.00	0.00	6,985.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,160.0	0.00	0.00	7,025.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,065.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,201.3	0.00	0.00	7,067.0	-794.1	773.9	1,108.9	0.00	0.00	0.00
CODELL									
7,240.0	0.00	0.00	7,105.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,145.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,320.0	0.00	0.00	7,185.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,225.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,265.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,440.0	0.00	0.00	7,305.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,345.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,520.0	0.00	0.00	7,385.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,425.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,591.3	0.00	0.00	7,457.0	-794.1	773.9	1,108.9	0.00	0.00	0.00
D-SAND									
7,600.0	0.00	0.00	7,465.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,640.0	0.00	0.00	7,505.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,666.3	0.00	0.00	7,532.0	-794.1	773.9	1,108.9	0.00	0.00	0.00
J-SAND									
7,680.0	0.00	0.00	7,545.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,720.0	0.00	0.00	7,585.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,760.0	0.00	0.00	7,625.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,665.7	-794.1	773.9	1,108.9	0.00	0.00	0.00
7,816.3	0.00	0.00	7,682.0	-794.1	773.9	1,108.9	0.00	0.00	0.00
HARD LINES 300'S & 200'E of BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well Dechant D31-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Project:	SEC.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	North Reference:	True
Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dechant D31-30D Plan #2 (2-03-11)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
TARGET BHL 300'FS	0.00	0.00	5,900.0	-794.1	773.9	1,313,216.32	3,250,446.41	40° 11' 22.920 N	104° 36' 12.708 W
- plan hits target center									
- Point									
TARGET CIRCLE 300'	0.00	0.00	6,777.0	-794.1	773.9	1,313,216.32	3,250,446.41	40° 11' 22.920 N	104° 36' 12.708 W
- plan hits target center									
- Circle (radius 75.0)									
HARD LINES 300'S &	0.00	0.00	7,682.0	-1,094.1	973.9	1,312,918.41	3,250,649.42	40° 11' 19.956 N	104° 36' 10.131 W
- plan misses target center by 360.5ft at 7816.3ft MD (7682.0 TVD, -794.1 N, 773.9 E)									
- Polygon									
Point 1			7,682.0	0.0	0.0	1,312,918.41	3,250,649.42		
Point 2			7,682.0	375.0	0.0	1,313,293.37	3,250,645.64		
Point 3			7,682.0	0.0	0.0	1,312,918.41	3,250,649.42		
Point 4			7,682.0	0.0	-375.0	1,312,914.63	3,250,274.45		

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(ft)	(ft)	Name	(")	(")
	750.0	750.0	8 5/8"	8-5/8	12-1/4

Formations						
	Measured Depth	Vertical Depth			Dip	Dip Direction
	(ft)	(ft)	Name	Lithology	(°)	(°)
	6,911.3	6,777.0	NIOBRARA		0.00	
	7,201.3	7,067.0	CODELL		0.00	
	7,591.3	7,457.0	D-SAND		0.00	
	7,666.3	7,532.0	J-SAND		0.00	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.25-T3N-R65W

Dechant D31-30D Pad Sec.25-T3N-R65W

Dechant D31-30D

Wellbore #1

Noble Dechant D31-30D Plan #2 (2-03-11)

Anticollision Report

04 February, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Reference	Noble Dechant D31-30D Plan #2 (2-		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 2/3/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,816.3	Noble Dechant D31-30D Plan #2 (2-03-11	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dechant D31-30D Pad Sec.25-T3N-R65W						
Dechant D30-33D - Wellbore #1 - Noble Dechant D30-33D	906.6	906.6	25.7	21.8	6.677	CC
Dechant D30-33D - Wellbore #1 - Noble Dechant D30-33D	1,000.0	999.8	26.0	21.7	6.132	ES
Dechant D30-33D - Wellbore #1 - Noble Dechant D30-33D	1,100.0	1,099.6	27.7	23.1	5.955	SF
KY Blue H 25-4J (Exist.) - Wellbore #1 - Design #1	850.0	851.0	48.1	44.5	13.364	CC
KY Blue H 25-4J (Exist.) - Wellbore #1 - Design #1	900.0	901.0	48.1	44.3	12.614	ES
KY Blue H 25-4J (Exist.) - Wellbore #1 - Design #1	1,300.0	1,299.4	55.4	49.8	9.970	SF

Offset Design	Dechant D31-30D Pad Sec.25-T3N-R65W - Dechant D30-33D - Wellbore #1 - Noble Dechant D30-33D												Offset Site Error:	0.0 ft
Survey Program:	0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	6.25	25.5	2.8	25.7	25.4	0.22	114.153		
100.0	100.0	100.0	100.0	0.1	0.1	6.25	25.5	2.8	25.7	25.4	0.67	38.051		
200.0	200.0	200.0	200.0	0.3	0.3	6.25	25.5	2.8	25.7	25.0	1.12	22.831		
300.0	300.0	300.0	300.0	0.6	0.6	6.25	25.5	2.8	25.7	24.5	1.57	16.308		
400.0	400.0	400.0	400.0	0.8	0.8	6.25	25.5	2.8	25.7	24.1	2.02	12.684		
500.0	500.0	500.0	500.0	1.0	1.0	6.25	25.5	2.8	25.7	23.6	2.47	10.378		
600.0	600.0	600.0	600.0	1.2	1.2	6.25	25.5	2.8	25.7	23.2	2.92	8.781		
700.0	700.0	700.0	700.0	1.5	1.5	6.25	25.5	2.8	25.7	22.7	3.37	7.610		
800.0	800.0	800.0	800.0	1.7	1.7	6.25	25.5	2.8	25.7	22.3	3.81	6.727		
850.0	850.0	850.0	850.0	1.8	1.8	6.25	25.5	2.8	25.7	22.1	3.84	6.677	CC	
900.0	900.0	900.0	900.0	1.9	1.9	-89.72	25.5	2.8	25.7	21.8	4.23	6.132	ES	
906.6	906.6	906.6	906.6	1.9	1.9	-90.00	25.5	2.8	25.7	21.8	4.65	5.955	SF	
1,000.0	999.9	999.8	999.8	2.1	2.1	-96.52	25.6	3.2	26.0	21.7	5.08	6.317		
1,100.0	1,099.7	1,099.6	1,099.6	2.3	2.3	-103.79	26.4	6.6	27.7	23.1	5.53	7.235		
1,200.0	1,199.2	1,199.5	1,199.1	2.5	2.6	-123.20	28.1	13.3	32.1	27.0	6.02	8.552		
1,300.0	1,298.4	1,299.1	1,298.2	2.8	2.8	-131.86	30.5	23.4	40.0	34.5	6.58	10.172		
1,400.0	1,397.3	1,398.3	1,396.5	3.0	3.0	-134.66	33.7	36.8	51.5	45.5	7.20	11.997		
1,500.0	1,495.6	1,496.7	1,493.4	3.3	3.3	-134.87	37.8	53.3	66.9	60.3	7.67	13.337		
1,600.0	1,593.3	1,594.1	1,588.7	3.7	3.7	-134.15	42.5	72.9	86.4	79.2	7.90	13.895		
1,669.6	1,660.9	1,661.3	1,654.0	3.9	3.9	-133.47	46.2	88.2	102.3	94.7				
1,700.0	1,690.2	1,690.6	1,682.4	4.1	4.0	-132.58	47.9	95.2	109.8	101.9				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,800.0	1,787.0	1,787.4	1,776.2	4.5	4.4	-130.35	53.5	118.5	134.4	125.7	8.67	15.495	
1,900.0	1,883.8	1,884.2	1,870.0	5.0	4.9	-128.80	59.2	141.8	159.1	149.6	9.47	16.794	
2,000.0	1,980.5	1,981.0	1,963.8	5.5	5.3	-127.67	64.8	165.1	183.9	173.6	10.30	17.856	
2,100.0	2,077.3	2,077.9	2,057.6	5.9	5.8	-126.81	70.5	188.4	208.8	197.6	11.14	18.732	
2,200.0	2,174.1	2,174.7	2,151.4	6.4	6.2	-126.13	76.1	211.7	233.7	221.7	12.01	19.463	
2,300.0	2,270.8	2,271.5	2,245.2	7.0	6.7	-125.59	81.8	235.0	258.6	245.7	12.88	20.079	
2,400.0	2,367.6	2,368.3	2,339.0	7.5	7.2	-125.13	87.4	258.3	283.5	269.8	13.76	20.603	
2,500.0	2,464.3	2,465.1	2,432.8	8.0	7.7	-124.76	93.1	281.6	308.5	293.8	14.65	21.053	
2,600.0	2,561.1	2,561.9	2,526.6	8.5	8.2	-124.44	98.7	304.9	333.5	317.9	15.55	21.443	
2,700.0	2,657.9	2,658.8	2,620.4	9.0	8.6	-124.16	104.4	328.2	358.4	342.0	16.45	21.783	
2,800.0	2,754.6	2,755.6	2,714.2	9.5	9.1	-123.92	110.0	351.5	383.4	366.1	17.36	22.082	
2,900.0	2,851.4	2,852.4	2,808.0	10.1	9.6	-123.71	115.6	374.8	408.4	390.1	18.28	22.347	
3,000.0	2,948.2	2,949.2	2,901.8	10.6	10.1	-123.52	121.3	398.1	433.4	414.2	19.19	22.582	
3,100.0	3,044.9	3,046.0	2,995.6	11.1	10.6	-123.35	126.9	421.4	458.4	438.3	20.11	22.793	
3,200.0	3,141.7	3,142.9	3,089.4	11.7	11.1	-123.20	132.6	444.7	483.4	462.4	21.03	22.983	
3,300.0	3,238.4	3,239.7	3,183.2	12.2	11.6	-123.07	138.2	468.0	508.4	486.4	21.96	23.154	
3,400.0	3,335.2	3,336.5	3,277.0	12.7	12.1	-122.95	143.9	491.3	533.4	510.5	22.88	23.310	
3,500.0	3,432.0	3,433.3	3,370.8	13.3	12.6	-122.84	149.5	514.6	558.4	534.6	23.81	23.451	
3,600.0	3,528.7	3,530.1	3,464.6	13.8	13.1	-122.74	155.2	537.9	583.4	558.7	24.74	23.581	
3,700.0	3,625.5	3,626.9	3,558.4	14.4	13.6	-122.64	160.8	561.2	608.4	582.8	25.67	23.700	
3,800.0	3,722.3	3,723.8	3,652.2	14.9	14.1	-122.56	166.5	584.5	633.4	606.8	26.60	23.809	
3,900.0	3,819.0	3,820.6	3,746.1	15.4	14.6	-122.48	172.1	607.8	658.4	630.9	27.54	23.910	
4,000.0	3,915.8	3,917.4	3,839.9	16.0	15.1	-122.40	177.8	631.1	683.5	655.0	28.47	24.004	
4,100.0	4,012.5	4,014.2	3,933.7	16.5	15.7	-122.34	183.4	654.4	708.5	679.1	29.41	24.091	
4,200.0	4,109.3	4,111.0	4,027.5	17.1	16.2	-122.27	189.0	677.7	733.5	703.1	30.35	24.172	
4,300.0	4,206.1	4,207.8	4,121.3	17.6	16.7	-122.21	194.7	701.0	758.5	727.2	31.28	24.247	
4,400.0	4,302.8	4,304.7	4,215.1	18.1	17.2	-122.16	200.3	724.3	783.5	751.3	32.22	24.318	
4,500.0	4,399.6	4,404.2	4,311.6	18.7	17.7	-122.11	206.1	748.2	808.5	775.4	33.16	24.385	
4,600.0	4,496.4	4,515.8	4,420.3	19.2	18.1	-122.24	211.9	772.2	832.3	798.3	34.00	24.479	
4,700.0	4,593.1	4,628.0	4,530.7	19.8	18.5	-122.64	216.8	792.1	854.5	819.7	34.80	24.556	
4,800.0	4,689.9	4,740.6	4,642.0	20.3	18.8	-123.27	220.6	807.9	875.0	839.4	35.54	24.620	
4,900.0	4,786.6	4,853.1	4,753.9	20.8	19.0	-124.13	223.4	819.5	893.9	857.7	36.22	24.680	
5,000.0	4,883.4	4,965.3	4,865.9	21.4	19.2	-125.21	225.2	826.7	911.4	874.5	36.83	24.743	
5,100.0	4,980.2	5,076.8	4,977.3	21.9	19.4	-126.47	225.9	829.7	927.6	890.2	37.37	24.818	
5,200.0	5,076.9	5,176.4	5,076.9	22.5	19.5	-127.71	225.9	829.7	943.2	905.3	37.87	24.906	
5,303.4	5,177.0	5,276.4	5,177.0	23.0	19.6	-128.92	225.9	829.7	959.7	921.3	38.37	25.011	
5,400.0	5,270.9	5,370.3	5,270.9	23.5	19.7	-130.18	225.9	829.7	974.4	935.6	38.84	25.089	
5,500.0	5,368.8	5,468.3	5,368.8	23.8	19.9	-131.27	225.9	829.7	987.8	948.6	39.24	25.172	
5,600.0	5,467.3	5,566.8	5,467.3	24.1	20.0	-132.16	225.9	829.7	999.1	959.5	39.61	25.221	
5,700.0	5,566.4	5,665.9	5,566.4	24.4	20.1	-132.85	225.9	829.7	1,008.2	968.2	39.96	25.232	
5,800.0	5,665.9	5,765.4	5,665.9	24.6	20.3	-133.36	225.9	829.7	1,015.0	974.7	40.27	25.206	
5,900.0	5,765.7	5,865.2	5,765.7	24.7	20.4	-133.68	225.9	829.7	1,019.4	978.8	40.55	25.138	
6,000.0	5,865.7	5,965.2	5,865.7	24.9	20.5	-133.83	225.9	829.7	1,021.4	980.6	40.81	25.030	
6,034.3	5,900.0	5,999.5	5,900.0	24.9	20.6	3.13	225.9	829.7	1,021.6	980.7	40.89	24.982	
6,100.0	5,965.7	6,065.2	5,965.7	25.0	20.7	3.13	225.9	829.7	1,021.6	980.5	41.06	24.877	
6,200.0	6,065.7	6,165.2	6,065.7	25.1	20.8	3.13	225.9	829.7	1,021.6	980.2	41.33	24.718	
6,300.0	6,165.7	6,265.2	6,165.7	25.2	20.9	3.13	225.9	829.7	1,021.6	980.0	41.59	24.560	
6,400.0	6,265.7	6,365.2	6,265.7	25.3	21.1	3.13	225.9	829.7	1,021.6	979.7	41.86	24.402	
6,500.0	6,365.7	6,465.2	6,365.7	25.4	21.2	3.13	225.9	829.7	1,021.6	979.4	42.14	24.244	
6,600.0	6,465.7	6,565.2	6,465.7	25.5	21.4	3.13	225.9	829.7	1,021.6	979.2	42.41	24.086	
6,700.0	6,565.7	6,665.2	6,565.7	25.6	21.5	3.13	225.9	829.7	1,021.6	978.9	42.69	23.929	
6,800.0	6,665.7	6,765.2	6,665.7	25.7	21.7	3.13	225.9	829.7	1,021.6	978.6	42.97	23.772	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Offset Design										Dechant D31-30D Pad Sec.25-T3N-R65W - Dechant D30-33D - Wellbore #1 - Noble Dechant D30-33D			Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
6,900.0	6,765.7	6,865.2	6,765.7	25.8	21.8	3.13	225.9	829.7	1,021.6	978.3	43.26	23.616			
7,000.0	6,865.7	6,965.2	6,865.7	25.9	21.9	3.13	225.9	829.7	1,021.6	978.0	43.55	23.460			
7,100.0	6,965.7	7,065.2	6,965.7	26.0	22.1	3.13	225.9	829.7	1,021.6	977.7	43.84	23.305			
7,200.0	7,065.7	7,165.2	7,065.7	26.2	22.3	3.13	225.9	829.7	1,021.6	977.4	44.13	23.150			
7,300.0	7,165.7	7,265.2	7,165.7	26.3	22.4	3.13	225.9	829.7	1,021.6	977.1	44.42	22.996			
7,400.0	7,265.7	7,365.2	7,265.7	26.4	22.6	3.13	225.9	829.7	1,021.6	976.8	44.72	22.843			
7,500.0	7,365.7	7,465.2	7,365.7	26.5	22.7	3.13	225.9	829.7	1,021.6	976.5	45.02	22.691			
7,600.0	7,465.7	7,565.2	7,465.7	26.6	22.9	3.13	225.9	829.7	1,021.6	976.2	45.32	22.539			
7,700.0	7,565.7	7,665.2	7,565.7	26.8	23.0	3.13	225.9	829.7	1,021.6	975.9	45.63	22.388			
7,800.0	7,665.7	7,765.2	7,665.7	26.9	23.2	3.13	225.9	829.7	1,021.6	975.6	45.94	22.239			
7,816.3	7,682.0	7,781.5	7,682.0	26.9	23.2	3.13	225.9	829.7	1,021.6	975.6	45.99	22.214			

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Offset Design Dechant D31-30D Pad Sec.25-T3N-R65W - KY Blue H 25-4J (Exist.) - Wellbore #1 - Design #1												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-169.96	-47.4	-8.4	48.1	48.1	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-169.96	-47.4	-8.4	48.1	47.9	0.23	211.841	
200.0	200.0	201.0	201.0	0.3	0.3	-169.96	-47.4	-8.4	48.1	47.4	0.68	71.083	
300.0	300.0	301.0	301.0	0.6	0.6	-169.96	-47.4	-8.4	48.1	47.0	1.13	42.706	
400.0	400.0	401.0	401.0	0.8	0.8	-169.96	-47.4	-8.4	48.1	46.5	1.58	30.522	
500.0	500.0	501.0	501.0	1.0	1.0	-169.96	-47.4	-8.4	48.1	46.1	2.03	23.747	
600.0	600.0	601.0	601.0	1.2	1.2	-169.96	-47.4	-8.4	48.1	45.6	2.47	19.433	
700.0	700.0	701.0	701.0	1.5	1.5	-169.96	-47.4	-8.4	48.1	45.2	2.92	16.446	
800.0	800.0	801.0	801.0	1.7	1.7	-169.96	-47.4	-8.4	48.1	44.7	3.37	14.254	
850.0	850.0	851.0	851.0	1.8	1.8	-169.96	-47.4	-8.4	48.1	44.5	3.60	13.364 CC	
900.0	900.0	901.0	901.0	1.9	1.9	95.55	-47.4	-8.4	48.1	44.3	3.82	12.614 ES	
1,000.0	999.9	1,000.9	1,000.9	2.1	2.1	99.64	-47.4	-8.4	48.6	44.4	4.24	11.458	
1,100.0	1,099.7	1,100.7	1,100.7	2.3	2.4	107.46	-47.4	-8.4	50.2	45.6	4.68	10.740	
1,200.0	1,199.2	1,200.2	1,200.2	2.5	2.6	102.15	-47.4	-8.4	52.6	47.5	5.11	10.283	
1,300.0	1,298.4	1,299.4	1,299.4	2.8	2.8	104.77	-47.4	-8.4	55.4	49.8	5.55	9.970 SF	
1,400.0	1,397.3	1,398.3	1,398.3	3.0	3.0	112.36	-47.4	-8.4	60.2	54.2	6.00	10.032	
1,500.0	1,495.6	1,496.6	1,496.6	3.3	3.3	122.03	-47.4	-8.4	68.7	62.2	6.44	10.655	
1,600.0	1,593.3	1,594.3	1,594.3	3.7	3.5	131.50	-47.4	-8.4	81.7	74.8	6.87	11.887	
1,669.6	1,660.9	1,661.9	1,661.9	3.9	3.6	137.29	-47.4	-8.4	93.6	86.5	7.16	13.071	
1,700.0	1,690.2	1,691.2	1,691.2	4.1	3.7	140.24	-47.4	-8.4	99.5	92.2	7.29	13.640	
1,800.0	1,787.0	1,788.0	1,788.0	4.5	3.9	147.89	-47.4	-8.4	120.2	112.5	7.73	15.555	
1,900.0	1,883.8	1,884.8	1,884.8	5.0	4.1	153.26	-47.4	-8.4	142.4	134.2	8.17	17.428	
2,000.0	1,980.5	1,981.5	1,981.5	5.5	4.3	157.18	-47.4	-8.4	165.4	156.8	8.62	19.194	
2,100.0	2,077.3	2,078.3	2,078.3	5.9	4.6	160.14	-47.4	-8.4	189.1	180.0	9.08	20.830	
2,200.0	2,174.1	2,175.1	2,175.1	6.4	4.8	162.44	-47.4	-8.4	213.0	203.5	9.54	22.336	
2,300.0	2,270.8	2,271.8	2,271.8	7.0	5.0	164.27	-47.4	-8.4	237.3	227.3	10.00	23.718	
2,400.0	2,367.6	2,368.6	2,368.6	7.5	5.2	165.77	-47.4	-8.4	261.7	251.2	10.48	24.985	
2,500.0	2,464.3	2,465.3	2,465.3	8.0	5.4	167.01	-47.4	-8.4	286.3	275.3	10.95	26.149	
2,600.0	2,561.1	2,562.1	2,562.1	8.5	5.6	168.05	-47.4	-8.4	311.0	299.6	11.42	27.220	
2,700.0	2,657.9	2,658.9	2,658.9	9.0	5.9	168.94	-47.4	-8.4	335.7	323.8	11.90	28.206	
2,800.0	2,754.6	2,755.6	2,755.6	9.5	6.1	169.71	-47.4	-8.4	360.6	348.2	12.38	29.117	
2,900.0	2,851.4	2,852.4	2,852.4	10.1	6.3	170.38	-47.4	-8.4	385.5	372.6	12.87	29.961	
3,000.0	2,948.2	2,949.2	2,949.2	10.6	6.5	170.97	-47.4	-8.4	410.4	397.0	13.35	30.743	
3,100.0	3,044.9	3,045.9	3,045.9	11.1	6.7	171.49	-47.4	-8.4	435.3	421.5	13.83	31.470	
3,200.0	3,141.7	3,142.7	3,142.7	11.7	7.0	171.95	-47.4	-8.4	460.3	446.0	14.32	32.147	
3,300.0	3,238.4	3,239.4	3,239.4	12.2	7.2	172.37	-47.4	-8.4	485.4	470.5	14.81	32.779	
3,400.0	3,335.2	3,336.2	3,336.2	12.7	7.4	172.75	-47.4	-8.4	510.4	495.1	15.29	33.370	
3,500.0	3,432.0	3,433.0	3,433.0	13.3	7.6	173.09	-47.4	-8.4	535.5	519.7	15.78	33.924	
3,600.0	3,528.7	3,529.7	3,529.7	13.8	7.8	173.40	-47.4	-8.4	560.5	544.3	16.27	34.445	
3,700.0	3,625.5	3,626.5	3,626.5	14.4	8.0	173.68	-47.4	-8.4	585.6	568.9	16.76	34.934	
3,800.0	3,722.3	3,723.3	3,723.3	14.9	8.3	173.94	-47.4	-8.4	610.7	593.5	17.25	35.395	
3,900.0	3,819.0	3,820.0	3,820.0	15.4	8.5	174.18	-47.4	-8.4	635.8	618.1	17.75	35.830	
4,000.0	3,915.8	3,916.8	3,916.8	16.0	8.7	174.40	-47.4	-8.4	661.0	642.7	18.24	36.240	
4,100.0	4,012.5	4,013.5	4,013.5	16.5	8.9	174.61	-47.4	-8.4	686.1	667.4	18.73	36.629	
4,200.0	4,109.3	4,110.3	4,110.3	17.1	9.1	174.80	-47.4	-8.4	711.2	692.0	19.22	36.997	
4,300.0	4,206.1	4,207.1	4,207.1	17.6	9.3	174.98	-47.4	-8.4	736.4	716.7	19.72	37.347	
4,400.0	4,302.8	4,303.8	4,303.8	18.1	9.6	175.14	-47.4	-8.4	761.5	741.3	20.21	37.679	
4,500.0	4,399.6	4,400.6	4,400.6	18.7	9.8	175.30	-47.4	-8.4	786.7	766.0	20.71	37.995	
4,600.0	4,496.4	4,497.4	4,497.4	19.2	10.0	175.45	-47.4	-8.4	811.8	790.6	21.20	38.295	
4,700.0	4,593.1	4,594.1	4,594.1	19.8	10.2	175.58	-47.4	-8.4	837.0	815.3	21.69	38.582	
4,800.0	4,689.9	4,690.9	4,690.9	20.3	10.4	175.71	-47.4	-8.4	862.2	840.0	22.19	38.855	
4,900.0	4,786.6	4,787.6	4,787.6	20.8	10.6	175.83	-47.4	-8.4	887.4	864.7	22.69	39.116	

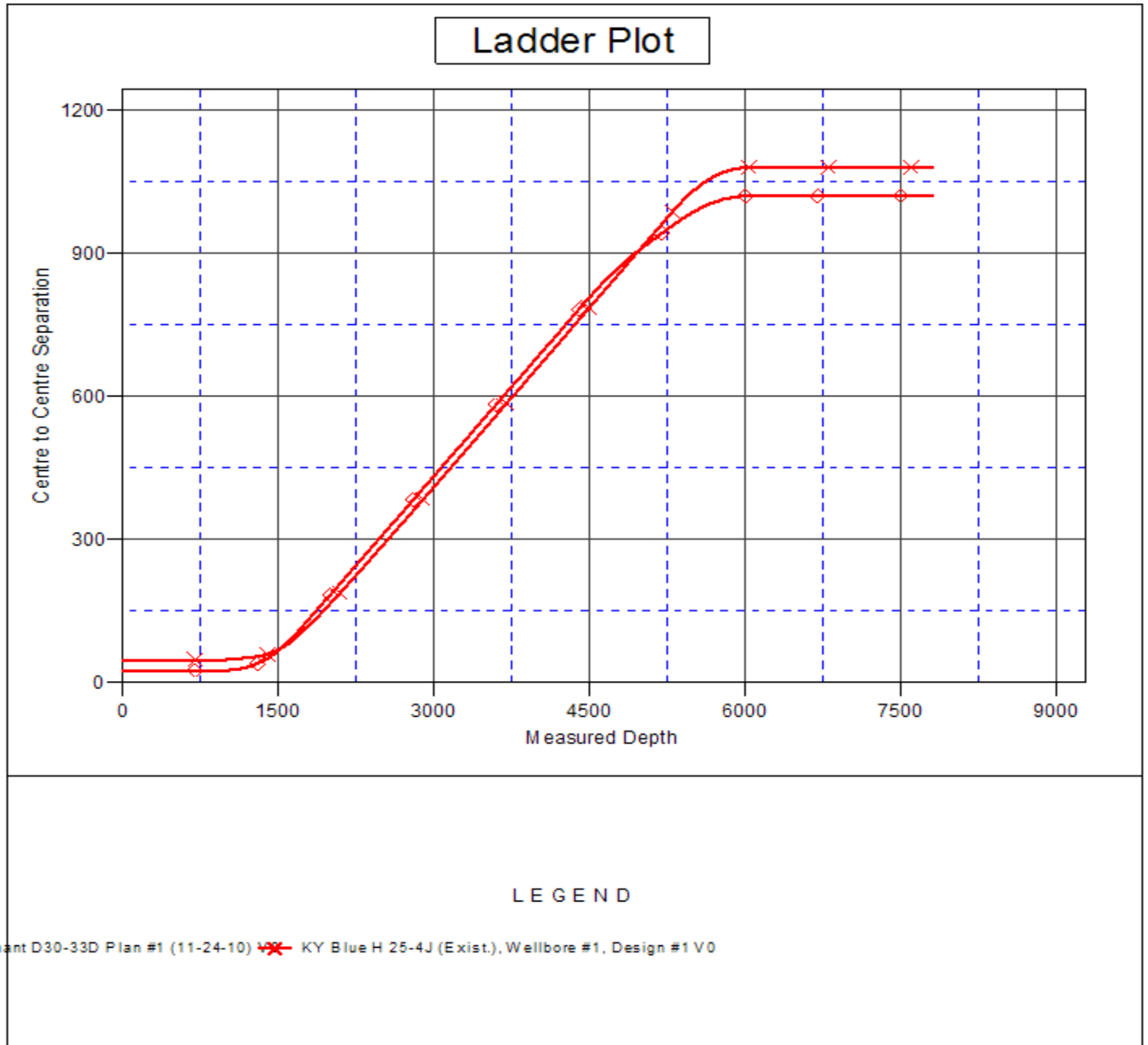
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Dechant D31-30D Pad Sec.25-T3N-R65W - KY Blue H 25-4J (Exist.) - Wellbore #1 - Design #1												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,883.4	4,884.4	4,884.4	21.4	10.9	175.95	-47.4	-8.4	912.5	889.4	23.18	39.366	
5,100.0	4,980.2	4,981.2	4,981.2	21.9	11.1	176.06	-47.4	-8.4	937.7	914.0	23.68	39.604	
5,200.0	5,076.9	5,077.9	5,077.9	22.5	11.3	176.16	-47.4	-8.4	962.9	938.7	24.17	39.833	
5,303.4	5,177.0	5,178.0	5,178.0	23.0	11.5	176.26	-47.4	-8.4	988.9	964.2	24.69	40.059	
5,400.0	5,270.9	5,271.9	5,271.9	23.5	11.7	176.38	-47.4	-8.4	1,011.7	986.5	25.23	40.102	
5,500.0	5,368.8	5,369.8	5,369.8	23.8	12.0	176.47	-47.4	-8.4	1,031.9	1,006.2	25.74	40.094	
5,600.0	5,467.3	5,468.3	5,468.3	24.1	12.2	176.55	-47.4	-8.4	1,048.7	1,022.5	26.21	40.009	
5,700.0	5,566.4	5,567.4	5,567.4	24.4	12.4	176.61	-47.4	-8.4	1,062.1	1,035.4	26.65	39.851	
5,800.0	5,665.9	5,666.9	5,666.9	24.6	12.6	176.65	-47.4	-8.4	1,071.9	1,044.9	27.05	39.625	
5,900.0	5,765.7	5,766.7	5,766.7	24.7	12.8	176.68	-47.4	-8.4	1,078.4	1,051.0	27.42	39.333	
6,000.0	5,865.7	5,866.7	5,866.7	24.9	13.1	176.69	-47.4	-8.4	1,081.3	1,053.6	27.74	38.979	
6,034.3	5,900.0	5,901.0	5,901.0	24.9	13.2	-46.33	-47.4	-8.4	1,081.5	1,053.7	27.85	38.838	
6,100.0	5,965.7	5,966.7	5,966.7	25.0	13.3	-46.33	-47.4	-8.4	1,081.5	1,053.4	28.11	38.479	
6,200.0	6,065.7	6,066.7	6,066.7	25.1	13.5	-46.33	-47.4	-8.4	1,081.5	1,053.0	28.50	37.954	
6,300.0	6,165.7	6,166.7	6,166.7	25.2	13.7	-46.33	-47.4	-8.4	1,081.5	1,052.6	28.89	37.441	
6,400.0	6,265.7	6,266.7	6,266.7	25.3	14.0	-46.33	-47.4	-8.4	1,081.5	1,052.2	29.28	36.939	
6,500.0	6,365.7	6,366.7	6,366.7	25.4	14.2	-46.33	-47.4	-8.4	1,081.5	1,051.8	29.67	36.450	
6,600.0	6,465.7	6,466.7	6,466.7	25.5	14.4	-46.33	-47.4	-8.4	1,081.5	1,051.4	30.07	35.971	
6,700.0	6,565.7	6,566.7	6,566.7	25.6	14.6	-46.33	-47.4	-8.4	1,081.5	1,051.0	30.46	35.503	
6,800.0	6,665.7	6,666.7	6,666.7	25.7	14.9	-46.33	-47.4	-8.4	1,081.5	1,050.7	30.86	35.046	
6,900.0	6,765.7	6,766.7	6,766.7	25.8	15.1	-46.33	-47.4	-8.4	1,081.5	1,050.3	31.26	34.599	
7,000.0	6,865.7	6,866.7	6,866.7	25.9	15.3	-46.33	-47.4	-8.4	1,081.5	1,049.9	31.66	34.162	
7,100.0	6,965.7	6,966.7	6,966.7	26.0	15.5	-46.33	-47.4	-8.4	1,081.5	1,049.5	32.06	33.734	
7,200.0	7,065.7	7,066.7	7,066.7	26.2	15.8	-46.33	-47.4	-8.4	1,081.5	1,049.0	32.46	33.316	
7,300.0	7,165.7	7,166.7	7,166.7	26.3	16.0	-46.33	-47.4	-8.4	1,081.5	1,048.6	32.87	32.907	
7,400.0	7,265.7	7,266.7	7,266.7	26.4	16.2	-46.33	-47.4	-8.4	1,081.5	1,048.2	33.27	32.507	
7,500.0	7,365.7	7,366.7	7,366.7	26.5	16.4	-46.33	-47.4	-8.4	1,081.5	1,047.8	33.68	32.115	
7,600.0	7,465.7	7,466.7	7,466.7	26.6	16.7	-46.33	-47.4	-8.4	1,081.5	1,047.4	34.08	31.732	
7,700.0	7,565.7	7,566.7	7,566.7	26.8	16.9	-46.33	-47.4	-8.4	1,081.5	1,047.0	34.49	31.357	
7,800.0	7,665.7	7,666.7	7,666.7	26.9	17.1	-46.33	-47.4	-8.4	1,081.5	1,046.6	34.90	30.990	
7,816.3	7,682.0	7,683.0	7,683.0	26.9	17.2	-46.33	-47.4	-8.4	1,081.5	1,046.5	34.97	30.930	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4812.0ft (Original Well Elev) Coordinates are relative to: Dechant D31-30D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.58°



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dechant D31-30D
Project:	SEC.25-T3N-R65W	TVD Reference:	WELL @ 4812.0ft (Original Well Elev)
Reference Site:	Dechant D31-30D Pad Sec.25-T3N-R65W	MD Reference:	WELL @ 4812.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dechant D31-30D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble Dechant D31-30D Plan #2 (2-03-11)	Offset TVD Reference:	Offset Datum

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Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.58°

