

ENSIGN

Directional

APPROVED

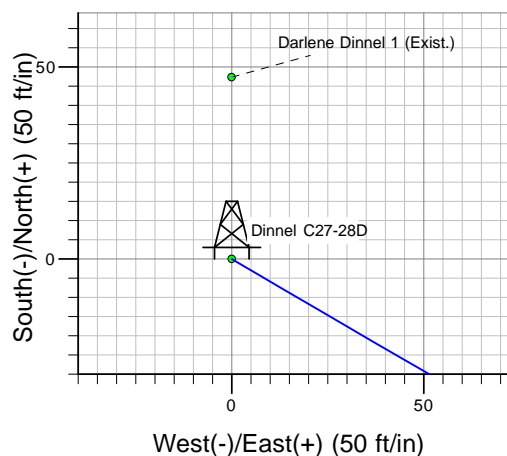
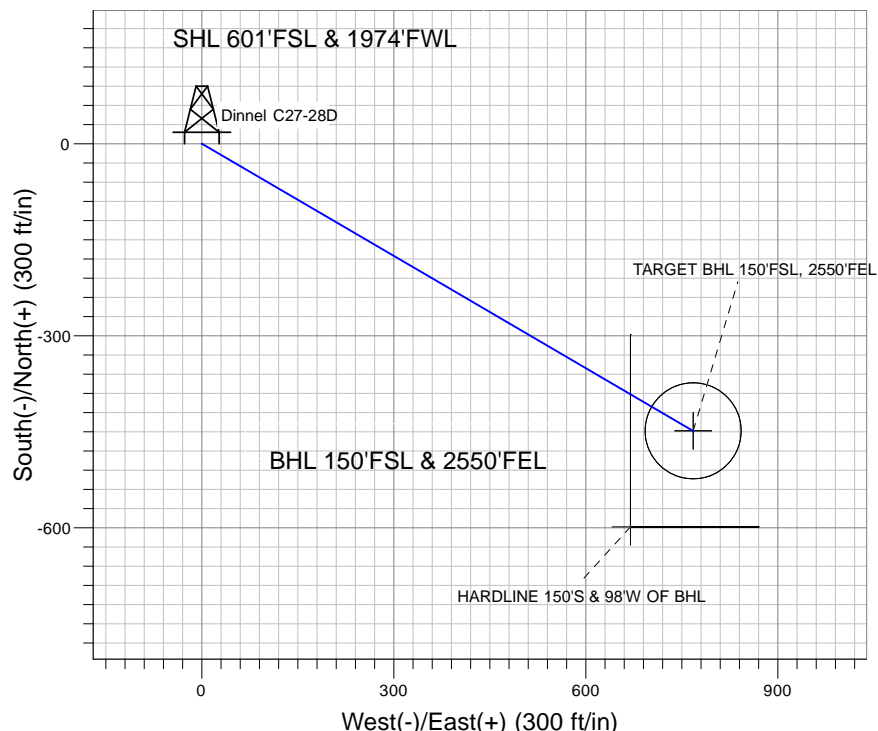
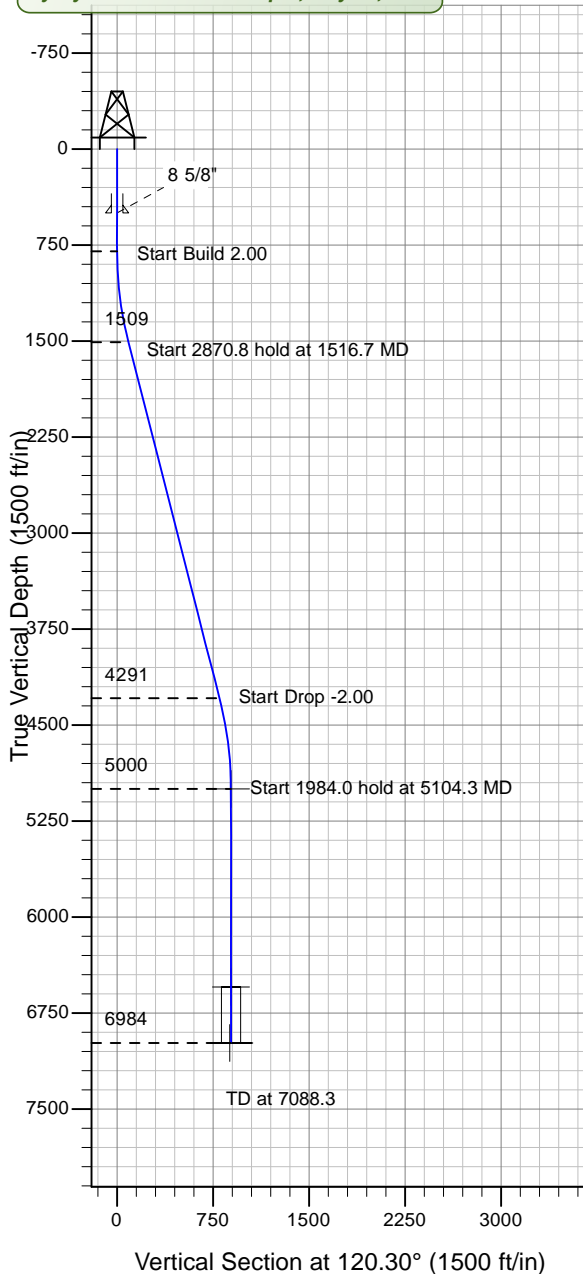
By Ryan Calhoun at 1:16 pm, May 26, 2010

Well Name: Dinnel C27-28D

Surface Location: Dinnel C27-28D Pad Sec.22-T4N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4671.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1350792.18 3267973.41 40° 17' 32.424 N 104° 32' 21.624 W
Original Well Elev WELL @ 4684.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Dinnel C27-28D Pad Sec.22-T4N-R64W
Dinnel C27-28D
Noble Dinnel C27-28D Plan #2 (05-10-10)
15:37, May 10 2010



Azimuths to True North
Magnetic North: 8.89°

Magnetic Field
Strength: 53222.5nT
Dip Angle: 67.04°
Date: 4/20/2010
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 150'FSL, 2550'FEL	5000.0	-448.6	767.7	40° 17' 27.991 N	104° 32' 11.717 W	Point
TARGET CIRCLE 150'FSL, 2550'FEL	6547.0	-448.6	767.7	40° 17' 27.991 N	104° 32' 11.717 W	Circle (Radius: 75.0)
HARDLINE 150'S & 98'W OF BHL	6984.0	-598.6	669.7	40° 17' 26.509 N	104° 32' 12.982 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	1516.7	14.33	120.30	1509.3	-45.0	77.0	2.00	120.30	89.2	
4	4387.6	14.33	120.30	4290.7	-403.6	690.7	0.00	0.00	800.0	
5	5104.3	0.00	0.00	5000.0	-448.6	767.7	2.00	180.00	889.1	TARGET BHL 150'FSL, 2550'FEL
6	7088.3	0.00	0.00	6984.0	-448.6	767.7	0.00	0.00	889.1	



NOBLE ENERGY INC WELD COUNTY CO

SEC.22-T4N-R64W

Dinnel C27-28D Pad Sec.22-T4N-R64W

Dinnel C27-28D

Wellbore #1

Plan: Noble Dinnel C27-28D Plan #2 (05-10-10)

Standard Planning Report

10 May, 2010



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Dinnel C27-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

Project	SEC.22-T4N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Dinnel C27-28D Pad Sec.22-T4N-R64W											
Site Position:						Northing:			1,350,792.19ft			Latitude:			40° 17' 32.424 N		
From:			Lat/Long			Easting:			3,267,973.41 ft			Longitude:			104° 32' 21.624 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.62 °		

Well	Dinnel C27-28D					
Well Position	+N-S	0.0 ft	Northing:	1,350,792.18 ft	Latitude:	40° 17' 32.424 N
	+E-W	0.0 ft	Easting:	3,267,973.41 ft	Longitude:	104° 32' 21.624 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,671.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/20/2010	8.89	67.04	53,222

Design	Noble Dinnel C27-28D Plan #2 (05-10-10)			
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	120.30

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,516.7	14.33	120.30	1,509.3	-45.0	77.0	2.00	2.00	0.00	120.30	
4,387.6	14.33	120.30	4,290.7	-403.6	690.7	0.00	0.00	0.00	0.00	
5,104.3	0.00	0.00	5,000.0	-448.6	767.7	2.00	-2.00	0.00	180.00	TARGET BHL 150'I
7,088.3	0.00	0.00	6,984.0	-448.6	767.7	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Dinnel C27-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

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
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
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	120.30	840.0	-0.1	0.2	0.3	2.00	2.00	0.00
880.0	1.60	120.30	880.0	-0.6	1.0	1.1	2.00	2.00	0.00
920.0	2.40	120.30	920.0	-1.3	2.2	2.5	2.00	2.00	0.00
960.0	3.20	120.30	959.9	-2.3	3.9	4.5	2.00	2.00	0.00
1,000.0	4.00	120.30	999.8	-3.5	6.0	7.0	2.00	2.00	0.00
1,040.0	4.80	120.30	1,039.7	-5.1	8.7	10.0	2.00	2.00	0.00
1,080.0	5.60	120.30	1,079.6	-6.9	11.8	13.7	2.00	2.00	0.00
1,120.0	6.40	120.30	1,119.3	-9.0	15.4	17.9	2.00	2.00	0.00
1,160.0	7.20	120.30	1,159.1	-11.4	19.5	22.6	2.00	2.00	0.00
1,200.0	8.00	120.30	1,198.7	-14.1	24.1	27.9	2.00	2.00	0.00
1,240.0	8.80	120.30	1,238.3	-17.0	29.1	33.7	2.00	2.00	0.00
1,280.0	9.60	120.30	1,277.8	-20.2	34.6	40.1	2.00	2.00	0.00
1,320.0	10.40	120.30	1,317.1	-23.7	40.6	47.1	2.00	2.00	0.00
1,360.0	11.20	120.30	1,356.4	-27.5	47.1	54.6	2.00	2.00	0.00
1,400.0	12.00	120.30	1,395.6	-31.6	54.1	62.6	2.00	2.00	0.00
1,440.0	12.80	120.30	1,434.7	-35.9	61.5	71.2	2.00	2.00	0.00
1,480.0	13.60	120.30	1,473.6	-40.5	69.4	80.3	2.00	2.00	0.00
1,516.7	14.33	120.30	1,509.3	-45.0	77.0	89.2	2.00	2.00	0.00
1,520.0	14.33	120.30	1,512.4	-45.4	77.7	90.0	0.00	0.00	0.00
1,560.0	14.33	120.30	1,551.2	-50.4	86.3	99.9	0.00	0.00	0.00
1,600.0	14.33	120.30	1,590.0	-55.4	94.8	109.8	0.00	0.00	0.00
1,640.0	14.33	120.30	1,628.7	-60.4	103.4	119.7	0.00	0.00	0.00
1,680.0	14.33	120.30	1,667.5	-65.4	111.9	129.6	0.00	0.00	0.00
1,720.0	14.33	120.30	1,706.2	-70.4	120.5	139.5	0.00	0.00	0.00
1,760.0	14.33	120.30	1,745.0	-75.4	129.0	149.4	0.00	0.00	0.00
1,800.0	14.33	120.30	1,783.7	-80.4	137.6	159.3	0.00	0.00	0.00
1,840.0	14.33	120.30	1,822.5	-85.4	146.1	169.2	0.00	0.00	0.00
1,880.0	14.33	120.30	1,861.2	-90.4	154.7	179.1	0.00	0.00	0.00
1,920.0	14.33	120.30	1,900.0	-95.4	163.2	189.0	0.00	0.00	0.00
1,960.0	14.33	120.30	1,938.7	-100.4	171.8	198.9	0.00	0.00	0.00
2,000.0	14.33	120.30	1,977.5	-105.4	180.3	208.8	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Dinnel C27-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

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)
2,040.0	14.33	120.30	2,016.3	-110.4	188.9	218.7	0.00	0.00	0.00
2,080.0	14.33	120.30	2,055.0	-115.4	197.4	228.6	0.00	0.00	0.00
2,120.0	14.33	120.30	2,093.8	-120.4	206.0	238.6	0.00	0.00	0.00
2,160.0	14.33	120.30	2,132.5	-125.4	214.5	248.5	0.00	0.00	0.00
2,200.0	14.33	120.30	2,171.3	-130.3	223.1	258.4	0.00	0.00	0.00
2,240.0	14.33	120.30	2,210.0	-135.3	231.6	268.3	0.00	0.00	0.00
2,280.0	14.33	120.30	2,248.8	-140.3	240.2	278.2	0.00	0.00	0.00
2,320.0	14.33	120.30	2,287.5	-145.3	248.7	288.1	0.00	0.00	0.00
2,360.0	14.33	120.30	2,326.3	-150.3	257.3	298.0	0.00	0.00	0.00
2,400.0	14.33	120.30	2,365.0	-155.3	265.8	307.9	0.00	0.00	0.00
2,440.0	14.33	120.30	2,403.8	-160.3	274.4	317.8	0.00	0.00	0.00
2,480.0	14.33	120.30	2,442.6	-165.3	282.9	327.7	0.00	0.00	0.00
2,520.0	14.33	120.30	2,481.3	-170.3	291.5	337.6	0.00	0.00	0.00
2,560.0	14.33	120.30	2,520.1	-175.3	300.0	347.5	0.00	0.00	0.00
2,600.0	14.33	120.30	2,558.8	-180.3	308.6	357.4	0.00	0.00	0.00
2,640.0	14.33	120.30	2,597.6	-185.3	317.1	367.3	0.00	0.00	0.00
2,680.0	14.33	120.30	2,636.3	-190.3	325.7	377.2	0.00	0.00	0.00
2,720.0	14.33	120.30	2,675.1	-195.3	334.2	387.1	0.00	0.00	0.00
2,760.0	14.33	120.30	2,713.8	-200.3	342.8	397.0	0.00	0.00	0.00
2,800.0	14.33	120.30	2,752.6	-205.3	351.3	406.9	0.00	0.00	0.00
2,840.0	14.33	120.30	2,791.3	-210.3	359.9	416.8	0.00	0.00	0.00
2,880.0	14.33	120.30	2,830.1	-215.3	368.4	426.7	0.00	0.00	0.00
2,920.0	14.33	120.30	2,868.9	-220.3	377.0	436.6	0.00	0.00	0.00
2,960.0	14.33	120.30	2,907.6	-225.3	385.5	446.5	0.00	0.00	0.00
3,000.0	14.33	120.30	2,946.4	-230.3	394.1	456.4	0.00	0.00	0.00
3,040.0	14.33	120.30	2,985.1	-235.3	402.6	466.3	0.00	0.00	0.00
3,080.0	14.33	120.30	3,023.9	-240.3	411.2	476.2	0.00	0.00	0.00
3,120.0	14.33	120.30	3,062.6	-245.3	419.7	486.1	0.00	0.00	0.00
3,160.0	14.33	120.30	3,101.4	-250.3	428.3	496.0	0.00	0.00	0.00
3,200.0	14.33	120.30	3,140.1	-255.3	436.8	505.9	0.00	0.00	0.00
3,240.0	14.33	120.30	3,178.9	-260.3	445.4	515.8	0.00	0.00	0.00
3,280.0	14.33	120.30	3,217.6	-265.3	453.9	525.7	0.00	0.00	0.00
3,320.0	14.33	120.30	3,256.4	-270.3	462.5	535.7	0.00	0.00	0.00
3,360.0	14.33	120.30	3,295.2	-275.2	471.0	545.6	0.00	0.00	0.00
3,400.0	14.33	120.30	3,333.9	-280.2	479.6	555.5	0.00	0.00	0.00
3,440.0	14.33	120.30	3,372.7	-285.2	488.1	565.4	0.00	0.00	0.00
3,480.0	14.33	120.30	3,411.4	-290.2	496.7	575.3	0.00	0.00	0.00
3,520.0	14.33	120.30	3,450.2	-295.2	505.2	585.2	0.00	0.00	0.00
3,560.0	14.33	120.30	3,488.9	-300.2	513.8	595.1	0.00	0.00	0.00
3,600.0	14.33	120.30	3,527.7	-305.2	522.3	605.0	0.00	0.00	0.00
3,640.0	14.33	120.30	3,566.4	-310.2	530.9	614.9	0.00	0.00	0.00
3,680.0	14.33	120.30	3,605.2	-315.2	539.4	624.8	0.00	0.00	0.00
3,720.0	14.33	120.30	3,644.0	-320.2	548.0	634.7	0.00	0.00	0.00
3,760.0	14.33	120.30	3,682.7	-325.2	556.5	644.6	0.00	0.00	0.00
3,800.0	14.33	120.30	3,721.5	-330.2	565.1	654.5	0.00	0.00	0.00
3,840.0	14.33	120.30	3,760.2	-335.2	573.6	664.4	0.00	0.00	0.00
3,880.0	14.33	120.30	3,799.0	-340.2	582.2	674.3	0.00	0.00	0.00
3,920.0	14.33	120.30	3,837.7	-345.2	590.7	684.2	0.00	0.00	0.00
3,960.0	14.33	120.30	3,876.5	-350.2	599.3	694.1	0.00	0.00	0.00
4,000.0	14.33	120.30	3,915.2	-355.2	607.8	704.0	0.00	0.00	0.00
4,040.0	14.33	120.30	3,954.0	-360.2	616.4	713.9	0.00	0.00	0.00
4,080.0	14.33	120.30	3,992.7	-365.2	624.9	723.8	0.00	0.00	0.00
4,120.0	14.33	120.30	4,031.5	-370.2	633.5	733.7	0.00	0.00	0.00
4,160.0	14.33	120.30	4,070.3	-375.2	642.0	743.6	0.00	0.00	0.00

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Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

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)
4,200.0	14.33	120.30	4,109.0	-380.2	650.6	753.5	0.00	0.00	0.00
4,240.0	14.33	120.30	4,147.8	-385.2	659.1	763.4	0.00	0.00	0.00
4,280.0	14.33	120.30	4,186.5	-390.2	667.7	773.3	0.00	0.00	0.00
4,320.0	14.33	120.30	4,225.3	-395.2	676.2	783.2	0.00	0.00	0.00
4,360.0	14.33	120.30	4,264.0	-400.2	684.8	793.1	0.00	0.00	0.00
4,387.6	14.33	120.30	4,290.7	-403.6	690.7	800.0	0.00	0.00	0.00
4,400.0	14.09	120.30	4,302.8	-405.1	693.3	803.0	2.00	-2.00	0.00
4,440.0	13.29	120.30	4,341.7	-409.9	701.5	812.5	2.00	-2.00	0.00
4,480.0	12.49	120.30	4,380.6	-414.4	709.2	821.4	2.00	-2.00	0.00
4,520.0	11.69	120.30	4,419.8	-418.6	716.4	829.8	2.00	-2.00	0.00
4,560.0	10.89	120.30	4,459.0	-422.6	723.2	837.6	2.00	-2.00	0.00
4,600.0	10.09	120.30	4,498.3	-426.3	729.5	844.9	2.00	-2.00	0.00
4,640.0	9.29	120.30	4,537.7	-429.7	735.3	851.6	2.00	-2.00	0.00
4,680.0	8.49	120.30	4,577.3	-432.8	740.6	857.8	2.00	-2.00	0.00
4,720.0	7.69	120.30	4,616.9	-435.6	745.5	863.4	2.00	-2.00	0.00
4,760.0	6.89	120.30	4,656.5	-438.2	749.8	868.5	2.00	-2.00	0.00
4,800.0	6.09	120.30	4,696.3	-440.5	753.7	873.0	2.00	-2.00	0.00
4,840.0	5.29	120.30	4,736.1	-442.5	757.2	877.0	2.00	-2.00	0.00
4,880.0	4.49	120.30	4,775.9	-444.2	760.1	880.4	2.00	-2.00	0.00
4,920.0	3.69	120.30	4,815.8	-445.6	762.6	883.2	2.00	-2.00	0.00
4,960.0	2.89	120.30	4,855.8	-446.8	764.6	885.5	2.00	-2.00	0.00
5,000.0	2.09	120.30	4,895.7	-447.6	766.0	887.3	2.00	-2.00	0.00
5,040.0	1.29	120.30	4,935.7	-448.2	767.1	888.4	2.00	-2.00	0.00
5,080.0	0.49	120.30	4,975.7	-448.5	767.6	889.0	2.00	-2.00	0.00
5,104.3	0.00	0.00	5,000.0	-448.6	767.7	889.1	2.00	-2.00	0.00
TARGET BHL 150'FSL, 2550'FEL									
5,120.0	0.00	0.00	5,015.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,160.0	0.00	0.00	5,055.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,095.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,240.0	0.00	0.00	5,135.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,280.0	0.00	0.00	5,175.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,320.0	0.00	0.00	5,215.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,360.0	0.00	0.00	5,255.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,295.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,440.0	0.00	0.00	5,335.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,480.0	0.00	0.00	5,375.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,520.0	0.00	0.00	5,415.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,560.0	0.00	0.00	5,455.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,495.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,640.0	0.00	0.00	5,535.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,680.0	0.00	0.00	5,575.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,720.0	0.00	0.00	5,615.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,760.0	0.00	0.00	5,655.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,695.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,840.0	0.00	0.00	5,735.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,880.0	0.00	0.00	5,775.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,920.0	0.00	0.00	5,815.7	-448.6	767.7	889.1	0.00	0.00	0.00
5,960.0	0.00	0.00	5,855.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,895.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,040.0	0.00	0.00	5,935.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,080.0	0.00	0.00	5,975.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,120.0	0.00	0.00	6,015.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,160.0	0.00	0.00	6,055.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,095.7	-448.6	767.7	889.1	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Dinnel C27-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

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)
6,240.0	0.00	0.00	6,135.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,280.0	0.00	0.00	6,175.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,320.0	0.00	0.00	6,215.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,360.0	0.00	0.00	6,255.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,295.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,440.0	0.00	0.00	6,335.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,480.0	0.00	0.00	6,375.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,520.0	0.00	0.00	6,415.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,560.0	0.00	0.00	6,455.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,495.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,640.0	0.00	0.00	6,535.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,651.3	0.00	0.00	6,547.0	-448.6	767.7	889.1	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 150'FSL, 2550'FEL									
6,680.0	0.00	0.00	6,575.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,720.0	0.00	0.00	6,615.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,760.0	0.00	0.00	6,655.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,695.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,840.0	0.00	0.00	6,735.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,880.0	0.00	0.00	6,775.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,920.0	0.00	0.00	6,815.7	-448.6	767.7	889.1	0.00	0.00	0.00
6,938.3	0.00	0.00	6,834.0	-448.6	767.7	889.1	0.00	0.00	0.00
CODELL									
6,960.0	0.00	0.00	6,855.7	-448.6	767.7	889.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,895.7	-448.6	767.7	889.1	0.00	0.00	0.00
7,040.0	0.00	0.00	6,935.7	-448.6	767.7	889.1	0.00	0.00	0.00
7,080.0	0.00	0.00	6,975.7	-448.6	767.7	889.1	0.00	0.00	0.00
7,088.3	0.00	0.00	6,984.0	-448.6	767.7	889.1	0.00	0.00	0.00
HARDLINE 150'S & 98'W OF BHL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TARGET BHL 150'FS	0.00	0.00	5,000.0	-448.6	767.7	1,350,351.94	3,268,745.87	40° 17' 27.991 N	104° 32' 11.717 W
- plan hits target center									
- Point									
HARDLINE 150'S & 9	0.00	0.00	6,984.0	-598.6	669.7	1,350,200.90	3,268,649.52	40° 17' 26.509 N	104° 32' 12.982 W
- plan misses target center by 179.2ft at 7088.3ft MD (6984.0 TVD, -448.6 N, 767.7 E)									
- Polygon									
Point 1			6,984.0	0.0	0.0	1,350,200.90	3,268,649.52		
Point 2			6,984.0	0.0	200.0	1,350,203.06	3,268,849.50		
Point 3			6,984.0	0.0	0.0	1,350,200.90	3,268,649.52		
Point 4			6,984.0	300.0	0.0	1,350,500.87	3,268,646.27		
TARGET CIRCLE 150'	0.00	0.00	6,547.0	-448.6	767.7	1,350,351.94	3,268,745.89	40° 17' 27.991 N	104° 32' 11.717 W
- plan hits target center									
- Circle (radius 75.0)									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Dinnel C27-28D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Project:	SEC.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	North Reference:	True
Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
500.0	500.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,651.3	6,547.0	NIOBRARA		0.00		
6,938.3	6,834.0	CODELL		0.00		



NOBLE ENERGY INC WELD COUNTY CO

SEC.22-T4N-R64W

Dinnel C27-28D Pad Sec.22-T4N-R64W

Dinnel C27-28D

Wellbore #1

Noble Dinnel C27-28D Plan #2 (05-10-10)

Anticollision Report

10 May, 2010



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dinnel C27-28D
Project:	SEC.22-T4N-R64W	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Reference Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)	Offset TVD Reference:	Offset Datum

Reference	Noble Dinnel C27-28D Plan #2 (05-1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 2,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 5/10/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,088.3	Noble Dinnel C27-28D Plan #2 (05-10-10)	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						
Dinnel C27-28D Pad Sec.22-T4N-R64W						
Darlene Dinnel 1 (Exist.) - Wellbore #1 - Design #1	800.0	800.0	47.4	44.0	14.170	CC, ES
Darlene Dinnel 1 (Exist.) - Wellbore #1 - Design #1	1,000.0	999.8	51.2	47.0	12.230	SF

Offset Design Dinnel C27-28D Pad Sec.22-T4N-R64W - Darlene Dinnel 1 (Exist.) - Wellbore #1 - Design #1											
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
0.0	0.0	0.0	0.0	0.0	0.0	0.00	47.4	0.0	47.4		
100.0	100.0	100.0	100.0	0.1	0.1	0.00	47.4	0.0	47.4	47.2	0.20
200.0	200.0	200.0	200.0	0.3	0.3	0.00	47.4	0.0	47.4	46.7	0.65
300.0	300.0	300.0	300.0	0.5	0.5	0.00	47.4	0.0	47.4	46.3	1.09
400.0	400.0	400.0	400.0	0.8	0.8	0.00	47.4	0.0	47.4	45.8	1.54
500.0	500.0	500.0	500.0	1.0	1.0	0.00	47.4	0.0	47.4	45.4	1.99
600.0	600.0	600.0	600.0	1.2	1.2	0.00	47.4	0.0	47.4	44.9	2.44
700.0	700.0	700.0	700.0	1.4	1.4	0.00	47.4	0.0	47.4	44.5	2.89
800.0	800.0	800.0	800.0	1.7	1.7	0.00	47.4	0.0	47.4	44.0	3.34
900.0	900.0	900.0	900.0	1.9	1.9	-122.07	47.4	0.0	48.3	44.5	3.77
1,000.0	999.8	999.8	999.8	2.1	2.1	-126.99	47.4	0.0	51.2	47.0	4.19
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.3	-133.92	47.4	0.0	56.9	52.3	4.62
1,200.0	1,198.7	1,198.7	1,198.7	2.5	2.6	-141.43	47.4	0.0	66.0	60.9	5.05
1,300.0	1,297.5	1,297.5	1,297.5	2.8	2.8	-148.37	47.4	0.0	78.8	73.4	5.48
1,400.0	1,395.6	1,395.6	1,395.6	3.1	3.0	-154.21	47.4	0.0	95.7	89.8	5.91
1,500.0	1,493.1	1,493.1	1,493.1	3.5	3.2	-158.86	47.4	0.0	116.4	110.1	6.33
1,600.0	1,590.0	1,590.0	1,590.0	3.9	3.4	-162.48	47.4	0.0	139.8	133.0	6.77
1,700.0	1,686.8	1,686.8	1,686.8	4.4	3.7	-165.09	47.4	0.0	163.7	156.4	7.23
1,800.0	1,783.7	1,783.7	1,783.7	4.9	3.9	-167.03	47.4	0.0	187.7	180.0	7.69
1,900.0	1,880.6	1,880.6	1,880.6	5.4	4.1	-168.53	47.4	0.0	212.0	203.8	8.15
2,000.0	1,977.5	1,977.5	1,977.5	5.9	4.3	-169.72	47.4	0.0	236.3	227.7	8.62
2,100.0	2,074.4	2,074.4	2,074.4	6.4	4.5	-170.69	47.4	0.0	260.7	251.6	9.09
2,200.0	2,171.3	2,171.3	2,171.3	6.9	4.8	-171.50	47.4	0.0	285.2	275.6	9.56
2,300.0	2,268.2	2,268.2	2,268.2	7.4	5.0	-172.17	47.4	0.0	309.7	299.7	10.04
2,400.0	2,365.0	2,365.0	2,365.0	7.9	5.2	-172.75	47.4	0.0	334.3	323.8	10.51

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 Dinnel C27-28D
Project:	SEC.22-T4N-R64W	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Reference Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)	Offset TVD Reference:	Offset Datum

Offset Design Dinnel C27-28D Pad Sec.22-T4N-R64W - Darlene Dinnel 1 (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
2,500.0	2,461.9	2,461.9	2,461.9	8.4	5.4	-173.25	47.4	0.0	358.9	347.9	10.99	32.643	
2,600.0	2,558.8	2,558.8	2,558.8	8.9	5.6	-173.68	47.4	0.0	383.5	372.0	11.47	33.419	
2,700.0	2,655.7	2,655.7	2,655.7	9.5	5.8	-174.07	47.4	0.0	408.1	396.1	11.96	34.130	
2,800.0	2,752.6	2,752.6	2,752.6	10.0	6.1	-174.40	47.4	0.0	432.7	420.3	12.44	34.784	
2,900.0	2,849.5	2,849.5	2,849.5	10.5	6.3	-174.71	47.4	0.0	457.4	444.5	12.93	35.386	
3,000.0	2,946.4	2,946.4	2,946.4	11.0	6.5	-174.98	47.4	0.0	482.1	468.6	13.41	35.944	
3,100.0	3,043.3	3,043.3	3,043.3	11.6	6.7	-175.22	47.4	0.0	506.7	492.8	13.90	36.460	
3,200.0	3,140.1	3,140.1	3,140.1	12.1	6.9	-175.45	47.4	0.0	531.4	517.0	14.39	36.940	
3,300.0	3,237.0	3,237.0	3,237.0	12.6	7.1	-175.65	47.4	0.0	556.1	541.2	14.87	37.387	
3,400.0	3,333.9	3,333.9	3,333.9	13.2	7.4	-175.83	47.4	0.0	580.8	565.4	15.36	37.805	
3,500.0	3,430.8	3,430.8	3,430.8	13.7	7.6	-176.00	47.4	0.0	605.5	589.6	15.85	38.195	
3,600.0	3,527.7	3,527.7	3,527.7	14.2	7.8	-176.16	47.4	0.0	630.2	613.9	16.34	38.561	
3,700.0	3,624.6	3,624.6	3,624.6	14.8	8.0	-176.31	47.4	0.0	654.9	638.1	16.83	38.905	
3,800.0	3,721.5	3,721.5	3,721.5	15.3	8.2	-176.44	47.4	0.0	679.6	662.3	17.32	39.229	
3,900.0	3,818.3	3,818.3	3,818.3	15.8	8.5	-176.57	47.4	0.0	704.3	686.5	17.82	39.534	
4,000.0	3,915.2	3,915.2	3,915.2	16.4	8.7	-176.68	47.4	0.0	729.0	710.7	18.31	39.821	
4,100.0	4,012.1	4,012.1	4,012.1	16.9	8.9	-176.79	47.4	0.0	753.8	735.0	18.80	40.093	
4,200.0	4,109.0	4,109.0	4,109.0	17.4	9.1	-176.89	47.4	0.0	778.5	759.2	19.29	40.351	
4,300.0	4,205.9	4,205.9	4,205.9	18.0	9.3	-176.99	47.4	0.0	803.2	783.4	19.79	40.595	
4,400.0	4,302.8	4,302.8	4,302.8	18.5	9.5	-177.08	47.4	0.0	827.9	807.6	20.29	40.809	
4,500.0	4,400.2	4,400.2	4,400.2	18.9	9.8	-177.18	47.4	0.0	850.5	829.7	20.81	40.866	
4,600.0	4,498.3	4,498.3	4,498.3	19.2	10.0	-177.26	47.4	0.0	869.7	848.4	21.31	40.816	
4,700.0	4,597.1	4,597.1	4,597.1	19.5	10.2	-177.33	47.4	0.0	885.5	863.7	21.77	40.667	
4,800.0	4,696.3	4,696.3	4,696.3	19.7	10.4	-177.37	47.4	0.0	897.8	875.6	22.21	40.426	
4,900.0	4,795.9	4,795.9	4,795.9	19.9	10.7	-177.41	47.4	0.0	906.7	884.1	22.61	40.101	
5,000.0	4,895.7	4,895.7	4,895.7	20.1	10.9	-177.43	47.4	0.0	912.1	889.1	22.98	39.695	
5,100.0	4,995.7	4,995.7	4,995.7	20.2	11.1	-177.44	47.4	0.0	914.0	890.6	23.32	39.198	
5,200.0	5,095.7	5,095.7	5,095.7	20.3	11.3	-57.14	47.4	0.0	914.0	890.2	23.71	38.543	
5,300.0	5,195.7	5,195.7	5,195.7	20.4	11.6	-57.14	47.4	0.0	914.0	889.8	24.11	37.908	
5,400.0	5,295.7	5,295.7	5,295.7	20.6	11.8	-57.14	47.4	0.0	914.0	889.5	24.51	37.291	
5,500.0	5,395.7	5,395.7	5,395.7	20.7	12.0	-57.14	47.4	0.0	914.0	889.0	24.91	36.691	
5,600.0	5,495.7	5,495.7	5,495.7	20.8	12.2	-57.14	47.4	0.0	914.0	888.6	25.31	36.108	
5,700.0	5,595.7	5,595.7	5,595.7	20.9	12.5	-57.14	47.4	0.0	914.0	888.2	25.72	35.541	
5,800.0	5,695.7	5,695.7	5,695.7	21.0	12.7	-57.14	47.4	0.0	914.0	887.8	26.12	34.990	
5,900.0	5,795.7	5,795.7	5,795.7	21.1	12.9	-57.14	47.4	0.0	914.0	887.4	26.53	34.454	
6,000.0	5,895.7	5,895.7	5,895.7	21.3	13.1	-57.14	47.4	0.0	914.0	887.0	26.93	33.933	
6,100.0	5,995.7	5,995.7	5,995.7	21.4	13.3	-57.14	47.4	0.0	914.0	886.6	27.34	33.426	
6,200.0	6,095.7	6,095.7	6,095.7	21.5	13.6	-57.14	47.4	0.0	914.0	886.2	27.75	32.932	
6,300.0	6,195.7	6,195.7	6,195.7	21.6	13.8	-57.14	47.4	0.0	914.0	885.8	28.16	32.451	
6,400.0	6,295.7	6,295.7	6,295.7	21.8	14.0	-57.14	47.4	0.0	914.0	885.4	28.58	31.983	
6,500.0	6,395.7	6,395.7	6,395.7	21.9	14.2	-57.14	47.4	0.0	914.0	885.0	28.99	31.527	
6,600.0	6,495.7	6,495.7	6,495.7	22.0	14.5	-57.14	47.4	0.0	914.0	884.6	29.40	31.083	
6,700.0	6,595.7	6,595.7	6,595.7	22.2	14.7	-57.14	47.4	0.0	914.0	884.1	29.82	30.650	
6,800.0	6,695.7	6,695.7	6,695.7	22.3	14.9	-57.14	47.4	0.0	914.0	883.7	30.23	30.229	
6,900.0	6,795.7	6,795.7	6,795.7	22.4	15.1	-57.14	47.4	0.0	914.0	883.3	30.65	29.817	
7,000.0	6,895.7	6,895.7	6,895.7	22.6	15.4	-57.14	47.4	0.0	914.0	882.9	31.07	29.416	
7,088.3	6,984.0	6,984.0	6,984.0	22.7	15.6	-57.14	47.4	0.0	914.0	882.5	31.44	29.070	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Dinnel C27-28D
Project:	SEC.22-T4N-R64W	TVD Reference:	WELL @ 4684.0ft (Original Well Elev)
Reference Site:	Dinnel C27-28D Pad Sec.22-T4N-R64W	MD Reference:	WELL @ 4684.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Dinnel C27-28D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM den0-adp01 Server Data
Reference Design:	Noble Dinnel C27-28D Plan #2 (05-10-10)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4684.0ft (Original Well Elev) Coordinates are relative to: Dinnel C27-28D
 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: 0.62°

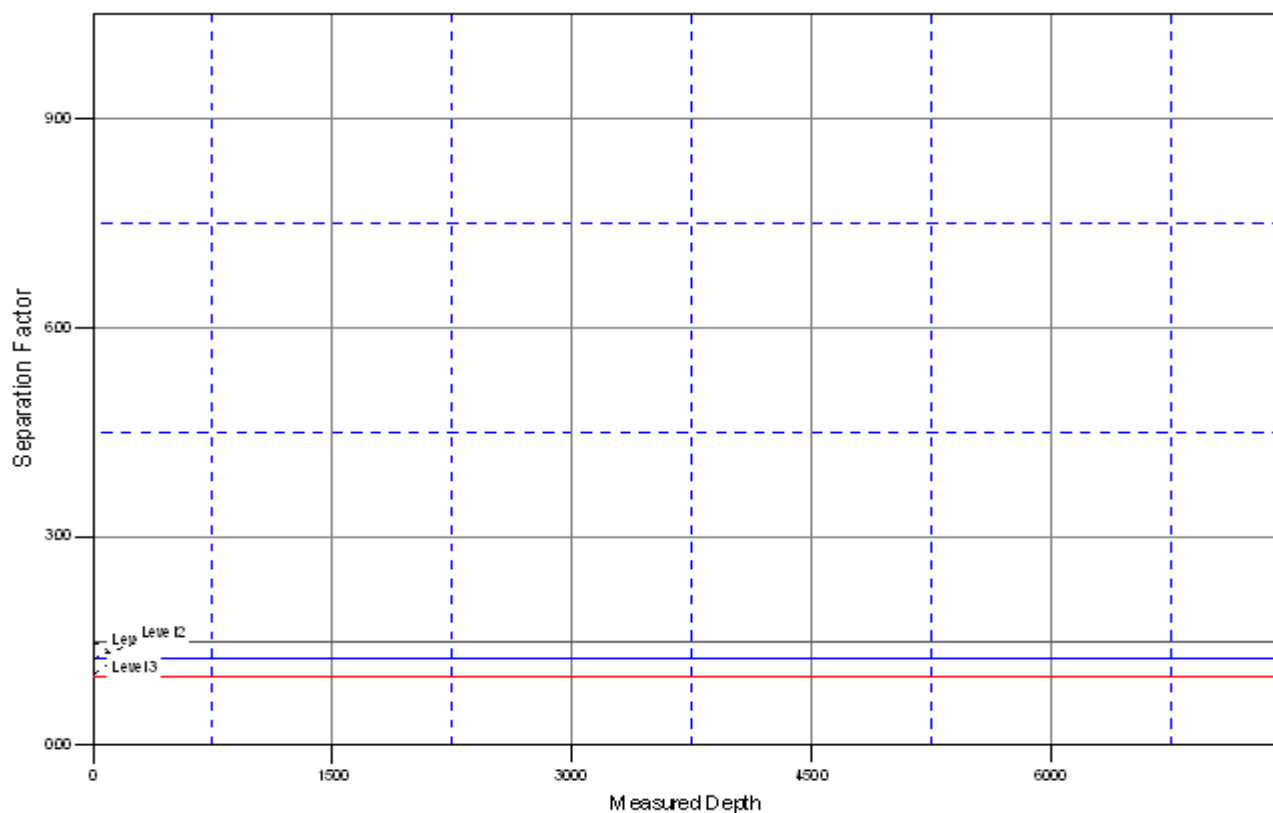


Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.22-T4N-R64W
Reference Site: Dinnel C27-28D Pad Sec.22-T4N-R64W
Site Error: 0.0ft
Reference Well: Dinnel C27-28D
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Noble Dinnel C27-28D Plan #2 (05-10-10)

Local Co-ordinate Reference: Well Dinnel C27-28D
TVD Reference: WELL @ 4684.0ft (Original Well Elev)
MD Reference: WELL @ 4684.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM den0-adp01 Server Data
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4684.0ft (Original Well Elev) Coordinates are relative to: Dinnel C27-28D
 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: 0.62°

Separation Factor Plot



LEGEND

rene Dinnel 1 (Exist), Wellbore #1, Design #1 \V0