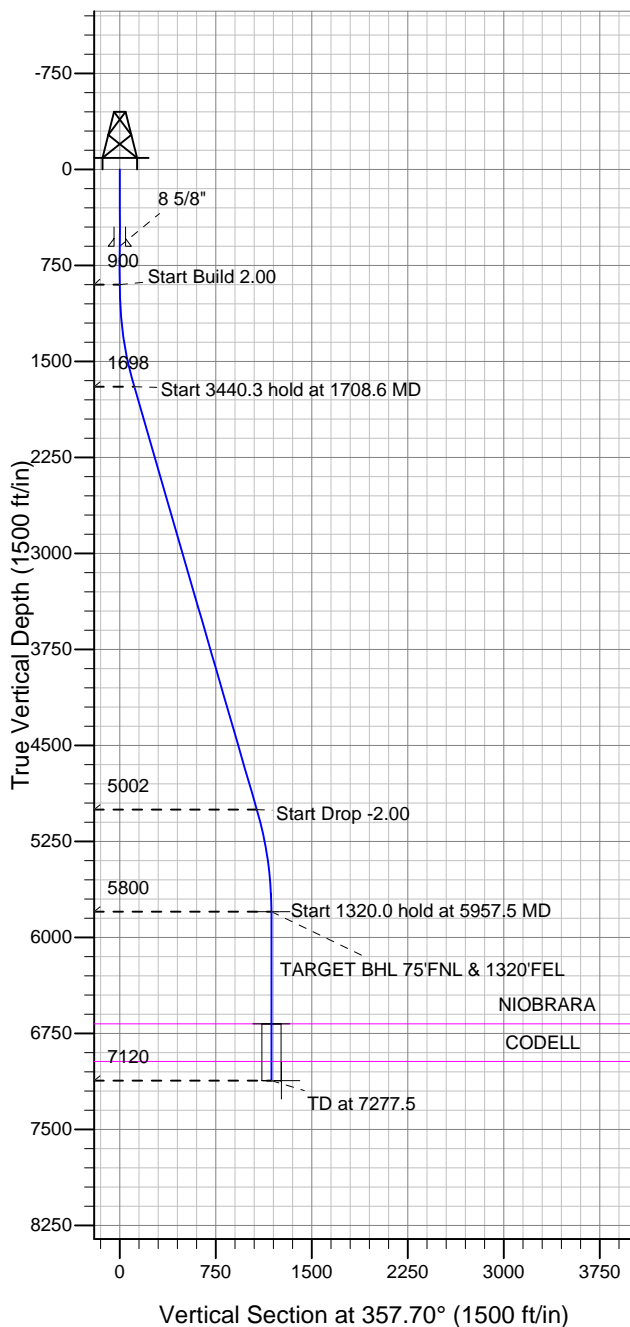


Well Name: Guttersen D21-27D

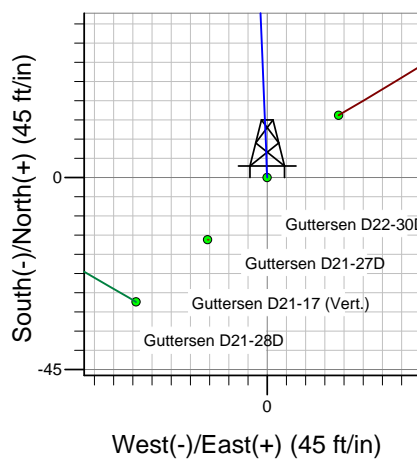
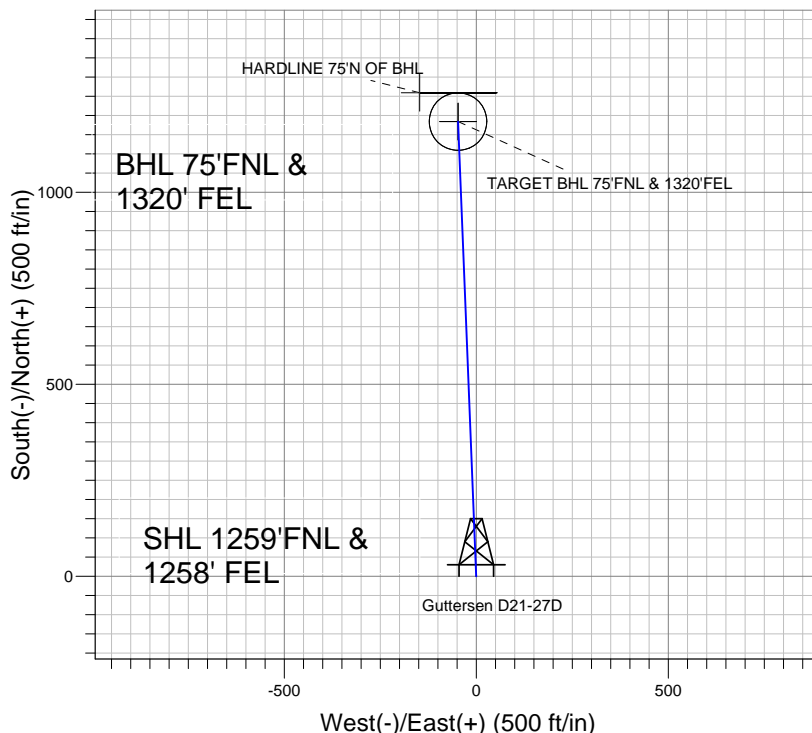
Surface Location: Guttersen D21-28D Pad Sec.21-T3N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4801.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1322456.51	3264945.69	40.214650	-104.551280	

Original Well Elev WELL @ 4814.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



Guttersen D21-28D Pad Sec.21-T3N-R64W
 Guttersen D21-27D
 Noble Guttersen D21-27D Plan #1 (8-09-11)
 16:10, August 11 2011



Azimuths to True North
 Magnetic North: 8.71°

Magnetic Field
 Strength: 53041.4snT
 Dip Angle: 66.93°
 Date: 8/9/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FNL & 1320'FEL	5800.0	1184.0	-47.5	40.217900	-104.551450	Point
TARGET CIRCLE 75'FNL & 1320'FEL	6676.0	1184.0	-47.5	40.217900	-104.551450	Circle (Radius: 75.0)
HARDLINE 75'N OF BHL	7120.0	1259.0	-147.5	40.218106	-104.551808	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	900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.0	
3	1708.6	16.17	357.70	1697.9	113.3	-4.5	2.00	357.70	113.4	
4	5148.9	16.17	357.70	5002.1	1070.7	-42.9	0.00	0.00	1071.6	
5	5957.5	0.00	0.00	5800.0	1184.0	-47.5	2.00	180.00	1185.0	TARGET BHL 75'FNL & 1320'FEL
6	7277.5	0.00	0.00	7120.0	1184.0	-47.5	0.00	0.00	1185.0	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.21-T3N-R64W

Guttersen D21-28D Pad Sec.21-T3N-R64W

Guttersen D21-27D

Wellbore #1

Plan: Noble Guttersen D21-27D Plan #1 (8-09-11)

Standard Planning Report

11 August, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

Project	SEC.21-T3N-R64W, Weld County, CO		
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 Guttersen D21-28D Pad Sec.21-T3N-R64W					
Site Position:		Northing:	1,322,427.07 ft	Latitude:	40.214570
From:	Lat/Long	Easting:	3,264,915.28 ft	Longitude:	-104.551390
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.61 °

Well	Guttersen D21-27D					
Well Position	+N-S	29.1 ft	Northing:	1,322,456.51 ft	Latitude:	40.214650
	+E-W	30.7 ft	Easting:	3,264,945.69 ft	Longitude:	-104.551280
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,801.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/9/2011	8.71	66.93	53,041

Design	Noble Guttersen D21-27D Plan #1 (8-09-11)			
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	357.70

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	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,708.6	16.17	357.70	1,697.9	113.3	-4.5	2.00	2.00	0.00	357.70	
5,148.9	16.17	357.70	5,002.1	1,070.7	-42.9	0.00	0.00	0.00	0.00	
5,957.5	0.00	0.00	5,800.0	1,184.0	-47.5	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
7,277.5	0.00	0.00	7,120.0	1,184.0	-47.5	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

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
8 5/8"									
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	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.40	357.70	920.0	0.1	0.0	0.1	2.00	2.00	0.00
960.0	1.20	357.70	960.0	0.6	0.0	0.6	2.00	2.00	0.00
1,000.0	2.00	357.70	1,000.0	1.7	-0.1	1.7	2.00	2.00	0.00
1,040.0	2.80	357.70	1,039.9	3.4	-0.1	3.4	2.00	2.00	0.00
1,080.0	3.60	357.70	1,079.9	5.6	-0.2	5.7	2.00	2.00	0.00
1,120.0	4.40	357.70	1,119.8	8.4	-0.3	8.4	2.00	2.00	0.00
1,160.0	5.20	357.70	1,159.6	11.8	-0.5	11.8	2.00	2.00	0.00
1,200.0	6.00	357.70	1,199.5	15.7	-0.6	15.7	2.00	2.00	0.00
1,240.0	6.80	357.70	1,239.2	20.1	-0.8	20.2	2.00	2.00	0.00
1,280.0	7.60	357.70	1,278.9	25.1	-1.0	25.2	2.00	2.00	0.00
1,320.0	8.40	357.70	1,318.5	30.7	-1.2	30.7	2.00	2.00	0.00
1,360.0	9.20	357.70	1,358.0	36.8	-1.5	36.9	2.00	2.00	0.00
1,400.0	10.00	357.70	1,397.5	43.5	-1.7	43.5	2.00	2.00	0.00
1,440.0	10.80	357.70	1,436.8	50.7	-2.0	50.7	2.00	2.00	0.00
1,480.0	11.60	357.70	1,476.0	58.5	-2.3	58.5	2.00	2.00	0.00
1,520.0	12.40	357.70	1,515.2	66.8	-2.7	66.8	2.00	2.00	0.00
1,560.0	13.20	357.70	1,554.2	75.6	-3.0	75.7	2.00	2.00	0.00
1,600.0	14.00	357.70	1,593.1	85.0	-3.4	85.1	2.00	2.00	0.00
1,640.0	14.80	357.70	1,631.8	95.0	-3.8	95.0	2.00	2.00	0.00
1,680.0	15.60	357.70	1,670.4	105.4	-4.2	105.5	2.00	2.00	0.00
1,708.6	16.17	357.70	1,697.9	113.3	-4.5	113.4	2.00	2.00	0.00
1,720.0	16.17	357.70	1,708.9	116.4	-4.7	116.5	0.00	0.00	0.00
1,760.0	16.17	357.70	1,747.3	127.6	-5.1	127.7	0.00	0.00	0.00
1,800.0	16.17	357.70	1,785.7	138.7	-5.6	138.8	0.00	0.00	0.00
1,840.0	16.17	357.70	1,824.1	149.8	-6.0	150.0	0.00	0.00	0.00
1,880.0	16.17	357.70	1,862.5	161.0	-6.5	161.1	0.00	0.00	0.00
1,920.0	16.17	357.70	1,900.9	172.1	-6.9	172.2	0.00	0.00	0.00
1,960.0	16.17	357.70	1,939.4	183.2	-7.3	183.4	0.00	0.00	0.00
2,000.0	16.17	357.70	1,977.8	194.4	-7.8	194.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

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)
2,040.0	16.17	357.70	2,016.2	205.5	-8.2	205.7	0.00	0.00	0.00
2,080.0	16.17	357.70	2,054.6	216.6	-8.7	216.8	0.00	0.00	0.00
2,120.0	16.17	357.70	2,093.0	227.8	-9.1	227.9	0.00	0.00	0.00
2,160.0	16.17	357.70	2,131.4	238.9	-9.6	239.1	0.00	0.00	0.00
2,200.0	16.17	357.70	2,169.9	250.0	-10.0	250.2	0.00	0.00	0.00
2,240.0	16.17	357.70	2,208.3	261.2	-10.5	261.4	0.00	0.00	0.00
2,280.0	16.17	357.70	2,246.7	272.3	-10.9	272.5	0.00	0.00	0.00
2,320.0	16.17	357.70	2,285.1	283.4	-11.4	283.7	0.00	0.00	0.00
2,360.0	16.17	357.70	2,323.5	294.6	-11.8	294.8	0.00	0.00	0.00
2,400.0	16.17	357.70	2,361.9	305.7	-12.3	305.9	0.00	0.00	0.00
2,440.0	16.17	357.70	2,400.4	316.8	-12.7	317.1	0.00	0.00	0.00
2,480.0	16.17	357.70	2,438.8	328.0	-13.2	328.2	0.00	0.00	0.00
2,520.0	16.17	357.70	2,477.2	339.1	-13.6	339.4	0.00	0.00	0.00
2,560.0	16.17	357.70	2,515.6	350.2	-14.0	350.5	0.00	0.00	0.00
2,600.0	16.17	357.70	2,554.0	361.4	-14.5	361.6	0.00	0.00	0.00
2,640.0	16.17	357.70	2,592.4	372.5	-14.9	372.8	0.00	0.00	0.00
2,680.0	16.17	357.70	2,630.9	383.6	-15.4	383.9	0.00	0.00	0.00
2,720.0	16.17	357.70	2,669.3	394.7	-15.8	395.1	0.00	0.00	0.00
2,760.0	16.17	357.70	2,707.7	405.9	-16.3	406.2	0.00	0.00	0.00
2,800.0	16.17	357.70	2,746.1	417.0	-16.7	417.3	0.00	0.00	0.00
2,840.0	16.17	357.70	2,784.5	428.1	-17.2	428.5	0.00	0.00	0.00
2,880.0	16.17	357.70	2,823.0	439.3	-17.6	439.6	0.00	0.00	0.00
2,920.0	16.17	357.70	2,861.4	450.4	-18.1	450.8	0.00	0.00	0.00
2,960.0	16.17	357.70	2,899.8	461.5	-18.5	461.9	0.00	0.00	0.00
3,000.0	16.17	357.70	2,938.2	472.7	-19.0	473.1	0.00	0.00	0.00
3,040.0	16.17	357.70	2,976.6	483.8	-19.4	484.2	0.00	0.00	0.00
3,080.0	16.17	357.70	3,015.0	494.9	-19.8	495.3	0.00	0.00	0.00
3,120.0	16.17	357.70	3,053.5	506.1	-20.3	506.5	0.00	0.00	0.00
3,160.0	16.17	357.70	3,091.9	517.2	-20.7	517.6	0.00	0.00	0.00
3,200.0	16.17	357.70	3,130.3	528.3	-21.2	528.8	0.00	0.00	0.00
3,240.0	16.17	357.70	3,168.7	539.5	-21.6	539.9	0.00	0.00	0.00
3,280.0	16.17	357.70	3,207.1	550.6	-22.1	551.0	0.00	0.00	0.00
3,320.0	16.17	357.70	3,245.5	561.7	-22.5	562.2	0.00	0.00	0.00
3,360.0	16.17	357.70	3,284.0	572.9	-23.0	573.3	0.00	0.00	0.00
3,400.0	16.17	357.70	3,322.4	584.0	-23.4	584.5	0.00	0.00	0.00
3,440.0	16.17	357.70	3,360.8	595.1	-23.9	595.6	0.00	0.00	0.00
3,480.0	16.17	357.70	3,399.2	606.3	-24.3	606.7	0.00	0.00	0.00
3,520.0	16.17	357.70	3,437.6	617.4	-24.8	617.9	0.00	0.00	0.00
3,560.0	16.17	357.70	3,476.0	628.5	-25.2	629.0	0.00	0.00	0.00
3,600.0	16.17	357.70	3,514.5	639.7	-25.6	640.2	0.00	0.00	0.00
3,640.0	16.17	357.70	3,552.9	650.8	-26.1	651.3	0.00	0.00	0.00
3,680.0	16.17	357.70	3,591.3	661.9	-26.5	662.5	0.00	0.00	0.00
3,720.0	16.17	357.70	3,629.7	673.1	-27.0	673.6	0.00	0.00	0.00
3,760.0	16.17	357.70	3,668.1	684.2	-27.4	684.7	0.00	0.00	0.00
3,800.0	16.17	357.70	3,706.5	695.3	-27.9	695.9	0.00	0.00	0.00
3,840.0	16.17	357.70	3,745.0	706.4	-28.3	707.0	0.00	0.00	0.00
3,880.0	16.17	357.70	3,783.4	717.6	-28.8	718.2	0.00	0.00	0.00
3,920.0	16.17	357.70	3,821.8	728.7	-29.2	729.3	0.00	0.00	0.00
3,960.0	16.17	357.70	3,860.2	739.8	-29.7	740.4	0.00	0.00	0.00
4,000.0	16.17	357.70	3,898.6	751.0	-30.1	751.6	0.00	0.00	0.00
4,040.0	16.17	357.70	3,937.0	762.1	-30.6	762.7	0.00	0.00	0.00
4,080.0	16.17	357.70	3,975.5	773.2	-31.0	773.9	0.00	0.00	0.00
4,120.0	16.17	357.70	4,013.9	784.4	-31.5	785.0	0.00	0.00	0.00
4,160.0	16.17	357.70	4,052.3	795.5	-31.9	796.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

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)
4,200.0	16.17	357.70	4,090.7	806.6	-32.3	807.3	0.00	0.00	0.00
4,240.0	16.17	357.70	4,129.1	817.8	-32.8	818.4	0.00	0.00	0.00
4,280.0	16.17	357.70	4,167.5	828.9	-33.2	829.6	0.00	0.00	0.00
4,320.0	16.17	357.70	4,206.0	840.0	-33.7	840.7	0.00	0.00	0.00
4,360.0	16.17	357.70	4,244.4	851.2	-34.1	851.9	0.00	0.00	0.00
4,400.0	16.17	357.70	4,282.8	862.3	-34.6	863.0	0.00	0.00	0.00
4,440.0	16.17	357.70	4,321.2	873.4	-35.0	874.1	0.00	0.00	0.00
4,480.0	16.17	357.70	4,359.6	884.6	-35.5	885.3	0.00	0.00	0.00
4,520.0	16.17	357.70	4,398.1	895.7	-35.9	896.4	0.00	0.00	0.00
4,560.0	16.17	357.70	4,436.5	906.8	-36.4	907.6	0.00	0.00	0.00
4,600.0	16.17	357.70	4,474.9	918.0	-36.8	918.7	0.00	0.00	0.00
4,640.0	16.17	357.70	4,513.3	929.1	-37.3	929.8	0.00	0.00	0.00
4,680.0	16.17	357.70	4,551.7	940.2	-37.7	941.0	0.00	0.00	0.00
4,720.0	16.17	357.70	4,590.1	951.4	-38.1	952.1	0.00	0.00	0.00
4,760.0	16.17	357.70	4,628.6	962.5	-38.6	963.3	0.00	0.00	0.00
4,800.0	16.17	357.70	4,667.0	973.6	-39.0	974.4	0.00	0.00	0.00
4,840.0	16.17	357.70	4,705.4	984.8	-39.5	985.5	0.00	0.00	0.00
4,880.0	16.17	357.70	4,743.8	995.9	-39.9	996.7	0.00	0.00	0.00
4,920.0	16.17	357.70	4,782.2	1,007.0	-40.4	1,007.8	0.00	0.00	0.00
4,960.0	16.17	357.70	4,820.6	1,018.2	-40.8	1,019.0	0.00	0.00	0.00
5,000.0	16.17	357.70	4,859.1	1,029.3	-41.3	1,030.1	0.00	0.00	0.00
5,040.0	16.17	357.70	4,897.5	1,040.4	-41.7	1,041.3	0.00	0.00	0.00
5,080.0	16.17	357.70	4,935.9	1,051.5	-42.2	1,052.4	0.00	0.00	0.00
5,120.0	16.17	357.70	4,974.3	1,062.7	-42.6	1,063.5	0.00	0.00	0.00
5,148.9	16.17	357.70	5,002.1	1,070.7	-42.9	1,071.6	0.00	0.00	0.00
5,160.0	15.95	357.70	5,012.7	1,073.8	-43.1	1,074.7	2.00	-2.00	0.00
5,200.0	15.15	357.70	5,051.3	1,084.5	-43.5	1,085.4	2.00	-2.00	0.00
5,240.0	14.35	357.70	5,089.9	1,094.7	-43.9	1,095.6	2.00	-2.00	0.00
5,280.0	13.55	357.70	5,128.8	1,104.3	-44.3	1,105.2	2.00	-2.00	0.00
5,320.0	12.75	357.70	5,167.7	1,113.4	-44.6	1,114.3	2.00	-2.00	0.00
5,360.0	11.95	357.70	5,206.8	1,122.0	-45.0	1,122.9	2.00	-2.00	0.00
5,400.0	11.15	357.70	5,246.0	1,130.0	-45.3	1,130.9	2.00	-2.00	0.00
5,440.0	10.35	357.70	5,285.3	1,137.4	-45.6	1,138.3	2.00	-2.00	0.00
5,480.0	9.55	357.70	5,324.7	1,144.3	-45.9	1,145.2	2.00	-2.00	0.00
5,520.0	8.75	357.70	5,364.2	1,150.7	-46.1	1,151.6	2.00	-2.00	0.00
5,560.0	7.95	357.70	5,403.7	1,156.5	-46.4	1,157.4	2.00	-2.00	0.00
5,600.0	7.15	357.70	5,443.4	1,161.7	-46.6	1,162.7	2.00	-2.00	0.00
5,640.0	6.35	357.70	5,483.1	1,166.4	-46.8	1,167.4	2.00	-2.00	0.00
5,680.0	5.55	357.70	5,522.9	1,170.6	-46.9	1,171.5	2.00	-2.00	0.00
5,720.0	4.75	357.70	5,562.7	1,174.2	-47.1	1,175.1	2.00	-2.00	0.00
5,760.0	3.95	357.70	5,602.6	1,177.2	-47.2	1,178.1	2.00	-2.00	0.00
5,800.0	3.15	357.70	5,642.5	1,179.7	-47.3	1,180.6	2.00	-2.00	0.00
5,840.0	2.35	357.70	5,682.5	1,181.6	-47.4	1,182.5	2.00	-2.00	0.00
5,880.0	1.55	357.70	5,722.5	1,183.0	-47.4	1,183.9	2.00	-2.00	0.00
5,920.0	0.75	357.70	5,762.5	1,183.8	-47.5	1,184.7	2.00	-2.00	0.00
5,957.5	0.00	0.00	5,800.0	1,184.0	-47.5	1,185.0	2.00	-2.00	0.00
5,960.0	0.00	0.00	5,802.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,842.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,882.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,922.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,120.0	0.00	0.00	5,962.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,002.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,042.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,082.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

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)
6,280.0	0.00	0.00	6,122.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,162.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,202.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,242.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,282.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,322.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,362.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,402.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,442.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,482.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,522.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,562.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,602.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,642.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,833.5	0.00	0.00	6,676.0	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
NIORARA									
6,840.0	0.00	0.00	6,682.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,722.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,762.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,802.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,842.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,882.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,922.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,962.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,127.5	0.00	0.00	6,970.0	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
CODELL									
7,160.0	0.00	0.00	7,002.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,042.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,082.5	1,184.0	-47.5	1,185.0	0.00	0.00	0.00
7,277.5	0.00	0.00	7,120.0	1,184.0	-47.5	1,185.0	0.00	0.00	0.00

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 CIRCLE 75'	0.00	0.00	6,676.0	1,184.0	-47.5	1,323,639.89	3,264,885.55	40.217900	-104.551450
- plan hits target center									
- Circle (radius 75.0)									
HARDLINE 75'N OF E	0.00	0.00	7,120.0	1,259.0	-147.5	1,323,713.77	3,264,784.73	40.218106	-104.551808
- plan misses target center by 125.0ft at 7277.5ft MD (7120.0 TVD, 1184.0 N, -47.5 E)									
- Polygon									
Point 1			7,120.0	0.0	0.0	1,323,713.77	3,264,784.73		
Point 2			7,120.0	0.0	200.0	1,323,715.91	3,264,984.71		
TARGET BHL 75'FNL	0.00	0.00	5,800.0	1,184.0	-47.5	1,323,639.89	3,264,885.55	40.217900	-104.551450
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Guttersen D21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Project:	SEC.21-T3N-R64W	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site:	Guttersen D21-28D Pad Sec.21-T3N-R64W	North Reference:	True
Well:	Guttersen D21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen D21-27D Plan #1 (8-09-11)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
600.0	600.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,833.5	6,676.0	NIOBRARA		0.00		
7,127.5	6,970.0	CODELL		0.00		