

# ENSIGN

## Directional

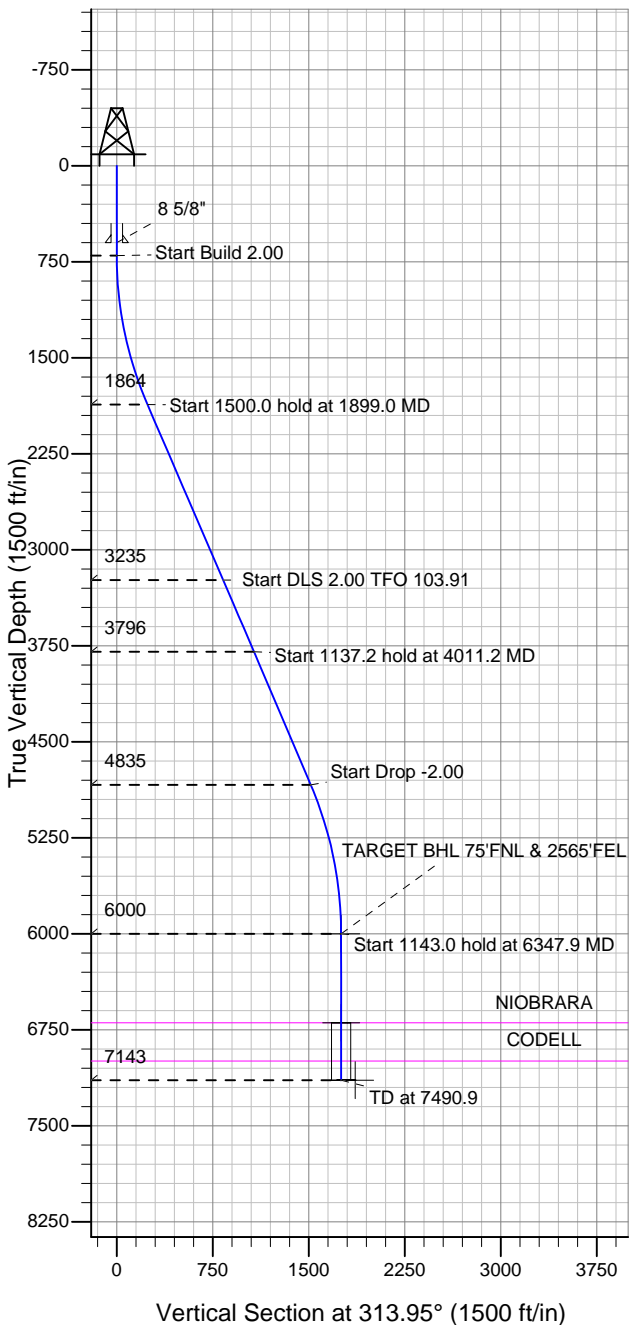
### Well Name: Guttersen D21-28D

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

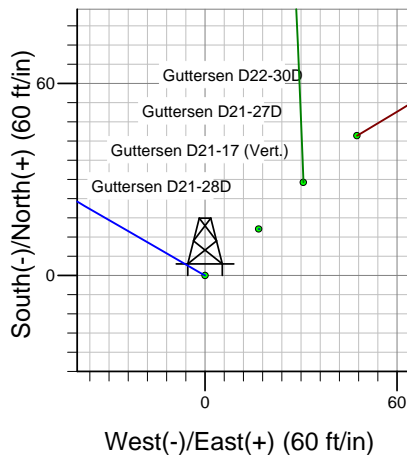
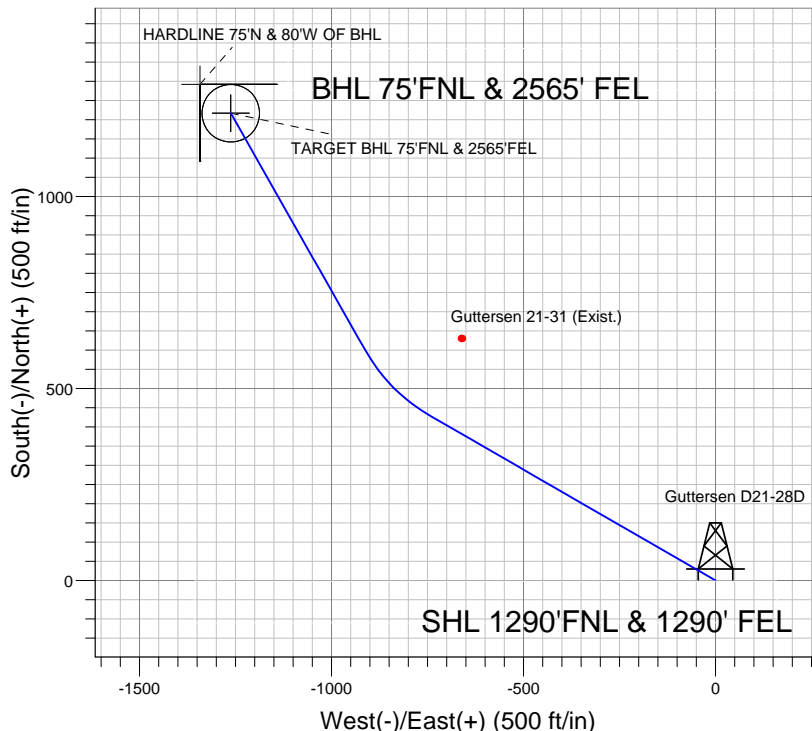
Ground Elevation: 4802.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1322427.06	3264915.28	40.214570	-104.551390	

Original Well Elev WELL @ 4815.0ft (Original Well Elev)



### NOBLE ENERGY INC WELD COUNTY CO



Guttersen D21-28D  
Noble Guttersen D21-28D Plan #1 (8-09-11)  
15:23, August 11 2011  
Guttersen D21-28D Pad Sec.21-T3N-R64W



Azimuths to True North  
Magnetic North: 8.71°

Magnetic Field  
Strength: 53041.3snT  
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 & 2565'FEL	6000.0	1216.8	-1262.3	40.217910	-104.555910	Point
TARGET CIRCLE 75'FNL & 2565'FEL	6695.0	1216.8	-1262.3	40.217910	-104.555910	Circle (Radius: 75.0)
HARDLINE 75°N & 80°W OF BHL	7143.0	1291.8	-1342.3	40.218116	-104.556196	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	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1899.0	23.98	300.00	1864.3	123.6	-214.1	2.00	300.00	240.0	
4	3399.0	23.98	300.00	3234.8	428.4	-742.1	0.00	0.00	831.6	
5	4011.2	23.99	330.42	3796.3	599.5	-911.9	2.00	103.91	1072.6	
6	5148.4	23.99	330.42	4835.3	1001.6	-1140.1	0.00	0.00	1516.0	
7	6347.9	0.00	0.00	6000.0	1216.8	-1262.3	2.00	180.00	1753.3	TARGET BHL 75'FNL & 2565'FEL
8	7490.9	0.00	0.00	7143.0	1216.8	-1262.3	0.00	0.00	1753.3	



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.21-T3N-R64W**

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

**Guttersen D21-28D**

**Wellbore #1**

**Plan: Noble Guttersen D21-28D Plan #1 (8-09-11)**

## **Standard Planning Report**

**11 August, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Guttersen D21-28D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Project:</b>	SEC.21-T3N-R64W	<b>MD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Site:</b>	Guttersen D21-28D Pad Sec.21-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D Plan #1 (8-09-11)		

<b>Project</b>	SEC.21-T3N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site 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 D21-28D					
Well Position	+N/-S	0.0 ft	Northing:	1,322,427.06 ft	Latitude:	40.214570
	+E/-W	0.0 ft	Easting:	3,264,915.28 ft	Longitude:	-104.551390
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,802.0 ft

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

<b>Design</b>	Noble Guttersen D21-28D Plan #1 (8-09-11)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	313.95

<b>Plan Sections</b>										
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	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,899.0	23.98	300.00	1,864.3	123.6	-214.1	2.00	2.00	0.00	300.00	
3,399.0	23.98	300.00	3,234.8	428.4	-742.1	0.00	0.00	0.00	0.00	
4,011.2	23.99	330.42	3,796.3	599.5	-911.9	2.00	0.00	4.97	103.91	
5,148.4	23.99	330.42	4,835.3	1,001.6	-1,140.1	0.00	0.00	0.00	0.00	
6,347.9	0.00	0.00	6,000.0	1,216.8	-1,262.3	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
7,490.9	0.00	0.00	7,143.0	1,216.8	-1,262.3	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Guttersen D21-28D
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<b>Project:</b>	SEC.21-T3N-R64W	<b>MD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Site:</b>	Guttersen D21-28D Pad Sec.21-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D 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
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.40	300.00	720.0	0.0	-0.1	0.1	2.00	2.00	0.00
760.0	1.20	300.00	760.0	0.3	-0.5	0.6	2.00	2.00	0.00
800.0	2.00	300.00	800.0	0.9	-1.5	1.7	2.00	2.00	0.00
840.0	2.80	300.00	839.9	1.7	-3.0	3.3	2.00	2.00	0.00
880.0	3.60	300.00	879.9	2.8	-4.9	5.5	2.00	2.00	0.00
920.0	4.40	300.00	919.8	4.2	-7.3	8.2	2.00	2.00	0.00
960.0	5.20	300.00	959.6	5.9	-10.2	11.4	2.00	2.00	0.00
1,000.0	6.00	300.00	999.5	7.8	-13.6	15.2	2.00	2.00	0.00
1,040.0	6.80	300.00	1,039.2	10.1	-17.5	19.6	2.00	2.00	0.00
1,080.0	7.60	300.00	1,078.9	12.6	-21.8	24.4	2.00	2.00	0.00
1,120.0	8.40	300.00	1,118.5	15.4	-26.6	29.8	2.00	2.00	0.00
1,160.0	9.20	300.00	1,158.0	18.4	-31.9	35.8	2.00	2.00	0.00
1,200.0	10.00	300.00	1,197.5	21.8	-37.7	42.2	2.00	2.00	0.00
1,240.0	10.80	300.00	1,236.8	25.4	-43.9	49.2	2.00	2.00	0.00
1,280.0	11.60	300.00	1,276.0	29.3	-50.7	56.8	2.00	2.00	0.00
1,320.0	12.40	300.00	1,315.2	33.4	-57.9	64.9	2.00	2.00	0.00
1,360.0	13.20	300.00	1,354.2	37.8	-65.6	73.5	2.00	2.00	0.00
1,400.0	14.00	300.00	1,393.1	42.5	-73.7	82.6	2.00	2.00	0.00
1,440.0	14.80	300.00	1,431.8	47.5	-82.3	92.2	2.00	2.00	0.00
1,480.0	15.60	300.00	1,470.4	52.8	-91.4	102.4	2.00	2.00	0.00
1,520.0	16.40	300.00	1,508.8	58.3	-100.9	113.1	2.00	2.00	0.00
1,560.0	17.20	300.00	1,547.1	64.1	-111.0	124.3	2.00	2.00	0.00
1,600.0	18.00	300.00	1,585.3	70.1	-121.4	136.1	2.00	2.00	0.00
1,640.0	18.80	300.00	1,623.2	76.4	-132.4	148.3	2.00	2.00	0.00
1,680.0	19.60	300.00	1,661.0	83.0	-143.8	161.1	2.00	2.00	0.00
1,720.0	20.40	300.00	1,698.6	89.8	-155.6	174.4	2.00	2.00	0.00
1,760.0	21.20	300.00	1,736.0	96.9	-167.9	188.2	2.00	2.00	0.00
1,800.0	22.00	300.00	1,773.2	104.3	-180.7	202.5	2.00	2.00	0.00
1,840.0	22.80	300.00	1,810.2	111.9	-193.9	217.2	2.00	2.00	0.00
1,880.0	23.60	300.00	1,846.9	119.8	-207.5	232.5	2.00	2.00	0.00
1,899.0	23.98	300.00	1,864.3	123.6	-214.1	240.0	2.00	2.00	0.00
1,920.0	23.98	300.00	1,883.5	127.9	-221.5	248.3	0.00	0.00	0.00
1,960.0	23.98	300.00	1,920.0	136.0	-235.6	264.0	0.00	0.00	0.00
2,000.0	23.98	300.00	1,956.6	144.2	-249.7	279.8	0.00	0.00	0.00

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<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D 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	23.98	300.00	1,993.1	152.3	-263.8	295.6	0.00	0.00	0.00
2,080.0	23.98	300.00	2,029.7	160.4	-277.8	311.4	0.00	0.00	0.00
2,120.0	23.98	300.00	2,066.2	168.5	-291.9	327.1	0.00	0.00	0.00
2,160.0	23.98	300.00	2,102.8	176.7	-306.0	342.9	0.00	0.00	0.00
2,200.0	23.98	300.00	2,139.3	184.8	-320.1	358.7	0.00	0.00	0.00
2,240.0	23.98	300.00	2,175.9	192.9	-334.2	374.5	0.00	0.00	0.00
2,280.0	23.98	300.00	2,212.4	201.1	-348.2	390.3	0.00	0.00	0.00
2,320.0	23.98	300.00	2,249.0	209.2	-362.3	406.0	0.00	0.00	0.00
2,360.0	23.98	300.00	2,285.5	217.3	-376.4	421.8	0.00	0.00	0.00
2,400.0	23.98	300.00	2,322.1	225.4	-390.5	437.6	0.00	0.00	0.00
2,440.0	23.98	300.00	2,358.6	233.6	-404.6	453.4	0.00	0.00	0.00
2,480.0	23.98	300.00	2,395.2	241.7	-418.6	469.1	0.00	0.00	0.00
2,520.0	23.98	300.00	2,431.7	249.8	-432.7	484.9	0.00	0.00	0.00
2,560.0	23.98	300.00	2,468.2	258.0	-446.8	500.7	0.00	0.00	0.00
2,600.0	23.98	300.00	2,504.8	266.1	-460.9	516.5	0.00	0.00	0.00
2,640.0	23.98	300.00	2,541.3	274.2	-474.9	532.3	0.00	0.00	0.00
2,680.0	23.98	300.00	2,577.9	282.3	-489.0	548.0	0.00	0.00	0.00
2,720.0	23.98	300.00	2,614.4	290.5	-503.1	563.8	0.00	0.00	0.00
2,760.0	23.98	300.00	2,651.0	298.6	-517.2	579.6	0.00	0.00	0.00
2,800.0	23.98	300.00	2,687.5	306.7	-531.3	595.4	0.00	0.00	0.00
2,840.0	23.98	300.00	2,724.1	314.9	-545.3	611.1	0.00	0.00	0.00
2,880.0	23.98	300.00	2,760.6	323.0	-559.4	626.9	0.00	0.00	0.00
2,920.0	23.98	300.00	2,797.2	331.1	-573.5	642.7	0.00	0.00	0.00
2,960.0	23.98	300.00	2,833.7	339.2	-587.6	658.5	0.00	0.00	0.00
3,000.0	23.98	300.00	2,870.3	347.4	-601.7	674.2	0.00	0.00	0.00
3,040.0	23.98	300.00	2,906.8	355.5	-615.7	690.0	0.00	0.00	0.00
3,080.0	23.98	300.00	2,943.4	363.6	-629.8	705.8	0.00	0.00	0.00
3,120.0	23.98	300.00	2,979.9	371.8	-643.9	721.6	0.00	0.00	0.00
3,160.0	23.98	300.00	3,016.5	379.9	-658.0	737.4	0.00	0.00	0.00
3,200.0	23.98	300.00	3,053.0	388.0	-672.0	753.1	0.00	0.00	0.00
3,240.0	23.98	300.00	3,089.6	396.1	-686.1	768.9	0.00	0.00	0.00
3,280.0	23.98	300.00	3,126.1	404.3	-700.2	784.7	0.00	0.00	0.00
3,320.0	23.98	300.00	3,162.7	412.4	-714.3	800.5	0.00	0.00	0.00
3,360.0	23.98	300.00	3,199.2	420.5	-728.4	816.2	0.00	0.00	0.00
3,399.0	23.98	300.00	3,234.8	428.4	-742.1	831.6	0.00	0.00	0.00
3,400.0	23.98	300.05	3,235.7	428.7	-742.4	832.0	2.00	-0.48	4.78
3,440.0	23.80	301.97	3,272.3	437.0	-756.3	847.8	2.00	-0.45	4.81
3,480.0	23.64	303.92	3,308.9	445.7	-769.8	863.6	2.00	-0.39	4.88
3,520.0	23.51	305.90	3,345.6	454.9	-782.9	879.4	2.00	-0.33	4.93
3,560.0	23.40	307.89	3,382.3	464.5	-795.7	895.2	2.00	-0.26	4.98
3,600.0	23.32	309.90	3,419.0	474.4	-808.0	911.0	2.00	-0.20	5.02
3,640.0	23.27	311.92	3,455.8	484.8	-820.0	926.8	2.00	-0.14	5.05
3,680.0	23.24	313.94	3,492.5	495.5	-831.5	942.6	2.00	-0.07	5.06
3,720.0	23.24	315.97	3,529.3	506.7	-842.7	958.3	2.00	-0.01	5.07
3,760.0	23.26	317.99	3,566.0	518.2	-853.5	974.1	2.00	0.06	5.06
3,800.0	23.31	320.01	3,602.8	530.1	-863.8	989.9	2.00	0.12	5.05
3,840.0	23.38	322.02	3,639.5	542.5	-873.8	1,005.6	2.00	0.19	5.02
3,880.0	23.48	324.02	3,676.2	555.2	-883.4	1,021.3	2.00	0.25	4.99
3,920.0	23.61	326.00	3,712.9	568.3	-892.5	1,037.0	2.00	0.31	4.94
3,960.0	23.76	327.95	3,749.5	581.7	-901.3	1,052.6	2.00	0.38	4.89
4,000.0	23.94	329.88	3,786.1	595.6	-909.6	1,068.3	2.00	0.44	4.83
4,011.2	23.99	330.42	3,796.3	599.5	-911.9	1,072.6	2.00	0.48	4.78
4,040.0	23.99	330.42	3,822.6	609.7	-917.7	1,083.9	0.00	0.00	0.00
4,080.0	23.99	330.42	3,859.2	623.9	-925.7	1,099.4	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Guttersen D21-28D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Project:</b>	SEC.21-T3N-R64W	<b>MD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Site:</b>	Guttersen D21-28D Pad Sec.21-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D 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)
4,120.0	23.99	330.42	3,895.7	638.0	-933.7	1,115.0	0.00	0.00	0.00
4,160.0	23.99	330.42	3,932.3	652.1	-941.8	1,130.6	0.00	0.00	0.00
4,200.0	23.99	330.42	3,968.8	666.3	-949.8	1,146.2	0.00	0.00	0.00
4,240.0	23.99	330.42	4,005.3	680.4	-957.8	1,161.8	0.00	0.00	0.00
4,280.0	23.99	330.42	4,041.9	694.6	-965.9	1,177.4	0.00	0.00	0.00
4,320.0	23.99	330.42	4,078.4	708.7	-973.9	1,193.0	0.00	0.00	0.00
4,360.0	23.99	330.42	4,115.0	722.9	-981.9	1,208.6	0.00	0.00	0.00
4,400.0	23.99	330.42	4,151.5	737.0	-989.9	1,224.2	0.00	0.00	0.00
4,440.0	23.99	330.42	4,188.1	751.1	-998.0	1,239.8	0.00	0.00	0.00
4,480.0	23.99	330.42	4,224.6	765.3	-1,006.0	1,255.4	0.00	0.00	0.00
4,520.0	23.99	330.42	4,261.2	779.4	-1,014.0	1,271.0	0.00	0.00	0.00
4,560.0	23.99	330.42	4,297.7	793.6	-1,022.1	1,286.6	0.00	0.00	0.00
4,600.0	23.99	330.42	4,334.3	807.7	-1,030.1	1,302.2	0.00	0.00	0.00
4,640.0	23.99	330.42	4,370.8	821.9	-1,038.1	1,317.8	0.00	0.00	0.00
4,680.0	23.99	330.42	4,407.3	836.0	-1,046.1	1,333.4	0.00	0.00	0.00
4,720.0	23.99	330.42	4,443.9	850.1	-1,054.2	1,349.0	0.00	0.00	0.00
4,760.0	23.99	330.42	4,480.4	864.3	-1,062.2	1,364.6	0.00	0.00	0.00
4,800.0	23.99	330.42	4,517.0	878.4	-1,070.2	1,380.2	0.00	0.00	0.00
4,840.0	23.99	330.42	4,553.5	892.6	-1,078.3	1,395.8	0.00	0.00	0.00
4,880.0	23.99	330.42	4,590.1	906.7	-1,086.3	1,411.4	0.00	0.00	0.00
4,920.0	23.99	330.42	4,626.6	920.9	-1,094.3	1,426.9	0.00	0.00	0.00
4,960.0	23.99	330.42	4,663.2	935.0	-1,102.3	1,442.5	0.00	0.00	0.00
5,000.0	23.99	330.42	4,699.7	949.1	-1,110.4	1,458.1	0.00	0.00	0.00
5,040.0	23.99	330.42	4,736.2	963.3	-1,118.4	1,473.7	0.00	0.00	0.00
5,080.0	23.99	330.42	4,772.8	977.4	-1,126.4	1,489.3	0.00	0.00	0.00
5,120.0	23.99	330.42	4,809.3	991.6	-1,134.4	1,504.9	0.00	0.00	0.00
5,148.4	23.99	330.42	4,835.3	1,001.6	-1,140.1	1,516.0	0.00	0.00	0.00
5,160.0	23.76	330.42	4,845.9	1,005.7	-1,142.5	1,520.5	2.00	-2.00	0.00
5,200.0	22.96	330.42	4,882.6	1,019.5	-1,150.3	1,535.7	2.00	-2.00	0.00
5,240.0	22.16	330.42	4,919.6	1,032.8	-1,157.9	1,550.4	2.00	-2.00	0.00
5,280.0	21.36	330.42	4,956.7	1,045.7	-1,165.2	1,564.6	2.00	-2.00	0.00
5,320.0	20.56	330.42	4,994.1	1,058.2	-1,172.3	1,578.4	2.00	-2.00	0.00
5,360.0	19.76	330.42	5,031.6	1,070.2	-1,179.1	1,591.6	2.00	-2.00	0.00
5,400.0	18.96	330.42	5,069.3	1,081.7	-1,185.6	1,604.3	2.00	-2.00	0.00
5,440.0	18.16	330.42	5,107.3	1,092.8	-1,191.9	1,616.5	2.00	-2.00	0.00
5,480.0	17.36	330.42	5,145.4	1,103.4	-1,197.9	1,628.2	2.00	-2.00	0.00
5,520.0	16.56	330.42	5,183.6	1,113.5	-1,203.7	1,639.4	2.00	-2.00	0.00
5,560.0	15.76	330.42	5,222.0	1,123.2	-1,209.2	1,650.1	2.00	-2.00	0.00
5,600.0	14.96	330.42	5,260.6	1,132.4	-1,214.4	1,660.2	2.00	-2.00	0.00
5,640.0	14.16	330.42	5,299.3	1,141.1	-1,219.4	1,669.9	2.00	-2.00	0.00
5,680.0	13.36	330.42	5,338.2	1,149.4	-1,224.0	1,679.0	2.00	-2.00	0.00
5,720.0	12.56	330.42	5,377.2	1,157.2	-1,228.5	1,687.6	2.00	-2.00	0.00
5,760.0	11.76	330.42	5,416.3	1,164.5	-1,232.6	1,695.7	2.00	-2.00	0.00
5,800.0	10.96	330.42	5,455.5	1,171.4	-1,236.5	1,703.2	2.00	-2.00	0.00
5,840.0	10.16	330.42	5,494.8	1,177.8	-1,240.1	1,710.2	2.00	-2.00	0.00
5,880.0	9.36	330.42	5,534.2	1,183.7	-1,243.5	1,716.7	2.00	-2.00	0.00
5,920.0	8.56	330.42	5,573.7	1,189.1	-1,246.6	1,722.7	2.00	-2.00	0.00
5,960.0	7.76	330.42	5,613.3	1,194.0	-1,249.4	1,728.2	2.00	-2.00	0.00
6,000.0	6.96	330.42	5,653.0	1,198.5	-1,251.9	1,733.1	2.00	-2.00	0.00
6,040.0	6.16	330.42	5,692.7	1,202.4	-1,254.1	1,737.4	2.00	-2.00	0.00
6,080.0	5.36	330.42	5,732.5	1,205.9	-1,256.1	1,741.3	2.00	-2.00	0.00
6,120.0	4.56	330.42	5,772.4	1,208.9	-1,257.8	1,744.6	2.00	-2.00	0.00
6,160.0	3.76	330.42	5,812.3	1,211.5	-1,259.3	1,747.4	2.00	-2.00	0.00
6,200.0	2.96	330.42	5,852.2	1,213.5	-1,260.4	1,749.6	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Guttersen D21-28D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Project:</b>	SEC.21-T3N-R64W	<b>MD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Site:</b>	Guttersen D21-28D Pad Sec.21-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D 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)	
6,240.0	2.16	330.42	5,892.2	1,215.0	-1,261.3	1,751.3	2.00	-2.00	0.00	
6,280.0	1.36	330.42	5,932.1	1,216.1	-1,261.9	1,752.5	2.00	-2.00	0.00	
6,320.0	0.56	330.42	5,972.1	1,216.7	-1,262.2	1,753.2	2.00	-2.00	0.00	
6,347.9	0.00	0.00	6,000.0	1,216.8	-1,262.3	1,753.3	2.00	-2.00	0.00	
6,360.0	0.00	0.00	6,012.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,052.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,440.0	0.00	0.00	6,092.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,480.0	0.00	0.00	6,132.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,520.0	0.00	0.00	6,172.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,560.0	0.00	0.00	6,212.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,252.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,640.0	0.00	0.00	6,292.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,680.0	0.00	0.00	6,332.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,720.0	0.00	0.00	6,372.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,760.0	0.00	0.00	6,412.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,452.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,840.0	0.00	0.00	6,492.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,880.0	0.00	0.00	6,532.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,920.0	0.00	0.00	6,572.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
6,960.0	0.00	0.00	6,612.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,652.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,040.0	0.00	0.00	6,692.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,042.9	0.00	0.00	6,695.0	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
<b>NIOBRARA</b>										
7,080.0	0.00	0.00	6,732.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,120.0	0.00	0.00	6,772.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,160.0	0.00	0.00	6,812.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,200.0	0.00	0.00	6,852.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,240.0	0.00	0.00	6,892.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,280.0	0.00	0.00	6,932.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,320.0	0.00	0.00	6,972.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,340.9	0.00	0.00	6,993.0	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
<b>CODELL</b>										
7,360.0	0.00	0.00	7,012.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,052.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,440.0	0.00	0.00	7,092.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,480.0	0.00	0.00	7,132.1	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	
7,490.9	0.00	0.00	7,143.0	1,216.8	-1,262.3	1,753.3	0.00	0.00	0.00	



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Guttersen D21-28D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Project:</b>	SEC.21-T3N-R64W	<b>MD Reference:</b>	WELL @ 4815.0ft (Original Well Elev)
<b>Site:</b>	Guttersen D21-28D Pad Sec.21-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Guttersen D21-28D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Guttersen D21-28D Plan #1 (8-09-11)		

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET CIRCLE 75' - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,695.0	1,216.8	-1,262.3	1,323,630.24	3,263,640.09	40.217910	-104.555910
TARGET BHL 75'FNL - plan hits target center - Point	0.00	0.00	6,000.0	1,216.8	-1,262.3	1,323,630.24	3,263,640.09	40.217910	-104.555910
HARDLINE 75'N & 80 - plan misses target center by 109.6ft at 7490.9ft MD (7143.0 TVD, 1216.8 N, -1262.3 E) - Polygon	0.00	0.00	7,143.0	1,291.8	-1,342.3	1,323,704.37	3,263,559.30	40.218116	-104.556196
Point 1			7,143.0	0.0	0.0	1,323,704.37	3,263,559.30		
Point 2			7,143.0	0.0	200.0	1,323,706.50	3,263,759.28		
Point 3			7,143.0	0.0	0.0	1,323,704.37	3,263,559.30		
Point 4			7,143.0	-200.0	0.0	1,323,504.39	3,263,561.44		

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 (°)	
7,042.9	6,695.0	NIOBRARA		0.00		
7,340.9	6,993.0	CODELL		0.00		