

ENSIGN

Directional

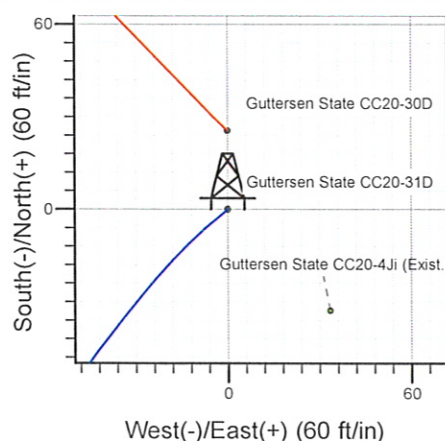
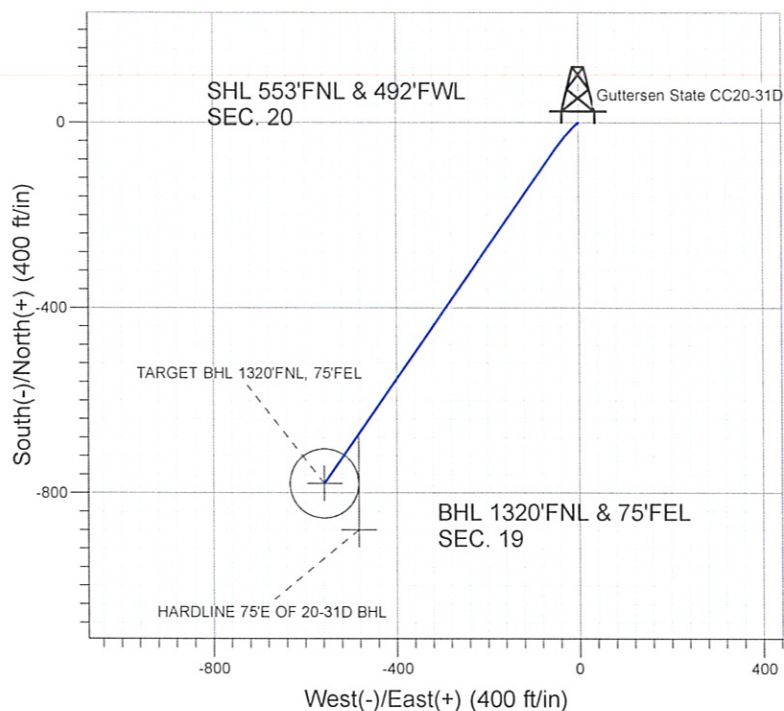
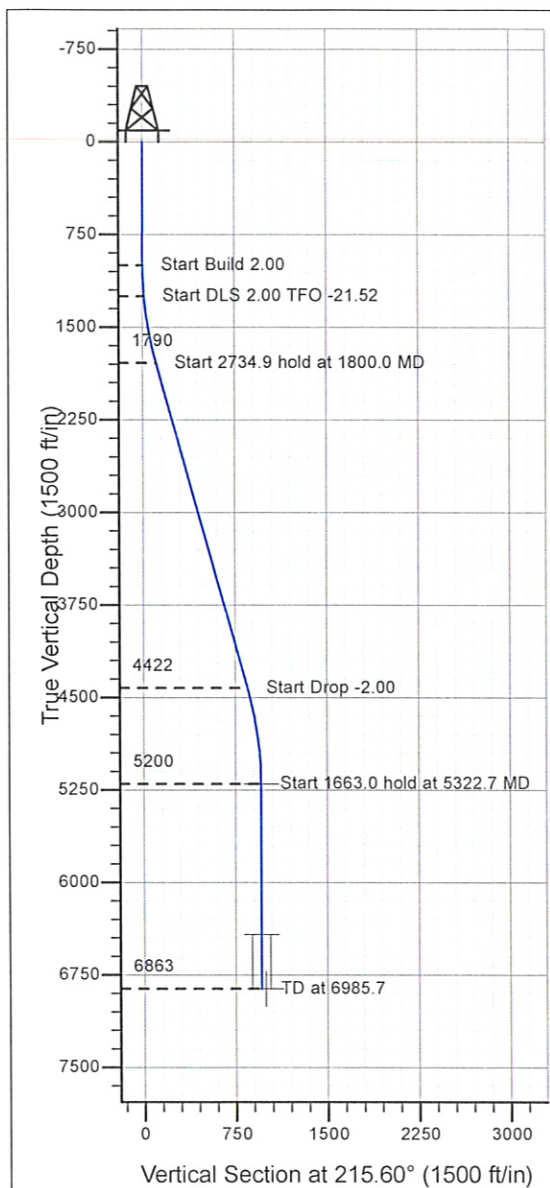
Well Name:Guttersen State CC20-31D

Surface Location: Guttersen State CC20-31D Pad Sec.20-T4N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4690.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1355000.32 3287469.23 40° 18' 11.844 N 104° 28' 9.408 W
Original Well Elev WELL @ 4703.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Guttersen State CC20-31D Pad Sec.20-T4N-R63W
Guttersen State CC20-31D
Noble Guttersen State CC20-31D Plan #1 10-14-09
16:43, October 14 2009



Azimuths to True North
Magnetic North: 8.88°

Magnetic Field
Strength: 53308.1snT
Dip Angle: 67.09°
Date: 10/14/2009
Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FNL, 75'FEL	5200.0	-779.8	-558.3	40° 18' 4.138 N	104° 28' 16.613 W	Point
TARGET CIRCLE 20-31D	6422.0	-779.8	-558.3	40° 18' 4.138 N	104° 28' 16.614 W	Circle (Radius: 75.0)
HARDLINE 75°E OF 20-31D BHL	6863.0	-879.8	-483.3	40° 18' 3.150 N	104° 28' 15.646 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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1250.0	5.00	230.00	1249.7	-7.0	-8.4	2.00	230.00	10.6	
4	1800.0	15.76	215.06	1789.9	-83.8	-69.8	2.00	-21.52	108.7	
5	4534.9	15.76	215.06	4422.1	-691.7	-496.4	0.00	0.00	851.4	
6	5322.7	0.00	0.00	5200.0	-779.8	-558.3	2.00	180.00	959.0	TARGET BHL 1320'FNL, 75'FEL
7	6985.7	0.00	0.00	6863.0	-779.8	-558.3	0.00	0.00	959.0	



Directional

**NOBLE ENERGY INC WELD
COUNTY CO**

SEC.20-T4N-R63W

Guttersen State CC20-31D Pad Sec.20-T4N-R63W

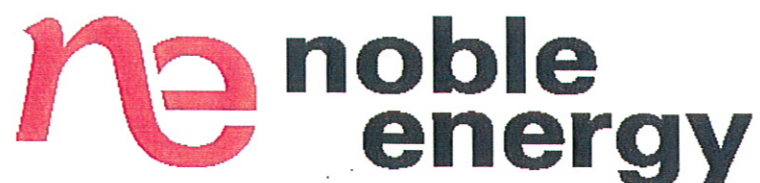
Guttersen State CC20-31D

Wellbore #1

Plan: Noble Guttersen State CC20-31D Plan #1 10-14-09

Standard Planning Report

14 October, 2009



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4703.0ft (Original Well Elev)
Project:	SEC.20-T4N-R63W	MD Reference:	WELL @ 4703.0ft (Original Well Elev)
Site:	Guttersen State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttersen State CC20-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-31D Plan #1 10-1		

Project	SEC.20-T4N-R63W, 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	Guttersen State CC20-31D Pad Sec.20-T4N-R63W		
Site Position:		Northing:	1,355,000.33 ft
From:	Lat/Long	Easting:	3,287,469.23 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 18' 11.844 N
		Longitude:	104° 28' 9.408 W
		Grid Convergence:	0.67 °

Well	Guttersen State CC20-31D		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 18' 11.844 N
		Longitude:	104° 28' 9.408 W
		Ground Level:	4,690.0 ft

Wellbore	Wellbore #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/14/2009	8.88	67.09	53,308

Design	Noble Guttersen State CC20-31D Plan #1 10-14-09		
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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	215.60

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,250.0	5.00	230.00	1,249.7	-7.0	-8.4	2.00	2.00	0.00	230.00	
1,800.0	15.76	215.06	1,789.9	-83.8	-69.8	2.00	1.96	-2.72	-21.52	
4,534.9	15.76	215.06	4,422.1	-691.7	-496.4	0.00	0.00	0.00	0.00	
5,322.7	0.00	0.00	5,200.0	-779.8	-558.3	2.00	-2.00	0.00	180.00	TARGET BHL 132C
6,985.7	0.00	0.00	6,863.0	-779.8	-558.3	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttarsen State CC20-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4703.0ft (Original Well Elev)
Project:	SEC.20-T4N-R63W	MD Reference:	WELL @ 4703.0ft (Original Well Elev)
Site:	Guttarsen State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttarsen State CC20-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttarsen State CC20-31D Plan #1 10-1		

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
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
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.80	230.00	1,040.0	-0.2	-0.2	0.3	2.00	2.00	0.00
1,080.0	1.60	230.00	1,080.0	-0.7	-0.9	1.1	2.00	2.00	0.00
1,120.0	2.40	230.00	1,120.0	-1.6	-1.9	2.4	2.00	2.00	0.00
1,160.0	3.20	230.00	1,159.9	-2.9	-3.4	4.3	2.00	2.00	0.00
1,200.0	4.00	230.00	1,199.8	-4.5	-5.3	6.8	2.00	2.00	0.00
1,240.0	4.80	230.00	1,239.7	-6.5	-7.7	9.7	2.00	2.00	0.00
1,250.0	5.00	230.00	1,249.7	-7.0	-8.4	10.6	2.00	2.00	0.00
1,280.0	5.56	227.73	1,279.6	-8.8	-10.4	13.2	2.00	1.88	-7.57
1,320.0	6.32	225.33	1,319.3	-11.7	-13.4	17.3	2.00	1.90	-5.99
1,360.0	7.09	223.45	1,359.1	-15.0	-16.7	21.9	2.00	1.92	-4.70
1,400.0	7.87	221.94	1,398.7	-18.8	-20.2	27.1	2.00	1.94	-3.78
1,440.0	8.65	220.69	1,438.3	-23.2	-24.0	32.8	2.00	1.95	-3.11
1,480.0	9.43	219.66	1,477.8	-28.0	-28.1	39.1	2.00	1.96	-2.60
1,520.0	10.22	218.78	1,517.2	-33.3	-32.4	45.9	2.00	1.96	-2.20
1,560.0	11.00	218.02	1,556.5	-39.0	-37.0	53.2	2.00	1.97	-1.89
1,600.0	11.79	217.36	1,595.8	-45.3	-41.8	61.1	2.00	1.97	-1.64
1,640.0	12.58	216.79	1,634.9	-52.0	-46.9	69.6	2.00	1.98	-1.44
1,680.0	13.38	216.28	1,673.8	-59.2	-52.2	78.6	2.00	1.98	-1.27
1,720.0	14.17	215.83	1,712.7	-66.9	-57.8	88.1	2.00	1.98	-1.13
1,760.0	14.96	215.43	1,751.4	-75.1	-63.7	98.2	2.00	1.98	-1.01
1,800.0	15.76	215.06	1,789.9	-83.8	-69.8	108.7	2.00	1.99	-0.91
1,840.0	15.76	215.06	1,828.5	-92.7	-76.0	119.6	0.00	0.00	0.00
1,880.0	15.76	215.06	1,867.0	-101.6	-82.3	130.5	0.00	0.00	0.00
1,920.0	15.76	215.06	1,905.5	-110.4	-88.5	141.3	0.00	0.00	0.00
1,960.0	15.76	215.06	1,944.0	-119.3	-94.8	152.2	0.00	0.00	0.00
2,000.0	15.76	215.06	1,982.4	-128.2	-101.0	163.1	0.00	0.00	0.00
2,040.0	15.76	215.06	2,020.9	-137.1	-107.2	173.9	0.00	0.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.20-T4N-R63W
Site: Gutttersen State CC20-31D Pad
Sec.20-T4N-R63W
Well: Gutttersen State CC20-31D
Wellbore: Wellbore #1
Design: Noble Gutttersen State CC20-31D Plan #1 10-1

Local Co-ordinate Reference: Well Gutttersen State CC20-31D
TVD Reference: WELL @ 4703.0ft (Original Well Elev)
MD Reference: WELL @ 4703.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
2,080.0	15.76	215.06	2,059.4	-146.0	-113.5	184.8	0.00	0.00	0.00
2,120.0	15.76	215.06	2,097.9	-154.9	-119.7	195.6	0.00	0.00	0.00
2,160.0	15.76	215.06	2,136.4	-163.8	-126.0	206.5	0.00	0.00	0.00
2,200.0	15.76	215.06	2,174.9	-172.7	-132.2	217.4	0.00	0.00	0.00
2,240.0	15.76	215.06	2,213.4	-181.6	-138.4	228.2	0.00	0.00	0.00
2,280.0	15.76	215.06	2,251.9	-190.5	-144.7	239.1	0.00	0.00	0.00
2,320.0	15.76	215.06	2,290.4	-199.4	-150.9	250.0	0.00	0.00	0.00
2,360.0	15.76	215.06	2,328.9	-208.3	-157.2	260.8	0.00	0.00	0.00
2,400.0	15.76	215.06	2,367.4	-217.1	-163.4	271.7	0.00	0.00	0.00
2,440.0	15.76	215.06	2,405.9	-226.0	-169.6	282.5	0.00	0.00	0.00
2,480.0	15.76	215.06	2,444.4	-234.9	-175.9	293.4	0.00	0.00	0.00
2,520.0	15.76	215.06	2,482.9	-243.8	-182.1	304.3	0.00	0.00	0.00
2,560.0	15.76	215.06	2,521.4	-252.7	-188.4	315.1	0.00	0.00	0.00
2,600.0	15.76	215.06	2,559.9	-261.6	-194.6	326.0	0.00	0.00	0.00
2,640.0	15.76	215.06	2,598.4	-270.5	-200.8	336.8	0.00	0.00	0.00
2,680.0	15.76	215.06	2,636.9	-279.4	-207.1	347.7	0.00	0.00	0.00
2,720.0	15.76	215.06	2,675.4	-288.3	-213.3	358.6	0.00	0.00	0.00
2,760.0	15.76	215.06	2,713.9	-297.2	-219.6	369.4	0.00	0.00	0.00
2,800.0	15.76	215.06	2,752.4	-306.1	-225.8	380.3	0.00	0.00	0.00
2,840.0	15.76	215.06	2,790.9	-314.9	-232.0	391.2	0.00	0.00	0.00
2,880.0	15.76	215.06	2,829.4	-323.8	-238.3	402.0	0.00	0.00	0.00
2,920.0	15.76	215.06	2,867.9	-332.7	-244.5	412.9	0.00	0.00	0.00
2,960.0	15.76	215.06	2,906.4	-341.6	-250.8	423.7	0.00	0.00	0.00
3,000.0	15.76	215.06	2,944.9	-350.5	-257.0	434.6	0.00	0.00	0.00
3,040.0	15.76	215.06	2,983.4	-359.4	-263.2	445.5	0.00	0.00	0.00
3,080.0	15.76	215.06	3,021.9	-368.3	-269.5	456.3	0.00	0.00	0.00
3,120.0	15.76	215.06	3,060.4	-377.2	-275.7	467.2	0.00	0.00	0.00
3,160.0	15.76	215.06	3,098.9	-386.1	-282.0	478.0	0.00	0.00	0.00
3,200.0	15.76	215.06	3,137.4	-395.0	-288.2	488.9	0.00	0.00	0.00
3,240.0	15.76	215.06	3,175.9	-403.9	-294.4	499.8	0.00	0.00	0.00
3,280.0	15.76	215.06	3,214.3	-412.7	-300.7	510.6	0.00	0.00	0.00
3,320.0	15.76	215.06	3,252.8	-421.6	-306.9	521.5	0.00	0.00	0.00
3,360.0	15.76	215.06	3,291.3	-430.5	-313.2	532.4	0.00	0.00	0.00
3,400.0	15.76	215.06	3,329.8	-439.4	-319.4	543.2	0.00	0.00	0.00
3,440.0	15.76	215.06	3,368.3	-448.3	-325.6	554.1	0.00	0.00	0.00
3,480.0	15.76	215.06	3,406.8	-457.2	-331.9	564.9	0.00	0.00	0.00
3,520.0	15.76	215.06	3,445.3	-466.1	-338.1	575.8	0.00	0.00	0.00
3,560.0	15.76	215.06	3,483.8	-475.0	-344.4	586.7	0.00	0.00	0.00
3,600.0	15.76	215.06	3,522.3	-483.9	-350.6	597.5	0.00	0.00	0.00
3,640.0	15.76	215.06	3,560.8	-492.8	-356.8	608.4	0.00	0.00	0.00
3,680.0	15.76	215.06	3,599.3	-501.7	-363.1	619.2	0.00	0.00	0.00
3,720.0	15.76	215.06	3,637.8	-510.5	-369.3	630.1	0.00	0.00	0.00
3,760.0	15.76	215.06	3,676.3	-519.4	-375.6	641.0	0.00	0.00	0.00
3,800.0	15.76	215.06	3,714.8	-528.3	-381.8	651.8	0.00	0.00	0.00
3,840.0	15.76	215.06	3,753.3	-537.2	-388.0	662.7	0.00	0.00	0.00
3,880.0	15.76	215.06	3,791.8	-546.1	-394.3	673.6	0.00	0.00	0.00
3,920.0	15.76	215.06	3,830.3	-555.0	-400.5	684.4	0.00	0.00	0.00
3,960.0	15.76	215.06	3,868.8	-563.9	-406.8	695.3	0.00	0.00	0.00
4,000.0	15.76	215.06	3,907.3	-572.8	-413.0	706.1	0.00	0.00	0.00
4,040.0	15.76	215.06	3,945.8	-581.7	-419.2	717.0	0.00	0.00	0.00
4,080.0	15.76	215.06	3,984.3	-590.6	-425.5	727.9	0.00	0.00	0.00
4,120.0	15.76	215.06	4,022.8	-599.5	-431.7	738.7	0.00	0.00	0.00
4,160.0	15.76	215.06	4,061.3	-608.3	-438.0	749.6	0.00	0.00	0.00

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Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4703.0ft (Original Well Elev)
Project:	SEC.20-T4N-R63W	MD Reference:	WELL @ 4703.0ft (Original Well Elev)
Site:	Guttersen State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttersen State CC20-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-31D Plan #1 10-1		

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	15.76	215.06	4,099.8	-617.2	-444.2	760.4	0.00	0.00	0.00
4,240.0	15.76	215.06	4,138.3	-626.1	-450.4	771.3	0.00	0.00	0.00
4,280.0	15.76	215.06	4,176.8	-635.0	-456.7	782.2	0.00	0.00	0.00
4,320.0	15.76	215.06	4,215.3	-643.9	-462.9	793.0	0.00	0.00	0.00
4,360.0	15.76	215.06	4,253.8	-652.8	-469.2	803.9	0.00	0.00	0.00
4,400.0	15.76	215.06	4,292.3	-661.7	-475.4	814.8	0.00	0.00	0.00
4,440.0	15.76	215.06	4,330.8	-670.6	-481.6	825.6	0.00	0.00	0.00
4,480.0	15.76	215.06	4,369.3	-679.5	-487.9	836.5	0.00	0.00	0.00
4,520.0	15.76	215.06	4,407.8	-688.4	-494.1	847.3	0.00	0.00	0.00
4,534.9	15.76	215.06	4,422.1	-691.7	-496.4	851.4	0.00	0.00	0.00
4,560.0	15.25	215.06	4,446.3	-697.2	-500.3	858.1	2.00	-2.00	0.00
4,600.0	14.45	215.06	4,484.9	-705.6	-506.2	868.3	2.00	-2.00	0.00
4,640.0	13.65	215.06	4,523.7	-713.5	-511.8	878.1	2.00	-2.00	0.00
4,680.0	12.85	215.06	4,562.7	-721.0	-517.0	887.2	2.00	-2.00	0.00
4,720.0	12.05	215.06	4,601.7	-728.1	-522.0	895.9	2.00	-2.00	0.00
4,760.0	11.25	215.06	4,640.9	-734.7	-526.6	903.9	2.00	-2.00	0.00
4,800.0	10.45	215.06	4,680.2	-740.9	-531.0	911.5	2.00	-2.00	0.00
4,840.0	9.65	215.06	4,719.6	-746.6	-535.0	918.5	2.00	-2.00	0.00
4,880.0	8.85	215.06	4,759.1	-751.8	-538.7	924.9	2.00	-2.00	0.00
4,920.0	8.05	215.06	4,798.6	-756.7	-542.0	930.8	2.00	-2.00	0.00
4,960.0	7.25	215.06	4,838.3	-761.0	-545.1	936.1	2.00	-2.00	0.00
5,000.0	6.45	215.06	4,878.0	-764.9	-547.8	940.9	2.00	-2.00	0.00
5,040.0	5.65	215.06	4,917.8	-768.4	-550.3	945.1	2.00	-2.00	0.00
5,080.0	4.85	215.06	4,957.6	-771.4	-552.4	948.7	2.00	-2.00	0.00
5,120.0	4.05	215.06	4,997.5	-773.9	-554.1	951.9	2.00	-2.00	0.00
5,160.0	3.25	215.06	5,037.4	-776.0	-555.6	954.4	2.00	-2.00	0.00
5,200.0	2.45	215.06	5,077.3	-777.6	-556.8	956.4	2.00	-2.00	0.00
5,240.0	1.65	215.06	5,117.3	-778.8	-557.6	957.8	2.00	-2.00	0.00
5,280.0	0.85	215.06	5,157.3	-779.5	-558.1	958.7	2.00	-2.00	0.00
5,320.0	0.05	215.06	5,197.3	-779.8	-558.3	959.0	2.00	-2.00	0.00
5,322.7	0.00	0.00	5,200.0	-779.8	-558.3	959.0	2.00	-2.00	0.00
TARGET BHL 1320'FNL, 75'FEL									
5,360.0	0.00	0.00	5,237.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,277.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,317.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,357.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,397.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,437.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,477.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,517.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,557.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,597.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,637.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,677.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,717.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,757.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,797.3	-779.8	-558.3	959.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,837.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,877.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,917.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,957.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,120.0	0.00	0.00	5,997.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,037.3	-779.8	-558.3	959.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4703.0ft (Original Well Elev)
Project:	SEC.20-T4N-R63W	MD Reference:	WELL @ 4703.0ft (Original Well Elev)
Site:	Guttersen State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttersen State CC20-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-31D Plan #1 10-1		

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)
6,200.0	0.00	0.00	6,077.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,117.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,157.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,197.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,237.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,277.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,317.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,357.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,397.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,544.7	0.00	0.00	6,422.0	-779.8	-558.3	959.0	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 20-31D									
6,560.0	0.00	0.00	6,437.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,477.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,517.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,557.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,597.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,637.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,677.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,835.7	0.00	0.00	6,713.0	-779.8	-558.3	959.0	0.00	0.00	0.00
CODELL									
6,840.0	0.00	0.00	6,717.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,757.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,797.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,837.3	-779.8	-558.3	959.0	0.00	0.00	0.00
6,985.7	0.00	0.00	6,863.0	-779.8	-558.3	959.0	0.00	0.00	0.00
HARDLINE 75'E OF 20-31D BHL									

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 20- - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,422.0	-779.8	-558.3	1,354,214.12	3,286,920.06	40° 18' 4.138 N	104° 28' 16.614 W
TARGET BHL 1320'F - plan hits target center - Point	0.00	0.00	5,200.0	-779.8	-558.3	1,354,214.14	3,286,920.09	40° 18' 4.138 N	104° 28' 16.613 W
HARDLINE 75'E OF 2 - plan misses target center by 125.0ft at 6985.7ft MD (6863.0 TVD, -779.8 N, -558.3 E) - Polygon	0.00	0.00	6,863.0	-879.8	-483.3	1,354,115.00	3,286,996.21	40° 18' 3.150 N	104° 28' 15.646 W
Point 1			6,863.0	0.0	0.0	1,354,115.00	3,286,996.21		
Point 2			6,863.0	200.0	0.0	1,354,314.98	3,286,993.89		

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4703.0ft (Original Well Elev)
Project:	SEC.20-T4N-R63W	MD Reference:	WELL @ 4703.0ft (Original Well Elev)
Site:	Guttersen State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttersen State CC20-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-31D Plan #1 10-1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,544.7	6,422.0	NIOBRARA		0.00	
6,835.7	6,713.0	CODELL		0.00	