

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	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2228.7	16.57	315.82	2217.2	85.3	-83.0	2.00	315.82	119.0	
4	4279.6	16.57	315.82	4182.8	504.9	-490.7	0.00	0.00	704.0	
5	5108.2	0.00	0.00	5000.0	590.2	-573.6	2.00	180.00	823.0	TARGET BHL 75'FSL, 75'FEL
6	6971.2	0.00	0.00	6863.0	590.2	-573.6	0.00	0.00	823.0	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.20-T4N-R63W

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

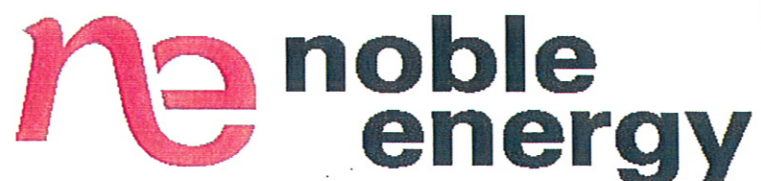
Guttersen State CC20-30D

Wellbore #1

Plan: Noble Guttersen State CC20-30D Plan #1 10-14-09

Standard Planning Report

14 October, 2009



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-30D
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 CC20-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-30D 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:	1,355,000.33ft	Latitude:	40° 18' 11.844 N
From:	Lat/Long	Easting:	3,287,469.23ft	Longitude:	104° 28' 9.408 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.67 °

Well	Guttersen State CC20-30D					
Well Position	+N/-S	25.5 ft	Northing:	1,355,025.82 ft	Latitude:	40° 18' 12.096 N
	+E/-W	0.0 ft	Easting:	3,287,468.93 ft	Longitude:	104° 28' 9.408 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	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 CC20-30D Plan #1 10-14-09
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Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	315.82

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	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,228.7	16.57	315.82	2,217.2	85.3	-83.0	2.00	2.00	0.00	315.82	
4,279.6	16.57	315.82	4,182.8	504.9	-490.7	0.00	0.00	0.00	0.00	
5,108.2	0.00	0.00	5,000.0	590.2	-573.6	2.00	-2.00	0.00	180.00	TARGET BHL 75°F:
6,971.2	0.00	0.00	6,863.0	590.2	-573.6	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-30D
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 CC20-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-30D 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	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.80	315.82	1,440.0	0.2	-0.2	0.3	2.00	2.00	0.00
1,480.0	1.60	315.82	1,480.0	0.8	-0.8	1.1	2.00	2.00	0.00
1,520.0	2.40	315.82	1,520.0	1.8	-1.8	2.5	2.00	2.00	0.00
1,560.0	3.20	315.82	1,559.9	3.2	-3.1	4.5	2.00	2.00	0.00
1,600.0	4.00	315.82	1,599.8	5.0	-4.9	7.0	2.00	2.00	0.00
1,640.0	4.80	315.82	1,639.7	7.2	-7.0	10.0	2.00	2.00	0.00
1,680.0	5.60	315.82	1,679.6	9.8	-9.5	13.7	2.00	2.00	0.00
1,720.0	6.40	315.82	1,719.3	12.8	-12.4	17.9	2.00	2.00	0.00
1,760.0	7.20	315.82	1,759.1	16.2	-15.7	22.6	2.00	2.00	0.00
1,800.0	8.00	315.82	1,798.7	20.0	-19.4	27.9	2.00	2.00	0.00
1,840.0	8.80	315.82	1,838.3	24.2	-23.5	33.7	2.00	2.00	0.00
1,880.0	9.60	315.82	1,877.8	28.8	-28.0	40.1	2.00	2.00	0.00
1,920.0	10.40	315.82	1,917.1	33.7	-32.8	47.1	2.00	2.00	0.00
1,960.0	11.20	315.82	1,956.4	39.1	-38.0	54.6	2.00	2.00	0.00
2,000.0	12.00	315.82	1,995.6	44.9	-43.6	62.6	2.00	2.00	0.00
2,040.0	12.80	315.82	2,034.7	51.1	-49.6	71.2	2.00	2.00	0.00
2,080.0	13.60	315.82	2,073.6	57.6	-56.0	80.3	2.00	2.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersten State CC20-30D
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:	Guttersten State CC20-31D Pad Sec.20-T4N-R63W	North Reference:	True
Well:	Guttersten State CC20-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersten State CC20-30D 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)
2,120.0	14.40	315.82	2,112.4	64.5	-62.7	90.0	2.00	2.00	0.00
2,160.0	15.20	315.82	2,151.1	71.9	-69.8	100.2	2.00	2.00	0.00
2,200.0	16.00	315.82	2,189.6	79.6	-77.3	111.0	2.00	2.00	0.00
2,228.7	16.57	315.82	2,217.2	85.3	-83.0	119.0	2.00	2.00	0.00
2,240.0	16.57	315.82	2,228.0	87.7	-85.2	122.2	0.00	0.00	0.00
2,280.0	16.57	315.82	2,266.4	95.8	-93.2	133.7	0.00	0.00	0.00
2,320.0	16.57	315.82	2,304.7	104.0	-101.1	145.1	0.00	0.00	0.00
2,360.0	16.57	315.82	2,343.0	112.2	-109.1	156.5	0.00	0.00	0.00
2,400.0	16.57	315.82	2,381.4	120.4	-117.0	167.9	0.00	0.00	0.00
2,440.0	16.57	315.82	2,419.7	128.6	-125.0	179.3	0.00	0.00	0.00
2,480.0	16.57	315.82	2,458.1	136.8	-132.9	190.7	0.00	0.00	0.00
2,520.0	16.57	315.82	2,496.4	144.9	-140.9	202.1	0.00	0.00	0.00
2,560.0	16.57	315.82	2,534.7	153.1	-148.8	213.5	0.00	0.00	0.00
2,600.0	16.57	315.82	2,573.1	161.3	-156.8	224.9	0.00	0.00	0.00
2,640.0	16.57	315.82	2,611.4	169.5	-164.7	236.3	0.00	0.00	0.00
2,680.0	16.57	315.82	2,649.7	177.7	-172.7	247.8	0.00	0.00	0.00
2,720.0	16.57	315.82	2,688.1	185.8	-180.6	259.2	0.00	0.00	0.00
2,760.0	16.57	315.82	2,726.4	194.0	-188.6	270.6	0.00	0.00	0.00
2,800.0	16.57	315.82	2,764.8	202.2	-196.5	282.0	0.00	0.00	0.00
2,840.0	16.57	315.82	2,803.1	210.4	-204.5	293.4	0.00	0.00	0.00
2,880.0	16.57	315.82	2,841.4	218.6	-212.4	304.8	0.00	0.00	0.00
2,920.0	16.57	315.82	2,879.8	226.8	-220.4	316.2	0.00	0.00	0.00
2,960.0	16.57	315.82	2,918.1	234.9	-228.3	327.6	0.00	0.00	0.00
3,000.0	16.57	315.82	2,956.4	243.1	-236.3	339.0	0.00	0.00	0.00
3,040.0	16.57	315.82	2,994.8	251.3	-244.2	350.4	0.00	0.00	0.00
3,080.0	16.57	315.82	3,033.1	259.5	-252.2	361.9	0.00	0.00	0.00
3,120.0	16.57	315.82	3,071.5	267.7	-260.2	373.3	0.00	0.00	0.00
3,160.0	16.57	315.82	3,109.8	275.8	-268.1	384.7	0.00	0.00	0.00
3,200.0	16.57	315.82	3,148.1	284.0	-276.1	396.1	0.00	0.00	0.00
3,240.0	16.57	315.82	3,186.5	292.2	-284.0	407.5	0.00	0.00	0.00
3,280.0	16.57	315.82	3,224.8	300.4	-292.0	418.9	0.00	0.00	0.00
3,320.0	16.57	315.82	3,263.2	308.6	-299.9	430.3	0.00	0.00	0.00
3,360.0	16.57	315.82	3,301.5	316.8	-307.9	441.7	0.00	0.00	0.00
3,400.0	16.57	315.82	3,339.8	324.9	-315.8	453.1	0.00	0.00	0.00
3,440.0	16.57	315.82	3,378.2	333.1	-323.8	464.5	0.00	0.00	0.00
3,480.0	16.57	315.82	3,416.5	341.3	-331.7	475.9	0.00	0.00	0.00
3,520.0	16.57	315.82	3,454.8	349.5	-339.7	487.4	0.00	0.00	0.00
3,560.0	16.57	315.82	3,493.2	357.7	-347.6	498.8	0.00	0.00	0.00
3,600.0	16.57	315.82	3,531.5	365.9	-355.6	510.2	0.00	0.00	0.00
3,640.0	16.57	315.82	3,569.9	374.0	-363.5	521.6	0.00	0.00	0.00
3,680.0	16.57	315.82	3,608.2	382.2	-371.5	533.0	0.00	0.00	0.00
3,720.0	16.57	315.82	3,646.5	390.4	-379.4	544.4	0.00	0.00	0.00
3,760.0	16.57	315.82	3,684.9	398.6	-387.4	555.8	0.00	0.00	0.00
3,800.0	16.57	315.82	3,723.2	406.8	-395.3	567.2	0.00	0.00	0.00
3,840.0	16.57	315.82	3,761.6	414.9	-403.3	578.6	0.00	0.00	0.00
3,880.0	16.57	315.82	3,799.9	423.1	-411.2	590.0	0.00	0.00	0.00
3,920.0	16.57	315.82	3,838.2	431.3	-419.2	601.5	0.00	0.00	0.00
3,960.0	16.57	315.82	3,876.6	439.5	-427.1	612.9	0.00	0.00	0.00
4,000.0	16.57	315.82	3,914.9	447.7	-435.1	624.3	0.00	0.00	0.00
4,040.0	16.57	315.82	3,953.2	455.9	-443.0	635.7	0.00	0.00	0.00
4,080.0	16.57	315.82	3,991.6	464.0	-451.0	647.1	0.00	0.00	0.00
4,120.0	16.57	315.82	4,029.9	472.2	-459.0	658.5	0.00	0.00	0.00
4,160.0	16.57	315.82	4,068.3	480.4	-466.9	669.9	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersten State CC20-30D
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:	Guttersten State CC20-31D Pad	North Reference:	True
Well:	Guttersten State CC20-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersten State CC20-30D 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	16.57	315.82	4,106.6	488.6	-474.9	681.3	0.00	0.00	0.00
4,240.0	16.57	315.82	4,144.9	496.8	-482.8	692.7	0.00	0.00	0.00
4,279.6	16.57	315.82	4,182.8	504.9	-490.7	704.0	0.00	0.00	0.00
4,280.0	16.56	315.82	4,183.3	504.9	-490.8	704.1	2.00	-2.00	0.00
4,320.0	15.76	315.82	4,221.7	512.9	-498.5	715.3	2.00	-2.00	0.00
4,360.0	14.96	315.82	4,260.3	520.5	-505.9	725.9	2.00	-2.00	0.00
4,400.0	14.16	315.82	4,299.0	527.7	-512.9	735.9	2.00	-2.00	0.00
4,440.0	13.36	315.82	4,337.8	534.6	-519.6	745.5	2.00	-2.00	0.00
4,480.0	12.56	315.82	4,376.8	541.0	-525.8	754.4	2.00	-2.00	0.00
4,520.0	11.76	315.82	4,415.9	547.0	-531.7	762.9	2.00	-2.00	0.00
4,560.0	10.96	315.82	4,455.1	552.7	-537.2	770.7	2.00	-2.00	0.00
4,600.0	10.16	315.82	4,494.4	558.0	-542.3	778.1	2.00	-2.00	0.00
4,640.0	9.36	315.82	4,533.9	562.8	-547.0	784.9	2.00	-2.00	0.00
4,680.0	8.56	315.82	4,573.4	567.3	-551.4	791.1	2.00	-2.00	0.00
4,720.0	7.76	315.82	4,613.0	571.4	-555.3	796.8	2.00	-2.00	0.00
4,760.0	6.96	315.82	4,652.6	575.0	-558.9	801.9	2.00	-2.00	0.00
4,800.0	6.16	315.82	4,692.4	578.3	-562.1	806.5	2.00	-2.00	0.00
4,840.0	5.36	315.82	4,732.2	581.2	-564.9	810.5	2.00	-2.00	0.00
4,880.0	4.56	315.82	4,772.0	583.7	-567.3	813.9	2.00	-2.00	0.00
4,920.0	3.76	315.82	4,811.9	585.8	-569.3	816.8	2.00	-2.00	0.00
4,960.0	2.96	315.82	4,851.8	587.5	-571.0	819.2	2.00	-2.00	0.00
5,000.0	2.16	315.82	4,891.8	588.7	-572.2	821.0	2.00	-2.00	0.00
5,040.0	1.36	315.82	4,931.8	589.6	-573.1	822.2	2.00	-2.00	0.00
5,080.0	0.56	315.82	4,971.8	590.1	-573.5	822.9	2.00	-2.00	0.00
5,108.2	0.00	0.00	5,000.0	590.2	-573.6	823.0	2.00	-2.00	0.00
TARGET BHL 75'FSL, 75'FEL									
5,120.0	0.00	0.00	5,011.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,051.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,091.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,131.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,171.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,211.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,251.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,291.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,331.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,371.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,411.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,451.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,491.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,531.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,571.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,611.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,651.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,691.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,731.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,771.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,811.8	590.2	-573.6	823.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,851.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,891.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,931.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,080.0	0.00	0.00	5,971.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,011.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,051.8	590.2	-573.6	823.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Guttersen State CC20-30D
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	North Reference:	True
Well:	Guttersen State CC20-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Guttersen State CC20-30D 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	6,091.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,131.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,171.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,211.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,251.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,291.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,331.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,371.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,411.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,530.2	0.00	0.00	6,422.0	590.2	-573.6	823.0	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 20-30D									
6,560.0	0.00	0.00	6,451.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,491.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,531.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,571.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,611.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,651.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,691.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,821.2	0.00	0.00	6,713.0	590.2	-573.6	823.0	0.00	0.00	0.00
CODELL									
6,840.0	0.00	0.00	6,731.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,771.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,811.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,851.8	590.2	-573.6	823.0	0.00	0.00	0.00
6,971.2	0.00	0.00	6,863.0	590.2	-573.6	823.0	0.00	0.00	0.00
HARDLINES 75'S & E OF 20-30D 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 BHL 75'FSL - plan hits target center - Point	0.00	0.00	5,000.0	590.2	-573.6	1,355,609.28	3,286,888.52	40° 18' 17.928 N	104° 28' 16.812 W
TARGET CIRCLE 20- - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,422.0	590.2	-573.6	1,355,609.28	3,286,888.54	40° 18' 17.928 N	104° 28' 16.812 W
HARDLINES 75'S & E - plan misses target center by 106.1ft at 6971.2ft MD (6863.0 TVD, 590.2 N, -573.6 E) - Polygon	0.00	0.00	6,863.0	515.2	-498.6	1,355,535.16	3,286,964.40	40° 18' 17.187 N	104° 28' 15.844 W
Point 1			6,863.0	0.0	0.0	1,355,535.16	3,286,964.40		
Point 2			6,863.0	0.0	-200.0	1,355,532.84	3,286,764.42		
Point 3			6,863.0	0.0	0.0	1,355,535.16	3,286,964.40		
Point 4			6,863.0	200.0	0.0	1,355,735.14	3,286,962.08		

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.20-T4N-R63W
Site: Guttersen State CC20-31D Pad
Sec.20-T4N-R63W
Well: Guttersen State CC20-30D
Wellbore: Wellbore #1
Design: Noble Guttersen State CC20-30D Plan #1 10-1

Local Co-ordinate Reference: Well Guttersen State CC20-30D
TVD Reference: WELL @ 4703.0ft (Original Well Elev)
MD Reference: WELL @ 4703.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,530.2	6,422.0	NIOBRARA		0.00	
6,821.2	6,713.0	CODELL		0.00	