

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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1909.6	14.19	191.05	1902.4	-85.8	-16.8	2.00	191.05	87.4	
4	4380.3	14.19	191.05	4297.6	-680.3	-132.8	0.00	0.00	693.2	
5	5089.9	0.00	0.00	5000.0	-766.2	-149.6	2.00	180.00	780.6	TARGET BHL 1320'FNL, 75'FWL
6	7294.9	0.00	0.00	7205.0	-766.2	-149.6	0.00	0.00	780.6	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.31-T5N-R64W

Thistle Down B31-31D Pad Sec.31-T5N-R64W

Thistle Down B31-31D

Wellbore #1

Plan: Plan #1 (07-23-09)

Standard Planning Report

23 July, 2009



Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thistle Down B31-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4775.0ft (Original Well Elev)
Project:	SEC.31-T5N-R64W	MD Reference:	WELL @ 4775.0ft (Original Well Elev)
Site:	Thistle Down B31-31D Pad Sec.31-T5N-R64W	North Reference:	True
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

Project	SEC.31-T5N-R64W		
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		Thistle Down B31-31D Pad Sec.31-T5N-R64W			
Site Position:		Northing:	1,375,742.41 ft	Latitude:	40° 21' 40.788 N
From:	Lat/Long	Easting:	3,250,460.82 ft	Longitude:	104° 36' 4.356 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.58 °

Well	Thistle Down B31-31D					
Well Position	+N/-S	0.0 ft	Northing:	1,375,742.40 ft	Latitude:	40° 21' 40.788 N
	+E/-W	0.0 ft	Easting:	3,250,460.82 ft	Longitude:	104° 36' 4.356 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,763.0 ft

Wellbore	Wellbore #1
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/23/2009	8.99	67.12	53,348

Design	Plan #1 (07-23-09)
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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	191.05

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,909.6	14.19	191.05	1,902.4	-85.8	-16.8	2.00	2.00	0.00	191.05	
4,380.3	14.19	191.05	4,297.6	-680.3	-132.8	0.00	0.00	0.00	0.00	
5,089.9	0.00	0.00	5,000.0	-766.2	-149.6	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,294.9	0.00	0.00	7,205.0	-766.2	-149.6	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thistle Down B31-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4775.0ft (Original Well Elev)
Project:	SEC.31-T5N-R64W	MD Reference:	WELL @ 4775.0ft (Original Well Elev)
Site:	Thistle Down B31-31D Pad Sec.31-T5N-R64W	North Reference:	True
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

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	0.80	191.05	1,240.0	-0.3	-0.1	0.3	2.00	2.00	0.00
1,280.0	1.60	191.05	1,280.0	-1.1	-0.2	1.1	2.00	2.00	0.00
1,320.0	2.40	191.05	1,320.0	-2.5	-0.5	2.5	2.00	2.00	0.00
1,360.0	3.20	191.05	1,359.9	-4.4	-0.9	4.5	2.00	2.00	0.00
1,400.0	4.00	191.05	1,399.8	-6.8	-1.3	7.0	2.00	2.00	0.00
1,440.0	4.80	191.05	1,439.7	-9.9	-1.9	10.0	2.00	2.00	0.00
1,480.0	5.60	191.05	1,479.6	-13.4	-2.6	13.7	2.00	2.00	0.00
1,520.0	6.40	191.05	1,519.3	-17.5	-3.4	17.9	2.00	2.00	0.00
1,560.0	7.20	191.05	1,559.1	-22.2	-4.3	22.6	2.00	2.00	0.00
1,600.0	8.00	191.05	1,598.7	-27.4	-5.3	27.9	2.00	2.00	0.00
1,640.0	8.80	191.05	1,638.3	-33.1	-6.5	33.7	2.00	2.00	0.00
1,680.0	9.60	191.05	1,677.8	-39.4	-7.7	40.1	2.00	2.00	0.00
1,720.0	10.40	191.05	1,717.1	-46.2	-9.0	47.1	2.00	2.00	0.00
1,760.0	11.20	191.05	1,756.4	-53.5	-10.5	54.6	2.00	2.00	0.00
1,800.0	12.00	191.05	1,795.6	-61.4	-12.0	62.6	2.00	2.00	0.00
1,840.0	12.80	191.05	1,834.7	-69.9	-13.6	71.2	2.00	2.00	0.00
1,880.0	13.60	191.05	1,873.6	-78.8	-15.4	80.3	2.00	2.00	0.00
1,909.6	14.19	191.05	1,902.4	-85.8	-16.8	87.4	2.00	2.00	0.00
1,920.0	14.19	191.05	1,912.4	-88.3	-17.2	90.0	0.00	0.00	0.00
1,960.0	14.19	191.05	1,951.2	-97.9	-19.1	99.8	0.00	0.00	0.00
2,000.0	14.19	191.05	1,990.0	-107.6	-21.0	109.6	0.00	0.00	0.00
2,040.0	14.19	191.05	2,028.8	-117.2	-22.9	119.4	0.00	0.00	0.00

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Project:	SEC.31-T5N-R64W	MD Reference:	WELL @ 4775.0ft (Original Well Elev)
Site:	Thistle Down B31-31D Pad	North Reference:	True
	Sec.31-T5N-R64W		
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

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	14.19	191.05	2,067.6	-126.8	-24.8	129.2	0.00	0.00	0.00
2,120.0	14.19	191.05	2,106.3	-136.4	-26.6	139.0	0.00	0.00	0.00
2,160.0	14.19	191.05	2,145.1	-146.1	-28.5	148.8	0.00	0.00	0.00
2,200.0	14.19	191.05	2,183.9	-155.7	-30.4	158.6	0.00	0.00	0.00
2,240.0	14.19	191.05	2,222.7	-165.3	-32.3	168.4	0.00	0.00	0.00
2,280.0	14.19	191.05	2,261.5	-174.9	-34.2	178.2	0.00	0.00	0.00
2,320.0	14.19	191.05	2,300.2	-184.6	-36.0	188.1	0.00	0.00	0.00
2,360.0	14.19	191.05	2,339.0	-194.2	-37.9	197.9	0.00	0.00	0.00
2,400.0	14.19	191.05	2,377.8	-203.8	-39.8	207.7	0.00	0.00	0.00
2,440.0	14.19	191.05	2,416.6	-213.4	-41.7	217.5	0.00	0.00	0.00
2,480.0	14.19	191.05	2,455.4	-223.1	-43.6	227.3	0.00	0.00	0.00
2,520.0	14.19	191.05	2,494.1	-232.7	-45.4	237.1	0.00	0.00	0.00
2,560.0	14.19	191.05	2,532.9	-242.3	-47.3	246.9	0.00	0.00	0.00
2,600.0	14.19	191.05	2,571.7	-251.9	-49.2	256.7	0.00	0.00	0.00
2,640.0	14.19	191.05	2,610.5	-261.6	-51.1	266.5	0.00	0.00	0.00
2,680.0	14.19	191.05	2,649.3	-271.2	-52.9	276.3	0.00	0.00	0.00
2,720.0	14.19	191.05	2,688.0	-280.8	-54.8	286.1	0.00	0.00	0.00
2,760.0	14.19	191.05	2,726.8	-290.4	-56.7	295.9	0.00	0.00	0.00
2,800.0	14.19	191.05	2,765.6	-300.1	-58.6	305.7	0.00	0.00	0.00
2,840.0	14.19	191.05	2,804.4	-309.7	-60.5	315.5	0.00	0.00	0.00
2,880.0	14.19	191.05	2,843.1	-319.3	-62.3	325.4	0.00	0.00	0.00
2,920.0	14.19	191.05	2,881.9	-329.0	-64.2	335.2	0.00	0.00	0.00
2,960.0	14.19	191.05	2,920.7	-338.6	-66.1	345.0	0.00	0.00	0.00
3,000.0	14.19	191.05	2,959.5	-348.2	-68.0	354.8	0.00	0.00	0.00
3,040.0	14.19	191.05	2,998.3	-357.8	-69.9	364.6	0.00	0.00	0.00
3,080.0	14.19	191.05	3,037.0	-367.5	-71.7	374.4	0.00	0.00	0.00
3,120.0	14.19	191.05	3,075.8	-377.1	-73.6	384.2	0.00	0.00	0.00
3,160.0	14.19	191.05	3,114.6	-386.7	-75.5	394.0	0.00	0.00	0.00
3,200.0	14.19	191.05	3,153.4	-396.3	-77.4	403.8	0.00	0.00	0.00
3,240.0	14.19	191.05	3,192.2	-406.0	-79.3	413.6	0.00	0.00	0.00
3,280.0	14.19	191.05	3,230.9	-415.6	-81.1	423.4	0.00	0.00	0.00
3,320.0	14.19	191.05	3,269.7	-425.2	-83.0	433.2	0.00	0.00	0.00
3,360.0	14.19	191.05	3,308.5	-434.8	-84.9	443.0	0.00	0.00	0.00
3,400.0	14.19	191.05	3,347.3	-444.5	-86.8	452.8	0.00	0.00	0.00
3,440.0	14.19	191.05	3,386.1	-454.1	-88.7	462.7	0.00	0.00	0.00
3,480.0	14.19	191.05	3,424.8	-463.7	-90.5	472.5	0.00	0.00	0.00
3,520.0	14.19	191.05	3,463.6	-473.3	-92.4	482.3	0.00	0.00	0.00
3,560.0	14.19	191.05	3,502.4	-483.0	-94.3	492.1	0.00	0.00	0.00
3,600.0	14.19	191.05	3,541.2	-492.6	-96.2	501.9	0.00	0.00	0.00
3,640.0	14.19	191.05	3,580.0	-502.2	-98.0	511.7	0.00	0.00	0.00
3,680.0	14.19	191.05	3,618.7	-511.8	-99.9	521.5	0.00	0.00	0.00
3,720.0	14.19	191.05	3,657.5	-521.5	-101.8	531.3	0.00	0.00	0.00
3,760.0	14.19	191.05	3,696.3	-531.1	-103.7	541.1	0.00	0.00	0.00
3,800.0	14.19	191.05	3,735.1	-540.7	-105.6	550.9	0.00	0.00	0.00
3,840.0	14.19	191.05	3,773.8	-550.3	-107.4	560.7	0.00	0.00	0.00
3,880.0	14.19	191.05	3,812.6	-560.0	-109.3	570.5	0.00	0.00	0.00
3,920.0	14.19	191.05	3,851.4	-569.6	-111.2	580.3	0.00	0.00	0.00
3,960.0	14.19	191.05	3,890.2	-579.2	-113.1	590.1	0.00	0.00	0.00
4,000.0	14.19	191.05	3,929.0	-588.8	-115.0	600.0	0.00	0.00	0.00
4,040.0	14.19	191.05	3,967.7	-598.5	-116.8	609.8	0.00	0.00	0.00
4,080.0	14.19	191.05	4,006.5	-608.1	-118.7	619.6	0.00	0.00	0.00
4,120.0	14.19	191.05	4,045.3	-617.7	-120.6	629.4	0.00	0.00	0.00
4,160.0	14.19	191.05	4,084.1	-627.3	-122.5	639.2	0.00	0.00	0.00

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Site:	Thistle Down B31-31D Pad Sec.31-T5N-R64W	North Reference:	True
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

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	14.19	191.05	4,122.9	-637.0	-124.4	649.0	0.00	0.00	0.00
4,240.0	14.19	191.05	4,161.6	-646.6	-126.2	658.8	0.00	0.00	0.00
4,280.0	14.19	191.05	4,200.4	-656.2	-128.1	668.6	0.00	0.00	0.00
4,320.0	14.19	191.05	4,239.2	-665.8	-130.0	678.4	0.00	0.00	0.00
4,360.0	14.19	191.05	4,278.0	-675.5	-131.9	688.2	0.00	0.00	0.00
4,380.3	14.19	191.05	4,297.6	-680.3	-132.8	693.2	0.00	0.00	0.00
4,400.0	13.80	191.05	4,316.8	-685.0	-133.7	698.0	2.00	-2.00	0.00
4,440.0	13.00	191.05	4,355.7	-694.1	-135.5	707.2	2.00	-2.00	0.00
4,480.0	12.20	191.05	4,394.7	-702.7	-137.2	715.9	2.00	-2.00	0.00
4,520.0	11.40	191.05	4,433.9	-710.7	-138.8	724.1	2.00	-2.00	0.00
4,560.0	10.60	191.05	4,473.1	-718.2	-140.2	731.8	2.00	-2.00	0.00
4,600.0	9.80	191.05	4,512.5	-725.1	-141.6	738.8	2.00	-2.00	0.00
4,640.0	9.00	191.05	4,552.0	-731.6	-142.8	745.4	2.00	-2.00	0.00
4,680.0	8.20	191.05	4,591.5	-737.4	-144.0	751.3	2.00	-2.00	0.00
4,720.0	7.40	191.05	4,631.2	-742.8	-145.0	756.8	2.00	-2.00	0.00
4,760.0	6.60	191.05	4,670.9	-747.5	-145.9	761.6	2.00	-2.00	0.00
4,800.0	5.80	191.05	4,710.6	-751.8	-146.8	766.0	2.00	-2.00	0.00
4,840.0	5.00	191.05	4,750.4	-755.5	-147.5	769.7	2.00	-2.00	0.00
4,880.0	4.20	191.05	4,790.3	-758.6	-148.1	772.9	2.00	-2.00	0.00
4,920.0	3.40	191.05	4,830.2	-761.2	-148.6	775.6	2.00	-2.00	0.00
4,960.0	2.60	191.05	4,870.2	-763.3	-149.0	777.7	2.00	-2.00	0.00
5,000.0	1.80	191.05	4,910.1	-764.8	-149.3	779.2	2.00	-2.00	0.00
5,040.0	1.00	191.05	4,950.1	-765.7	-149.5	780.2	2.00	-2.00	0.00
5,080.0	0.20	191.05	4,990.1	-766.1	-149.6	780.6	2.00	-2.00	0.00
5,089.9	0.00	0.00	5,000.0	-766.2	-149.6	780.6	2.00	-2.00	1,710.67
TARGET BHL 1320'FNL, 75'FWL									
5,120.0	0.00	0.00	5,030.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,160.0	0.00	0.00	5,070.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,200.0	0.00	0.00	5,110.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,240.0	0.00	0.00	5,150.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,280.0	0.00	0.00	5,190.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,320.0	0.00	0.00	5,230.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,360.0	0.00	0.00	5,270.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,310.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,440.0	0.00	0.00	5,350.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,480.0	0.00	0.00	5,390.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,520.0	0.00	0.00	5,430.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,560.0	0.00	0.00	5,470.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,510.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,640.0	0.00	0.00	5,550.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,680.0	0.00	0.00	5,590.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,720.0	0.00	0.00	5,630.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,760.0	0.00	0.00	5,670.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,710.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,840.0	0.00	0.00	5,750.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,880.0	0.00	0.00	5,790.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,920.0	0.00	0.00	5,830.1	-766.2	-149.6	780.6	0.00	0.00	0.00
5,960.0	0.00	0.00	5,870.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,910.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,040.0	0.00	0.00	5,950.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,080.0	0.00	0.00	5,990.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,120.0	0.00	0.00	6,030.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,160.0	0.00	0.00	6,070.1	-766.2	-149.6	780.6	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thistle Down B31-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4775.0ft (Original Well Elev)
Project:	SEC.31-T5N-R64W	MD Reference:	WELL @ 4775.0ft (Original Well Elev)
Site:	Thistle Down B31-31D Pad Sec.31-T5N-R64W	North Reference:	True
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

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	6,110.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,240.0	0.00	0.00	6,150.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,280.0	0.00	0.00	6,190.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,320.0	0.00	0.00	6,230.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,360.0	0.00	0.00	6,270.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,310.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,440.0	0.00	0.00	6,350.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,480.0	0.00	0.00	6,390.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,520.0	0.00	0.00	6,430.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,560.0	0.00	0.00	6,470.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,510.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,640.0	0.00	0.00	6,550.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,680.0	0.00	0.00	6,590.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,720.0	0.00	0.00	6,630.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,760.0	0.00	0.00	6,670.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,710.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,840.0	0.00	0.00	6,750.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,840.9	0.00	0.00	6,751.0	-766.2	-149.6	780.6	0.00	0.00	0.00
NIOBRARA									
6,880.0	0.00	0.00	6,790.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,920.0	0.00	0.00	6,830.1	-766.2	-149.6	780.6	0.00	0.00	0.00
6,960.0	0.00	0.00	6,870.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,910.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,040.0	0.00	0.00	6,950.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,080.0	0.00	0.00	6,990.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,120.0	0.00	0.00	7,030.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,144.9	0.00	0.00	7,055.0	-766.2	-149.6	780.6	0.00	0.00	0.00
CODELL									
7,160.0	0.00	0.00	7,070.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,200.0	0.00	0.00	7,110.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,240.0	0.00	0.00	7,150.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,280.0	0.00	0.00	7,190.1	-766.2	-149.6	780.6	0.00	0.00	0.00
7,294.9	0.00	0.00	7,205.0	-766.2	-149.6	780.6	0.00	0.00	0.00
HARDLINE 75°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									
HARDLINE 75°W OF I	0.00	0.00	7,205.0	-866.2	-224.6	1,374,874.01	3,250,245.02	40° 21' 32.228 N	104° 36' 7.257 W
- plan misses target center by 125.0ft at 7294.9ft MD (7205.0 TVD, -766.2 N, -149.6 E)									
- Polygon									
Point 1			7,205.0	0.0	0.0	1,374,874.01	3,250,245.02		
Point 2			7,205.0	200.0	0.0	1,375,073.99	3,250,242.99		
TARGET BHL 1320°F	0.00	0.00	5,000.0	-766.2	-149.6	1,374,974.80	3,250,319.02	40° 21' 33.217 N	104° 36' 6.288 W
- plan hits target center									
- Point									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Thistle Down B31-31D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4775.0ft (Original Well Elev)
Project:	SEC.31-T5N-R64W	MD Reference:	WELL @ 4775.0ft (Original Well Elev)
Site:	Thistle Down B31-31D Pad	North Reference:	True
	Sec.31-T5N-R64W		
Well:	Thistle Down B31-31D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (07-23-09)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,840.9	6,751.0	NIOBRARA		0.00	
7,144.9	7,055.0	CODELL		0.00	