

# ENSIGN

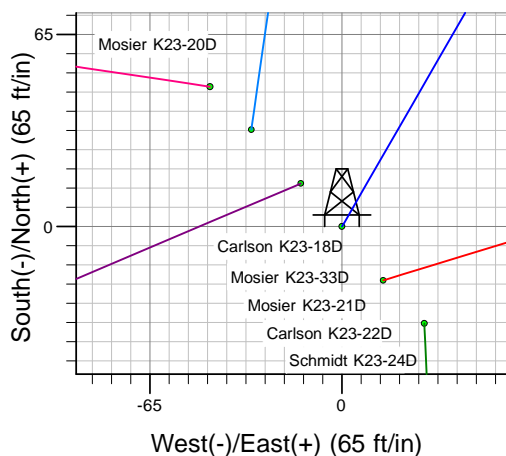
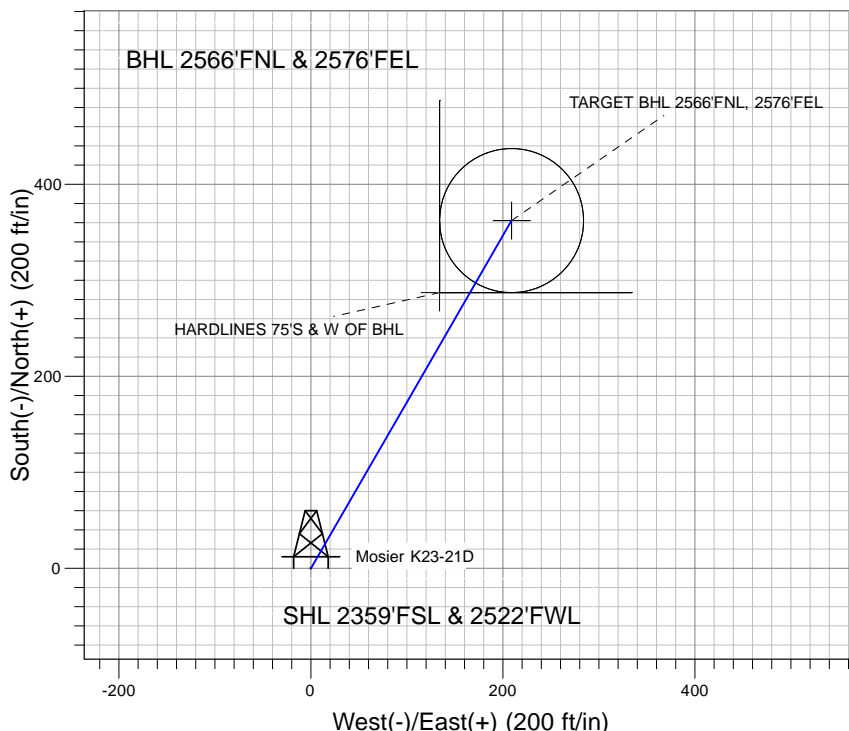
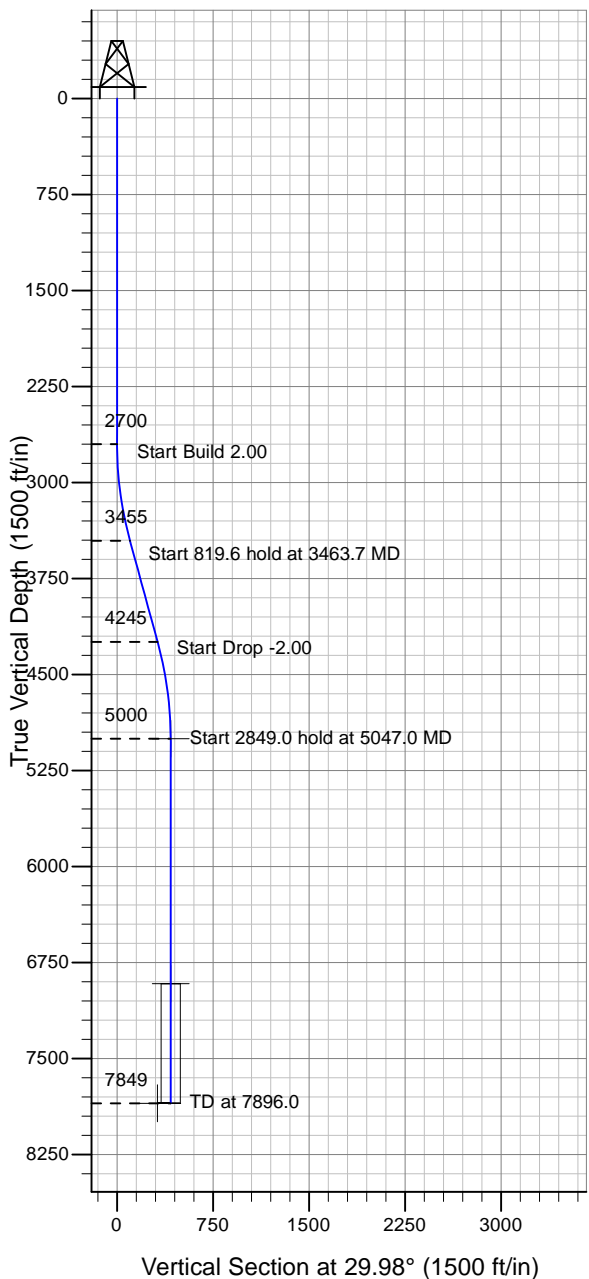
## Directional

### Well Name: Mosier K23-21D

Surface Location: Schmidt K23-24D Pad Sec.23-T4N-R66W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4726.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1351803.76 3210612.89 40° 17' 47.904 N 104° 44' 41.748 W  
 Original Well Elev WELL @ 4739.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Schmidt K23-24D Pad Sec.23-T4N-R66W  
 Mosier K23-21D  
 Noble Mosier K23-21D Plan #2 (04-15-10)  
 10:07, April 19 2010



Azimuths to True North  
 Magnetic North: 9.00°

Magnetic Field  
 Strength: 53202.4snT  
 Dip Angle: 67.01°  
 Date: 4/18/2010  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2566'FNL, 2576'FEL	5000.0	362.3	209.0	40° 17' 51.484 N	104° 44' 39.051 W	Point
TARGET CIRCLE 2566'FNL, 2576'FEL	6914.0	362.3	209.0	40° 17' 51.484 N	104° 44' 39.051 W	Circle (Radius: 75.0)
HARDLINES 75'S & W OF BHL	7849.0	287.3	134.0	40° 17' 50.743 N	104° 44' 40.019 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	2700.0	0.00	0.00	2700.0	0.0	0.0	0.00	0.00	0.0	
3	3463.7	15.27	29.98	3454.7	87.6	50.6	2.00	29.98	101.2	
4	4283.3	15.27	29.98	4245.3	274.7	158.5	0.00	0.00	317.1	
5	5047.0	0.00	0.00	5000.0	362.3	209.0	2.00	180.00	418.3	TARGET BHL 2566'FNL, 2576'FEL
6	7896.0	0.00	0.00	7849.0	362.3	209.0	0.00	0.00	418.3	



## **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.23-T4N-R66W**

**Schmidt K23-24D Pad Sec.23-T4N-R66W**

**Mosier K23-21D**

**Wellbore #1**

**Plan: Noble Mosier K23-21D Plan #2 (04-15-10)**

## **Standard Planning Report**

**19 April, 2010**



**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.23-T4N-R66W  
**Site:** Schmidt K23-24D Pad Sec.23-T4N-R66W  
**Well:** Mosier K23-21D  
**Wellbore:** Wellbore #1  
**Design:** Noble Mosier K23-21D Plan #2 (04-15-10)

**Local Co-ordinate Reference:** Well Mosier K23-21D  
**TVD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

<b>Project</b>	SEC.23-T4N-R66W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Schmidt K23-24D Pad Sec.23-T4N-R66W		
<b>Site Position:</b>		<b>Northing:</b>	1,351,771.22 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,210,641.06 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 17' 47.580 N
		<b>Longitude:</b>	104° 44' 41.388 W
		<b>Grid Convergence:</b>	0.49 °

<b>Well</b>	Mosier K23-21D		
<b>Well Position</b>	+N/-S	32.8 ft	<b>Northing:</b> 1,351,803.76 ft
	+E/-W	-27.9 ft	<b>Easting:</b> 3,210,612.89 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 17' 47.904 N
		<b>Longitude:</b>	104° 44' 41.748 W
		<b>Ground Level:</b>	4,726.0 ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2010	4/18/2010	9.00
			<b>Dip Angle (°)</b>
			67.01
			<b>Field Strength (nT)</b>
			53,202

<b>Design</b>	Noble Mosier K23-21D Plan #2 (04-15-10)		
<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>
	0.0	0.0	0.0
			<b>Direction (°)</b>
			29.98

<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	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,463.7	15.27	29.98	3,454.7	87.6	50.6	2.00	2.00	0.00	29.98	
4,283.3	15.27	29.98	4,245.3	274.7	158.5	0.00	0.00	0.00	0.00	
5,047.0	0.00	0.00	5,000.0	362.3	209.0	2.00	-2.00	0.00	180.00	TARGET BHL 2566
7,896.0	0.00	0.00	7,849.0	362.3	209.0	0.00	0.00	0.00	0.00	



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**MD Reference:** WELL @ 4739.0ft (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)
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	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00

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**MD Reference:** WELL @ 4739.0ft (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)
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.40	29.98	2,720.0	0.1	0.0	0.1	2.00	2.00	0.00
2,760.0	1.20	29.98	2,760.0	0.5	0.3	0.6	2.00	2.00	0.00
2,800.0	2.00	29.98	2,800.0	1.5	0.9	1.7	2.00	2.00	0.00
2,840.0	2.80	29.98	2,839.9	3.0	1.7	3.4	2.00	2.00	0.00
2,880.0	3.60	29.98	2,879.9	4.9	2.8	5.7	2.00	2.00	0.00
2,920.0	4.40	29.98	2,919.8	7.3	4.2	8.4	2.00	2.00	0.00
2,960.0	5.20	29.98	2,959.6	10.2	5.9	11.8	2.00	2.00	0.00
3,000.0	6.00	29.98	2,999.5	13.6	7.8	15.7	2.00	2.00	0.00
3,040.0	6.80	29.98	3,039.2	17.5	10.1	20.2	2.00	2.00	0.00
3,080.0	7.60	29.98	3,078.9	21.8	12.6	25.2	2.00	2.00	0.00
3,120.0	8.40	29.98	3,118.5	26.6	15.4	30.7	2.00	2.00	0.00
3,160.0	9.20	29.98	3,158.0	31.9	18.4	36.9	2.00	2.00	0.00
3,200.0	10.00	29.98	3,197.5	37.7	21.7	43.5	2.00	2.00	0.00
3,240.0	10.80	29.98	3,236.8	44.0	25.4	50.7	2.00	2.00	0.00
3,280.0	11.60	29.98	3,276.0	50.7	29.2	58.5	2.00	2.00	0.00
3,320.0	12.40	29.98	3,315.2	57.9	33.4	66.8	2.00	2.00	0.00
3,360.0	13.20	29.98	3,354.2	65.6	37.8	75.7	2.00	2.00	0.00
3,400.0	14.00	29.98	3,393.1	73.7	42.5	85.1	2.00	2.00	0.00
3,440.0	14.80	29.98	3,431.8	82.3	47.5	95.0	2.00	2.00	0.00
3,463.7	15.27	29.98	3,454.7	87.6	50.6	101.2	2.00	2.00	0.00
3,480.0	15.27	29.98	3,470.4	91.4	52.7	105.5	0.00	0.00	0.00
3,520.0	15.27	29.98	3,509.0	100.5	58.0	116.0	0.00	0.00	0.00
3,560.0	15.27	29.98	3,547.6	109.6	63.2	126.6	0.00	0.00	0.00
3,600.0	15.27	29.98	3,586.2	118.8	68.5	137.1	0.00	0.00	0.00
3,640.0	15.27	29.98	3,624.8	127.9	73.8	147.6	0.00	0.00	0.00
3,680.0	15.27	29.98	3,663.3	137.0	79.0	158.2	0.00	0.00	0.00
3,720.0	15.27	29.98	3,701.9	146.1	84.3	168.7	0.00	0.00	0.00
3,760.0	15.27	29.98	3,740.5	155.3	89.6	179.2	0.00	0.00	0.00
3,800.0	15.27	29.98	3,779.1	164.4	94.8	189.8	0.00	0.00	0.00
3,840.0	15.27	29.98	3,817.7	173.5	100.1	200.3	0.00	0.00	0.00
3,880.0	15.27	29.98	3,856.3	182.6	105.4	210.9	0.00	0.00	0.00
3,920.0	15.27	29.98	3,894.9	191.8	110.6	221.4	0.00	0.00	0.00
3,960.0	15.27	29.98	3,933.5	200.9	115.9	231.9	0.00	0.00	0.00
4,000.0	15.27	29.98	3,972.0	210.0	121.2	242.5	0.00	0.00	0.00
4,040.0	15.27	29.98	4,010.6	219.2	126.4	253.0	0.00	0.00	0.00
4,080.0	15.27	29.98	4,049.2	228.3	131.7	263.5	0.00	0.00	0.00
4,120.0	15.27	29.98	4,087.8	237.4	137.0	274.1	0.00	0.00	0.00
4,160.0	15.27	29.98	4,126.4	246.5	142.2	284.6	0.00	0.00	0.00
4,200.0	15.27	29.98	4,165.0	255.7	147.5	295.2	0.00	0.00	0.00



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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)
4,240.0	15.27	29.98	4,203.6	264.8	152.8	305.7	0.00	0.00	0.00
4,280.0	15.27	29.98	4,242.2	273.9	158.0	316.2	0.00	0.00	0.00
4,283.3	15.27	29.98	4,245.3	274.7	158.5	317.1	0.00	0.00	0.00
4,320.0	14.54	29.98	4,280.8	282.8	163.2	326.5	2.00	-2.00	0.00
4,360.0	13.74	29.98	4,319.6	291.3	168.1	336.3	2.00	-2.00	0.00
4,400.0	12.94	29.98	4,358.5	299.3	172.7	345.5	2.00	-2.00	0.00
4,440.0	12.14	29.98	4,397.6	306.8	177.0	354.2	2.00	-2.00	0.00
4,480.0	11.34	29.98	4,436.7	313.9	181.1	362.4	2.00	-2.00	0.00
4,520.0	10.54	29.98	4,476.0	320.4	184.9	369.9	2.00	-2.00	0.00
4,560.0	9.74	29.98	4,515.4	326.5	188.4	377.0	2.00	-2.00	0.00
4,600.0	8.94	29.98	4,554.8	332.2	191.6	383.5	2.00	-2.00	0.00
4,640.0	8.14	29.98	4,594.4	337.3	194.6	389.4	2.00	-2.00	0.00
4,680.0	7.34	29.98	4,634.0	342.0	197.3	394.8	2.00	-2.00	0.00
4,720.0	6.54	29.98	4,673.7	346.2	199.7	399.6	2.00	-2.00	0.00
4,760.0	5.74	29.98	4,713.5	349.9	201.8	403.9	2.00	-2.00	0.00
4,800.0	4.94	29.98	4,753.3	353.1	203.7	407.6	2.00	-2.00	0.00
4,840.0	4.14	29.98	4,793.2	355.8	205.3	410.8	2.00	-2.00	0.00
4,880.0	3.34	29.98	4,833.1	358.1	206.6	413.4	2.00	-2.00	0.00
4,920.0	2.54	29.98	4,873.1	359.9	207.6	415.5	2.00	-2.00	0.00
4,960.0	1.74	29.98	4,913.0	361.2	208.4	417.0	2.00	-2.00	0.00
5,000.0	0.94	29.98	4,953.0	362.0	208.8	417.9	2.00	-2.00	0.00
5,040.0	0.14	29.98	4,993.0	362.3	209.0	418.3	2.00	-2.00	0.00
5,047.0	0.00	0.00	5,000.0	362.3	209.0	418.3	2.00	-2.00	-429.90
<b>TARGET BHL 2566'FNL, 2576'FEL</b>									
5,080.0	0.00	0.00	5,033.0	362.3	209.0	418.3	0.00	0.00	0.00
5,120.0	0.00	0.00	5,073.0	362.3	209.0	418.3	0.00	0.00	0.00
5,160.0	0.00	0.00	5,113.0	362.3	209.0	418.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,153.0	362.3	209.0	418.3	0.00	0.00	0.00
5,240.0	0.00	0.00	5,193.0	362.3	209.0	418.3	0.00	0.00	0.00
5,280.0	0.00	0.00	5,233.0	362.3	209.0	418.3	0.00	0.00	0.00
5,320.0	0.00	0.00	5,273.0	362.3	209.0	418.3	0.00	0.00	0.00
5,360.0	0.00	0.00	5,313.0	362.3	209.0	418.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,353.0	362.3	209.0	418.3	0.00	0.00	0.00
5,440.0	0.00	0.00	5,393.0	362.3	209.0	418.3	0.00	0.00	0.00
5,480.0	0.00	0.00	5,433.0	362.3	209.0	418.3	0.00	0.00	0.00
5,520.0	0.00	0.00	5,473.0	362.3	209.0	418.3	0.00	0.00	0.00
5,560.0	0.00	0.00	5,513.0	362.3	209.0	418.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,553.0	362.3	209.0	418.3	0.00	0.00	0.00
5,640.0	0.00	0.00	5,593.0	362.3	209.0	418.3	0.00	0.00	0.00
5,680.0	0.00	0.00	5,633.0	362.3	209.0	418.3	0.00	0.00	0.00
5,720.0	0.00	0.00	5,673.0	362.3	209.0	418.3	0.00	0.00	0.00
5,760.0	0.00	0.00	5,713.0	362.3	209.0	418.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,753.0	362.3	209.0	418.3	0.00	0.00	0.00
5,840.0	0.00	0.00	5,793.0	362.3	209.0	418.3	0.00	0.00	0.00
5,880.0	0.00	0.00	5,833.0	362.3	209.0	418.3	0.00	0.00	0.00
5,920.0	0.00	0.00	5,873.0	362.3	209.0	418.3	0.00	0.00	0.00
5,960.0	0.00	0.00	5,913.0	362.3	209.0	418.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,953.0	362.3	209.0	418.3	0.00	0.00	0.00
6,040.0	0.00	0.00	5,993.0	362.3	209.0	418.3	0.00	0.00	0.00
6,080.0	0.00	0.00	6,033.0	362.3	209.0	418.3	0.00	0.00	0.00
6,120.0	0.00	0.00	6,073.0	362.3	209.0	418.3	0.00	0.00	0.00
6,160.0	0.00	0.00	6,113.0	362.3	209.0	418.3	0.00	0.00	0.00
6,200.0	0.00	0.00	6,153.0	362.3	209.0	418.3	0.00	0.00	0.00



Database: EDM den0-adp01 Server Data  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.23-T4N-R66W  
 Site: Schmidt K23-24D Pad Sec.23-T4N-R66W  
 Well: Mosier K23-21D  
 Wellbore: Wellbore #1  
 Design: Noble Mosier K23-21D Plan #2 (04-15-10)

Local Co-ordinate Reference:  
 TVD Reference:  
 MD Reference:  
 North Reference:  
 Survey Calculation Method:

Well Mosier K23-21D  
 WELL @ 4739.0ft (Original Well Elev)  
 WELL @ 4739.0ft (Original Well Elev)  
 True  
 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)
6,240.0	0.00	0.00	6,193.0	362.3	209.0	418.3	0.00	0.00	0.00
6,280.0	0.00	0.00	6,233.0	362.3	209.0	418.3	0.00	0.00	0.00
6,320.0	0.00	0.00	6,273.0	362.3	209.0	418.3	0.00	0.00	0.00
6,360.0	0.00	0.00	6,313.0	362.3	209.0	418.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,353.0	362.3	209.0	418.3	0.00	0.00	0.00
6,440.0	0.00	0.00	6,393.0	362.3	209.0	418.3	0.00	0.00	0.00
6,480.0	0.00	0.00	6,433.0	362.3	209.0	418.3	0.00	0.00	0.00
6,520.0	0.00	0.00	6,473.0	362.3	209.0	418.3	0.00	0.00	0.00
6,560.0	0.00	0.00	6,513.0	362.3	209.0	418.3	0.00	0.00	0.00
6,600.0	0.00	0.00	6,553.0	362.3	209.0	418.3	0.00	0.00	0.00
6,640.0	0.00	0.00	6,593.0	362.3	209.0	418.3	0.00	0.00	0.00
6,680.0	0.00	0.00	6,633.0	362.3	209.0	418.3	0.00	0.00	0.00
6,720.0	0.00	0.00	6,673.0	362.3	209.0	418.3	0.00	0.00	0.00
6,760.0	0.00	0.00	6,713.0	362.3	209.0	418.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,753.0	362.3	209.0	418.3	0.00	0.00	0.00
6,840.0	0.00	0.00	6,793.0	362.3	209.0	418.3	0.00	0.00	0.00
6,880.0	0.00	0.00	6,833.0	362.3	209.0	418.3	0.00	0.00	0.00
6,920.0	0.00	0.00	6,873.0	362.3	209.0	418.3	0.00	0.00	0.00
6,960.0	0.00	0.00	6,913.0	362.3	209.0	418.3	0.00	0.00	0.00
6,961.0	0.00	0.00	6,914.0	362.3	209.0	418.3	0.00	0.00	0.00
<b>NIORARA - TARGET CIRCLE 2566°FNL, 2576°FEL</b>									
7,000.0	0.00	0.00	6,953.0	362.3	209.0	418.3	0.00	0.00	0.00
7,040.0	0.00	0.00	6,993.0	362.3	209.0	418.3	0.00	0.00	0.00
7,080.0	0.00	0.00	7,033.0	362.3	209.0	418.3	0.00	0.00	0.00
7,120.0	0.00	0.00	7,073.0	362.3	209.0	418.3	0.00	0.00	0.00
7,160.0	0.00	0.00	7,113.0	362.3	209.0	418.3	0.00	0.00	0.00
7,200.0	0.00	0.00	7,153.0	362.3	209.0	418.3	0.00	0.00	0.00
7,240.0	0.00	0.00	7,193.0	362.3	209.0	418.3	0.00	0.00	0.00
7,280.0	0.00	0.00	7,233.0	362.3	209.0	418.3	0.00	0.00	0.00
7,286.0	0.00	0.00	7,239.0	362.3	209.0	418.3	0.00	0.00	0.00
<b>CODELL</b>									
7,320.0	0.00	0.00	7,273.0	362.3	209.0	418.3	0.00	0.00	0.00
7,360.0	0.00	0.00	7,313.0	362.3	209.0	418.3	0.00	0.00	0.00
7,400.0	0.00	0.00	7,353.0	362.3	209.0	418.3	0.00	0.00	0.00
7,440.0	0.00	0.00	7,393.0	362.3	209.0	418.3	0.00	0.00	0.00
7,480.0	0.00	0.00	7,433.0	362.3	209.0	418.3	0.00	0.00	0.00
7,520.0	0.00	0.00	7,473.0	362.3	209.0	418.3	0.00	0.00	0.00
7,560.0	0.00	0.00	7,513.0	362.3	209.0	418.3	0.00	0.00	0.00
7,600.0	0.00	0.00	7,553.0	362.3	209.0	418.3	0.00	0.00	0.00
7,640.0	0.00	0.00	7,593.0	362.3	209.0	418.3	0.00	0.00	0.00
7,680.0	0.00	0.00	7,633.0	362.3	209.0	418.3	0.00	0.00	0.00
7,686.0	0.00	0.00	7,639.0	362.3	209.0	418.3	0.00	0.00	0.00
<b>D-SAND</b>									
7,720.0	0.00	0.00	7,673.0	362.3	209.0	418.3	0.00	0.00	0.00
7,746.0	0.00	0.00	7,699.0	362.3	209.0	418.3	0.00	0.00	0.00
<b>J-SAND</b>									
7,760.0	0.00	0.00	7,713.0	362.3	209.0	418.3	0.00	0.00	0.00
7,800.0	0.00	0.00	7,753.0	362.3	209.0	418.3	0.00	0.00	0.00
7,840.0	0.00	0.00	7,793.0	362.3	209.0	418.3	0.00	0.00	0.00
7,880.0	0.00	0.00	7,833.0	362.3	209.0	418.3	0.00	0.00	0.00
7,896.0	0.00	0.00	7,849.0	362.3	209.0	418.3	0.00	0.00	0.00
<b>HARDLINES 75'S &amp; W OF BHL</b>									

**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.23-T4N-R66W  
**Site:** Schmidt K23-24D Pad Sec.23-T4N-R66W  
**Well:** Mosier K23-21D  
**Wellbore:** Wellbore #1  
**Design:** Noble Mosier K23-21D Plan #2 (04-15-10)

**Local Co-ordinate Reference:** Well Mosier K23-21D  
**TVD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4739.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

**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 2566'F - plan hits target center - Point	0.00	0.00	5,000.0	362.3	209.0	1,352,167.82	3,210,818.80	40° 17' 51.484 N	104° 44' 39.051 W
HARDLINES 75'S & V - plan misses target center by 106.1ft at 7896.0ft MD (7849.0 TVD, 362.3 N, 209.0 E) - Polygon	0.00	0.00	7,849.0	287.3	134.0	1,352,092.17	3,210,744.43	40° 17' 50.743 N	104° 44' 40.019 W
Point 1			7,849.0	0.0	0.0	1,352,092.17	3,210,744.43		
Point 2			7,849.0	0.0	200.0	1,352,093.88	3,210,944.42		
Point 3			7,849.0	0.0	0.0	1,352,092.17	3,210,744.43		
Point 4			7,849.0	200.0	0.0	1,352,292.16	3,210,742.73		
TARGET CIRCLE 256 - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,914.0	362.3	209.0	1,352,167.81	3,210,818.79	40° 17' 51.484 N	104° 44' 39.051 W

**Formations**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,961.0	6,914.0	NIOBRARA		0.00	
7,286.0	7,239.0	CODELL		0.00	
7,686.0	7,639.0	D-SAND		0.00	
7,746.0	7,699.0	J-SAND		0.00	