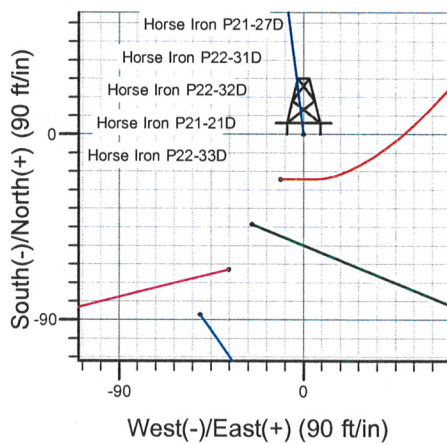
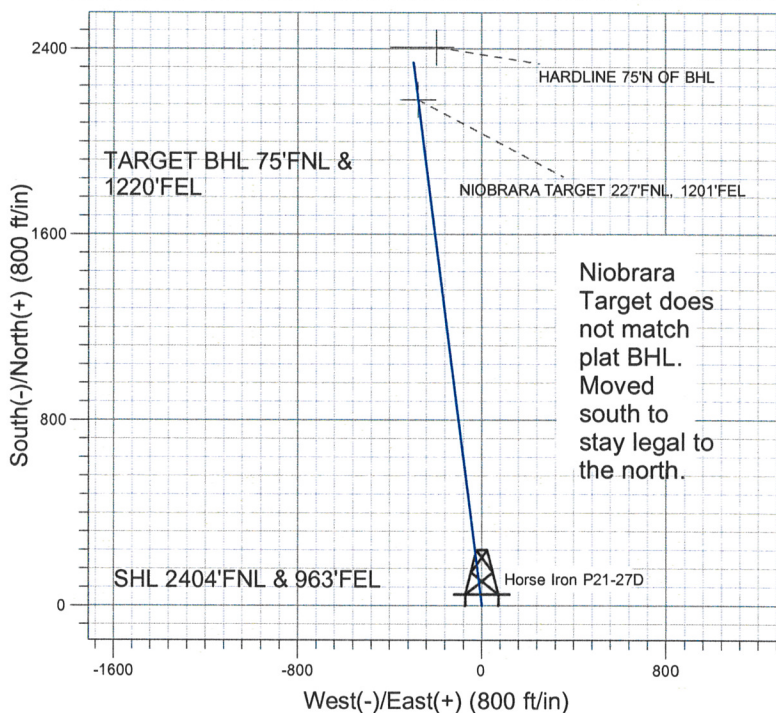
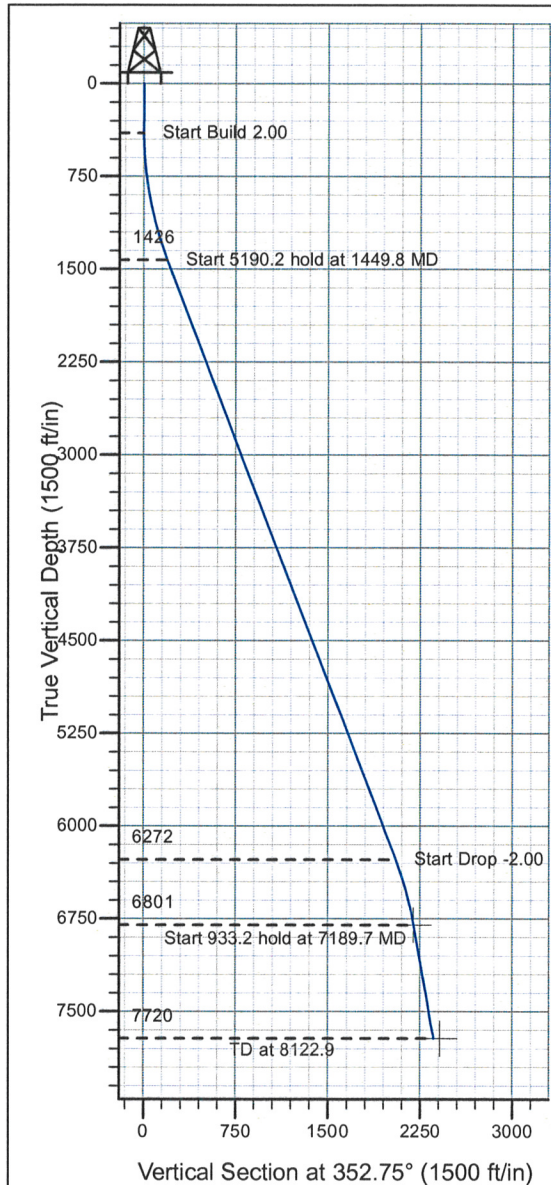


Well Name: Horse Iron P21-27D

Surface Location: Horse Iron Pad Sec.21-T3N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4790.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1320628.07 3170512.13 40° 12' 42.876 N 104° 53' 22.056 W
 Original Well Elev WELL @ 4803.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Horse Iron Pad Sec.21-T3N-R67W
Horse Iron P21-27D
Plan #2 (7-22-09)
16:09, July 22 2009



Azimuths to True North
Magnetic North: 9.14°

Magnetic Field
Strength: 53245.2snT
Dip Angle: 66.95°
Date: 6/26/2009
Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NIOBRARA TARGET 227°FNL, 1201°FEL	6801.0	2178.9	-277.2	40° 13' 4.408 N	104° 53' 25.629 W	Point
HARDLINE 75°N OF BHL	7720.0	2405.9	-196.6	40° 13' 6.651 N	104° 53' 24.590 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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1449.8	21.00	352.75	1426.4	188.7	-24.0	2.00	352.75	190.2	
4	6639.9	21.00	352.75	6272.0	2033.4	-258.7	0.00	0.00	2049.8	
5	7189.7	10.00	352.75	6801.0	2178.9	-277.2	2.00	180.00	2196.5	NIOBRARA TARGET 227'FNL, 1201'FEL
6	8122.9	10.00	352.75	7720.0	2339.6	-297.7	0.00	0.00	2358.5	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

Project	SEC.21-T3N-R67W, 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		Horse Iron Pad Sec.21-T3N-R67W			
Site Position:		Northing:	1,320,540.31 ft	Latitude:	40° 12' 42.012 N
From:	Lat/Long	Easting:	3,170,462.46 ft	Longitude:	104° 53' 22.704 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.39 °

Well	Horse Iron P21-27D					
Well Position	+N/-S	87.4 ft	Northing:	1,320,628.07 ft	Latitude:	40° 12' 42.876 N
	+E/-W	50.3 ft	Easting:	3,170,512.13 ft	Longitude:	104° 53' 22.056 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,790.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/26/2009	9.14	66.95	53,245

Design	Plan #2 (7-22-09)			
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	352.75

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,449.8	21.00	352.75	1,426.4	188.7	-24.0	2.00	2.00	0.00	352.75	
6,639.9	21.00	352.75	6,272.0	2,033.4	-258.7	0.00	0.00	0.00	0.00	
7,189.7	10.00	352.75	6,801.0	2,178.9	-277.2	2.00	-2.00	0.00	180.00	NIOBRARA TARGE
8,122.9	10.00	352.75	7,720.0	2,339.6	-297.7	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

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	0.80	352.75	440.0	0.3	0.0	0.3	2.00	2.00	0.00
480.0	1.60	352.75	480.0	1.1	-0.1	1.1	2.00	2.00	0.00
520.0	2.40	352.75	520.0	2.5	-0.3	2.5	2.00	2.00	0.00
560.0	3.20	352.75	559.9	4.4	-0.6	4.5	2.00	2.00	0.00
600.0	4.00	352.75	599.8	6.9	-0.9	7.0	2.00	2.00	0.00
640.0	4.80	352.75	639.7	10.0	-1.3	10.0	2.00	2.00	0.00
680.0	5.60	352.75	679.6	13.6	-1.7	13.7	2.00	2.00	0.00
720.0	6.40	352.75	719.3	17.7	-2.3	17.9	2.00	2.00	0.00
760.0	7.20	352.75	759.1	22.4	-2.9	22.6	2.00	2.00	0.00
800.0	8.00	352.75	798.7	27.7	-3.5	27.9	2.00	2.00	0.00
840.0	8.80	352.75	838.3	33.5	-4.3	33.7	2.00	2.00	0.00
880.0	9.60	352.75	877.8	39.8	-5.1	40.1	2.00	2.00	0.00
920.0	10.40	352.75	917.1	46.7	-5.9	47.1	2.00	2.00	0.00
960.0	11.20	352.75	956.4	54.1	-6.9	54.6	2.00	2.00	0.00
1,000.0	12.00	352.75	995.6	62.1	-7.9	62.6	2.00	2.00	0.00
1,040.0	12.80	352.75	1,034.7	70.6	-9.0	71.2	2.00	2.00	0.00
1,080.0	13.60	352.75	1,073.6	79.7	-10.1	80.3	2.00	2.00	0.00
1,120.0	14.40	352.75	1,112.4	89.3	-11.4	90.0	2.00	2.00	0.00
1,160.0	15.20	352.75	1,151.1	99.4	-12.6	100.2	2.00	2.00	0.00
1,200.0	16.00	352.75	1,189.6	110.1	-14.0	111.0	2.00	2.00	0.00
1,240.0	16.80	352.75	1,228.0	121.3	-15.4	122.3	2.00	2.00	0.00
1,280.0	17.60	352.75	1,266.2	133.0	-16.9	134.1	2.00	2.00	0.00
1,320.0	18.40	352.75	1,304.3	145.3	-18.5	146.5	2.00	2.00	0.00
1,360.0	19.20	352.75	1,342.1	158.1	-20.1	159.3	2.00	2.00	0.00
1,400.0	20.00	352.75	1,379.8	171.4	-21.8	172.8	2.00	2.00	0.00
1,440.0	20.80	352.75	1,417.3	185.2	-23.6	186.7	2.00	2.00	0.00
1,449.8	21.00	352.75	1,426.4	188.7	-24.0	190.2	2.00	2.00	0.00
1,480.0	21.00	352.75	1,454.7	199.4	-25.4	201.0	0.00	0.00	0.00
1,520.0	21.00	352.75	1,492.0	213.6	-27.2	215.4	0.00	0.00	0.00
1,560.0	21.00	352.75	1,529.3	227.9	-29.0	229.7	0.00	0.00	0.00
1,600.0	21.00	352.75	1,566.7	242.1	-30.8	244.0	0.00	0.00	0.00
1,640.0	21.00	352.75	1,604.0	256.3	-32.6	258.4	0.00	0.00	0.00
1,680.0	21.00	352.75	1,641.4	270.5	-34.4	272.7	0.00	0.00	0.00
1,720.0	21.00	352.75	1,678.7	284.7	-36.2	287.0	0.00	0.00	0.00
1,760.0	21.00	352.75	1,716.1	298.9	-38.0	301.3	0.00	0.00	0.00
1,800.0	21.00	352.75	1,753.4	313.2	-39.8	315.7	0.00	0.00	0.00
1,840.0	21.00	352.75	1,790.8	327.4	-41.6	330.0	0.00	0.00	0.00
1,880.0	21.00	352.75	1,828.1	341.6	-43.5	344.3	0.00	0.00	0.00
1,920.0	21.00	352.75	1,865.4	355.8	-45.3	358.7	0.00	0.00	0.00
1,960.0	21.00	352.75	1,902.8	370.0	-47.1	373.0	0.00	0.00	0.00
2,000.0	21.00	352.75	1,940.1	384.2	-48.9	387.3	0.00	0.00	0.00
2,040.0	21.00	352.75	1,977.5	398.5	-50.7	401.7	0.00	0.00	0.00
2,080.0	21.00	352.75	2,014.8	412.7	-52.5	416.0	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

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)
2,120.0	21.00	352.75	2,052.2	426.9	-54.3	430.3	0.00	0.00	0.00
2,160.0	21.00	352.75	2,089.5	441.1	-56.1	444.7	0.00	0.00	0.00
2,200.0	21.00	352.75	2,126.9	455.3	-57.9	459.0	0.00	0.00	0.00
2,240.0	21.00	352.75	2,164.2	469.5	-59.7	473.3	0.00	0.00	0.00
2,280.0	21.00	352.75	2,201.5	483.8	-61.5	487.7	0.00	0.00	0.00
2,320.0	21.00	352.75	2,238.9	498.0	-63.4	502.0	0.00	0.00	0.00
2,360.0	21.00	352.75	2,276.2	512.2	-65.2	516.3	0.00	0.00	0.00
2,400.0	21.00	352.75	2,313.6	526.4	-67.0	530.7	0.00	0.00	0.00
2,440.0	21.00	352.75	2,350.9	540.6	-68.8	545.0	0.00	0.00	0.00
2,480.0	21.00	352.75	2,388.3	554.8	-70.6	559.3	0.00	0.00	0.00
2,520.0	21.00	352.75	2,425.6	569.1	-72.4	573.6	0.00	0.00	0.00
2,560.0	21.00	352.75	2,463.0	583.3	-74.2	588.0	0.00	0.00	0.00
2,600.0	21.00	352.75	2,500.3	597.5	-76.0	602.3	0.00	0.00	0.00
2,640.0	21.00	352.75	2,537.6	611.7	-77.8	616.6	0.00	0.00	0.00
2,680.0	21.00	352.75	2,575.0	625.9	-79.6	631.0	0.00	0.00	0.00
2,720.0	21.00	352.75	2,612.3	640.1	-81.4	645.3	0.00	0.00	0.00
2,760.0	21.00	352.75	2,649.7	654.4	-83.2	659.6	0.00	0.00	0.00
2,800.0	21.00	352.75	2,687.0	668.6	-85.1	674.0	0.00	0.00	0.00
2,840.0	21.00	352.75	2,724.4	682.8	-86.9	688.3	0.00	0.00	0.00
2,880.0	21.00	352.75	2,761.7	697.0	-88.7	702.6	0.00	0.00	0.00
2,920.0	21.00	352.75	2,799.1	711.2	-90.5	717.0	0.00	0.00	0.00
2,960.0	21.00	352.75	2,836.4	725.5	-92.3	731.3	0.00	0.00	0.00
3,000.0	21.00	352.75	2,873.7	739.7	-94.1	745.6	0.00	0.00	0.00
3,040.0	21.00	352.75	2,911.1	753.9	-95.9	760.0	0.00	0.00	0.00
3,080.0	21.00	352.75	2,948.4	768.1	-97.7	774.3	0.00	0.00	0.00
3,120.0	21.00	352.75	2,985.8	782.3	-99.5	788.6	0.00	0.00	0.00
3,160.0	21.00	352.75	3,023.1	796.5	-101.3	803.0	0.00	0.00	0.00
3,200.0	21.00	352.75	3,060.5	810.8	-103.1	817.3	0.00	0.00	0.00
3,240.0	21.00	352.75	3,097.8	825.0	-105.0	831.6	0.00	0.00	0.00
3,280.0	21.00	352.75	3,135.2	839.2	-106.8	846.0	0.00	0.00	0.00
3,320.0	21.00	352.75	3,172.5	853.4	-108.6	860.3	0.00	0.00	0.00
3,360.0	21.00	352.75	3,209.8	867.6	-110.4	874.6	0.00	0.00	0.00
3,400.0	21.00	352.75	3,247.2	881.8	-112.2	888.9	0.00	0.00	0.00
3,440.0	21.00	352.75	3,284.5	896.1	-114.0	903.3	0.00	0.00	0.00
3,480.0	21.00	352.75	3,321.9	910.3	-115.8	917.6	0.00	0.00	0.00
3,520.0	21.00	352.75	3,359.2	924.5	-117.6	931.9	0.00	0.00	0.00
3,560.0	21.00	352.75	3,396.6	938.7	-119.4	946.3	0.00	0.00	0.00
3,600.0	21.00	352.75	3,433.9	952.9	-121.2	960.6	0.00	0.00	0.00
3,640.0	21.00	352.75	3,471.3	967.1	-123.0	974.9	0.00	0.00	0.00
3,680.0	21.00	352.75	3,508.6	981.4	-124.8	989.3	0.00	0.00	0.00
3,720.0	21.00	352.75	3,545.9	995.6	-126.7	1,003.6	0.00	0.00	0.00
3,760.0	21.00	352.75	3,583.3	1,009.8	-128.5	1,017.9	0.00	0.00	0.00
3,800.0	21.00	352.75	3,620.6	1,024.0	-130.3	1,032.3	0.00	0.00	0.00
3,840.0	21.00	352.75	3,658.0	1,038.2	-132.1	1,046.6	0.00	0.00	0.00
3,880.0	21.00	352.75	3,695.3	1,052.4	-133.9	1,060.9	0.00	0.00	0.00
3,920.0	21.00	352.75	3,732.7	1,066.7	-135.7	1,075.3	0.00	0.00	0.00
3,960.0	21.00	352.75	3,770.0	1,080.9	-137.5	1,089.6	0.00	0.00	0.00
4,000.0	21.00	352.75	3,807.4	1,095.1	-139.3	1,103.9	0.00	0.00	0.00
4,040.0	21.00	352.75	3,844.7	1,109.3	-141.1	1,118.3	0.00	0.00	0.00
4,080.0	21.00	352.75	3,882.0	1,123.5	-142.9	1,132.6	0.00	0.00	0.00
4,120.0	21.00	352.75	3,919.4	1,137.7	-144.7	1,146.9	0.00	0.00	0.00
4,160.0	21.00	352.75	3,956.7	1,152.0	-146.6	1,161.2	0.00	0.00	0.00
4,200.0	21.00	352.75	3,994.1	1,166.2	-148.4	1,175.6	0.00	0.00	0.00
4,240.0	21.00	352.75	4,031.4	1,180.4	-150.2	1,189.9	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

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)
4,280.0	21.00	352.75	4,068.8	1,194.6	-152.0	1,204.2	0.00	0.00	0.00
4,320.0	21.00	352.75	4,106.1	1,208.8	-153.8	1,218.6	0.00	0.00	0.00
4,360.0	21.00	352.75	4,143.5	1,223.0	-155.6	1,232.9	0.00	0.00	0.00
4,400.0	21.00	352.75	4,180.8	1,237.3	-157.4	1,247.2	0.00	0.00	0.00
4,440.0	21.00	352.75	4,218.1	1,251.5	-159.2	1,261.6	0.00	0.00	0.00
4,480.0	21.00	352.75	4,255.5	1,265.7	-161.0	1,275.9	0.00	0.00	0.00
4,520.0	21.00	352.75	4,292.8	1,279.9	-162.8	1,290.2	0.00	0.00	0.00
4,560.0	21.00	352.75	4,330.2	1,294.1	-164.6	1,304.6	0.00	0.00	0.00
4,600.0	21.00	352.75	4,367.5	1,308.3	-166.4	1,318.9	0.00	0.00	0.00
4,640.0	21.00	352.75	4,404.9	1,322.6	-168.3	1,333.2	0.00	0.00	0.00
4,680.0	21.00	352.75	4,442.2	1,336.8	-170.1	1,347.6	0.00	0.00	0.00
4,720.0	21.00	352.75	4,479.6	1,351.0	-171.9	1,361.9	0.00	0.00	0.00
4,760.0	21.00	352.75	4,516.9	1,365.2	-173.7	1,376.2	0.00	0.00	0.00
4,800.0	21.00	352.75	4,554.2	1,379.4	-175.5	1,390.6	0.00	0.00	0.00
4,840.0	21.00	352.75	4,591.6	1,393.7	-177.3	1,404.9	0.00	0.00	0.00
4,880.0	21.00	352.75	4,628.9	1,407.9	-179.1	1,419.2	0.00	0.00	0.00
4,920.0	21.00	352.75	4,666.3	1,422.1	-180.9	1,433.5	0.00	0.00	0.00
4,960.0	21.00	352.75	4,703.6	1,436.3	-182.7	1,447.9	0.00	0.00	0.00
5,000.0	21.00	352.75	4,741.0	1,450.5	-184.5	1,462.2	0.00	0.00	0.00
5,040.0	21.00	352.75	4,778.3	1,464.7	-186.3	1,476.5	0.00	0.00	0.00
5,080.0	21.00	352.75	4,815.7	1,479.0	-188.2	1,490.9	0.00	0.00	0.00
5,120.0	21.00	352.75	4,853.0	1,493.2	-190.0	1,505.2	0.00	0.00	0.00
5,160.0	21.00	352.75	4,890.3	1,507.4	-191.8	1,519.5	0.00	0.00	0.00
5,200.0	21.00	352.75	4,927.7	1,521.6	-193.6	1,533.9	0.00	0.00	0.00
5,240.0	21.00	352.75	4,965.0	1,535.8	-195.4	1,548.2	0.00	0.00	0.00
5,280.0	21.00	352.75	5,002.4	1,550.0	-197.2	1,562.5	0.00	0.00	0.00
5,320.0	21.00	352.75	5,039.7	1,564.3	-199.0	1,576.9	0.00	0.00	0.00
5,360.0	21.00	352.75	5,077.1	1,578.5	-200.8	1,591.2	0.00	0.00	0.00
5,400.0	21.00	352.75	5,114.4	1,592.7	-202.6	1,605.5	0.00	0.00	0.00
5,440.0	21.00	352.75	5,151.8	1,606.9	-204.4	1,619.9	0.00	0.00	0.00
5,480.0	21.00	352.75	5,189.1	1,621.1	-206.2	1,634.2	0.00	0.00	0.00
5,520.0	21.00	352.75	5,226.4	1,635.3	-208.0	1,648.5	0.00	0.00	0.00
5,560.0	21.00	352.75	5,263.8	1,649.6	-209.9	1,662.9	0.00	0.00	0.00
5,600.0	21.00	352.75	5,301.1	1,663.8	-211.7	1,677.2	0.00	0.00	0.00
5,640.0	21.00	352.75	5,338.5	1,678.0	-213.5	1,691.5	0.00	0.00	0.00
5,680.0	21.00	352.75	5,375.8	1,692.2	-215.3	1,705.8	0.00	0.00	0.00
5,720.0	21.00	352.75	5,413.2	1,706.4	-217.1	1,720.2	0.00	0.00	0.00
5,760.0	21.00	352.75	5,450.5	1,720.6	-218.9	1,734.5	0.00	0.00	0.00
5,800.0	21.00	352.75	5,487.9	1,734.9	-220.7	1,748.8	0.00	0.00	0.00
5,840.0	21.00	352.75	5,525.2	1,749.1	-222.5	1,763.2	0.00	0.00	0.00
5,880.0	21.00	352.75	5,562.5	1,763.3	-224.3	1,777.5	0.00	0.00	0.00
5,920.0	21.00	352.75	5,599.9	1,777.5	-226.1	1,791.8	0.00	0.00	0.00
5,960.0	21.00	352.75	5,637.2	1,791.7	-227.9	1,806.2	0.00	0.00	0.00
6,000.0	21.00	352.75	5,674.6	1,805.9	-229.8	1,820.5	0.00	0.00	0.00
6,040.0	21.00	352.75	5,711.9	1,820.2	-231.6	1,834.8	0.00	0.00	0.00
6,080.0	21.00	352.75	5,749.3	1,834.4	-233.4	1,849.2	0.00	0.00	0.00
6,120.0	21.00	352.75	5,786.6	1,848.6	-235.2	1,863.5	0.00	0.00	0.00
6,160.0	21.00	352.75	5,824.0	1,862.8	-237.0	1,877.8	0.00	0.00	0.00
6,200.0	21.00	352.75	5,861.3	1,877.0	-238.8	1,892.2	0.00	0.00	0.00
6,240.0	21.00	352.75	5,898.6	1,891.2	-240.6	1,906.5	0.00	0.00	0.00
6,280.0	21.00	352.75	5,936.0	1,905.5	-242.4	1,920.8	0.00	0.00	0.00
6,320.0	21.00	352.75	5,973.3	1,919.7	-244.2	1,935.2	0.00	0.00	0.00
6,360.0	21.00	352.75	6,010.7	1,933.9	-246.0	1,949.5	0.00	0.00	0.00
6,400.0	21.00	352.75	6,048.0	1,948.1	-247.8	1,963.8	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

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)
6,440.0	21.00	352.75	6,085.4	1,962.3	-249.6	1,978.2	0.00	0.00	0.00
6,480.0	21.00	352.75	6,122.7	1,976.6	-251.5	1,992.5	0.00	0.00	0.00
6,520.0	21.00	352.75	6,160.1	1,990.8	-253.3	2,006.8	0.00	0.00	0.00
6,560.0	21.00	352.75	6,197.4	2,005.0	-255.1	2,021.1	0.00	0.00	0.00
6,600.0	21.00	352.75	6,234.7	2,019.2	-256.9	2,035.5	0.00	0.00	0.00
6,639.9	21.00	352.75	6,272.0	2,033.4	-258.7	2,049.8	0.00	0.00	0.00
6,640.0	21.00	352.75	6,272.1	2,033.4	-258.7	2,049.8	0.00	0.00	0.00
6,680.0	20.19	352.75	6,309.5	2,047.4	-260.5	2,063.9	2.00	-2.00	0.00
6,720.0	19.39	352.75	6,347.2	2,060.8	-262.2	2,077.4	2.00	-2.00	0.00
6,760.0	18.59	352.75	6,385.0	2,073.7	-263.8	2,090.4	2.00	-2.00	0.00
6,800.0	17.79	352.75	6,423.0	2,086.1	-265.4	2,102.9	2.00	-2.00	0.00
6,840.0	16.99	352.75	6,461.2	2,098.0	-266.9	2,114.9	2.00	-2.00	0.00
6,880.0	16.19	352.75	6,499.5	2,109.3	-268.3	2,126.3	2.00	-2.00	0.00
6,920.0	15.39	352.75	6,538.0	2,120.1	-269.7	2,137.2	2.00	-2.00	0.00
6,960.0	14.59	352.75	6,576.6	2,130.4	-271.0	2,147.6	2.00	-2.00	0.00
7,000.0	13.79	352.75	6,615.4	2,140.1	-272.3	2,157.4	2.00	-2.00	0.00
7,040.0	12.99	352.75	6,654.3	2,149.3	-273.4	2,166.6	2.00	-2.00	0.00
7,080.0	12.19	352.75	6,693.3	2,158.0	-274.5	2,175.3	2.00	-2.00	0.00
7,120.0	11.39	352.75	6,732.5	2,166.1	-275.6	2,183.5	2.00	-2.00	0.00
7,160.0	10.59	352.75	6,771.8	2,173.6	-276.5	2,191.2	2.00	-2.00	0.00
7,189.7	10.00	352.75	6,801.0	2,178.9	-277.2	2,196.5	2.00	-2.00	0.00
NIOBRARA - NIOBRARA TARGET 227°FNL, 1201°FEL									
7,200.0	10.00	352.75	6,811.1	2,180.7	-277.4	2,198.2	0.00	0.00	0.00
7,240.0	10.00	352.75	6,850.5	2,187.6	-278.3	2,205.2	0.00	0.00	0.00
7,280.0	10.00	352.75	6,889.9	2,194.5	-279.2	2,212.1	0.00	0.00	0.00
7,320.0	10.00	352.75	6,929.3	2,201.3	-280.1	2,219.1	0.00	0.00	0.00
7,360.0	10.00	352.75	6,968.7	2,208.2	-280.9	2,226.0	0.00	0.00	0.00
7,400.0	10.00	352.75	7,008.1	2,215.1	-281.8	2,233.0	0.00	0.00	0.00
7,440.0	10.00	352.75	7,047.5	2,222.0	-282.7	2,239.9	0.00	0.00	0.00
7,480.0	10.00	352.75	7,086.9	2,228.9	-283.6	2,246.9	0.00	0.00	0.00
7,486.2	10.00	352.75	7,093.0	2,230.0	-283.7	2,247.9	0.00	0.00	0.00
CODELL									
7,520.0	10.00	352.75	7,126.3	2,235.8	-284.4	2,253.8	0.00	0.00	0.00
7,560.0	10.00	352.75	7,165.7	2,242.7	-285.3	2,260.8	0.00	0.00	0.00
7,600.0	10.00	352.75	7,205.1	2,249.6	-286.2	2,267.7	0.00	0.00	0.00
7,640.0	10.00	352.75	7,244.4	2,256.5	-287.1	2,274.7	0.00	0.00	0.00
7,680.0	10.00	352.75	7,283.8	2,263.4	-287.9	2,281.6	0.00	0.00	0.00
7,720.0	10.00	352.75	7,323.2	2,270.2	-288.8	2,288.5	0.00	0.00	0.00
7,760.0	10.00	352.75	7,362.6	2,277.1	-289.7	2,295.5	0.00	0.00	0.00
7,800.0	10.00	352.75	7,402.0	2,284.0	-290.6	2,302.4	0.00	0.00	0.00
7,840.0	10.00	352.75	7,441.4	2,290.9	-291.5	2,309.4	0.00	0.00	0.00
7,880.0	10.00	352.75	7,480.8	2,297.8	-292.3	2,316.3	0.00	0.00	0.00
7,919.8	10.00	352.75	7,520.0	2,304.7	-293.2	2,323.2	0.00	0.00	0.00
J-SAND									
7,920.0	10.00	352.75	7,520.2	2,304.7	-293.2	2,323.3	0.00	0.00	0.00
7,960.0	10.00	352.75	7,559.6	2,311.6	-294.1	2,330.2	0.00	0.00	0.00
8,000.0	10.00	352.75	7,599.0	2,318.5	-295.0	2,337.2	0.00	0.00	0.00
8,040.0	10.00	352.75	7,638.4	2,325.4	-295.8	2,344.1	0.00	0.00	0.00
8,080.0	10.00	352.75	7,677.8	2,332.3	-296.7	2,351.1	0.00	0.00	0.00
8,120.0	10.00	352.75	7,717.2	2,339.2	-297.6	2,358.0	0.00	0.00	0.00
8,122.9	10.00	352.75	7,720.0	2,339.6	-297.7	2,358.5	0.00	0.00	0.00
HARDLINE 75°N OF BHL									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P21-27D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4803.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4803.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P21-27D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (7-22-09)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
HARDLINE 75'N OF E	0.00	0.00	7,720.0	2,405.9	-196.6	1,323,032.45	3,170,298.98	40° 13' 6.651 N	104° 53' 24.590 W
- plan misses target center by 120.8ft at 8122.9ft MD (7720.0 TVD, 2339.6 N, -297.7 E)									
- Polygon									
Point 1			7,720.0	0.0	0.0	1,323,032.45	3,170,298.98		
Point 2			7,720.0	0.0	-200.0	1,323,031.08	3,170,099.00		
NIOBRARA TARGET	0.00	0.00	6,801.0	2,178.9	-277.2	1,322,804.91	3,170,219.95	40° 13' 4.408 N	104° 53' 25.629 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
7,189.7	6,801.0	NIOBRARA		0.00		
7,486.2	7,093.0	CODELL		0.00		
7,919.8	7,520.0	J-SAND		0.00		