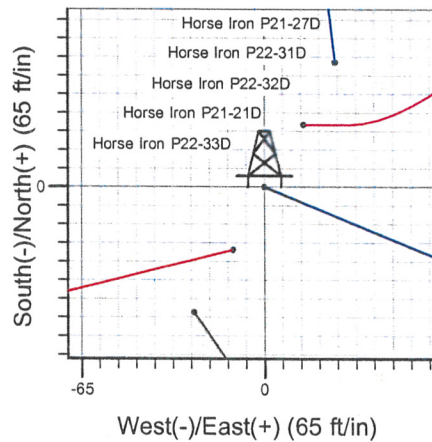
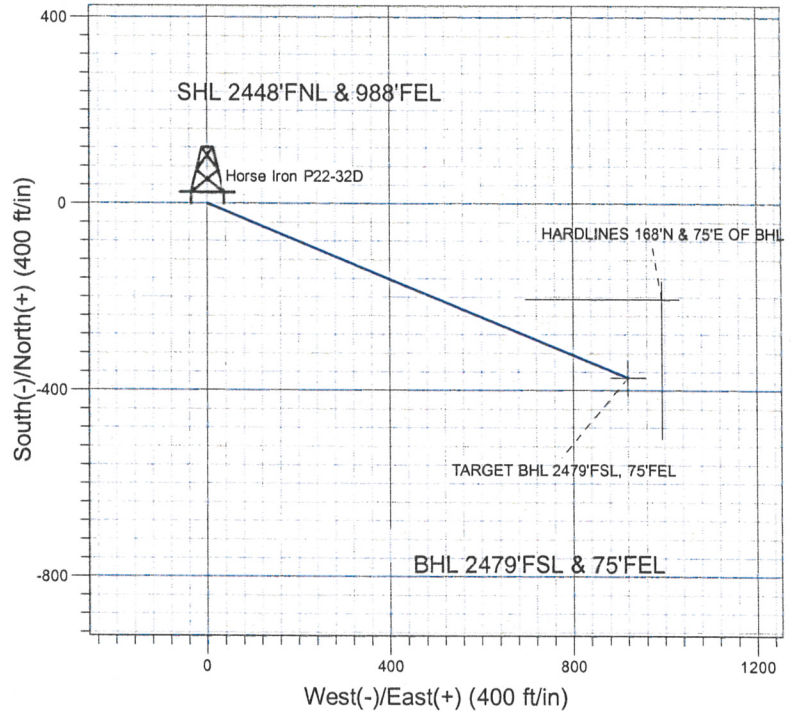
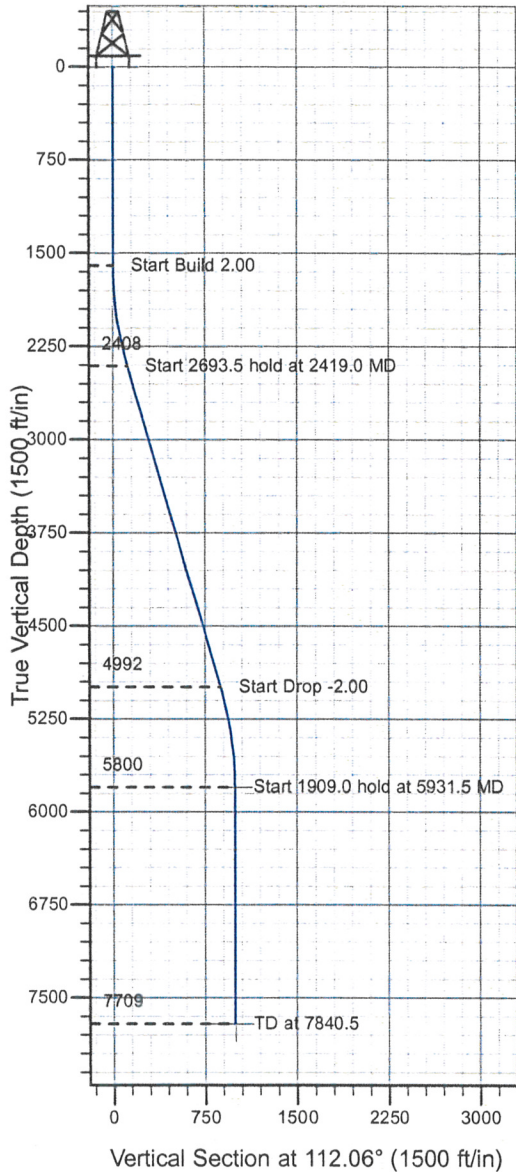


ENSIGN**Directional****Well Name: Horse Iron P22-32D**Surface Location: Horse Iron Pad Sec.21-T3N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4789.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1320584.19	3170487.30	40° 12' 42.444 N	104° 53' 22.380 W	
Original Well Elev WELL @ 4802.0ft (Original Well Elev)						

NOBLE ENERGY INC WELD COUNTY CO

Horse Iron Pad Sec.21-T3N-R67W
Horse Iron P22-32D
Plan #2 (07-22-09)
15:26, July 22 2009



Azimuths to True North
Magnetic North: 9.14°

Magnetic Field
Strength: 53245.1nT
Dip Angle: 66.95°
Date: 6/26/2009
Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2479'FSL, 75'FEL	5800.0	-372.6	919.5	40° 12' 38.762 N	104° 53' 10.528 W	Point
HARDLINES 168°N & 75°E OF BHL	7709.0	-204.6	994.5	40° 12' 40.422 N	104° 53' 9.561 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	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2419.0	16.38	112.06	2407.9	-43.7	107.8	2.00	112.06	116.3	
4	5112.5	16.38	112.06	4992.1	-328.9	811.8	0.00	0.00	875.9	
5	5931.5	0.00	0.00	5800.0	-372.6	919.5	2.00	180.00	992.1	TARGET BHL 2479'FSL, 75'FEL
6	7840.5	0.00	0.00	7709.0	-372.6	919.5	0.00	0.00	992.1	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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 P22-32D					
Well Position	+N/-S	43.7 ft	Northing:	1,320,584.19 ft	Latitude:	40° 12' 42.444 N
	+E/-W	25.1 ft	Easting:	3,170,487.30 ft	Longitude:	104° 53' 22.380 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,789.0 ft

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

Design	Plan #2 (07-22-09)				
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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	112.06

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,419.0	16.38	112.06	2,407.9	-43.7	107.8	2.00	2.00	0.00	112.06	
5,112.5	16.38	112.06	4,992.1	-328.9	811.8	0.00	0.00	0.00	0.00	
5,931.5	0.00	0.00	5,800.0	-372.6	919.5	2.00	-2.00	0.00	180.00	TARGET BHL 2475
7,840.5	0.00	0.00	7,709.0	-372.6	919.5	0.00	0.00	0.00	0.00	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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	0.00	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	0.80	112.06	1,640.0	-0.1	0.3	0.3	2.00	2.00	0.00
1,680.0	1.60	112.06	1,680.0	-0.4	1.0	1.1	2.00	2.00	0.00
1,720.0	2.40	112.06	1,720.0	-0.9	2.3	2.5	2.00	2.00	0.00
1,760.0	3.20	112.06	1,759.9	-1.7	4.1	4.5	2.00	2.00	0.00
1,800.0	4.00	112.06	1,799.8	-2.6	6.5	7.0	2.00	2.00	0.00
1,840.0	4.80	112.06	1,839.7	-3.8	9.3	10.0	2.00	2.00	0.00
1,880.0	5.60	112.06	1,879.6	-5.1	12.7	13.7	2.00	2.00	0.00
1,920.0	6.40	112.06	1,919.3	-6.7	16.5	17.9	2.00	2.00	0.00
1,960.0	7.20	112.06	1,959.1	-8.5	20.9	22.6	2.00	2.00	0.00
2,000.0	8.00	112.06	1,998.7	-10.5	25.8	27.9	2.00	2.00	0.00
2,040.0	8.80	112.06	2,038.3	-12.7	31.3	33.7	2.00	2.00	0.00
2,080.0	9.60	112.06	2,077.8	-15.1	37.2	40.1	2.00	2.00	0.00
2,120.0	10.40	112.06	2,117.1	-17.7	43.6	47.1	2.00	2.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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)
2,160.0	11.20	112.06	2,156.4	-20.5	50.6	54.6	2.00	2.00	0.00
2,200.0	12.00	112.06	2,195.6	-23.5	58.0	62.6	2.00	2.00	0.00
2,240.0	12.80	112.06	2,234.7	-26.7	66.0	71.2	2.00	2.00	0.00
2,280.0	13.60	112.06	2,273.6	-30.2	74.4	80.3	2.00	2.00	0.00
2,320.0	14.40	112.06	2,312.4	-33.8	83.4	90.0	2.00	2.00	0.00
2,360.0	15.20	112.06	2,351.1	-37.6	92.9	100.2	2.00	2.00	0.00
2,400.0	16.00	112.06	2,389.6	-41.7	102.9	111.0	2.00	2.00	0.00
2,419.0	16.38	112.06	2,407.9	-43.7	107.8	116.3	2.00	2.00	0.00
2,440.0	16.38	112.06	2,428.0	-45.9	113.3	122.2	0.00	0.00	0.00
2,480.0	16.38	112.06	2,466.4	-50.1	123.7	133.5	0.00	0.00	0.00
2,520.0	16.38	112.06	2,504.8	-54.4	134.2	144.8	0.00	0.00	0.00
2,560.0	16.38	112.06	2,543.2	-58.6	144.6	156.0	0.00	0.00	0.00
2,600.0	16.38	112.06	2,581.5	-62.8	155.1	167.3	0.00	0.00	0.00
2,640.0	16.38	112.06	2,619.9	-67.1	165.5	178.6	0.00	0.00	0.00
2,680.0	16.38	112.06	2,658.3	-71.3	176.0	189.9	0.00	0.00	0.00
2,720.0	16.38	112.06	2,696.7	-75.5	186.4	201.2	0.00	0.00	0.00
2,760.0	16.38	112.06	2,735.0	-79.8	196.9	212.4	0.00	0.00	0.00
2,800.0	16.38	112.06	2,773.4	-84.0	207.3	223.7	0.00	0.00	0.00
2,840.0	16.38	112.06	2,811.8	-88.2	217.8	235.0	0.00	0.00	0.00
2,880.0	16.38	112.06	2,850.2	-92.5	228.3	246.3	0.00	0.00	0.00
2,920.0	16.38	112.06	2,888.6	-96.7	238.7	257.6	0.00	0.00	0.00
2,960.0	16.38	112.06	2,926.9	-101.0	249.2	268.8	0.00	0.00	0.00
3,000.0	16.38	112.06	2,965.3	-105.2	259.6	280.1	0.00	0.00	0.00
3,040.0	16.38	112.06	3,003.7	-109.4	270.1	291.4	0.00	0.00	0.00
3,080.0	16.38	112.06	3,042.1	-113.7	280.5	302.7	0.00	0.00	0.00
3,120.0	16.38	112.06	3,080.4	-117.9	291.0	314.0	0.00	0.00	0.00
3,160.0	16.38	112.06	3,118.8	-122.1	301.4	325.2	0.00	0.00	0.00
3,200.0	16.38	112.06	3,157.2	-126.4	311.9	336.5	0.00	0.00	0.00
3,240.0	16.38	112.06	3,195.6	-130.6	322.3	347.8	0.00	0.00	0.00
3,280.0	16.38	112.06	3,233.9	-134.8	332.8	359.1	0.00	0.00	0.00
3,320.0	16.38	112.06	3,272.3	-139.1	343.3	370.4	0.00	0.00	0.00
3,360.0	16.38	112.06	3,310.7	-143.3	353.7	381.6	0.00	0.00	0.00
3,400.0	16.38	112.06	3,349.1	-147.6	364.2	392.9	0.00	0.00	0.00
3,440.0	16.38	112.06	3,387.4	-151.8	374.6	404.2	0.00	0.00	0.00
3,480.0	16.38	112.06	3,425.8	-156.0	385.1	415.5	0.00	0.00	0.00
3,520.0	16.38	112.06	3,464.2	-160.3	395.5	426.8	0.00	0.00	0.00
3,560.0	16.38	112.06	3,502.6	-164.5	406.0	438.0	0.00	0.00	0.00
3,600.0	16.38	112.06	3,541.0	-168.7	416.4	449.3	0.00	0.00	0.00
3,640.0	16.38	112.06	3,579.3	-173.0	426.9	460.6	0.00	0.00	0.00
3,680.0	16.38	112.06	3,617.7	-177.2	437.3	471.9	0.00	0.00	0.00
3,720.0	16.38	112.06	3,656.1	-181.4	447.8	483.2	0.00	0.00	0.00
3,760.0	16.38	112.06	3,694.5	-185.7	458.3	494.4	0.00	0.00	0.00
3,800.0	16.38	112.06	3,732.8	-189.9	468.7	505.7	0.00	0.00	0.00
3,840.0	16.38	112.06	3,771.2	-194.2	479.2	517.0	0.00	0.00	0.00
3,880.0	16.38	112.06	3,809.6	-198.4	489.6	528.3	0.00	0.00	0.00
3,920.0	16.38	112.06	3,848.0	-202.6	500.1	539.6	0.00	0.00	0.00
3,960.0	16.38	112.06	3,886.3	-206.9	510.5	550.8	0.00	0.00	0.00
4,000.0	16.38	112.06	3,924.7	-211.1	521.0	562.1	0.00	0.00	0.00
4,040.0	16.38	112.06	3,963.1	-215.3	531.4	573.4	0.00	0.00	0.00
4,080.0	16.38	112.06	4,001.5	-219.6	541.9	584.7	0.00	0.00	0.00
4,120.0	16.38	112.06	4,039.8	-223.8	552.4	596.0	0.00	0.00	0.00
4,160.0	16.38	112.06	4,078.2	-228.0	562.8	607.2	0.00	0.00	0.00
4,200.0	16.38	112.06	4,116.6	-232.3	573.3	618.5	0.00	0.00	0.00
4,240.0	16.38	112.06	4,155.0	-236.5	583.7	629.8	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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	16.38	112.06	4,193.4	-240.7	594.2	641.1	0.00	0.00	0.00
4,320.0	16.38	112.06	4,231.7	-245.0	604.6	652.4	0.00	0.00	0.00
4,360.0	16.38	112.06	4,270.1	-249.2	615.1	663.7	0.00	0.00	0.00
4,400.0	16.38	112.06	4,308.5	-253.5	625.5	674.9	0.00	0.00	0.00
4,440.0	16.38	112.06	4,346.9	-257.7	636.0	686.2	0.00	0.00	0.00
4,480.0	16.38	112.06	4,385.2	-261.9	646.4	697.5	0.00	0.00	0.00
4,520.0	16.38	112.06	4,423.6	-266.2	656.9	708.8	0.00	0.00	0.00
4,560.0	16.38	112.06	4,462.0	-270.4	667.4	720.1	0.00	0.00	0.00
4,600.0	16.38	112.06	4,500.4	-274.6	677.8	731.3	0.00	0.00	0.00
4,640.0	16.38	112.06	4,538.7	-278.9	688.3	742.6	0.00	0.00	0.00
4,680.0	16.38	112.06	4,577.1	-283.1	698.7	753.9	0.00	0.00	0.00
4,720.0	16.38	112.06	4,615.5	-287.3	709.2	765.2	0.00	0.00	0.00
4,760.0	16.38	112.06	4,653.9	-291.6	719.6	776.5	0.00	0.00	0.00
4,800.0	16.38	112.06	4,692.2	-295.8	730.1	787.7	0.00	0.00	0.00
4,840.0	16.38	112.06	4,730.6	-300.1	740.5	799.0	0.00	0.00	0.00
4,880.0	16.38	112.06	4,769.0	-304.3	751.0	810.3	0.00	0.00	0.00
4,920.0	16.38	112.06	4,807.4	-308.5	761.4	821.6	0.00	0.00	0.00
4,960.0	16.38	112.06	4,845.8	-312.8	771.9	832.9	0.00	0.00	0.00
5,000.0	16.38	112.06	4,884.1	-317.0	782.4	844.1	0.00	0.00	0.00
5,040.0	16.38	112.06	4,922.5	-321.2	792.8	855.4	0.00	0.00	0.00
5,080.0	16.38	112.06	4,960.9	-325.5	803.3	866.7	0.00	0.00	0.00
5,112.5	16.38	112.06	4,992.1	-328.9	811.8	875.9	0.00	0.00	0.00
5,120.0	16.23	112.06	4,999.3	-329.7	813.7	878.0	2.00	-2.00	0.00
5,160.0	15.43	112.06	5,037.7	-333.8	823.8	888.9	2.00	-2.00	0.00
5,200.0	14.63	112.06	5,076.4	-337.7	833.4	899.3	2.00	-2.00	0.00
5,240.0	13.83	112.06	5,115.2	-341.4	842.6	909.1	2.00	-2.00	0.00
5,280.0	13.03	112.06	5,154.1	-344.9	851.2	918.4	2.00	-2.00	0.00
5,320.0	12.23	112.06	5,193.1	-348.2	859.3	927.1	2.00	-2.00	0.00
5,360.0	11.43	112.06	5,232.2	-351.2	866.9	935.3	2.00	-2.00	0.00
5,400.0	10.63	112.06	5,271.5	-354.1	874.0	943.0	2.00	-2.00	0.00
5,440.0	9.83	112.06	5,310.9	-356.8	880.5	950.1	2.00	-2.00	0.00
5,480.0	9.03	112.06	5,350.3	-359.2	886.6	956.6	2.00	-2.00	0.00
5,520.0	8.23	112.06	5,389.9	-361.5	892.2	962.6	2.00	-2.00	0.00
5,560.0	7.43	112.06	5,429.5	-363.5	897.2	968.1	2.00	-2.00	0.00
5,600.0	6.63	112.06	5,469.2	-365.4	901.8	973.0	2.00	-2.00	0.00
5,640.0	5.83	112.06	5,509.0	-367.0	905.8	977.3	2.00	-2.00	0.00
5,680.0	5.03	112.06	5,548.8	-368.4	909.3	981.1	2.00	-2.00	0.00
5,720.0	4.23	112.06	5,588.6	-369.6	912.3	984.3	2.00	-2.00	0.00
5,760.0	3.43	112.06	5,628.6	-370.7	914.8	987.0	2.00	-2.00	0.00
5,800.0	2.63	112.06	5,668.5	-371.4	916.7	989.1	2.00	-2.00	0.00
5,840.0	1.83	112.06	5,708.5	-372.0	918.2	990.7	2.00	-2.00	0.00
5,880.0	1.03	112.06	5,748.5	-372.4	919.1	991.7	2.00	-2.00	0.00
5,920.0	0.23	112.06	5,788.5	-372.6	919.5	992.1	2.00	-2.00	0.00
5,931.5	0.00	0.00	5,800.0	-372.6	919.5	992.1	2.00	-2.00	0.00
TARGET BHL 2479'FSL, 75'FEL									
5,960.0	0.00	0.00	5,828.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,868.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,040.0	0.00	0.00	5,908.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,080.0	0.00	0.00	5,948.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,120.0	0.00	0.00	5,988.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,160.0	0.00	0.00	6,028.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,068.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,240.0	0.00	0.00	6,108.5	-372.6	919.5	992.1	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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)
6,280.0	0.00	0.00	6,148.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,320.0	0.00	0.00	6,188.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,360.0	0.00	0.00	6,228.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,268.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,440.0	0.00	0.00	6,308.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,480.0	0.00	0.00	6,348.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,520.0	0.00	0.00	6,388.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,560.0	0.00	0.00	6,428.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,468.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,640.0	0.00	0.00	6,508.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,680.0	0.00	0.00	6,548.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,720.0	0.00	0.00	6,588.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,760.0	0.00	0.00	6,628.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,668.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,840.0	0.00	0.00	6,708.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,880.0	0.00	0.00	6,748.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,920.0	0.00	0.00	6,788.5	-372.6	919.5	992.1	0.00	0.00	0.00
6,921.5	0.00	0.00	6,790.0	-372.6	919.5	992.1	0.00	0.00	0.00
NIOBRARA									
6,960.0	0.00	0.00	6,828.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,868.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,040.0	0.00	0.00	6,908.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,080.0	0.00	0.00	6,948.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,120.0	0.00	0.00	6,988.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,160.0	0.00	0.00	7,028.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,200.0	0.00	0.00	7,068.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,213.5	0.00	0.00	7,082.0	-372.6	919.5	992.1	0.00	0.00	0.00
CODELL									
7,240.0	0.00	0.00	7,108.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,280.0	0.00	0.00	7,148.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,320.0	0.00	0.00	7,188.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,360.0	0.00	0.00	7,228.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,268.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,440.0	0.00	0.00	7,308.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,480.0	0.00	0.00	7,348.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,520.0	0.00	0.00	7,388.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,560.0	0.00	0.00	7,428.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,468.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,640.0	0.00	0.00	7,508.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,640.5	0.00	0.00	7,509.0	-372.6	919.5	992.1	0.00	0.00	0.00
J-SAND									
7,680.0	0.00	0.00	7,548.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,720.0	0.00	0.00	7,588.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,760.0	0.00	0.00	7,628.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,668.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,840.0	0.00	0.00	7,708.5	-372.6	919.5	992.1	0.00	0.00	0.00
7,840.5	0.00	0.00	7,709.0	-372.6	919.5	992.1	0.00	0.00	0.00
HARDLINES 168°N & 75°E OF BHL									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Horse Iron P22-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4802.0ft (Original Well Elev)
Project:	SEC.21-T3N-R67W	MD Reference:	WELL @ 4802.0ft (Original Well Elev)
Site:	Horse Iron Pad Sec.21-T3N-R67W	North Reference:	True
Well:	Horse Iron P22-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (07-22-09)		

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)		
HARDLINES 168'N &	0.00	0.00	7,709.0	-204.6	994.5	1,320,386.45	3,171,483.14	40° 12' 40.422 N	104° 53' 9.561 W
- plan misses target center by 183.9ft at 7840.5ft MD (7709.0 TVD, -372.6 N, 919.5 E)									
- Polygon									
Point 1			7,709.0	0.0	0.0	1,320,386.45	3,171,483.14		
Point 2			7,709.0	0.0	-300.0	1,320,384.38	3,171,183.16		
Point 3			7,709.0	0.0	0.0	1,320,386.45	3,171,483.14		
Point 4			7,709.0	-300.0	0.0	1,320,086.47	3,171,485.20		
TARGET BHL 2479'F	0.00	0.00	5,800.0	-372.6	919.5	1,320,217.96	3,171,409.34	40° 12' 38.762 N	104° 53' 10.528 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
6,921.5	6,790.0	NIOBRARA		0.00		
7,213.5	7,082.0	CODELL		0.00		
7,640.5	7,509.0	J-SAND		0.00		