

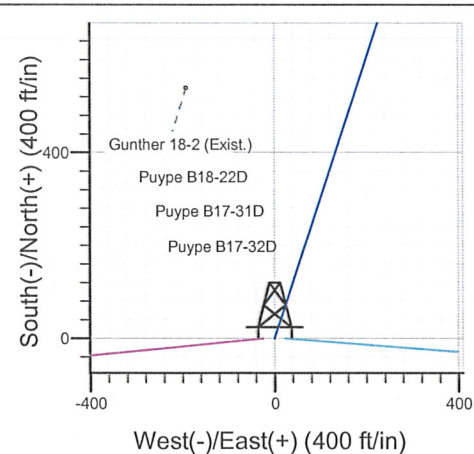
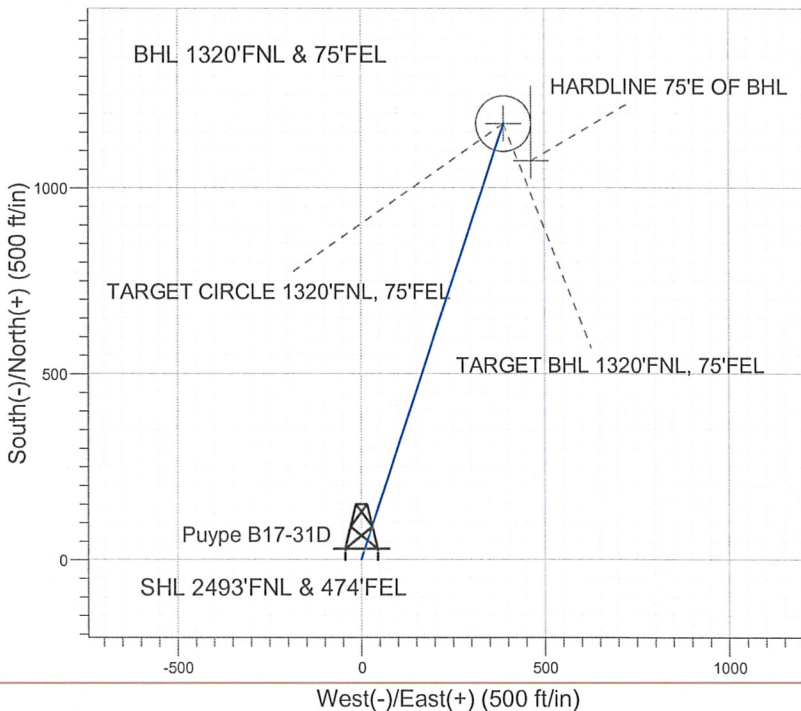
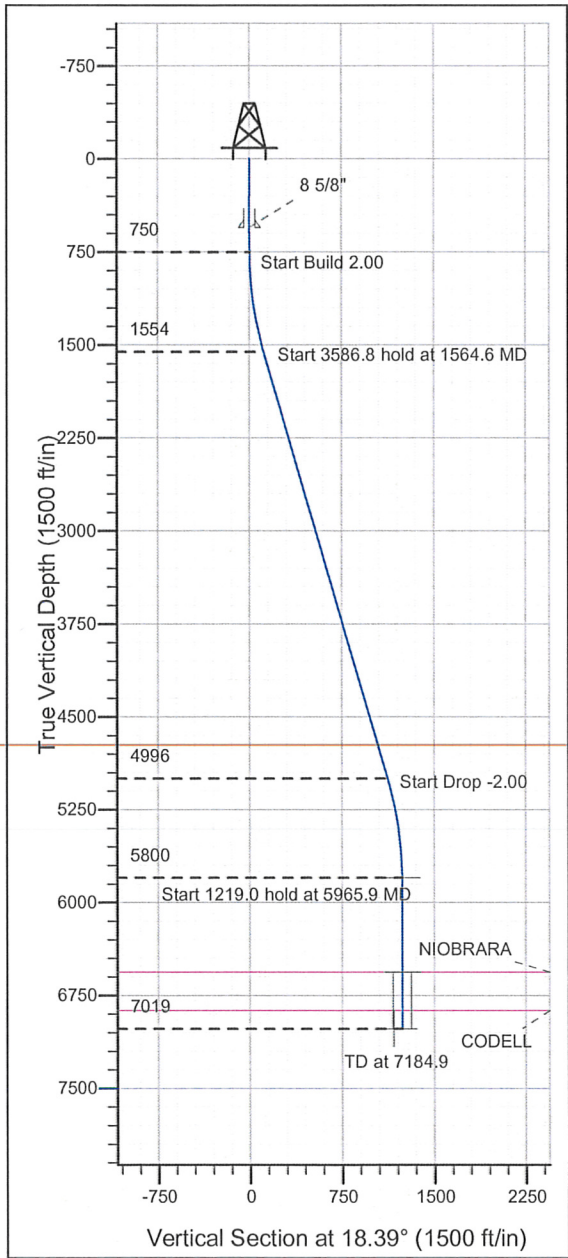
ENSIGN Directional

Well Name: **Puype B17-31D**

Surface Location: Puype B18-22D Pad Sec.18-T5N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4621.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1389725.37 3254792.22 40° 23' 58.524 N 104° 35' 6.540 W
 Original Well Elev WELL @ 4634.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Puype B17-31D
 Noble Puype B17-31D Plan #1 (06-04-10)
 12:30, June 07 2010

Azimuths to True North
 Magnetic North: 8.91°
 Magnetic Field
 Strength: 53261.2snT
 Dip Angle: 67.12°
 Date: 6/4/2010
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FNL, 75'FEL	5800.0	1173.1	389.9	40° 24' 10.116 N	104° 35' 1.500 W	Point
TARGET CIRCLE 1320'FNL, 75'FEL	6559.0	1173.1	389.9	40° 24' 10.116 N	104° 35' 1.500 W	Circle (Radius: 75.0)
HARDLINE 75'E OF BHL	7019.0	1073.1	464.9	40° 24' 9.128 N	104° 35' 0.531 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	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1564.6	16.29	18.39	1553.6	109.2	36.3	2.00	18.39	115.0	
4	5151.3	16.29	18.39	4996.4	1063.9	353.6	0.00	0.00	1121.2	
5	5965.9	0.00	0.00	5800.0	1173.1	389.9	2.00	180.00	1236.2	TARGET BHL 1320'FNL, 75'FEL
6	7184.9	0.00	0.00	7019.0	1173.1	389.9	0.00	0.00	1236.2	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.18-T5N-R64W

Puype B18-22D Pad Sec.18-T5N-R64W

Puype B17-31D

Wellbore #1

Plan: Noble Puype B17-31D Plan #1 (06-04-10)

Standard Planning Report

07 June, 2010

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.18-T5N-R64W
Site: Puype B18-22D Pad Sec.18-T5N-R64W
Well: Puype B17-31D
Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
MD Reference: WELL @ 4634.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	SEC.18-T5N-R64W, Weld County, Colorado		
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	Puype B18-22D Pad Sec.18-T5N-R64W				
Site Position:		Northing:	1,389,725.12 ft	Latitude:	40° 23' 58.524 N
From:	Lat/Long	Easting:	3,254,767.16ft	Longitude:	104° 35' 6.864 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Puype B17-31D					
Well Position	+N/-S	0.0 ft	Northing:	1,389,725.37 ft	Latitude:	40° 23' 58.524 N
	+E/-W	25.1 ft	Easting:	3,254,792.22 ft	Longitude:	104° 35' 6.540 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,621.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/4/2010	8.91	67.12	53,261

Design	Noble Puype B17-31D Plan #1 (06-04-10)			
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	18.39

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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,564.6	16.29	18.39	1,553.6	109.2	36.3	2.00	2.00	0.00	18.39	
5,151.3	16.29	18.39	4,996.4	1,063.9	353.6	0.00	0.00	0.00	0.00	
5,965.9	0.00	0.00	5,800.0	1,173.1	389.9	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,184.9	0.00	0.00	7,019.0	1,173.1	389.9	0.00	0.00	0.00	0.00	

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.18-T5N-R64W
Site: Puype B18-22D Pad Sec.18-T5N-R64W
Well: Puype B17-31D
Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
MD Reference: WELL @ 4634.0ft (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
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.20	18.39	760.0	0.0	0.0	0.0	2.00	2.00	0.00
800.0	1.00	18.39	800.0	0.4	0.1	0.4	2.00	2.00	0.00
840.0	1.80	18.39	840.0	1.3	0.4	1.4	2.00	2.00	0.00
880.0	2.60	18.39	880.0	2.8	0.9	2.9	2.00	2.00	0.00
920.0	3.40	18.39	919.9	4.8	1.6	5.0	2.00	2.00	0.00
960.0	4.20	18.39	959.8	7.3	2.4	7.7	2.00	2.00	0.00
1,000.0	5.00	18.39	999.7	10.3	3.4	10.9	2.00	2.00	0.00
1,040.0	5.80	18.39	1,039.5	13.9	4.6	14.7	2.00	2.00	0.00
1,080.0	6.60	18.39	1,079.3	18.0	6.0	19.0	2.00	2.00	0.00
1,120.0	7.40	18.39	1,119.0	22.6	7.5	23.9	2.00	2.00	0.00
1,160.0	8.20	18.39	1,158.6	27.8	9.2	29.3	2.00	2.00	0.00
1,200.0	9.00	18.39	1,198.2	33.5	11.1	35.3	2.00	2.00	0.00
1,240.0	9.80	18.39	1,237.6	39.7	13.2	41.8	2.00	2.00	0.00
1,280.0	10.60	18.39	1,277.0	46.4	15.4	48.9	2.00	2.00	0.00
1,320.0	11.40	18.39	1,316.2	53.6	17.8	56.5	2.00	2.00	0.00
1,360.0	12.20	18.39	1,355.4	61.4	20.4	64.7	2.00	2.00	0.00
1,400.0	13.00	18.39	1,394.4	69.7	23.2	73.4	2.00	2.00	0.00
1,440.0	13.80	18.39	1,433.3	78.5	26.1	82.7	2.00	2.00	0.00
1,480.0	14.60	18.39	1,472.1	87.8	29.2	92.5	2.00	2.00	0.00
1,520.0	15.40	18.39	1,510.8	97.6	32.4	102.9	2.00	2.00	0.00
1,560.0	16.20	18.39	1,549.3	107.9	35.9	113.7	2.00	2.00	0.00
1,564.6	16.29	18.39	1,553.6	109.2	36.3	115.0	2.00	2.00	0.00
1,600.0	16.29	18.39	1,587.6	118.6	39.4	125.0	0.00	0.00	0.00
1,640.0	16.29	18.39	1,626.0	129.2	43.0	136.2	0.00	0.00	0.00
1,680.0	16.29	18.39	1,664.4	139.9	46.5	147.4	0.00	0.00	0.00
1,720.0	16.29	18.39	1,702.8	150.5	50.0	158.6	0.00	0.00	0.00
1,760.0	16.29	18.39	1,741.2	161.2	53.6	169.9	0.00	0.00	0.00
1,800.0	16.29	18.39	1,779.6	171.8	57.1	181.1	0.00	0.00	0.00
1,840.0	16.29	18.39	1,818.0	182.5	60.7	192.3	0.00	0.00	0.00
1,880.0	16.29	18.39	1,856.4	193.1	64.2	203.5	0.00	0.00	0.00
1,920.0	16.29	18.39	1,894.8	203.8	67.7	214.7	0.00	0.00	0.00
1,960.0	16.29	18.39	1,933.2	214.4	71.3	226.0	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.18-T5N-R64W
Site: Puype B18-22D Pad Sec.18-T5N-R64W
Well: Puype B17-31D
Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
MD Reference: WELL @ 4634.0ft (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)
2,000.0	16.29	18.39	1,971.6	225.1	74.8	237.2	0.00	0.00	0.00
2,040.0	16.29	18.39	2,010.0	235.7	78.3	248.4	0.00	0.00	0.00
2,080.0	16.29	18.39	2,048.4	246.4	81.9	259.6	0.00	0.00	0.00
2,120.0	16.29	18.39	2,086.8	257.0	85.4	270.8	0.00	0.00	0.00
2,160.0	16.29	18.39	2,125.2	267.7	89.0	282.1	0.00	0.00	0.00
2,200.0	16.29	18.39	2,163.6	278.3	92.5	293.3	0.00	0.00	0.00
2,240.0	16.29	18.39	2,201.9	289.0	96.0	304.5	0.00	0.00	0.00
2,280.0	16.29	18.39	2,240.3	299.6	99.6	315.7	0.00	0.00	0.00
2,320.0	16.29	18.39	2,278.7	310.3	103.1	326.9	0.00	0.00	0.00
2,360.0	16.29	18.39	2,317.1	320.9	106.7	338.2	0.00	0.00	0.00
2,400.0	16.29	18.39	2,355.5	331.5	110.2	349.4	0.00	0.00	0.00
2,440.0	16.29	18.39	2,393.9	342.2	113.7	360.6	0.00	0.00	0.00
2,480.0	16.29	18.39	2,432.3	352.8	117.3	371.8	0.00	0.00	0.00
2,520.0	16.29	18.39	2,470.7	363.5	120.8	383.0	0.00	0.00	0.00
2,560.0	16.29	18.39	2,509.1	374.1	124.4	394.3	0.00	0.00	0.00
2,600.0	16.29	18.39	2,547.5	384.8	127.9	405.5	0.00	0.00	0.00
2,640.0	16.29	18.39	2,585.9	395.4	131.4	416.7	0.00	0.00	0.00
2,680.0	16.29	18.39	2,624.3	406.1	135.0	427.9	0.00	0.00	0.00
2,720.0	16.29	18.39	2,662.7	416.7	138.5	439.1	0.00	0.00	0.00
2,760.0	16.29	18.39	2,701.1	427.4	142.1	450.4	0.00	0.00	0.00
2,800.0	16.29	18.39	2,739.5	438.0	145.6	461.6	0.00	0.00	0.00
2,840.0	16.29	18.39	2,777.9	448.7	149.1	472.8	0.00	0.00	0.00
2,880.0	16.29	18.39	2,816.3	459.3	152.7	484.0	0.00	0.00	0.00
2,920.0	16.29	18.39	2,854.6	470.0	156.2	495.3	0.00	0.00	0.00
2,960.0	16.29	18.39	2,893.0	480.6	159.7	506.5	0.00	0.00	0.00
3,000.0	16.29	18.39	2,931.4	491.3	163.3	517.7	0.00	0.00	0.00
3,040.0	16.29	18.39	2,969.8	501.9	166.8	528.9	0.00	0.00	0.00
3,080.0	16.29	18.39	3,008.2	512.6	170.4	540.1	0.00	0.00	0.00
3,120.0	16.29	18.39	3,046.6	523.2	173.9	551.4	0.00	0.00	0.00
3,160.0	16.29	18.39	3,085.0	533.9	177.4	562.6	0.00	0.00	0.00
3,200.0	16.29	18.39	3,123.4	544.5	181.0	573.8	0.00	0.00	0.00
3,240.0	16.29	18.39	3,161.8	555.2	184.5	585.0	0.00	0.00	0.00
3,280.0	16.29	18.39	3,200.2	565.8	188.1	596.2	0.00	0.00	0.00
3,320.0	16.29	18.39	3,238.6	576.4	191.6	607.5	0.00	0.00	0.00
3,360.0	16.29	18.39	3,277.0	587.1	195.1	618.7	0.00	0.00	0.00
3,400.0	16.29	18.39	3,315.4	597.7	198.7	629.9	0.00	0.00	0.00
3,440.0	16.29	18.39	3,353.8	608.4	202.2	641.1	0.00	0.00	0.00
3,480.0	16.29	18.39	3,392.2	619.0	205.8	652.3	0.00	0.00	0.00
3,520.0	16.29	18.39	3,430.6	629.7	209.3	663.6	0.00	0.00	0.00
3,560.0	16.29	18.39	3,468.9	640.3	212.8	674.8	0.00	0.00	0.00
3,600.0	16.29	18.39	3,507.3	651.0	216.4	686.0	0.00	0.00	0.00
3,640.0	16.29	18.39	3,545.7	661.6	219.9	697.2	0.00	0.00	0.00
3,680.0	16.29	18.39	3,584.1	672.3	223.5	708.4	0.00	0.00	0.00
3,720.0	16.29	18.39	3,622.5	682.9	227.0	719.7	0.00	0.00	0.00
3,760.0	16.29	18.39	3,660.9	693.6	230.5	730.9	0.00	0.00	0.00
3,800.0	16.29	18.39	3,699.3	704.2	234.1	742.1	0.00	0.00	0.00
3,840.0	16.29	18.39	3,737.7	714.9	237.6	753.3	0.00	0.00	0.00
3,880.0	16.29	18.39	3,776.1	725.5	241.1	764.5	0.00	0.00	0.00
3,920.0	16.29	18.39	3,814.5	736.2	244.7	775.8	0.00	0.00	0.00
3,960.0	16.29	18.39	3,852.9	746.8	248.2	787.0	0.00	0.00	0.00
4,000.0	16.29	18.39	3,891.3	757.5	251.8	798.2	0.00	0.00	0.00
4,040.0	16.29	18.39	3,929.7	768.1	255.3	809.4	0.00	0.00	0.00
4,080.0	16.29	18.39	3,968.1	778.8	258.8	820.7	0.00	0.00	0.00
4,120.0	16.29	18.39	4,006.5	789.4	262.4	831.9	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.18-T5N-R64W
Site: Puype B18-22D Pad Sec.18-T5N-R64W
Well: Puype B17-31D
Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
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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)
4,160.0	16.29	18.39	4,044.9	800.1	265.9	843.1	0.00	0.00	0.00
4,200.0	16.29	18.39	4,083.3	810.7	269.5	854.3	0.00	0.00	0.00
4,240.0	16.29	18.39	4,121.6	821.4	273.0	865.5	0.00	0.00	0.00
4,280.0	16.29	18.39	4,160.0	832.0	276.5	876.8	0.00	0.00	0.00
4,320.0	16.29	18.39	4,198.4	842.6	280.1	888.0	0.00	0.00	0.00
4,360.0	16.29	18.39	4,236.8	853.3	283.6	899.2	0.00	0.00	0.00
4,400.0	16.29	18.39	4,275.2	863.9	287.2	910.4	0.00	0.00	0.00
4,440.0	16.29	18.39	4,313.6	874.6	290.7	921.6	0.00	0.00	0.00
4,480.0	16.29	18.39	4,352.0	885.2	294.2	932.9	0.00	0.00	0.00
4,520.0	16.29	18.39	4,390.4	895.9	297.8	944.1	0.00	0.00	0.00
4,560.0	16.29	18.39	4,428.8	906.5	301.3	955.3	0.00	0.00	0.00
4,600.0	16.29	18.39	4,467.2	917.2	304.9	966.5	0.00	0.00	0.00
4,640.0	16.29	18.39	4,505.6	927.8	308.4	977.7	0.00	0.00	0.00
4,680.0	16.29	18.39	4,544.0	938.5	311.9	989.0	0.00	0.00	0.00
4,720.0	16.29	18.39	4,582.4	949.1	315.5	1,000.2	0.00	0.00	0.00
4,760.0	16.29	18.39	4,620.8	959.8	319.0	1,011.4	0.00	0.00	0.00
4,800.0	16.29	18.39	4,659.2	970.4	322.5	1,022.6	0.00	0.00	0.00
4,840.0	16.29	18.39	4,697.6	981.1	326.1	1,033.8	0.00	0.00	0.00
4,880.0	16.29	18.39	4,735.9	991.7	329.6	1,045.1	0.00	0.00	0.00
4,920.0	16.29	18.39	4,774.3	1,002.4	333.2	1,056.3	0.00	0.00	0.00
4,960.0	16.29	18.39	4,812.7	1,013.0	336.7	1,067.5	0.00	0.00	0.00
5,000.0	16.29	18.39	4,851.1	1,023.7	340.2	1,078.7	0.00	0.00	0.00
5,040.0	16.29	18.39	4,889.5	1,034.3	343.8	1,089.9	0.00	0.00	0.00
5,080.0	16.29	18.39	4,927.9	1,045.0	347.3	1,101.2	0.00	0.00	0.00
5,120.0	16.29	18.39	4,966.3	1,055.6	350.9	1,112.4	0.00	0.00	0.00
5,151.3	16.29	18.39	4,996.4	1,063.9	353.6	1,121.2	0.00	0.00	0.00
5,160.0	16.12	18.39	5,004.7	1,066.2	354.4	1,123.6	2.00	-2.00	0.00
5,200.0	15.32	18.39	5,043.2	1,076.5	357.8	1,134.4	2.00	-2.00	0.00
5,240.0	14.52	18.39	5,081.9	1,086.3	361.1	1,144.7	2.00	-2.00	0.00
5,280.0	13.72	18.39	5,120.7	1,095.6	364.1	1,154.5	2.00	-2.00	0.00
5,320.0	12.92	18.39	5,159.6	1,104.3	367.0	1,163.7	2.00	-2.00	0.00
5,360.0	12.12	18.39	5,198.6	1,112.5	369.8	1,172.4	2.00	-2.00	0.00
5,400.0	11.32	18.39	5,237.8	1,120.2	372.3	1,180.5	2.00	-2.00	0.00
5,440.0	10.52	18.39	5,277.1	1,127.4	374.7	1,188.1	2.00	-2.00	0.00
5,480.0	9.72	18.39	5,316.5	1,134.1	376.9	1,195.1	2.00	-2.00	0.00
5,520.0	8.92	18.39	5,355.9	1,140.2	379.0	1,201.6	2.00	-2.00	0.00
5,560.0	8.12	18.39	5,395.5	1,145.9	380.9	1,207.5	2.00	-2.00	0.00
5,600.0	7.32	18.39	5,435.1	1,151.0	382.6	1,212.9	2.00	-2.00	0.00
5,640.0	6.52	18.39	5,474.8	1,155.5	384.1	1,217.7	2.00	-2.00	0.00
5,680.0	5.72	18.39	5,514.6	1,159.6	385.4	1,221.9	2.00	-2.00	0.00
5,720.0	4.92	18.39	5,554.4	1,163.1	386.6	1,225.7	2.00	-2.00	0.00
5,760.0	4.12	18.39	5,594.3	1,166.1	387.6	1,228.8	2.00	-2.00	0.00
5,800.0	3.32	18.39	5,634.2	1,168.5	388.4	1,231.4	2.00	-2.00	0.00
5,840.0	2.52	18.39	5,674.2	1,170.5	389.0	1,233.4	2.00	-2.00	0.00
5,880.0	1.72	18.39	5,714.1	1,171.9	389.5	1,234.9	2.00	-2.00	0.00
5,920.0	0.92	18.39	5,754.1	1,172.7	389.8	1,235.8	2.00	-2.00	0.00
5,960.0	0.12	18.39	5,794.1	1,173.1	389.9	1,236.2	2.00	-2.00	0.00
5,965.9	0.00	0.00	5,800.0	1,173.1	389.9	1,236.2	2.00	-2.00	-312.95
TARGET BHL 1320'FNL, 75'FEL									
6,000.0	0.00	0.00	5,834.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,040.0	0.00	0.00	5,874.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,080.0	0.00	0.00	5,914.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,120.0	0.00	0.00	5,954.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,160.0	0.00	0.00	5,994.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.18-T5N-R64W
Site: Puype B18-22D Pad Sec.18-T5N-R64W
Well: Puype B17-31D
Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
MD Reference: WELL @ 4634.0ft (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)
6,200.0	0.00	0.00	6,034.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,240.0	0.00	0.00	6,074.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,280.0	0.00	0.00	6,114.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,320.0	0.00	0.00	6,154.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,360.0	0.00	0.00	6,194.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,234.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,274.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,314.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,354.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,394.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,434.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,474.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,514.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,554.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,724.9	0.00	0.00	6,559.0	1,173.1	389.9	1,236.2	0.00	0.00	0.00
NOIBRARA - TARGET CIRCLE 1320'FNL, 75'FEL									
6,760.0	0.00	0.00	6,594.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,634.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,674.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,714.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,754.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,794.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,834.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,034.9	0.00	0.00	6,869.0	1,173.1	389.9	1,236.2	0.00	0.00	0.00
CODELL									
7,040.0	0.00	0.00	6,874.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,080.0	0.00	0.00	6,914.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,954.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,160.0	0.00	0.00	6,994.1	1,173.1	389.9	1,236.2	0.00	0.00	0.00
7,184.9	0.00	0.00	7,019.0	1,173.1	389.9	1,236.2	0.00	0.00	0.00
HARDLINE 75'E 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									
TARGET CIRCLE 1320'FNL	0.00	0.00	6,559.0	1,173.1	389.9	1,390,902.38	3,255,169.98	40° 24' 10.116 N	104° 35' 1.500 W
- plan hits target									
- Circle (radius 75.0)									
TARGET BHL 1320'F	0.00	0.00	5,800.0	1,173.1	389.9	1,390,902.37	3,255,170.00	40° 24' 10.116 N	104° 35' 1.500 W
- plan hits target									
- Point									
HARDLINE 75'E OF BHL	0.00	0.00	7,019.0	1,073.1	464.9	1,390,803.16	3,255,246.01	40° 24' 9.128 N	104° 35' 0.531 W
- plan misses by 125.0ft at 7184.9ft MD (7019.0 TVD, 1173.1 N, 389.9 E)									
- Polygon									
Point 1			7,019.0	0.0	0.0	1,390,803.16	3,255,246.01		
Point 2			7,019.0	200.0	0.0	1,391,003.14	3,255,243.94		

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
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Wellbore: Wellbore #1
Design: Noble Puype B17-31D Plan #1 (06-04-10)

Local Co-ordinate Reference: Well Puype B17-31D
TVD Reference: WELL @ 4634.0ft (Original Well Elev)
MD Reference: WELL @ 4634.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
550.0	550.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,724.9	6,559.0	NIORARA		0.00	
7,034.9	6,869.0	CODELL		0.00	