

ENSIGN

Directional

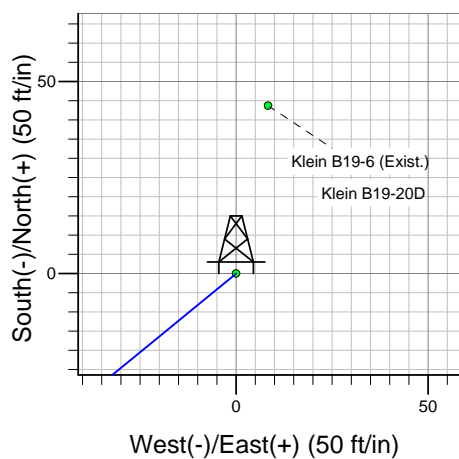
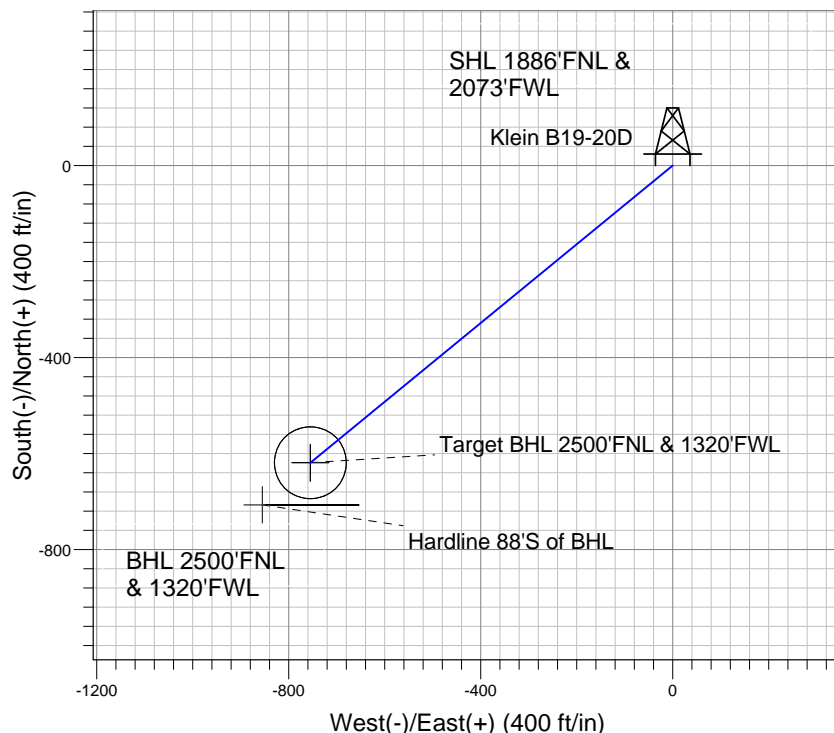
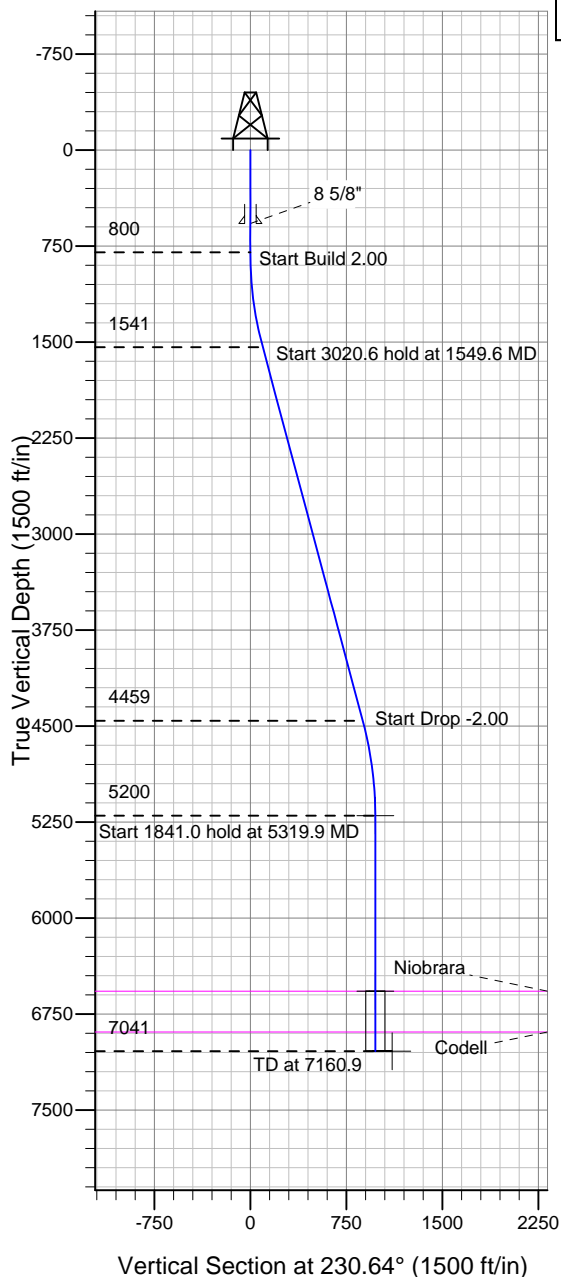
Well Name: **Klein B19-20D**

Surface Location: Klein B19-20D Pad Sec.19-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4628.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1385003.21	3252247.36	40° 23' 12.120 N	104° 35' 40.056 W	
Original Well Elev WELL @ 4641.0ft (Original Well Elev)						

NOBLE ENERGY INC WELD COUNTY CO



Klein B19-20D
Noble Klein B19-20D Plan #1 (8-10-10)
9:15, August 16 2010



Azimuths to True North
Magnetic North: 8.89°
Magnetic Field
Strength: 53234.0snT
Dip Angle: 67.10°
Date: 8/10/2010
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Target BHL 2500'FNL & 1320'FWL	5200.0	-619.3	-755.0	40° 23' 6.000 N	104° 35' 49.812 W	Point
Target Circle 2500'FNL & 1320'FWL	6571.0	-619.3	-755.0	40° 23' 6.000 N	104° 35' 49.812 W	Circle (Radius: 75.0)
Hardline 88'S of BHL	7041.0	-707.3	-855.0	40° 23' 5.130 N	104° 35' 51.105 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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1549.6	14.99	230.64	1541.1	-61.9	-75.4	2.00	230.64	97.5	
4	4570.2	14.99	230.64	4458.9	-557.4	-679.6	0.00	0.00	878.9	
5	5319.9	0.00	0.00	5200.0	-619.3	-755.0	2.00	180.00	976.5	Target BHL 2500'FNL & 1320'FWL
6	7160.9	0.00	0.00	7041.0	-619.3	-755.0	0.00	0.00	976.5	



NOBLE ENERGY INC WELD COUNTY CO

SEC.19-T5N-R64W

Klein B19-20D Pad Sec.19-T5N-R64W

Klein B19-20D

Wellbore #1

Plan: Noble Klein B19-20D Plan #1 (8-10-10)

Standard Planning Report

16 August, 2010

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

Project	SEC.19-T5N-R64W, Weld County, CO		
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

Klein B19-20D Pad Sec.19-T5N-R64W					
Site Position:		Northing:	1,385,003.23 ft	Latitude:	40° 23' 12.120 N
From:	Lat/Long	Easting:	3,252,247.36 ft	Longitude:	104° 35' 40.056 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Klein B19-20D					
Well Position	+N-S	0.0 ft	Northing:	1,385,003.21 ft	Latitude:	40° 23' 12.120 N
	+E-W	0.0 ft	Easting:	3,252,247.36 ft	Longitude:	104° 35' 40.056 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,628.0 ft

Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/10/2010	8.89	67.10	53,234

Design	Noble Klein B19-20D Plan #1 (8-10-10)			
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	230.64

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,549.6	14.99	230.64	1,541.1	-61.9	-75.4	2.00	2.00	0.00	230.64	
4,570.2	14.99	230.64	4,458.9	-557.4	-679.6	0.00	0.00	0.00	0.00	
5,319.9	0.00	0.00	5,200.0	-619.3	-755.0	2.00	-2.00	0.00	180.00	Target BHL 2500'F
7,160.9	0.00	0.00	7,041.0	-619.3	-755.0	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

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
575.0	0.00	0.00	575.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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	0.80	230.64	840.0	-0.2	-0.2	0.3	2.00	2.00	0.00
880.0	1.60	230.64	880.0	-0.7	-0.9	1.1	2.00	2.00	0.00
920.0	2.40	230.64	920.0	-1.6	-1.9	2.5	2.00	2.00	0.00
960.0	3.20	230.64	959.9	-2.8	-3.5	4.5	2.00	2.00	0.00
1,000.0	4.00	230.64	999.8	-4.4	-5.4	7.0	2.00	2.00	0.00
1,040.0	4.80	230.64	1,039.7	-6.4	-7.8	10.0	2.00	2.00	0.00
1,080.0	5.60	230.64	1,079.6	-8.7	-10.6	13.7	2.00	2.00	0.00
1,120.0	6.40	230.64	1,119.3	-11.3	-13.8	17.9	2.00	2.00	0.00
1,160.0	7.20	230.64	1,159.1	-14.3	-17.5	22.6	2.00	2.00	0.00
1,200.0	8.00	230.64	1,198.7	-17.7	-21.6	27.9	2.00	2.00	0.00
1,240.0	8.80	230.64	1,238.3	-21.4	-26.1	33.7	2.00	2.00	0.00
1,280.0	9.60	230.64	1,277.8	-25.4	-31.0	40.1	2.00	2.00	0.00
1,320.0	10.40	230.64	1,317.1	-29.8	-36.4	47.1	2.00	2.00	0.00
1,360.0	11.20	230.64	1,356.4	-34.6	-42.2	54.6	2.00	2.00	0.00
1,400.0	12.00	230.64	1,395.6	-39.7	-48.4	62.6	2.00	2.00	0.00
1,440.0	12.80	230.64	1,434.7	-45.2	-55.0	71.2	2.00	2.00	0.00
1,480.0	13.60	230.64	1,473.6	-50.9	-62.1	80.3	2.00	2.00	0.00
1,520.0	14.40	230.64	1,512.4	-57.1	-69.6	90.0	2.00	2.00	0.00
1,549.6	14.99	230.64	1,541.1	-61.9	-75.4	97.5	2.00	2.00	0.00
1,560.0	14.99	230.64	1,551.1	-63.6	-77.5	100.2	0.00	0.00	0.00
1,600.0	14.99	230.64	1,589.8	-70.1	-85.5	110.6	0.00	0.00	0.00
1,640.0	14.99	230.64	1,628.4	-76.7	-93.5	120.9	0.00	0.00	0.00
1,680.0	14.99	230.64	1,667.0	-83.2	-101.5	131.2	0.00	0.00	0.00
1,720.0	14.99	230.64	1,705.7	-89.8	-109.5	141.6	0.00	0.00	0.00
1,760.0	14.99	230.64	1,744.3	-96.4	-117.5	151.9	0.00	0.00	0.00
1,800.0	14.99	230.64	1,783.0	-102.9	-125.5	162.3	0.00	0.00	0.00
1,840.0	14.99	230.64	1,821.6	-109.5	-133.5	172.6	0.00	0.00	0.00
1,880.0	14.99	230.64	1,860.2	-116.1	-141.5	183.0	0.00	0.00	0.00
1,920.0	14.99	230.64	1,898.9	-122.6	-149.5	193.3	0.00	0.00	0.00
1,960.0	14.99	230.64	1,937.5	-129.2	-157.5	203.7	0.00	0.00	0.00
2,000.0	14.99	230.64	1,976.1	-135.7	-165.5	214.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

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)
2,040.0	14.99	230.64	2,014.8	-142.3	-173.5	224.4	0.00	0.00	0.00
2,080.0	14.99	230.64	2,053.4	-148.9	-181.5	234.7	0.00	0.00	0.00
2,120.0	14.99	230.64	2,092.1	-155.4	-189.5	245.1	0.00	0.00	0.00
2,160.0	14.99	230.64	2,130.7	-162.0	-197.5	255.4	0.00	0.00	0.00
2,200.0	14.99	230.64	2,169.3	-168.6	-205.5	265.8	0.00	0.00	0.00
2,240.0	14.99	230.64	2,208.0	-175.1	-213.5	276.1	0.00	0.00	0.00
2,280.0	14.99	230.64	2,246.6	-181.7	-221.5	286.5	0.00	0.00	0.00
2,320.0	14.99	230.64	2,285.2	-188.2	-229.5	296.8	0.00	0.00	0.00
2,360.0	14.99	230.64	2,323.9	-194.8	-237.5	307.2	0.00	0.00	0.00
2,400.0	14.99	230.64	2,362.5	-201.4	-245.5	317.5	0.00	0.00	0.00
2,440.0	14.99	230.64	2,401.2	-207.9	-253.5	327.9	0.00	0.00	0.00
2,480.0	14.99	230.64	2,439.8	-214.5	-261.5	338.2	0.00	0.00	0.00
2,520.0	14.99	230.64	2,478.4	-221.1	-269.5	348.6	0.00	0.00	0.00
2,560.0	14.99	230.64	2,517.1	-227.6	-277.5	358.9	0.00	0.00	0.00
2,600.0	14.99	230.64	2,555.7	-234.2	-285.5	369.3	0.00	0.00	0.00
2,640.0	14.99	230.64	2,594.4	-240.7	-293.5	379.6	0.00	0.00	0.00
2,680.0	14.99	230.64	2,633.0	-247.3	-301.5	389.9	0.00	0.00	0.00
2,720.0	14.99	230.64	2,671.6	-253.9	-309.5	400.3	0.00	0.00	0.00
2,760.0	14.99	230.64	2,710.3	-260.4	-317.5	410.6	0.00	0.00	0.00
2,800.0	14.99	230.64	2,748.9	-267.0	-325.5	421.0	0.00	0.00	0.00
2,840.0	14.99	230.64	2,787.5	-273.6	-333.5	431.3	0.00	0.00	0.00
2,880.0	14.99	230.64	2,826.2	-280.1	-341.5	441.7	0.00	0.00	0.00
2,920.0	14.99	230.64	2,864.8	-286.7	-349.5	452.0	0.00	0.00	0.00
2,960.0	14.99	230.64	2,903.5	-293.3	-357.5	462.4	0.00	0.00	0.00
3,000.0	14.99	230.64	2,942.1	-299.8	-365.5	472.7	0.00	0.00	0.00
3,040.0	14.99	230.64	2,980.7	-306.4	-373.5	483.1	0.00	0.00	0.00
3,080.0	14.99	230.64	3,019.4	-312.9	-381.5	493.4	0.00	0.00	0.00
3,120.0	14.99	230.64	3,058.0	-319.5	-389.5	503.8	0.00	0.00	0.00
3,160.0	14.99	230.64	3,096.7	-326.1	-397.5	514.1	0.00	0.00	0.00
3,200.0	14.99	230.64	3,135.3	-332.6	-405.5	524.5	0.00	0.00	0.00
3,240.0	14.99	230.64	3,173.9	-339.2	-413.5	534.8	0.00	0.00	0.00
3,280.0	14.99	230.64	3,212.6	-345.8	-421.5	545.2	0.00	0.00	0.00
3,320.0	14.99	230.64	3,251.2	-352.3	-429.5	555.5	0.00	0.00	0.00
3,360.0	14.99	230.64	3,289.8	-358.9	-437.5	565.9	0.00	0.00	0.00
3,400.0	14.99	230.64	3,328.5	-365.4	-445.5	576.2	0.00	0.00	0.00
3,440.0	14.99	230.64	3,367.1	-372.0	-453.5	586.6	0.00	0.00	0.00
3,480.0	14.99	230.64	3,405.8	-378.6	-461.5	596.9	0.00	0.00	0.00
3,520.0	14.99	230.64	3,444.4	-385.1	-469.5	607.3	0.00	0.00	0.00
3,560.0	14.99	230.64	3,483.0	-391.7	-477.5	617.6	0.00	0.00	0.00
3,600.0	14.99	230.64	3,521.7	-398.3	-485.5	628.0	0.00	0.00	0.00
3,640.0	14.99	230.64	3,560.3	-404.8	-493.5	638.3	0.00	0.00	0.00
3,680.0	14.99	230.64	3,599.0	-411.4	-501.5	648.6	0.00	0.00	0.00
3,720.0	14.99	230.64	3,637.6	-417.9	-509.5	659.0	0.00	0.00	0.00
3,760.0	14.99	230.64	3,676.2	-424.5	-517.5	669.3	0.00	0.00	0.00
3,800.0	14.99	230.64	3,714.9	-431.1	-525.5	679.7	0.00	0.00	0.00
3,840.0	14.99	230.64	3,753.5	-437.6	-533.5	690.0	0.00	0.00	0.00
3,880.0	14.99	230.64	3,792.1	-444.2	-541.5	700.4	0.00	0.00	0.00
3,920.0	14.99	230.64	3,830.8	-450.8	-549.5	710.7	0.00	0.00	0.00
3,960.0	14.99	230.64	3,869.4	-457.3	-557.5	721.1	0.00	0.00	0.00
4,000.0	14.99	230.64	3,908.1	-463.9	-565.5	731.4	0.00	0.00	0.00
4,040.0	14.99	230.64	3,946.7	-470.5	-573.5	741.8	0.00	0.00	0.00
4,080.0	14.99	230.64	3,985.3	-477.0	-581.5	752.1	0.00	0.00	0.00
4,120.0	14.99	230.64	4,024.0	-483.6	-589.5	762.5	0.00	0.00	0.00
4,160.0	14.99	230.64	4,062.6	-490.1	-597.5	772.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

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	14.99	230.64	4,101.2	-496.7	-605.5	783.2	0.00	0.00	0.00
4,240.0	14.99	230.64	4,139.9	-503.3	-613.5	793.5	0.00	0.00	0.00
4,280.0	14.99	230.64	4,178.5	-509.8	-621.5	803.9	0.00	0.00	0.00
4,320.0	14.99	230.64	4,217.2	-516.4	-629.5	814.2	0.00	0.00	0.00
4,360.0	14.99	230.64	4,255.8	-523.0	-637.5	824.6	0.00	0.00	0.00
4,400.0	14.99	230.64	4,294.4	-529.5	-645.5	834.9	0.00	0.00	0.00
4,440.0	14.99	230.64	4,333.1	-536.1	-653.5	845.3	0.00	0.00	0.00
4,480.0	14.99	230.64	4,371.7	-542.6	-661.5	855.6	0.00	0.00	0.00
4,520.0	14.99	230.64	4,410.4	-549.2	-669.5	866.0	0.00	0.00	0.00
4,560.0	14.99	230.64	4,449.0	-555.8	-677.5	876.3	0.00	0.00	0.00
4,570.2	14.99	230.64	4,458.9	-557.4	-679.6	878.9	0.00	0.00	0.00
4,600.0	14.40	230.64	4,487.7	-562.2	-685.4	886.5	2.00	-2.00	0.00
4,640.0	13.60	230.64	4,526.5	-568.4	-692.9	896.2	2.00	-2.00	0.00
4,680.0	12.80	230.64	4,565.4	-574.2	-699.9	905.3	2.00	-2.00	0.00
4,720.0	12.00	230.64	4,604.5	-579.6	-706.6	913.9	2.00	-2.00	0.00
4,760.0	11.20	230.64	4,643.7	-584.7	-712.8	921.9	2.00	-2.00	0.00
4,800.0	10.40	230.64	4,683.0	-589.5	-718.6	929.4	2.00	-2.00	0.00
4,840.0	9.60	230.64	4,722.4	-593.9	-724.0	936.4	2.00	-2.00	0.00
4,880.0	8.80	230.64	4,761.8	-597.9	-728.9	942.8	2.00	-2.00	0.00
4,920.0	8.00	230.64	4,801.4	-601.6	-733.4	948.6	2.00	-2.00	0.00
4,960.0	7.20	230.64	4,841.1	-605.0	-737.5	953.9	2.00	-2.00	0.00
5,000.0	6.40	230.64	4,880.8	-608.0	-741.2	958.6	2.00	-2.00	0.00
5,040.0	5.60	230.64	4,920.6	-610.6	-744.4	962.8	2.00	-2.00	0.00
5,080.0	4.80	230.64	4,960.4	-612.9	-747.2	966.4	2.00	-2.00	0.00
5,120.0	4.00	230.64	5,000.3	-614.9	-749.6	969.5	2.00	-2.00	0.00
5,160.0	3.20	230.64	5,040.2	-616.5	-751.5	972.0	2.00	-2.00	0.00
5,200.0	2.40	230.64	5,080.2	-617.7	-753.0	974.0	2.00	-2.00	0.00
5,240.0	1.60	230.64	5,120.1	-618.6	-754.1	975.4	2.00	-2.00	0.00
5,280.0	0.80	230.64	5,160.1	-619.1	-754.7	976.2	2.00	-2.00	0.00
5,319.9	0.00	0.00	5,200.0	-619.3	-755.0	976.5	2.00	-2.00	324.38
Target BHL 2500'FNL & 1320'FWL									
5,320.0	0.00	0.00	5,200.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,360.0	0.00	0.00	5,240.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,280.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,440.0	0.00	0.00	5,320.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,480.0	0.00	0.00	5,360.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,520.0	0.00	0.00	5,400.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,560.0	0.00	0.00	5,440.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,480.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,640.0	0.00	0.00	5,520.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,680.0	0.00	0.00	5,560.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,600.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,640.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,680.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,720.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,760.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,800.1	-619.3	-755.0	976.5	0.00	0.00	0.00
5,960.0	0.00	0.00	5,840.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,880.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,040.0	0.00	0.00	5,920.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,080.0	0.00	0.00	5,960.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,120.0	0.00	0.00	6,000.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,160.0	0.00	0.00	6,040.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,080.1	-619.3	-755.0	976.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

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	6,120.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,280.0	0.00	0.00	6,160.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,200.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,240.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,280.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,320.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,360.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,400.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,440.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,480.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,520.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,560.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,690.9	0.00	0.00	6,571.0	-619.3	-755.0	976.5	0.00	0.00	0.00
Niobrara - Target Circle 2500'FNL & 1320'FWL									
6,720.0	0.00	0.00	6,600.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,640.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,680.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,720.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,760.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,800.1	-619.3	-755.0	976.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,840.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,880.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,010.9	0.00	0.00	6,891.0	-619.3	-755.0	976.5	0.00	0.00	0.00
Codell									
7,040.0	0.00	0.00	6,920.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,960.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,120.0	0.00	0.00	7,000.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,160.0	0.00	0.00	7,040.1	-619.3	-755.0	976.5	0.00	0.00	0.00
7,160.9	0.00	0.00	7,041.0	-619.3	-755.0	976.5	0.00	0.00	0.00
Hardline 88'S 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 BHL 2500'FNL	0.00	0.00	5,200.0	-619.3	-755.0	1,384,376.26	3,251,498.80	40° 23' 6.000 N	104° 35' 49.812 W
- plan hits target									
- Point									
Target Circle 2500'FN	0.00	0.00	6,571.0	-619.3	-755.0	1,384,376.26	3,251,498.80	40° 23' 6.000 N	104° 35' 49.812 W
- plan hits target									
- Circle (radius 75.0)									
Hardline 88'S of BHL	0.00	0.00	7,041.0	-707.3	-855.0	1,384,287.25	3,251,399.67	40° 23' 5.130 N	104° 35' 51.105 W
- plan misses by 133.2ft at 7160.9ft MD (7041.0 TVD, -619.3 N, -755.0 E)									
- Polygon									
Point 1			7,041.0	0.0	0.0	1,384,287.25	3,251,399.67		
Point 2			7,041.0	0.0	200.0	1,384,289.29	3,251,599.65		

Database:	Landmark	Local Co-ordinate Reference:	Well Klein B19-20D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4641.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (Original Well Elev)
Site:	Klein B19-20D Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein B19-20D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Klein B19-20D Plan #1 (8-10-10)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
575.0	575.0	8 5/8"	8-5/8	12-1/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,690.9	6,571.0	Niobrara		0.00	
7,010.9	6,891.0	Codell		0.00	