

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_STREAR 17-10
 Well: STREAR 21-10
 Wellbore: OH
 Section: SECTION 10 T2N R67W
 SHL:
 Design: STREAR 21-10(wp01)
 Latitude: 40° 9' 25.574 N
 Longitude: 104° 52' 16.471 W
 GL: 4924.00
 KB: GL 4924' & KB 15' @ 4939.00ft (ASSUMED)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4263.00	4390.76	PARKMAN
4373.00	4504.83	SUSSEX
7216.00	7415.63	NIOBRARA
7473.00	7672.63	CODELL
7556.00	7755.63	GREENHORN
7913.00	8112.63	J-SAND



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 8.53°
 Magnetic Field
 Strength: 53017.2snT
 Dip Angle: 66.84°
 Date: 03/17/2011
 Model: IGRF2010

WELL DETAILS: STREAR 21-10

+N/-S	+E/-W	Northing	Ground Level: Easting	4924.00 Latitude	Longitude	Slot
0.00	0.00	1300699.27	3175741.55	40° 9' 25.574 N	104° 52' 16.471 W	

CASING DETAILS

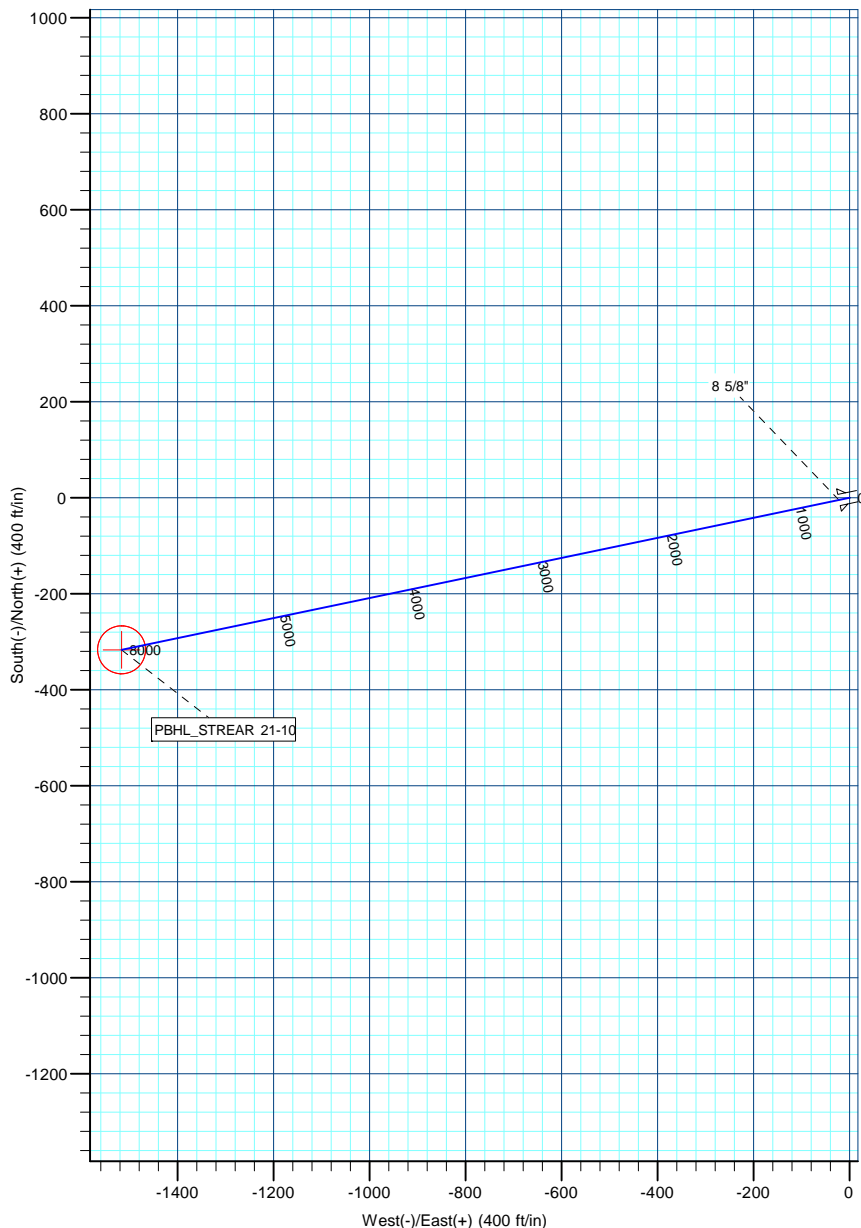
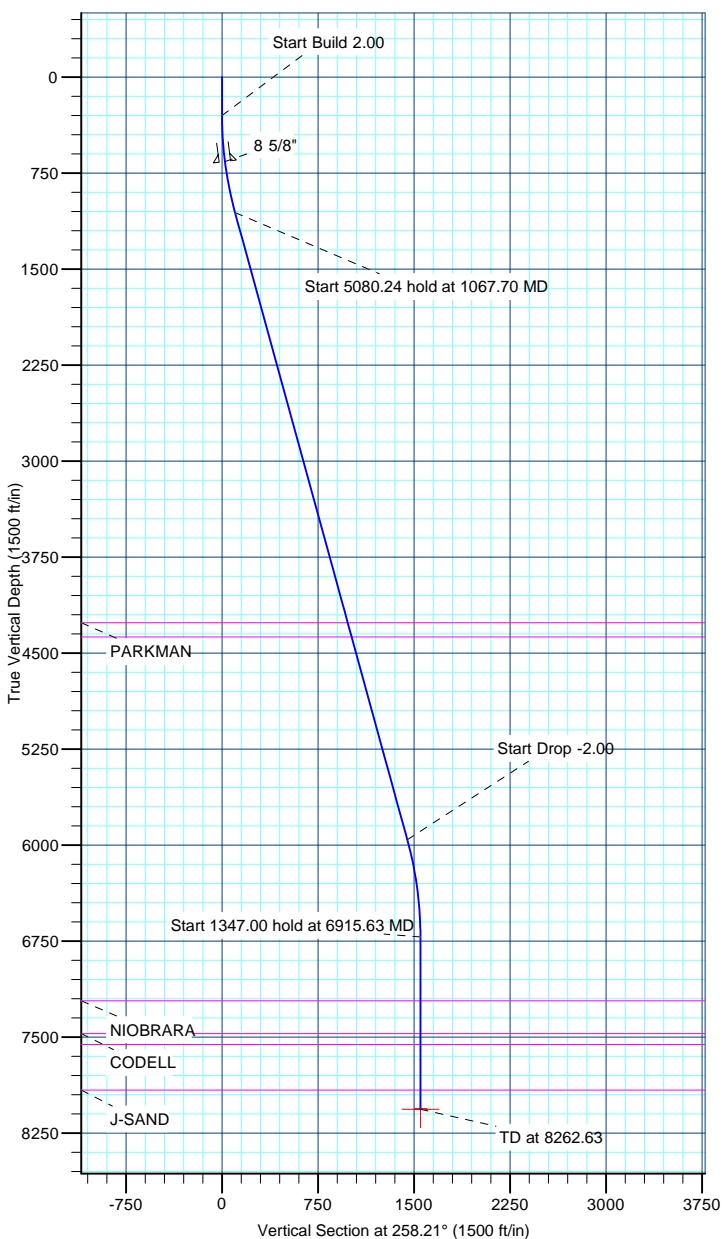
TVD	MD	Name	Size
660.00	660.95	8 5/8"	8.625

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL_STREAR 21-10	8063.00	-316.70	-1516.94	1300382.57	3174224.61	40° 9' 22.550 N	104° 52' 36.037 W	Circle (Radius: 50.00)

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00
1067.70	15.35	258.21	1058.54	-20.90	-100.09	2.00	258.21	102.25
6147.93	15.35	258.21	5957.46	-295.80	-1416.85	0.00	0.00	1447.40
6915.63	0.00	0.00	6716.00	-316.70	-1516.94	2.00	180.00	1549.65
8262.63	0.00	0.00	8063.00	-316.70	-1516.94	0.00	0.00	1549.65



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_STREAR 17-10

STREAR 21-10

OH

Plan: STREAR 21-10(wp01)

Standard Planning Report

17 March, 2011

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well STREAR 21-10
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 15' @ 4939.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 15' @ 4939.00ft (ASSUMED)
Site:	WELD_STREAR 17-10	North Reference:	Grid
Well:	STREAR 21-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 21-10(wp01)		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	WELD_STREAR 17-10, SECTION 10 T2N R67W			
Site Position:		Northing:	1,300,679.25 usft	Latitude: 40° 9' 25.376 N
From:	Lat/Long	Easting:	3,175,741.69 usft	Longitude: 104° 52' 16.471 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.41 °

Well	STREAR 21-10			
Well Position	+N/-S	20.02 ft	Northing:	1,300,699.27 usft
	+E/-W	-0.14 ft	Easting:	3,175,741.55 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level: 4,924.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/17/2011	8.93	66.84	53,017

Design	STREAR 21-10(wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	258.21

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,067.70	15.35	258.21	1,058.54	-20.90	-100.09	2.00	2.00	0.00	258.21	
6,147.93	15.35	258.21	5,957.46	-295.80	-1,416.85	0.00	0.00	0.00	0.00	
6,915.63	0.00	0.00	6,716.00	-316.70	-1,516.94	2.00	-2.00	0.00	180.00	
8,262.63	0.00	0.00	8,063.00	-316.70	-1,516.94	0.00	0.00	0.00	0.00	PBHL_STREAR 21-10

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well STREAR 21-10
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 15' @ 4939.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 15' @ 4939.00ft (ASSUMED)
Site:	WELD_STREAR 17-10	North Reference:	Grid
Well:	STREAR 21-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 21-10(wp01)		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
400.00	2.00	258.21	399.98	-0.36	-1.71	1.75	2.00	2.00	0.00
500.00	4.00	258.21	499.84	-1.43	-6.83	6.98	2.00	2.00	0.00
600.00	6.00	258.21	599.45	-3.21	-15.36	15.69	2.00	2.00	0.00
660.95	7.22	258.21	660.00	-4.64	-22.23	22.71	2.00	2.00	0.00
8 5/8"									
700.00	8.00	258.21	698.70	-5.70	-27.29	27.88	2.00	2.00	0.00
800.00	10.00	258.21	797.47	-8.89	-42.60	43.52	2.00	2.00	0.00
900.00	12.00	258.21	895.62	-12.79	-61.28	62.60	2.00	2.00	0.00
1,000.00	14.00	258.21	993.06	-17.39	-83.30	85.10	2.00	2.00	0.00
1,067.70	15.35	258.21	1,058.54	-20.90	-100.09	102.25	2.00	2.00	0.00
Start 5080.24 hold at 1067.70 MD									
1,100.00	15.35	258.21	1,089.69	-22.64	-108.46	110.80	0.00	0.00	0.00
1,200.00	15.35	258.21	1,186.12	-28.06	-134.38	137.28	0.00	0.00	0.00
1,300.00	15.35	258.21	1,282.55	-33.47	-160.30	163.76	0.00	0.00	0.00
1,400.00	15.35	258.21	1,378.98	-38.88	-186.22	190.24	0.00	0.00	0.00
1,500.00	15.35	258.21	1,475.42	-44.29	-212.14	216.71	0.00	0.00	0.00
1,600.00	15.35	258.21	1,571.85	-49.70	-238.06	243.19	0.00	0.00	0.00
1,700.00	15.35	258.21	1,668.28	-55.11	-263.98	269.67	0.00	0.00	0.00
1,800.00	15.35	258.21	1,764.71	-60.52	-289.90	296.15	0.00	0.00	0.00
1,900.00	15.35	258.21	1,861.14	-65.94	-315.82	322.63	0.00	0.00	0.00
2,000.00	15.35	258.21	1,957.57	-71.35	-341.74	349.10	0.00	0.00	0.00
2,100.00	15.35	258.21	2,054.00	-76.76	-367.66	375.58	0.00	0.00	0.00
2,200.00	15.35	258.21	2,150.43	-82.17	-393.58	402.06	0.00	0.00	0.00
2,300.00	15.35	258.21	2,246.86	-87.58	-419.49	428.54	0.00	0.00	0.00
2,400.00	15.35	258.21	2,343.29	-92.99	-445.41	455.02	0.00	0.00	0.00
2,500.00	15.35	258.21	2,439.72	-98.40	-471.33	481.50	0.00	0.00	0.00
2,600.00	15.35	258.21	2,536.15	-103.81	-497.25	507.97	0.00	0.00	0.00
2,700.00	15.35	258.21	2,632.59	-109.23	-523.17	534.45	0.00	0.00	0.00
2,800.00	15.35	258.21	2,729.02	-114.64	-549.09	560.93	0.00	0.00	0.00
2,900.00	15.35	258.21	2,825.45	-120.05	-575.01	587.41	0.00	0.00	0.00
3,000.00	15.35	258.21	2,921.88	-125.46	-600.93	613.89	0.00	0.00	0.00
3,100.00	15.35	258.21	3,018.31	-130.87	-626.85	640.36	0.00	0.00	0.00
3,200.00	15.35	258.21	3,114.74	-136.28	-652.77	666.84	0.00	0.00	0.00
3,300.00	15.35	258.21	3,211.17	-141.69	-678.69	693.32	0.00	0.00	0.00
3,400.00	15.35	258.21	3,307.60	-147.11	-704.61	719.80	0.00	0.00	0.00
3,500.00	15.35	258.21	3,404.03	-152.52	-730.53	746.28	0.00	0.00	0.00
3,600.00	15.35	258.21	3,500.46	-157.93	-756.44	772.75	0.00	0.00	0.00
3,700.00	15.35	258.21	3,596.89	-163.34	-782.36	799.23	0.00	0.00	0.00
3,800.00	15.35	258.21	3,693.32	-168.75	-808.28	825.71	0.00	0.00	0.00
3,900.00	15.35	258.21	3,789.76	-174.16	-834.20	852.19	0.00	0.00	0.00
4,000.00	15.35	258.21	3,886.19	-179.57	-860.12	878.67	0.00	0.00	0.00
4,100.00	15.35	258.21	3,982.62	-184.98	-886.04	905.15	0.00	0.00	0.00
4,200.00	15.35	258.21	4,079.05	-190.40	-911.96	931.62	0.00	0.00	0.00
4,300.00	15.35	258.21	4,175.48	-195.81	-937.88	958.10	0.00	0.00	0.00
4,390.76	15.35	258.21	4,263.00	-200.72	-961.40	982.13	0.00	0.00	0.00
PARKMAN									
4,400.00	15.35	258.21	4,271.91	-201.22	-963.80	984.58	0.00	0.00	0.00
4,500.00	15.35	258.21	4,368.34	-206.63	-989.72	1,011.06	0.00	0.00	0.00
4,504.83	15.35	258.21	4,373.00	-206.89	-990.97	1,012.34	0.00	0.00	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 15' @ 4939.00ft (ASSUMED)
Site:	WELD_STREAR 17-10	North Reference:	Grid
Well:	STREAR 21-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 21-10(wp01)		

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)
SUSSEX									
4,600.00	15.35	258.21	4,464.77	-212.04	-1,015.64	1,037.54	0.00	0.00	0.00
4,700.00	15.35	258.21	4,561.20	-217.45	-1,041.56	1,064.01	0.00	0.00	0.00
4,800.00	15.35	258.21	4,657.63	-222.86	-1,067.48	1,090.49	0.00	0.00	0.00
4,900.00	15.35	258.21	4,754.06	-228.27	-1,093.40	1,116.97	0.00	0.00	0.00
5,000.00	15.35	258.21	4,850.49	-233.69	-1,119.31	1,143.45	0.00	0.00	0.00
5,100.00	15.35	258.21	4,946.93	-239.10	-1,145.23	1,169.93	0.00	0.00	0.00
5,200.00	15.35	258.21	5,043.36	-244.51	-1,171.15	1,196.40	0.00	0.00	0.00
5,300.00	15.35	258.21	5,139.79	-249.92	-1,197.07	1,222.88	0.00	0.00	0.00
5,400.00	15.35	258.21	5,236.22	-255.33	-1,222.99	1,249.36	0.00	0.00	0.00
5,500.00	15.35	258.21	5,332.65	-260.74	-1,248.91	1,275.84	0.00	0.00	0.00
5,600.00	15.35	258.21	5,429.08	-266.15	-1,274.83	1,302.32	0.00	0.00	0.00
5,700.00	15.35	258.21	5,525.51	-271.57	-1,300.75	1,328.80	0.00	0.00	0.00
5,800.00	15.35	258.21	5,621.94	-276.98	-1,326.67	1,355.27	0.00	0.00	0.00
5,900.00	15.35	258.21	5,718.37	-282.39	-1,352.59	1,381.75	0.00	0.00	0.00
6,000.00	15.35	258.21	5,814.80	-287.80	-1,378.51	1,408.23	0.00	0.00	0.00
6,100.00	15.35	258.21	5,911.23	-293.21	-1,404.43	1,434.71	0.00	0.00	0.00
6,147.93	15.35	258.21	5,957.46	-295.80	-1,416.85	1,447.40	0.00	0.00	0.00
Start Drop -2.00									
6,200.00	14.31	258.21	6,007.79	-298.53	-1,429.90	1,460.73	2.00	-2.00	0.00
6,300.00	12.31	258.21	6,105.10	-303.23	-1,452.44	1,483.75	2.00	-2.00	0.00
6,400.00	10.31	258.21	6,203.15	-307.24	-1,471.64	1,503.37	2.00	-2.00	0.00
6,500.00	8.31	258.21	6,301.82	-310.55	-1,487.48	1,519.55	2.00	-2.00	0.00
6,600.00	6.31	258.21	6,401.01	-313.15	-1,499.94	1,532.28	2.00	-2.00	0.00
6,700.00	4.31	258.21	6,500.57	-315.04	-1,509.00	1,541.54	2.00	-2.00	0.00
6,800.00	2.31	258.21	6,600.40	-316.22	-1,514.66	1,547.32	2.00	-2.00	0.00
6,900.00	0.31	258.21	6,700.37	-316.69	-1,516.90	1,549.61	2.00	-2.00	0.00
6,915.63	0.00	0.00	6,716.00	-316.70	-1,516.94	1,549.65	2.00	-2.00	0.00
Start 1347.00 hold at 6915.63 MD									
7,000.00	0.00	0.00	6,800.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,100.00	0.00	0.00	6,900.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,200.00	0.00	0.00	7,000.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,300.00	0.00	0.00	7,100.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,400.00	0.00	0.00	7,200.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,415.63	0.00	0.00	7,216.00	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
NIOBRARA									
7,500.00	0.00	0.00	7,300.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,600.00	0.00	0.00	7,400.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,672.63	0.00	0.00	7,473.00	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
CODELL									
7,700.00	0.00	0.00	7,500.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,755.63	0.00	0.00	7,556.00	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
GREENHORN									
7,800.00	0.00	0.00	7,600.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
7,900.00	0.00	0.00	7,700.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
8,000.00	0.00	0.00	7,800.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
8,100.00	0.00	0.00	7,900.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
8,112.63	0.00	0.00	7,913.00	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
J-SAND									
8,200.00	0.00	0.00	8,000.37	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
8,262.63	0.00	0.00	8,063.00	-316.70	-1,516.94	1,549.65	0.00	0.00	0.00
PBHL_STREAR 21-10									

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Wellbore:	OH		
Design:	STREAR 21-10(wp01)		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_STREAR 21-10	0.00	0.00	8,063.00	-316.70	-1,516.94	1,300,382.57	3,174,224.61	40° 9' 22.550 N	104° 52' 36.037 W
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
660.95	660.00	8 5/8"	8.625	11.000	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,390.76	4,263.00	PARKMAN				
4,504.83	4,373.00	SUSSEX				
7,415.63	7,216.00	NIOBRARA				
7,672.63	7,473.00	CODELL				
7,755.63	7,556.00	GREENHORN				
8,112.63	7,913.00	J-SAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
300.00	300.00	0.00	0.00	Start Build 2.00	
1,067.70	1,058.54	-20.90	-100.09	Start 5080.24 hold at 1067.70 MD	
6,147.93	5,957.46	-295.80	-1,416.85	Start Drop -2.00	
6,915.63	6,716.00	-316.70	-1,516.94	Start 1347.00 hold at 6915.63 MD	
8,262.63	8,063.00	-316.70	-1,516.94	TD at 8262.63	