

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_STREAR 18-10 PAD
 Well: STREAR 31-10
 Wellbore: OH
 Section: SECTION 10 T2N R67W
 SHL:
 Design: STREAR 31-10(wp01)
 Latitude: 40° 9' 19.641 N
 Longitude: 104° 52' 47.305 W
 GL: 4942.00
 KB: GL 4942' & KB 15' @ 4957.00ft (ASSUMED)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4282.00	4469.48	PARKMAN
4392.00	4585.62	SUSSEX
7235.00	7496.72	NIOBRARA
7492.00	7753.72	CODELL
7575.00	7836.72	GREENHORN
7932.00	8193.72	J-SAND



Azimuths to Grid North
 True North: -0.40°
 Magnetic North: 8.54°
 Magnetic Field
 Strength: 53015.5nT
 Dip Angle: 66.84°
 Date: 03/16/2011
 Model: IGRF2010

WELL DETAILS: STREAR 31-10

+N/-S	+E/-W	Northing	Easting	Ground Level: 4942.00	Latitude	Longitude	Slot
0.00	0.00	1300082.09	3173351.82	40° 9' 19.641 N	104° 52' 47.305 W		

CASING DETAILS

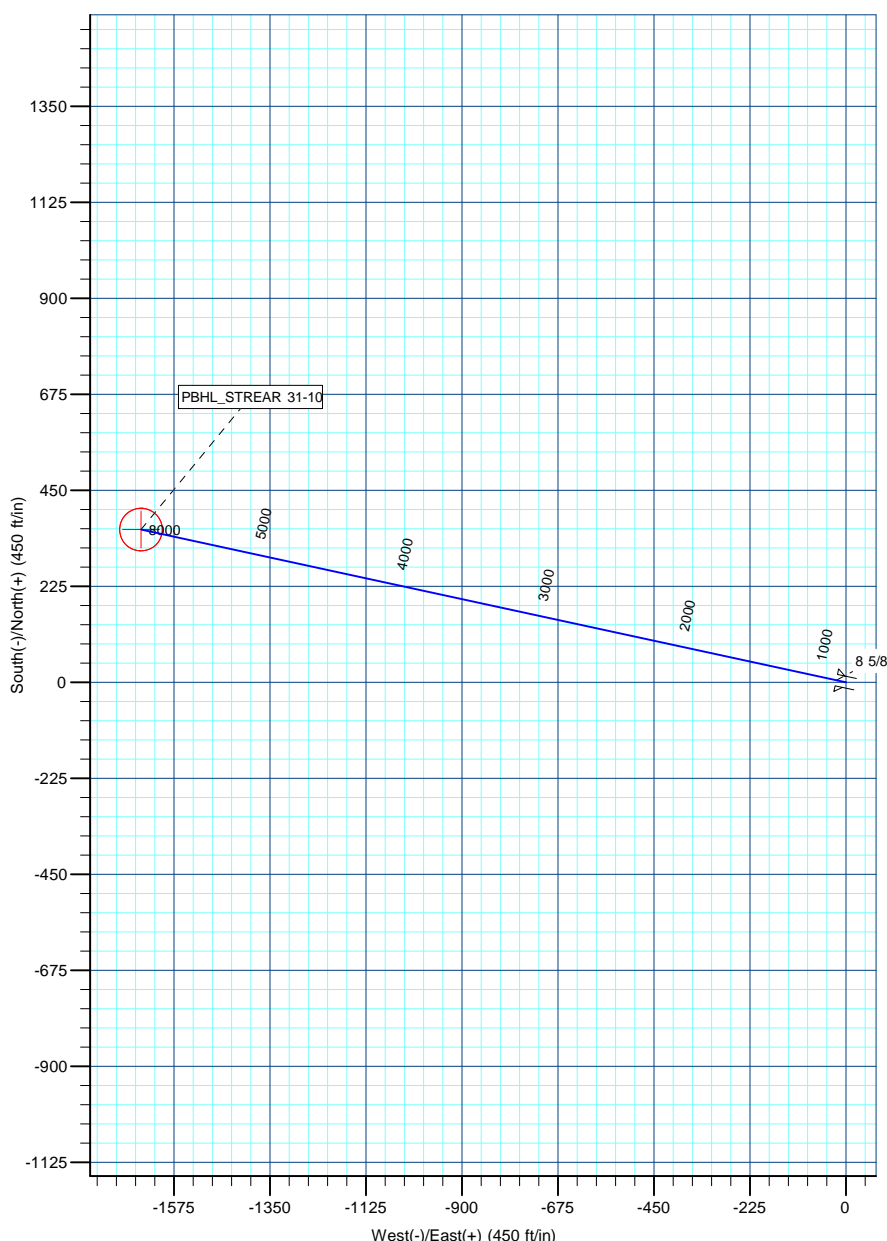
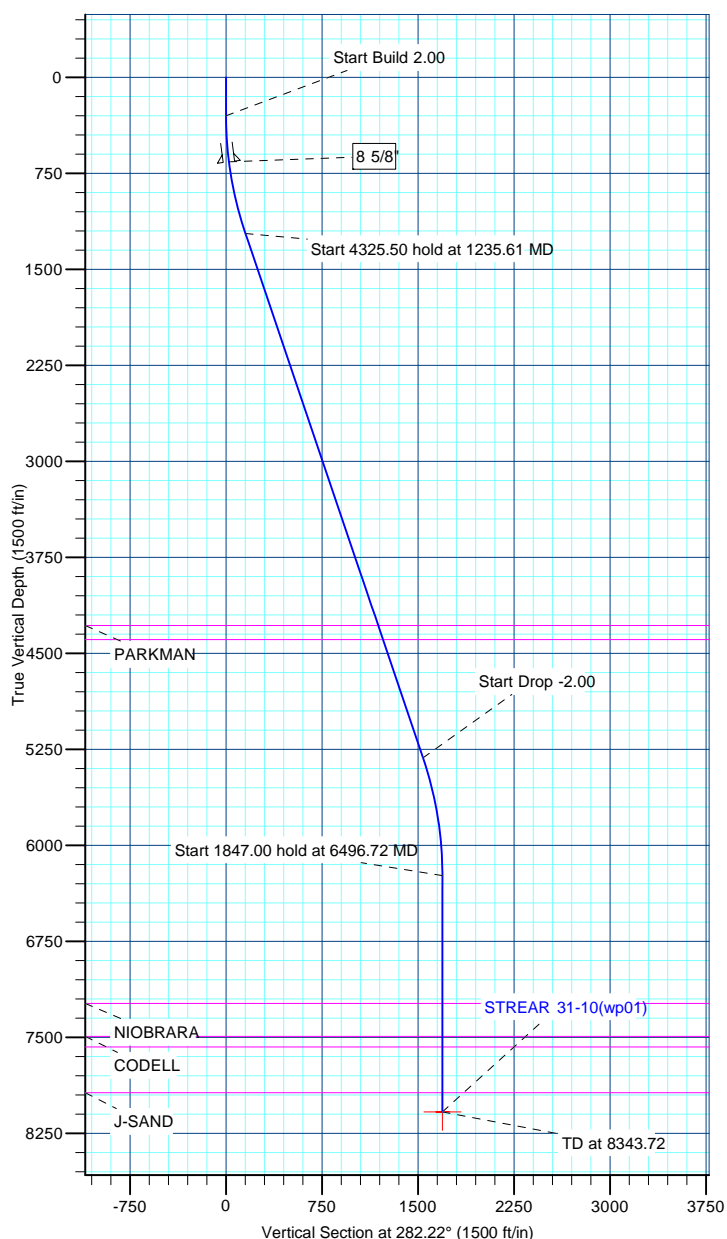
TVD	MD	Name	Size
660.00	660.95	8 5/8"	8.625

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL_STREAR 31-10	8082.00	357.90	-1652.22	1300439.99	3171699.60	40° 9' 23.292 N	104° 53' 8.552 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
1235.61	18.71	282.22	1219.07	32.06	-147.99	2.00	282.22	151.43
5561.11	18.71	282.22	5315.93	325.84	-1504.23	0.00	0.00	1539.11
6496.72	0.00	0.00	6235.00	357.90	-1652.22	2.00	180.00	1690.54
8343.72	0.00	0.00	8082.00	357.90	-1652.22	0.00	0.00	1690.54



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_STREAR 18-10 PAD

STREAR 31-10

OH

Plan: STREAR 31-10(wp01)

Standard Planning Report

16 March, 2011

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well STREAR 31-10
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4942' & KB 15' @ 4957.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4942' & KB 15' @ 4957.00ft (ASSUMED)
Site:	WELD_STREAR 18-10 PAD	North Reference:	Grid
Well:	STREAR 31-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 31-10(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 18-10 PAD, SECTION 10 T2N R67W			
Site Position:		Northing:	1,300,062.07 usft	Latitude:	40° 9' 19.444 N
From:	Lat/Long	Easting:	3,173,351.96 usft	Longitude:	104° 52' 47.305 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.40 °

Well	STREAR 31-10					
Well Position	+N/-S	20.02 ft	Northing:	1,300,082.09 usft	Latitude:	40° 9' 19.641 N
	+E/-W	-0.14 ft	Easting:	3,173,351.82 usft	Longitude:	104° 52' 47.305 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,942.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/16/2011	8.94	66.84	53,015

Design	STREAR 31-10(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	282.22

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	
1,235.61	18.71	282.22	1,219.07	32.06	-147.99	2.00	2.00	0.00	282.22	
5,561.12	18.71	282.22	5,315.93	325.84	-1,504.23	0.00	0.00	0.00	0.00	
6,496.73	0.00	0.00	6,235.00	357.90	-1,652.22	2.00	-2.00	0.00	180.00	
8,343.73	0.00	0.00	8,082.00	357.90	-1,652.22	0.00	0.00	0.00	0.00	PBHL_STREAR 31-10

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well STREAR 31-10
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4942' & KB 15' @ 4957.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4942' & KB 15' @ 4957.00ft (ASSUMED)
Site:	WELD_STREAR 18-10 PAD	North Reference:	Grid
Well:	STREAR 31-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 31-10(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	282.22	399.98	0.37	-1.71	1.75	2.00	2.00	0.00
500.00	4.00	282.22	499.84	1.48	-6.82	6.98	2.00	2.00	0.00
600.00	6.00	282.22	599.45	3.32	-15.34	15.69	2.00	2.00	0.00
660.95	7.22	282.22	660.00	4.81	-22.19	22.71	2.00	2.00	0.00
8 5/8"									
700.00	8.00	282.22	698.70	5.90	-27.25	27.88	2.00	2.00	0.00
800.00	10.00	282.22	797.47	9.21	-42.54	43.52	2.00	2.00	0.00
900.00	12.00	282.22	895.62	13.25	-61.18	62.60	2.00	2.00	0.00
1,000.00	14.00	282.22	993.06	18.02	-83.17	85.10	2.00	2.00	0.00
1,100.00	16.00	282.22	1,089.64	23.49	-108.46	110.98	2.00	2.00	0.00
1,200.00	18.00	282.22	1,185.27	29.68	-137.03	140.21	2.00	2.00	0.00
1,235.61	18.71	282.22	1,219.07	32.06	-147.99	151.43	2.00	2.00	0.00
Start 4325.50 hold at 1235.61 MD									
1,300.00	18.71	282.22	1,280.05	36.43	-168.18	172.08	0.00	0.00	0.00
1,400.00	18.71	282.22	1,374.77	43.22	-199.54	204.17	0.00	0.00	0.00
1,500.00	18.71	282.22	1,469.48	50.02	-230.89	236.25	0.00	0.00	0.00
1,600.00	18.71	282.22	1,564.20	56.81	-262.25	268.33	0.00	0.00	0.00
1,700.00	18.71	282.22	1,658.91	63.60	-293.60	300.41	0.00	0.00	0.00
1,800.00	18.71	282.22	1,753.62	70.39	-324.95	332.49	0.00	0.00	0.00
1,900.00	18.71	282.22	1,848.34	77.18	-356.31	364.57	0.00	0.00	0.00
2,000.00	18.71	282.22	1,943.05	83.98	-387.66	396.65	0.00	0.00	0.00
2,100.00	18.71	282.22	2,037.77	90.77	-419.02	428.74	0.00	0.00	0.00
2,200.00	18.71	282.22	2,132.48	97.56	-450.37	460.82	0.00	0.00	0.00
2,300.00	18.71	282.22	2,227.19	104.35	-481.73	492.90	0.00	0.00	0.00
2,400.00	18.71	282.22	2,321.91	111.14	-513.08	524.98	0.00	0.00	0.00
2,500.00	18.71	282.22	2,416.62	117.93	-544.43	557.06	0.00	0.00	0.00
2,600.00	18.71	282.22	2,511.34	124.73	-575.79	589.14	0.00	0.00	0.00
2,700.00	18.71	282.22	2,606.05	131.52	-607.14	621.22	0.00	0.00	0.00
2,800.00	18.71	282.22	2,700.77	138.31	-638.50	653.31	0.00	0.00	0.00
2,900.00	18.71	282.22	2,795.48	145.10	-669.85	685.39	0.00	0.00	0.00
3,000.00	18.71	282.22	2,890.19	151.89	-701.21	717.47	0.00	0.00	0.00
3,100.00	18.71	282.22	2,984.91	158.69	-732.56	749.55	0.00	0.00	0.00
3,200.00	18.71	282.22	3,079.62	165.48	-763.91	781.63	0.00	0.00	0.00
3,300.00	18.71	282.22	3,174.34	172.27	-795.27	813.71	0.00	0.00	0.00
3,400.00	18.71	282.22	3,269.05	179.06	-826.62	845.80	0.00	0.00	0.00
3,500.00	18.71	282.22	3,363.77	185.85	-857.98	877.88	0.00	0.00	0.00
3,600.00	18.71	282.22	3,458.48	192.65	-889.33	909.96	0.00	0.00	0.00
3,700.00	18.71	282.22	3,553.19	199.44	-920.69	942.04	0.00	0.00	0.00
3,800.00	18.71	282.22	3,647.91	206.23	-952.04	974.12	0.00	0.00	0.00
3,900.00	18.71	282.22	3,742.62	213.02	-983.39	1,006.20	0.00	0.00	0.00
4,000.00	18.71	282.22	3,837.34	219.81	-1,014.75	1,038.28	0.00	0.00	0.00
4,100.00	18.71	282.22	3,932.05	226.61	-1,046.10	1,070.37	0.00	0.00	0.00
4,200.00	18.71	282.22	4,026.76	233.40	-1,077.46	1,102.45	0.00	0.00	0.00
4,300.00	18.71	282.22	4,121.48	240.19	-1,108.81	1,134.53	0.00	0.00	0.00
4,400.00	18.71	282.22	4,216.19	246.98	-1,140.17	1,166.61	0.00	0.00	0.00
4,469.48	18.71	282.22	4,282.00	251.70	-1,161.95	1,188.90	0.00	0.00	0.00
PARKMAN									
4,500.00	18.71	282.22	4,310.91	253.77	-1,171.52	1,198.69	0.00	0.00	0.00
4,585.62	18.71	282.22	4,392.00	259.59	-1,198.37	1,226.16	0.00	0.00	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4942' & KB 15' @ 4957.00ft (ASSUMED)
Site:	WELD_STREAR 18-10 PAD	North Reference:	Grid
Well:	STREAR 31-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 31-10(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	18.71	282.22	4,405.62	260.57	-1,202.87	1,230.77	0.00	0.00	0.00
4,700.00	18.71	282.22	4,500.34	267.36	-1,234.23	1,262.85	0.00	0.00	0.00
4,800.00	18.71	282.22	4,595.05	274.15	-1,265.58	1,294.94	0.00	0.00	0.00
4,900.00	18.71	282.22	4,689.76	280.94	-1,296.94	1,327.02	0.00	0.00	0.00
5,000.00	18.71	282.22	4,784.48	287.73	-1,328.29	1,359.10	0.00	0.00	0.00
5,100.00	18.71	282.22	4,879.19	294.52	-1,359.65	1,391.18	0.00	0.00	0.00
5,200.00	18.71	282.22	4,973.91	301.32	-1,391.00	1,423.26	0.00	0.00	0.00
5,300.00	18.71	282.22	5,068.62	308.11	-1,422.35	1,455.34	0.00	0.00	0.00
5,400.00	18.71	282.22	5,163.34	314.90	-1,453.71	1,487.42	0.00	0.00	0.00
5,500.00	18.71	282.22	5,258.05	321.69	-1,485.06	1,519.51	0.00	0.00	0.00
5,561.12	18.71	282.22	5,315.93	325.84	-1,504.23	1,539.11	0.00	0.00	0.00
Start Drop -2.00									
5,600.00	17.93	282.22	5,352.85	328.43	-1,516.17	1,551.34	2.00	-2.00	0.00
5,700.00	15.93	282.22	5,448.51	334.60	-1,544.64	1,580.46	2.00	-2.00	0.00
5,800.00	13.93	282.22	5,545.12	340.05	-1,569.82	1,606.23	2.00	-2.00	0.00
5,900.00	11.93	282.22	5,642.58	344.79	-1,591.70	1,628.62	2.00	-2.00	0.00
6,000.00	9.93	282.22	5,740.76	348.81	-1,610.24	1,647.58	2.00	-2.00	0.00
6,100.00	7.93	282.22	5,839.54	352.10	-1,625.42	1,663.11	2.00	-2.00	0.00
6,200.00	5.93	282.22	5,938.81	354.65	-1,637.21	1,675.19	2.00	-2.00	0.00
6,300.00	3.93	282.22	6,038.43	356.47	-1,645.62	1,683.79	2.00	-2.00	0.00
6,400.00	1.93	282.22	6,138.29	357.56	-1,650.62	1,688.91	2.00	-2.00	0.00
6,496.73	0.00	0.00	6,235.00	357.90	-1,652.22	1,690.54	2.00	-2.00	80.41
Start 1847.00 hold at 6496.72 MD									
6,500.00	0.00	0.00	6,238.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
6,600.00	0.00	0.00	6,338.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
6,700.00	0.00	0.00	6,438.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
6,800.00	0.00	0.00	6,538.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
6,900.00	0.00	0.00	6,638.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,000.00	0.00	0.00	6,738.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,100.00	0.00	0.00	6,838.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,200.00	0.00	0.00	6,938.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,300.00	0.00	0.00	7,038.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,400.00	0.00	0.00	7,138.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,496.73	0.00	0.00	7,235.00	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
NIOBRARA									
7,500.00	0.00	0.00	7,238.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,600.00	0.00	0.00	7,338.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,700.00	0.00	0.00	7,438.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,753.73	0.00	0.00	7,492.00	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
CODELL									
7,800.00	0.00	0.00	7,538.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
7,836.73	0.00	0.00	7,575.00	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
GREENHORN									
7,900.00	0.00	0.00	7,638.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
8,000.00	0.00	0.00	7,738.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
8,100.00	0.00	0.00	7,838.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
8,193.73	0.00	0.00	7,932.00	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
J-SAND									
8,200.00	0.00	0.00	7,938.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
8,300.00	0.00	0.00	8,038.28	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
8,343.73	0.00	0.00	8,082.00	357.90	-1,652.22	1,690.54	0.00	0.00	0.00
PBHL_STREAR 31-10									

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Well:	STREAR 31-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	STREAR 31-10(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)

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 31-10	0.00	0.00	8,082.00	357.90	-1,652.22	1,300,439.99	3,171,699.60	40° 9' 23.292 N	104° 53' 8.552 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 (°)	
4,469.48	4,282.00	PARKMAN				
4,585.62	4,392.00	SUSSEX				
7,496.73	7,235.00	NIOBRARA				
7,753.73	7,492.00	CODELL				
7,836.73	7,575.00	GREENHORN				
8,193.73	7,932.00	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
1,235.61	1,219.07	32.06	-147.99	Start 4325.50 hold at 1235.61 MD
5,561.12	5,315.93	325.84	-1,504.23	Start Drop -2.00
6,496.73	6,235.00	357.90	-1,652.22	Start 1847.00 hold at 6496.72 MD
8,343.73	8,082.00	357.90	-1,652.22	TD at 8343.72