

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-66W-23 HENDU 1-23HZ PAD  
HENDU 23-13HZ**

## **Plan A**

### **Plan: Permit Rev-1**

SHL Lat/Long: 40.130222/-104.736431  
Survey Program: MWD+IFR

## **Standard Planning Report**

**09 November, 2017**

Project: WELD-NAD83-UTMFT13N  
Site: 2N-66W-23 HENDU 1-23HZ PAD  
Well: HENDU 23-13HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Size
1500.00	1506.33	9-5/8
7539.00	7916.32	5-1/2

WELL DETAILS: HENDU 23-13HZ  
GL = 5100'  
RKB = 17' @ 5117.00usft (Drilling Rig)

## SECTION DETAILS

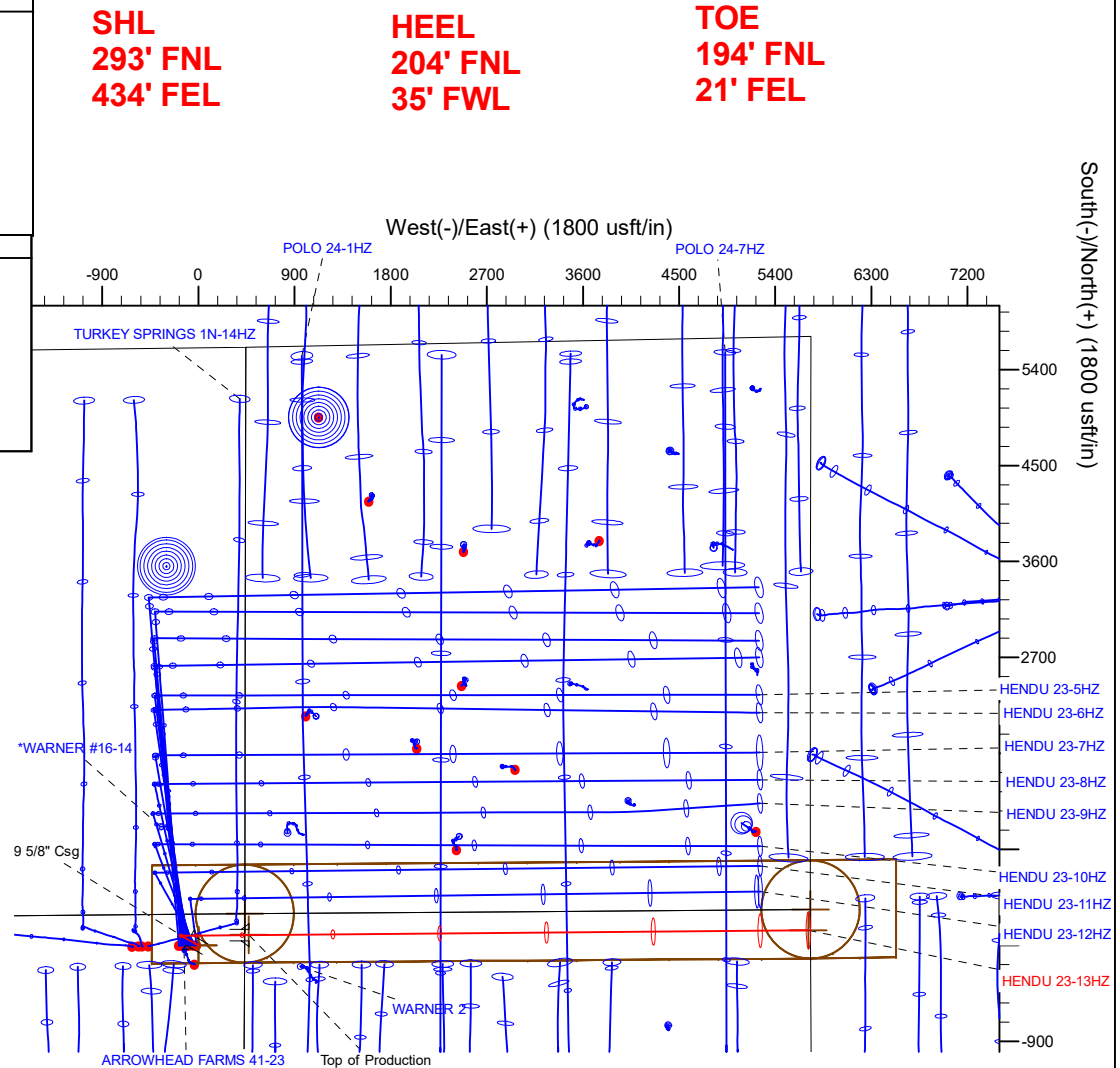
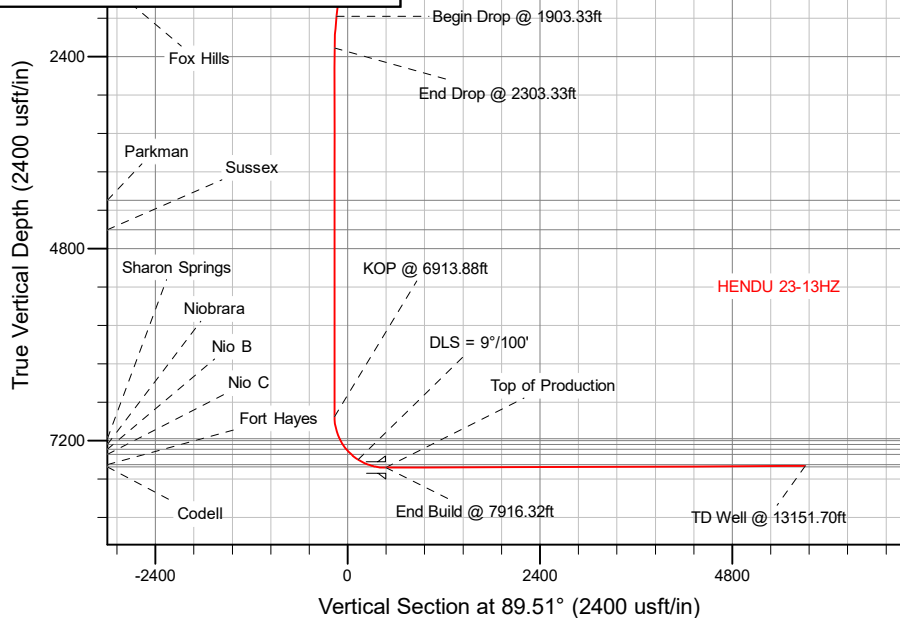
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	1033.33	8.00	299.00	1031.60	18.02	-32.51	1.50	299.00	-32.36	
4	1903.33	8.00	299.00	1893.14	76.72	-138.41	0.00	0.00	-137.75	
5	2303.33	0.00	0.00	2291.84	90.24	-162.80	2.00	180.00	-162.02	
6	6913.88	0.00	0.00	6902.39	90.24	-162.80	0.00	0.00	-162.02	
7	7916.32	90.22	89.51	7539.00	95.73	476.23	9.00	89.51	477.03	
8	13151.70	90.22	89.51	7519.00	140.75	5711.39	0.00	0.00	5712.38	HENDU 23-13HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HENDU 23-13HZ_SHL	0.00	0.00	0.00	40.130222	-104.736431
HENDU 23-13HZ_BHL	7519.00	140.75	5711.39	40.130607	-104.715998

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1487.00	1493.21	Fox Hills
4197.00	4208.50	Parkman
4565.00	4576.50	Sussex
7179.00	7200.04	Sharon Springs
7249.00	7280.41	Niobrara
7308.00	7353.65	Nio B
7372.00	7442.03	Nio C
7503.00	7698.75	Fort Hayes
7529.00	7800.86	Codell



Plan: Permit Rev-1 (HENDU 23-13HZ/Plan A)

Created By: \_\_\_\_\_ Date: 11/10/2017  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	2N-66W-23 HENDU 1-23HZ PAD		
Site Position:		Northing:	14,574,259.96 usft
From:	Lat/Long	Easting:	1,713,909.05 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Grid Convergence:	0.17 °

Well	HENDU 23-13HZ		
Well Position	+N/-S	1.82 usft	Northing:
	+E/-W	180.01 usft	Easting:
Position Uncertainty	3.28 usft	Wellhead Elevation:	Ground Level:
			5,100.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/2/2017	7.97	66.61	52,318.78323000

Design	Permit Rev-1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	89.51

Plan Survey Tool Program	Date	11/9/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II
				Fixed:v2:crustal field declination
2	1,500.00	13,151.70	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II
				Fixed:v2:crustal field declination

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,033.33	8.00	299.00	1,031.60	18.02	-32.51	1.50	1.50	0.00	299.00	
1,903.33	8.00	299.00	1,893.14	76.72	-138.41	0.00	0.00	0.00	0.00	
2,303.33	0.00	0.00	2,291.84	90.24	-162.80	2.00	-2.00	0.00	180.00	
6,913.88	0.00	0.00	6,902.39	90.24	-162.80	0.00	0.00	0.00	0.00	
7,916.32	90.22	89.51	7,539.00	95.73	476.23	9.00	9.00	8.93	89.51	
13,151.70	90.22	89.51	7,519.00	140.75	5,711.39	0.00	0.00	0.00	0.00	HENDU 23-13HZ_BH

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
Begin Nudge @ 500.00ft										
600.00	1.50	299.00	599.99	0.63	-1.14	-1.14	1.50	1.50	0.00	
700.00	3.00	299.00	699.91	2.54	-4.58	-4.56	1.50	1.50	0.00	
800.00	4.50	299.00	799.69	5.71	-10.30	-10.25	1.50	1.50	0.00	
900.00	6.00	299.00	899.27	10.14	-18.30	-18.21	1.50	1.50	0.00	
1,000.00	7.50	299.00	998.57	15.84	-28.58	-28.44	1.50	1.50	0.00	
1,033.33	8.00	299.00	1,031.60	18.02	-32.51	-32.36	1.50	1.50	0.00	
End Nudge @ 1033.33ft										
1,100.00	8.00	299.00	1,097.62	22.52	-40.63	-40.43	0.00	0.00	0.00	
1,200.00	8.00	299.00	1,196.65	29.27	-52.80	-52.55	0.00	0.00	0.00	
1,300.00	8.00	299.00	1,295.67	36.01	-64.97	-64.66	0.00	0.00	0.00	
1,400.00	8.00	299.00	1,394.70	42.76	-77.14	-76.78	0.00	0.00	0.00	
1,493.21	8.00	299.00	1,487.00	49.05	-88.49	-88.07	0.00	0.00	0.00	
Fox Hills										
1,500.00	8.00	299.00	1,493.73	49.51	-89.32	-88.89	0.00	0.00	0.00	
1,506.33	8.00	299.00	1,500.00	49.94	-90.09	-89.66	0.00	0.00	0.00	
9 5/8" Csg										
1,600.00	8.00	299.00	1,592.75	56.26	-101.49	-101.00	0.00	0.00	0.00	
1,700.00	8.00	299.00	1,691.78	63.00	-113.66	-113.12	0.00	0.00	0.00	
1,800.00	8.00	299.00	1,790.81	69.75	-125.83	-125.23	0.00	0.00	0.00	
1,900.00	8.00	299.00	1,889.83	76.50	-138.01	-137.35	0.00	0.00	0.00	
1,903.33	8.00	299.00	1,893.14	76.72	-138.41	-137.75	0.00	0.00	0.00	
Begin Drop @ 1903.33ft										
2,000.00	6.07	299.00	1,989.07	82.46	-148.76	-148.05	2.00	-2.00	0.00	
2,100.00	4.07	299.00	2,088.67	86.74	-156.49	-155.74	2.00	-2.00	0.00	
2,200.00	2.07	299.00	2,188.53	89.34	-161.17	-160.40	2.00	-2.00	0.00	
2,300.00	0.07	299.00	2,288.50	90.24	-162.79	-162.02	2.00	-2.00	0.00	
2,303.33	0.00	0.00	2,291.84	90.24	-162.80	-162.02	2.00	-2.00	0.00	
End Drop @ 2303.33ft										
2,400.00	0.00	0.00	2,388.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,488.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
2,600.00	0.00	0.00	2,588.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
2,700.00	0.00	0.00	2,688.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
2,800.00	0.00	0.00	2,788.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
2,900.00	0.00	0.00	2,888.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,000.00	0.00	0.00	2,988.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,088.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,200.00	0.00	0.00	3,188.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,288.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,400.00	0.00	0.00	3,388.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,488.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,588.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,688.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,788.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,888.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,988.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,100.00	0.00	0.00	4,088.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,188.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,208.50	0.00	0.00	4,197.00	90.24	-162.80	-162.02	0.00	0.00	0.00	
Parkman										
4,300.00	0.00	0.00	4,288.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,388.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,488.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,576.50	0.00	0.00	4,565.00	90.24	-162.80	-162.02	0.00	0.00	0.00	
Sussex										
4,600.00	0.00	0.00	4,588.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,688.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,788.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,888.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,988.50	90.24	-162.80	-162.02	0.00	0.00	0.00	

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,100.00	0.00	0.00	5,088.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,188.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,288.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,388.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,488.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,588.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,688.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,788.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,888.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,988.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,088.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,188.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,288.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,388.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,488.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,588.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,688.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,788.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,888.50	90.24	-162.80	-162.02	0.00	0.00	0.00	
6,913.88	0.00	0.00	6,902.39	90.24	-162.80	-162.02	0.00	0.00	0.00	
KOP @ 6913.88ft										
7,000.00	7.75	89.51	6,988.24	90.29	-156.98	-156.20	9.00	9.00	0.00	
7,100.00	16.75	89.51	7,085.86	90.47	-135.78	-135.01	9.00	9.00	0.00	
7,200.00	25.75	89.51	7,178.97	90.78	-99.58	-98.80	9.00	9.00	0.00	
7,200.04	25.75	89.51	7,179.00	90.78	-99.56	-98.78	0.00	0.00	0.00	
Sharon Springs										
7,280.41	32.99	89.51	7,249.00	91.12	-60.17	-59.39	9.00	9.00	0.00	
Niobrara										
7,300.00	34.75	89.51	7,265.26	91.22	-49.25	-48.47	9.00	9.00	0.00	
7,353.65	39.58	89.51	7,308.00	91.49	-16.86	-16.07	9.00	9.00	0.00	
Nio B										
7,400.00	43.75	89.51	7,342.62	91.76	13.95	14.73	9.00	9.00	0.00	
7,442.03	47.53	89.51	7,372.00	92.02	43.99	44.78	9.00	9.00	0.00	
Nio C										
7,500.00	52.75	89.51	7,409.14	92.40	88.48	89.26	9.00	9.00	0.00	
7,550.00	57.25	89.51	7,437.81	92.75	129.42	130.21	9.00	9.00	0.00	
DLS = 9°/100'										
7,600.00	61.75	89.51	7,463.18	93.12	172.49	173.28	9.00	9.00	0.00	
7,698.75	70.64	89.51	7,503.00	93.90	262.74	263.54	9.00	9.00	0.00	
Fort Hayes										
7,700.00	70.75	89.51	7,503.41	93.91	263.93	264.72	9.00	9.00	0.00	
7,800.00	79.75	89.51	7,528.85	94.74	360.53	361.32	9.00	9.00	0.00	
7,800.86	79.83	89.51	7,529.00	94.75	361.37	362.17	9.00	9.00	0.00	
Codell										
7,900.00	88.75	89.51	7,538.86	95.59	459.92	460.72	9.00	9.00	0.00	
7,916.32	90.22	89.51	7,539.00	95.73	476.24	477.04	9.00	9.00	0.00	
End Build @ 7916.32ft - Top of Production										
8,000.00	90.22	89.51	7,538.68	96.45	559.91	560.72	0.00	0.00	0.00	
8,100.00	90.22	89.51	7,538.30	97.31	659.91	660.72	0.00	0.00	0.00	
8,200.00	90.22	89.51	7,537.92	98.17	759.90	760.72	0.00	0.00	0.00	
8,300.00	90.22	89.51	7,537.54	99.03	859.90	860.72	0.00	0.00	0.00	
8,400.00	90.22	89.51	7,537.15	99.89	959.90	960.71	0.00	0.00	0.00	
8,500.00	90.22	89.51	7,536.77	100.75	1,059.89	1,060.71	0.00	0.00	0.00	
8,600.00	90.22	89.51	7,536.39	101.61	1,159.89	1,160.71	0.00	0.00	0.00	
8,700.00	90.22	89.51	7,536.01	102.47	1,259.88	1,260.71	0.00	0.00	0.00	
8,800.00	90.22	89.51	7,535.63	103.33	1,359.88	1,360.71	0.00	0.00	0.00	
8,900.00	90.22	89.51	7,535.24	104.19	1,459.87	1,460.71	0.00	0.00	0.00	
9,000.00	90.22	89.51	7,534.86	105.05	1,559.87	1,560.71	0.00	0.00	0.00	
9,100.00	90.22	89.51	7,534.48	105.91	1,659.86	1,660.71	0.00	0.00	0.00	
9,200.00	90.22	89.51	7,534.10	106.77	1,759.86	1,760.71	0.00	0.00	0.00	
9,300.00	90.22	89.51	7,533.72	107.63	1,859.86	1,860.71	0.00	0.00	0.00	
9,400.00	90.22	89.51	7,533.33	108.49	1,959.85	1,960.71	0.00	0.00	0.00	
9,500.00	90.22	89.51	7,532.95	109.35	2,059.85	2,060.71	0.00	0.00	0.00	
9,600.00	90.22	89.51	7,532.57	110.21	2,159.84	2,160.71	0.00	0.00	0.00	
9,700.00	90.22	89.51	7,532.19	111.07	2,259.84	2,260.70	0.00	0.00	0.00	
9,800.00	90.22	89.51	7,531.81	111.93	2,359.83	2,360.70	0.00	0.00	0.00	

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,900.00	90.22	89.51	7,531.42	112.79	2,459.83	2,460.70	0.00	0.00	0.00
10,000.00	90.22	89.51	7,531.04	113.65	2,559.82	2,560.70	0.00	0.00	0.00
10,100.00	90.22	89.51	7,530.66	114.51	2,659.82	2,660.70	0.00	0.00	0.00
10,200.00	90.22	89.51	7,530.28	115.37	2,759.82	2,760.70	0.00	0.00	0.00
10,300.00	90.22	89.51	7,529.90	116.23	2,859.81	2,860.70	0.00	0.00	0.00
10,400.00	90.22	89.51	7,529.51	117.09	2,959.81	2,960.70	0.00	0.00	0.00
10,500.00	90.22	89.51	7,529.13	117.95	3,059.80	3,060.70	0.00	0.00	0.00
10,600.00	90.22	89.51	7,528.75	118.81	3,159.80	3,160.70	0.00	0.00	0.00
10,700.00	90.22	89.51	7,528.37	119.67	3,259.79	3,260.70	0.00	0.00	0.00
10,800.00	90.22	89.51	7,527.98	120.53	3,359.79	3,360.70	0.00	0.00	0.00
10,900.00	90.22	89.51	7,527.60	121.39	3,459.78	3,460.70	0.00	0.00	0.00
11,000.00	90.22	89.51	7,527.22	122.25	3,559.78	3,560.70	0.00	0.00	0.00
11,100.00	90.22	89.51	7,526.84	123.11	3,659.78	3,660.69	0.00	0.00	0.00
11,200.00	90.22	89.51	7,526.46	123.97	3,759.77	3,760.69	0.00	0.00	0.00
11,300.00	90.22	89.51	7,526.07	124.83	3,859.77	3,860.69	0.00	0.00	0.00
11,400.00	90.22	89.51	7,525.69	125.69	3,959.76	3,960.69	0.00	0.00	0.00
11,500.00	90.22	89.51	7,525.31	126.55	4,059.76	4,060.69	0.00	0.00	0.00
11,600.00	90.22	89.51	7,524.93	127.41	4,159.75	4,160.69	0.00	0.00	0.00
11,700.00	90.22	89.51	7,524.55	128.27	4,259.75	4,260.69	0.00	0.00	0.00
11,800.00	90.22	89.51	7,524.16	129.13	4,359.74	4,360.69	0.00	0.00	0.00
11,900.00	90.22	89.51	7,523.78	129.99	4,459.74	4,460.69	0.00	0.00	0.00
12,000.00	90.22	89.51	7,523.40	130.85	4,559.74	4,560.69	0.00	0.00	0.00
12,100.00	90.22	89.51	7,523.02	131.70	4,659.73	4,660.69	0.00	0.00	0.00
12,200.00	90.22	89.51	7,522.64	132.56	4,759.73	4,760.69	0.00	0.00	0.00
12,300.00	90.22	89.51	7,522.25	133.42	4,859.72	4,860.69	0.00	0.00	0.00
12,400.00	90.22	89.51	7,521.87	134.28	4,959.72	4,960.69	0.00	0.00	0.00
12,500.00	90.22	89.51	7,521.49	135.14	5,059.71	5,060.68	0.00	0.00	0.00
12,600.00	90.22	89.51	7,521.11	136.00	5,159.71	5,160.68	0.00	0.00	0.00
12,700.00	90.22	89.51	7,520.73	136.86	5,259.70	5,260.68	0.00	0.00	0.00
12,800.00	90.22	89.51	7,520.34	137.72	5,359.70	5,360.68	0.00	0.00	0.00
12,900.00	90.22	89.51	7,519.96	138.58	5,459.70	5,460.68	0.00	0.00	0.00
13,000.00	90.22	89.51	7,519.58	139.44	5,559.69	5,560.68	0.00	0.00	0.00
13,100.00	90.22	89.51	7,519.20	140.30	5,659.69	5,660.68	0.00	0.00	0.00
13,151.70	90.22	89.51	7,519.00	140.75	5,711.38	5,712.38	0.00	0.00	0.00
TD Well @ 13151.70ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,506.33	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,916.32	7,539.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,493.21	1,487.00	Fox Hills				
4,208.50	4,197.00	Parkman				
4,576.50	4,565.00	Sussex				
7,200.04	7,179.00	Sharon Springs				
7,280.41	7,249.00	Niobrara				
7,353.65	7,308.00	Nio B				
7,442.03	7,372.00	Nio C				
7,698.75	7,503.00	Fort Hayes				
7,800.86	7,529.00	Codell				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Begin Nudge @ 500.00ft
1,033.33	1,031.60	18.02	-32.51	End Nudge @ 1033.33ft
1,903.33	1,893.14	76.72	-138.41	Begin Drop @ 1903.33ft
2,303.33	2,291.84	90.24	-162.80	End Drop @ 2303.33ft
6,913.88	6,902.39	90.24	-162.80	KOP @ 6913.88ft
7,550.00	7,437.81	92.75	129.42	DLS = 9°/100'
7,916.32	7,539.00	95.73	476.24	End Build @ 7916.32ft
13,151.70	7,519.00	140.75	5,711.38	TD Well @ 13151.70ft