

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
1N-68W-15 CLELAND 11-15HZ PAD  
CLELAND 15-5HZ**

## **Plan A**

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

SHL Lat/Long: 40.048785/-104.991974  
Survey Program: MWD+IFR+MSA

## **Standard Planning Report**

**08 March, 2019**

Project: WELD-NAD83-UTMFT13N  
Site: 1N-68W-15 CLELAND 11-15HZ PAD  
Well: CLELAND 15-5HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Size
1500.00	1512.93	9-5/8
7684.99	8155.30	5-1/2

WELL DETAILS: CLELAND 15-5HZ

GL = 5151'

RKB = 17' @ 5168.00usft (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	380.00	0.00	0.00	380.00	0.00	0.00	0.00	0.00	0.00	
3	1170.00	11.85	172.90	1164.38	-80.78	10.06	1.50	172.90	80.81	
4	3970.00	11.85	172.90	3904.71	-651.35	81.13	0.00	0.00	651.62	
5	4562.50	0.00	0.00	4492.99	-711.94	88.68	2.00	-180.00	712.23	
6	7038.35	0.00	0.00	6968.84	-711.94	88.68	0.00	0.00	712.23	
7	8155.30	89.36	179.81	7684.99	-1420.08	91.05	8.00	179.81	1420.37	
8	18923.21	89.36	179.81	7806.00	-12187.25	127.14	0.00	0.00	12187.60	CLELAND 15-5HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
CLELAND 15-5HZ_SHL	0.00	0.00	0.00	40.048785	-104.991974
CLELAND 15-5HZ_BHL	7806.00	-12187.25	127.14	40.015317	-104.991520

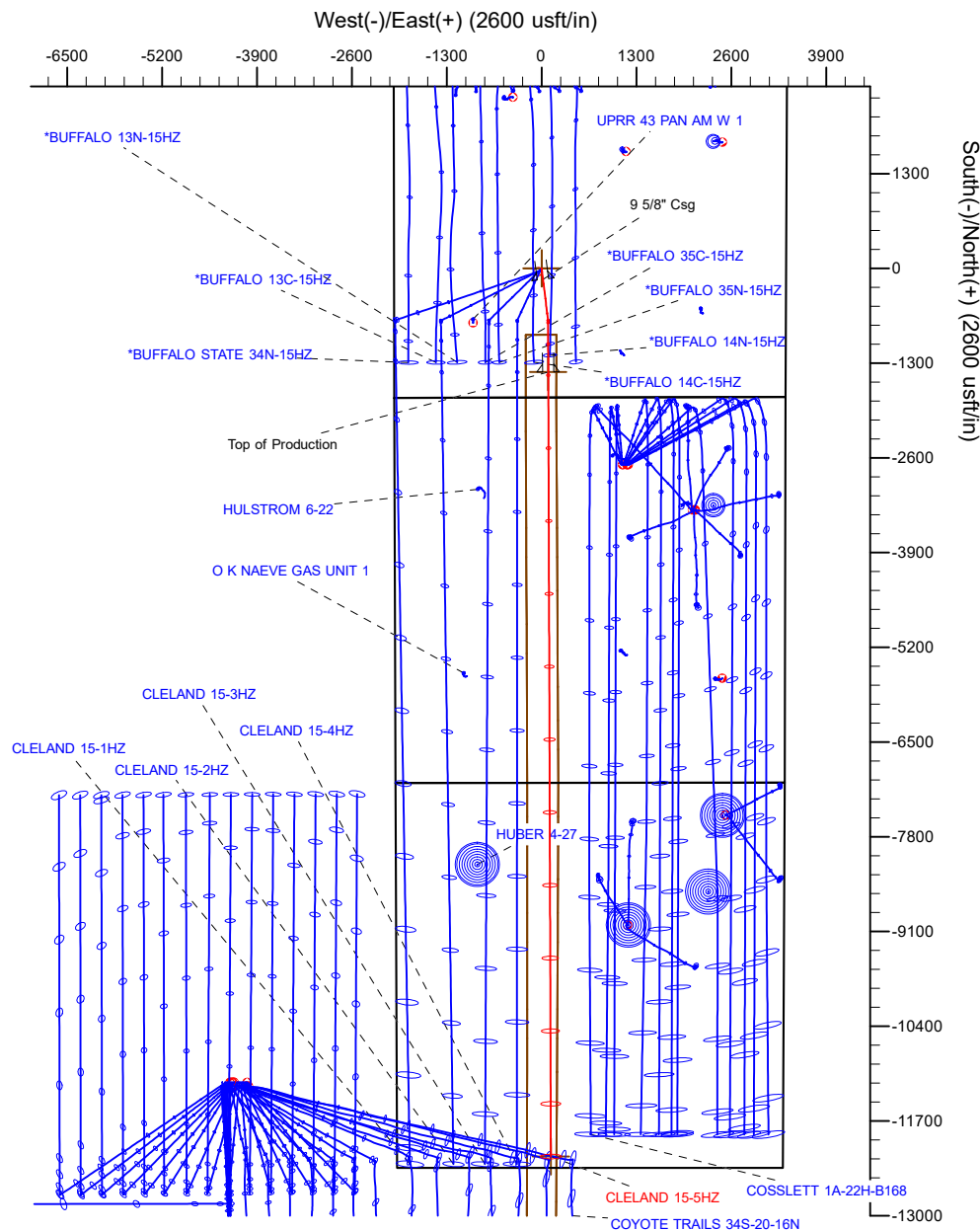
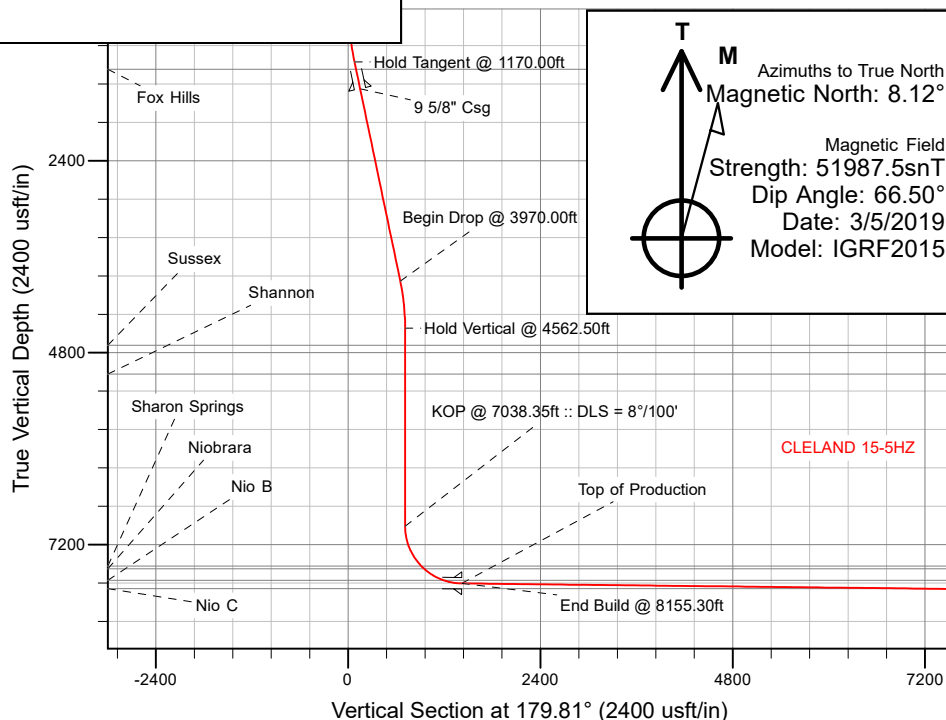
## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1254.00	1261.57	Fox Hills
4707.00	4776.51	Sussex
5066.00	5135.51	Shannon
7468.00	7590.64	Sharon Springs
7502.00	7639.72	Niobrara
7645.00	7922.73	Nio B
7749.00	13850.94	Nio C

**SHL**  
**1771' FSL**  
**2021' FWL**

**HEEL**  
**350' FSL**  
**2109' FWL**

**TOE**  
**155' FSL**  
**2109' FWL**



Plan: Permit Rev-1 (CLELAND 15-5HZ/Plan A)

Created By: \_\_\_\_\_ Date: 3/8/2019  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CLELAND 15-5HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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

Site		1N-68W-15 CLELAND 11-15HZ PAD			
Site Position:		Northing:	14,544,455.99 usft	Latitude:	40.048669
From:	Lat/Long	Easting:	1,642,620.22 usft	Longitude:	-104.992126
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.01 °

Well	CLELAND 15-5HZ					
Well Position	+N/-S	42.24 usft	Northing:	14,544,498.24 usft	Latitude:	40.048785
	+E/-W	42.54 usft	Easting:	1,642,662.75 usft	Longitude:	-104.991974
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,151.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	3/5/2019	8.12	66.50	51,987.54365357

<b>Design</b>	Permit Rev-1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	179.81

<b>Plan Survey Tool Program</b>	<b>Date</b>	3/8/2019		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	18,923.21	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate  
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-5HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5168.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5168.00usft (Drilling Rig)
Site:	1N-68W-15 CLELAND 11-15HZ PAD	North Reference:	True
Well:	CLELAND 15-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	
380.00	0.00	0.00	380.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,170.00	11.85	172.90	1,164.38	-80.78	10.06	1.50	1.50	0.00	172.90	
3,970.00	11.85	172.90	3,904.71	-651.35	81.13	0.00	0.00	0.00	0.00	
4,562.50	0.00	0.00	4,492.99	-711.94	88.68	2.00	-2.00	-29.18	-180.00	
7,038.35	0.00	0.00	6,968.84	-711.94	88.68	0.00	0.00	0.00	0.00	
8,155.30	89.36	179.81	7,685.00	-1,420.08	91.05	8.00	8.00	16.10	179.81	
18,923.21	89.36	179.81	7,806.00	-12,187.25	127.14	0.00	0.00	0.00	0.00	CLELAND 15-5HZ_BI

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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
380.00	0.00	0.00	380.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 380.00ft									
400.00	0.30	172.90	400.00	-0.05	0.01	0.05	1.50	1.50	0.00
500.00	1.80	172.90	499.98	-1.87	0.23	1.87	1.50	1.50	0.00
600.00	3.30	172.90	599.88	-6.29	0.78	6.29	1.50	1.50	0.00
700.00	4.80	172.90	699.63	-13.29	1.66	13.30	1.50	1.50	0.00
800.00	6.30	172.90	799.15	-22.89	2.85	22.90	1.50	1.50	0.00
900.00	7.80	172.90	898.40	-35.07	4.37	35.08	1.50	1.50	0.00
1,000.00	9.30	172.90	997.28	-49.82	6.21	49.84	1.50	1.50	0.00
1,100.00	10.80	172.90	1,095.74	-67.14	8.36	67.17	1.50	1.50	0.00
1,170.00	11.85	172.90	1,164.38	-80.78	10.06	80.81	1.50	1.50	0.00
Hold Tangent @ 1170.00ft									
1,200.00	11.85	172.90	1,193.74	-86.89	10.82	86.93	0.00	0.00	0.00
1,261.57	11.85	172.90	1,254.00	-99.44	12.39	99.48	0.00	0.00	0.00
Fox Hills									
1,300.00	11.85	172.90	1,291.61	-107.27	13.36	107.31	0.00	0.00	0.00
1,400.00	11.85	172.90	1,389.48	-127.65	15.90	127.70	0.00	0.00	0.00
1,500.00	11.85	172.90	1,487.35	-148.03	18.44	148.09	0.00	0.00	0.00
1,512.93	11.85	172.90	1,500.00	-150.66	18.77	150.72	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	11.85	172.90	1,585.22	-168.40	20.98	168.47	0.00	0.00	0.00
1,700.00	11.85	172.90	1,683.08	-188.78	23.51	188.86	0.00	0.00	0.00
1,800.00	11.85	172.90	1,780.95	-209.16	26.05	209.24	0.00	0.00	0.00
1,900.00	11.85	172.90	1,878.82	-229.54	28.59	229.63	0.00	0.00	0.00
2,000.00	11.85	172.90	1,976.69	-249.91	31.13	250.02	0.00	0.00	0.00
2,100.00	11.85	172.90	2,074.56	-270.29	33.67	270.40	0.00	0.00	0.00
2,200.00	11.85	172.90	2,172.43	-290.67	36.20	290.79	0.00	0.00	0.00
2,300.00	11.85	172.90	2,270.30	-311.05	38.74	311.17	0.00	0.00	0.00
2,400.00	11.85	172.90	2,368.17	-331.42	41.28	331.56	0.00	0.00	0.00
2,500.00	11.85	172.90	2,466.04	-351.80	43.82	351.94	0.00	0.00	0.00
2,600.00	11.85	172.90	2,563.90	-372.18	46.36	372.33	0.00	0.00	0.00
2,700.00	11.85	172.90	2,661.77	-392.56	48.90	392.72	0.00	0.00	0.00
2,800.00	11.85	172.90	2,759.64	-412.93	51.43	413.10	0.00	0.00	0.00
2,900.00	11.85	172.90	2,857.51	-433.31	53.97	433.49	0.00	0.00	0.00
3,000.00	11.85	172.90	2,955.38	-453.69	56.51	453.87	0.00	0.00	0.00
3,100.00	11.85	172.90	3,053.25	-474.07	59.05	474.26	0.00	0.00	0.00
3,200.00	11.85	172.90	3,151.12	-494.44	61.59	494.65	0.00	0.00	0.00
3,300.00	11.85	172.90	3,248.99	-514.82	64.12	515.03	0.00	0.00	0.00
3,400.00	11.85	172.90	3,346.86	-535.20	66.66	535.42	0.00	0.00	0.00
3,500.00	11.85	172.90	3,444.72	-555.58	69.20	555.80	0.00	0.00	0.00
3,600.00	11.85	172.90	3,542.59	-575.95	71.74	576.19	0.00	0.00	0.00
3,700.00	11.85	172.90	3,640.46	-596.33	74.28	596.57	0.00	0.00	0.00
3,800.00	11.85	172.90	3,738.33	-616.71	76.82	616.96	0.00	0.00	0.00
3,900.00	11.85	172.90	3,836.20	-637.09	79.35	637.35	0.00	0.00	0.00
3,970.00	11.85	172.90	3,904.71	-651.35	81.13	651.62	0.00	0.00	0.00
Begin Drop @ 3970.00ft									
4,000.00	11.25	172.90	3,934.10	-657.31	81.87	657.58	2.00	-2.00	0.00
4,100.00	9.25	172.90	4,032.50	-674.97	84.07	675.24	2.00	-2.00	0.00
4,200.00	7.25	172.90	4,131.46	-689.21	85.85	689.49	2.00	-2.00	0.00
4,300.00	5.25	172.90	4,230.86	-700.01	87.19	700.30	2.00	-2.00	0.00

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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)
4,400.00	3.25	172.90	4,330.58	-707.36	88.11	707.65	2.00	-2.00	0.00
4,500.00	1.25	172.90	4,430.50	-711.26	88.59	711.55	2.00	-2.00	0.00
4,562.50	0.00	0.00	4,492.99	-711.94	88.68	712.23	2.00	-2.00	-276.64
<b>Hold Vertical @ 4562.50ft</b>									
4,600.00	0.00	0.00	4,530.49	-711.94	88.68	712.23	0.00	0.00	0.00
4,700.00	0.00	0.00	4,630.49	-711.94	88.68	712.23	0.00	0.00	0.00
4,776.51	0.00	0.00	4,707.00	-711.94	88.68	712.23	0.00	0.00	0.00
<b>Sussex</b>									
4,800.00	0.00	0.00	4,730.49	-711.94	88.68	712.23	0.00	0.00	0.00
4,900.00	0.00	0.00	4,830.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,000.00	0.00	0.00	4,930.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,100.00	0.00	0.00	5,030.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,135.51	0.00	0.00	5,066.00	-711.94	88.68	712.23	0.00	0.00	0.00
<b>Shannon</b>									
5,200.00	0.00	0.00	5,130.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,300.00	0.00	0.00	5,230.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,400.00	0.00	0.00	5,330.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,500.00	0.00	0.00	5,430.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,600.00	0.00	0.00	5,530.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,700.00	0.00	0.00	5,630.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,800.00	0.00	0.00	5,730.49	-711.94	88.68	712.23	0.00	0.00	0.00
5,900.00	0.00	0.00	5,830.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,000.00	0.00	0.00	5,930.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,030.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,130.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,230.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,330.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,430.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,530.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,630.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,730.49	-711.94	88.68	712.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,830.49	-711.94	88.68	712.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,930.49	-711.94	88.68	712.23	0.00	0.00	0.00
7,038.35	0.00	0.00	6,968.84	-711.94	88.68	712.23	0.00	0.00	0.00
<b>KOP @ 7038.35ft :: DLS = 8°/100'</b>									
7,100.00	4.93	179.81	7,030.42	-714.59	88.69	714.88	8.00	8.00	291.66
7,200.00	12.93	179.81	7,129.12	-730.10	88.74	730.39	8.00	8.00	0.00
7,300.00	20.93	179.81	7,224.71	-759.20	88.83	759.49	8.00	8.00	0.00
7,400.00	28.93	179.81	7,315.32	-801.32	88.98	801.61	8.00	8.00	0.00
7,500.00	36.93	179.81	7,399.18	-855.64	89.16	855.93	8.00	8.00	0.00
7,590.64	44.18	179.81	7,468.00	-914.54	89.36	914.83	8.00	8.00	0.00
<b>Sharon Springs</b>									
7,600.00	44.93	179.81	7,474.67	-921.10	89.38	921.39	8.00	8.00	0.00
7,639.72	48.11	179.81	7,502.00	-949.92	89.47	950.22	8.00	8.00	0.00
<b>Niobrara</b>									
7,700.00	52.93	179.81	7,540.31	-996.43	89.63	996.73	8.00	8.00	0.00
7,800.00	60.93	179.81	7,594.83	-1,080.17	89.91	1,080.46	8.00	8.00	0.00
7,900.00	68.93	179.81	7,637.17	-1,170.67	90.21	1,170.97	8.00	8.00	0.00
7,922.73	70.75	179.81	7,645.00	-1,192.02	90.29	1,192.31	8.00	8.00	0.00
<b>Nio B</b>									
8,000.00	76.93	179.81	7,666.49	-1,266.19	90.53	1,266.49	8.00	8.00	0.00
8,100.00	84.93	179.81	7,682.24	-1,364.86	90.86	1,365.16	8.00	8.00	0.00
8,155.30	89.36	179.81	7,685.00	-1,420.08	91.05	1,420.37	8.00	8.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CLELAND 15-5HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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)
End Build @ 8155.30ft - Top of Production									
8,200.00	89.36	179.81	7,685.50	-1,464.78	91.20	1,465.07	0.00	0.00	0.00
8,300.00	89.36	179.81	7,686.62	-1,564.77	91.53	1,565.06	0.00	0.00	0.00
8,400.00	89.36	179.81	7,687.74	-1,664.76	91.87	1,665.06	0.00	0.00	0.00
8,500.00	89.36	179.81	7,688.87	-1,764.76	92.21	1,765.05	0.00	0.00	0.00
8,600.00	89.36	179.81	7,689.99	-1,864.75	92.54	1,865.05	0.00	0.00	0.00
8,700.00	89.36	179.81	7,691.12	-1,964.74	92.88	1,965.04	0.00	0.00	0.00
8,800.00	89.36	179.81	7,692.24	-2,064.73	93.21	2,065.03	0.00	0.00	0.00
8,900.00	89.36	179.81	7,693.36	-2,164.73	93.55	2,165.03	0.00	0.00	0.00
9,000.00	89.36	179.81	7,694.49	-2,264.72	93.88	2,265.02	0.00	0.00	0.00
9,100.00	89.36	179.81	7,695.61	-2,364.71	94.22	2,365.01	0.00	0.00	0.00
9,200.00	89.36	179.81	7,696.73	-2,464.71	94.55	2,465.01	0.00	0.00	0.00
9,300.00	89.36	179.81	7,697.86	-2,564.70	94.89	2,565.00	0.00	0.00	0.00
9,400.00	89.36	179.81	7,698.98	-2,664.69	95.22	2,664.99	0.00	0.00	0.00
9,500.00	89.36	179.81	7,700.11	-2,764.69	95.56	2,764.99	0.00	0.00	0.00
9,600.00	89.36	179.81	7,701.23	-2,864.68	95.89	2,864.98	0.00	0.00	0.00
9,700.00	89.36	179.81	7,702.35	-2,964.67	96.23	2,964.98	0.00	0.00	0.00
9,800.00	89.36	179.81	7,703.48	-3,064.67	96.56	3,064.97	0.00	0.00	0.00
9,900.00	89.36	179.81	7,704.60	-3,164.66	96.90	3,164.96	0.00	0.00	0.00
10,000.00	89.36	179.81	7,705.73	-3,264.65	97.23	3,264.96	0.00	0.00	0.00
10,100.00	89.36	179.81	7,706.85	-3,364.65	97.57	3,364.95	0.00	0.00	0.00
10,200.00	89.36	179.81	7,707.97	-3,464.64	97.90	3,464.94	0.00	0.00	0.00
10,300.00	89.36	179.81	7,709.10	-3,564.63	98.24	3,564.94	0.00	0.00	0.00
10,400.00	89.36	179.81	7,710.22	-3,664.62	98.57	3,664.93	0.00	0.00	0.00
10,500.00	89.36	179.81	7,711.34	-3,764.62	98.91	3,764.93	0.00	0.00	0.00
10,600.00	89.36	179.81	7,712.47	-3,864.61	99.24	3,864.92	0.00	0.00	0.00
10,700.00	89.36	179.81	7,713.59	-3,964.60	99.58	3,964.91	0.00	0.00	0.00
10,800.00	89.36	179.81	7,714.72	-4,064.60	99.91	4,064.91	0.00	0.00	0.00
10,900.00	89.36	179.81	7,715.84	-4,164.59	100.25	4,164.90	0.00	0.00	0.00
11,000.00	89.36	179.81	7,716.96	-4,264.58	100.58	4,264.89	0.00	0.00	0.00
11,100.00	89.36	179.81	7,718.09	-4,364.58	100.92	4,364.89	0.00	0.00	0.00
11,200.00	89.36	179.81	7,719.21	-4,464.57	101.25	4,464.88	0.00	0.00	0.00
11,300.00	89.36	179.81	7,720.33	-4,564.56	101.59	4,564.87	0.00	0.00	0.00
11,400.00	89.36	179.81	7,721.46	-4,664.56	101.92	4,664.87	0.00	0.00	0.00
11,500.00	89.36	179.81	7,722.58	-4,764.55	102.26	4,764.86	0.00	0.00	0.00
11,600.00	89.36	179.81	7,723.71	-4,864.54	102.60	4,864.86	0.00	0.00	0.00
11,700.00	89.36	179.81	7,724.83	-4,964.54	102.93	4,964.85	0.00	0.00	0.00
11,800.00	89.36	179.81	7,725.95	-5,064.53	103.27	5,064.84	0.00	0.00	0.00
11,900.00	89.36	179.81	7,727.08	-5,164.52	103.60	5,164.84	0.00	0.00	0.00
12,000.00	89.36	179.81	7,728.20	-5,264.51	103.94	5,264.83	0.00	0.00	0.00
12,100.00	89.36	179.81	7,729.32	-5,364.51	104.27	5,364.82	0.00	0.00	0.00
12,200.00	89.36	179.81	7,730.45	-5,464.50	104.61	5,464.82	0.00	0.00	0.00
12,300.00	89.36	179.81	7,731.57	-5,564.49	104.94	5,564.81	0.00	0.00	0.00
12,400.00	89.36	179.81	7,732.70	-5,664.49	105.28	5,664.81	0.00	0.00	0.00
12,500.00	89.36	179.81	7,733.82	-5,764.48	105.61	5,764.80	0.00	0.00	0.00
12,600.00	89.36	179.81	7,734.94	-5,864.47	105.95	5,864.79	0.00	0.00	0.00
12,700.00	89.36	179.81	7,736.07	-5,964.47	106.28	5,964.79	0.00	0.00	0.00
12,800.00	89.36	179.81	7,737.19	-6,064.46	106.62	6,064.78	0.00	0.00	0.00
12,900.00	89.36	179.81	7,738.31	-6,164.45	106.95	6,164.77	0.00	0.00	0.00
13,000.00	89.36	179.81	7,739.44	-6,264.45	107.29	6,264.77	0.00	0.00	0.00
13,100.00	89.36	179.81	7,740.56	-6,364.44	107.62	6,364.76	0.00	0.00	0.00
13,200.00	89.36	179.81	7,741.69	-6,464.43	107.96	6,464.75	0.00	0.00	0.00
13,300.00	89.36	179.81	7,742.81	-6,564.43	108.29	6,564.75	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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)
13,400.00	89.36	179.81	7,743.93	-6,664.42	108.63	6,664.74	0.00	0.00	0.00
13,500.00	89.36	179.81	7,745.06	-6,764.41	108.96	6,764.74	0.00	0.00	0.00
13,600.00	89.36	179.81	7,746.18	-6,864.40	109.30	6,864.73	0.00	0.00	0.00
13,700.00	89.36	179.81	7,747.30	-6,964.40	109.63	6,964.72	0.00	0.00	0.00
13,800.00	89.36	179.81	7,748.43	-7,064.39	109.97	7,064.72	0.00	0.00	0.00
13,850.94	89.36	179.81	7,749.00	-7,115.32	110.14	7,115.65	0.00	0.00	0.00
Nio C									
13,900.00	89.36	179.81	7,749.55	-7,164.38	110.30	7,164.71	0.00	0.00	0.00
14,000.00	89.36	179.81	7,750.68	-7,264.38	110.64	7,264.70	0.00	0.00	0.00
14,100.00	89.36	179.81	7,751.80	-7,364.37	110.97	7,364.70	0.00	0.00	0.00
14,200.00	89.36	179.81	7,752.92	-7,464.36	111.31	7,464.69	0.00	0.00	0.00
14,300.00	89.36	179.81	7,754.05	-7,564.36	111.64	7,564.69	0.00	0.00	0.00
14,400.00	89.36	179.81	7,755.17	-7,664.35	111.98	7,664.68	0.00	0.00	0.00
14,500.00	89.36	179.81	7,756.29	-7,764.34	112.32	7,764.67	0.00	0.00	0.00
14,600.00	89.36	179.81	7,757.42	-7,864.34	112.65	7,864.67	0.00	0.00	0.00
14,700.00	89.36	179.81	7,758.54	-7,964.33	112.99	7,964.66	0.00	0.00	0.00
14,800.00	89.36	179.81	7,759.67	-8,064.32	113.32	8,064.65	0.00	0.00	0.00
14,900.00	89.36	179.81	7,760.79	-8,164.32	113.66	8,164.65	0.00	0.00	0.00
15,000.00	89.36	179.81	7,761.91	-8,264.31	113.99	8,264.64	0.00	0.00	0.00
15,100.00	89.36	179.81	7,763.04	-8,364.30	114.33	8,364.63	0.00	0.00	0.00
15,200.00	89.36	179.81	7,764.16	-8,464.29	114.66	8,464.63	0.00	0.00	0.00
15,300.00	89.36	179.81	7,765.28	-8,564.29	115.00	8,564.62	0.00	0.00	0.00
15,400.00	89.36	179.81	7,766.41	-8,664.28	115.33	8,664.62	0.00	0.00	0.00
15,500.00	89.36	179.81	7,767.53	-8,764.27	115.67	8,764.61	0.00	0.00	0.00
15,600.00	89.36	179.81	7,768.66	-8,864.27	116.00	8,864.60	0.00	0.00	0.00
15,700.00	89.36	179.81	7,769.78	-8,964.26	116.34	8,964.60	0.00	0.00	0.00
15,800.00	89.36	179.81	7,770.90	-9,064.25	116.67	9,064.59	0.00	0.00	0.00
15,900.00	89.36	179.81	7,772.03	-9,164.25	117.01	9,164.58	0.00	0.00	0.00
16,000.00	89.36	179.81	7,773.15	-9,264.24	117.34	9,264.58	0.00	0.00	0.00
16,100.00	89.36	179.81	7,774.27	-9,364.23	117.68	9,364.57	0.00	0.00	0.00
16,200.00	89.36	179.81	7,775.40	-9,464.23	118.01	9,464.57	0.00	0.00	0.00
16,300.00	89.36	179.81	7,776.52	-9,564.22	118.35	9,564.56	0.00	0.00	0.00
16,400.00	89.36	179.81	7,777.65	-9,664.21	118.68	9,664.55	0.00	0.00	0.00
16,500.00	89.36	179.81	7,778.77	-9,764.21	119.02	9,764.55	0.00	0.00	0.00
16,600.00	89.36	179.81	7,779.89	-9,864.20	119.35	9,864.54	0.00	0.00	0.00
16,700.00	89.36	179.81	7,781.02	-9,964.19	119.69	9,964.53	0.00	0.00	0.00
16,800.00	89.36	179.81	7,782.14	-10,064.18	120.02	10,064.53	0.00	0.00	0.00
16,900.00	89.36	179.81	7,783.26	-10,164.18	120.36	10,164.52	0.00	0.00	0.00
17,000.00	89.36	179.81	7,784.39	-10,264.17	120.69	10,264.51	0.00	0.00	0.00
17,100.00	89.36	179.81	7,785.51	-10,364.16	121.03	10,364.51	0.00	0.00	0.00
17,200.00	89.36	179.81	7,786.64	-10,464.16	121.36	10,464.50	0.00	0.00	0.00
17,300.00	89.36	179.81	7,787.76	-10,564.15	121.70	10,564.50	0.00	0.00	0.00
17,400.00	89.36	179.81	7,788.88	-10,664.14	122.03	10,664.49	0.00	0.00	0.00
17,500.00	89.36	179.81	7,790.01	-10,764.14	122.37	10,764.48	0.00	0.00	0.00
17,600.00	89.36	179.81	7,791.13	-10,864.13	122.71	10,864.48	0.00	0.00	0.00
17,700.00	89.36	179.81	7,792.25	-10,964.12	123.04	10,964.47	0.00	0.00	0.00
17,800.00	89.36	179.81	7,793.38	-11,064.12	123.38	11,064.46	0.00	0.00	0.00
17,900.00	89.36	179.81	7,794.50	-11,164.11	123.71	11,164.46	0.00	0.00	0.00
18,000.00	89.36	179.81	7,795.63	-11,264.10	124.05	11,264.45	0.00	0.00	0.00
18,100.00	89.36	179.81	7,796.75	-11,364.10	124.38	11,364.45	0.00	0.00	0.00
18,200.00	89.36	179.81	7,797.87	-11,464.09	124.72	11,464.44	0.00	0.00	0.00
18,300.00	89.36	179.81	7,799.00	-11,564.08	125.05	11,564.43	0.00	0.00	0.00
18,400.00	89.36	179.81	7,800.12	-11,664.07	125.39	11,664.43	0.00	0.00	0.00
18,500.00	89.36	179.81	7,801.24	-11,764.07	125.72	11,764.42	0.00	0.00	0.00



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CLELAND 15-5HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5168.00usft (Drilling Rig)
<b>Site:</b>	1N-68W-15 CLELAND 11-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CLELAND 15-5HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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)
18,600.00	89.36	179.81	7,802.37	-11,864.06	126.06	11,864.41	0.00	0.00	0.00
18,700.00	89.36	179.81	7,803.49	-11,964.05	126.39	11,964.41	0.00	0.00	0.00
18,800.00	89.36	179.81	7,804.62	-12,064.05	126.73	12,064.40	0.00	0.00	0.00
18,900.00	89.36	179.81	7,805.74	-12,164.04	127.06	12,164.40	0.00	0.00	0.00
18,923.21	89.36	179.81	7,806.00	-12,187.25	127.14	12,187.60	0.00	0.00	0.00
TD Well @ 18923.21ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,512.93	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,155.30	7,685.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,261.57	1,254.00	Fox Hills			
4,776.51	4,707.00	Sussex			
5,135.51	5,066.00	Shannon			
7,590.64	7,468.00	Sharon Springs			
7,639.72	7,502.00	Niobrara			
7,922.73	7,645.00	Nio B			
13,850.94	7,749.00	Nio C			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
380.00	380.00	0.00	0.00	Begin Nudge @ 380.00ft
1,170.00	1,164.38	-80.78	10.06	Hold Tangent @ 1170.00ft
3,970.00	3,904.71	-651.35	81.13	Begin Drop @ 3970.00ft
4,562.50	4,492.99	-711.94	88.68	Hold Vertical @ 4562.50ft
7,038.35	6,968.84	-711.94	88.68	KOP @ 7038.35ft :: DLS = 8°/100'
8,155.30	7,685.00	-1,420.08	91.05	End Build @ 8155.30ft
18,923.21	7,806.00	-12,187.25	127.14	TD Well @ 18923.21ft