

US ROCKIES WATTENBERG PLANNING

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

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.048669/-104.992126
Survey Program: MWD+IFR

Standard Planning Report

07 March, 2019

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

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1526.50	9-5/8
7901.00	8753.17	5-1/2

WELL DETAILS: CLELAND 15-1HZ

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	2053.33	27.80	251.20	1981.47	-142.08	-417.35	1.50	251.20	134.70	
4	4853.33	27.80	251.20	4458.29	-562.92	-1653.56	0.00	0.00	533.68	
5	6243.33	0.00	0.00	5794.39	-669.48	-1966.57	2.00	180.00	634.71	
6	7633.77	0.00	0.00	7184.83	-669.48	-1966.57	0.00	0.00	634.71	
7	8753.17	89.55	178.99	7901.00	-1379.96	-1954.04	8.00	178.99	1345.30	
8	19625.07	89.55	178.99	7986.00	-12249.84	-1762.30	0.00	0.00	12216.87	BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
CLELAND 15-1HZ_SHL	0.00	0.00	0.00	40.048669	-104.992126
CLELAND 15-1HZ_BHL	7986.00	-12249.84	-1762.30	40.015029	-104.998420

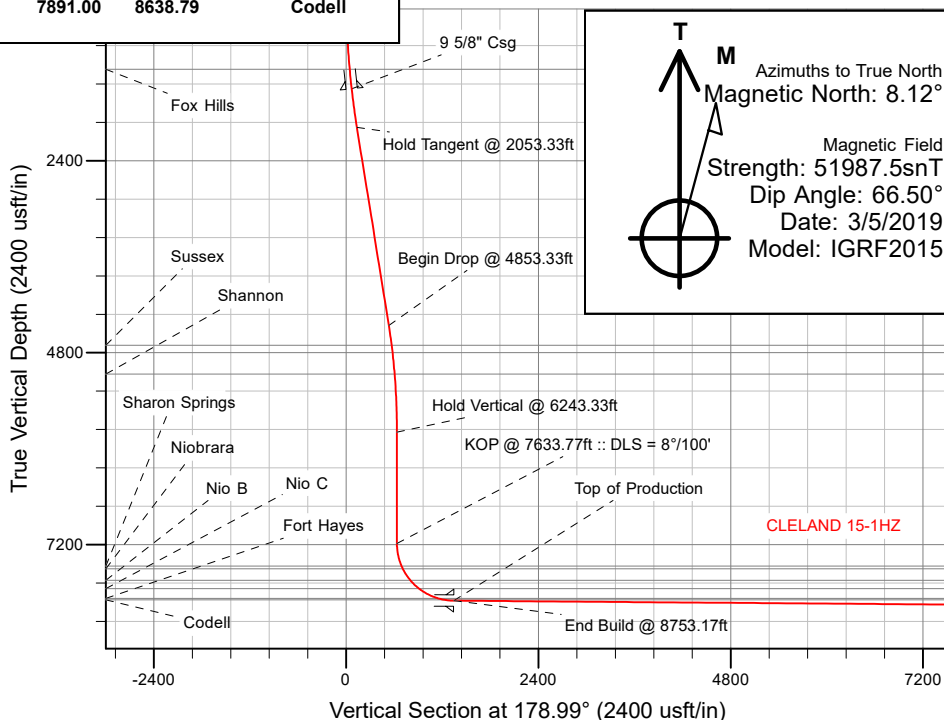
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1254.00	1267.86	Fox Hills
4707.00	5127.98	Sussex
5066.00	5506.86	Shannon
7468.00	7924.89	Sharon Springs
7502.00	7962.35	Niobrara
7645.00	8133.52	Nio B
7749.00	8283.45	Nio C
7872.00	8554.17	Fort Hayes
7891.00	8638.79	Codell

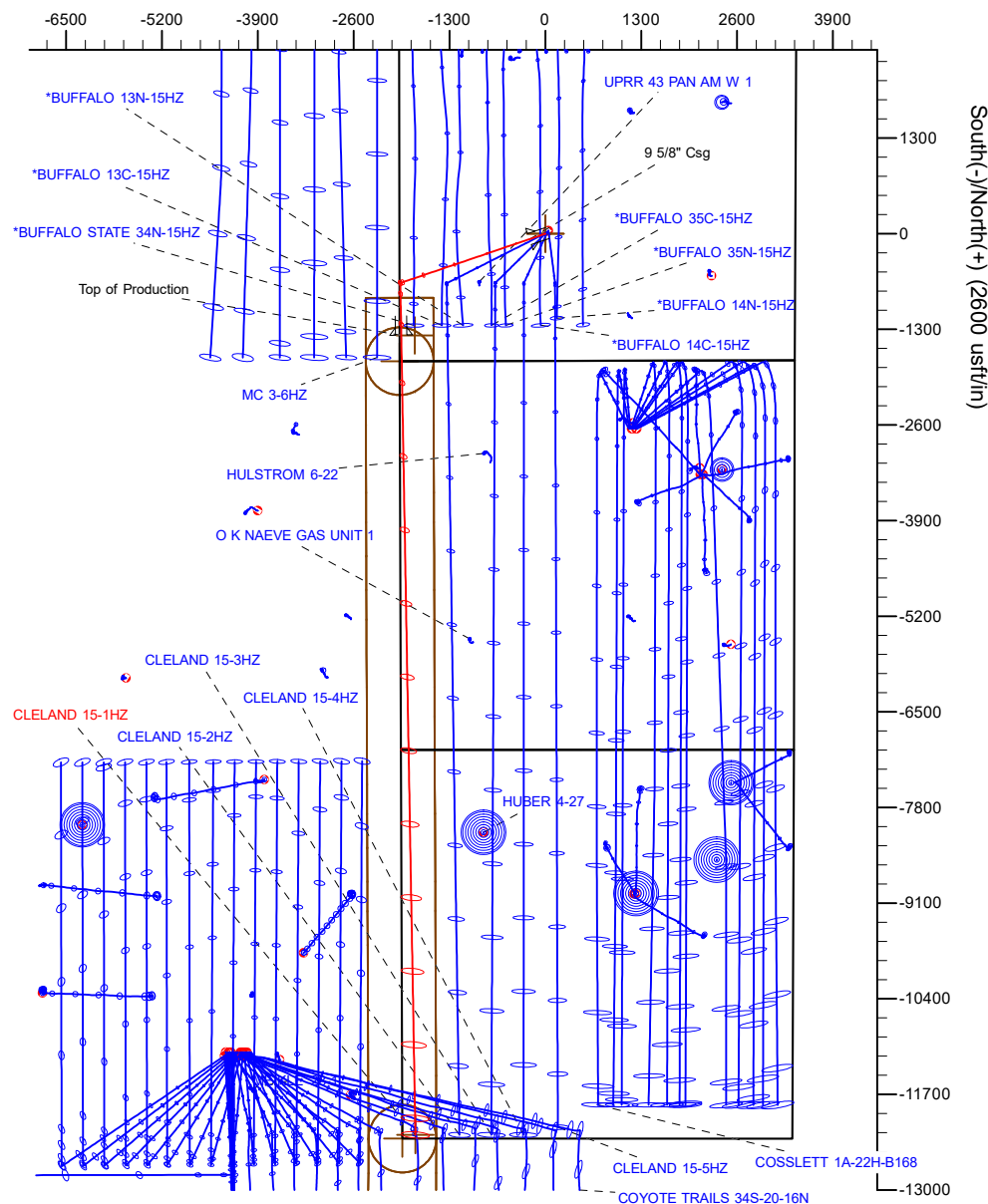
SHL
1729' FSL
1978' FWL

HEEL
350' FSL
27' FWL

TOE
50' FSL
176' FWL



West(-)/East(+) (2600 usft/in)



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

Created By: _____ Date: 3/8/2019
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-1HZ
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 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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		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 15-1HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,544,455.99 usft	Latitude:	40.048669
	+E/-W	0.00 usft	Easting:	1,642,620.22 usft	Longitude:	-104.992126
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,151.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/5/2019	8.12	66.50	51,987.46687008

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	178.99

Plan Survey Tool Program	Date	3/7/2019		
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+I Fixed:v2:crustal field declinatio
2	1,500.00	19,625.07	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio

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Well:	CLELAND 15-1HZ	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,053.33	27.80	251.20	1,981.47	-142.08	-417.35	1.50	1.50	0.00	251.20	
4,853.33	27.80	251.20	4,458.29	-562.92	-1,653.56	0.00	0.00	0.00	0.00	
6,243.33	0.00	0.00	5,794.39	-669.48	-1,966.57	2.00	-2.00	7.83	180.00	
7,633.77	0.00	0.00	7,184.83	-669.48	-1,966.57	0.00	0.00	0.00	0.00	
8,753.17	89.55	178.99	7,901.00	-1,379.96	-1,954.04	8.00	8.00	15.99	178.99	
19,625.07	89.55	178.99	7,986.00	-12,249.84	-1,762.30	0.00	0.00	0.00	0.00	CLELAND 15-1HZ_BI

Corporate Planning Report

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Well:	CLELAND 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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
Begin Nudge @ 200.00ft									
300.00	1.50	251.20	299.99	-0.42	-1.24	0.40	1.50	1.50	0.00
400.00	3.00	251.20	399.91	-1.69	-4.96	1.60	1.50	1.50	0.00
500.00	4.50	251.20	499.69	-3.79	-11.15	3.60	1.50	1.50	0.00
600.00	6.00	251.20	599.27	-6.74	-19.81	6.39	1.50	1.50	0.00
700.00	7.50	251.20	698.57	-10.53	-30.93	9.98	1.50	1.50	0.00
800.00	9.00	251.20	797.54	-15.16	-44.52	14.37	1.50	1.50	0.00
900.00	10.50	251.20	896.09	-20.61	-60.55	19.54	1.50	1.50	0.00
1,000.00	12.00	251.20	994.16	-26.90	-79.02	25.50	1.50	1.50	0.00
1,100.00	13.50	251.20	1,091.70	-34.01	-99.91	32.25	1.50	1.50	0.00
1,200.00	15.00	251.20	1,188.62	-41.94	-123.21	39.77	1.50	1.50	0.00
1,267.86	16.02	251.20	1,254.00	-47.79	-140.39	45.31	1.50	1.50	0.00
Fox Hills									
1,300.00	16.50	251.20	1,284.86	-50.69	-148.91	48.06	1.50	1.50	0.00
1,400.00	18.00	251.20	1,380.36	-60.25	-176.98	57.12	1.50	1.50	0.00
1,500.00	19.50	251.20	1,475.05	-70.61	-207.40	66.94	1.50	1.50	0.00
1,526.50	19.90	251.20	1,500.00	-73.49	-215.86	69.67	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	21.00	251.20	1,568.86	-81.76	-240.17	77.51	1.50	1.50	0.00
1,700.00	22.50	251.20	1,661.74	-93.70	-275.25	88.84	1.50	1.50	0.00
1,800.00	24.00	251.20	1,753.62	-106.42	-312.61	100.90	1.50	1.50	0.00
1,900.00	25.50	251.20	1,844.43	-119.91	-352.25	113.69	1.50	1.50	0.00
2,000.00	27.00	251.20	1,934.12	-134.17	-394.11	127.20	1.50	1.50	0.00
2,053.33	27.80	251.20	1,981.47	-142.08	-417.35	134.70	1.50	1.50	0.00
Hold Tangent @ 2053.33ft									
2,100.00	27.80	251.20	2,022.75	-149.09	-437.95	141.35	0.00	0.00	0.00
2,200.00	27.80	251.20	2,111.20	-164.12	-482.10	155.60	0.00	0.00	0.00
2,300.00	27.80	251.20	2,199.66	-179.15	-526.25	169.85	0.00	0.00	0.00
2,400.00	27.80	251.20	2,288.12	-194.18	-570.40	184.10	0.00	0.00	0.00
2,500.00	27.80	251.20	2,376.58	-209.21	-614.55	198.35	0.00	0.00	0.00
2,600.00	27.80	251.20	2,465.04	-224.24	-658.70	212.60	0.00	0.00	0.00
2,700.00	27.80	251.20	2,553.49	-239.27	-702.85	226.84	0.00	0.00	0.00
2,800.00	27.80	251.20	2,641.95	-254.30	-747.00	241.09	0.00	0.00	0.00
2,900.00	27.80	251.20	2,730.41	-269.33	-791.15	255.34	0.00	0.00	0.00
3,000.00	27.80	251.20	2,818.87	-284.36	-835.31	269.59	0.00	0.00	0.00
3,100.00	27.80	251.20	2,907.33	-299.39	-879.46	283.84	0.00	0.00	0.00
3,200.00	27.80	251.20	2,995.79	-314.42	-923.61	298.09	0.00	0.00	0.00
3,300.00	27.80	251.20	3,084.24	-329.45	-967.76	312.34	0.00	0.00	0.00
3,400.00	27.80	251.20	3,172.70	-344.48	-1,011.91	326.59	0.00	0.00	0.00
3,500.00	27.80	251.20	3,261.16	-359.51	-1,056.06	340.84	0.00	0.00	0.00
3,600.00	27.80	251.20	3,349.62	-374.54	-1,100.21	355.09	0.00	0.00	0.00
3,700.00	27.80	251.20	3,438.08	-389.57	-1,144.36	369.34	0.00	0.00	0.00
3,800.00	27.80	251.20	3,526.53	-404.60	-1,188.51	383.59	0.00	0.00	0.00
3,900.00	27.80	251.20	3,614.99	-419.63	-1,232.66	397.84	0.00	0.00	0.00
4,000.00	27.80	251.20	3,703.45	-434.66	-1,276.81	412.09	0.00	0.00	0.00
4,100.00	27.80	251.20	3,791.91	-449.69	-1,320.96	426.34	0.00	0.00	0.00
4,200.00	27.80	251.20	3,880.37	-464.72	-1,365.11	440.59	0.00	0.00	0.00
4,300.00	27.80	251.20	3,968.82	-479.75	-1,409.26	454.84	0.00	0.00	0.00
4,400.00	27.80	251.20	4,057.28	-494.78	-1,453.41	469.09	0.00	0.00	0.00
4,500.00	27.80	251.20	4,145.74	-509.81	-1,497.56	483.34	0.00	0.00	0.00
4,600.00	27.80	251.20	4,234.20	-524.84	-1,541.71	497.58	0.00	0.00	0.00

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Site:	1N-68W-15 CLELAND 11-15HZ PAD	North Reference:	True
Well:	CLELAND 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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)
4,700.00	27.80	251.20	4,322.66	-539.87	-1,585.86	511.83	0.00	0.00	0.00
4,800.00	27.80	251.20	4,411.11	-554.90	-1,630.01	526.08	0.00	0.00	0.00
4,853.33	27.80	251.20	4,458.29	-562.92	-1,653.56	533.68	0.00	0.00	0.00
Begin Drop @ 4853.33ft									
4,900.00	26.87	251.20	4,499.75	-569.82	-1,673.84	540.23	2.00	-2.00	0.00
5,000.00	24.87	251.20	4,589.73	-583.88	-1,715.14	553.56	2.00	-2.00	0.00
5,100.00	22.87	251.20	4,681.17	-596.92	-1,753.44	565.92	2.00	-2.00	0.00
5,127.98	22.31	251.20	4,707.00	-600.38	-1,763.62	569.20	2.00	-2.00	0.00
Sussex									
5,200.00	20.87	251.20	4,773.97	-608.92	-1,788.70	577.30	2.00	-2.00	0.00
5,300.00	18.87	251.20	4,868.01	-619.87	-1,820.87	587.68	2.00	-2.00	0.00
5,400.00	16.87	251.20	4,963.19	-629.76	-1,849.91	597.05	2.00	-2.00	0.00
5,500.00	14.87	251.20	5,059.37	-638.57	-1,875.79	605.41	2.00	-2.00	0.00
5,506.86	14.73	251.20	5,066.00	-639.14	-1,877.45	605.94	2.00	-2.00	0.00
Shannon									
5,600.00	12.87	251.20	5,156.45	-646.29	-1,898.48	612.73	2.00	-2.00	0.00
5,700.00	10.87	251.20	5,254.31	-652.92	-1,917.94	619.01	2.00	-2.00	0.00
5,800.00	8.87	251.20	5,352.83	-658.44	-1,934.16	624.25	2.00	-2.00	0.00
5,900.00	6.87	251.20	5,451.88	-662.85	-1,947.12	628.43	2.00	-2.00	0.00
6,000.00	4.87	251.20	5,551.35	-666.15	-1,956.79	631.55	2.00	-2.00	0.00
6,100.00	2.87	251.20	5,651.12	-668.32	-1,963.18	633.61	2.00	-2.00	0.00
6,200.00	0.87	251.20	5,751.06	-669.37	-1,966.26	634.61	2.00	-2.00	0.00
6,243.33	0.00	0.00	5,794.39	-669.48	-1,966.57	634.71	2.00	-2.00	251.08
Hold Vertical @ 6243.33ft									
6,300.00	0.00	0.00	5,851.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,400.00	0.00	0.00	5,951.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,500.00	0.00	0.00	6,051.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,600.00	0.00	0.00	6,151.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,700.00	0.00	0.00	6,251.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,800.00	0.00	0.00	6,351.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
6,900.00	0.00	0.00	6,451.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,000.00	0.00	0.00	6,551.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,100.00	0.00	0.00	6,651.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,200.00	0.00	0.00	6,751.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,300.00	0.00	0.00	6,851.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,400.00	0.00	0.00	6,951.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,500.00	0.00	0.00	7,051.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,600.00	0.00	0.00	7,151.06	-669.48	-1,966.57	634.71	0.00	0.00	0.00
7,633.77	0.00	0.00	7,184.83	-669.48	-1,966.57	634.71	0.00	0.00	0.00
KOP @ 7633.77ft :: DLS = 8°/100'									
7,700.00	5.30	178.99	7,250.96	-672.53	-1,966.52	637.77	8.00	8.00	270.25
7,800.00	13.30	178.99	7,349.57	-688.68	-1,966.23	653.91	8.00	8.00	0.00
7,900.00	21.30	178.99	7,444.97	-718.38	-1,965.71	683.62	8.00	8.00	0.00
7,924.89	23.29	178.99	7,468.00	-727.82	-1,965.54	693.06	8.00	8.00	0.00
Sharon Springs									
7,962.35	26.29	178.99	7,502.00	-743.52	-1,965.26	708.77	8.00	8.00	0.00
Niobrara									
8,000.00	29.30	178.99	7,535.31	-761.07	-1,964.96	726.32	8.00	8.00	0.00
8,100.00	37.30	178.99	7,618.82	-815.92	-1,963.99	781.18	8.00	8.00	0.00
8,133.52	39.98	178.99	7,645.00	-836.85	-1,963.62	802.10	8.00	8.00	0.00
Nio B									
8,200.00	45.30	178.99	7,693.89	-881.86	-1,962.82	847.12	8.00	8.00	0.00
8,283.45	51.97	178.99	7,749.00	-944.44	-1,961.72	909.71	8.00	8.00	0.00

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Site:	1N-68W-15 CLELAND 11-15HZ PAD	North Reference:	True
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Wellbore:	Plan A		
Design:	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)
Nio C									
8,300.00	53.30	178.99	7,759.05	-957.59	-1,961.49	922.87	8.00	8.00	0.00
8,400.00	61.30	178.99	7,813.03	-1,041.66	-1,960.01	1,006.95	8.00	8.00	0.00
8,500.00	69.30	178.99	7,854.78	-1,132.42	-1,958.41	1,097.73	8.00	8.00	0.00
8,554.17	73.63	178.99	7,872.00	-1,183.77	-1,957.50	1,149.08	8.00	8.00	0.00
Fort Hayes									
8,600.00	77.30	178.99	7,883.50	-1,228.11	-1,956.72	1,193.43	8.00	8.00	0.00
8,638.79	80.40	178.99	7,891.00	-1,266.16	-1,956.05	1,231.49	8.00	8.00	0.00
Codell									
8,700.00	85.30	178.99	7,898.62	-1,326.87	-1,954.98	1,292.20	8.00	8.00	0.00
8,753.17	89.55	178.99	7,901.00	-1,379.96	-1,954.04	1,345.30	8.00	8.00	0.00
End Build @ 8753.17ft - Top of Production									
8,800.00	89.55	178.99	7,901.37	-1,426.78	-1,953.21	1,392.13	0.00	0.00	0.00
8,900.00	89.55	178.99	7,902.15	-1,526.76	-1,951.45	1,492.13	0.00	0.00	0.00
9,000.00	89.55	178.99	7,902.93	-1,626.75	-1,949.69	1,592.13	0.00	0.00	0.00
9,100.00	89.55	178.99	7,903.72	-1,726.73	-1,947.92	1,692.12	0.00	0.00	0.00
9,200.00	89.55	178.99	7,904.50	-1,826.71	-1,946.16	1,792.12	0.00	0.00	0.00
9,300.00	89.55	178.99	7,905.28	-1,926.69	-1,944.40	1,892.12	0.00	0.00	0.00
9,400.00	89.55	178.99	7,906.06	-2,026.67	-1,942.63	1,992.11	0.00	0.00	0.00
9,500.00	89.55	178.99	7,906.84	-2,126.65	-1,940.87	2,092.11	0.00	0.00	0.00
9,600.00	89.55	178.99	7,907.62	-2,226.63	-1,939.10	2,192.11	0.00	0.00	0.00
9,700.00	89.55	178.99	7,908.41	-2,326.62	-1,937.34	2,292.11	0.00	0.00	0.00
9,800.00	89.55	178.99	7,909.19	-2,426.60	-1,935.58	2,392.10	0.00	0.00	0.00
9,900.00	89.55	178.99	7,909.97	-2,526.58	-1,933.81	2,492.10	0.00	0.00	0.00
10,000.00	89.55	178.99	7,910.75	-2,626.56	-1,932.05	2,592.10	0.00	0.00	0.00
10,100.00	89.55	178.99	7,911.53	-2,726.54	-1,930.29	2,692.09	0.00	0.00	0.00
10,200.00	89.55	178.99	7,912.32	-2,826.52	-1,928.52	2,792.09	0.00	0.00	0.00
10,300.00	89.55	178.99	7,913.10	-2,926.50	-1,926.76	2,892.09	0.00	0.00	0.00
10,400.00	89.55	178.99	7,913.88	-3,026.49	-1,925.00	2,992.08	0.00	0.00	0.00
10,500.00	89.55	178.99	7,914.66	-3,126.47	-1,923.23	3,092.08	0.00	0.00	0.00
10,600.00	89.55	178.99	7,915.44	-3,226.45	-1,921.47	3,192.08	0.00	0.00	0.00
10,700.00	89.55	178.99	7,916.22	-3,326.43	-1,919.70	3,292.07	0.00	0.00	0.00
10,800.00	89.55	178.99	7,917.01	-3,426.41	-1,917.94	3,392.07	0.00	0.00	0.00
10,900.00	89.55	178.99	7,917.79	-3,526.39	-1,916.18	3,492.07	0.00	0.00	0.00
11,000.00	89.55	178.99	7,918.57	-3,626.37	-1,914.41	3,592.07	0.00	0.00	0.00
11,100.00	89.55	178.99	7,919.35	-3,726.36	-1,912.65	3,692.06	0.00	0.00	0.00
11,200.00	89.55	178.99	7,920.13	-3,826.34	-1,910.89	3,792.06	0.00	0.00	0.00
11,300.00	89.55	178.99	7,920.92	-3,926.32	-1,909.12	3,892.06	0.00	0.00	0.00
11,400.00	89.55	178.99	7,921.70	-4,026.30	-1,907.36	3,992.05	0.00	0.00	0.00
11,500.00	89.55	178.99	7,922.48	-4,126.28	-1,905.60	4,092.05	0.00	0.00	0.00
11,600.00	89.55	178.99	7,923.26	-4,226.26	-1,903.83	4,192.05	0.00	0.00	0.00
11,700.00	89.55	178.99	7,924.04	-4,326.24	-1,902.07	4,292.04	0.00	0.00	0.00
11,800.00	89.55	178.99	7,924.82	-4,426.23	-1,900.31	4,392.04	0.00	0.00	0.00
11,900.00	89.55	178.99	7,925.61	-4,526.21	-1,898.54	4,492.04	0.00	0.00	0.00
12,000.00	89.55	178.99	7,926.39	-4,626.19	-1,896.78	4,592.03	0.00	0.00	0.00
12,100.00	89.55	178.99	7,927.17	-4,726.17	-1,895.01	4,692.03	0.00	0.00	0.00
12,200.00	89.55	178.99	7,927.95	-4,826.15	-1,893.25	4,792.03	0.00	0.00	0.00
12,300.00	89.55	178.99	7,928.73	-4,926.13	-1,891.49	4,892.03	0.00	0.00	0.00
12,400.00	89.55	178.99	7,929.51	-5,026.11	-1,889.72	4,992.02	0.00	0.00	0.00
12,500.00	89.55	178.99	7,930.30	-5,126.09	-1,887.96	5,092.02	0.00	0.00	0.00
12,600.00	89.55	178.99	7,931.08	-5,226.08	-1,886.20	5,192.02	0.00	0.00	0.00
12,700.00	89.55	178.99	7,931.86	-5,326.06	-1,884.43	5,292.01	0.00	0.00	0.00
12,800.00	89.55	178.99	7,932.64	-5,426.04	-1,882.67	5,392.01	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-1HZ
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 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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)
12,900.00	89.55	178.99	7,933.42	-5,526.02	-1,880.91	5,492.01	0.00	0.00	0.00
13,000.00	89.55	178.99	7,934.21	-5,626.00	-1,879.14	5,592.00	0.00	0.00	0.00
13,100.00	89.55	178.99	7,934.99	-5,725.98	-1,877.38	5,692.00	0.00	0.00	0.00
13,200.00	89.55	178.99	7,935.77	-5,825.96	-1,875.62	5,792.00	0.00	0.00	0.00
13,300.00	89.55	178.99	7,936.55	-5,925.95	-1,873.85	5,892.00	0.00	0.00	0.00
13,400.00	89.55	178.99	7,937.33	-6,025.93	-1,872.09	5,991.99	0.00	0.00	0.00
13,500.00	89.55	178.99	7,938.11	-6,125.91	-1,870.32	6,091.99	0.00	0.00	0.00
13,600.00	89.55	178.99	7,938.90	-6,225.89	-1,868.56	6,191.99	0.00	0.00	0.00
13,700.00	89.55	178.99	7,939.68	-6,325.87	-1,866.80	6,291.98	0.00	0.00	0.00
13,800.00	89.55	178.99	7,940.46	-6,425.85	-1,865.03	6,391.98	0.00	0.00	0.00
13,900.00	89.55	178.99	7,941.24	-6,525.83	-1,863.27	6,491.98	0.00	0.00	0.00
14,000.00	89.55	178.99	7,942.02	-6,625.82	-1,861.51	6,591.97	0.00	0.00	0.00
14,100.00	89.55	178.99	7,942.81	-6,725.80	-1,859.74	6,691.97	0.00	0.00	0.00
14,200.00	89.55	178.99	7,943.59	-6,825.78	-1,857.98	6,791.97	0.00	0.00	0.00
14,300.00	89.55	178.99	7,944.37	-6,925.76	-1,856.22	6,891.96	0.00	0.00	0.00
14,400.00	89.55	178.99	7,945.15	-7,025.74	-1,854.45	6,991.96	0.00	0.00	0.00
14,500.00	89.55	178.99	7,945.93	-7,125.72	-1,852.69	7,091.96	0.00	0.00	0.00
14,600.00	89.55	178.99	7,946.71	-7,225.70	-1,850.93	7,191.96	0.00	0.00	0.00
14,700.00	89.55	178.99	7,947.50	-7,325.69	-1,849.16	7,291.95	0.00	0.00	0.00
14,800.00	89.55	178.99	7,948.28	-7,425.67	-1,847.40	7,391.95	0.00	0.00	0.00
14,900.00	89.55	178.99	7,949.06	-7,525.65	-1,845.63	7,491.95	0.00	0.00	0.00
15,000.00	89.55	178.99	7,949.84	-7,625.63	-1,843.87	7,591.94	0.00	0.00	0.00
15,100.00	89.55	178.99	7,950.62	-7,725.61	-1,842.11	7,691.94	0.00	0.00	0.00
15,200.00	89.55	178.99	7,951.41	-7,825.59	-1,840.34	7,791.94	0.00	0.00	0.00
15,300.00	89.55	178.99	7,952.19	-7,925.57	-1,838.58	7,891.93	0.00	0.00	0.00
15,400.00	89.55	178.99	7,952.97	-8,025.56	-1,836.82	7,991.93	0.00	0.00	0.00
15,500.00	89.55	178.99	7,953.75	-8,125.54	-1,835.05	8,091.93	0.00	0.00	0.00
15,600.00	89.55	178.99	7,954.53	-8,225.52	-1,833.29	8,191.92	0.00	0.00	0.00
15,700.00	89.55	178.99	7,955.31	-8,325.50	-1,831.53	8,291.92	0.00	0.00	0.00
15,800.00	89.55	178.99	7,956.10	-8,425.48	-1,829.76	8,391.92	0.00	0.00	0.00
15,900.00	89.55	178.99	7,956.88	-8,525.46	-1,828.00	8,491.92	0.00	0.00	0.00
16,000.00	89.55	178.99	7,957.66	-8,625.44	-1,826.24	8,591.91	0.00	0.00	0.00
16,100.00	89.55	178.99	7,958.44	-8,725.43	-1,824.47	8,691.91	0.00	0.00	0.00
16,200.00	89.55	178.99	7,959.22	-8,825.41	-1,822.71	8,791.91	0.00	0.00	0.00
16,300.00	89.55	178.99	7,960.00	-8,925.39	-1,820.94	8,891.90	0.00	0.00	0.00
16,400.00	89.55	178.99	7,960.79	-9,025.37	-1,819.18	8,991.90	0.00	0.00	0.00
16,500.00	89.55	178.99	7,961.57	-9,125.35	-1,817.42	9,091.90	0.00	0.00	0.00
16,600.00	89.55	178.99	7,962.35	-9,225.33	-1,815.65	9,191.89	0.00	0.00	0.00
16,700.00	89.55	178.99	7,963.13	-9,325.31	-1,813.89	9,291.89	0.00	0.00	0.00
16,800.00	89.55	178.99	7,963.91	-9,425.29	-1,812.13	9,391.89	0.00	0.00	0.00
16,900.00	89.55	178.99	7,964.70	-9,525.28	-1,810.36	9,491.89	0.00	0.00	0.00
17,000.00	89.55	178.99	7,965.48	-9,625.26	-1,808.60	9,591.88	0.00	0.00	0.00
17,100.00	89.55	178.99	7,966.26	-9,725.24	-1,806.84	9,691.88	0.00	0.00	0.00
17,200.00	89.55	178.99	7,967.04	-9,825.22	-1,805.07	9,791.88	0.00	0.00	0.00
17,300.00	89.55	178.99	7,967.82	-9,925.20	-1,803.31	9,891.87	0.00	0.00	0.00
17,400.00	89.55	178.99	7,968.60	-10,025.18	-1,801.55	9,991.87	0.00	0.00	0.00
17,500.00	89.55	178.99	7,969.39	-10,125.16	-1,799.78	10,091.87	0.00	0.00	0.00
17,600.00	89.55	178.99	7,970.17	-10,225.15	-1,798.02	10,191.86	0.00	0.00	0.00
17,700.00	89.55	178.99	7,970.95	-10,325.13	-1,796.25	10,291.86	0.00	0.00	0.00
17,800.00	89.55	178.99	7,971.73	-10,425.11	-1,794.49	10,391.86	0.00	0.00	0.00
17,900.00	89.55	178.99	7,972.51	-10,525.09	-1,792.73	10,491.85	0.00	0.00	0.00
18,000.00	89.55	178.99	7,973.30	-10,625.07	-1,790.96	10,591.85	0.00	0.00	0.00
18,100.00	89.55	178.99	7,974.08	-10,725.05	-1,789.20	10,691.85	0.00	0.00	0.00
18,200.00	89.55	178.99	7,974.86	-10,825.03	-1,787.44	10,791.85	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-1HZ
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 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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)	
18,300.00	89.55	178.99	7,975.64	-10,925.02	-1,785.67	10,891.84	0.00	0.00	0.00	
18,400.00	89.55	178.99	7,976.42	-11,025.00	-1,783.91	10,991.84	0.00	0.00	0.00	
18,500.00	89.55	178.99	7,977.20	-11,124.98	-1,782.15	11,091.84	0.00	0.00	0.00	
18,600.00	89.55	178.99	7,977.99	-11,224.96	-1,780.38	11,191.83	0.00	0.00	0.00	
18,700.00	89.55	178.99	7,978.77	-11,324.94	-1,778.62	11,291.83	0.00	0.00	0.00	
18,800.00	89.55	178.99	7,979.55	-11,424.92	-1,776.86	11,391.83	0.00	0.00	0.00	
18,900.00	89.55	178.99	7,980.33	-11,524.90	-1,775.09	11,491.82	0.00	0.00	0.00	
19,000.00	89.55	178.99	7,981.11	-11,624.89	-1,773.33	11,591.82	0.00	0.00	0.00	
19,100.00	89.55	178.99	7,981.90	-11,724.87	-1,771.56	11,691.82	0.00	0.00	0.00	
19,200.00	89.55	178.99	7,982.68	-11,824.85	-1,769.80	11,791.82	0.00	0.00	0.00	
19,300.00	89.55	178.99	7,983.46	-11,924.83	-1,768.04	11,891.81	0.00	0.00	0.00	
19,400.00	89.55	178.99	7,984.24	-12,024.81	-1,766.27	11,991.81	0.00	0.00	0.00	
19,500.00	89.55	178.99	7,985.02	-12,124.79	-1,764.51	12,091.81	0.00	0.00	0.00	
19,600.00	89.55	178.99	7,985.80	-12,224.77	-1,762.75	12,191.80	0.00	0.00	0.00	
19,625.07	89.55	178.99	7,986.00	-12,249.84	-1,762.30	12,216.87	0.00	0.00	0.00	
TD Well @ 19625.07ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.50	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,753.17	7,901.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,267.86	1,254.00	Fox Hills				
5,127.98	4,707.00	Sussex				
5,506.86	5,066.00	Shannon				
7,924.89	7,468.00	Sharon Springs				
7,962.35	7,502.00	Niobrara				
8,133.52	7,645.00	Nio B				
8,283.45	7,749.00	Nio C				
8,554.17	7,872.00	Fort Hayes				
8,638.79	7,891.00	Codell				

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-1HZ
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 15-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft
2,053.33	1,981.47	-142.08	-417.35	Hold Tangent @ 2053.33ft
4,853.33	4,458.29	-562.92	-1,653.56	Begin Drop @ 4853.33ft
6,243.33	5,794.39	-669.48	-1,966.57	Hold Vertical @ 6243.33ft
7,633.77	7,184.83	-669.48	-1,966.57	KOP @ 7633.77ft :: DLS = 8°/100'
8,753.17	7,901.00	-1,379.96	-1,954.04	End Build @ 8753.17ft
19,625.07	7,986.00	-12,249.84	-1,762.30	TD Well @ 19625.07ft