

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-68W-15 CLELAND 11-15HZ PAD
CLELAND 15-2HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.048698/-104.992088
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 15-2HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1523.46	9-5/8
7707.00	8367.90	5-1/2

WELL DETAILS: CLELAND 15-2HZ

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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1698.67	21.73	243.10	1664.19	-122.81	-242.06	1.50	243.10	119.20	
4	4498.67	21.73	243.10	4265.22	-591.82	-1166.55	0.00	0.00	574.45	
5	5585.17	0.00	0.00	5325.86	-683.93	-1348.10	2.00	180.00	663.85	
6	7250.15	0.00	0.00	6990.84	-683.93	-1348.10	0.00	0.00	663.85	
7	8367.90	89.42	179.15	7707.00	-1392.80	-1337.55	8.00	179.15	1372.80	
8	19237.30	89.42	179.15	7817.00	-12260.44	-1175.94	0.00	0.00	12241.65	CLELAND 15-2HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
CLELAND 15-2HZ_SHL	0.00	0.00	0.00	40.048698	-104.992088
CLELAND 15-2HZ_BHL	7817.00	-12260.44	-1175.94	40.015029	-104.996288

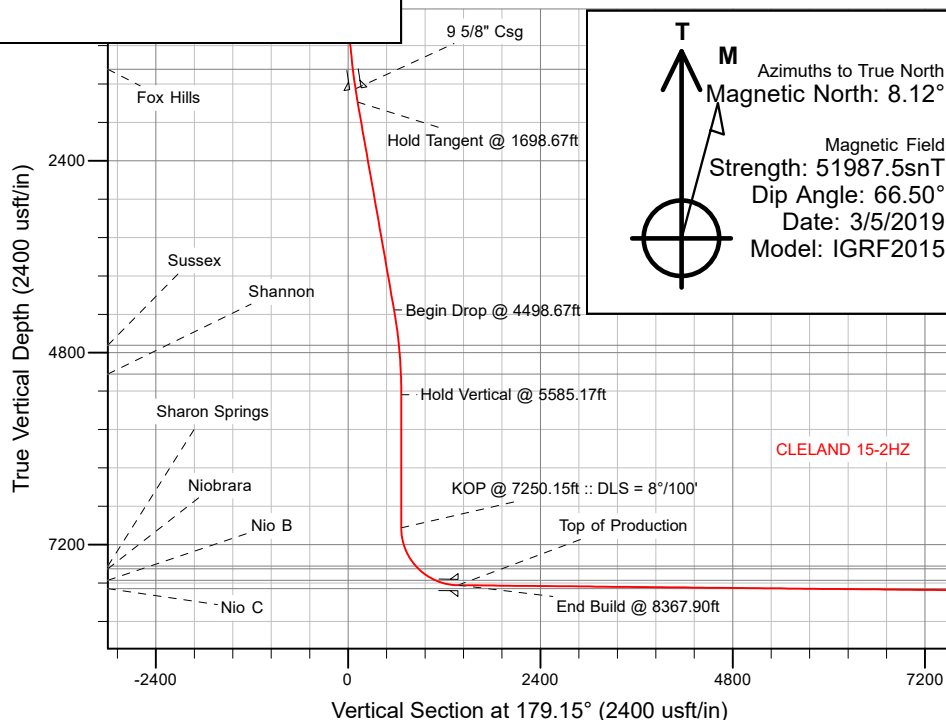
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1254.00	1265.94	Fox Hills
4707.00	4961.39	Sussex
5066.00	5324.95	Shannon
7468.00	7772.37	Sharon Springs
7502.00	7819.38	Niobrara
7645.00	8074.86	Nio B
7749.00	12518.08	Nio C

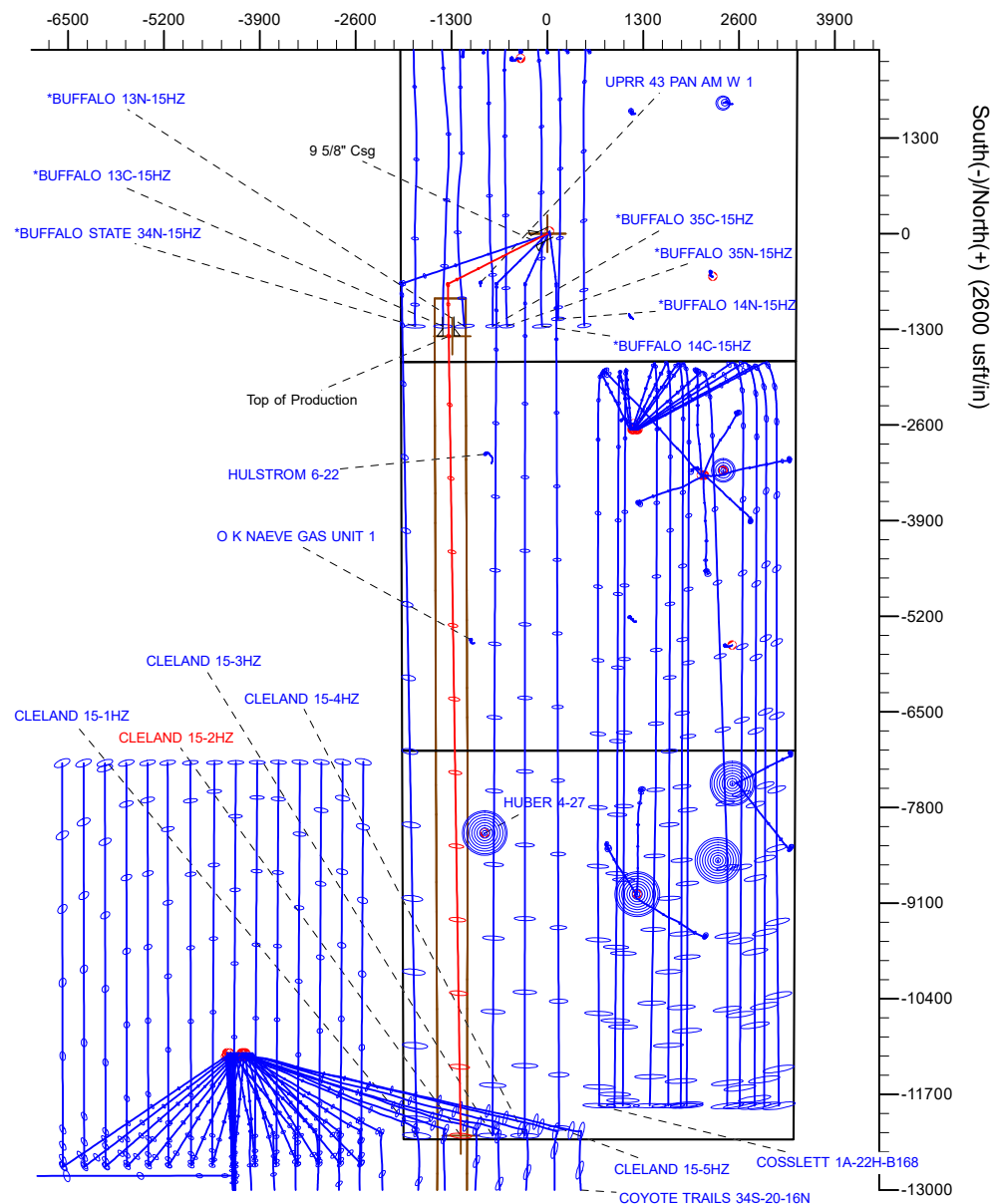
SHL
1739' FSL
1989' FWL

HEEL
350' FSL
648' FWL

TOE
50' FSL
774' FWL



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



Plan: Permit Rev-1 (CLELAND 15-2HZ/Plan A)

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

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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 15-2HZ					
Well Position	+N/-S	10.56 usft	Northing:	14,544,466.55 usft	Latitude:	40.048698
	+E/-W	10.63 usft	Easting:	1,642,630.85 usft	Longitude:	-104.992088
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	51,987.48606599

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	179.15

Plan Survey Tool Program	Date	3/8/2019		
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	19,237.30	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

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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 15-2HZ	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,698.67	21.73	243.10	1,664.19	-122.81	-242.06	1.50	1.50	0.00	243.10	
4,498.67	21.73	243.10	4,265.22	-591.82	-1,166.55	0.00	0.00	0.00	0.00	
5,585.17	0.00	0.00	5,325.86	-683.93	-1,348.10	2.00	-2.00	0.00	180.00	
7,250.15	0.00	0.00	6,990.84	-683.93	-1,348.10	0.00	0.00	0.00	0.00	
8,367.90	89.42	179.15	7,707.00	-1,392.80	-1,337.55	8.00	8.00	16.03	179.15	
19,237.30	89.42	179.15	7,817.00	-12,260.44	-1,175.94	0.00	0.00	0.00	0.00	CLELAND 15-2HZ_BI

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	243.10	300.00	-0.15	-0.29	0.14	1.50	1.50	0.00
400.00	2.25	243.10	399.96	-1.33	-2.63	1.29	1.50	1.50	0.00
500.00	3.75	243.10	499.82	-3.70	-7.29	3.59	1.50	1.50	0.00
600.00	5.25	243.10	599.51	-7.25	-14.29	7.04	1.50	1.50	0.00
700.00	6.75	243.10	698.96	-11.98	-23.61	11.63	1.50	1.50	0.00
800.00	8.25	243.10	798.10	-17.88	-35.25	17.36	1.50	1.50	0.00
900.00	9.75	243.10	896.87	-24.96	-49.20	24.23	1.50	1.50	0.00
1,000.00	11.25	243.10	995.19	-33.21	-65.45	32.23	1.50	1.50	0.00
1,100.00	12.75	243.10	1,093.00	-42.61	-83.99	41.36	1.50	1.50	0.00
1,200.00	14.25	243.10	1,190.24	-53.17	-104.81	51.61	1.50	1.50	0.00
1,265.94	15.24	243.10	1,254.00	-60.77	-119.78	58.98	1.50	1.50	0.00
Fox Hills									
1,300.00	15.75	243.10	1,286.83	-64.88	-127.89	62.98	1.50	1.50	0.00
1,400.00	17.25	243.10	1,382.71	-77.73	-153.22	75.45	1.50	1.50	0.00
1,500.00	18.75	243.10	1,477.81	-91.71	-180.78	89.02	1.50	1.50	0.00
1,523.46	19.10	243.10	1,500.00	-95.16	-187.56	92.36	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	243.10	1,572.07	-106.82	-210.55	103.68	1.50	1.50	0.00
1,698.67	21.73	243.10	1,664.19	-122.81	-242.06	119.20	1.50	1.50	0.00
Hold Tangent @ 1698.67ft									
1,700.00	21.73	243.10	1,665.43	-123.03	-242.50	119.42	0.00	0.00	0.00
1,800.00	21.73	243.10	1,758.32	-139.78	-275.52	135.68	0.00	0.00	0.00
1,900.00	21.73	243.10	1,851.21	-156.53	-308.54	151.94	0.00	0.00	0.00
2,000.00	21.73	243.10	1,944.11	-173.28	-341.56	168.20	0.00	0.00	0.00
2,100.00	21.73	243.10	2,037.00	-190.03	-374.57	184.45	0.00	0.00	0.00
2,200.00	21.73	243.10	2,129.89	-206.78	-407.59	200.71	0.00	0.00	0.00
2,300.00	21.73	243.10	2,222.79	-223.53	-440.61	216.97	0.00	0.00	0.00
2,400.00	21.73	243.10	2,315.68	-240.28	-473.63	233.23	0.00	0.00	0.00
2,500.00	21.73	243.10	2,408.58	-257.03	-506.64	249.49	0.00	0.00	0.00
2,600.00	21.73	243.10	2,501.47	-273.79	-539.66	265.75	0.00	0.00	0.00
2,700.00	21.73	243.10	2,594.36	-290.54	-572.68	282.01	0.00	0.00	0.00
2,800.00	21.73	243.10	2,687.26	-307.29	-605.69	298.27	0.00	0.00	0.00
2,900.00	21.73	243.10	2,780.15	-324.04	-638.71	314.53	0.00	0.00	0.00
3,000.00	21.73	243.10	2,873.05	-340.79	-671.73	330.79	0.00	0.00	0.00
3,100.00	21.73	243.10	2,965.94	-357.54	-704.75	347.04	0.00	0.00	0.00
3,200.00	21.73	243.10	3,058.83	-374.29	-737.76	363.30	0.00	0.00	0.00
3,300.00	21.73	243.10	3,151.73	-391.04	-770.78	379.56	0.00	0.00	0.00
3,400.00	21.73	243.10	3,244.62	-407.79	-803.80	395.82	0.00	0.00	0.00
3,500.00	21.73	243.10	3,337.52	-424.54	-836.82	412.08	0.00	0.00	0.00
3,600.00	21.73	243.10	3,430.41	-441.29	-869.83	428.34	0.00	0.00	0.00
3,700.00	21.73	243.10	3,523.30	-458.04	-902.85	444.60	0.00	0.00	0.00
3,800.00	21.73	243.10	3,616.20	-474.79	-935.87	460.86	0.00	0.00	0.00
3,900.00	21.73	243.10	3,709.09	-491.54	-968.88	477.12	0.00	0.00	0.00
4,000.00	21.73	243.10	3,801.98	-508.29	-1,001.90	493.38	0.00	0.00	0.00
4,100.00	21.73	243.10	3,894.88	-525.04	-1,034.92	509.63	0.00	0.00	0.00
4,200.00	21.73	243.10	3,987.77	-541.80	-1,067.94	525.89	0.00	0.00	0.00
4,300.00	21.73	243.10	4,080.67	-558.55	-1,100.95	542.15	0.00	0.00	0.00
4,400.00	21.73	243.10	4,173.56	-575.30	-1,133.97	558.41	0.00	0.00	0.00
4,498.67	21.73	243.10	4,265.22	-591.82	-1,166.55	574.45	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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)
Begin Drop @ 4498.67ft									
4,500.00	21.70	243.10	4,266.45	-592.05	-1,166.99	574.67	2.00	-2.00	0.00
4,600.00	19.70	243.10	4,359.99	-608.04	-1,198.51	590.19	2.00	-2.00	0.00
4,700.00	17.70	243.10	4,454.71	-622.55	-1,227.11	604.28	2.00	-2.00	0.00
4,800.00	15.70	243.10	4,550.48	-635.55	-1,252.74	616.90	2.00	-2.00	0.00
4,900.00	13.70	243.10	4,647.20	-647.03	-1,275.37	628.04	2.00	-2.00	0.00
4,961.39	12.48	243.10	4,707.00	-653.32	-1,287.77	634.15	2.00	-2.00	0.00
Sussex									
5,000.00	11.70	243.10	4,744.75	-656.98	-1,294.98	637.70	2.00	-2.00	0.00
5,100.00	9.70	243.10	4,843.00	-665.39	-1,311.55	645.86	2.00	-2.00	0.00
5,200.00	7.70	243.10	4,941.85	-672.23	-1,325.04	652.50	2.00	-2.00	0.00
5,300.00	5.70	243.10	5,041.16	-677.51	-1,335.45	657.63	2.00	-2.00	0.00
5,324.95	5.20	243.10	5,066.00	-678.59	-1,337.56	658.67	2.00	-2.00	0.00
Shannon									
5,400.00	3.70	243.10	5,140.82	-681.22	-1,342.76	661.23	2.00	-2.00	0.00
5,500.00	1.70	243.10	5,240.70	-683.36	-1,346.97	663.30	2.00	-2.00	0.00
5,585.17	0.00	0.00	5,325.86	-683.93	-1,348.10	663.85	2.00	-2.00	0.00
Hold Vertical @ 5585.17ft									
5,600.00	0.00	0.00	5,340.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
5,700.00	0.00	0.00	5,440.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
5,800.00	0.00	0.00	5,540.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
5,900.00	0.00	0.00	5,640.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,000.00	0.00	0.00	5,740.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,100.00	0.00	0.00	5,840.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,200.00	0.00	0.00	5,940.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,300.00	0.00	0.00	6,040.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,400.00	0.00	0.00	6,140.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,500.00	0.00	0.00	6,240.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,600.00	0.00	0.00	6,340.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,700.00	0.00	0.00	6,440.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,800.00	0.00	0.00	6,540.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
6,900.00	0.00	0.00	6,640.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
7,000.00	0.00	0.00	6,740.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
7,100.00	0.00	0.00	6,840.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
7,200.00	0.00	0.00	6,940.69	-683.93	-1,348.10	663.85	0.00	0.00	0.00
7,250.15	0.00	0.00	6,990.84	-683.93	-1,348.10	663.85	0.00	0.00	0.00
KOP @ 7250.15ft :: DLS = 8°/100'									
7,300.00	3.99	179.15	7,040.65	-685.66	-1,348.07	665.59	8.00	8.00	0.00
7,400.00	11.99	179.15	7,139.60	-699.55	-1,347.86	679.47	8.00	8.00	0.00
7,500.00	19.99	179.15	7,235.65	-727.06	-1,347.45	707.00	8.00	8.00	0.00
7,600.00	27.99	179.15	7,326.94	-767.68	-1,346.85	747.62	8.00	8.00	0.00
7,700.00	35.99	179.15	7,411.69	-820.61	-1,346.06	800.55	8.00	8.00	0.00
7,772.37	41.78	179.15	7,468.00	-866.01	-1,345.39	845.96	8.00	8.00	0.00
Sharon Springs									
7,800.00	43.99	179.15	7,488.24	-884.81	-1,345.11	864.76	8.00	8.00	0.00
7,819.38	45.54	179.15	7,502.00	-898.45	-1,344.91	878.40	8.00	8.00	0.00
Niobrara									
7,900.00	51.99	179.15	7,555.12	-959.04	-1,344.01	939.00	8.00	8.00	0.00
8,000.00	59.99	179.15	7,611.01	-1,041.86	-1,342.77	1,021.82	8.00	8.00	0.00
8,074.86	65.98	179.15	7,645.00	-1,108.51	-1,341.78	1,088.48	8.00	8.00	0.00
Nio B									
8,100.00	67.99	179.15	7,654.83	-1,131.64	-1,341.44	1,111.62	8.00	8.00	0.00
8,200.00	75.99	179.15	7,685.73	-1,226.66	-1,340.03	1,206.64	8.00	8.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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)	
8,300.00	83.99	179.15	7,703.10	-1,325.04	-1,338.56	1,305.04	8.00	8.00	0.00	
8,367.90	89.42	179.15	7,707.00	-1,392.80	-1,337.55	1,372.80	8.00	8.00	0.00	
End Build @ 8367.90ft - Top of Production										
8,400.00	89.42	179.15	7,707.32	-1,424.89	-1,337.08	1,404.90	0.00	0.00	0.00	
8,500.00	89.42	179.15	7,708.34	-1,524.88	-1,335.59	1,504.89	0.00	0.00	0.00	
8,600.00	89.42	179.15	7,709.35	-1,624.86	-1,334.10	1,604.89	0.00	0.00	0.00	
8,700.00	89.42	179.15	7,710.36	-1,724.84	-1,332.62	1,704.88	0.00	0.00	0.00	
8,800.00	89.42	179.15	7,711.37	-1,824.83	-1,331.13	1,804.88	0.00	0.00	0.00	
8,900.00	89.42	179.15	7,712.38	-1,924.81	-1,329.64	1,904.87	0.00	0.00	0.00	
9,000.00	89.42	179.15	7,713.40	-2,024.80	-1,328.16	2,004.87	0.00	0.00	0.00	
9,100.00	89.42	179.15	7,714.41	-2,124.78	-1,326.67	2,104.86	0.00	0.00	0.00	
9,200.00	89.42	179.15	7,715.42	-2,224.76	-1,325.18	2,204.86	0.00	0.00	0.00	
9,300.00	89.42	179.15	7,716.43	-2,324.75	-1,323.70	2,304.85	0.00	0.00	0.00	
9,400.00	89.42	179.15	7,717.44	-2,424.73	-1,322.21	2,404.85	0.00	0.00	0.00	
9,500.00	89.42	179.15	7,718.46	-2,524.71	-1,320.72	2,504.84	0.00	0.00	0.00	
9,600.00	89.42	179.15	7,719.47	-2,624.70	-1,319.23	2,604.84	0.00	0.00	0.00	
9,700.00	89.42	179.15	7,720.48	-2,724.68	-1,317.75	2,704.83	0.00	0.00	0.00	
9,800.00	89.42	179.15	7,721.49	-2,824.67	-1,316.26	2,804.83	0.00	0.00	0.00	
9,900.00	89.42	179.15	7,722.50	-2,924.65	-1,314.77	2,904.82	0.00	0.00	0.00	
10,000.00	89.42	179.15	7,723.52	-3,024.63	-1,313.29	3,004.82	0.00	0.00	0.00	
10,100.00	89.42	179.15	7,724.53	-3,124.62	-1,311.80	3,104.81	0.00	0.00	0.00	
10,200.00	89.42	179.15	7,725.54	-3,224.60	-1,310.31	3,204.81	0.00	0.00	0.00	
10,300.00	89.42	179.15	7,726.55	-3,324.58	-1,308.83	3,304.80	0.00	0.00	0.00	
10,400.00	89.42	179.15	7,727.56	-3,424.57	-1,307.34	3,404.80	0.00	0.00	0.00	
10,500.00	89.42	179.15	7,728.58	-3,524.55	-1,305.85	3,504.79	0.00	0.00	0.00	
10,600.00	89.42	179.15	7,729.59	-3,624.54	-1,304.37	3,604.79	0.00	0.00	0.00	
10,700.00	89.42	179.15	7,730.60	-3,724.52	-1,302.88	3,704.78	0.00	0.00	0.00	
10,800.00	89.42	179.15	7,731.61	-3,824.50	-1,301.39	3,804.78	0.00	0.00	0.00	
10,900.00	89.42	179.15	7,732.62	-3,924.49	-1,299.91	3,904.77	0.00	0.00	0.00	
11,000.00	89.42	179.15	7,733.64	-4,024.47	-1,298.42	4,004.77	0.00	0.00	0.00	
11,100.00	89.42	179.15	7,734.65	-4,124.46	-1,296.93	4,104.76	0.00	0.00	0.00	
11,200.00	89.42	179.15	7,735.66	-4,224.44	-1,295.44	4,204.76	0.00	0.00	0.00	
11,300.00	89.42	179.15	7,736.67	-4,324.42	-1,293.96	4,304.75	0.00	0.00	0.00	
11,400.00	89.42	179.15	7,737.68	-4,424.41	-1,292.47	4,404.75	0.00	0.00	0.00	
11,500.00	89.42	179.15	7,738.70	-4,524.39	-1,290.98	4,504.74	0.00	0.00	0.00	
11,600.00	89.42	179.15	7,739.71	-4,624.37	-1,289.50	4,604.74	0.00	0.00	0.00	
11,700.00	89.42	179.15	7,740.72	-4,724.36	-1,288.01	4,704.73	0.00	0.00	0.00	
11,800.00	89.42	179.15	7,741.73	-4,824.34	-1,286.52	4,804.73	0.00	0.00	0.00	
11,900.00	89.42	179.15	7,742.75	-4,924.33	-1,285.04	4,904.72	0.00	0.00	0.00	
12,000.00	89.42	179.15	7,743.76	-5,024.31	-1,283.55	5,004.72	0.00	0.00	0.00	
12,100.00	89.42	179.15	7,744.77	-5,124.29	-1,282.06	5,104.71	0.00	0.00	0.00	
12,200.00	89.42	179.15	7,745.78	-5,224.28	-1,280.58	5,204.71	0.00	0.00	0.00	
12,300.00	89.42	179.15	7,746.79	-5,324.26	-1,279.09	5,304.70	0.00	0.00	0.00	
12,400.00	89.42	179.15	7,747.81	-5,424.25	-1,277.60	5,404.70	0.00	0.00	0.00	
12,500.00	89.42	179.15	7,748.82	-5,524.23	-1,276.12	5,504.69	0.00	0.00	0.00	
12,518.08	89.42	179.15	7,749.00	-5,542.31	-1,275.85	5,522.77	0.00	0.00	0.00	
Nio C										
12,600.00	89.42	179.15	7,749.83	-5,624.21	-1,274.63	5,604.69	0.00	0.00	0.00	
12,700.00	89.42	179.15	7,750.84	-5,724.20	-1,273.14	5,704.68	0.00	0.00	0.00	
12,800.00	89.42	179.15	7,751.85	-5,824.18	-1,271.65	5,804.67	0.00	0.00	0.00	
12,900.00	89.42	179.15	7,752.87	-5,924.16	-1,270.17	5,904.67	0.00	0.00	0.00	
13,000.00	89.42	179.15	7,753.88	-6,024.15	-1,268.68	6,004.66	0.00	0.00	0.00	
13,100.00	89.42	179.15	7,754.89	-6,124.13	-1,267.19	6,104.66	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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)
13,200.00	89.42	179.15	7,755.90	-6,224.12	-1,265.71	6,204.65	0.00	0.00	0.00
13,300.00	89.42	179.15	7,756.91	-6,324.10	-1,264.22	6,304.65	0.00	0.00	0.00
13,400.00	89.42	179.15	7,757.93	-6,424.08	-1,262.73	6,404.64	0.00	0.00	0.00
13,500.00	89.42	179.15	7,758.94	-6,524.07	-1,261.25	6,504.64	0.00	0.00	0.00
13,600.00	89.42	179.15	7,759.95	-6,624.05	-1,259.76	6,604.63	0.00	0.00	0.00
13,700.00	89.42	179.15	7,760.96	-6,724.03	-1,258.27	6,704.63	0.00	0.00	0.00
13,800.00	89.42	179.15	7,761.97	-6,824.02	-1,256.79	6,804.62	0.00	0.00	0.00
13,900.00	89.42	179.15	7,762.99	-6,924.00	-1,255.30	6,904.62	0.00	0.00	0.00
14,000.00	89.42	179.15	7,764.00	-7,023.99	-1,253.81	7,004.61	0.00	0.00	0.00
14,100.00	89.42	179.15	7,765.01	-7,123.97	-1,252.33	7,104.61	0.00	0.00	0.00
14,200.00	89.42	179.15	7,766.02	-7,223.95	-1,250.84	7,204.60	0.00	0.00	0.00
14,300.00	89.42	179.15	7,767.03	-7,323.94	-1,249.35	7,304.60	0.00	0.00	0.00
14,400.00	89.42	179.15	7,768.05	-7,423.92	-1,247.86	7,404.59	0.00	0.00	0.00
14,500.00	89.42	179.15	7,769.06	-7,523.91	-1,246.38	7,504.59	0.00	0.00	0.00
14,600.00	89.42	179.15	7,770.07	-7,623.89	-1,244.89	7,604.58	0.00	0.00	0.00
14,700.00	89.42	179.15	7,771.08	-7,723.87	-1,243.40	7,704.58	0.00	0.00	0.00
14,800.00	89.42	179.15	7,772.09	-7,823.86	-1,241.92	7,804.57	0.00	0.00	0.00
14,900.00	89.42	179.15	7,773.11	-7,923.84	-1,240.43	7,904.57	0.00	0.00	0.00
15,000.00	89.42	179.15	7,774.12	-8,023.82	-1,238.94	8,004.56	0.00	0.00	0.00
15,100.00	89.42	179.15	7,775.13	-8,123.81	-1,237.46	8,104.56	0.00	0.00	0.00
15,200.00	89.42	179.15	7,776.14	-8,223.79	-1,235.97	8,204.55	0.00	0.00	0.00
15,300.00	89.42	179.15	7,777.15	-8,323.78	-1,234.48	8,304.55	0.00	0.00	0.00
15,400.00	89.42	179.15	7,778.17	-8,423.76	-1,233.00	8,404.54	0.00	0.00	0.00
15,500.00	89.42	179.15	7,779.18	-8,523.74	-1,231.51	8,504.54	0.00	0.00	0.00
15,600.00	89.42	179.15	7,780.19	-8,623.73	-1,230.02	8,604.53	0.00	0.00	0.00
15,700.00	89.42	179.15	7,781.20	-8,723.71	-1,228.54	8,704.53	0.00	0.00	0.00
15,800.00	89.42	179.15	7,782.21	-8,823.70	-1,227.05	8,804.52	0.00	0.00	0.00
15,900.00	89.42	179.15	7,783.23	-8,923.68	-1,225.56	8,904.52	0.00	0.00	0.00
16,000.00	89.42	179.15	7,784.24	-9,023.66	-1,224.07	9,004.51	0.00	0.00	0.00
16,100.00	89.42	179.15	7,785.25	-9,123.65	-1,222.59	9,104.51	0.00	0.00	0.00
16,200.00	89.42	179.15	7,786.26	-9,223.63	-1,221.10	9,204.50	0.00	0.00	0.00
16,300.00	89.42	179.15	7,787.27	-9,323.61	-1,219.61	9,304.50	0.00	0.00	0.00
16,400.00	89.42	179.15	7,788.29	-9,423.60	-1,218.13	9,404.49	0.00	0.00	0.00
16,500.00	89.42	179.15	7,789.30	-9,523.58	-1,216.64	9,504.49	0.00	0.00	0.00
16,600.00	89.42	179.15	7,790.31	-9,623.57	-1,215.15	9,604.48	0.00	0.00	0.00
16,700.00	89.42	179.15	7,791.32	-9,723.55	-1,213.67	9,704.48	0.00	0.00	0.00
16,800.00	89.42	179.15	7,792.33	-9,823.53	-1,212.18	9,804.47	0.00	0.00	0.00
16,900.00	89.42	179.15	7,793.35	-9,923.52	-1,210.69	9,904.46	0.00	0.00	0.00
17,000.00	89.42	179.15	7,794.36	-10,023.50	-1,209.21	10,004.46	0.00	0.00	0.00
17,100.00	89.42	179.15	7,795.37	-10,123.48	-1,207.72	10,104.45	0.00	0.00	0.00
17,200.00	89.42	179.15	7,796.38	-10,223.47	-1,206.23	10,204.45	0.00	0.00	0.00
17,300.00	89.42	179.15	7,797.39	-10,323.45	-1,204.75	10,304.44	0.00	0.00	0.00
17,400.00	89.42	179.15	7,798.41	-10,423.44	-1,203.26	10,404.44	0.00	0.00	0.00
17,500.00	89.42	179.15	7,799.42	-10,523.42	-1,201.77	10,504.43	0.00	0.00	0.00
17,600.00	89.42	179.15	7,800.43	-10,623.40	-1,200.28	10,604.43	0.00	0.00	0.00
17,700.00	89.42	179.15	7,801.44	-10,723.39	-1,198.80	10,704.42	0.00	0.00	0.00
17,800.00	89.42	179.15	7,802.45	-10,823.37	-1,197.31	10,804.42	0.00	0.00	0.00
17,900.00	89.42	179.15	7,803.47	-10,923.36	-1,195.82	10,904.41	0.00	0.00	0.00
18,000.00	89.42	179.15	7,804.48	-11,023.34	-1,194.34	11,004.41	0.00	0.00	0.00
18,100.00	89.42	179.15	7,805.49	-11,123.32	-1,192.85	11,104.40	0.00	0.00	0.00
18,200.00	89.42	179.15	7,806.50	-11,223.31	-1,191.36	11,204.40	0.00	0.00	0.00
18,300.00	89.42	179.15	7,807.51	-11,323.29	-1,189.88	11,304.39	0.00	0.00	0.00
18,400.00	89.42	179.15	7,808.53	-11,423.27	-1,188.39	11,404.39	0.00	0.00	0.00
18,500.00	89.42	179.15	7,809.54	-11,523.26	-1,186.90	11,504.38	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CLELAND 15-2HZ
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 15-2HZ	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)
18,600.00	89.42	179.15	7,810.55	-11,623.24	-1,185.42	11,604.38	0.00	0.00	0.00
18,700.00	89.42	179.15	7,811.56	-11,723.23	-1,183.93	11,704.37	0.00	0.00	0.00
18,800.00	89.42	179.15	7,812.57	-11,823.21	-1,182.44	11,804.37	0.00	0.00	0.00
18,900.00	89.42	179.15	7,813.59	-11,923.19	-1,180.96	11,904.36	0.00	0.00	0.00
19,000.00	89.42	179.15	7,814.60	-12,023.18	-1,179.47	12,004.36	0.00	0.00	0.00
19,100.00	89.42	179.15	7,815.61	-12,123.16	-1,177.98	12,104.35	0.00	0.00	0.00
19,200.00	89.42	179.15	7,816.62	-12,223.15	-1,176.49	12,204.35	0.00	0.00	0.00
19,237.30	89.42	179.15	7,817.00	-12,260.44	-1,175.94	12,241.65	0.00	0.00	0.00
TD Well @ 19237.30ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,367.90	7,707.00	Top of Production	5-1/2	7-7/8

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,265.94	1,254.00	Fox Hills				
4,961.39	4,707.00	Sussex				
5,324.95	5,066.00	Shannon				
7,772.37	7,468.00	Sharon Springs				
7,819.38	7,502.00	Niobrara				
8,074.86	7,645.00	Nio B				
12,518.08	7,749.00	Nio C				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,698.67	1,664.19	-122.81	-242.06	Hold Tangent @ 1698.67ft
4,498.67	4,265.22	-591.82	-1,166.55	Begin Drop @ 4498.67ft
5,585.17	5,325.86	-683.93	-1,348.10	Hold Vertical @ 5585.17ft
7,250.15	6,990.84	-683.93	-1,348.10	KOP @ 7250.15ft :: DLS = 8°/100'
8,367.90	7,707.00	-1,392.80	-1,337.55	End Build @ 8367.90ft
19,237.30	7,817.00	-12,260.44	-1,175.94	TD Well @ 19237.30ft