

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
4N-68W-11 S&B 5-11HZ PAD
SHAKE 11-12HZ**

Plan B

Plan: Permit Rev-1

SHL Lat/Long: 40.330317/-104.976715
Survey Program: MWD+IFR+MSA

Standard Planning Report

20 October, 2019

Project: WELD-NAD83-UTMFT13N
Site: 4N-68W-11 S&B 5-11HZ PAD
Well: SHAKE 11-12HZ
Wellbore: Plan B
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1526.28	9-5/8
7137.00	7754.12	5-1/2

WELL DETAILS: SHAKE 11-12HZ

GL = 4994.00

RKB = 17' @ 5011.00usft (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	1456.67	18.85	351.15	1434.12	202.42	-31.52	1.50	351.15	30.28	
4	4256.67	18.85	351.15	4083.95	1096.31	-170.70	0.00	0.00	164.00	
5	5199.17	0.00	0.00	5009.54	1248.12	-194.34	2.00	180.00	186.71	
6	6610.67	0.00	0.00	6421.04	1248.12	-194.34	0.00	0.00	186.71	
7	7754.12	91.48	269.65	7137.00	1243.58	-928.96	8.00	269.65	921.35	
8	17811.49	91.48	269.65	6878.00	1181.35	-10982.81	0.00	0.00	10975.39	SHAKE 11-12HZ BHL

SHL
1896' FNL
854' FWL

HEEL
645' FNL
75' FEL

TOE
565' FNL
475' FWL

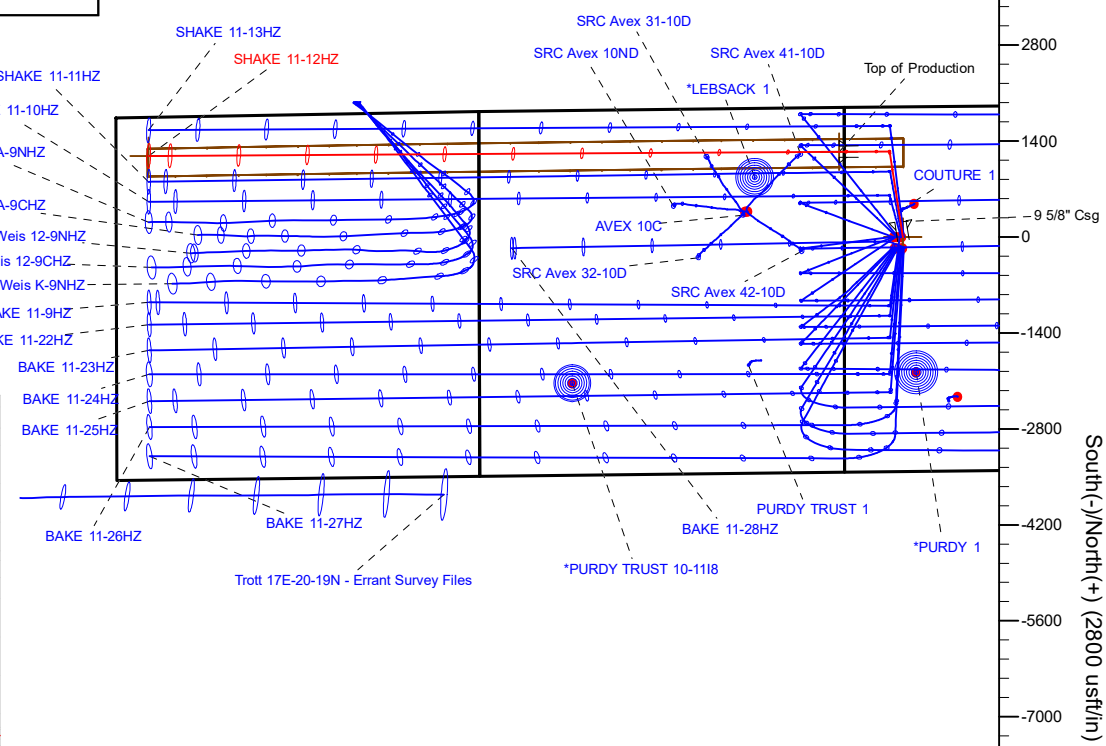
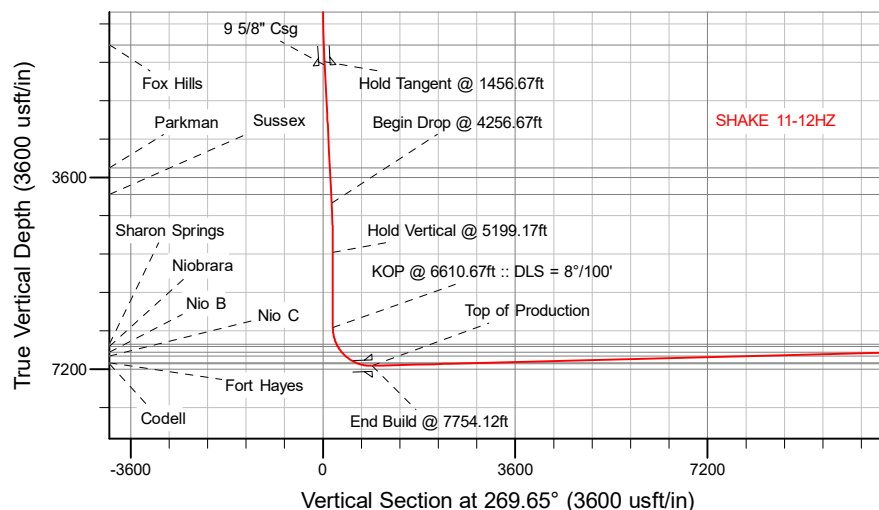
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHAKE 11-12HZ SHL	0.00	0.00	0.00	40.330317	-104.976715
SHAKE 11-12HZ BHL	6878.00	1181.35	-10982.81	40.333554	-105.016125

West(-)/East(+) (2800 usft/in)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1119.00	1128.11	Fox Hills
3424.00	3559.32	Parkman
3920.00	4083.43	Sussex
6733.00	6933.44	Sharon Springs
6776.00	6982.05	Niobrara
6883.00	7112.76	Nio B
6952.00	7208.76	Nio C
7079.00	7444.85	Fort Hayes
7098.00	7497.50	Codell



Plan: Permit Rev-1 (SHAKE 11-12HZ/Plan B)

Date: 10/20/2019

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHAKE 11-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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		4N-68W-11 S&B 5-11HZ PAD			
Site Position:		Northing:	14,647,020.58 usft	Latitude:	40.330320
From:	Lat/Long	Easting:	1,646,741.13 usft	Longitude:	-104.977307
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.01 °

Well	SHAKE 11-12HZ					
Well Position	+N/-S	-1.09 usft	Northing:	14,647,019.53 usft	Latitude:	40.330317
	+E/-W	164.99 usft	Easting:	1,646,906.12 usft	Longitude:	-104.976715
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,994.00 usft

Wellbore	Plan B				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/7/2019	8.14	66.72	52,145.03670855

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	269.65

Plan Survey Tool Program	Date	10/20/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	17,811.49	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHAKE 11-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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	
1,456.67	18.85	351.15	1,434.12	202.42	-31.52	1.50	1.50	0.00	351.15	
4,256.67	18.85	351.15	4,083.95	1,096.31	-170.70	0.00	0.00	0.00	0.00	
5,199.17	0.00	0.00	5,009.54	1,248.12	-194.34	2.00	-2.00	0.94	180.00	
6,610.67	0.00	0.00	6,421.04	1,248.12	-194.34	0.00	0.00	0.00	0.00	
7,754.12	91.48	269.65	7,137.00	1,243.58	-928.96	8.00	8.00	-7.90	269.65	
17,811.49	91.48	269.65	6,878.00	1,181.35	-10,982.81	0.00	0.00	0.00	0.00	SHAKE 11-12HZ BHL

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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	351.15	299.99	1.29	-0.20	0.19	1.50	1.50	0.00
400.00	3.00	351.15	399.91	5.17	-0.81	0.77	1.50	1.50	0.00
500.00	4.50	351.15	499.69	11.63	-1.81	1.74	1.50	1.50	0.00
600.00	6.00	351.15	599.27	20.68	-3.22	3.09	1.50	1.50	0.00
700.00	7.50	351.15	698.57	32.29	-5.03	4.83	1.50	1.50	0.00
800.00	9.00	351.15	797.54	46.47	-7.24	6.95	1.50	1.50	0.00
900.00	10.50	351.15	896.09	63.20	-9.84	9.45	1.50	1.50	0.00
1,000.00	12.00	351.15	994.16	82.48	-12.84	12.34	1.50	1.50	0.00
1,100.00	13.50	351.15	1,091.70	104.28	-16.24	15.60	1.50	1.50	0.00
1,128.11	13.92	351.15	1,119.00	110.86	-17.26	16.58	1.50	1.50	0.00
Fox Hills									
1,200.00	15.00	351.15	1,188.62	128.60	-20.02	19.24	1.50	1.50	0.00
1,300.00	16.50	351.15	1,284.86	155.42	-24.20	23.25	1.50	1.50	0.00
1,400.00	18.00	351.15	1,380.36	184.72	-28.76	27.63	1.50	1.50	0.00
1,456.67	18.85	351.15	1,434.12	202.42	-31.52	30.28	1.50	1.50	0.00
Hold Tangent @ 1456.67ft									
1,500.00	18.85	351.15	1,475.13	216.26	-33.67	32.35	0.00	0.00	0.00
1,526.28	18.85	351.15	1,500.00	224.65	-34.98	33.60	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	18.85	351.15	1,569.77	248.18	-38.64	37.13	0.00	0.00	0.00
1,700.00	18.85	351.15	1,664.40	280.10	-43.61	41.90	0.00	0.00	0.00
1,800.00	18.85	351.15	1,759.04	312.03	-48.58	46.68	0.00	0.00	0.00
1,900.00	18.85	351.15	1,853.68	343.95	-53.55	51.45	0.00	0.00	0.00
2,000.00	18.85	351.15	1,948.31	375.88	-58.52	56.23	0.00	0.00	0.00
2,100.00	18.85	351.15	2,042.95	407.80	-63.50	61.00	0.00	0.00	0.00
2,200.00	18.85	351.15	2,137.59	439.73	-68.47	65.78	0.00	0.00	0.00
2,300.00	18.85	351.15	2,232.22	471.65	-73.44	70.55	0.00	0.00	0.00
2,400.00	18.85	351.15	2,326.86	503.58	-78.41	75.33	0.00	0.00	0.00
2,500.00	18.85	351.15	2,421.50	535.50	-83.38	80.11	0.00	0.00	0.00
2,600.00	18.85	351.15	2,516.13	567.43	-88.35	84.88	0.00	0.00	0.00
2,700.00	18.85	351.15	2,610.77	599.35	-93.32	89.66	0.00	0.00	0.00
2,800.00	18.85	351.15	2,705.41	631.27	-98.29	94.43	0.00	0.00	0.00
2,900.00	18.85	351.15	2,800.04	663.20	-103.26	99.21	0.00	0.00	0.00
3,000.00	18.85	351.15	2,894.68	695.12	-108.23	103.98	0.00	0.00	0.00
3,100.00	18.85	351.15	2,989.32	727.05	-113.20	108.76	0.00	0.00	0.00
3,200.00	18.85	351.15	3,083.95	758.97	-118.17	113.53	0.00	0.00	0.00
3,300.00	18.85	351.15	3,178.59	790.90	-123.14	118.31	0.00	0.00	0.00
3,400.00	18.85	351.15	3,273.23	822.82	-128.11	123.09	0.00	0.00	0.00
3,500.00	18.85	351.15	3,367.86	854.75	-133.09	127.86	0.00	0.00	0.00
3,559.32	18.85	351.15	3,424.00	873.68	-136.03	130.69	0.00	0.00	0.00
Parkman									
3,600.00	18.85	351.15	3,462.50	886.67	-138.06	132.64	0.00	0.00	0.00
3,700.00	18.85	351.15	3,557.14	918.59	-143.03	137.41	0.00	0.00	0.00
3,800.00	18.85	351.15	3,651.77	950.52	-148.00	142.19	0.00	0.00	0.00
3,900.00	18.85	351.15	3,746.41	982.44	-152.97	146.96	0.00	0.00	0.00
4,000.00	18.85	351.15	3,841.05	1,014.37	-157.94	151.74	0.00	0.00	0.00
4,083.43	18.85	351.15	3,920.00	1,041.00	-162.09	155.72	0.00	0.00	0.00
Sussex									
4,100.00	18.85	351.15	3,935.68	1,046.29	-162.91	156.52	0.00	0.00	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)	
4,200.00	18.85	351.15	4,030.32	1,078.22	-167.88	161.29	0.00	0.00	0.00	
4,256.67	18.85	351.15	4,083.95	1,096.31	-170.70	164.00	0.00	0.00	0.00	
Begin Drop @ 4256.67ft										
4,300.00	17.98	351.15	4,125.06	1,109.83	-172.80	166.02	2.00	-2.00	0.00	
4,400.00	15.98	351.15	4,220.70	1,138.69	-177.30	170.34	2.00	-2.00	0.00	
4,500.00	13.98	351.15	4,317.29	1,164.24	-181.27	174.16	2.00	-2.00	0.00	
4,600.00	11.98	351.15	4,414.73	1,186.44	-184.73	177.48	2.00	-2.00	0.00	
4,700.00	9.98	351.15	4,512.89	1,205.26	-187.66	180.30	2.00	-2.00	0.00	
4,800.00	7.98	351.15	4,611.66	1,220.69	-190.06	182.60	2.00	-2.00	0.00	
4,900.00	5.98	351.15	4,710.92	1,232.70	-191.93	184.40	2.00	-2.00	0.00	
5,000.00	3.98	351.15	4,810.53	1,241.29	-193.27	185.68	2.00	-2.00	0.00	
5,100.00	1.98	351.15	4,910.39	1,246.43	-194.07	186.45	2.00	-2.00	0.00	
5,199.17	0.00	0.00	5,009.54	1,248.12	-194.34	186.71	2.00	-2.00	8.92	
Hold Vertical @ 5199.17ft										
5,200.00	0.00	0.00	5,010.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,110.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,210.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,310.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,410.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,510.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,610.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,710.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,810.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,910.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,010.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,110.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,210.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,310.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,410.37	1,248.12	-194.34	186.71	0.00	0.00	0.00	
6,610.67	0.00	0.00	6,421.04	1,248.12	-194.34	186.71	0.00	0.00	0.00	
KOP @ 6610.67ft :: DLS = 8°/100'										
6,700.00	7.15	269.65	6,510.14	1,248.09	-199.90	192.27	8.00	8.00	-101.15	
6,800.00	15.15	269.65	6,608.17	1,247.97	-219.21	211.59	8.00	8.00	0.00	
6,900.00	23.15	269.65	6,702.57	1,247.77	-251.99	244.36	8.00	8.00	0.00	
6,933.44	25.82	269.65	6,733.00	1,247.68	-265.84	258.22	8.00	8.00	0.00	
Sharon Springs										
6,982.05	29.71	269.65	6,776.00	1,247.54	-288.48	280.86	8.00	8.00	0.00	
Niobrara										
7,000.00	31.15	269.65	6,791.48	1,247.48	-297.57	289.95	8.00	8.00	0.00	
7,100.00	39.15	269.65	6,873.18	1,247.13	-355.09	347.47	8.00	8.00	0.00	
7,112.76	40.17	269.65	6,883.00	1,247.08	-363.23	355.61	8.00	8.00	0.00	
Nio B										
7,200.00	47.15	269.65	6,946.08	1,246.71	-423.42	415.80	8.00	8.00	0.00	
7,208.76	47.85	269.65	6,952.00	1,246.67	-429.88	422.26	8.00	8.00	0.00	
Nio C										
7,300.00	55.15	269.65	7,008.76	1,246.22	-501.23	493.61	8.00	8.00	0.00	
7,400.00	63.15	269.65	7,060.01	1,245.69	-587.01	579.39	8.00	8.00	0.00	
7,444.85	66.73	269.65	7,079.00	1,245.44	-627.63	620.01	8.00	8.00	0.00	
Fort Hayes										
7,497.50	70.95	269.65	7,098.00	1,245.14	-676.72	669.10	8.00	8.00	0.00	
Codell										
7,500.00	71.15	269.65	7,098.81	1,245.12	-679.08	671.46	8.00	8.00	0.00	
7,600.00	79.15	269.65	7,124.43	1,244.53	-775.66	768.04	8.00	8.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHAKE 11-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)	
7,700.00	87.15	269.65	7,136.35	1,243.91	-874.86	867.25	8.00	8.00	0.00	
7,754.12	91.48	269.65	7,137.00	1,243.58	-928.97	921.35	8.00	8.00	0.00	
End Build @ 7754.12ft - Top of Production										
7,800.00	91.48	269.65	7,135.82	1,243.29	-974.83	967.22	0.00	0.00	0.00	
7,900.00	91.48	269.65	7,133.24	1,242.67	-1,074.80	1,067.18	0.00	0.00	0.00	
8,000.00	91.48	269.65	7,130.67	1,242.06	-1,174.76	1,167.15	0.00	0.00	0.00	
8,100.00	91.48	269.65	7,128.09	1,241.44	-1,274.73	1,267.12	0.00	0.00	0.00	
8,200.00	91.48	269.65	7,125.52	1,240.82	-1,374.69	1,367.08	0.00	0.00	0.00	
8,300.00	91.48	269.65	7,122.94	1,240.20	-1,474.65	1,467.05	0.00	0.00	0.00	
8,400.00	91.48	269.65	7,120.37	1,239.58	-1,574.62	1,567.02	0.00	0.00	0.00	
8,500.00	91.48	269.65	7,117.79	1,238.96	-1,674.58	1,666.99	0.00	0.00	0.00	
8,600.00	91.48	269.65	7,115.22	1,238.34	-1,774.55	1,766.95	0.00	0.00	0.00	
8,700.00	91.48	269.65	7,112.64	1,237.73	-1,874.51	1,866.92	0.00	0.00	0.00	
8,800.00	91.48	269.65	7,110.07	1,237.11	-1,974.48	1,966.89	0.00	0.00	0.00	
8,900.00	91.48	269.65	7,107.49	1,236.49	-2,074.44	2,066.85	0.00	0.00	0.00	
9,000.00	91.48	269.65	7,104.92	1,235.87	-2,174.41	2,166.82	0.00	0.00	0.00	
9,100.00	91.48	269.65	7,102.34	1,235.25	-2,274.37	2,266.79	0.00	0.00	0.00	
9,200.00	91.48	269.65	7,099.77	1,234.63	-2,374.34	2,366.75	0.00	0.00	0.00	
9,300.00	91.48	269.65	7,097.19	1,234.01	-2,474.30	2,466.72	0.00	0.00	0.00	
9,400.00	91.48	269.65	7,094.62	1,233.39	-2,574.27	2,566.69	0.00	0.00	0.00	
9,500.00	91.48	269.65	7,092.04	1,232.78	-2,674.23	2,666.65	0.00	0.00	0.00	
9,600.00	91.48	269.65	7,089.47	1,232.16	-2,774.20	2,766.62	0.00	0.00	0.00	
9,700.00	91.48	269.65	7,086.89	1,231.54	-2,874.16	2,866.59	0.00	0.00	0.00	
9,800.00	91.48	269.65	7,084.32	1,230.92	-2,974.13	2,966.55	0.00	0.00	0.00	
9,900.00	91.48	269.65	7,081.74	1,230.30	-3,074.09	3,066.52	0.00	0.00	0.00	
10,000.00	91.48	269.65	7,079.16	1,229.68	-3,174.06	3,166.49	0.00	0.00	0.00	
10,100.00	91.48	269.65	7,076.59	1,229.06	-3,274.02	3,266.45	0.00	0.00	0.00	
10,200.00	91.48	269.65	7,074.01	1,228.44	-3,373.99	3,366.42	0.00	0.00	0.00	
10,300.00	91.48	269.65	7,071.44	1,227.83	-3,473.95	3,466.39	0.00	0.00	0.00	
10,400.00	91.48	269.65	7,068.86	1,227.21	-3,573.92	3,566.36	0.00	0.00	0.00	
10,500.00	91.48	269.65	7,066.29	1,226.59	-3,673.88	3,666.32	0.00	0.00	0.00	
10,600.00	91.48	269.65	7,063.71	1,225.97	-3,773.85	3,766.29	0.00	0.00	0.00	
10,700.00	91.48	269.65	7,061.14	1,225.35	-3,873.81	3,866.26	0.00	0.00	0.00	
10,800.00	91.48	269.65	7,058.56	1,224.73	-3,973.78	3,966.22	0.00	0.00	0.00	
10,900.00	91.48	269.65	7,055.99	1,224.11	-4,073.74	4,066.19	0.00	0.00	0.00	
11,000.00	91.48	269.65	7,053.41	1,223.50	-4,173.71	4,166.16	0.00	0.00	0.00	
11,100.00	91.48	269.65	7,050.84	1,222.88	-4,273.67	4,266.12	0.00	0.00	0.00	
11,200.00	91.48	269.65	7,048.26	1,222.26	-4,373.64	4,366.09	0.00	0.00	0.00	
11,300.00	91.48	269.65	7,045.69	1,221.64	-4,473.60	4,466.06	0.00	0.00	0.00	
11,400.00	91.48	269.65	7,043.11	1,221.02	-4,573.57	4,566.02	0.00	0.00	0.00	
11,500.00	91.48	269.65	7,040.54	1,220.40	-4,673.53	4,665.99	0.00	0.00	0.00	
11,600.00	91.48	269.65	7,037.96	1,219.78	-4,773.50	4,765.96	0.00	0.00	0.00	
11,700.00	91.48	269.65	7,035.39	1,219.16	-4,873.46	4,865.92	0.00	0.00	0.00	
11,800.00	91.48	269.65	7,032.81	1,218.55	-4,973.43	4,965.89	0.00	0.00	0.00	
11,900.00	91.48	269.65	7,030.24	1,217.93	-5,073.39	5,065.86	0.00	0.00	0.00	
12,000.00	91.48	269.65	7,027.66	1,217.31	-5,173.36	5,165.82	0.00	0.00	0.00	
12,100.00	91.48	269.65	7,025.08	1,216.69	-5,273.32	5,265.79	0.00	0.00	0.00	
12,200.00	91.48	269.65	7,022.51	1,216.07	-5,373.29	5,365.76	0.00	0.00	0.00	
12,300.00	91.48	269.65	7,019.93	1,215.45	-5,473.25	5,465.72	0.00	0.00	0.00	
12,400.00	91.48	269.65	7,017.36	1,214.83	-5,573.22	5,565.69	0.00	0.00	0.00	
12,500.00	91.48	269.65	7,014.78	1,214.21	-5,673.18	5,665.66	0.00	0.00	0.00	
12,600.00	91.48	269.65	7,012.21	1,213.60	-5,773.15	5,765.63	0.00	0.00	0.00	
12,700.00	91.48	269.65	7,009.63	1,212.98	-5,873.11	5,865.59	0.00	0.00	0.00	
12,800.00	91.48	269.65	7,007.06	1,212.36	-5,973.08	5,965.56	0.00	0.00	0.00	

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHAKE 11-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
12,900.00	91.48	269.65	7,004.48	1,211.74	-6,073.04	6,065.53	0.00	0.00	0.00
13,000.00	91.48	269.65	7,001.91	1,211.12	-6,173.01	6,165.49	0.00	0.00	0.00
13,100.00	91.48	269.65	6,999.33	1,210.50	-6,272.97	6,265.46	0.00	0.00	0.00
13,200.00	91.48	269.65	6,996.76	1,209.88	-6,372.94	6,365.43	0.00	0.00	0.00
13,300.00	91.48	269.65	6,994.18	1,209.27	-6,472.90	6,465.39	0.00	0.00	0.00
13,400.00	91.48	269.65	6,991.61	1,208.65	-6,572.87	6,565.36	0.00	0.00	0.00
13,500.00	91.48	269.65	6,989.03	1,208.03	-6,672.83	6,665.33	0.00	0.00	0.00
13,600.00	91.48	269.65	6,986.46	1,207.41	-6,772.80	6,765.29	0.00	0.00	0.00
13,700.00	91.48	269.65	6,983.88	1,206.79	-6,872.76	6,865.26	0.00	0.00	0.00
13,800.00	91.48	269.65	6,981.31	1,206.17	-6,972.73	6,965.23	0.00	0.00	0.00
13,900.00	91.48	269.65	6,978.73	1,205.55	-7,072.69	7,065.19	0.00	0.00	0.00
14,000.00	91.48	269.65	6,976.16	1,204.93	-7,172.66	7,165.16	0.00	0.00	0.00
14,100.00	91.48	269.65	6,973.58	1,204.32	-7,272.62	7,265.13	0.00	0.00	0.00
14,200.00	91.48	269.65	6,971.00	1,203.70	-7,372.59	7,365.09	0.00	0.00	0.00
14,300.00	91.48	269.65	6,968.43	1,203.08	-7,472.55	7,465.06	0.00	0.00	0.00
14,400.00	91.48	269.65	6,965.85	1,202.46	-7,572.52	7,565.03	0.00	0.00	0.00
14,500.00	91.48	269.65	6,963.28	1,201.84	-7,672.48	7,665.00	0.00	0.00	0.00
14,600.00	91.48	269.65	6,960.70	1,201.22	-7,772.45	7,764.96	0.00	0.00	0.00
14,700.00	91.48	269.65	6,958.13	1,200.60	-7,872.41	7,864.93	0.00	0.00	0.00
14,800.00	91.48	269.65	6,955.55	1,199.98	-7,972.37	7,964.90	0.00	0.00	0.00
14,900.00	91.48	269.65	6,952.98	1,199.37	-8,072.34	8,064.86	0.00	0.00	0.00
15,000.00	91.48	269.65	6,950.40	1,198.75	-8,172.30	8,164.83	0.00	0.00	0.00
15,100.00	91.48	269.65	6,947.83	1,198.13	-8,272.27	8,264.80	0.00	0.00	0.00
15,200.00	91.48	269.65	6,945.25	1,197.51	-8,372.23	8,364.76	0.00	0.00	0.00
15,300.00	91.48	269.65	6,942.68	1,196.89	-8,472.20	8,464.73	0.00	0.00	0.00
15,400.00	91.48	269.65	6,940.10	1,196.27	-8,572.16	8,564.70	0.00	0.00	0.00
15,500.00	91.48	269.65	6,937.53	1,195.65	-8,672.13	8,664.66	0.00	0.00	0.00
15,600.00	91.48	269.65	6,934.95	1,195.03	-8,772.09	8,764.63	0.00	0.00	0.00
15,700.00	91.48	269.65	6,932.38	1,194.42	-8,872.06	8,864.60	0.00	0.00	0.00
15,800.00	91.48	269.65	6,929.80	1,193.80	-8,972.02	8,964.56	0.00	0.00	0.00
15,900.00	91.48	269.65	6,927.23	1,193.18	-9,071.99	9,064.53	0.00	0.00	0.00
16,000.00	91.48	269.65	6,924.65	1,192.56	-9,171.95	9,164.50	0.00	0.00	0.00
16,100.00	91.48	269.65	6,922.08	1,191.94	-9,271.92	9,264.46	0.00	0.00	0.00
16,200.00	91.48	269.65	6,919.50	1,191.32	-9,371.88	9,364.43	0.00	0.00	0.00
16,300.00	91.48	269.65	6,916.92	1,190.70	-9,471.85	9,464.40	0.00	0.00	0.00
16,400.00	91.48	269.65	6,914.35	1,190.09	-9,571.81	9,564.37	0.00	0.00	0.00
16,500.00	91.48	269.65	6,911.77	1,189.47	-9,671.78	9,664.33	0.00	0.00	0.00
16,600.00	91.48	269.65	6,909.20	1,188.85	-9,771.74	9,764.30	0.00	0.00	0.00
16,700.00	91.48	269.65	6,906.62	1,188.23	-9,871.71	9,864.27	0.00	0.00	0.00
16,800.00	91.48	269.65	6,904.05	1,187.61	-9,971.67	9,964.23	0.00	0.00	0.00
16,900.00	91.48	269.65	6,901.47	1,186.99	-10,071.64	10,064.20	0.00	0.00	0.00
17,000.00	91.48	269.65	6,898.90	1,186.37	-10,171.60	10,164.17	0.00	0.00	0.00
17,100.00	91.48	269.65	6,896.32	1,185.75	-10,271.57	10,264.13	0.00	0.00	0.00
17,200.00	91.48	269.65	6,893.75	1,185.14	-10,371.53	10,364.10	0.00	0.00	0.00
17,300.00	91.48	269.65	6,891.17	1,184.52	-10,471.50	10,464.07	0.00	0.00	0.00
17,400.00	91.48	269.65	6,888.60	1,183.90	-10,571.46	10,564.03	0.00	0.00	0.00
17,500.00	91.48	269.65	6,886.02	1,183.28	-10,671.43	10,664.00	0.00	0.00	0.00
17,600.00	91.48	269.65	6,883.45	1,182.66	-10,771.39	10,763.97	0.00	0.00	0.00
17,700.00	91.48	269.65	6,880.87	1,182.04	-10,871.36	10,863.93	0.00	0.00	0.00
17,800.00	91.48	269.65	6,878.30	1,181.42	-10,971.32	10,963.90	0.00	0.00	0.00
17,811.49	91.48	269.65	6,878.00	1,181.35	-10,982.81	10,975.39	0.00	0.00	0.00

TD Well @ 17811.49ft

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHAKE 11-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5011.00usft (Drilling Rig)
Site:	4N-68W-11 S&B 5-11HZ PAD	North Reference:	True
Well:	SHAKE 11-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.28	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,754.12	7,137.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,128.11	1,119.00	Fox Hills				
3,559.32	3,424.00	Parkman				
4,083.43	3,920.00	Sussex				
6,933.44	6,733.00	Sharon Springs				
6,982.05	6,776.00	Niobrara				
7,112.76	6,883.00	Nio B				
7,208.76	6,952.00	Nio C				
7,444.85	7,079.00	Fort Hayes				
7,497.50	7,098.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft	
1,456.67	1,434.12	202.42	-31.52	Hold Tangent @ 1456.67ft	
4,256.67	4,083.95	1,096.31	-170.70	Begin Drop @ 4256.67ft	
5,199.17	5,009.54	1,248.12	-194.34	Hold Vertical @ 5199.17ft	
6,610.67	6,421.04	1,248.12	-194.34	KOP @ 6610.67ft :: DLS = 8"/100'	
7,754.12	7,137.00	1,243.58	-928.96	End Build @ 7754.12ft	
17,811.49	6,878.00	1,181.35	-10,982.81	TD Well @ 17811.49ft	