

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-66W-21 SARCHET 35-21HZ PAD  
SARCHET 21-2HZ**

**Plan A**

**Plan: Permit Rev-1**

SHL Lat/Long: 40.204868/-104.790392

Survey Program: MWD+IFR+MSA

## **Standard Planning Report**

**11 September, 2018**

Project: WELD-NAD83-UTMFT13N  
 Site: 3N-66W-21 SARCHET 35-21HZ PAD  
 Well: SARCHET 21-2HZ  
 Wellbore: Plan A  
 Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1515.80	9-5/8
7319.00	7930.90	5-1/2

WELL DETAILS: SARCHET 21-2HZ  
 GL = 4983.00  
 RKB = 17' @ 5000.00usft (Drilling Rig)

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1708.67	19.63	165.00	1683.21	-214.43	57.46	1.50	165.00	-214.32	
4	4508.67	19.63	165.00	4320.48	-1123.02	300.91	0.00	0.00	-1122.45	
5	5490.17	0.00	0.00	5282.89	-1283.85	344.01	2.00	-180.00	-1283.19	
6	6810.09	0.00	0.00	6602.82	-1283.85	344.01	0.00	0.00	-1283.19	
7	7930.90	89.66	0.11	7319.00	-571.84	345.38	8.00	0.11	-571.18	
8	18361.48	89.66	0.11	7380.00	9858.54	365.48	0.00	0.00	9859.23	SARCHET 21-2HZ_BHL

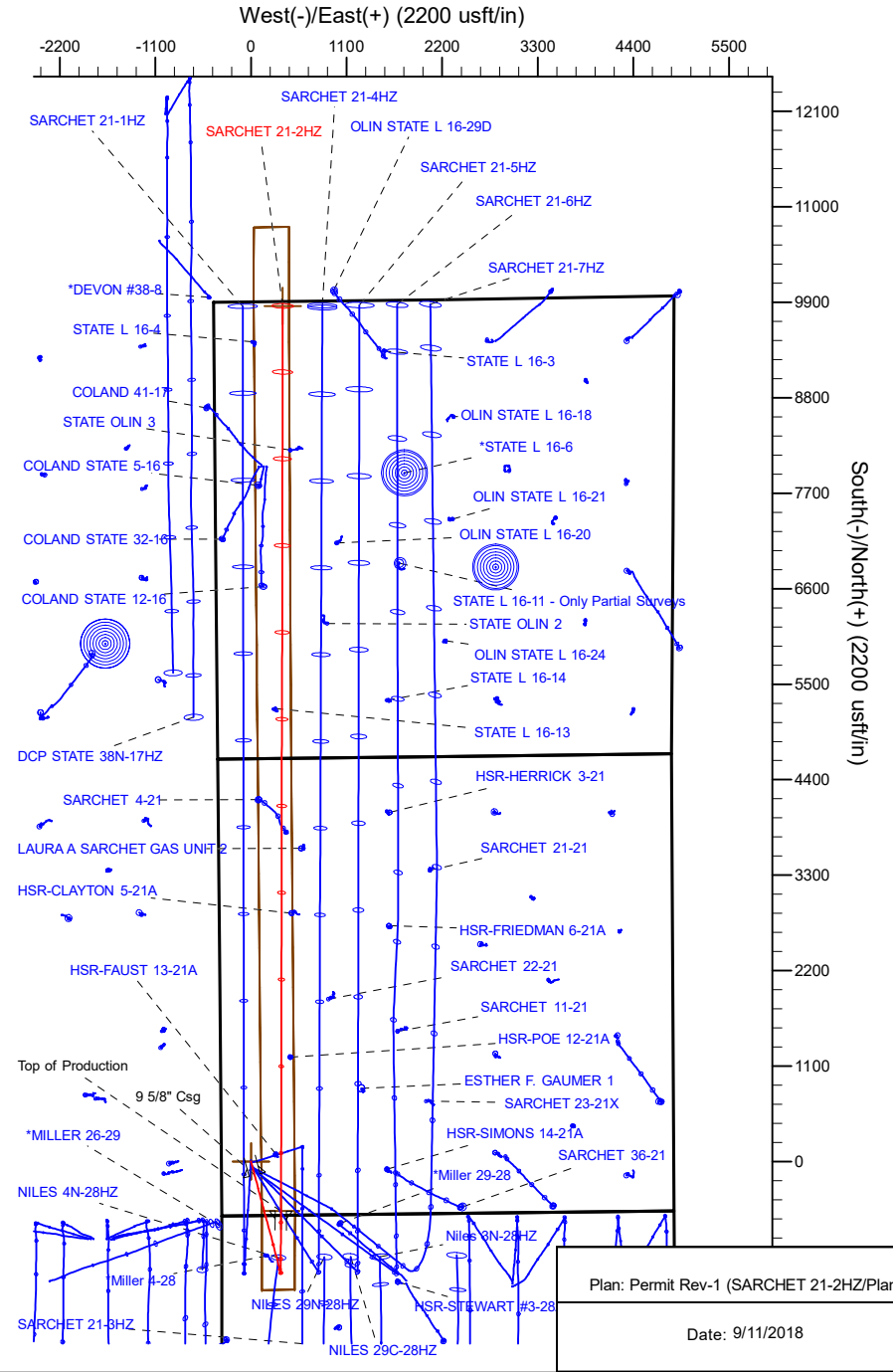
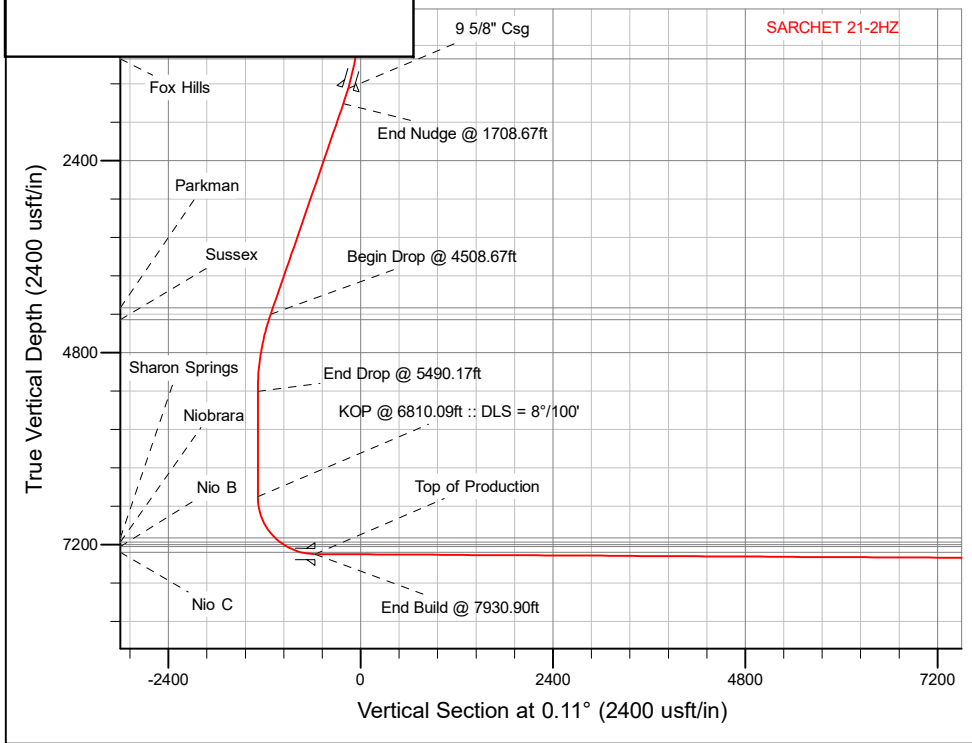
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 21-2HZ_SHL	0.00	0.00	0.00	40.204868	-104.790392
SARCHET 21-2HZ_BHL	7380.00	9858.54	365.48	40.231940	-104.789082

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1125.00	1129.43	Fox Hills
4240.00	4423.22	Parkman
4388.00	4580.04	Sussex
7118.00	7385.08	Sharon Springs
7170.00	7464.68	Niobrara
7226.00	7566.01	Nio B
7298.00	7761.17	Nio C

**SHL**  
625' FSL  
341' FWL

**HEEL**  
50' FSL  
681' FWL

**TOE**  
50' FNL  
795' FWL



Plan: Permit Rev-1 (SARCHET 21-2HZ/Plan A)  
 Date: 9/11/2018

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<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)		

<b>Site</b> 3N-66W-21 SARCHET 35-21HZ PAD			
<b>Site Position:</b>		<b>Northing:</b>	14,601,419.55 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,698,941.77 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.204909
		<b>Longitude:</b>	-104.790392
		<b>Grid Convergence:</b>	0.14 °

<b>Well</b> SARCHET 21-2HZ			
<b>Well Position</b>	<b>+N-S</b>	-14.93 usft	<b>Northing:</b> 14,601,404.62 usft
	<b>+E-W</b>	0.00 usft	<b>Easting:</b> 1,698,941.80 usft
<b>Position Uncertainty</b>		3.28 usft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b> 40.204868
			<b>Longitude:</b> -104.790392
			<b>Ground Level:</b> 4,983.00 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	9/5/2018	8.08	66.66	52,147.97303688

<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	0.11

<b>Plan Survey Tool Program</b>		<b>Date</b>	9/9/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II	Fixed:v2:crustal field declinatio	
2	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II	Fixed:v2:Rockies, crustal dec +	

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,708.67	19.63	165.00	1,683.21	-214.43	57.46	1.50	1.50	0.00	165.00	
4,508.67	19.63	165.00	4,320.48	-1,123.03	300.91	0.00	0.00	0.00	0.00	
5,490.17	0.00	0.00	5,282.89	-1,283.85	344.01	2.00	-2.00	-16.81	-180.00	
6,810.09	0.00	0.00	6,602.82	-1,283.85	344.01	0.00	0.00	0.00	0.00	
7,930.90	89.66	0.11	7,319.00	-571.84	345.38	8.00	8.00	0.01	0.11	
18,361.48	89.66	0.11	7,380.00	9,858.54	365.48	0.00	0.00	0.00	0.00	SARCHET 21-2HZ_B

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<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	0.00
100.00	0.00	0.00	100.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 400.00ft</b>										
500.00	1.50	165.00	499.99	-1.26	0.34	-1.26	1.50	1.50	0.00	0.00
600.00	3.00	165.00	599.91	-5.06	1.35	-5.05	1.50	1.50	0.00	0.00
700.00	4.50	165.00	699.69	-11.37	3.05	-11.37	1.50	1.50	0.00	0.00
800.00	6.00	165.00	799.27	-20.21	5.42	-20.20	1.50	1.50	0.00	0.00
900.00	7.50	165.00	898.57	-31.56	8.46	-31.55	1.50	1.50	0.00	0.00
1,000.00	9.00	165.00	997.54	-45.42	12.17	-45.40	1.50	1.50	0.00	0.00
1,100.00	10.50	165.00	1,096.09	-61.78	16.55	-61.75	1.50	1.50	0.00	0.00
1,129.43	10.94	165.00	1,125.00	-67.07	17.97	-67.03	1.50	1.50	0.00	0.00
<b>Fox Hills</b>										
1,200.00	12.00	165.00	1,194.16	-80.63	21.60	-80.58	1.50	1.50	0.00	0.00
1,300.00	13.50	165.00	1,291.70	-101.94	27.32	-101.89	1.50	1.50	0.00	0.00
1,400.00	15.00	165.00	1,388.62	-125.72	33.69	-125.65	1.50	1.50	0.00	0.00
1,500.00	16.50	165.00	1,484.86	-151.94	40.71	-151.86	1.50	1.50	0.00	0.00
1,515.80	16.74	165.00	1,500.00	-156.30	41.88	-156.22	1.50	1.50	0.00	0.00
<b>9 5/8" Csg</b>										
1,600.00	18.00	165.00	1,580.36	-180.58	48.39	-180.49	1.50	1.50	0.00	0.00
1,700.00	19.50	165.00	1,675.05	-211.63	56.71	-211.52	1.50	1.50	0.00	0.00
1,708.67	19.63	165.00	1,683.21	-214.43	57.46	-214.32	1.50	1.50	0.00	0.00
<b>End Nudge @ 1708.67ft</b>										
1,800.00	19.63	165.00	1,769.24	-244.07	65.40	-243.94	0.00	0.00	0.00	0.00
1,900.00	19.63	165.00	1,863.43	-276.52	74.09	-276.38	0.00	0.00	0.00	0.00
2,000.00	19.63	165.00	1,957.62	-308.97	82.79	-308.81	0.00	0.00	0.00	0.00
2,100.00	19.63	165.00	2,051.80	-341.42	91.48	-341.24	0.00	0.00	0.00	0.00
2,200.00	19.63	165.00	2,145.99	-373.87	100.18	-373.67	0.00	0.00	0.00	0.00
2,300.00	19.63	165.00	2,240.18	-406.32	108.87	-406.11	0.00	0.00	0.00	0.00
2,400.00	19.63	165.00	2,334.37	-438.77	117.57	-438.54	0.00	0.00	0.00	0.00
2,500.00	19.63	165.00	2,428.56	-471.22	126.26	-470.97	0.00	0.00	0.00	0.00
2,600.00	19.63	165.00	2,522.75	-503.67	134.96	-503.41	0.00	0.00	0.00	0.00
2,700.00	19.63	165.00	2,616.93	-536.12	143.65	-535.84	0.00	0.00	0.00	0.00
2,800.00	19.63	165.00	2,711.12	-568.57	152.35	-568.27	0.00	0.00	0.00	0.00
2,900.00	19.63	165.00	2,805.31	-601.02	161.04	-600.71	0.00	0.00	0.00	0.00
3,000.00	19.63	165.00	2,899.50	-633.47	169.74	-633.14	0.00	0.00	0.00	0.00
3,100.00	19.63	165.00	2,993.69	-665.92	178.43	-665.57	0.00	0.00	0.00	0.00
3,200.00	19.63	165.00	3,087.87	-698.37	187.13	-698.01	0.00	0.00	0.00	0.00
3,300.00	19.63	165.00	3,182.06	-730.82	195.82	-730.44	0.00	0.00	0.00	0.00
3,400.00	19.63	165.00	3,276.25	-763.27	204.52	-762.87	0.00	0.00	0.00	0.00
3,500.00	19.63	165.00	3,370.44	-795.71	213.21	-795.30	0.00	0.00	0.00	0.00
3,600.00	19.63	165.00	3,464.63	-828.16	221.91	-827.74	0.00	0.00	0.00	0.00
3,700.00	19.63	165.00	3,558.82	-860.61	230.60	-860.17	0.00	0.00	0.00	0.00
3,800.00	19.63	165.00	3,653.00	-893.06	239.30	-892.60	0.00	0.00	0.00	0.00
3,900.00	19.63	165.00	3,747.19	-925.51	247.99	-925.04	0.00	0.00	0.00	0.00
4,000.00	19.63	165.00	3,841.38	-957.96	256.69	-957.47	0.00	0.00	0.00	0.00
4,100.00	19.63	165.00	3,935.57	-990.41	265.38	-989.90	0.00	0.00	0.00	0.00
4,200.00	19.63	165.00	4,029.76	-1,022.86	274.08	-1,022.34	0.00	0.00	0.00	0.00
4,300.00	19.63	165.00	4,123.94	-1,055.31	282.77	-1,054.77	0.00	0.00	0.00	0.00
4,400.00	19.63	165.00	4,218.13	-1,087.76	291.47	-1,087.20	0.00	0.00	0.00	0.00
4,423.22	19.63	165.00	4,240.00	-1,095.30	293.48	-1,094.73	0.00	0.00	0.00	0.00
<b>Parkman</b>										

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<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)
4,500.00	19.63	165.00	4,312.32	-1,120.21	300.16	-1,119.63	0.00	0.00	0.00
4,508.67	19.63	165.00	4,320.48	-1,123.03	300.91	-1,122.45	0.00	0.00	0.00
<b>Begin Drop @ 4508.67ft</b>									
4,580.04	18.20	165.00	4,388.00	-1,145.37	306.90	-1,144.78	2.00	-2.00	0.00
<b>Sussex</b>									
4,600.00	17.80	165.00	4,406.98	-1,151.33	308.50	-1,150.74	2.00	-2.00	0.00
4,700.00	15.80	165.00	4,502.71	-1,179.26	315.98	-1,178.65	2.00	-2.00	0.00
4,800.00	13.80	165.00	4,599.38	-1,203.93	322.59	-1,203.31	2.00	-2.00	0.00
4,900.00	11.80	165.00	4,696.89	-1,225.34	328.33	-1,224.71	2.00	-2.00	0.00
5,000.00	9.80	165.00	4,795.12	-1,243.44	333.18	-1,242.80	2.00	-2.00	0.00
5,100.00	7.80	165.00	4,893.93	-1,258.22	337.14	-1,257.57	2.00	-2.00	0.00
5,200.00	5.80	165.00	4,993.22	-1,269.67	340.21	-1,269.01	2.00	-2.00	0.00
5,300.00	3.80	165.00	5,092.87	-1,277.75	342.37	-1,277.09	2.00	-2.00	0.00
5,400.00	1.80	165.00	5,192.74	-1,282.48	343.64	-1,281.82	2.00	-2.00	0.00
5,490.17	0.00	0.00	5,282.89	-1,283.85	344.01	-1,283.19	2.00	-2.00	-182.99
<b>End Drop @ 5490.17ft</b>									
5,500.00	0.00	0.00	5,292.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
5,600.00	0.00	0.00	5,392.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
5,700.00	0.00	0.00	5,492.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
5,800.00	0.00	0.00	5,592.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
5,900.00	0.00	0.00	5,692.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,000.00	0.00	0.00	5,792.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,100.00	0.00	0.00	5,892.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,200.00	0.00	0.00	5,992.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,300.00	0.00	0.00	6,092.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,400.00	0.00	0.00	6,192.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,500.00	0.00	0.00	6,292.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,600.00	0.00	0.00	6,392.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,700.00	0.00	0.00	6,492.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,800.00	0.00	0.00	6,592.73	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
6,810.09	0.00	0.00	6,602.82	-1,283.85	344.01	-1,283.19	0.00	0.00	0.00
<b>KOP @ 6810.09ft :: DLS = 8°/100'</b>									
6,900.00	7.19	0.11	6,692.49	-1,278.21	344.02	-1,277.55	8.00	8.00	0.12
7,000.00	15.19	0.11	6,790.51	-1,258.82	344.05	-1,258.15	8.00	8.00	0.00
7,100.00	23.19	0.11	6,884.88	-1,225.97	344.12	-1,225.31	8.00	8.00	0.00
7,200.00	31.19	0.11	6,973.75	-1,180.31	344.21	-1,179.64	8.00	8.00	0.00
7,300.00	39.19	0.11	7,055.41	-1,122.72	344.32	-1,122.06	8.00	8.00	0.00
7,385.08	46.00	0.11	7,118.00	-1,065.17	344.43	-1,064.51	8.00	8.00	0.00
<b>Sharon Springs</b>									
7,400.00	47.19	0.11	7,128.25	-1,054.33	344.45	-1,053.67	8.00	8.00	0.00
7,464.68	52.37	0.11	7,170.00	-1,004.96	344.54	-1,004.30	8.00	8.00	0.00
<b>Niobrara</b>									
7,500.00	55.19	0.11	7,190.87	-976.47	344.60	-975.81	8.00	8.00	0.00
7,566.01	60.47	0.11	7,226.00	-920.61	344.71	-919.95	8.00	8.00	0.00
<b>Nio B</b>									
7,600.00	63.19	0.11	7,242.04	-890.65	344.76	-889.99	8.00	8.00	0.00
7,700.00	71.19	0.11	7,280.78	-798.54	344.94	-797.88	8.00	8.00	0.00
7,761.17	76.09	0.11	7,298.00	-739.87	345.05	-739.21	8.00	8.00	0.00
<b>Nio C</b>									
7,800.00	79.19	0.11	7,306.31	-701.94	345.13	-701.28	8.00	8.00	0.00
7,900.00	87.19	0.11	7,318.16	-602.73	345.32	-602.06	8.00	8.00	0.00
7,930.90	89.66	0.11	7,319.00	-571.84	345.38	-571.18	8.00	8.00	0.00
<b>End Build @ 7930.90ft - Top of Production</b>									

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<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)
8,000.00	89.66	0.11	7,319.41	-502.74	345.51	-502.08	0.00	0.00	0.00
8,100.00	89.66	0.11	7,319.99	-402.75	345.70	-402.08	0.00	0.00	0.00
8,200.00	89.66	0.11	7,320.58	-302.75	345.90	-302.08	0.00	0.00	0.00
8,300.00	89.66	0.11	7,321.16	-202.75	346.09	-202.08	0.00	0.00	0.00
8,400.00	89.66	0.11	7,321.75	-102.75	346.28	-102.09	0.00	0.00	0.00
8,500.00	89.66	0.11	7,322.33	-2.75	346.48	-2.09	0.00	0.00	0.00
8,600.00	89.66	0.11	7,322.92	97.24	346.67	97.91	0.00	0.00	0.00
8,700.00	89.66	0.11	7,323.50	197.24	346.86	197.91	0.00	0.00	0.00
8,800.00	89.66	0.11	7,324.09	297.24	347.05	297.91	0.00	0.00	0.00
8,900.00	89.66	0.11	7,324.67	397.24	347.25	397.91	0.00	0.00	0.00
9,000.00	89.66	0.11	7,325.25	497.24	347.44	497.90	0.00	0.00	0.00
9,100.00	89.66	0.11	7,325.84	597.24	347.63	597.90	0.00	0.00	0.00
9,200.00	89.66	0.11	7,326.42	697.23	347.82	697.90	0.00	0.00	0.00
9,300.00	89.66	0.11	7,327.01	797.23	348.02	797.90	0.00	0.00	0.00
9,400.00	89.66	0.11	7,327.59	897.23	348.21	897.90	0.00	0.00	0.00
9,500.00	89.66	0.11	7,328.18	997.23	348.40	997.89	0.00	0.00	0.00
9,600.00	89.66	0.11	7,328.76	1,097.23	348.59	1,097.89	0.00	0.00	0.00
9,700.00	89.66	0.11	7,329.35	1,197.22	348.79	1,197.89	0.00	0.00	0.00
9,800.00	89.66	0.11	7,329.93	1,297.22	348.98	1,297.89	0.00	0.00	0.00
9,900.00	89.66	0.11	7,330.52	1,397.22	349.17	1,397.89	0.00	0.00	0.00
10,000.00	89.66	0.11	7,331.10	1,497.22	349.37	1,497.89	0.00	0.00	0.00
10,100.00	89.66	0.11	7,331.69	1,597.22	349.56	1,597.88	0.00	0.00	0.00
10,200.00	89.66	0.11	7,332.27	1,697.21	349.75	1,697.88	0.00	0.00	0.00
10,300.00	89.66	0.11	7,332.86	1,797.21	349.94	1,797.88	0.00	0.00	0.00
10,400.00	89.66	0.11	7,333.44	1,897.21	350.14	1,897.88	0.00	0.00	0.00
10,500.00	89.66	0.11	7,334.03	1,997.21	350.33	1,997.88	0.00	0.00	0.00
10,600.00	89.66	0.11	7,334.61	2,097.21	350.52	2,097.88	0.00	0.00	0.00
10,700.00	89.66	0.11	7,335.20	2,197.21	350.71	2,197.87	0.00	0.00	0.00
10,800.00	89.66	0.11	7,335.78	2,297.20	350.91	2,297.87	0.00	0.00	0.00
10,900.00	89.66	0.11	7,336.37	2,397.20	351.10	2,397.87	0.00	0.00	0.00
11,000.00	89.66	0.11	7,336.95	2,497.20	351.29	2,497.87	0.00	0.00	0.00
11,100.00	89.66	0.11	7,337.54	2,597.20	351.49	2,597.87	0.00	0.00	0.00
11,200.00	89.66	0.11	7,338.12	2,697.20	351.68	2,697.87	0.00	0.00	0.00
11,300.00	89.66	0.11	7,338.70	2,797.19	351.87	2,797.86	0.00	0.00	0.00
11,400.00	89.66	0.11	7,339.29	2,897.19	352.06	2,897.86	0.00	0.00	0.00
11,500.00	89.66	0.11	7,339.87	2,997.19	352.26	2,997.86	0.00	0.00	0.00
11,600.00	89.66	0.11	7,340.46	3,097.19	352.45	3,097.86	0.00	0.00	0.00
11,700.00	89.66	0.11	7,341.04	3,197.19	352.64	3,197.86	0.00	0.00	0.00
11,800.00	89.66	0.11	7,341.63	3,297.18	352.83	3,297.86	0.00	0.00	0.00
11,900.00	89.66	0.11	7,342.21	3,397.18	353.03	3,397.85	0.00	0.00	0.00
12,000.00	89.66	0.11	7,342.80	3,497.18	353.22	3,497.85	0.00	0.00	0.00
12,100.00	89.66	0.11	7,343.38	3,597.18	353.41	3,597.85	0.00	0.00	0.00
12,200.00	89.66	0.11	7,343.97	3,697.18	353.61	3,697.85	0.00	0.00	0.00
12,300.00	89.66	0.11	7,344.55	3,797.17	353.80	3,797.85	0.00	0.00	0.00
12,400.00	89.66	0.11	7,345.14	3,897.17	353.99	3,897.85	0.00	0.00	0.00
12,500.00	89.66	0.11	7,345.72	3,997.17	354.18	3,997.84	0.00	0.00	0.00
12,600.00	89.66	0.11	7,346.31	4,097.17	354.38	4,097.84	0.00	0.00	0.00
12,700.00	89.66	0.11	7,346.89	4,197.17	354.57	4,197.84	0.00	0.00	0.00
12,800.00	89.66	0.11	7,347.48	4,297.17	354.76	4,297.84	0.00	0.00	0.00
12,900.00	89.66	0.11	7,348.06	4,397.16	354.95	4,397.84	0.00	0.00	0.00
13,000.00	89.66	0.11	7,348.65	4,497.16	355.15	4,497.84	0.00	0.00	0.00
13,100.00	89.66	0.11	7,349.23	4,597.16	355.34	4,597.83	0.00	0.00	0.00
13,200.00	89.66	0.11	7,349.82	4,697.16	355.53	4,697.83	0.00	0.00	0.00
13,300.00	89.66	0.11	7,350.40	4,797.16	355.73	4,797.83	0.00	0.00	0.00

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<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	89.66	0.11	7,350.99	4,897.15	355.92	4,897.83	0.00	0.00	0.00	
13,500.00	89.66	0.11	7,351.57	4,997.15	356.11	4,997.83	0.00	0.00	0.00	
13,600.00	89.66	0.11	7,352.16	5,097.15	356.30	5,097.82	0.00	0.00	0.00	
13,700.00	89.66	0.11	7,352.74	5,197.15	356.50	5,197.82	0.00	0.00	0.00	
13,800.00	89.66	0.11	7,353.32	5,297.15	356.69	5,297.82	0.00	0.00	0.00	
13,900.00	89.66	0.11	7,353.91	5,397.14	356.88	5,397.82	0.00	0.00	0.00	
14,000.00	89.66	0.11	7,354.49	5,497.14	357.07	5,497.82	0.00	0.00	0.00	
14,100.00	89.66	0.11	7,355.08	5,597.14	357.27	5,597.82	0.00	0.00	0.00	
14,200.00	89.66	0.11	7,355.66	5,697.14	357.46	5,697.81	0.00	0.00	0.00	
14,300.00	89.66	0.11	7,356.25	5,797.14	357.65	5,797.81	0.00	0.00	0.00	
14,400.00	89.66	0.11	7,356.83	5,897.14	357.85	5,897.81	0.00	0.00	0.00	
14,500.00	89.66	0.11	7,357.42	5,997.13	358.04	5,997.81	0.00	0.00	0.00	
14,600.00	89.66	0.11	7,358.00	6,097.13	358.23	6,097.81	0.00	0.00	0.00	
14,700.00	89.66	0.11	7,358.59	6,197.13	358.42	6,197.81	0.00	0.00	0.00	
14,800.00	89.66	0.11	7,359.17	6,297.13	358.62	6,297.80	0.00	0.00	0.00	
14,900.00	89.66	0.11	7,359.76	6,397.13	358.81	6,397.80	0.00	0.00	0.00	
15,000.00	89.66	0.11	7,360.34	6,497.12	359.00	6,497.80	0.00	0.00	0.00	
15,100.00	89.66	0.11	7,360.93	6,597.12	359.19	6,597.80	0.00	0.00	0.00	
15,200.00	89.66	0.11	7,361.51	6,697.12	359.39	6,697.80	0.00	0.00	0.00	
15,300.00	89.66	0.11	7,362.10	6,797.12	359.58	6,797.80	0.00	0.00	0.00	
15,400.00	89.66	0.11	7,362.68	6,897.12	359.77	6,897.79	0.00	0.00	0.00	
15,500.00	89.66	0.11	7,363.27	6,997.11	359.97	6,997.79	0.00	0.00	0.00	
15,600.00	89.66	0.11	7,363.85	7,097.11	360.16	7,097.79	0.00	0.00	0.00	
15,700.00	89.66	0.11	7,364.44	7,197.11	360.35	7,197.79	0.00	0.00	0.00	
15,800.00	89.66	0.11	7,365.02	7,297.11	360.54	7,297.79	0.00	0.00	0.00	
15,900.00	89.66	0.11	7,365.61	7,397.11	360.74	7,397.79	0.00	0.00	0.00	
16,000.00	89.66	0.11	7,366.19	7,497.10	360.93	7,497.78	0.00	0.00	0.00	
16,100.00	89.66	0.11	7,366.78	7,597.10	361.12	7,597.78	0.00	0.00	0.00	
16,200.00	89.66	0.11	7,367.36	7,697.10	361.31	7,697.78	0.00	0.00	0.00	
16,300.00	89.66	0.11	7,367.94	7,797.10	361.51	7,797.78	0.00	0.00	0.00	
16,400.00	89.66	0.11	7,368.53	7,897.10	361.70	7,897.78	0.00	0.00	0.00	
16,500.00	89.66	0.11	7,369.11	7,997.10	361.89	7,997.78	0.00	0.00	0.00	
16,600.00	89.66	0.11	7,369.70	8,097.09	362.08	8,097.77	0.00	0.00	0.00	
16,700.00	89.66	0.11	7,370.28	8,197.09	362.28	8,197.77	0.00	0.00	0.00	
16,800.00	89.66	0.11	7,370.87	8,297.09	362.47	8,297.77	0.00	0.00	0.00	
16,900.00	89.66	0.11	7,371.45	8,397.09	362.66	8,397.77	0.00	0.00	0.00	
17,000.00	89.66	0.11	7,372.04	8,497.09	362.86	8,497.77	0.00	0.00	0.00	
17,100.00	89.66	0.11	7,372.62	8,597.08	363.05	8,597.77	0.00	0.00	0.00	
17,200.00	89.66	0.11	7,373.21	8,697.08	363.24	8,697.76	0.00	0.00	0.00	
17,300.00	89.66	0.11	7,373.79	8,797.08	363.43	8,797.76	0.00	0.00	0.00	
17,400.00	89.66	0.11	7,374.38	8,897.08	363.63	8,897.76	0.00	0.00	0.00	
17,500.00	89.66	0.11	7,374.96	8,997.08	363.82	8,997.76	0.00	0.00	0.00	
17,600.00	89.66	0.11	7,375.55	9,097.07	364.01	9,097.76	0.00	0.00	0.00	
17,700.00	89.66	0.11	7,376.13	9,197.07	364.20	9,197.75	0.00	0.00	0.00	
17,800.00	89.66	0.11	7,376.72	9,297.07	364.40	9,297.75	0.00	0.00	0.00	
17,900.00	89.66	0.11	7,377.30	9,397.07	364.59	9,397.75	0.00	0.00	0.00	
18,000.00	89.66	0.11	7,377.89	9,497.07	364.78	9,497.75	0.00	0.00	0.00	
18,100.00	89.66	0.11	7,378.47	9,597.06	364.98	9,597.75	0.00	0.00	0.00	
18,200.00	89.66	0.11	7,379.06	9,697.06	365.17	9,697.75	0.00	0.00	0.00	
18,300.00	89.66	0.11	7,379.64	9,797.06	365.36	9,797.74	0.00	0.00	0.00	
18,361.48	89.66	0.11	7,380.00	9,858.54	365.48	9,859.23	0.00	0.00	0.00	
TD Well @ 18361.48ft										

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5000.00usft (Drilling Rig)
<b>Site:</b>	3N-66W-21 SARCHET 35-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SARCHET 21-2HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,515.80	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,930.90	7,319.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,129.43	1,125.00	Fox Hills				
4,423.22	4,240.00	Parkman				
4,580.04	4,388.00	Sussex				
7,385.08	7,118.00	Sharon Springs				
7,464.68	7,170.00	Niobrara				
7,566.01	7,226.00	Nio B				
7,761.17	7,298.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
400.00	400.00	0.00	0.00	Begin Nudge @ 400.00ft	
1,708.67	1,683.21	-214.43	57.46	End Nudge @ 1708.67ft	
4,508.67	4,320.48	-1,123.03	300.91	Begin Drop @ 4508.67ft	
5,490.17	5,282.89	-1,283.85	344.01	End Drop @ 5490.17ft	
6,810.09	6,602.82	-1,283.85	344.01	KOP @ 6810.09ft :: DLS = 8"/100'	
7,930.90	7,319.00	-571.84	345.38	End Build @ 7930.90ft	
18,361.48	7,380.00	9,858.54	365.48	TD Well @ 18361.48ft	