

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-66W-21 SARCHET 35-21HZ PAD
SARCHET 21-1HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.204909/-104.790392
Survey Program: MWD+IFR

Standard Planning Report

11 September, 2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Site:	3N-66W-21 SARCHET 35-21HZ PAD	North Reference:	True
Well:	SARCHET 21-1HZ	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	3N-66W-21 SARCHET 35-21HZ PAD				
Site Position:		Northing:	14,601,419.55 usft	Latitude:	40.204909
From:	Lat/Long	Easting:	1,698,941.77 usft	Longitude:	-104.790392
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.14 °

Well	SARCHET 21-1HZ					
Well Position	+N-S	0.00 usft	Northing:	14,601,419.55 usft	Latitude:	40.204909
	+E-W	0.00 usft	Easting:	1,698,941.77 usft	Longitude:	-104.790392
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,983.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/5/2018	8.08	66.66	52,147.99436870

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	359.92

Plan Survey Tool Program		Date	9/9/2018		
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+II	Fixed:v2:crustal field declinatio	
2	1,500.00	18,302.28 Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II	Fixed:v2:crustal field declinatio	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Site:	3N-66W-21 SARCHET 35-21HZ PAD	North Reference:	True
Well:	SARCHET 21-1HZ	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	
420.00	0.00	0.00	420.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,710.67	19.36	183.45	1,686.25	-215.60	-13.00	1.50	1.50	0.00	183.45	
4,510.67	19.36	183.45	4,327.92	-1,142.12	-68.85	0.00	0.00	0.00	0.00	
5,478.67	0.00	0.00	5,277.60	-1,303.82	-78.60	2.00	-2.00	0.00	180.00	
6,749.87	0.00	0.00	6,548.81	-1,303.82	-78.60	0.00	0.00	0.00	0.00	
7,872.12	89.78	359.92	7,265.00	-590.37	-79.62	8.00	8.00	-0.01	359.92	
18,302.28	89.78	359.92	7,305.00	9,839.70	-94.53	0.00	0.00	0.00	0.00	SARCHET 21-1HZ_B

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Site:	3N-66W-21 SARCHET 35-21HZ PAD	North Reference:	True
Well:	SARCHET 21-1HZ	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	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
420.00	0.00	0.00	420.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 420.00ft										
500.00	1.20	183.45	499.99	-0.84	-0.05	-0.84	1.50	1.50	0.00	
600.00	2.70	183.45	599.93	-4.23	-0.26	-4.23	1.50	1.50	0.00	
700.00	4.20	183.45	699.75	-10.24	-0.62	-10.24	1.50	1.50	0.00	
800.00	5.70	183.45	799.37	-18.85	-1.14	-18.85	1.50	1.50	0.00	
900.00	7.20	183.45	898.74	-30.07	-1.81	-30.06	1.50	1.50	0.00	
1,000.00	8.70	183.45	997.77	-43.87	-2.64	-43.87	1.50	1.50	0.00	
1,100.00	10.20	183.45	1,096.41	-60.26	-3.63	-60.25	1.50	1.50	0.00	
1,129.07	10.64	183.45	1,125.00	-65.51	-3.95	-65.50	1.50	1.50	0.00	
Fox Hills										
1,200.00	11.70	183.45	1,194.59	-79.22	-4.78	-79.21	1.50	1.50	0.00	
1,300.00	13.20	183.45	1,292.24	-100.74	-6.07	-100.73	1.50	1.50	0.00	
1,400.00	14.70	183.45	1,389.28	-124.80	-7.52	-124.79	1.50	1.50	0.00	
1,500.00	16.20	183.45	1,485.67	-151.39	-9.13	-151.38	1.50	1.50	0.00	
1,514.93	16.42	183.45	1,500.00	-155.58	-9.38	-155.57	1.50	1.50	0.00	
9 5/8" Csg										
1,600.00	17.70	183.45	1,581.32	-180.49	-10.88	-180.48	1.50	1.50	0.00	
1,700.00	19.20	183.45	1,676.18	-212.08	-12.79	-212.06	1.50	1.50	0.00	
1,710.67	19.36	183.45	1,686.25	-215.60	-13.00	-215.58	1.50	1.50	0.00	
End Nudge @ 1710.67ft										
1,800.00	19.36	183.45	1,770.53	-245.16	-14.78	-245.14	0.00	0.00	0.00	
1,900.00	19.36	183.45	1,864.87	-278.25	-16.77	-278.22	0.00	0.00	0.00	
2,000.00	19.36	183.45	1,959.22	-311.34	-18.77	-311.31	0.00	0.00	0.00	
2,100.00	19.36	183.45	2,053.56	-344.43	-20.76	-344.40	0.00	0.00	0.00	
2,200.00	19.36	183.45	2,147.91	-377.52	-22.76	-377.49	0.00	0.00	0.00	
2,300.00	19.36	183.45	2,242.26	-410.61	-24.75	-410.57	0.00	0.00	0.00	
2,400.00	19.36	183.45	2,336.60	-443.70	-26.75	-443.66	0.00	0.00	0.00	
2,500.00	19.36	183.45	2,430.95	-476.79	-28.74	-476.75	0.00	0.00	0.00	
2,600.00	19.36	183.45	2,525.29	-509.88	-30.74	-509.84	0.00	0.00	0.00	
2,700.00	19.36	183.45	2,619.64	-542.97	-32.73	-542.92	0.00	0.00	0.00	
2,800.00	19.36	183.45	2,713.98	-576.06	-34.73	-576.01	0.00	0.00	0.00	
2,900.00	19.36	183.45	2,808.33	-609.15	-36.72	-609.10	0.00	0.00	0.00	
3,000.00	19.36	183.45	2,902.67	-642.24	-38.72	-642.19	0.00	0.00	0.00	
3,100.00	19.36	183.45	2,997.02	-675.33	-40.71	-675.27	0.00	0.00	0.00	
3,200.00	19.36	183.45	3,091.36	-708.42	-42.71	-708.36	0.00	0.00	0.00	
3,300.00	19.36	183.45	3,185.71	-741.51	-44.70	-741.45	0.00	0.00	0.00	
3,400.00	19.36	183.45	3,280.06	-774.60	-46.70	-774.53	0.00	0.00	0.00	
3,500.00	19.36	183.45	3,374.40	-807.69	-48.69	-807.62	0.00	0.00	0.00	
3,600.00	19.36	183.45	3,468.75	-840.78	-50.69	-840.71	0.00	0.00	0.00	
3,700.00	19.36	183.45	3,563.09	-873.87	-52.68	-873.80	0.00	0.00	0.00	
3,800.00	19.36	183.45	3,657.44	-906.96	-54.68	-906.88	0.00	0.00	0.00	
3,900.00	19.36	183.45	3,751.78	-940.05	-56.67	-939.97	0.00	0.00	0.00	
4,000.00	19.36	183.45	3,846.13	-973.14	-58.67	-973.06	0.00	0.00	0.00	
4,100.00	19.36	183.45	3,940.47	-1,006.23	-60.66	-1,006.15	0.00	0.00	0.00	
4,200.00	19.36	183.45	4,034.82	-1,039.32	-62.66	-1,039.23	0.00	0.00	0.00	
4,300.00	19.36	183.45	4,129.16	-1,072.41	-64.65	-1,072.32	0.00	0.00	0.00	
4,400.00	19.36	183.45	4,223.51	-1,105.50	-66.65	-1,105.41	0.00	0.00	0.00	
4,417.48	19.36	183.45	4,240.00	-1,111.29	-67.00	-1,111.19	0.00	0.00	0.00	

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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)
Parkman									
4,500.00	19.36	183.45	4,317.86	-1,138.59	-68.64	-1,138.50	0.00	0.00	0.00
4,510.67	19.36	183.45	4,327.92	-1,142.12	-68.85	-1,142.02	0.00	0.00	0.00
Begin Drop @ 4510.67ft									
4,574.11	18.09	183.45	4,388.00	-1,162.45	-70.08	-1,162.35	2.00	-2.00	0.00
Sussex									
4,600.00	17.57	183.45	4,412.65	-1,170.37	-70.56	-1,170.27	2.00	-2.00	0.00
4,700.00	15.57	183.45	4,508.49	-1,198.84	-72.27	-1,198.74	2.00	-2.00	0.00
4,800.00	13.57	183.45	4,605.27	-1,223.95	-73.79	-1,223.85	2.00	-2.00	0.00
4,900.00	11.57	183.45	4,702.86	-1,245.68	-75.10	-1,245.57	2.00	-2.00	0.00
5,000.00	9.57	183.45	4,801.16	-1,264.00	-76.20	-1,263.89	2.00	-2.00	0.00
5,100.00	7.57	183.45	4,900.04	-1,278.88	-77.10	-1,278.77	2.00	-2.00	0.00
5,200.00	5.57	183.45	4,999.38	-1,290.30	-77.79	-1,290.19	2.00	-2.00	0.00
5,300.00	3.57	183.45	5,099.05	-1,298.26	-78.27	-1,298.15	2.00	-2.00	0.00
5,400.00	1.57	183.45	5,198.95	-1,302.74	-78.54	-1,302.63	2.00	-2.00	0.00
5,478.67	0.00	0.00	5,277.60	-1,303.82	-78.60	-1,303.71	2.00	-2.00	0.00
End Drop @ 5478.67ft									
5,500.00	0.00	0.00	5,298.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
5,600.00	0.00	0.00	5,398.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
5,700.00	0.00	0.00	5,498.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
5,800.00	0.00	0.00	5,598.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
5,900.00	0.00	0.00	5,698.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,000.00	0.00	0.00	5,798.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,100.00	0.00	0.00	5,898.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,200.00	0.00	0.00	5,998.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,300.00	0.00	0.00	6,098.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,400.00	0.00	0.00	6,198.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,500.00	0.00	0.00	6,298.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,600.00	0.00	0.00	6,398.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,700.00	0.00	0.00	6,498.94	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
6,749.87	0.00	0.00	6,548.81	-1,303.82	-78.60	-1,303.71	0.00	0.00	0.00
KOP @ 6749.87ft :: DLS = 8°/100'									
6,800.00	4.01	359.92	6,598.90	-1,302.07	-78.61	-1,301.96	8.00	8.00	0.00
6,900.00	12.01	359.92	6,697.84	-1,288.14	-78.63	-1,288.03	8.00	8.00	0.00
7,000.00	20.01	359.92	6,793.88	-1,260.58	-78.66	-1,260.47	8.00	8.00	0.00
7,100.00	28.01	359.92	6,885.16	-1,219.93	-78.72	-1,219.82	8.00	8.00	0.00
7,200.00	36.01	359.92	6,969.88	-1,166.96	-78.80	-1,166.85	8.00	8.00	0.00
7,300.00	44.01	359.92	7,046.41	-1,102.72	-78.89	-1,102.61	8.00	8.00	0.00
7,400.00	52.01	359.92	7,113.26	-1,028.46	-79.00	-1,028.34	8.00	8.00	0.00
7,426.19	54.11	359.92	7,129.00	-1,007.52	-79.03	-1,007.41	8.00	8.00	0.00
Sharon Springs									
7,500.00	60.01	359.92	7,169.12	-945.61	-79.12	-945.50	8.00	8.00	0.00
7,524.51	61.97	359.92	7,181.00	-924.18	-79.15	-924.07	8.00	8.00	0.00
Niobrara									
7,600.00	68.01	359.92	7,212.90	-855.79	-79.24	-855.68	8.00	8.00	0.00
7,692.86	75.44	359.92	7,242.00	-767.68	-79.37	-767.57	8.00	8.00	0.00
Nio B									
7,700.00	76.01	359.92	7,243.76	-760.76	-79.38	-760.65	8.00	8.00	0.00
7,800.00	84.01	359.92	7,261.09	-662.36	-79.52	-662.25	8.00	8.00	0.00
7,872.12	89.78	359.92	7,265.00	-590.37	-79.62	-590.26	8.00	8.00	0.00
End Build @ 7872.12ft - Top of Production									
7,900.00	89.78	359.92	7,265.11	-562.49	-79.66	-562.38	0.00	0.00	0.00
8,000.00	89.78	359.92	7,265.49	-462.49	-79.81	-462.38	0.00	0.00	0.00

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Site:	3N-66W-21 SARCHET 35-21HZ PAD	North Reference:	True
Well:	SARCHET 21-1HZ	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)
8,100.00	89.78	359.92	7,265.87	-362.50	-79.95	-362.38	0.00	0.00	0.00
8,200.00	89.78	359.92	7,266.26	-262.50	-80.09	-262.38	0.00	0.00	0.00
8,300.00	89.78	359.92	7,266.64	-162.50	-80.23	-162.38	0.00	0.00	0.00
8,400.00	89.78	359.92	7,267.02	-62.50	-80.38	-62.39	0.00	0.00	0.00
8,500.00	89.78	359.92	7,267.41	37.50	-80.52	37.61	0.00	0.00	0.00
8,600.00	89.78	359.92	7,267.79	137.50	-80.66	137.61	0.00	0.00	0.00
8,700.00	89.78	359.92	7,268.17	237.50	-80.81	237.61	0.00	0.00	0.00
8,800.00	89.78	359.92	7,268.56	337.50	-80.95	337.61	0.00	0.00	0.00
8,900.00	89.78	359.92	7,268.94	437.50	-81.09	437.61	0.00	0.00	0.00
9,000.00	89.78	359.92	7,269.32	537.50	-81.23	537.61	0.00	0.00	0.00
9,100.00	89.78	359.92	7,269.71	637.50	-81.38	637.61	0.00	0.00	0.00
9,200.00	89.78	359.92	7,270.09	737.50	-81.52	737.61	0.00	0.00	0.00
9,300.00	89.78	359.92	7,270.48	837.49	-81.66	837.61	0.00	0.00	0.00
9,400.00	89.78	359.92	7,270.86	937.49	-81.81	937.61	0.00	0.00	0.00
9,500.00	89.78	359.92	7,271.24	1,037.49	-81.95	1,037.61	0.00	0.00	0.00
9,600.00	89.78	359.92	7,271.63	1,137.49	-82.09	1,137.61	0.00	0.00	0.00
9,700.00	89.78	359.92	7,272.01	1,237.49	-82.24	1,237.60	0.00	0.00	0.00
9,800.00	89.78	359.92	7,272.39	1,337.49	-82.38	1,337.60	0.00	0.00	0.00
9,900.00	89.78	359.92	7,272.78	1,437.49	-82.52	1,437.60	0.00	0.00	0.00
10,000.00	89.78	359.92	7,273.16	1,537.49	-82.66	1,537.60	0.00	0.00	0.00
10,100.00	89.78	359.92	7,273.54	1,637.49	-82.81	1,637.60	0.00	0.00	0.00
10,200.00	89.78	359.92	7,273.93	1,737.49	-82.95	1,737.60	0.00	0.00	0.00
10,300.00	89.78	359.92	7,274.31	1,837.49	-83.09	1,837.60	0.00	0.00	0.00
10,400.00	89.78	359.92	7,274.69	1,937.49	-83.24	1,937.60	0.00	0.00	0.00
10,500.00	89.78	359.92	7,275.08	2,037.48	-83.38	2,037.60	0.00	0.00	0.00
10,600.00	89.78	359.92	7,275.46	2,137.48	-83.52	2,137.60	0.00	0.00	0.00
10,700.00	89.78	359.92	7,275.84	2,237.48	-83.66	2,237.60	0.00	0.00	0.00
10,800.00	89.78	359.92	7,276.23	2,337.48	-83.81	2,337.60	0.00	0.00	0.00
10,900.00	89.78	359.92	7,276.61	2,437.48	-83.95	2,437.60	0.00	0.00	0.00
11,000.00	89.78	359.92	7,276.99	2,537.48	-84.09	2,537.60	0.00	0.00	0.00
11,100.00	89.78	359.92	7,277.38	2,637.48	-84.24	2,637.59	0.00	0.00	0.00
11,200.00	89.78	359.92	7,277.76	2,737.48	-84.38	2,737.59	0.00	0.00	0.00
11,300.00	89.78	359.92	7,278.15	2,837.48	-84.52	2,837.59	0.00	0.00	0.00
11,400.00	89.78	359.92	7,278.53	2,937.48	-84.67	2,937.59	0.00	0.00	0.00
11,500.00	89.78	359.92	7,278.91	3,037.48	-84.81	3,037.59	0.00	0.00	0.00
11,600.00	89.78	359.92	7,279.30	3,137.48	-84.95	3,137.59	0.00	0.00	0.00
11,700.00	89.78	359.92	7,279.68	3,237.47	-85.09	3,237.59	0.00	0.00	0.00
11,800.00	89.78	359.92	7,280.06	3,337.47	-85.24	3,337.59	0.00	0.00	0.00
11,900.00	89.78	359.92	7,280.45	3,437.47	-85.38	3,437.59	0.00	0.00	0.00
12,000.00	89.78	359.92	7,280.83	3,537.47	-85.52	3,537.59	0.00	0.00	0.00
12,100.00	89.78	359.92	7,281.21	3,637.47	-85.67	3,637.59	0.00	0.00	0.00
12,200.00	89.78	359.92	7,281.60	3,737.47	-85.81	3,737.59	0.00	0.00	0.00
12,300.00	89.78	359.92	7,281.98	3,837.47	-85.95	3,837.59	0.00	0.00	0.00
12,400.00	89.78	359.92	7,282.36	3,937.47	-86.09	3,937.59	0.00	0.00	0.00
12,500.00	89.78	359.92	7,282.75	4,037.47	-86.24	4,037.58	0.00	0.00	0.00
12,600.00	89.78	359.92	7,283.13	4,137.47	-86.38	4,137.58	0.00	0.00	0.00
12,700.00	89.78	359.92	7,283.51	4,237.47	-86.52	4,237.58	0.00	0.00	0.00
12,800.00	89.78	359.92	7,283.90	4,337.47	-86.67	4,337.58	0.00	0.00	0.00
12,900.00	89.78	359.92	7,284.28	4,437.46	-86.81	4,437.58	0.00	0.00	0.00
13,000.00	89.78	359.92	7,284.67	4,537.46	-86.95	4,537.58	0.00	0.00	0.00
13,100.00	89.78	359.92	7,285.05	4,637.46	-87.10	4,637.58	0.00	0.00	0.00
13,200.00	89.78	359.92	7,285.43	4,737.46	-87.24	4,737.58	0.00	0.00	0.00
13,300.00	89.78	359.92	7,285.82	4,837.46	-87.38	4,837.58	0.00	0.00	0.00
13,400.00	89.78	359.92	7,286.20	4,937.46	-87.52	4,937.58	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-1HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5000.00usft (Drilling Rig)
Site:	3N-66W-21 SARCHET 35-21HZ PAD	North Reference:	True
Well:	SARCHET 21-1HZ	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)
13,500.00	89.78	359.92	7,286.58	5,037.46	-87.67	5,037.58	0.00	0.00	0.00
13,600.00	89.78	359.92	7,286.97	5,137.46	-87.81	5,137.58	0.00	0.00	0.00
13,700.00	89.78	359.92	7,287.35	5,237.46	-87.95	5,237.58	0.00	0.00	0.00
13,800.00	89.78	359.92	7,287.73	5,337.46	-88.10	5,337.57	0.00	0.00	0.00
13,900.00	89.78	359.92	7,288.12	5,437.46	-88.24	5,437.57	0.00	0.00	0.00
14,000.00	89.78	359.92	7,288.50	5,537.46	-88.38	5,537.57	0.00	0.00	0.00
14,100.00	89.78	359.92	7,288.88	5,637.45	-88.52	5,637.57	0.00	0.00	0.00
14,200.00	89.78	359.92	7,289.27	5,737.45	-88.67	5,737.57	0.00	0.00	0.00
14,300.00	89.78	359.92	7,289.65	5,837.45	-88.81	5,837.57	0.00	0.00	0.00
14,400.00	89.78	359.92	7,290.03	5,937.45	-88.95	5,937.57	0.00	0.00	0.00
14,500.00	89.78	359.92	7,290.42	6,037.45	-89.10	6,037.57	0.00	0.00	0.00
14,600.00	89.78	359.92	7,290.80	6,137.45	-89.24	6,137.57	0.00	0.00	0.00
14,700.00	89.78	359.92	7,291.18	6,237.45	-89.38	6,237.57	0.00	0.00	0.00
14,800.00	89.78	359.92	7,291.57	6,337.45	-89.53	6,337.57	0.00	0.00	0.00
14,900.00	89.78	359.92	7,291.95	6,437.45	-89.67	6,437.57	0.00	0.00	0.00
15,000.00	89.78	359.92	7,292.34	6,537.45	-89.81	6,537.57	0.00	0.00	0.00
15,100.00	89.78	359.92	7,292.72	6,637.45	-89.95	6,637.57	0.00	0.00	0.00
15,200.00	89.78	359.92	7,293.10	6,737.45	-90.10	6,737.56	0.00	0.00	0.00
15,300.00	89.78	359.92	7,293.49	6,837.44	-90.24	6,837.56	0.00	0.00	0.00
15,400.00	89.78	359.92	7,293.87	6,937.44	-90.38	6,937.56	0.00	0.00	0.00
15,500.00	89.78	359.92	7,294.25	7,037.44	-90.53	7,037.56	0.00	0.00	0.00
15,600.00	89.78	359.92	7,294.64	7,137.44	-90.67	7,137.56	0.00	0.00	0.00
15,700.00	89.78	359.92	7,295.02	7,237.44	-90.81	7,237.56	0.00	0.00	0.00
15,800.00	89.78	359.92	7,295.40	7,337.44	-90.95	7,337.56	0.00	0.00	0.00
15,900.00	89.78	359.92	7,295.79	7,437.44	-91.10	7,437.56	0.00	0.00	0.00
16,000.00	89.78	359.92	7,296.17	7,537.44	-91.24	7,537.56	0.00	0.00	0.00
16,100.00	89.78	359.92	7,296.55	7,637.44	-91.38	7,637.56	0.00	0.00	0.00
16,200.00	89.78	359.92	7,296.94	7,737.44	-91.53	7,737.56	0.00	0.00	0.00
16,300.00	89.78	359.92	7,297.32	7,837.44	-91.67	7,837.56	0.00	0.00	0.00
16,400.00	89.78	359.92	7,297.70	7,937.44	-91.81	7,937.56	0.00	0.00	0.00
16,500.00	89.78	359.92	7,298.09	8,037.43	-91.95	8,037.56	0.00	0.00	0.00
16,600.00	89.78	359.92	7,298.47	8,137.43	-92.10	8,137.55	0.00	0.00	0.00
16,700.00	89.78	359.92	7,298.86	8,237.43	-92.24	8,237.55	0.00	0.00	0.00
16,800.00	89.78	359.92	7,299.24	8,337.43	-92.38	8,337.55	0.00	0.00	0.00
16,900.00	89.78	359.92	7,299.62	8,437.43	-92.53	8,437.55	0.00	0.00	0.00
17,000.00	89.78	359.92	7,300.01	8,537.43	-92.67	8,537.55	0.00	0.00	0.00
17,100.00	89.78	359.92	7,300.39	8,637.43	-92.81	8,637.55	0.00	0.00	0.00
17,200.00	89.78	359.92	7,300.77	8,737.43	-92.96	8,737.55	0.00	0.00	0.00
17,300.00	89.78	359.92	7,301.16	8,837.43	-93.10	8,837.55	0.00	0.00	0.00
17,400.00	89.78	359.92	7,301.54	8,937.43	-93.24	8,937.55	0.00	0.00	0.00
17,500.00	89.78	359.92	7,301.92	9,037.43	-93.38	9,037.55	0.00	0.00	0.00
17,600.00	89.78	359.92	7,302.31	9,137.43	-93.53	9,137.55	0.00	0.00	0.00
17,700.00	89.78	359.92	7,302.69	9,237.42	-93.67	9,237.55	0.00	0.00	0.00
17,800.00	89.78	359.92	7,303.07	9,337.42	-93.81	9,337.55	0.00	0.00	0.00
17,900.00	89.78	359.92	7,303.46	9,437.42	-93.96	9,437.54	0.00	0.00	0.00
18,000.00	89.78	359.92	7,303.84	9,537.42	-94.10	9,537.54	0.00	0.00	0.00
18,100.00	89.78	359.92	7,304.22	9,637.42	-94.24	9,637.54	0.00	0.00	0.00
18,200.00	89.78	359.92	7,304.61	9,737.42	-94.38	9,737.54	0.00	0.00	0.00
18,300.00	89.78	359.92	7,304.99	9,837.42	-94.53	9,837.54	0.00	0.00	0.00
18,302.28	89.78	359.92	7,305.00	9,839.70	-94.53	9,839.82	0.00	0.00	0.00
TD Well @ 18302.28ft									

Corporate Planning Report

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

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,514.93	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,872.12	7,265.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,129.07	1,125.00	Fox Hills				
4,417.48	4,240.00	Parkman				
4,574.11	4,388.00	Sussex				
7,426.19	7,129.00	Sharon Springs				
7,524.51	7,181.00	Niobrara				
7,692.86	7,242.00	Nio B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
420.00	420.00	0.00	0.00	Begin Nudge @ 420.00ft	
1,710.67	1,686.25	-215.60	-13.00	End Nudge @ 1710.67ft	
4,510.67	4,327.92	-1,142.12	-68.85	Begin Drop @ 4510.67ft	
5,478.67	5,277.60	-1,303.82	-78.60	End Drop @ 5478.67ft	
6,749.87	6,548.81	-1,303.82	-78.60	KOP @ 6749.87ft :: DLS = 8°/100'	
7,872.12	7,265.00	-590.37	-79.62	End Build @ 7872.12ft	
18,302.28	7,305.00	9,839.70	-94.53	TD Well @ 18302.28ft	