

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-66W-21 SARCHET 35-21HZ PAD
SARCHET 21-7HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.204703/-104.790394
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 21-7HZ
 Wellbore: Plan A
 Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1526.50	9-5/8
7336.00	8170.79	7

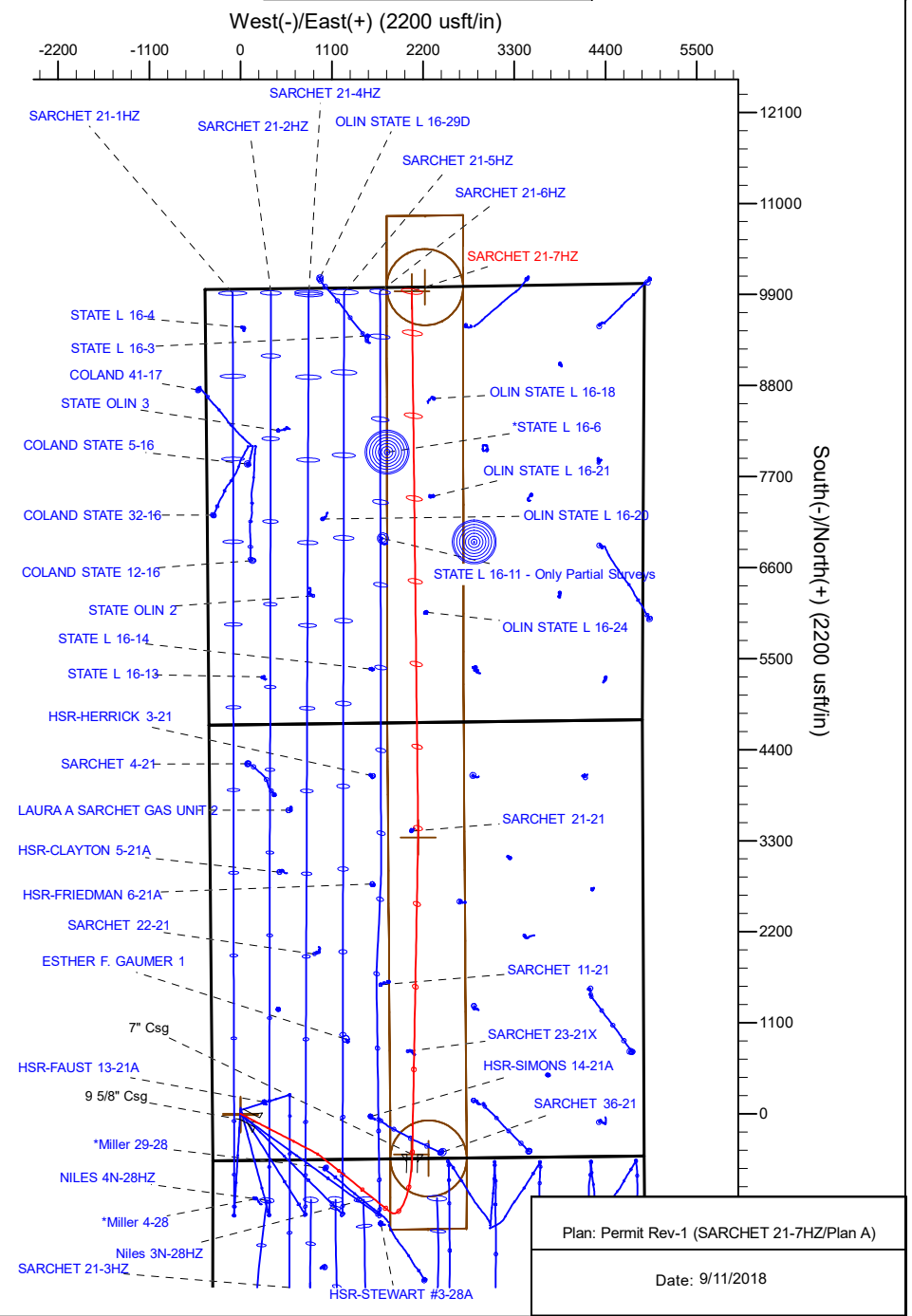
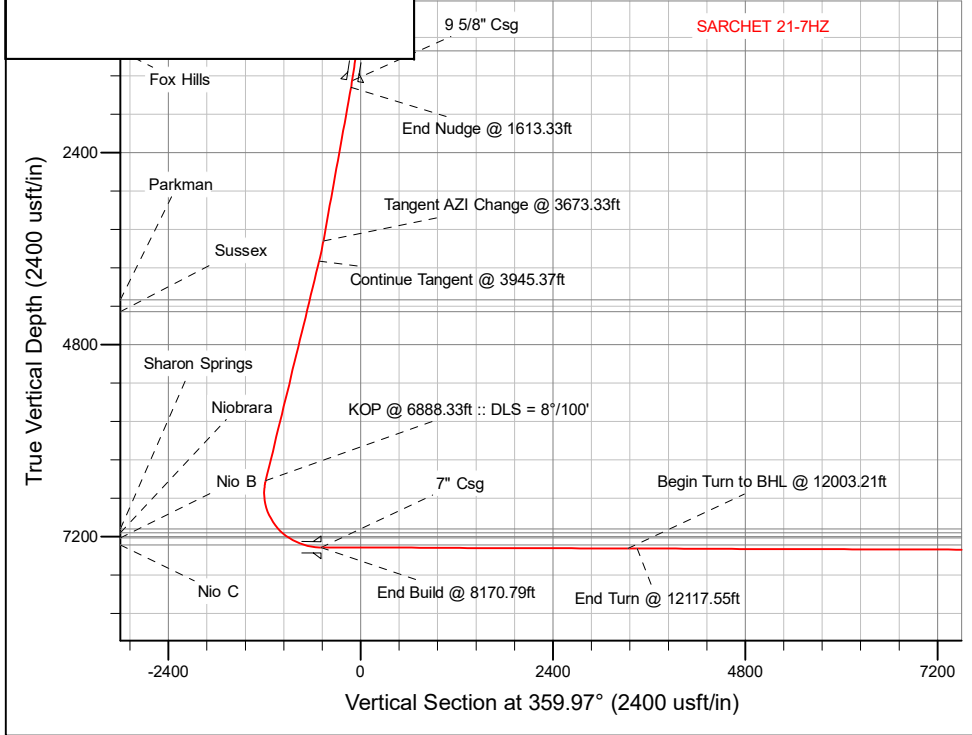
WELL DETAILS: SARCHET 21-7HZ
 GL = 4983.00
 RKB = 17' @ 5000.00usft (Drilling Rig)

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1613.33	21.20	117.50	1581.30	-119.36	229.30	1.50	117.50	-119.48	
4	3673.33	21.20	117.50	3501.89	-463.34	890.07	0.00	0.00	-463.81	
5	3945.37	21.20	128.80	3755.63	-516.90	972.07	1.50	95.27	-517.41	
6	6888.33	21.20	128.80	6499.42	-1183.76	1801.48	0.00	0.00	-1184.70	
7	8170.79	89.80	1.05	7336.00	-492.56	2069.78	8.00	-125.89	-493.64	
8	12003.21	89.80	1.05	7349.57	3339.19	2140.00	0.00	0.00	3338.07	SARCHET 21-7HZ_target
9	12117.55	89.80	359.33	7349.98	3453.52	2140.38	1.50	-90.02	3452.40	
10	18602.00	89.80	359.33	7373.00	9937.50	2065.09	0.00	0.00	9936.42	SARCHET 21-7HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 21-7HZ_SHL	0.00	0.00	0.00	40.204703	-104.790394
SARCHET 21-7HZ_BHL	7373.00	9937.50	2065.09	40.231992	-104.782995

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
1125.00	1134.29	Fox Hills
4240.00	4464.91	Parkman
4388.00	4623.65	Sussex
7103.00	7564.44	Sharon Springs
7155.00	7640.50	Niobrara
7217.00	7744.85	Nio B
7306.00	7960.66	Nio C

SHL 565' FSL 339' FWL
HEEL 50' FSL 2404' FWL
TOE 50' FNL 2494' FWL



Plan: Permit Rev-1 (SARCHET 21-7HZ/Plan A)
 Date: 9/11/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	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 21-7HZ					
Well Position	+N-S	-75.02 usft	Northing:	14,601,344.53 usft	Latitude:	40.204703
	+E-W	-0.56 usft	Easting:	1,698,941.39 usft	Longitude:	-104.790394
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	52,147.88697875

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	359.97

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	18,602.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +	

Corporate Planning Report

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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 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,613.33	21.20	117.50	1,581.30	-119.36	229.30	1.50	1.50	0.00	117.50	
3,673.33	21.20	117.50	3,501.89	-463.34	890.07	0.00	0.00	0.00	0.00	
3,945.37	21.20	128.80	3,755.63	-516.90	972.07	1.50	0.00	4.15	95.27	
6,888.33	21.20	128.80	6,499.42	-1,183.76	1,801.48	0.00	0.00	0.00	0.00	
8,170.79	89.80	1.05	7,336.00	-492.56	2,069.78	8.00	5.35	-9.96	-125.89	
12,003.21	89.80	1.05	7,349.57	3,339.19	2,140.00	0.00	0.00	0.00	0.00	SARCHET 21-7HZ_ta
12,117.55	89.80	359.33	7,349.98	3,453.52	2,140.38	1.50	0.00	-1.50	-90.02	
18,602.00	89.80	359.33	7,373.00	9,937.50	2,065.09	0.00	0.00	0.00	0.00	SARCHET 21-7HZ_B

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	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
Begin Nudge @ 200.00ft										
300.00	1.50	117.50	299.99	-0.60	1.16	-0.61	1.50	1.50	0.00	0.00
400.00	3.00	117.50	399.91	-2.42	4.64	-2.42	1.50	1.50	0.00	0.00
500.00	4.50	117.50	499.69	-5.44	10.44	-5.44	1.50	1.50	0.00	0.00
600.00	6.00	117.50	599.27	-9.66	18.56	-9.67	1.50	1.50	0.00	0.00
700.00	7.50	117.50	698.57	-15.09	28.99	-15.10	1.50	1.50	0.00	0.00
800.00	9.00	117.50	797.54	-21.71	41.71	-21.74	1.50	1.50	0.00	0.00
900.00	10.50	117.50	896.09	-29.53	56.73	-29.56	1.50	1.50	0.00	0.00
1,000.00	12.00	117.50	994.16	-38.54	74.04	-38.58	1.50	1.50	0.00	0.00
1,100.00	13.50	117.50	1,091.70	-48.73	93.61	-48.78	1.50	1.50	0.00	0.00
1,134.29	14.01	117.50	1,125.00	-52.50	100.85	-52.55	1.50	1.50	0.00	0.00
Fox Hills										
1,200.00	15.00	117.50	1,188.62	-60.10	115.45	-60.16	1.50	1.50	0.00	0.00
1,300.00	16.50	117.50	1,284.86	-72.63	139.52	-72.70	1.50	1.50	0.00	0.00
1,400.00	18.00	117.50	1,380.36	-86.32	165.83	-86.41	1.50	1.50	0.00	0.00
1,500.00	19.50	117.50	1,475.05	-101.17	194.34	-101.27	1.50	1.50	0.00	0.00
1,526.50	19.90	117.50	1,500.00	-105.29	202.26	-105.40	1.50	1.50	0.00	0.00
9 5/8" Csg										
1,600.00	21.00	117.50	1,568.86	-117.15	225.04	-117.27	1.50	1.50	0.00	0.00
1,613.33	21.20	117.50	1,581.30	-119.36	229.30	-119.48	1.50	1.50	0.00	0.00
End Nudge @ 1613.33ft										
1,700.00	21.20	117.50	1,662.11	-133.84	257.10	-133.97	0.00	0.00	0.00	0.00
1,800.00	21.20	117.50	1,755.34	-150.53	289.17	-150.68	0.00	0.00	0.00	0.00
1,900.00	21.20	117.50	1,848.57	-167.23	321.25	-167.40	0.00	0.00	0.00	0.00
2,000.00	21.20	117.50	1,941.80	-183.93	353.32	-184.11	0.00	0.00	0.00	0.00
2,100.00	21.20	117.50	2,035.04	-200.63	385.40	-200.83	0.00	0.00	0.00	0.00
2,200.00	21.20	117.50	2,128.27	-217.33	417.48	-217.54	0.00	0.00	0.00	0.00
2,300.00	21.20	117.50	2,221.50	-234.02	449.55	-234.26	0.00	0.00	0.00	0.00
2,400.00	21.20	117.50	2,314.73	-250.72	481.63	-250.97	0.00	0.00	0.00	0.00
2,500.00	21.20	117.50	2,407.96	-267.42	513.71	-267.69	0.00	0.00	0.00	0.00
2,600.00	21.20	117.50	2,501.20	-284.12	545.78	-284.40	0.00	0.00	0.00	0.00
2,700.00	21.20	117.50	2,594.43	-300.82	577.86	-301.12	0.00	0.00	0.00	0.00
2,800.00	21.20	117.50	2,687.66	-317.51	609.94	-317.83	0.00	0.00	0.00	0.00
2,900.00	21.20	117.50	2,780.89	-334.21	642.01	-334.55	0.00	0.00	0.00	0.00
3,000.00	21.20	117.50	2,874.13	-350.91	674.09	-351.26	0.00	0.00	0.00	0.00
3,100.00	21.20	117.50	2,967.36	-367.61	706.17	-367.98	0.00	0.00	0.00	0.00
3,200.00	21.20	117.50	3,060.59	-384.30	738.24	-384.69	0.00	0.00	0.00	0.00
3,300.00	21.20	117.50	3,153.82	-401.00	770.32	-401.41	0.00	0.00	0.00	0.00
3,400.00	21.20	117.50	3,247.06	-417.70	802.40	-418.12	0.00	0.00	0.00	0.00
3,500.00	21.20	117.50	3,340.29	-434.40	834.47	-434.84	0.00	0.00	0.00	0.00
3,600.00	21.20	117.50	3,433.52	-451.10	866.55	-451.55	0.00	0.00	0.00	0.00
3,673.33	21.20	117.50	3,501.89	-463.34	890.07	-463.81	0.00	0.00	0.00	0.00
Tangent AZI Change @ 3673.33ft										
3,700.00	21.17	118.60	3,526.76	-467.87	898.58	-468.34	1.50	-0.12	4.14	4.14
3,800.00	21.11	122.76	3,620.03	-486.26	929.57	-486.75	1.50	-0.06	4.16	4.16
3,900.00	21.15	126.92	3,713.32	-506.84	959.13	-507.34	1.50	0.04	4.16	4.16
3,945.37	21.20	128.80	3,755.63	-516.90	972.07	-517.41	1.50	0.11	4.14	4.14
Continue Tangent @ 3945.37ft										
4,000.00	21.20	128.80	3,806.56	-529.28	987.47	-529.79	0.00	0.00	0.00	0.00
4,100.00	21.20	128.80	3,899.79	-551.94	1,015.65	-552.47	0.00	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	21.20	128.80	3,993.02	-574.60	1,043.83	-575.14	0.00	0.00	0.00
4,300.00	21.20	128.80	4,086.25	-597.26	1,072.01	-597.82	0.00	0.00	0.00
4,400.00	21.20	128.80	4,179.49	-619.91	1,100.20	-620.49	0.00	0.00	0.00
4,464.91	21.20	128.80	4,240.00	-634.62	1,118.49	-635.21	0.00	0.00	0.00
Parkman									
4,500.00	21.20	128.80	4,272.72	-642.57	1,128.38	-643.17	0.00	0.00	0.00
4,600.00	21.20	128.80	4,365.95	-665.23	1,156.56	-665.84	0.00	0.00	0.00
4,623.65	21.20	128.80	4,388.00	-670.59	1,163.23	-671.20	0.00	0.00	0.00
Sussex									
4,700.00	21.20	128.80	4,459.18	-687.89	1,184.75	-688.51	0.00	0.00	0.00
4,800.00	21.20	128.80	4,552.42	-710.55	1,212.93	-711.19	0.00	0.00	0.00
4,900.00	21.20	128.80	4,645.65	-733.21	1,241.11	-733.86	0.00	0.00	0.00
5,000.00	21.20	128.80	4,738.88	-755.87	1,269.29	-756.54	0.00	0.00	0.00
5,100.00	21.20	128.80	4,832.11	-778.53	1,297.48	-779.21	0.00	0.00	0.00
5,200.00	21.20	128.80	4,925.35	-801.19	1,325.66	-801.89	0.00	0.00	0.00
5,300.00	21.20	128.80	5,018.58	-823.85	1,353.84	-824.56	0.00	0.00	0.00
5,400.00	21.20	128.80	5,111.81	-846.51	1,382.03	-847.23	0.00	0.00	0.00
5,500.00	21.20	128.80	5,205.04	-869.17	1,410.21	-869.91	0.00	0.00	0.00
5,600.00	21.20	128.80	5,298.28	-891.83	1,438.39	-892.58	0.00	0.00	0.00
5,700.00	21.20	128.80	5,391.51	-914.49	1,466.57	-915.26	0.00	0.00	0.00
5,800.00	21.20	128.80	5,484.74	-937.15	1,494.76	-937.93	0.00	0.00	0.00
5,900.00	21.20	128.80	5,577.97	-959.81	1,522.94	-960.61	0.00	0.00	0.00
6,000.00	21.20	128.80	5,671.21	-982.47	1,551.12	-983.28	0.00	0.00	0.00
6,100.00	21.20	128.80	5,764.44	-1,005.13	1,579.30	-1,005.95	0.00	0.00	0.00
6,200.00	21.20	128.80	5,857.67	-1,027.79	1,607.49	-1,028.63	0.00	0.00	0.00
6,300.00	21.20	128.80	5,950.90	-1,050.45	1,635.67	-1,051.30	0.00	0.00	0.00
6,400.00	21.20	128.80	6,044.13	-1,073.11	1,663.85	-1,073.98	0.00	0.00	0.00
6,500.00	21.20	128.80	6,137.37	-1,095.77	1,692.04	-1,096.65	0.00	0.00	0.00
6,600.00	21.20	128.80	6,230.60	-1,118.42	1,720.22	-1,119.33	0.00	0.00	0.00
6,700.00	21.20	128.80	6,323.83	-1,141.08	1,748.40	-1,142.00	0.00	0.00	0.00
6,800.00	21.20	128.80	6,417.06	-1,163.74	1,776.58	-1,164.67	0.00	0.00	0.00
6,888.33	21.20	128.80	6,499.42	-1,183.76	1,801.48	-1,184.70	0.00	0.00	0.00
KOP @ 6888.33ft :: DLS = 8°/100'									
6,900.00	20.67	126.66	6,510.32	-1,186.31	1,804.77	-1,187.26	8.00	-4.58	-18.37
7,000.00	17.46	104.01	6,604.95	-1,200.50	1,833.53	-1,201.46	8.00	-3.21	-22.65
7,100.00	17.51	77.16	6,700.48	-1,200.79	1,862.81	-1,201.76	8.00	0.06	-26.85
7,200.00	20.81	54.74	6,795.06	-1,187.17	1,892.03	-1,188.16	8.00	3.29	-22.42
7,300.00	26.14	39.63	6,886.83	-1,159.91	1,920.62	-1,160.91	8.00	5.33	-15.11
7,400.00	32.52	29.72	6,974.02	-1,119.53	1,948.04	-1,120.55	8.00	6.38	-9.92
7,500.00	39.44	22.86	7,054.93	-1,066.84	1,973.75	-1,067.87	8.00	6.92	-6.86
7,564.44	44.07	19.44	7,103.00	-1,026.82	1,989.17	-1,027.86	8.00	7.18	-5.30
Sharon Springs									
7,600.00	46.66	17.80	7,127.98	-1,002.84	1,997.24	-1,003.89	8.00	7.29	-4.63
7,640.50	49.64	16.08	7,155.00	-973.98	2,006.01	-975.03	8.00	7.35	-4.23
Niobrara									
7,700.00	54.06	13.82	7,191.75	-928.79	2,018.06	-929.84	8.00	7.42	-3.80
7,744.85	57.41	12.28	7,217.00	-892.69	2,026.42	-893.75	8.00	7.48	-3.43
Nio B									
7,800.00	61.56	10.54	7,245.00	-846.12	2,035.80	-847.19	8.00	7.52	-3.16
7,900.00	69.13	7.70	7,286.69	-756.46	2,050.13	-757.53	8.00	7.57	-2.84
7,960.66	73.75	6.11	7,306.00	-699.39	2,057.03	-700.46	8.00	7.61	-2.61
Nio C									
8,000.00	76.74	5.13	7,316.02	-661.53	2,060.75	-662.61	8.00	7.62	-2.51

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	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	84.38	2.71	7,332.40	-563.19	2,067.47	-564.28	8.00	7.64	-2.41	
8,170.79	89.80	1.05	7,336.00	-492.56	2,069.78	-493.64	8.00	7.65	-2.35	
End Build @ 8170.79ft - 7" Csg										
8,200.00	89.80	1.05	7,336.10	-463.36	2,070.32	-464.44	0.00	0.00	0.00	
8,300.00	89.80	1.05	7,338.45	-363.37	2,072.15	-364.46	0.00	0.00	0.00	
8,400.00	89.80	1.05	7,336.81	-263.39	2,073.98	-264.48	0.00	0.00	0.00	
8,500.00	89.80	1.05	7,337.16	-163.41	2,075.82	-164.50	0.00	0.00	0.00	
8,600.00	89.80	1.05	7,337.52	-63.43	2,077.65	-64.51	0.00	0.00	0.00	
8,700.00	89.80	1.05	7,337.87	36.56	2,079.48	35.47	0.00	0.00	0.00	
8,800.00	89.80	1.05	7,338.23	136.54	2,081.31	135.45	0.00	0.00	0.00	
8,900.00	89.80	1.05	7,338.58	236.52	2,083.14	235.43	0.00	0.00	0.00	
9,000.00	89.80	1.05	7,338.93	336.50	2,084.98	335.41	0.00	0.00	0.00	
9,100.00	89.80	1.05	7,339.29	436.49	2,086.81	435.39	0.00	0.00	0.00	
9,200.00	89.80	1.05	7,339.64	536.47	2,088.64	535.38	0.00	0.00	0.00	
9,300.00	89.80	1.05	7,340.00	636.45	2,090.47	635.36	0.00	0.00	0.00	
9,400.00	89.80	1.05	7,340.35	736.43	2,092.31	735.34	0.00	0.00	0.00	
9,500.00	89.80	1.05	7,340.70	836.42	2,094.14	835.32	0.00	0.00	0.00	
9,600.00	89.80	1.05	7,341.06	936.40	2,095.97	935.30	0.00	0.00	0.00	
9,700.00	89.80	1.05	7,341.41	1,036.38	2,097.80	1,035.28	0.00	0.00	0.00	
9,800.00	89.80	1.05	7,341.77	1,136.37	2,099.63	1,135.27	0.00	0.00	0.00	
9,900.00	89.80	1.05	7,342.12	1,236.35	2,101.47	1,235.25	0.00	0.00	0.00	
10,000.00	89.80	1.05	7,342.48	1,336.33	2,103.30	1,335.23	0.00	0.00	0.00	
10,100.00	89.80	1.05	7,342.83	1,436.31	2,105.13	1,435.21	0.00	0.00	0.00	
10,200.00	89.80	1.05	7,343.18	1,536.30	2,106.96	1,535.19	0.00	0.00	0.00	
10,300.00	89.80	1.05	7,343.54	1,636.28	2,108.79	1,635.17	0.00	0.00	0.00	
10,400.00	89.80	1.05	7,343.89	1,736.26	2,110.63	1,735.16	0.00	0.00	0.00	
10,500.00	89.80	1.05	7,344.25	1,836.24	2,112.46	1,835.14	0.00	0.00	0.00	
10,600.00	89.80	1.05	7,344.60	1,936.23	2,114.29	1,935.12	0.00	0.00	0.00	
10,700.00	89.80	1.05	7,344.95	2,036.21	2,116.12	2,035.10	0.00	0.00	0.00	
10,800.00	89.80	1.05	7,345.31	2,136.19	2,117.96	2,135.08	0.00	0.00	0.00	
10,900.00	89.80	1.05	7,345.66	2,236.17	2,119.79	2,235.06	0.00	0.00	0.00	
11,000.00	89.80	1.05	7,346.02	2,336.16	2,121.62	2,335.05	0.00	0.00	0.00	
11,100.00	89.80	1.05	7,346.37	2,436.14	2,123.45	2,435.03	0.00	0.00	0.00	
11,200.00	89.80	1.05	7,346.73	2,536.12	2,125.28	2,535.01	0.00	0.00	0.00	
11,300.00	89.80	1.05	7,347.08	2,636.10	2,127.12	2,634.99	0.00	0.00	0.00	
11,400.00	89.80	1.05	7,347.43	2,736.09	2,128.95	2,734.97	0.00	0.00	0.00	
11,500.00	89.80	1.05	7,347.79	2,836.07	2,130.78	2,834.95	0.00	0.00	0.00	
11,600.00	89.80	1.05	7,348.14	2,936.05	2,132.61	2,934.93	0.00	0.00	0.00	
11,700.00	89.80	1.05	7,348.50	3,036.03	2,134.44	3,034.92	0.00	0.00	0.00	
11,800.00	89.80	1.05	7,348.85	3,136.02	2,136.28	3,134.90	0.00	0.00	0.00	
11,900.00	89.80	1.05	7,349.20	3,236.00	2,138.11	3,234.88	0.00	0.00	0.00	
12,000.00	89.80	1.05	7,349.56	3,335.98	2,139.94	3,334.86	0.00	0.00	0.00	
12,003.21	89.80	1.05	7,349.57	3,339.19	2,140.00	3,338.07	0.00	0.00	0.00	
Begin Turn to BHL @ 12003.21ft										
12,100.00	89.80	359.60	7,349.91	3,435.98	2,140.55	3,434.86	1.50	0.00	-1.50	
12,117.55	89.80	359.33	7,349.98	3,453.52	2,140.38	3,452.40	1.50	0.00	-1.50	
End Turn @ 12117.55ft										
12,200.00	89.80	359.33	7,350.27	3,535.97	2,139.43	3,534.85	0.00	0.00	0.00	
12,300.00	89.80	359.33	7,350.62	3,635.96	2,138.27	3,634.84	0.00	0.00	0.00	
12,400.00	89.80	359.33	7,350.98	3,735.96	2,137.10	3,734.84	0.00	0.00	0.00	
12,500.00	89.80	359.33	7,351.33	3,835.95	2,135.94	3,834.83	0.00	0.00	0.00	
12,600.00	89.80	359.33	7,351.69	3,935.94	2,134.78	3,934.82	0.00	0.00	0.00	
12,700.00	89.80	359.33	7,352.04	4,035.93	2,133.62	4,034.82	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.00	89.80	359.33	7,352.40	4,135.93	2,132.46	4,134.81	0.00	0.00	0.00
12,900.00	89.80	359.33	7,352.75	4,235.92	2,131.30	4,234.80	0.00	0.00	0.00
13,000.00	89.80	359.33	7,353.11	4,335.91	2,130.14	4,334.80	0.00	0.00	0.00
13,100.00	89.80	359.33	7,353.46	4,435.90	2,128.98	4,434.79	0.00	0.00	0.00
13,200.00	89.80	359.33	7,353.82	4,535.90	2,127.81	4,534.78	0.00	0.00	0.00
13,300.00	89.80	359.33	7,354.17	4,635.89	2,126.65	4,634.77	0.00	0.00	0.00
13,400.00	89.80	359.33	7,354.53	4,735.88	2,125.49	4,734.77	0.00	0.00	0.00
13,500.00	89.80	359.33	7,354.88	4,835.87	2,124.33	4,834.76	0.00	0.00	0.00
13,600.00	89.80	359.33	7,355.24	4,935.87	2,123.17	4,934.75	0.00	0.00	0.00
13,700.00	89.80	359.33	7,355.59	5,035.86	2,122.01	5,034.75	0.00	0.00	0.00
13,800.00	89.80	359.33	7,355.95	5,135.85	2,120.85	5,134.74	0.00	0.00	0.00
13,900.00	89.80	359.33	7,356.30	5,235.84	2,119.69	5,234.73	0.00	0.00	0.00
14,000.00	89.80	359.33	7,356.66	5,335.84	2,118.53	5,334.73	0.00	0.00	0.00
14,100.00	89.80	359.33	7,357.01	5,435.83	2,117.36	5,434.72	0.00	0.00	0.00
14,200.00	89.80	359.33	7,357.37	5,535.82	2,116.20	5,534.71	0.00	0.00	0.00
14,300.00	89.80	359.33	7,357.72	5,635.82	2,115.04	5,634.71	0.00	0.00	0.00
14,400.00	89.80	359.33	7,358.08	5,735.81	2,113.88	5,734.70	0.00	0.00	0.00
14,500.00	89.80	359.33	7,358.44	5,835.80	2,112.72	5,834.69	0.00	0.00	0.00
14,600.00	89.80	359.33	7,358.79	5,935.79	2,111.56	5,934.69	0.00	0.00	0.00
14,700.00	89.80	359.33	7,359.15	6,035.79	2,110.40	6,034.68	0.00	0.00	0.00
14,800.00	89.80	359.33	7,359.50	6,135.78	2,109.24	6,134.67	0.00	0.00	0.00
14,900.00	89.80	359.33	7,359.86	6,235.77	2,108.08	6,234.67	0.00	0.00	0.00
15,000.00	89.80	359.33	7,360.21	6,335.76	2,106.91	6,334.66	0.00	0.00	0.00
15,100.00	89.80	359.33	7,360.57	6,435.76	2,105.75	6,434.65	0.00	0.00	0.00
15,200.00	89.80	359.33	7,360.92	6,535.75	2,104.59	6,534.65	0.00	0.00	0.00
15,300.00	89.80	359.33	7,361.28	6,635.74	2,103.43	6,634.64	0.00	0.00	0.00
15,400.00	89.80	359.33	7,361.63	6,735.73	2,102.27	6,734.63	0.00	0.00	0.00
15,500.00	89.80	359.33	7,361.99	6,835.73	2,101.11	6,834.63	0.00	0.00	0.00
15,600.00	89.80	359.33	7,362.34	6,935.72	2,099.95	6,934.62	0.00	0.00	0.00
15,700.00	89.80	359.33	7,362.70	7,035.71	2,098.79	7,034.61	0.00	0.00	0.00
15,800.00	89.80	359.33	7,363.05	7,135.70	2,097.63	7,134.61	0.00	0.00	0.00
15,900.00	89.80	359.33	7,363.41	7,235.70	2,096.46	7,234.60	0.00	0.00	0.00
16,000.00	89.80	359.33	7,363.76	7,335.69	2,095.30	7,334.59	0.00	0.00	0.00
16,100.00	89.80	359.33	7,364.12	7,435.68	2,094.14	7,434.59	0.00	0.00	0.00
16,200.00	89.80	359.33	7,364.47	7,535.68	2,092.98	7,534.58	0.00	0.00	0.00
16,300.00	89.80	359.33	7,364.83	7,635.67	2,091.82	7,634.57	0.00	0.00	0.00
16,400.00	89.80	359.33	7,365.18	7,735.66	2,090.66	7,734.56	0.00	0.00	0.00
16,500.00	89.80	359.33	7,365.54	7,835.65	2,089.50	7,834.56	0.00	0.00	0.00
16,600.00	89.80	359.33	7,365.89	7,935.65	2,088.34	7,934.55	0.00	0.00	0.00
16,700.00	89.80	359.33	7,366.25	8,035.64	2,087.17	8,034.54	0.00	0.00	0.00
16,800.00	89.80	359.33	7,366.60	8,135.63	2,086.01	8,134.54	0.00	0.00	0.00
16,900.00	89.80	359.33	7,366.96	8,235.62	2,084.85	8,234.53	0.00	0.00	0.00
17,000.00	89.80	359.33	7,367.31	8,335.62	2,083.69	8,334.52	0.00	0.00	0.00
17,100.00	89.80	359.33	7,367.67	8,435.61	2,082.53	8,434.52	0.00	0.00	0.00
17,200.00	89.80	359.33	7,368.02	8,535.60	2,081.37	8,534.51	0.00	0.00	0.00
17,300.00	89.80	359.33	7,368.38	8,635.59	2,080.21	8,634.50	0.00	0.00	0.00
17,400.00	89.80	359.33	7,368.73	8,735.59	2,079.05	8,734.50	0.00	0.00	0.00
17,500.00	89.80	359.33	7,369.09	8,835.58	2,077.89	8,834.49	0.00	0.00	0.00
17,600.00	89.80	359.33	7,369.44	8,935.57	2,076.72	8,934.48	0.00	0.00	0.00
17,700.00	89.80	359.33	7,369.80	9,035.56	2,075.56	9,034.48	0.00	0.00	0.00
17,800.00	89.80	359.33	7,370.15	9,135.56	2,074.40	9,134.47	0.00	0.00	0.00
17,900.00	89.80	359.33	7,370.51	9,235.55	2,073.24	9,234.46	0.00	0.00	0.00
18,000.00	89.80	359.33	7,370.86	9,335.54	2,072.08	9,334.46	0.00	0.00	0.00
18,100.00	89.80	359.33	7,371.22	9,435.54	2,070.92	9,434.45	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-7HZ
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 21-7HZ	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)	
18,200.00	89.80	359.33	7,371.57	9,535.53	2,069.76	9,534.44	0.00	0.00	0.00	
18,300.00	89.80	359.33	7,371.93	9,635.52	2,068.60	9,634.44	0.00	0.00	0.00	
18,400.00	89.80	359.33	7,372.28	9,735.51	2,067.44	9,734.43	0.00	0.00	0.00	
18,500.00	89.80	359.33	7,372.64	9,835.51	2,066.27	9,834.42	0.00	0.00	0.00	
18,600.00	89.80	359.33	7,372.99	9,935.50	2,065.11	9,934.42	0.00	0.00	0.00	
18,602.00	89.80	359.33	7,373.00	9,937.50	2,065.09	9,936.42	0.00	0.00	0.00	
TD Well @ 18602.00ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.50	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,170.79	7,336.00	7" Csg	7	8-3/4	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,134.29	1,125.00	Fox Hills				
4,464.91	4,240.00	Parkman				
4,623.65	4,388.00	Sussex				
7,564.44	7,103.00	Sharon Springs				
7,640.50	7,155.00	Niobrara				
7,744.85	7,217.00	Nio B				
7,960.66	7,306.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft	
1,613.33	1,581.30	-119.36	229.30	End Nudge @ 1613.33ft	
3,673.33	3,501.89	-463.34	890.07	Tangent AZI Change @ 3673.33ft	
3,945.37	3,755.63	-516.90	972.07	Continue Tangent @ 3945.37ft	
6,888.33	6,499.42	-1,183.76	1,801.48	KOP @ 6888.33ft :: DLS = 8°/100'	
8,170.79	7,336.00	-492.56	2,069.78	End Build @ 8170.79ft	
12,003.21	7,349.57	3,339.19	2,140.00	Begin Turn to BHL @ 12003.21ft	
12,117.55	7,349.98	3,453.52	2,140.38	End Turn @ 12117.55ft	
18,602.00	7,373.00	9,937.50	2,065.09	TD Well @ 18602.00ft	