

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-66W-21 SARCHET 35-21HZ PAD

SARCHET 21-4HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.204785/-104.790393

Survey Program: MWD+IFR

Standard Planning Report

11 September, 2018

Project: WELD-NAD83-UTMFT13N
Site: 3N-66W-21 SARCHET 35-21HZ PAD
Well: SARCHET 21-4HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1518.61	9-5/8
7240.00	7891.88	5-1/2

WELL DETAILS: SARCHET 21-4HZ
GL = 4983.00
RKB = 17' @ 5000.00usft (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	340.00	0.00	0.00	340.00	0.00	0.00	0.00	0.00	0.00	
3	1758.67	21.28	148.00	1726.28	-220.86	138.01	1.50	148.00	-220.36	
4	4558.67	21.28	148.00	4335.37	-1082.64	676.51	0.00	0.00	-1080.16	
5	5622.67	0.00	0.00	5375.07	-1248.29	780.02	2.00	180.00	-1245.42	
6	6771.41	0.00	0.00	6523.82	-1248.29	780.02	0.00	0.00	-1245.42	
7	7891.88	89.64	0.21	7240.00	-536.63	782.68	8.00	0.21	-533.76	
8	18322.48	89.64	0.21	7306.00	9893.69	821.77	0.00	0.00	9896.64	SARCHET 21-4HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 21-4HZ_SHL	0.00	0.00	0.00	40.204785	-104.790393
SARCHET 21-4HZ_BHL	7306.00	9893.69	821.77	40.231954	-104.787449

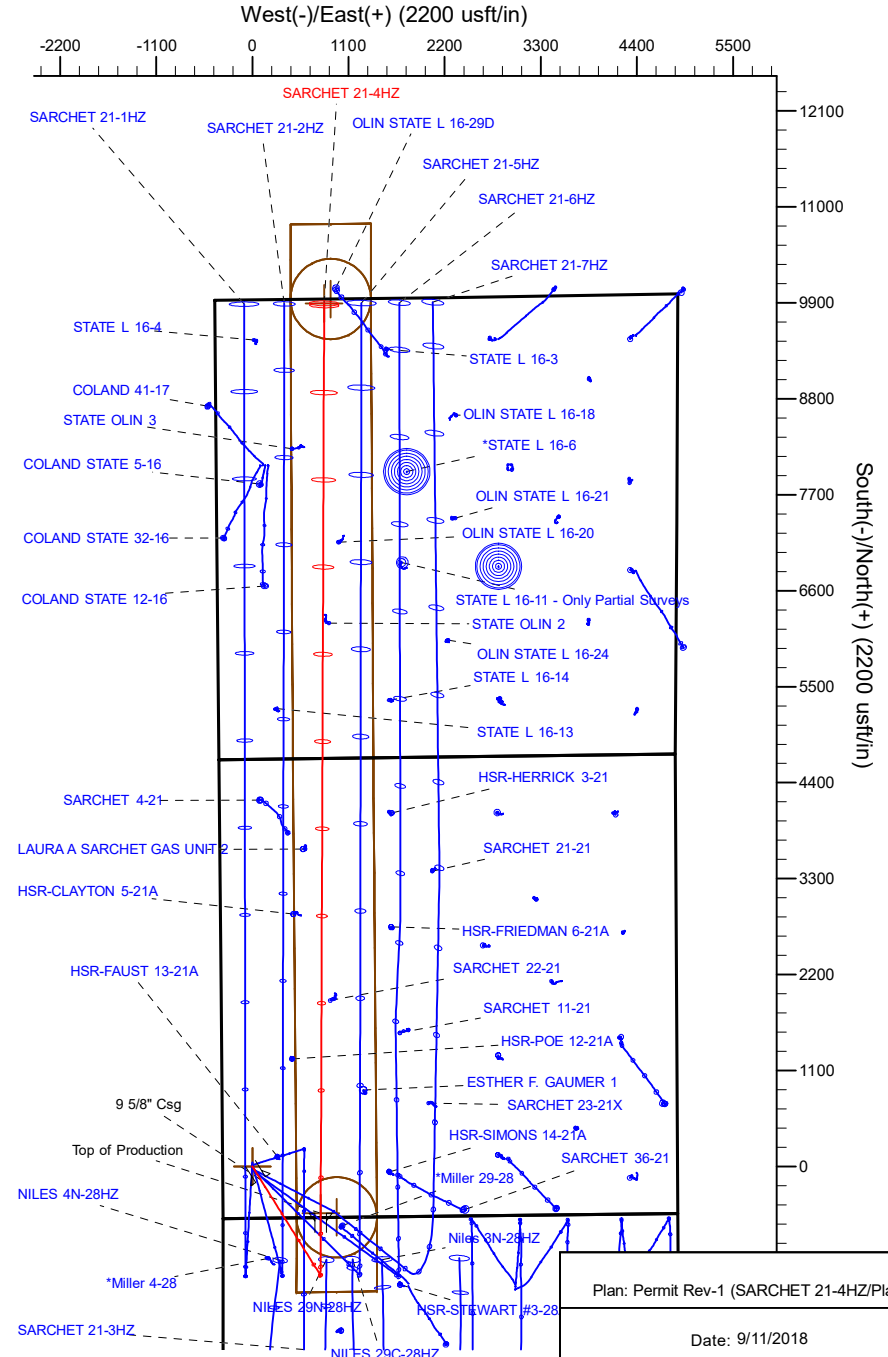
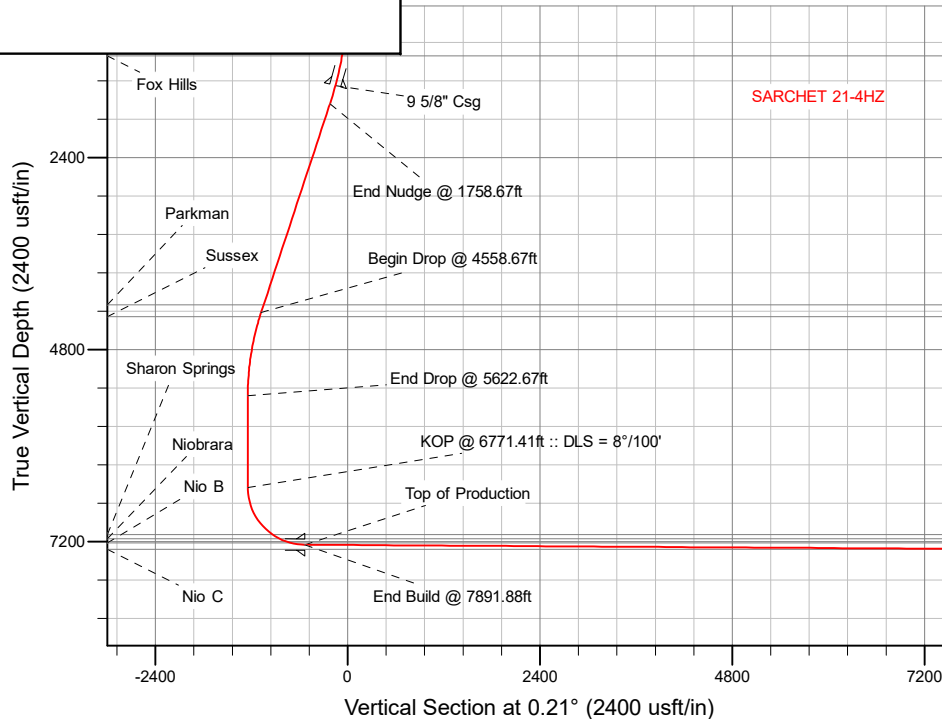
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1125.00	1130.63	Fox Hills
4240.00	4456.32	Parkman
4388.00	4614.94	Sussex
7112.00	7461.55	Sharon Springs
7164.00	7563.45	Niobrara
7218.00	7718.38	Nio B
7296.00	16742.13	Nio C

SHL
595' FSL
340' FWL

HEEL
50' FSL
1118' FWL

TOE
50' FNL
1251' FWL



Plan: Permit Rev-1 (SARCHET 21-4HZ/Plan A)

Date: 9/11/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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 21-4HZ					
Well Position	+N/-S	-45.16 usft	Northing:	14,601,374.39 usft	Latitude:	40.204785
	+E/-W	-0.28 usft	Easting:	1,698,941.59 usft	Longitude:	-104.790393
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	52,147.92974772

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	0.21

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	18,322.48	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio	

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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	
340.00	0.00	0.00	340.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,758.67	21.28	148.00	1,726.28	-220.86	138.01	1.50	1.50	0.00	148.00	
4,558.67	21.28	148.00	4,335.37	-1,082.64	676.51	0.00	0.00	0.00	0.00	
5,622.67	0.00	0.00	5,375.07	-1,248.29	780.02	2.00	-2.00	0.00	180.00	
6,771.41	0.00	0.00	6,523.82	-1,248.29	780.02	0.00	0.00	0.00	0.00	
7,891.88	89.64	0.21	7,240.00	-536.63	782.68	8.00	8.00	0.02	0.21	
18,322.48	89.64	0.21	7,306.00	9,893.69	821.77	0.00	0.00	0.00	0.00	SARCHET 21-4HZ_B

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
340.00	0.00	0.00	340.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 340.00ft									
400.00	0.90	148.00	400.00	-0.40	0.25	-0.40	1.50	1.50	0.00
500.00	2.40	148.00	499.95	-2.84	1.78	-2.83	1.50	1.50	0.00
600.00	3.90	148.00	599.80	-7.50	4.69	-7.48	1.50	1.50	0.00
700.00	5.40	148.00	699.47	-14.38	8.98	-14.34	1.50	1.50	0.00
800.00	6.90	148.00	798.89	-23.46	14.66	-23.41	1.50	1.50	0.00
900.00	8.40	148.00	898.00	-34.75	21.71	-34.67	1.50	1.50	0.00
1,000.00	9.90	148.00	996.72	-48.24	30.14	-48.12	1.50	1.50	0.00
1,100.00	11.40	148.00	1,095.00	-63.91	39.93	-63.76	1.50	1.50	0.00
1,130.63	11.86	148.00	1,125.00	-69.14	43.21	-68.99	1.50	1.50	0.00
Fox Hills									
1,200.00	12.90	148.00	1,192.75	-81.76	51.09	-81.57	1.50	1.50	0.00
1,300.00	14.40	148.00	1,289.93	-101.77	63.59	-101.53	1.50	1.50	0.00
1,400.00	15.90	148.00	1,386.45	-123.93	77.44	-123.65	1.50	1.50	0.00
1,500.00	17.40	148.00	1,482.25	-148.23	92.62	-147.89	1.50	1.50	0.00
1,518.61	17.68	148.00	1,500.00	-152.99	95.60	-152.64	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	18.90	148.00	1,577.27	-174.65	109.13	-174.24	1.50	1.50	0.00
1,700.00	20.40	148.00	1,671.45	-203.16	126.95	-202.70	1.50	1.50	0.00
1,758.67	21.28	148.00	1,726.28	-220.86	138.01	-220.36	1.50	1.50	0.00
End Nudge @ 1758.67ft									
1,800.00	21.28	148.00	1,764.79	-233.58	145.96	-233.05	0.00	0.00	0.00
1,900.00	21.28	148.00	1,857.97	-264.36	165.19	-263.75	0.00	0.00	0.00
2,000.00	21.28	148.00	1,951.15	-295.14	184.42	-294.46	0.00	0.00	0.00
2,100.00	21.28	148.00	2,044.34	-325.92	203.66	-325.17	0.00	0.00	0.00
2,200.00	21.28	148.00	2,137.52	-356.70	222.89	-355.88	0.00	0.00	0.00
2,300.00	21.28	148.00	2,230.70	-387.47	242.12	-386.58	0.00	0.00	0.00
2,400.00	21.28	148.00	2,323.88	-418.25	261.35	-417.29	0.00	0.00	0.00
2,500.00	21.28	148.00	2,417.06	-449.03	280.58	-448.00	0.00	0.00	0.00
2,600.00	21.28	148.00	2,510.24	-479.81	299.82	-478.70	0.00	0.00	0.00
2,700.00	21.28	148.00	2,603.43	-510.58	319.05	-509.41	0.00	0.00	0.00
2,800.00	21.28	148.00	2,696.61	-541.36	338.28	-540.12	0.00	0.00	0.00
2,900.00	21.28	148.00	2,789.79	-572.14	357.51	-570.83	0.00	0.00	0.00
3,000.00	21.28	148.00	2,882.97	-602.92	376.75	-601.53	0.00	0.00	0.00
3,100.00	21.28	148.00	2,976.15	-633.70	395.98	-632.24	0.00	0.00	0.00
3,200.00	21.28	148.00	3,069.34	-664.47	415.21	-662.95	0.00	0.00	0.00
3,300.00	21.28	148.00	3,162.52	-695.25	434.44	-693.65	0.00	0.00	0.00
3,400.00	21.28	148.00	3,255.70	-726.03	453.67	-724.36	0.00	0.00	0.00
3,500.00	21.28	148.00	3,348.88	-756.81	472.91	-755.07	0.00	0.00	0.00
3,600.00	21.28	148.00	3,442.06	-787.59	492.14	-785.78	0.00	0.00	0.00
3,700.00	21.28	148.00	3,535.24	-818.36	511.37	-816.48	0.00	0.00	0.00
3,800.00	21.28	148.00	3,628.43	-849.14	530.60	-847.19	0.00	0.00	0.00
3,900.00	21.28	148.00	3,721.61	-879.92	549.83	-877.90	0.00	0.00	0.00
4,000.00	21.28	148.00	3,814.79	-910.70	569.07	-908.61	0.00	0.00	0.00
4,100.00	21.28	148.00	3,907.97	-941.47	588.30	-939.31	0.00	0.00	0.00
4,200.00	21.28	148.00	4,001.15	-972.25	607.53	-970.02	0.00	0.00	0.00
4,300.00	21.28	148.00	4,094.34	-1,003.03	626.76	-1,000.73	0.00	0.00	0.00
4,400.00	21.28	148.00	4,187.52	-1,033.81	646.00	-1,031.43	0.00	0.00	0.00
4,456.32	21.28	148.00	4,240.00	-1,051.14	656.83	-1,048.73	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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)
Parkman									
4,500.00	21.28	148.00	4,280.70	-1,064.59	665.23	-1,062.14	0.00	0.00	0.00
4,558.67	21.28	148.00	4,335.37	-1,082.64	676.51	-1,080.16	0.00	0.00	0.00
Begin Drop @ 4558.67ft									
4,600.00	20.45	148.00	4,373.99	-1,095.13	684.31	-1,092.61	2.00	-2.00	0.00
4,614.94	20.15	148.00	4,388.00	-1,099.52	687.06	-1,097.00	2.00	-2.00	0.00
Sussex									
4,700.00	18.45	148.00	4,468.27	-1,123.37	701.96	-1,120.79	2.00	-2.00	0.00
4,800.00	16.45	148.00	4,563.67	-1,148.80	717.85	-1,146.17	2.00	-2.00	0.00
4,900.00	14.45	148.00	4,660.05	-1,171.40	731.97	-1,168.71	2.00	-2.00	0.00
5,000.00	12.45	148.00	4,757.30	-1,191.13	744.30	-1,188.39	2.00	-2.00	0.00
5,100.00	10.45	148.00	4,855.30	-1,207.97	754.82	-1,205.19	2.00	-2.00	0.00
5,200.00	8.45	148.00	4,953.94	-1,221.90	763.53	-1,219.09	2.00	-2.00	0.00
5,300.00	6.45	148.00	5,053.09	-1,232.90	770.40	-1,230.06	2.00	-2.00	0.00
5,400.00	4.45	148.00	5,152.63	-1,240.95	775.43	-1,238.10	2.00	-2.00	0.00
5,500.00	2.45	148.00	5,252.44	-1,246.06	778.63	-1,243.20	2.00	-2.00	0.00
5,600.00	0.45	148.00	5,352.41	-1,248.21	779.97	-1,245.35	2.00	-2.00	0.00
5,622.67	0.00	0.00	5,375.07	-1,248.29	780.02	-1,245.42	2.00	-2.00	0.00
End Drop @ 5622.67ft									
5,700.00	0.00	0.00	5,452.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
5,800.00	0.00	0.00	5,552.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
5,900.00	0.00	0.00	5,652.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,000.00	0.00	0.00	5,752.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,100.00	0.00	0.00	5,852.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,200.00	0.00	0.00	5,952.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,052.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,152.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,252.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,352.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,452.41	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
6,771.41	0.00	0.00	6,523.82	-1,248.29	780.02	-1,245.42	0.00	0.00	0.00
KOP @ 6771.41ft :: DLS = 8°/100'									
6,800.00	2.29	0.21	6,552.40	-1,247.72	780.02	-1,244.85	8.00	8.00	0.00
6,900.00	10.29	0.21	6,651.72	-1,236.78	780.06	-1,233.91	8.00	8.00	0.00
7,000.00	18.29	0.21	6,748.54	-1,212.12	780.15	-1,209.25	8.00	8.00	0.00
7,100.00	26.29	0.21	6,841.00	-1,174.22	780.30	-1,171.36	8.00	8.00	0.00
7,200.00	34.29	0.21	6,927.28	-1,123.83	780.48	-1,120.96	8.00	8.00	0.00
7,300.00	42.29	0.21	7,005.71	-1,061.92	780.72	-1,059.05	8.00	8.00	0.00
7,400.00	50.29	0.21	7,074.75	-989.70	780.99	-986.83	8.00	8.00	0.00
7,461.55	55.21	0.21	7,112.00	-940.72	781.17	-937.85	8.00	8.00	0.00
Sharon Springs									
7,500.00	58.29	0.21	7,133.08	-908.57	781.29	-905.70	8.00	8.00	0.00
7,563.45	63.36	0.21	7,164.00	-853.19	781.50	-850.32	8.00	8.00	0.00
Niobrara									
7,600.00	66.29	0.21	7,179.55	-820.12	781.62	-817.25	8.00	8.00	0.00
7,700.00	74.29	0.21	7,213.25	-726.05	781.97	-723.18	8.00	8.00	0.00
7,718.38	75.76	0.21	7,218.00	-708.29	782.04	-705.42	8.00	8.00	0.00
Nio B									
7,800.00	82.29	0.21	7,233.53	-628.22	782.34	-625.34	8.00	8.00	0.00
7,891.88	89.64	0.21	7,240.00	-536.63	782.68	-533.75	8.00	8.00	0.00
End Build @ 7891.88ft - Top of Production									
7,900.00	89.64	0.21	7,240.05	-528.51	782.72	-525.64	0.00	0.00	0.00
8,000.00	89.64	0.21	7,240.68	-428.51	783.09	-425.64	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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	89.64	0.21	7,241.32	-328.51	783.46	-325.64	0.00	0.00	0.00
8,200.00	89.64	0.21	7,241.95	-228.52	783.84	-225.64	0.00	0.00	0.00
8,300.00	89.64	0.21	7,242.58	-128.52	784.21	-125.64	0.00	0.00	0.00
8,400.00	89.64	0.21	7,243.21	-28.52	784.59	-25.65	0.00	0.00	0.00
8,500.00	89.64	0.21	7,243.85	71.48	784.96	74.35	0.00	0.00	0.00
8,600.00	89.64	0.21	7,244.48	171.47	785.34	174.35	0.00	0.00	0.00
8,700.00	89.64	0.21	7,245.11	271.47	785.71	274.35	0.00	0.00	0.00
8,800.00	89.64	0.21	7,245.74	371.47	786.09	374.35	0.00	0.00	0.00
8,900.00	89.64	0.21	7,246.38	471.47	786.46	474.34	0.00	0.00	0.00
9,000.00	89.64	0.21	7,247.01	571.46	786.84	574.34	0.00	0.00	0.00
9,100.00	89.64	0.21	7,247.64	671.46	787.21	674.34	0.00	0.00	0.00
9,200.00	89.64	0.21	7,248.28	771.46	787.59	774.34	0.00	0.00	0.00
9,300.00	89.64	0.21	7,248.91	871.45	787.96	874.34	0.00	0.00	0.00
9,400.00	89.64	0.21	7,249.54	971.45	788.34	974.33	0.00	0.00	0.00
9,500.00	89.64	0.21	7,250.17	1,071.45	788.71	1,074.33	0.00	0.00	0.00
9,600.00	89.64	0.21	7,250.81	1,171.45	789.09	1,174.33	0.00	0.00	0.00
9,700.00	89.64	0.21	7,251.44	1,271.44	789.46	1,274.33	0.00	0.00	0.00
9,800.00	89.64	0.21	7,252.07	1,371.44	789.84	1,374.33	0.00	0.00	0.00
9,900.00	89.64	0.21	7,252.71	1,471.44	790.21	1,474.32	0.00	0.00	0.00
10,000.00	89.64	0.21	7,253.34	1,571.44	790.58	1,574.32	0.00	0.00	0.00
10,100.00	89.64	0.21	7,253.97	1,671.43	790.96	1,674.32	0.00	0.00	0.00
10,200.00	89.64	0.21	7,254.60	1,771.43	791.33	1,774.32	0.00	0.00	0.00
10,300.00	89.64	0.21	7,255.24	1,871.43	791.71	1,874.32	0.00	0.00	0.00
10,400.00	89.64	0.21	7,255.87	1,971.42	792.08	1,974.31	0.00	0.00	0.00
10,500.00	89.64	0.21	7,256.50	2,071.42	792.46	2,074.31	0.00	0.00	0.00
10,600.00	89.64	0.21	7,257.13	2,171.42	792.83	2,174.31	0.00	0.00	0.00
10,700.00	89.64	0.21	7,257.77	2,271.42	793.21	2,274.31	0.00	0.00	0.00
10,800.00	89.64	0.21	7,258.40	2,371.41	793.58	2,374.31	0.00	0.00	0.00
10,900.00	89.64	0.21	7,259.03	2,471.41	793.96	2,474.30	0.00	0.00	0.00
11,000.00	89.64	0.21	7,259.67	2,571.41	794.33	2,574.30	0.00	0.00	0.00
11,100.00	89.64	0.21	7,260.30	2,671.41	794.71	2,674.30	0.00	0.00	0.00
11,200.00	89.64	0.21	7,260.93	2,771.40	795.08	2,774.30	0.00	0.00	0.00
11,300.00	89.64	0.21	7,261.56	2,871.40	795.46	2,874.30	0.00	0.00	0.00
11,400.00	89.64	0.21	7,262.20	2,971.40	795.83	2,974.29	0.00	0.00	0.00
11,500.00	89.64	0.21	7,262.83	3,071.40	796.21	3,074.29	0.00	0.00	0.00
11,600.00	89.64	0.21	7,263.46	3,171.39	796.58	3,174.29	0.00	0.00	0.00
11,700.00	89.64	0.21	7,264.09	3,271.39	796.95	3,274.29	0.00	0.00	0.00
11,800.00	89.64	0.21	7,264.73	3,371.39	797.33	3,374.29	0.00	0.00	0.00
11,900.00	89.64	0.21	7,265.36	3,471.38	797.70	3,474.28	0.00	0.00	0.00
12,000.00	89.64	0.21	7,265.99	3,571.38	798.08	3,574.28	0.00	0.00	0.00
12,100.00	89.64	0.21	7,266.63	3,671.38	798.45	3,674.28	0.00	0.00	0.00
12,200.00	89.64	0.21	7,267.26	3,771.38	798.83	3,774.28	0.00	0.00	0.00
12,300.00	89.64	0.21	7,267.89	3,871.37	799.20	3,874.28	0.00	0.00	0.00
12,400.00	89.64	0.21	7,268.52	3,971.37	799.58	3,974.27	0.00	0.00	0.00
12,500.00	89.64	0.21	7,269.16	4,071.37	799.95	4,074.27	0.00	0.00	0.00
12,600.00	89.64	0.21	7,269.79	4,171.37	800.33	4,174.27	0.00	0.00	0.00
12,700.00	89.64	0.21	7,270.42	4,271.36	800.70	4,274.27	0.00	0.00	0.00
12,800.00	89.64	0.21	7,271.06	4,371.36	801.08	4,374.27	0.00	0.00	0.00
12,900.00	89.64	0.21	7,271.69	4,471.36	801.45	4,474.26	0.00	0.00	0.00
13,000.00	89.64	0.21	7,272.32	4,571.35	801.83	4,574.26	0.00	0.00	0.00
13,100.00	89.64	0.21	7,272.95	4,671.35	802.20	4,674.26	0.00	0.00	0.00
13,200.00	89.64	0.21	7,273.59	4,771.35	802.58	4,774.26	0.00	0.00	0.00
13,300.00	89.64	0.21	7,274.22	4,871.35	802.95	4,874.26	0.00	0.00	0.00
13,400.00	89.64	0.21	7,274.85	4,971.34	803.33	4,974.25	0.00	0.00	0.00

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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	89.64	0.21	7,275.48	5,071.34	803.70	5,074.25	0.00	0.00	0.00
13,600.00	89.64	0.21	7,276.12	5,171.34	804.07	5,174.25	0.00	0.00	0.00
13,700.00	89.64	0.21	7,276.75	5,271.34	804.45	5,274.25	0.00	0.00	0.00
13,800.00	89.64	0.21	7,277.38	5,371.33	804.82	5,374.25	0.00	0.00	0.00
13,900.00	89.64	0.21	7,278.02	5,471.33	805.20	5,474.24	0.00	0.00	0.00
14,000.00	89.64	0.21	7,278.65	5,571.33	805.57	5,574.24	0.00	0.00	0.00
14,100.00	89.64	0.21	7,279.28	5,671.32	805.95	5,674.24	0.00	0.00	0.00
14,200.00	89.64	0.21	7,279.91	5,771.32	806.32	5,774.24	0.00	0.00	0.00
14,300.00	89.64	0.21	7,280.55	5,871.32	806.70	5,874.24	0.00	0.00	0.00
14,400.00	89.64	0.21	7,281.18	5,971.32	807.07	5,974.23	0.00	0.00	0.00
14,500.00	89.64	0.21	7,281.81	6,071.31	807.45	6,074.23	0.00	0.00	0.00
14,600.00	89.64	0.21	7,282.45	6,171.31	807.82	6,174.23	0.00	0.00	0.00
14,700.00	89.64	0.21	7,283.08	6,271.31	808.20	6,274.23	0.00	0.00	0.00
14,800.00	89.64	0.21	7,283.71	6,371.31	808.57	6,374.23	0.00	0.00	0.00
14,900.00	89.64	0.21	7,284.34	6,471.30	808.95	6,474.22	0.00	0.00	0.00
15,000.00	89.64	0.21	7,284.98	6,571.30	809.32	6,574.22	0.00	0.00	0.00
15,100.00	89.64	0.21	7,285.61	6,671.30	809.70	6,674.22	0.00	0.00	0.00
15,200.00	89.64	0.21	7,286.24	6,771.30	810.07	6,774.22	0.00	0.00	0.00
15,300.00	89.64	0.21	7,286.87	6,871.29	810.45	6,874.22	0.00	0.00	0.00
15,400.00	89.64	0.21	7,287.51	6,971.29	810.82	6,974.21	0.00	0.00	0.00
15,500.00	89.64	0.21	7,288.14	7,071.29	811.19	7,074.21	0.00	0.00	0.00
15,600.00	89.64	0.21	7,288.77	7,171.28	811.57	7,174.21	0.00	0.00	0.00
15,700.00	89.64	0.21	7,289.41	7,271.28	811.94	7,274.21	0.00	0.00	0.00
15,800.00	89.64	0.21	7,290.04	7,371.28	812.32	7,374.21	0.00	0.00	0.00
15,900.00	89.64	0.21	7,290.67	7,471.28	812.69	7,474.20	0.00	0.00	0.00
16,000.00	89.64	0.21	7,291.30	7,571.27	813.07	7,574.20	0.00	0.00	0.00
16,100.00	89.64	0.21	7,291.94	7,671.27	813.44	7,674.20	0.00	0.00	0.00
16,200.00	89.64	0.21	7,292.57	7,771.27	813.82	7,774.20	0.00	0.00	0.00
16,300.00	89.64	0.21	7,293.20	7,871.27	814.19	7,874.20	0.00	0.00	0.00
16,400.00	89.64	0.21	7,293.84	7,971.26	814.57	7,974.19	0.00	0.00	0.00
16,500.00	89.64	0.21	7,294.47	8,071.26	814.94	8,074.19	0.00	0.00	0.00
16,600.00	89.64	0.21	7,295.10	8,171.26	815.32	8,174.19	0.00	0.00	0.00
16,700.00	89.64	0.21	7,295.73	8,271.25	815.69	8,274.19	0.00	0.00	0.00
16,742.13	89.64	0.21	7,296.00	8,313.39	815.85	8,316.32	0.00	0.00	0.00
Nio C									
16,800.00	89.64	0.21	7,296.37	8,371.25	816.07	8,374.19	0.00	0.00	0.00
16,900.00	89.64	0.21	7,297.00	8,471.25	816.44	8,474.18	0.00	0.00	0.00
17,000.00	89.64	0.21	7,297.63	8,571.25	816.82	8,574.18	0.00	0.00	0.00
17,100.00	89.64	0.21	7,298.26	8,671.24	817.19	8,674.18	0.00	0.00	0.00
17,200.00	89.64	0.21	7,298.90	8,771.24	817.57	8,774.18	0.00	0.00	0.00
17,300.00	89.64	0.21	7,299.53	8,871.24	817.94	8,874.18	0.00	0.00	0.00
17,400.00	89.64	0.21	7,300.16	8,971.24	818.31	8,974.17	0.00	0.00	0.00
17,500.00	89.64	0.21	7,300.80	9,071.23	818.69	9,074.17	0.00	0.00	0.00
17,600.00	89.64	0.21	7,301.43	9,171.23	819.06	9,174.17	0.00	0.00	0.00
17,700.00	89.64	0.21	7,302.06	9,271.23	819.44	9,274.17	0.00	0.00	0.00
17,800.00	89.64	0.21	7,302.69	9,371.23	819.81	9,374.17	0.00	0.00	0.00
17,900.00	89.64	0.21	7,303.33	9,471.22	820.19	9,474.16	0.00	0.00	0.00
18,000.00	89.64	0.21	7,303.96	9,571.22	820.56	9,574.16	0.00	0.00	0.00
18,100.00	89.64	0.21	7,304.59	9,671.22	820.94	9,674.16	0.00	0.00	0.00
18,200.00	89.64	0.21	7,305.23	9,771.21	821.31	9,774.16	0.00	0.00	0.00
18,300.00	89.64	0.21	7,305.86	9,871.21	821.69	9,874.16	0.00	0.00	0.00
18,322.48	89.64	0.21	7,306.00	9,893.69	821.77	9,896.64	0.00	0.00	0.00
TD Well @ 18322.48ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 21-4HZ
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 21-4HZ	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 (")	
1,518.61	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,891.88	7,240.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,130.63	1,125.00	Fox Hills				
4,456.32	4,240.00	Parkman				
4,614.94	4,388.00	Sussex				
7,461.55	7,112.00	Sharon Springs				
7,563.45	7,164.00	Niobrara				
7,718.38	7,218.00	Nio B				
16,742.13	7,296.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
340.00	340.00	0.00	0.00	Begin Nudge @ 340.00ft	
1,758.67	1,726.28	-220.86	138.01	End Nudge @ 1758.67ft	
4,558.67	4,335.37	-1,082.64	676.51	Begin Drop @ 4558.67ft	
5,622.67	5,375.07	-1,248.29	780.02	End Drop @ 5622.67ft	
6,771.41	6,523.82	-1,248.29	780.02	KOP @ 6771.41ft :: DLS = 8°/100'	
7,891.88	7,240.00	-536.63	782.68	End Build @ 7891.88ft	
18,322.48	7,306.00	9,893.69	821.77	TD Well @ 18322.48ft	