

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**4N-67W-21 SHARON 11-21HZ PAD**

**SHARON 21-2HZ**

**Plan A**

**Plan: Permit Rev-1**

SHL Lat/Long: 40.297540/-104.897599

Survey Program: MWD+IFR+MSA

## **Standard Planning Report**

**08 March, 2018**

Project: WELD-NAD83-UTMFT13N  
Site: 4N-67W-21 SHARON 11-21HZ PAD  
Well: SHARON 21-2HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1523.46	9-5/8
7322.00	8327.17	5-1/2

WELL DETAILS: SHARON 21-2HZ  
GL = 4937'  
RKB = 17' @ 4954.00usft (Drilling Rig)

## SECTION DETAILS

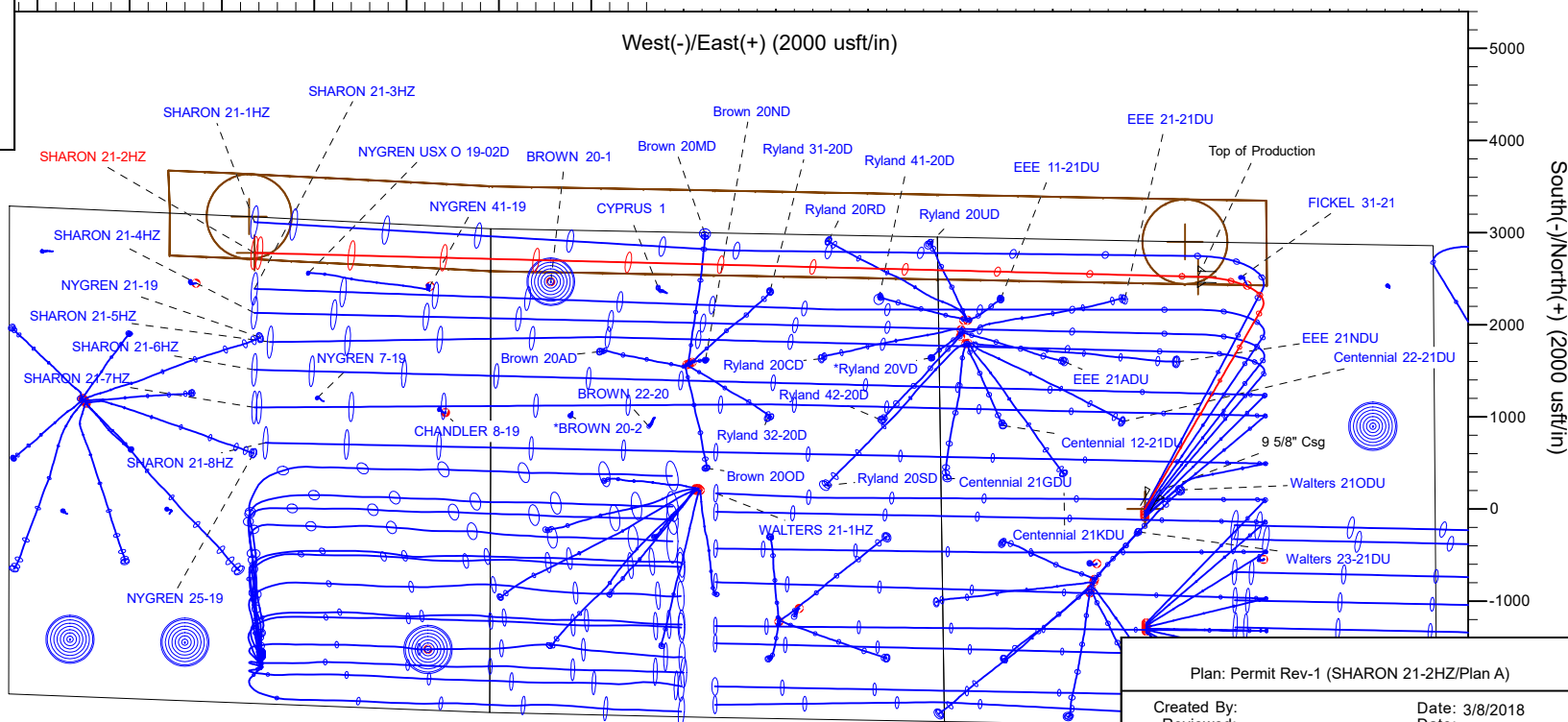
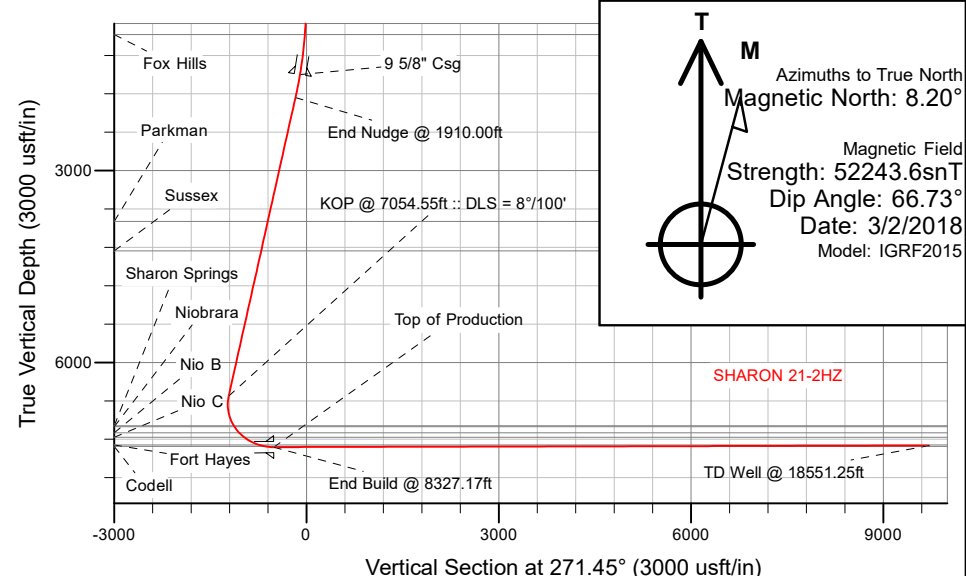
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1910.00	24.90	30.20	1858.24	306.87	178.61	1.50	30.20	-170.78	
4	7054.55	24.90	30.20	6524.57	2178.93	1268.17	0.00	0.00	-1212.62	
5	8327.17	90.13	271.45	7322.00	2521.93	573.69	8.00	-116.41	-509.69	
6	18551.25	90.13	271.45	7298.00	2780.05	-9647.10	0.00	0.00	9714.36	SHARON 21-2HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHARON 21-2HZ_SHL	0.00	0.00	0.00	40.297540	-104.897599
SHARON 21-2HZ_BHL	7298.00	2780.05	-9647.10	40.305169	-104.932201

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
873.00	875.80	Fox Hills
3794.00	4044.14	Parkman
4254.00	4551.28	Sussex
6989.00	7573.68	Sharon Springs
7004.00	7592.50	Niobrara
7096.00	7715.92	Nio B
7169.00	7829.04	Nio C
7291.00	8105.52	Fort Hayes
7312.00	8200.81	Codell



SHL  
2343' FSL  
2207' FWL

HEEL  
378' FNL  
2550' FEL

BHL  
392' FNL  
2561' FEL

Plan: Permit Rev-1 (SHARON 21-2HZ/Plan A)

Created By: \_\_\_\_\_ Date: 3/8/2018  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SHARON 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Site:</b>	4N-67W-21 SHARON 11-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHARON 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)		

Site		4N-67W-21 SHARON 11-21HZ PAD			
Site Position:		Northing:	14,635,114.03 usft	Latitude:	40.297581
From:	Lat/Long	Easting:	1,668,969.29 usft	Longitude:	-104.897599
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.07 °

Well	SHARON 21-2HZ					
Well Position	+N/-S	-14.93 usft	Northing:	14,635,099.10 usft	Latitude:	40.297540
	+E/-W	0.00 usft	Easting:	1,668,969.31 usft	Longitude:	-104.897599
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,937.00 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	3/2/2018	8.20	66.73	52,243.56852073

<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	271.45

<b>Plan Survey Tool Program</b>	<b>Date</b>	3/8/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	18,551.26	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,910.00	24.90	30.20	1,858.24	306.87	178.61	1.50	1.50	0.00	30.20	
7,054.55	24.90	30.20	6,524.57	2,178.93	1,268.17	0.00	0.00	0.00	0.00	
8,327.17	90.13	271.45	7,322.00	2,521.93	573.69	8.00	5.13	-9.33	-116.41	
18,551.26	90.13	271.45	7,298.00	2,780.05	-9,647.10	0.00	0.00	0.00	0.00	SHARON 21-2HZ_BH

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Site:</b>	4N-67W-21 SHARON 11-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHARON 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
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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	30.20	300.00	0.28	0.16	-0.16	1.50	1.50	0.00
400.00	2.25	30.20	399.96	2.55	1.48	-1.42	1.50	1.50	0.00
500.00	3.75	30.20	499.82	7.07	4.11	-3.93	1.50	1.50	0.00
600.00	5.25	30.20	599.51	13.85	8.06	-7.71	1.50	1.50	0.00
700.00	6.75	30.20	698.96	22.88	13.32	-12.73	1.50	1.50	0.00
800.00	8.25	30.20	798.10	34.16	19.88	-19.01	1.50	1.50	0.00
875.80	9.39	30.20	873.00	44.21	25.73	-24.60	1.50	1.50	0.00
Fox Hills									
900.00	9.75	30.20	896.87	47.68	27.75	-26.54	1.50	1.50	0.00
1,000.00	11.25	30.20	995.19	63.43	36.92	-35.30	1.50	1.50	0.00
1,100.00	12.75	30.20	1,093.00	81.40	47.38	-45.30	1.50	1.50	0.00
1,200.00	14.25	30.20	1,190.24	101.58	59.12	-56.53	1.50	1.50	0.00
1,300.00	15.75	30.20	1,286.83	123.95	72.14	-68.98	1.50	1.50	0.00
1,400.00	17.25	30.20	1,382.71	148.49	86.42	-82.64	1.50	1.50	0.00
1,500.00	18.75	30.20	1,477.81	175.20	101.97	-97.50	1.50	1.50	0.00
1,523.46	19.10	30.20	1,500.00	181.78	105.80	-101.16	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	30.20	1,572.07	204.05	118.76	-113.56	1.50	1.50	0.00
1,700.00	21.75	30.20	1,665.43	235.02	136.78	-130.79	1.50	1.50	0.00
1,800.00	23.25	30.20	1,757.81	268.09	156.03	-149.20	1.50	1.50	0.00
1,900.00	24.75	30.20	1,849.16	303.25	176.49	-168.76	1.50	1.50	0.00
1,910.00	24.90	30.20	1,858.24	306.87	178.61	-170.78	1.50	1.50	0.00
End Nudge @ 1910.00ft									
2,000.00	24.90	30.20	1,939.87	339.62	197.67	-189.01	0.00	0.00	0.00
2,100.00	24.90	30.20	2,030.58	376.01	218.85	-209.26	0.00	0.00	0.00
2,200.00	24.90	30.20	2,121.28	412.40	240.02	-229.51	0.00	0.00	0.00
2,300.00	24.90	30.20	2,211.99	448.79	261.20	-249.76	0.00	0.00	0.00
2,400.00	24.90	30.20	2,302.69	485.18	282.38	-270.01	0.00	0.00	0.00
2,500.00	24.90	30.20	2,393.39	521.57	303.56	-290.27	0.00	0.00	0.00
2,600.00	24.90	30.20	2,484.10	557.96	324.74	-310.52	0.00	0.00	0.00
2,700.00	24.90	30.20	2,574.80	594.35	345.92	-330.77	0.00	0.00	0.00
2,800.00	24.90	30.20	2,665.51	630.74	367.10	-351.02	0.00	0.00	0.00
2,900.00	24.90	30.20	2,756.21	667.13	388.28	-371.27	0.00	0.00	0.00
3,000.00	24.90	30.20	2,846.92	703.52	409.46	-391.52	0.00	0.00	0.00
3,100.00	24.90	30.20	2,937.62	739.90	430.63	-411.77	0.00	0.00	0.00
3,200.00	24.90	30.20	3,028.33	776.29	451.81	-432.03	0.00	0.00	0.00
3,300.00	24.90	30.20	3,119.03	812.68	472.99	-452.28	0.00	0.00	0.00
3,400.00	24.90	30.20	3,209.73	849.07	494.17	-472.53	0.00	0.00	0.00
3,500.00	24.90	30.20	3,300.44	885.46	515.35	-492.78	0.00	0.00	0.00
3,600.00	24.90	30.20	3,391.14	921.85	536.53	-513.03	0.00	0.00	0.00
3,700.00	24.90	30.20	3,481.85	958.24	557.71	-533.28	0.00	0.00	0.00
3,800.00	24.90	30.20	3,572.55	994.63	578.89	-553.53	0.00	0.00	0.00
3,900.00	24.90	30.20	3,663.26	1,031.02	600.07	-573.78	0.00	0.00	0.00
4,000.00	24.90	30.20	3,753.96	1,067.41	621.25	-594.04	0.00	0.00	0.00
4,044.14	24.90	30.20	3,794.00	1,083.47	630.59	-602.98	0.00	0.00	0.00
Parkman									
4,100.00	24.90	30.20	3,844.66	1,103.79	642.42	-614.29	0.00	0.00	0.00
4,200.00	24.90	30.20	3,935.37	1,140.18	663.60	-634.54	0.00	0.00	0.00

## Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
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<b>Well:</b>	SHARON 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)
4,300.00	24.90	30.20	4,026.07	1,176.57	684.78	-654.79	0.00	0.00	0.00
4,400.00	24.90	30.20	4,116.78	1,212.96	705.96	-675.04	0.00	0.00	0.00
4,500.00	24.90	30.20	4,207.48	1,249.35	727.14	-695.29	0.00	0.00	0.00
4,551.29	24.90	30.20	4,254.00	1,268.01	738.00	-705.68	0.00	0.00	0.00
Sussex									
4,600.00	24.90	30.20	4,298.19	1,285.74	748.32	-715.54	0.00	0.00	0.00
4,700.00	24.90	30.20	4,388.89	1,322.13	769.50	-735.80	0.00	0.00	0.00
4,800.00	24.90	30.20	4,479.60	1,358.52	790.68	-756.05	0.00	0.00	0.00
4,900.00	24.90	30.20	4,570.30	1,394.91	811.86	-776.30	0.00	0.00	0.00
5,000.00	24.90	30.20	4,661.00	1,431.30	833.03	-796.55	0.00	0.00	0.00
5,100.00	24.90	30.20	4,751.71	1,467.69	854.21	-816.80	0.00	0.00	0.00
5,200.00	24.90	30.20	4,842.41	1,504.07	875.39	-837.05	0.00	0.00	0.00
5,300.00	24.90	30.20	4,933.12	1,540.46	896.57	-857.30	0.00	0.00	0.00
5,400.00	24.90	30.20	5,023.82	1,576.85	917.75	-877.55	0.00	0.00	0.00
5,500.00	24.90	30.20	5,114.53	1,613.24	938.93	-897.81	0.00	0.00	0.00
5,600.00	24.90	30.20	5,205.23	1,649.63	960.11	-918.06	0.00	0.00	0.00
5,700.00	24.90	30.20	5,295.94	1,686.02	981.29	-938.31	0.00	0.00	0.00
5,800.00	24.90	30.20	5,386.64	1,722.41	1,002.47	-958.56	0.00	0.00	0.00
5,900.00	24.90	30.20	5,477.34	1,758.80	1,023.64	-978.81	0.00	0.00	0.00
6,000.00	24.90	30.20	5,568.05	1,795.19	1,044.82	-999.06	0.00	0.00	0.00
6,100.00	24.90	30.20	5,658.75	1,831.58	1,066.00	-1,019.31	0.00	0.00	0.00
6,200.00	24.90	30.20	5,749.46	1,867.97	1,087.18	-1,039.57	0.00	0.00	0.00
6,300.00	24.90	30.20	5,840.16	1,904.35	1,108.36	-1,059.82	0.00	0.00	0.00
6,400.00	24.90	30.20	5,930.87	1,940.74	1,129.54	-1,080.07	0.00	0.00	0.00
6,500.00	24.90	30.20	6,021.57	1,977.13	1,150.72	-1,100.32	0.00	0.00	0.00
6,600.00	24.90	30.20	6,112.27	2,013.52	1,171.90	-1,120.57	0.00	0.00	0.00
6,700.00	24.90	30.20	6,202.98	2,049.91	1,193.08	-1,140.82	0.00	0.00	0.00
6,800.00	24.90	30.20	6,293.68	2,086.30	1,214.26	-1,161.07	0.00	0.00	0.00
6,900.00	24.90	30.20	6,384.39	2,122.69	1,235.43	-1,181.32	0.00	0.00	0.00
7,000.00	24.90	30.20	6,475.09	2,159.08	1,256.61	-1,201.58	0.00	0.00	0.00
7,054.55	24.90	30.20	6,524.57	2,178.93	1,268.17	-1,212.62	0.00	0.00	0.00
KOP @ 7054.55ft :: DLS = 8°/100'									
7,100.00	23.50	22.01	6,566.04	2,195.60	1,276.38	-1,220.41	8.00	-3.09	-18.02
7,200.00	22.15	1.58	6,658.35	2,232.99	1,284.38	-1,227.46	8.00	-1.34	-20.43
7,300.00	23.48	341.13	6,750.67	2,270.75	1,278.45	-1,220.58	8.00	1.32	-20.45
7,400.00	27.07	324.30	6,841.20	2,308.14	1,258.69	-1,199.88	8.00	3.60	-16.83
7,500.00	32.19	311.80	6,928.18	2,344.44	1,225.51	-1,165.79	8.00	5.12	-12.50
7,573.68	36.57	304.79	6,989.00	2,370.07	1,192.82	-1,132.47	8.00	5.94	-9.51
Sharon Springs									
7,592.50	37.74	303.24	7,004.00	2,376.42	1,183.40	-1,122.89	8.00	6.25	-8.27
Niobrara									
7,600.00	38.22	302.64	7,009.91	2,378.93	1,179.53	-1,118.95	8.00	6.32	-7.97
7,700.00	44.78	295.72	7,084.80	2,410.95	1,121.66	-1,060.29	8.00	6.57	-6.92
7,715.92	45.86	294.77	7,096.00	2,415.78	1,111.42	-1,049.93	8.00	6.78	-5.97
Nio B									
7,800.00	51.68	290.27	7,151.41	2,439.88	1,053.02	-990.94	8.00	6.92	-5.35
7,829.04	53.72	288.89	7,169.00	2,447.62	1,031.26	-968.99	8.00	7.04	-4.77
Nio C									
7,900.00	58.78	285.79	7,208.42	2,465.15	974.95	-912.26	8.00	7.13	-4.37
8,000.00	66.02	281.94	7,254.73	2,486.26	888.96	-825.77	8.00	7.24	-3.85
8,100.00	73.34	278.50	7,289.44	2,502.82	796.74	-733.15	8.00	7.32	-3.44
8,105.52	73.75	278.32	7,291.00	2,503.59	791.51	-727.90	8.00	7.36	-3.28
Fort Haves									

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Site:</b>	4N-67W-21 SHARON 11-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHARON 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)
8,200.00	80.72	275.32	7,311.87	2,514.49	700.08	-636.22	8.00	7.38	-3.18
8,200.81	80.78	275.29	7,312.00	2,514.56	699.28	-635.43	8.00	7.39	-3.10
Codell									
8,300.00	88.12	272.27	7,321.59	2,521.05	600.85	-536.86	8.00	7.40	-3.05
8,327.17	90.13	271.45	7,322.00	2,521.93	573.70	-509.70	8.00	7.41	-3.02
End Build @ 8327.17ft - Top of Production									
8,400.00	90.13	271.45	7,321.83	2,523.77	500.89	-436.87	0.00	0.00	0.00
8,500.00	90.13	271.45	7,321.60	2,526.29	400.92	-336.87	0.00	0.00	0.00
8,600.00	90.13	271.45	7,321.36	2,528.81	300.95	-236.87	0.00	0.00	0.00
8,700.00	90.13	271.45	7,321.13	2,531.34	200.99	-136.87	0.00	0.00	0.00
8,800.00	90.13	271.45	7,320.89	2,533.86	101.02	-36.87	0.00	0.00	0.00
8,900.00	90.13	271.45	7,320.66	2,536.39	1.05	63.13	0.00	0.00	0.00
9,000.00	90.13	271.45	7,320.42	2,538.91	-98.92	163.13	0.00	0.00	0.00
9,100.00	90.13	271.45	7,320.19	2,541.44	-198.89	263.13	0.00	0.00	0.00
9,200.00	90.13	271.45	7,319.95	2,543.96	-298.85	363.13	0.00	0.00	0.00
9,300.00	90.13	271.45	7,319.72	2,546.49	-398.82	463.13	0.00	0.00	0.00
9,400.00	90.13	271.45	7,319.48	2,549.01	-498.79	563.13	0.00	0.00	0.00
9,500.00	90.13	271.45	7,319.25	2,551.54	-598.76	663.13	0.00	0.00	0.00
9,600.00	90.13	271.45	7,319.01	2,554.06	-698.72	763.13	0.00	0.00	0.00
9,700.00	90.13	271.45	7,318.78	2,556.59	-798.69	863.13	0.00	0.00	0.00
9,800.00	90.13	271.45	7,318.55	2,559.11	-898.66	963.13	0.00	0.00	0.00
9,900.00	90.13	271.45	7,318.31	2,561.64	-998.63	1,063.13	0.00	0.00	0.00
10,000.00	90.13	271.45	7,318.08	2,564.16	-1,098.60	1,163.13	0.00	0.00	0.00
10,100.00	90.13	271.45	7,317.84	2,566.68	-1,198.56	1,263.13	0.00	0.00	0.00
10,200.00	90.13	271.45	7,317.61	2,569.21	-1,298.53	1,363.13	0.00	0.00	0.00
10,300.00	90.13	271.45	7,317.37	2,571.73	-1,398.50	1,463.13	0.00	0.00	0.00
10,400.00	90.13	271.45	7,317.14	2,574.26	-1,498.47	1,563.13	0.00	0.00	0.00
10,500.00	90.13	271.45	7,316.90	2,576.78	-1,598.44	1,663.13	0.00	0.00	0.00
10,600.00	90.13	271.45	7,316.67	2,579.31	-1,698.40	1,763.13	0.00	0.00	0.00
10,700.00	90.13	271.45	7,316.43	2,581.83	-1,798.37	1,863.13	0.00	0.00	0.00
10,800.00	90.13	271.45	7,316.20	2,584.36	-1,898.34	1,963.13	0.00	0.00	0.00
10,900.00	90.13	271.45	7,315.96	2,586.88	-1,998.31	2,063.13	0.00	0.00	0.00
11,000.00	90.13	271.45	7,315.73	2,589.41	-2,098.27	2,163.13	0.00	0.00	0.00
11,100.00	90.13	271.45	7,315.49	2,591.93	-2,198.24	2,263.13	0.00	0.00	0.00
11,200.00	90.13	271.45	7,315.26	2,594.46	-2,298.21	2,363.13	0.00	0.00	0.00
11,300.00	90.13	271.45	7,315.02	2,596.98	-2,398.18	2,463.13	0.00	0.00	0.00
11,400.00	90.13	271.45	7,314.79	2,599.50	-2,498.15	2,563.13	0.00	0.00	0.00
11,500.00	90.13	271.45	7,314.55	2,602.03	-2,598.11	2,663.13	0.00	0.00	0.00
11,600.00	90.13	271.45	7,314.32	2,604.55	-2,698.08	2,763.12	0.00	0.00	0.00
11,700.00	90.13	271.45	7,314.08	2,607.08	-2,798.05	2,863.12	0.00	0.00	0.00
11,800.00	90.13	271.45	7,313.85	2,609.60	-2,898.02	2,963.12	0.00	0.00	0.00
11,900.00	90.13	271.45	7,313.61	2,612.13	-2,997.99	3,063.12	0.00	0.00	0.00
12,000.00	90.13	271.45	7,313.38	2,614.65	-3,097.95	3,163.12	0.00	0.00	0.00
12,100.00	90.13	271.45	7,313.15	2,617.18	-3,197.92	3,263.12	0.00	0.00	0.00
12,200.00	90.13	271.45	7,312.91	2,619.70	-3,297.89	3,363.12	0.00	0.00	0.00
12,300.00	90.13	271.45	7,312.68	2,622.23	-3,397.86	3,463.12	0.00	0.00	0.00
12,400.00	90.13	271.45	7,312.44	2,624.75	-3,497.82	3,563.12	0.00	0.00	0.00
12,500.00	90.13	271.45	7,312.21	2,627.28	-3,597.79	3,663.12	0.00	0.00	0.00
12,600.00	90.13	271.45	7,311.97	2,629.80	-3,697.76	3,763.12	0.00	0.00	0.00
12,700.00	90.13	271.45	7,311.74	2,632.32	-3,797.73	3,863.12	0.00	0.00	0.00
12,800.00	90.13	271.45	7,311.50	2,634.85	-3,897.70	3,963.12	0.00	0.00	0.00
12,900.00	90.13	271.45	7,311.27	2,637.37	-3,997.66	4,063.12	0.00	0.00	0.00
13,000.00	90.13	271.45	7,311.03	2,639.90	-4,097.63	4,163.12	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SHARON 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Site:</b>	4N-67W-21 SHARON 11-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHARON 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)
13,100.00	90.13	271.45	7,310.80	2,642.42	-4,197.60	4,263.12	0.00	0.00	0.00
13,200.00	90.13	271.45	7,310.56	2,644.95	-4,297.57	4,363.12	0.00	0.00	0.00
13,300.00	90.13	271.45	7,310.33	2,647.47	-4,397.54	4,463.12	0.00	0.00	0.00
13,400.00	90.13	271.45	7,310.09	2,650.00	-4,497.50	4,563.12	0.00	0.00	0.00
13,500.00	90.13	271.45	7,309.86	2,652.52	-4,597.47	4,663.12	0.00	0.00	0.00
13,600.00	90.13	271.45	7,309.62	2,655.05	-4,697.44	4,763.12	0.00	0.00	0.00
13,700.00	90.13	271.45	7,309.39	2,657.57	-4,797.41	4,863.12	0.00	0.00	0.00
13,800.00	90.13	271.45	7,309.15	2,660.10	-4,897.37	4,963.12	0.00	0.00	0.00
13,900.00	90.13	271.45	7,308.92	2,662.62	-4,997.34	5,063.12	0.00	0.00	0.00
14,000.00	90.13	271.45	7,308.68	2,665.15	-5,097.31	5,163.12	0.00	0.00	0.00
14,100.00	90.13	271.45	7,308.45	2,667.67	-5,197.28	5,263.12	0.00	0.00	0.00
14,200.00	90.13	271.45	7,308.22	2,670.19	-5,297.25	5,363.12	0.00	0.00	0.00
14,300.00	90.13	271.45	7,307.98	2,672.72	-5,397.21	5,463.12	0.00	0.00	0.00
14,400.00	90.13	271.45	7,307.75	2,675.24	-5,497.18	5,563.12	0.00	0.00	0.00
14,500.00	90.13	271.45	7,307.51	2,677.77	-5,597.15	5,663.12	0.00	0.00	0.00
14,600.00	90.13	271.45	7,307.28	2,680.29	-5,697.12	5,763.12	0.00	0.00	0.00
14,700.00	90.13	271.45	7,307.04	2,682.82	-5,797.09	5,863.12	0.00	0.00	0.00
14,800.00	90.13	271.45	7,306.81	2,685.34	-5,897.05	5,963.12	0.00	0.00	0.00
14,900.00	90.13	271.45	7,306.57	2,687.87	-5,997.02	6,063.12	0.00	0.00	0.00
15,000.00	90.13	271.45	7,306.34	2,690.39	-6,096.99	6,163.12	0.00	0.00	0.00
15,100.00	90.13	271.45	7,306.10	2,692.92	-6,196.96	6,263.12	0.00	0.00	0.00
15,200.00	90.13	271.45	7,305.87	2,695.44	-6,296.92	6,363.11	0.00	0.00	0.00
15,300.00	90.13	271.45	7,305.63	2,697.97	-6,396.89	6,463.11	0.00	0.00	0.00
15,400.00	90.13	271.45	7,305.40	2,700.49	-6,496.86	6,563.11	0.00	0.00	0.00
15,500.00	90.13	271.45	7,305.16	2,703.01	-6,596.83	6,663.11	0.00	0.00	0.00
15,600.00	90.13	271.45	7,304.93	2,705.54	-6,696.80	6,763.11	0.00	0.00	0.00
15,700.00	90.13	271.45	7,304.69	2,708.06	-6,796.76	6,863.11	0.00	0.00	0.00
15,800.00	90.13	271.45	7,304.46	2,710.59	-6,896.73	6,963.11	0.00	0.00	0.00
15,900.00	90.13	271.45	7,304.22	2,713.11	-6,996.70	7,063.11	0.00	0.00	0.00
16,000.00	90.13	271.45	7,303.99	2,715.64	-7,096.67	7,163.11	0.00	0.00	0.00
16,100.00	90.13	271.45	7,303.75	2,718.16	-7,196.64	7,263.11	0.00	0.00	0.00
16,200.00	90.13	271.45	7,303.52	2,720.69	-7,296.60	7,363.11	0.00	0.00	0.00
16,300.00	90.13	271.45	7,303.29	2,723.21	-7,396.57	7,463.11	0.00	0.00	0.00
16,400.00	90.13	271.45	7,303.05	2,725.74	-7,496.54	7,563.11	0.00	0.00	0.00
16,500.00	90.13	271.45	7,302.82	2,728.26	-7,596.51	7,663.11	0.00	0.00	0.00
16,600.00	90.13	271.45	7,302.58	2,730.79	-7,696.47	7,763.11	0.00	0.00	0.00
16,700.00	90.13	271.45	7,302.35	2,733.31	-7,796.44	7,863.11	0.00	0.00	0.00
16,800.00	90.13	271.45	7,302.11	2,735.84	-7,896.41	7,963.11	0.00	0.00	0.00
16,900.00	90.13	271.45	7,301.88	2,738.36	-7,996.38	8,063.11	0.00	0.00	0.00
17,000.00	90.13	271.45	7,301.64	2,740.88	-8,096.35	8,163.11	0.00	0.00	0.00
17,100.00	90.13	271.45	7,301.41	2,743.41	-8,196.31	8,263.11	0.00	0.00	0.00
17,200.00	90.13	271.45	7,301.17	2,745.93	-8,296.28	8,363.11	0.00	0.00	0.00
17,300.00	90.13	271.45	7,300.94	2,748.46	-8,396.25	8,463.11	0.00	0.00	0.00
17,400.00	90.13	271.45	7,300.70	2,750.98	-8,496.22	8,563.11	0.00	0.00	0.00
17,500.00	90.13	271.45	7,300.47	2,753.51	-8,596.18	8,663.11	0.00	0.00	0.00
17,600.00	90.13	271.45	7,300.23	2,756.03	-8,696.15	8,763.11	0.00	0.00	0.00
17,700.00	90.13	271.45	7,300.00	2,758.56	-8,796.12	8,863.11	0.00	0.00	0.00
17,800.00	90.13	271.45	7,299.76	2,761.08	-8,896.09	8,963.11	0.00	0.00	0.00
17,900.00	90.13	271.45	7,299.53	2,763.61	-8,996.06	9,063.11	0.00	0.00	0.00
18,000.00	90.13	271.45	7,299.29	2,766.13	-9,096.02	9,163.11	0.00	0.00	0.00
18,100.00	90.13	271.45	7,299.06	2,768.66	-9,195.99	9,263.11	0.00	0.00	0.00
18,200.00	90.13	271.45	7,298.82	2,771.18	-9,295.96	9,363.11	0.00	0.00	0.00
18,300.00	90.13	271.45	7,298.59	2,773.70	-9,395.93	9,463.11	0.00	0.00	0.00
18,400.00	90.13	271.45	7,298.36	2,776.23	-9,495.90	9,563.11	0.00	0.00	0.00



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SHARON 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4954.00usft (Drilling Rig)
<b>Site:</b>	4N-67W-21 SHARON 11-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHARON 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)
18,500.00	90.13	271.45	7,298.12	2,778.75	-9,595.86	9,663.11	0.00	0.00	0.00
18,551.26	90.13	271.45	7,298.00	2,780.05	-9,647.10	9,714.36	0.00	0.00	0.00
TD Well @ 18551.25ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,327.17	7,322.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
875.80	873.00	Fox Hills			
4,044.14	3,794.00	Parkman			
4,551.29	4,254.00	Sussex			
7,573.68	6,989.00	Sharon Springs			
7,592.50	7,004.00	Niobrara			
7,715.92	7,096.00	Nio B			
7,829.04	7,169.00	Nio C			
8,105.52	7,291.00	Fort Hayes			
8,200.81	7,312.00	Codell			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,910.00	1,858.24	306.87	178.61	End Nudge @ 1910.00ft
7,054.55	6,524.57	2,178.93	1,268.17	KOP @ 7054.55ft :: DLS = 8°/100'
8,327.17	7,322.00	2,521.93	573.69	End Build @ 8327.17ft
18,551.26	7,298.00	2,780.05	-9,647.10	TD Well @ 18551.25ft