

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

SHARON 21-7HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.297334/-104.897601

Survey Program: MWD+IFR+MSA

Standard Planning Report

08 March, 2018

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1523.46	9-5/8
7186.00	7912.64	5-1/2

WELL DETAILS: SHARON 21-7HZ

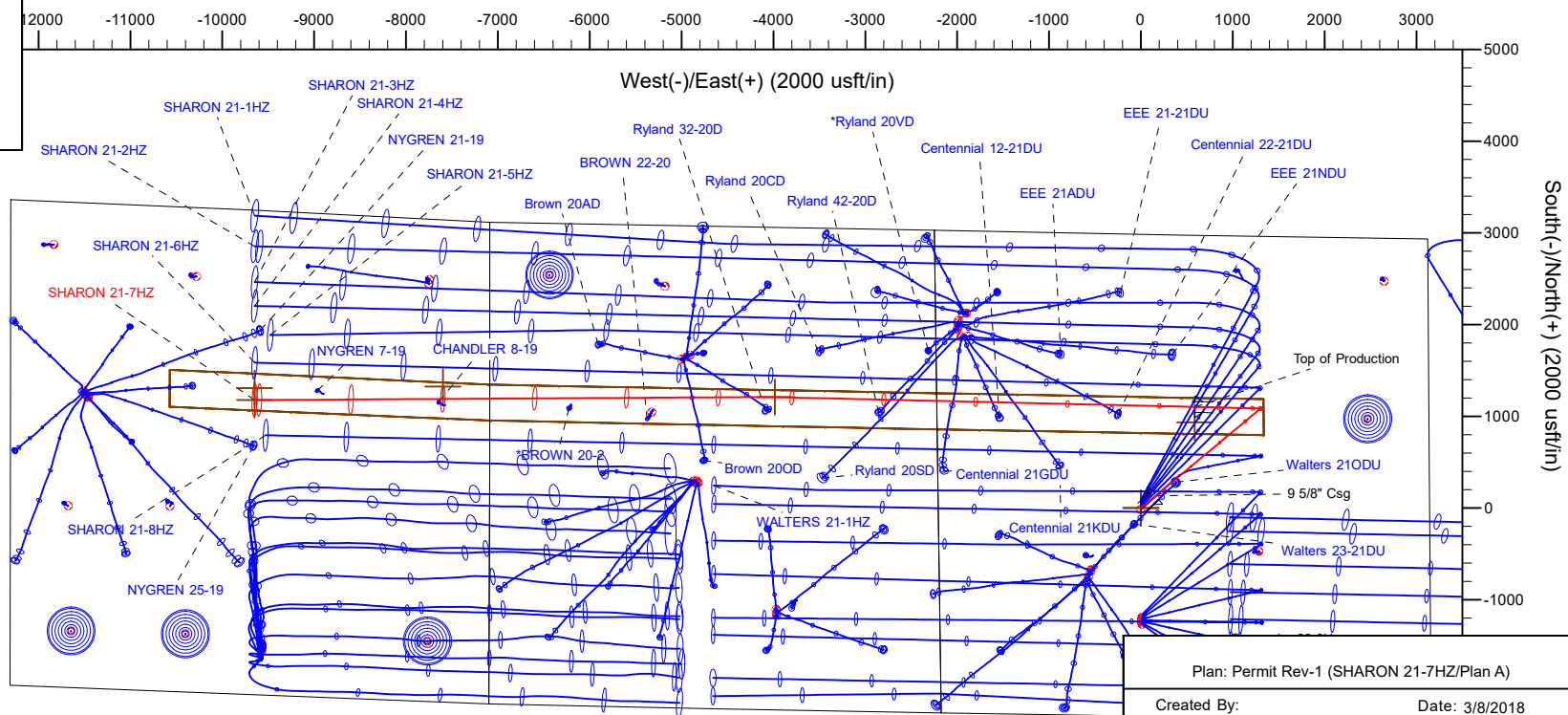
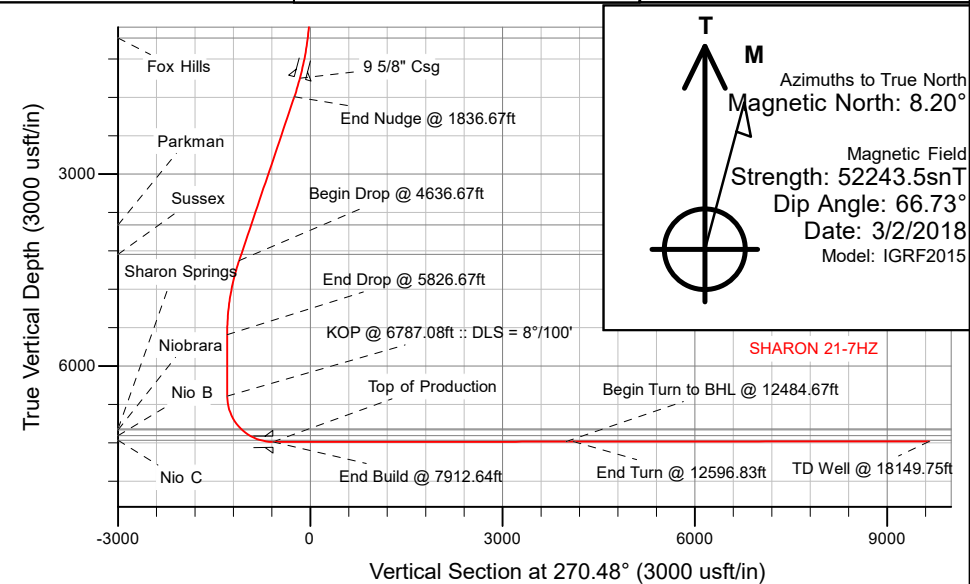
GL = 4937'

RKB = 17' @ 4954.00usft (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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1836.67	23.80	50.20	1791.43	207.93	249.56	1.50	50.20	-247.81	
4	4636.67	23.80	50.20	4353.32	931.20	1117.67	0.00	0.00	-1109.83	
5	5826.67	0.00	0.00	5509.39	1087.15	1304.84	2.00	180.00	-1295.68	
6	6787.08	0.00	0.00	6469.80	1087.15	1304.84	0.00	0.00	-1295.68	
7	7912.64	90.04	271.34	7186.00	1103.87	588.28	8.00	271.34	-579.01	
8	12484.67	90.04	271.34	7182.43	1210.56	-3982.51	0.00	0.00	3992.51	SHARON 21-7HZ_tgt
9	12596.83	90.04	269.65	7182.34	1211.53	-4094.66	1.50	-90.00	4104.67	
10	18149.75	90.04	269.65	7178.00	1178.06	-9647.48	0.00	0.00	9657.01	SHARON 21-7HZ_BHL

WELLS TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHARON 21-7HZ_SHL	0.00	0.00	0.00	40.297334	-104.897601
SHARON 21-7HZ_BHL	7178.00	1178.06	-9647.48	40.300564	-104.932202
FORMATION TOP DETAILS					

FORMATION TOP DETAILS		
TVDPPath	MDPPath	Formation
873.00	875.80	Fox Hills
3794.00	4025.36	Parkman
4254.00	4528.12	Sussex
6984.00	7360.65	Sharon Springs
6999.00	7382.55	Niobrara
7088.00	7533.01	Nio B
7162.00	7726.15	Nio C



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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		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 21-7HZ					
Well Position	+N/-S	-89.95 usft	Northing:	14,635,024.09 usft	Latitude:	40.297334
	+E/-W	-0.56 usft	Easting:	1,668,968.84 usft	Longitude:	-104.897601
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,937.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/2/2018	8.20	66.73	52,243.46120588

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	270.48

Plan Survey Tool Program	Date	3/8/2018		
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+I Fixed:v2:crustal field declinatio
2	1,500.00	18,149.75	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate Planning Report

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Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,836.67	23.80	50.20	1,791.43	207.93	249.56	1.50	1.50	0.00	50.20	
4,636.67	23.80	50.20	4,353.32	931.20	1,117.67	0.00	0.00	0.00	0.00	
5,826.67	0.00	0.00	5,509.39	1,087.15	1,304.84	2.00	-2.00	0.00	180.00	
6,787.08	0.00	0.00	6,469.80	1,087.15	1,304.84	0.00	0.00	0.00	0.00	
7,912.64	90.04	271.34	7,186.00	1,103.87	588.28	8.00	8.00	-7.88	271.34	
12,484.67	90.04	271.34	7,182.43	1,210.56	-3,982.51	0.00	0.00	0.00	0.00	SHARON 21-7HZ_tgt
12,596.83	90.04	269.65	7,182.34	1,211.53	-4,094.66	1.50	0.00	-1.50	-90.00	
18,149.75	90.04	269.65	7,178.00	1,178.06	-9,647.48	0.00	0.00	0.00	0.00	SHARON 21-7HZ_BH

Corporate
Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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
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	50.20	300.00	0.21	0.25	-0.25	1.50	1.50	0.00
400.00	2.25	50.20	399.96	1.89	2.26	-2.25	1.50	1.50	0.00
500.00	3.75	50.20	499.82	5.24	6.28	-6.24	1.50	1.50	0.00
600.00	5.25	50.20	599.51	10.26	12.31	-12.22	1.50	1.50	0.00
700.00	6.75	50.20	698.96	16.95	20.34	-20.20	1.50	1.50	0.00
800.00	8.25	50.20	798.10	25.30	30.37	-30.16	1.50	1.50	0.00
875.80	9.39	50.20	873.00	32.74	39.30	-39.02	1.50	1.50	0.00
Fox Hills									
900.00	9.75	50.20	896.87	35.32	42.39	-42.09	1.50	1.50	0.00
1,000.00	11.25	50.20	995.19	46.98	56.39	-55.99	1.50	1.50	0.00
1,100.00	12.75	50.20	1,093.00	60.29	72.36	-71.85	1.50	1.50	0.00
1,200.00	14.25	50.20	1,190.24	75.23	90.30	-89.66	1.50	1.50	0.00
1,300.00	15.75	50.20	1,286.83	91.80	110.18	-109.41	1.50	1.50	0.00
1,400.00	17.25	50.20	1,382.71	109.98	132.00	-131.07	1.50	1.50	0.00
1,500.00	18.75	50.20	1,477.81	129.76	155.74	-154.65	1.50	1.50	0.00
1,523.46	19.10	50.20	1,500.00	134.63	161.59	-160.45	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	50.20	1,572.07	151.12	181.39	-180.11	1.50	1.50	0.00
1,700.00	21.75	50.20	1,665.43	174.06	208.92	-207.45	1.50	1.50	0.00
1,800.00	23.25	50.20	1,757.81	198.56	238.32	-236.65	1.50	1.50	0.00
1,836.67	23.80	50.20	1,791.43	207.93	249.56	-247.81	1.50	1.50	0.00
End Nudge @ 1836.67ft									
1,900.00	23.80	50.20	1,849.38	224.29	269.20	-267.31	0.00	0.00	0.00
2,000.00	23.80	50.20	1,940.87	250.12	300.20	-298.10	0.00	0.00	0.00
2,100.00	23.80	50.20	2,032.37	275.95	331.20	-328.88	0.00	0.00	0.00
2,200.00	23.80	50.20	2,123.86	301.78	362.21	-359.67	0.00	0.00	0.00
2,300.00	23.80	50.20	2,215.36	327.61	393.21	-390.45	0.00	0.00	0.00
2,400.00	23.80	50.20	2,306.86	353.44	424.22	-421.24	0.00	0.00	0.00
2,500.00	23.80	50.20	2,398.35	379.27	455.22	-452.03	0.00	0.00	0.00
2,600.00	23.80	50.20	2,489.85	405.11	486.22	-482.81	0.00	0.00	0.00
2,700.00	23.80	50.20	2,581.34	430.94	517.23	-513.60	0.00	0.00	0.00
2,800.00	23.80	50.20	2,672.84	456.77	548.23	-544.39	0.00	0.00	0.00
2,900.00	23.80	50.20	2,764.34	482.60	579.23	-575.17	0.00	0.00	0.00
3,000.00	23.80	50.20	2,855.83	508.43	610.24	-605.96	0.00	0.00	0.00
3,100.00	23.80	50.20	2,947.33	534.26	641.24	-636.74	0.00	0.00	0.00
3,200.00	23.80	50.20	3,038.82	560.09	672.25	-667.53	0.00	0.00	0.00
3,300.00	23.80	50.20	3,130.32	585.93	703.25	-698.32	0.00	0.00	0.00
3,400.00	23.80	50.20	3,221.82	611.76	734.25	-729.10	0.00	0.00	0.00
3,500.00	23.80	50.20	3,313.31	637.59	765.26	-759.89	0.00	0.00	0.00
3,600.00	23.80	50.20	3,404.81	663.42	796.26	-790.67	0.00	0.00	0.00
3,700.00	23.80	50.20	3,496.30	689.25	827.26	-821.46	0.00	0.00	0.00
3,800.00	23.80	50.20	3,587.80	715.08	858.27	-852.25	0.00	0.00	0.00
3,900.00	23.80	50.20	3,679.30	740.91	889.27	-883.03	0.00	0.00	0.00
4,000.00	23.80	50.20	3,770.79	766.74	920.28	-913.82	0.00	0.00	0.00
4,025.36	23.80	50.20	3,794.00	773.30	928.14	-921.63	0.00	0.00	0.00
Parkman									
4,100.00	23.80	50.20	3,862.29	792.58	951.28	-944.61	0.00	0.00	0.00
4,200.00	23.80	50.20	3,953.78	818.41	982.28	-975.39	0.00	0.00	0.00

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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)	
4,300.00	23.80	50.20	4,045.28	844.24	1,013.29	-1,006.18	0.00	0.00	0.00	
4,400.00	23.80	50.20	4,136.78	870.07	1,044.29	-1,036.96	0.00	0.00	0.00	
4,500.00	23.80	50.20	4,228.27	895.90	1,075.29	-1,067.75	0.00	0.00	0.00	
4,528.12	23.80	50.20	4,254.00	903.16	1,084.01	-1,076.41	0.00	0.00	0.00	
Sussex										
4,600.00	23.80	50.20	4,319.77	921.73	1,106.30	-1,098.54	0.00	0.00	0.00	
4,636.67	23.80	50.20	4,353.32	931.20	1,117.67	-1,109.83	0.00	0.00	0.00	
Begin Drop @ 4636.67ft										
4,700.00	22.53	50.20	4,411.54	947.15	1,136.81	-1,128.83	2.00	-2.00	0.00	
4,800.00	20.53	50.20	4,504.56	970.65	1,165.01	-1,156.83	2.00	-2.00	0.00	
4,900.00	18.53	50.20	4,598.80	992.05	1,190.69	-1,182.34	2.00	-2.00	0.00	
5,000.00	16.53	50.20	4,694.15	1,011.33	1,213.84	-1,205.32	2.00	-2.00	0.00	
5,100.00	14.53	50.20	4,790.49	1,028.47	1,234.41	-1,225.75	2.00	-2.00	0.00	
5,200.00	12.53	50.20	4,887.71	1,043.45	1,252.39	-1,243.60	2.00	-2.00	0.00	
5,300.00	10.53	50.20	4,985.68	1,056.25	1,267.75	-1,258.85	2.00	-2.00	0.00	
5,400.00	8.53	50.20	5,084.30	1,066.85	1,280.47	-1,271.49	2.00	-2.00	0.00	
5,500.00	6.53	50.20	5,183.43	1,075.24	1,290.54	-1,281.49	2.00	-2.00	0.00	
5,600.00	4.53	50.20	5,282.96	1,081.41	1,297.95	-1,288.85	2.00	-2.00	0.00	
5,700.00	2.53	50.20	5,382.76	1,085.36	1,302.69	-1,293.55	2.00	-2.00	0.00	
5,800.00	0.53	50.20	5,482.72	1,087.07	1,304.74	-1,295.59	2.00	-2.00	0.00	
5,826.67	0.00	0.00	5,509.39	1,087.15	1,304.84	-1,295.68	2.00	-2.00	0.00	
End Drop @ 5826.67ft										
5,900.00	0.00	0.00	5,582.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,682.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,782.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,882.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,300.00	0.00	0.00	5,982.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,082.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,182.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,282.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,382.72	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
6,787.08	0.00	0.00	6,469.80	1,087.15	1,304.84	-1,295.68	0.00	0.00	0.00	
KOP @ 6787.08ft :: DLS = 8°/100'										
6,800.00	1.03	271.34	6,482.72	1,087.15	1,304.72	-1,295.57	8.00	8.00	0.00	
6,900.00	9.03	271.34	6,582.25	1,087.36	1,295.96	-1,286.80	8.00	8.00	0.00	
7,000.00	17.03	271.34	6,679.60	1,087.88	1,273.43	-1,264.27	8.00	8.00	0.00	
7,100.00	25.03	271.34	6,772.86	1,088.72	1,237.58	-1,228.41	8.00	8.00	0.00	
7,200.00	33.03	271.34	6,860.22	1,089.85	1,189.10	-1,179.92	8.00	8.00	0.00	
7,300.00	41.03	271.34	6,939.99	1,091.26	1,128.93	-1,119.75	8.00	8.00	0.00	
7,360.65	45.89	271.34	6,984.00	1,092.23	1,087.24	-1,078.05	8.00	8.00	0.00	
Sharon Springs										
7,382.55	47.64	271.34	6,999.00	1,092.60	1,071.29	-1,062.10	8.00	8.00	0.00	
Niobrara										
7,400.00	49.03	271.34	7,010.60	1,092.90	1,058.26	-1,049.06	8.00	8.00	0.00	
7,500.00	57.03	271.34	7,070.68	1,094.77	978.45	-969.24	8.00	8.00	0.00	
7,533.01	59.67	271.34	7,088.00	1,095.42	950.36	-941.15	8.00	8.00	0.00	
Nio B										
7,600.00	65.03	271.34	7,119.07	1,096.81	891.05	-881.83	8.00	8.00	0.00	
7,700.00	73.03	271.34	7,154.83	1,098.98	797.77	-788.54	8.00	8.00	0.00	
7,726.15	75.13	271.34	7,162.00	1,099.57	772.63	-763.39	8.00	8.00	0.00	
Nio C										
7,800.00	81.03	271.34	7,177.25	1,101.26	700.43	-691.18	8.00	8.00	0.00	
7,900.00	89.03	271.34	7,185.90	1,103.58	600.91	-591.64	8.00	8.00	0.00	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
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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)
7,912.64	90.04	271.34	7,186.00	1,103.87	588.27	-579.01	8.00	8.00	0.00
End Build @ 7912.64ft - Top of Production									
8,000.00	90.04	271.34	7,185.93	1,105.91	500.94	-491.66	0.00	0.00	0.00
8,100.00	90.04	271.34	7,185.85	1,108.25	400.97	-391.67	0.00	0.00	0.00
8,200.00	90.04	271.34	7,185.77	1,110.58	300.99	-291.68	0.00	0.00	0.00
8,300.00	90.04	271.34	7,185.70	1,112.91	201.02	-191.69	0.00	0.00	0.00
8,400.00	90.04	271.34	7,185.62	1,115.25	101.05	-91.70	0.00	0.00	0.00
8,500.00	90.04	271.34	7,185.54	1,117.58	1.08	8.29	0.00	0.00	0.00
8,600.00	90.04	271.34	7,185.46	1,119.91	-98.90	108.28	0.00	0.00	0.00
8,700.00	90.04	271.34	7,185.38	1,122.25	-198.87	208.27	0.00	0.00	0.00
8,800.00	90.04	271.34	7,185.31	1,124.58	-298.84	308.25	0.00	0.00	0.00
8,900.00	90.04	271.34	7,185.23	1,126.91	-398.82	408.24	0.00	0.00	0.00
9,000.00	90.04	271.34	7,185.15	1,129.25	-498.79	508.23	0.00	0.00	0.00
9,100.00	90.04	271.34	7,185.07	1,131.58	-598.76	608.22	0.00	0.00	0.00
9,200.00	90.04	271.34	7,184.99	1,133.91	-698.73	708.21	0.00	0.00	0.00
9,300.00	90.04	271.34	7,184.92	1,136.25	-798.71	808.20	0.00	0.00	0.00
9,400.00	90.04	271.34	7,184.84	1,138.58	-898.68	908.19	0.00	0.00	0.00
9,500.00	90.04	271.34	7,184.76	1,140.91	-998.65	1,008.18	0.00	0.00	0.00
9,600.00	90.04	271.34	7,184.68	1,143.25	-1,098.63	1,108.16	0.00	0.00	0.00
9,700.00	90.04	271.34	7,184.60	1,145.58	-1,198.60	1,208.15	0.00	0.00	0.00
9,800.00	90.04	271.34	7,184.53	1,147.91	-1,298.57	1,308.14	0.00	0.00	0.00
9,900.00	90.04	271.34	7,184.45	1,150.25	-1,398.54	1,408.13	0.00	0.00	0.00
10,000.00	90.04	271.34	7,184.37	1,152.58	-1,498.52	1,508.12	0.00	0.00	0.00
10,100.00	90.04	271.34	7,184.29	1,154.92	-1,598.49	1,608.11	0.00	0.00	0.00
10,200.00	90.04	271.34	7,184.21	1,157.25	-1,698.46	1,708.10	0.00	0.00	0.00
10,300.00	90.04	271.34	7,184.14	1,159.58	-1,798.43	1,808.09	0.00	0.00	0.00
10,400.00	90.04	271.34	7,184.06	1,161.92	-1,898.41	1,908.07	0.00	0.00	0.00
10,500.00	90.04	271.34	7,183.98	1,164.25	-1,998.38	2,008.06	0.00	0.00	0.00
10,600.00	90.04	271.34	7,183.90	1,166.58	-2,098.35	2,108.05	0.00	0.00	0.00
10,700.00	90.04	271.34	7,183.82	1,168.92	-2,198.33	2,208.04	0.00	0.00	0.00
10,800.00	90.04	271.34	7,183.75	1,171.25	-2,298.30	2,308.03	0.00	0.00	0.00
10,900.00	90.04	271.34	7,183.67	1,173.58	-2,398.27	2,408.02	0.00	0.00	0.00
11,000.00	90.04	271.34	7,183.59	1,175.92	-2,498.24	2,508.01	0.00	0.00	0.00
11,100.00	90.04	271.34	7,183.51	1,178.25	-2,598.22	2,608.00	0.00	0.00	0.00
11,200.00	90.04	271.34	7,183.43	1,180.58	-2,698.19	2,707.98	0.00	0.00	0.00
11,300.00	90.04	271.34	7,183.35	1,182.92	-2,798.16	2,807.97	0.00	0.00	0.00
11,400.00	90.04	271.34	7,183.28	1,185.25	-2,898.13	2,907.96	0.00	0.00	0.00
11,500.00	90.04	271.34	7,183.20	1,187.58	-2,998.11	3,007.95	0.00	0.00	0.00
11,600.00	90.04	271.34	7,183.12	1,189.92	-3,098.08	3,107.94	0.00	0.00	0.00
11,700.00	90.04	271.34	7,183.04	1,192.25	-3,198.05	3,207.93	0.00	0.00	0.00
11,800.00	90.04	271.34	7,182.96	1,194.58	-3,298.03	3,307.92	0.00	0.00	0.00
11,900.00	90.04	271.34	7,182.89	1,196.92	-3,398.00	3,407.91	0.00	0.00	0.00
12,000.00	90.04	271.34	7,182.81	1,199.25	-3,497.97	3,507.89	0.00	0.00	0.00
12,100.00	90.04	271.34	7,182.73	1,201.58	-3,597.94	3,607.88	0.00	0.00	0.00
12,200.00	90.04	271.34	7,182.65	1,203.92	-3,697.92	3,707.87	0.00	0.00	0.00
12,300.00	90.04	271.34	7,182.57	1,206.25	-3,797.89	3,807.86	0.00	0.00	0.00
12,400.00	90.04	271.34	7,182.50	1,208.58	-3,897.86	3,907.85	0.00	0.00	0.00
12,484.67	90.04	271.34	7,182.43	1,210.56	-3,982.51	3,992.51	0.00	0.00	0.00
Begin Turn to BHL @ 12484.67ft									
12,500.00	90.04	271.11	7,182.42	1,210.89	-3,997.84	4,007.84	1.50	0.00	-1.50
12,596.83	90.04	269.65	7,182.34	1,211.53	-4,094.66	4,104.67	1.50	0.00	-1.50
End Turn @ 12596.83ft									
12,600.00	90.04	269.65	7,182.34	1,211.51	-4,097.83	4,107.84	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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)
12,700.00	90.04	269.65	7,182.26	1,210.91	-4,197.83	4,207.83	0.00	0.00	0.00
12,800.00	90.04	269.65	7,182.18	1,210.31	-4,297.83	4,307.82	0.00	0.00	0.00
12,900.00	90.04	269.65	7,182.11	1,209.70	-4,397.82	4,407.80	0.00	0.00	0.00
13,000.00	90.04	269.65	7,182.03	1,209.10	-4,497.82	4,507.79	0.00	0.00	0.00
13,100.00	90.04	269.65	7,181.95	1,208.50	-4,597.82	4,607.78	0.00	0.00	0.00
13,200.00	90.04	269.65	7,181.87	1,207.90	-4,697.82	4,707.77	0.00	0.00	0.00
13,300.00	90.04	269.65	7,181.79	1,207.29	-4,797.82	4,807.76	0.00	0.00	0.00
13,400.00	90.04	269.65	7,181.71	1,206.69	-4,897.82	4,907.75	0.00	0.00	0.00
13,500.00	90.04	269.65	7,181.64	1,206.09	-4,997.81	5,007.74	0.00	0.00	0.00
13,600.00	90.04	269.65	7,181.56	1,205.48	-5,097.81	5,107.73	0.00	0.00	0.00
13,700.00	90.04	269.65	7,181.48	1,204.88	-5,197.81	5,207.72	0.00	0.00	0.00
13,800.00	90.04	269.65	7,181.40	1,204.28	-5,297.81	5,307.71	0.00	0.00	0.00
13,900.00	90.04	269.65	7,181.32	1,203.68	-5,397.81	5,407.70	0.00	0.00	0.00
14,000.00	90.04	269.65	7,181.25	1,203.07	-5,497.80	5,507.69	0.00	0.00	0.00
14,100.00	90.04	269.65	7,181.17	1,202.47	-5,597.80	5,607.68	0.00	0.00	0.00
14,200.00	90.04	269.65	7,181.09	1,201.87	-5,697.80	5,707.67	0.00	0.00	0.00
14,300.00	90.04	269.65	7,181.01	1,201.27	-5,797.80	5,807.66	0.00	0.00	0.00
14,400.00	90.04	269.65	7,180.93	1,200.66	-5,897.80	5,907.65	0.00	0.00	0.00
14,500.00	90.04	269.65	7,180.85	1,200.06	-5,997.80	6,007.64	0.00	0.00	0.00
14,600.00	90.04	269.65	7,180.78	1,199.46	-6,097.79	6,107.63	0.00	0.00	0.00
14,700.00	90.04	269.65	7,180.70	1,198.86	-6,197.79	6,207.62	0.00	0.00	0.00
14,800.00	90.04	269.65	7,180.62	1,198.25	-6,297.79	6,307.61	0.00	0.00	0.00
14,900.00	90.04	269.65	7,180.54	1,197.65	-6,397.79	6,407.60	0.00	0.00	0.00
15,000.00	90.04	269.65	7,180.46	1,197.05	-6,497.79	6,507.59	0.00	0.00	0.00
15,100.00	90.04	269.65	7,180.39	1,196.44	-6,597.78	6,607.58	0.00	0.00	0.00
15,200.00	90.04	269.65	7,180.31	1,195.84	-6,697.78	6,707.57	0.00	0.00	0.00
15,300.00	90.04	269.65	7,180.23	1,195.24	-6,797.78	6,807.56	0.00	0.00	0.00
15,400.00	90.04	269.65	7,180.15	1,194.64	-6,897.78	6,907.54	0.00	0.00	0.00
15,500.00	90.04	269.65	7,180.07	1,194.03	-6,997.78	7,007.53	0.00	0.00	0.00
15,600.00	90.04	269.65	7,179.99	1,193.43	-7,097.78	7,107.52	0.00	0.00	0.00
15,700.00	90.04	269.65	7,179.92	1,192.83	-7,197.77	7,207.51	0.00	0.00	0.00
15,800.00	90.04	269.65	7,179.84	1,192.23	-7,297.77	7,307.50	0.00	0.00	0.00
15,900.00	90.04	269.65	7,179.76	1,191.62	-7,397.77	7,407.49	0.00	0.00	0.00
16,000.00	90.04	269.65	7,179.68	1,191.02	-7,497.77	7,507.48	0.00	0.00	0.00
16,100.00	90.04	269.65	7,179.60	1,190.42	-7,597.77	7,607.47	0.00	0.00	0.00
16,200.00	90.04	269.65	7,179.52	1,189.82	-7,697.76	7,707.46	0.00	0.00	0.00
16,300.00	90.04	269.65	7,179.45	1,189.21	-7,797.76	7,807.45	0.00	0.00	0.00
16,400.00	90.04	269.65	7,179.37	1,188.61	-7,897.76	7,907.44	0.00	0.00	0.00
16,500.00	90.04	269.65	7,179.29	1,188.01	-7,997.76	8,007.43	0.00	0.00	0.00
16,600.00	90.04	269.65	7,179.21	1,187.40	-8,097.76	8,107.42	0.00	0.00	0.00
16,700.00	90.04	269.65	7,179.13	1,186.80	-8,197.75	8,207.41	0.00	0.00	0.00
16,800.00	90.04	269.65	7,179.06	1,186.20	-8,297.75	8,307.40	0.00	0.00	0.00
16,900.00	90.04	269.65	7,178.98	1,185.60	-8,397.75	8,407.39	0.00	0.00	0.00
17,000.00	90.04	269.65	7,178.90	1,184.99	-8,497.75	8,507.38	0.00	0.00	0.00
17,100.00	90.04	269.65	7,178.82	1,184.39	-8,597.75	8,607.37	0.00	0.00	0.00
17,200.00	90.04	269.65	7,178.74	1,183.79	-8,697.75	8,707.36	0.00	0.00	0.00
17,300.00	90.04	269.65	7,178.66	1,183.19	-8,797.74	8,807.35	0.00	0.00	0.00
17,400.00	90.04	269.65	7,178.59	1,182.58	-8,897.74	8,907.34	0.00	0.00	0.00
17,500.00	90.04	269.65	7,178.51	1,181.98	-8,997.74	9,007.33	0.00	0.00	0.00
17,600.00	90.04	269.65	7,178.43	1,181.38	-9,097.74	9,107.32	0.00	0.00	0.00
17,700.00	90.04	269.65	7,178.35	1,180.78	-9,197.74	9,207.31	0.00	0.00	0.00
17,800.00	90.04	269.65	7,178.27	1,180.17	-9,297.73	9,307.30	0.00	0.00	0.00
17,900.00	90.04	269.65	7,178.20	1,179.57	-9,397.73	9,407.28	0.00	0.00	0.00

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 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)
18,000.00	90.04	269.65	7,178.12	1,178.97	-9,497.73	9,507.27	0.00	0.00	0.00
18,100.00	90.04	269.65	7,178.04	1,178.36	-9,597.73	9,607.26	0.00	0.00	0.00
18,149.75	90.04	269.65	7,178.00	1,178.06	-9,647.48	9,657.01	0.00	0.00	0.00
TD Well @ 18149.75ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SHARON 21-7HZ_Heel	0.00	0.00	0.00	935.23	587.24	14,635,960.00	1,669,555.00	40.299902	-104.895495
- plan misses target center by 1104.32usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
SHARON 21-7HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,635,024.09	1,668,968.84	40.297334	-104.897601
- plan hits target center									
- Point									
SHARON 21-7HZ_Hardl	0.00	0.00	0.00	0.00	0.00	14,635,024.09	1,668,968.84	40.297334	-104.897601
- plan hits target center									
- Polygon									
Point 1			0.00	1,188.77	1,334.34	14,636,214.40	1,670,301.80		
Point 2			0.00	795.57	1,338.08	14,635,821.20	1,670,305.99		
Point 3			0.00	803.05	918.19	14,635,828.20	1,669,886.10		
Point 4			0.00	810.97	471.60	14,635,835.60	1,669,439.50		
Point 5			0.00	811.18	458.00	14,635,835.79	1,669,425.90		
Point 6			0.00	819.41	-2.09	14,635,843.49	1,668,965.80		
Point 7			0.00	826.80	-419.18	14,635,850.40	1,668,548.70		
Point 8			0.00	834.71	-865.17	14,635,857.79	1,668,102.70		
Point 9			0.00	834.93	-879.27	14,635,858.00	1,668,088.60		
Point 10			0.00	843.06	-1,339.46	14,635,865.60	1,667,628.40		
Point 11			0.00	850.54	-1,756.66	14,635,872.59	1,667,211.19		
Point 12			0.00	858.46	-2,201.65	14,635,880.00	1,666,766.19		
Point 13			0.00	858.67	-2,216.85	14,635,880.19	1,666,750.99		
Point 14			0.00	867.81	-2,677.04	14,635,888.80	1,666,290.79		
Point 15			0.00	873.65	-2,975.23	14,635,894.30	1,665,992.60		
Point 16			0.00	882.68	-3,435.32	14,635,902.79	1,665,532.50		
Point 17			0.00	891.72	-3,895.51	14,635,911.30	1,665,072.30		
Point 18			0.00	897.66	-4,193.90	14,635,916.90	1,664,773.90		
Point 19			0.00	906.48	-4,641.99	14,635,925.20	1,664,325.80		
Point 20			0.00	906.69	-4,653.89	14,635,925.40	1,664,313.90		
Point 21			0.00	915.82	-5,113.98	14,635,933.99	1,663,853.80		
Point 22			0.00	921.77	-5,410.58	14,635,939.60	1,663,557.19		
Point 23			0.00	931.00	-5,870.57	14,635,948.30	1,663,097.19		
Point 24			0.00	940.13	-6,330.66	14,635,956.90	1,662,637.09		
Point 25			0.00	946.07	-6,627.25	14,635,962.49	1,662,340.50		
Point 26			0.00	954.99	-7,073.14	14,635,970.90	1,661,894.60		
Point 27			0.00	955.60	-7,087.24	14,635,971.49	1,661,880.50		
Point 28			0.00	975.14	-7,547.32	14,635,990.50	1,661,420.39		
Point 29			0.00	991.79	-7,941.10	14,636,006.70	1,661,026.59		
Point 30			0.00	1,011.32	-8,401.07	14,636,025.69	1,660,566.60		
Point 31			0.00	1,030.86	-8,861.05	14,636,044.70	1,660,106.60		
Point 32			0.00	1,047.61	-9,254.93	14,636,061.00	1,659,712.70		
Point 33			0.00	1,066.32	-9,697.41	14,636,079.20	1,659,270.20		
Point 34			0.00	1,067.14	-9,714.91	14,636,079.99	1,659,252.70		
Point 35			0.00	1,086.97	-10,174.79	14,636,099.29	1,658,792.80		
Point 36			0.00	1,104.24	-10,573.77	14,636,116.10	1,658,393.80		
Point 37			0.00	1,506.13	-10,571.90	14,636,517.99	1,658,395.20		
Point 38			0.00	1,489.17	-10,172.92	14,636,501.50	1,658,794.20		
Point 39			0.00	1,470.46	-9,731.44	14,636,483.30	1,659,235.70		
Point 40			0.00	1,469.54	-9,712.95	14,636,482.40	1,659,254.19		
Point 41			0.00	1,447.61	-9,253.07	14,636,461.00	1,659,714.10		
Point 42			0.00	1,428.95	-8,859.99	14,636,442.79	1,660,107.20		
Point 43			0.00	1,408.05	-8,420.42	14,636,422.40	1,660,546.79		
Point 44			0.00	1,407.02	-8,400.02	14,636,421.39	1,660,567.19		
Point 45			0.00	1,385.59	-7,940.04	14,636,400.50	1,661,027.20		
Point 46			0.00	1,367.34	-7,547.06	14,636,382.70	1,661,420.20		
Point 47			0.00	1,346.52	-7,101.99	14,636,362.40	1,661,865.29		
Point 48			0.00	1,346.30	-7,087.09	14,636,362.19	1,661,880.19		

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Point 49	0.00	1,337.37	-6,627.10	14,636,353.79	1,662,340.19				
Point 50	0.00	1,331.73	-6,331.70	14,636,348.50	1,662,635.60				
Point 51	0.00	1,322.90	-5,871.71	14,636,340.20	1,663,095.60				
Point 52	0.00	1,314.07	-5,411.62	14,636,331.90	1,663,555.70				
Point 53	0.00	1,308.43	-5,116.33	14,636,326.60	1,663,851.00				
Point 54	0.00	1,299.81	-4,667.94	14,636,318.50	1,664,299.40				
Point 55	0.00	1,299.60	-4,656.34	14,636,318.30	1,664,311.00				
Point 56	0.00	1,290.76	-4,196.25	14,636,309.99	1,664,771.10				
Point 57	0.00	1,285.12	-3,899.45	14,636,304.70	1,665,067.90				
Point 58	0.00	1,276.29	-3,439.36	14,636,296.40	1,665,528.00				
Point 59	0.00	1,267.56	-2,979.27	14,636,288.20	1,665,988.10				
Point 60	0.00	1,261.91	-2,682.58	14,636,282.89	1,666,284.80				
Point 61	0.00	1,253.40	-2,237.59	14,636,274.90	1,666,729.80				
Point 62	0.00	1,253.08	-2,222.39	14,636,274.60	1,666,745.00				
Point 63	0.00	1,244.55	-1,762.30	14,636,266.60	1,667,205.10				
Point 64	0.00	1,236.87	-1,344.61	14,636,259.40	1,667,622.80				
Point 65	0.00	1,228.33	-884.42	14,636,251.39	1,668,083.00				
Point 66	0.00	1,219.90	-424.33	14,636,243.49	1,668,543.10				
Point 67	0.00	1,212.12	-6.74	14,636,236.20	1,668,960.69				
Point 68	0.00	1,203.90	439.95	14,636,228.49	1,669,407.39				
Point 69	0.00	1,203.69	453.45	14,636,228.30	1,669,420.89				
Point 70	0.00	1,195.96	913.55	14,636,221.10	1,669,881.00				
Point 71	0.00	1,188.77	1,334.34	14,636,214.40	1,670,301.80				
SHARON 21-7HZ_TOE	0.00	0.00	7,178.00	1,308.00	-9,647.48	14,636,320.93	1,659,319.85	40.300921	-104.932203
- plan misses target center by 129.93usft at 18148.97usft MD (7178.00 TVD, 1178.07 N, -9646.70 E)									
- Point									
SHARON 21-7HZ_BHL	0.00	0.00	7,178.00	1,178.06	-9,647.48	14,636,191.00	1,659,320.00	40.300564	-104.932202
- plan hits target center									
- Point									
SHARON 21-7HZ_tgt2	0.00	0.00	7,179.60	1,325.00	-7,596.59	14,636,340.30	1,661,370.72	40.300969	-104.924847
- plan misses target center by 134.57usft at 16098.01usft MD (7179.60 TVD, 1190.43 N, -7595.78 E)									
- Point									
SHARON 21-7HZ_tgt	0.00	0.00	7,182.43	1,210.56	-3,982.51	14,636,230.04	1,664,984.93	40.300657	-104.911885
- plan hits target center									
- Point									

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	
7,912.64	7,186.00	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				
4,025.36	3,794.00	Parkman				
4,528.12	4,254.00	Sussex				
7,360.65	6,984.00	Sharon Springs				
7,382.55	6,999.00	Niobrara				
7,533.01	7,088.00	Nio B				
7,726.15	7,162.00	Nio C				

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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
1,836.67	1,791.43	207.93	249.56	End Nudge @ 1836.67ft
4,636.67	4,353.32	931.20	1,117.67	Begin Drop @ 4636.67ft
5,826.67	5,509.39	1,087.15	1,304.84	End Drop @ 5826.67ft
6,787.08	6,469.80	1,087.15	1,304.84	KOP @ 6787.08ft :: DLS = 8"/100'
7,912.64	7,186.00	1,103.87	588.28	End Build @ 7912.64ft
12,484.67	7,182.43	1,210.56	-3,982.51	Begin Turn to BHL @ 12484.67ft
12,596.83	7,182.34	1,211.53	-4,094.66	End Turn @ 12596.83ft
18,149.75	7,178.00	1,178.06	-9,647.48	TD Well @ 18149.75ft