

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

SHARON 21-5HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.297416/-104.897600

Survey Program: MWD+IFR+MSA

Standard Planning Report

08 March, 2018

US ROCKIES WATTENBERG PLANNING

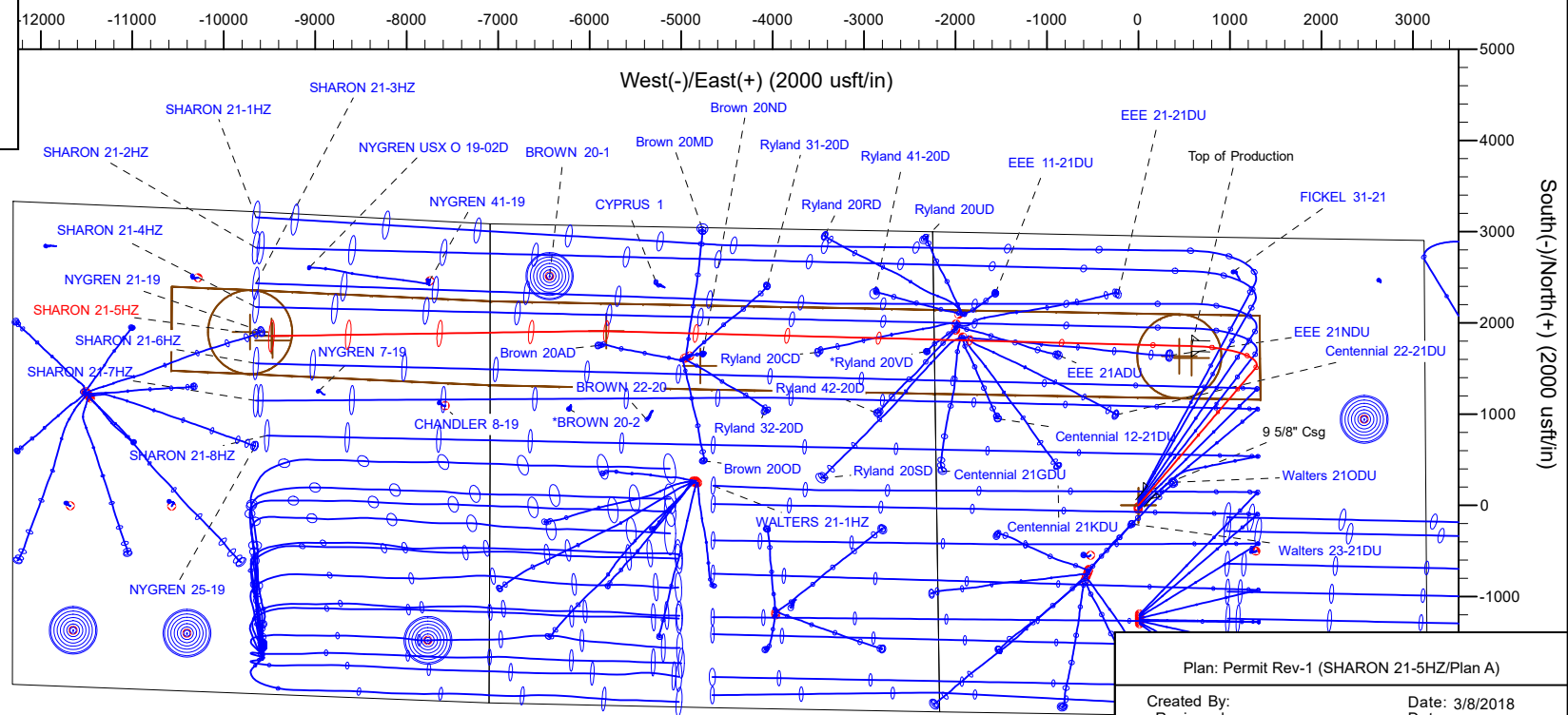
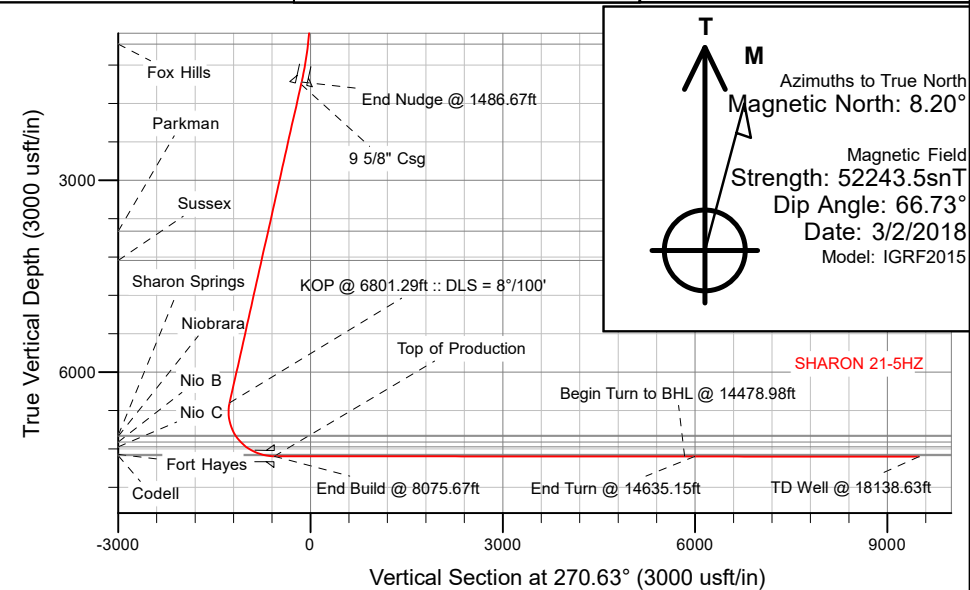
CASING DETAILS		
TVD	MD	Size
1500.00	1526.43	9-5/8
7313.00	8075.67	5-1/2

WELL DETAILS: SHARON 21-5HZ
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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1486.67	19.30	40.40	1462.47	163.48	139.13	1.50	40.40	-137.32	
4	6801.29	19.30	40.40	6478.42	1501.16	1277.59	0.00	0.00	-1261.01	
5	8075.67	89.96	271.47	7313.00	1746.18	583.52	8.00	-127.34	-564.29	
6	14478.98	89.96	271.47	7317.38	1910.00	-5817.69	0.00	0.00	5838.34	SHARON 21-5HZ_tgt
7	14635.15	89.96	269.12	7317.49	1910.80	-5973.85	1.50	-90.05	5994.50	
8	18138.63	89.96	269.12	7320.00	1857.20	-9476.92	0.00	0.00	9496.77	SHARON 21-5HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHARON 21-5HZ_SHL	0.00	0.00	0.00	40.297416	-104.897600
SHARON 21-5HZ_BHL	7320.00	1857.20	-9476.92	40.302511	-104.931590
FORMATION TOP DETAILS					
FORMER 21-5HZ_SHL	0.00	0.00	0.00	40.297416	-104.897600

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
873.00	876.53	Fox Hills
3794.00	3957.03	Parkman
4254.00	4444.42	Sussex
6987.00	7349.75	Sharon Springs
7002.00	7368.21	Niobrara
7092.00	7486.89	Nio B
7166.00	7600.31	Nio C
7282.00	7860.82	Fort Hayes
7303.00	7954.15	Codell



SHL
2298' FSL
2206' FWL

HEEL
1197' FNL
2550' FEL

BHL
1351' FNL
2390' FEL

Plan: Permit Rev-1 (SHARON 21-5HZ/Plan A)

Created By: _____ Date: 3/8/2018
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-5HZ
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 21-5HZ	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 21-5HZ			
Well Position	+N/-S	-60.09 usft	Northing:	14,635,053.95 usft
	+E/-W	-0.28 usft	Easting:	1,668,969.08 usft
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	52,243.50394510

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	270.63

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	18,138.63	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
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Well:	SHARON 21-5HZ	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	
1,486.67	19.30	40.40	1,462.47	163.48	139.13	1.50	1.50	0.00	40.40	
6,801.29	19.30	40.40	6,478.42	1,501.16	1,277.59	0.00	0.00	0.00	0.00	
8,075.67	89.96	271.47	7,313.00	1,746.18	583.52	8.00	5.54	-10.12	-127.34	
14,478.98	89.96	271.47	7,317.38	1,910.00	-5,817.69	0.00	0.00	0.00	0.00	SHARON 21-5HZ_tgt
14,635.15	89.96	269.12	7,317.49	1,910.80	-5,973.85	1.50	0.00	-1.50	-90.05	
18,138.63	89.96	269.12	7,320.00	1,857.20	-9,476.92	0.00	0.00	0.00	0.00	SHARON 21-5HZ_BH

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4954.00usft (Drilling Rig)
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Site:	4N-67W-21 SHARON 11-21HZ PAD	North Reference:	True
Well:	SHARON 21-5HZ	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
Begin Nudge @ 200.00ft									
300.00	1.50	40.40	299.99	1.00	0.85	-0.84	1.50	1.50	0.00
400.00	3.00	40.40	399.91	3.99	3.39	-3.35	1.50	1.50	0.00
500.00	4.50	40.40	499.69	8.97	7.63	-7.53	1.50	1.50	0.00
600.00	6.00	40.40	599.27	15.94	13.56	-13.39	1.50	1.50	0.00
700.00	7.50	40.40	698.57	24.89	21.18	-20.90	1.50	1.50	0.00
800.00	9.00	40.40	797.54	35.81	30.48	-30.08	1.50	1.50	0.00
876.53	10.15	40.40	873.00	45.51	38.73	-38.23	1.50	1.50	0.00
Fox Hills									
900.00	10.50	40.40	896.09	48.71	41.45	-40.92	1.50	1.50	0.00
1,000.00	12.00	40.40	994.16	63.57	54.10	-53.40	1.50	1.50	0.00
1,100.00	13.50	40.40	1,091.70	80.37	68.40	-67.51	1.50	1.50	0.00
1,200.00	15.00	40.40	1,188.62	99.12	84.36	-83.26	1.50	1.50	0.00
1,300.00	16.50	40.40	1,284.86	119.79	101.95	-100.62	1.50	1.50	0.00
1,400.00	18.00	40.40	1,380.36	142.37	121.17	-119.59	1.50	1.50	0.00
1,486.67	19.30	40.40	1,462.47	163.48	139.13	-137.32	1.50	1.50	0.00
End Nudge @ 1486.67ft									
1,500.00	19.30	40.40	1,475.06	166.83	141.98	-140.14	0.00	0.00	0.00
1,526.43	19.30	40.40	1,500.00	173.48	147.65	-145.73	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	19.30	40.40	1,569.44	192.00	163.41	-161.28	0.00	0.00	0.00
1,700.00	19.30	40.40	1,663.82	217.17	184.83	-182.43	0.00	0.00	0.00
1,800.00	19.30	40.40	1,758.20	242.34	206.25	-203.57	0.00	0.00	0.00
1,900.00	19.30	40.40	1,852.58	267.51	227.67	-224.71	0.00	0.00	0.00
2,000.00	19.30	40.40	1,946.96	292.68	249.09	-245.86	0.00	0.00	0.00
2,100.00	19.30	40.40	2,041.34	317.85	270.51	-267.00	0.00	0.00	0.00
2,200.00	19.30	40.40	2,135.72	343.02	291.93	-288.14	0.00	0.00	0.00
2,300.00	19.30	40.40	2,230.10	368.19	313.35	-309.29	0.00	0.00	0.00
2,400.00	19.30	40.40	2,324.48	393.36	334.78	-330.43	0.00	0.00	0.00
2,500.00	19.30	40.40	2,418.86	418.53	356.20	-351.57	0.00	0.00	0.00
2,600.00	19.30	40.40	2,513.24	443.70	377.62	-372.72	0.00	0.00	0.00
2,700.00	19.30	40.40	2,607.62	468.87	399.04	-393.86	0.00	0.00	0.00
2,800.00	19.30	40.40	2,702.00	494.04	420.46	-415.00	0.00	0.00	0.00
2,900.00	19.30	40.40	2,796.38	519.21	441.88	-436.15	0.00	0.00	0.00
3,000.00	19.30	40.40	2,890.76	544.38	463.30	-457.29	0.00	0.00	0.00
3,100.00	19.30	40.40	2,985.14	569.55	484.73	-478.43	0.00	0.00	0.00
3,200.00	19.30	40.40	3,079.52	594.72	506.15	-499.58	0.00	0.00	0.00
3,300.00	19.30	40.40	3,173.90	619.89	527.57	-520.72	0.00	0.00	0.00
3,400.00	19.30	40.40	3,268.28	645.06	548.99	-541.86	0.00	0.00	0.00
3,500.00	19.30	40.40	3,362.66	670.23	570.41	-563.01	0.00	0.00	0.00
3,600.00	19.30	40.40	3,457.04	695.40	591.83	-584.15	0.00	0.00	0.00
3,700.00	19.30	40.40	3,551.42	720.57	613.25	-605.29	0.00	0.00	0.00
3,800.00	19.30	40.40	3,645.80	745.74	634.67	-626.44	0.00	0.00	0.00
3,900.00	19.30	40.40	3,740.18	770.91	656.10	-647.58	0.00	0.00	0.00
3,957.03	19.30	40.40	3,794.00	785.26	668.31	-659.64	0.00	0.00	0.00
Parkman									
4,000.00	19.30	40.40	3,834.56	796.08	677.52	-668.72	0.00	0.00	0.00
4,100.00	19.30	40.40	3,928.94	821.25	698.94	-689.87	0.00	0.00	0.00
4,200.00	19.30	40.40	4,023.32	846.42	720.36	-711.01	0.00	0.00	0.00
4,300.00	19.30	40.40	4,117.70	871.59	741.78	-732.15	0.00	0.00	0.00

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Well:	SHARON 21-5HZ	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)
4,400.00	19.30	40.40	4,212.08	896.76	763.20	-753.30	0.00	0.00	0.00
4,444.42	19.30	40.40	4,254.00	907.94	772.72	-762.69	0.00	0.00	0.00
Sussex									
4,500.00	19.30	40.40	4,306.46	921.93	784.62	-774.44	0.00	0.00	0.00
4,600.00	19.30	40.40	4,400.84	947.10	806.04	-795.58	0.00	0.00	0.00
4,700.00	19.30	40.40	4,495.22	972.27	827.47	-816.73	0.00	0.00	0.00
4,800.00	19.30	40.40	4,589.60	997.44	848.89	-837.87	0.00	0.00	0.00
4,900.00	19.30	40.40	4,683.98	1,022.61	870.31	-859.01	0.00	0.00	0.00
5,000.00	19.30	40.40	4,778.36	1,047.78	891.73	-880.16	0.00	0.00	0.00
5,100.00	19.30	40.40	4,872.74	1,072.95	913.15	-901.30	0.00	0.00	0.00
5,200.00	19.30	40.40	4,967.12	1,098.12	934.57	-922.44	0.00	0.00	0.00
5,300.00	19.30	40.40	5,061.50	1,123.29	955.99	-943.59	0.00	0.00	0.00
5,400.00	19.30	40.40	5,155.88	1,148.46	977.42	-964.73	0.00	0.00	0.00
5,500.00	19.30	40.40	5,250.26	1,173.63	998.84	-985.87	0.00	0.00	0.00
5,600.00	19.30	40.40	5,344.64	1,198.80	1,020.26	-1,007.01	0.00	0.00	0.00
5,700.00	19.30	40.40	5,439.02	1,223.97	1,041.68	-1,028.16	0.00	0.00	0.00
5,800.00	19.30	40.40	5,533.40	1,249.14	1,063.10	-1,049.30	0.00	0.00	0.00
5,900.00	19.30	40.40	5,627.78	1,274.31	1,084.52	-1,070.44	0.00	0.00	0.00
6,000.00	19.30	40.40	5,722.16	1,299.48	1,105.94	-1,091.59	0.00	0.00	0.00
6,100.00	19.30	40.40	5,816.54	1,324.65	1,127.36	-1,112.73	0.00	0.00	0.00
6,200.00	19.30	40.40	5,910.92	1,349.82	1,148.79	-1,133.87	0.00	0.00	0.00
6,300.00	19.30	40.40	6,005.30	1,374.99	1,170.21	-1,155.02	0.00	0.00	0.00
6,400.00	19.30	40.40	6,099.68	1,400.16	1,191.63	-1,176.16	0.00	0.00	0.00
6,500.00	19.30	40.40	6,194.06	1,425.33	1,213.05	-1,197.30	0.00	0.00	0.00
6,600.00	19.30	40.40	6,288.44	1,450.50	1,234.47	-1,218.45	0.00	0.00	0.00
6,700.00	19.30	40.40	6,382.82	1,475.67	1,255.89	-1,239.59	0.00	0.00	0.00
6,800.00	19.30	40.40	6,477.20	1,500.84	1,277.31	-1,260.73	0.00	0.00	0.00
6,801.29	19.30	40.40	6,478.42	1,501.16	1,277.59	-1,261.01	0.00	0.00	0.00
KOP @ 6801.29ft :: DLS = 8°/100'									
6,900.00	15.76	16.69	6,572.65	1,526.47	1,292.04	-1,275.17	8.00	-3.58	-24.02
7,000.00	15.72	346.89	6,669.05	1,552.71	1,292.87	-1,275.72	8.00	-0.05	-29.80
7,100.00	19.25	322.71	6,764.55	1,579.06	1,279.79	-1,262.35	8.00	3.53	-24.18
7,200.00	24.88	307.42	6,857.26	1,605.00	1,253.05	-1,235.33	8.00	5.63	-15.29
7,300.00	31.50	297.85	6,945.40	1,630.03	1,213.18	-1,195.19	8.00	6.62	-9.58
7,349.75	34.99	294.36	6,987.00	1,641.99	1,188.69	-1,170.56	8.00	7.02	-7.02
Sharon Springs									
7,368.21	36.31	293.21	7,002.00	1,646.32	1,178.85	-1,160.67	8.00	7.14	-6.19
Niobrara									
7,400.00	38.60	291.40	7,027.24	1,653.65	1,160.96	-1,142.71	8.00	7.21	-5.69
7,486.89	44.99	287.27	7,092.00	1,672.69	1,106.33	-1,087.87	8.00	7.35	-4.76
Nio B									
7,500.00	45.96	286.73	7,101.19	1,675.42	1,097.39	-1,078.90	8.00	7.44	-4.14
7,600.00	53.47	283.10	7,165.82	1,694.90	1,023.72	-1,005.02	8.00	7.51	-3.63
7,600.31	53.49	283.09	7,166.00	1,694.95	1,023.48	-1,004.78	8.00	7.56	-3.26
Nio C									
7,700.00	61.07	280.11	7,219.86	1,711.71	941.37	-922.49	8.00	7.60	-2.98
7,800.00	68.72	277.54	7,262.26	1,725.54	851.96	-832.93	8.00	7.65	-2.57
7,860.82	73.40	276.11	7,282.00	1,732.37	794.86	-775.76	8.00	7.68	-2.35
Fort Hayes									
7,900.00	76.41	275.23	7,292.20	1,736.10	757.22	-738.08	8.00	7.70	-2.26
7,954.15	80.58	274.04	7,303.00	1,740.39	704.34	-685.16	8.00	7.71	-2.19
Codell									
8,000.00	84.12	273.06	7,309.10	1,743.20	659.00	-639.79	8.00	7.71	-2.14

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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 21-5HZ	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)
8,075.67	89.96	271.47	7,313.00	1,746.18	583.52	-564.28	8.00	7.72	-2.11
End Build @ 8075.67ft - Top of Production									
8,100.00	89.96	271.47	7,313.02	1,746.80	559.20	-539.96	0.00	0.00	0.00
8,200.00	89.96	271.47	7,313.09	1,749.36	459.23	-439.97	0.00	0.00	0.00
8,300.00	89.96	271.47	7,313.16	1,751.92	359.26	-339.98	0.00	0.00	0.00
8,400.00	89.96	271.47	7,313.23	1,754.48	259.30	-239.99	0.00	0.00	0.00
8,500.00	89.96	271.47	7,313.29	1,757.04	159.33	-140.00	0.00	0.00	0.00
8,600.00	89.96	271.47	7,313.36	1,759.60	59.36	-40.01	0.00	0.00	0.00
8,700.00	89.96	271.47	7,313.43	1,762.15	-40.61	59.98	0.00	0.00	0.00
8,800.00	89.96	271.47	7,313.50	1,764.71	-140.57	159.97	0.00	0.00	0.00
8,900.00	89.96	271.47	7,313.57	1,767.27	-240.54	259.96	0.00	0.00	0.00
9,000.00	89.96	271.47	7,313.64	1,769.83	-340.51	359.95	0.00	0.00	0.00
9,100.00	89.96	271.47	7,313.70	1,772.39	-440.47	459.94	0.00	0.00	0.00
9,200.00	89.96	271.47	7,313.77	1,774.95	-540.44	559.93	0.00	0.00	0.00
9,300.00	89.96	271.47	7,313.84	1,777.50	-640.41	659.91	0.00	0.00	0.00
9,400.00	89.96	271.47	7,313.91	1,780.06	-740.38	759.90	0.00	0.00	0.00
9,500.00	89.96	271.47	7,313.98	1,782.62	-840.34	859.89	0.00	0.00	0.00
9,600.00	89.96	271.47	7,314.05	1,785.18	-940.31	959.88	0.00	0.00	0.00
9,700.00	89.96	271.47	7,314.11	1,787.74	-1,040.28	1,059.87	0.00	0.00	0.00
9,800.00	89.96	271.47	7,314.18	1,790.30	-1,140.25	1,159.86	0.00	0.00	0.00
9,900.00	89.96	271.47	7,314.25	1,792.85	-1,240.21	1,259.85	0.00	0.00	0.00
10,000.00	89.96	271.47	7,314.32	1,795.41	-1,340.18	1,359.84	0.00	0.00	0.00
10,100.00	89.96	271.47	7,314.39	1,797.97	-1,440.15	1,459.83	0.00	0.00	0.00
10,200.00	89.96	271.47	7,314.46	1,800.53	-1,540.11	1,559.82	0.00	0.00	0.00
10,300.00	89.96	271.47	7,314.52	1,803.09	-1,640.08	1,659.81	0.00	0.00	0.00
10,400.00	89.96	271.47	7,314.59	1,805.65	-1,740.05	1,759.80	0.00	0.00	0.00
10,500.00	89.96	271.47	7,314.66	1,808.20	-1,840.02	1,859.79	0.00	0.00	0.00
10,600.00	89.96	271.47	7,314.73	1,810.76	-1,939.98	1,959.78	0.00	0.00	0.00
10,700.00	89.96	271.47	7,314.80	1,813.32	-2,039.95	2,059.77	0.00	0.00	0.00
10,800.00	89.96	271.47	7,314.87	1,815.88	-2,139.92	2,159.75	0.00	0.00	0.00
10,900.00	89.96	271.47	7,314.93	1,818.44	-2,239.88	2,259.74	0.00	0.00	0.00
11,000.00	89.96	271.47	7,315.00	1,821.00	-2,339.85	2,359.73	0.00	0.00	0.00
11,100.00	89.96	271.47	7,315.07	1,823.55	-2,439.82	2,459.72	0.00	0.00	0.00
11,200.00	89.96	271.47	7,315.14	1,826.11	-2,539.79	2,559.71	0.00	0.00	0.00
11,300.00	89.96	271.47	7,315.21	1,828.67	-2,639.75	2,659.70	0.00	0.00	0.00
11,400.00	89.96	271.47	7,315.28	1,831.23	-2,739.72	2,759.69	0.00	0.00	0.00
11,500.00	89.96	271.47	7,315.34	1,833.79	-2,839.69	2,859.68	0.00	0.00	0.00
11,600.00	89.96	271.47	7,315.41	1,836.35	-2,939.66	2,959.67	0.00	0.00	0.00
11,700.00	89.96	271.47	7,315.48	1,838.90	-3,039.62	3,059.66	0.00	0.00	0.00
11,800.00	89.96	271.47	7,315.55	1,841.46	-3,139.59	3,159.65	0.00	0.00	0.00
11,900.00	89.96	271.47	7,315.62	1,844.02	-3,239.56	3,259.64	0.00	0.00	0.00
12,000.00	89.96	271.47	7,315.69	1,846.58	-3,339.52	3,359.63	0.00	0.00	0.00
12,100.00	89.96	271.47	7,315.75	1,849.14	-3,439.49	3,459.62	0.00	0.00	0.00
12,200.00	89.96	271.47	7,315.82	1,851.70	-3,539.46	3,559.61	0.00	0.00	0.00
12,300.00	89.96	271.47	7,315.89	1,854.25	-3,639.43	3,659.59	0.00	0.00	0.00
12,400.00	89.96	271.47	7,315.96	1,856.81	-3,739.39	3,759.58	0.00	0.00	0.00
12,500.00	89.96	271.47	7,316.03	1,859.37	-3,839.36	3,859.57	0.00	0.00	0.00
12,600.00	89.96	271.47	7,316.10	1,861.93	-3,939.33	3,959.56	0.00	0.00	0.00
12,700.00	89.96	271.47	7,316.16	1,864.49	-4,039.30	4,059.55	0.00	0.00	0.00
12,800.00	89.96	271.47	7,316.23	1,867.05	-4,139.26	4,159.54	0.00	0.00	0.00
12,900.00	89.96	271.47	7,316.30	1,869.60	-4,239.23	4,259.53	0.00	0.00	0.00
13,000.00	89.96	271.47	7,316.37	1,872.16	-4,339.20	4,359.52	0.00	0.00	0.00
13,100.00	89.96	271.47	7,316.44	1,874.72	-4,439.16	4,459.51	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-5HZ
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 21-5HZ	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)
13,200.00	89.96	271.47	7,316.51	1,877.28	-4,539.13	4,559.50	0.00	0.00	0.00
13,300.00	89.96	271.47	7,316.57	1,879.84	-4,639.10	4,659.49	0.00	0.00	0.00
13,400.00	89.96	271.47	7,316.64	1,882.40	-4,739.07	4,759.48	0.00	0.00	0.00
13,500.00	89.96	271.47	7,316.71	1,884.95	-4,839.03	4,859.47	0.00	0.00	0.00
13,600.00	89.96	271.47	7,316.78	1,887.51	-4,939.00	4,959.46	0.00	0.00	0.00
13,700.00	89.96	271.47	7,316.85	1,890.07	-5,038.97	5,059.45	0.00	0.00	0.00
13,800.00	89.96	271.47	7,316.92	1,892.63	-5,138.94	5,159.43	0.00	0.00	0.00
13,900.00	89.96	271.47	7,316.98	1,895.19	-5,238.90	5,259.42	0.00	0.00	0.00
14,000.00	89.96	271.47	7,317.05	1,897.75	-5,338.87	5,359.41	0.00	0.00	0.00
14,100.00	89.96	271.47	7,317.12	1,900.30	-5,438.84	5,459.40	0.00	0.00	0.00
14,200.00	89.96	271.47	7,317.19	1,902.86	-5,538.80	5,559.39	0.00	0.00	0.00
14,300.00	89.96	271.47	7,317.26	1,905.42	-5,638.77	5,659.38	0.00	0.00	0.00
14,400.00	89.96	271.47	7,317.33	1,907.98	-5,738.74	5,759.37	0.00	0.00	0.00
14,478.98	89.96	271.47	7,317.38	1,910.00	-5,817.69	5,838.34	0.00	0.00	0.00
Begin Turn to BHL @ 14478.98ft									
14,500.00	89.96	271.15	7,317.39	1,910.48	-5,838.71	5,859.36	1.50	0.00	-1.50
14,600.00	89.96	269.65	7,317.46	1,911.18	-5,938.70	5,959.36	1.50	0.00	-1.50
14,635.15	89.96	269.12	7,317.49	1,910.80	-5,973.85	5,994.50	1.50	0.00	-1.50
End Turn @ 14635.15ft									
14,700.00	89.96	269.12	7,317.54	1,909.81	-6,038.69	6,059.33	0.00	0.00	0.00
14,800.00	89.96	269.12	7,317.61	1,908.28	-6,138.68	6,159.29	0.00	0.00	0.00
14,900.00	89.96	269.12	7,317.68	1,906.75	-6,238.67	6,259.26	0.00	0.00	0.00
15,000.00	89.96	269.12	7,317.75	1,905.22	-6,338.66	6,359.22	0.00	0.00	0.00
15,100.00	89.96	269.12	7,317.82	1,903.69	-6,438.65	6,459.19	0.00	0.00	0.00
15,200.00	89.96	269.12	7,317.89	1,902.16	-6,538.63	6,559.15	0.00	0.00	0.00
15,300.00	89.96	269.12	7,317.97	1,900.63	-6,638.62	6,659.12	0.00	0.00	0.00
15,400.00	89.96	269.12	7,318.04	1,899.10	-6,738.61	6,759.08	0.00	0.00	0.00
15,500.00	89.96	269.12	7,318.11	1,897.57	-6,838.60	6,859.05	0.00	0.00	0.00
15,600.00	89.96	269.12	7,318.18	1,896.04	-6,938.59	6,959.01	0.00	0.00	0.00
15,700.00	89.96	269.12	7,318.25	1,894.51	-7,038.57	7,058.98	0.00	0.00	0.00
15,800.00	89.96	269.12	7,318.32	1,892.98	-7,138.56	7,158.95	0.00	0.00	0.00
15,900.00	89.96	269.12	7,318.40	1,891.45	-7,238.55	7,258.91	0.00	0.00	0.00
16,000.00	89.96	269.12	7,318.47	1,889.92	-7,338.54	7,358.88	0.00	0.00	0.00
16,100.00	89.96	269.12	7,318.54	1,888.39	-7,438.53	7,458.84	0.00	0.00	0.00
16,200.00	89.96	269.12	7,318.61	1,886.86	-7,538.52	7,558.81	0.00	0.00	0.00
16,300.00	89.96	269.12	7,318.68	1,885.33	-7,638.50	7,658.77	0.00	0.00	0.00
16,400.00	89.96	269.12	7,318.75	1,883.80	-7,738.49	7,758.74	0.00	0.00	0.00
16,500.00	89.96	269.12	7,318.83	1,882.27	-7,838.48	7,858.70	0.00	0.00	0.00
16,600.00	89.96	269.12	7,318.90	1,880.74	-7,938.47	7,958.67	0.00	0.00	0.00
16,700.00	89.96	269.12	7,318.97	1,879.21	-8,038.46	8,058.63	0.00	0.00	0.00
16,800.00	89.96	269.12	7,319.04	1,877.68	-8,138.45	8,158.60	0.00	0.00	0.00
16,900.00	89.96	269.12	7,319.11	1,876.15	-8,238.43	8,258.57	0.00	0.00	0.00
17,000.00	89.96	269.12	7,319.18	1,874.62	-8,338.42	8,358.53	0.00	0.00	0.00
17,100.00	89.96	269.12	7,319.26	1,873.09	-8,438.41	8,458.50	0.00	0.00	0.00
17,200.00	89.96	269.12	7,319.33	1,871.56	-8,538.40	8,558.46	0.00	0.00	0.00
17,300.00	89.96	269.12	7,319.40	1,870.03	-8,638.39	8,658.43	0.00	0.00	0.00
17,400.00	89.96	269.12	7,319.47	1,868.50	-8,738.38	8,758.39	0.00	0.00	0.00
17,500.00	89.96	269.12	7,319.54	1,866.97	-8,838.36	8,858.36	0.00	0.00	0.00
17,600.00	89.96	269.12	7,319.61	1,865.44	-8,938.35	8,958.32	0.00	0.00	0.00
17,700.00	89.96	269.12	7,319.69	1,863.91	-9,038.34	9,058.29	0.00	0.00	0.00
17,800.00	89.96	269.12	7,319.76	1,862.38	-9,138.33	9,158.25	0.00	0.00	0.00
17,900.00	89.96	269.12	7,319.83	1,860.85	-9,238.32	9,258.22	0.00	0.00	0.00
18,000.00	89.96	269.12	7,319.90	1,859.32	-9,338.31	9,358.18	0.00	0.00	0.00
18,100.00	89.96	269.12	7,319.97	1,857.79	-9,438.29	9,458.15	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SHARON 21-5HZ
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 21-5HZ	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)
18,138.63	89.96	269.12	7,320.00	1,857.20	-9,476.92	9,496.77	0.00	0.00	0.00
TD Well @ 18138.63ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,526.43	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,075.67	7,313.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
876.53	873.00	Fox Hills			
3,957.03	3,794.00	Parkman			
4,444.42	4,254.00	Sussex			
7,349.75	6,987.00	Sharon Springs			
7,368.21	7,002.00	Niobrara			
7,486.89	7,092.00	Nio B			
7,600.31	7,166.00	Nio C			
7,860.82	7,282.00	Fort Hayes			
7,954.15	7,303.00	Codell			

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
1,486.67	1,462.47	163.48	139.13	End Nudge @ 1486.67ft
6,801.29	6,478.42	1,501.16	1,277.59	KOP @ 6801.29ft :: DLS = 8"/100'
8,075.67	7,313.00	1,746.18	583.52	End Build @ 8075.67ft
14,478.98	7,317.38	1,910.00	-5,817.69	Begin Turn to BHL @ 14478.98ft
14,635.15	7,317.49	1,910.80	-5,973.85	End Turn @ 14635.15ft
18,138.63	7,320.00	1,857.20	-9,476.92	TD Well @ 18138.63ft