

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-68W-03 MC 13-3HZ PAD
MC 3-5HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.076947/-104.997718
Survey Program: MWD+IFR+MSA

Standard Planning Report

29 July, 2018

Project: WELD-NAD83-UTMFT13N
Site: 1N-68W-03 MC 13-3HZ PAD
Well: MC 3-5HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1507.18	9-5/8
7602.00	8167.16	5-1/2

WELL DETAILS: MC 3-5HZ
GL = 5044.00
RKB = 17' @ 5061.00usft (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	650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	
3	1793.33	17.15	266.05	1776.34	-11.70	-169.44	1.50	266.05	11.79	
4	4593.33	17.15	266.05	4451.84	-68.58	-993.12	0.00	0.00	69.10	
5	5450.83	0.00	0.00	5296.59	-77.35	-1120.20	2.00	180.00	77.94	
6	7040.05	0.00	0.00	6885.81	-77.35	-1120.20	0.00	0.00	77.94	
7	8167.16	90.17	180.85	7602.00	-795.58	-1130.83	8.00	180.85	796.17	
8	15298.03	90.17	180.85	7580.96	-7925.64	-1236.36	0.00	0.00	7926.29	MC 3-5HZ_target
9	15451.71	90.17	178.54	7580.51	-8079.31	-1235.54	1.50	-90.00	8079.95	
10	19352.84	90.17	178.54	7569.00	-11979.15	-1136.33	0.00	0.00	11979.75	MC 3-5HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MC 3-5HZ_SHL	0.00	0.00	0.00	40.076947	-104.997718
MC 3-5HZ_BHL	7569.00	-11979.15	-1136.33	40.044050	-105.001778

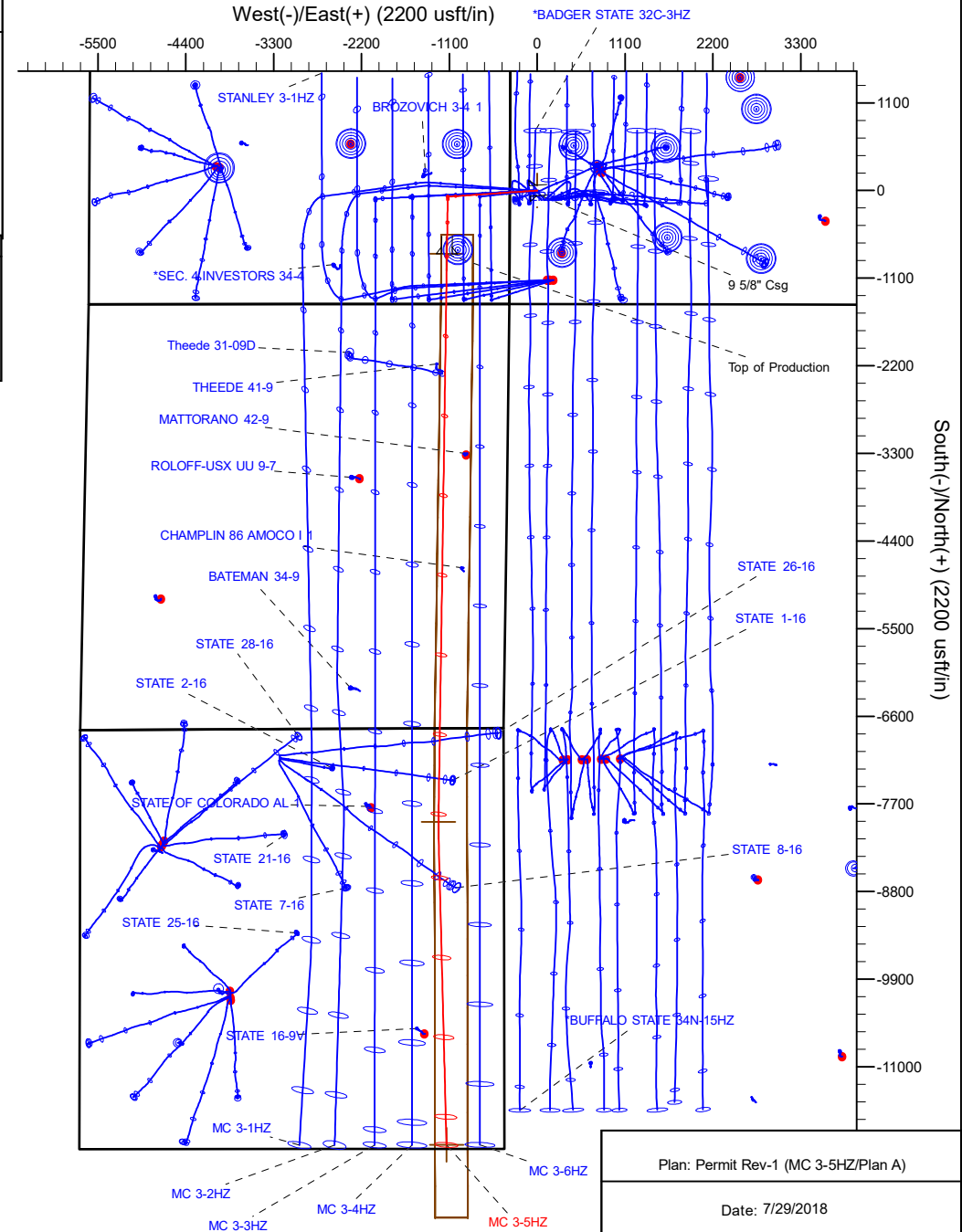
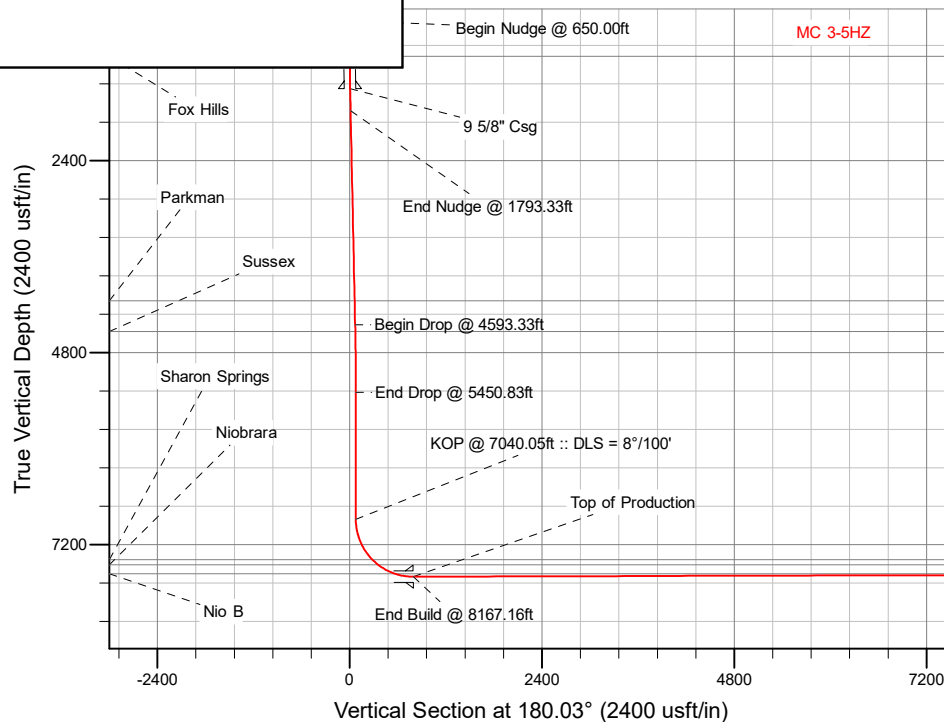
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1093.00	1094.00	Fox Hills
4152.00	4279.54	Parkman
4536.00	4681.01	Sussex
7390.00	7599.40	Sharon Springs
7451.00	7691.39	Niobrara
7566.00	7936.99	Nio B

SHL
1427' FSL
342' FWL

HEEL
630' FSL
788' FEL

TOE
50' FSL
726' FEL



Plan: Permit Rev-1 (MC 3-5HZ/Plan A)

Date: 7/29/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-5HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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		1N-68W-03 MC 13-3HZ PAD			
Site Position:		Northing:	14,554,753.54 usft	Latitude:	40.076948
From:	Lat/Long	Easting:	1,640,995.16 usft	Longitude:	-104.997932
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.00 °

Well	MC 3-5HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,554,753.18 usft	Latitude:	40.076947
	+E/-W	59.86 usft	Easting:	1,641,055.02 usft	Longitude:	-104.997718
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,044.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/25/2018	8.19	66.53	52,071.88197976

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 (°)
	7,569.00	0.00	0.00	180.03

Plan Survey Tool Program	Date	7/29/2018		
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	19,352.84	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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	
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,793.33	17.15	266.05	1,776.34	-11.70	-169.44	1.50	1.50	0.00	266.05	
4,593.33	17.15	266.05	4,451.84	-68.58	-993.12	0.00	0.00	0.00	0.00	
5,450.83	0.00	0.00	5,296.59	-77.35	-1,120.20	2.00	-2.00	0.00	180.00	
7,040.05	0.00	0.00	6,885.81	-77.35	-1,120.20	0.00	0.00	0.00	0.00	
8,167.16	90.17	180.85	7,602.00	-795.58	-1,130.83	8.00	8.00	-15.89	180.85	
15,298.03	90.17	180.85	7,580.96	-7,925.64	-1,236.36	0.00	0.00	0.00	0.00	MC 3-5HZ_target
15,451.71	90.17	178.54	7,580.51	-8,079.31	-1,235.54	1.50	0.00	-1.50	-90.00	
19,352.84	90.17	178.54	7,569.00	-11,979.15	-1,136.33	0.00	0.00	0.00	0.00	MC 3-5HZ_BHL

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 650.00ft									
700.00	0.75	266.05	700.00	-0.02	-0.33	0.02	1.50	1.50	0.00
800.00	2.25	266.05	799.96	-0.20	-2.94	0.20	1.50	1.50	0.00
900.00	3.75	266.05	899.82	-0.56	-8.16	0.57	1.50	1.50	0.00
1,000.00	5.25	266.05	999.51	-1.10	-15.99	1.11	1.50	1.50	0.00
1,094.00	6.66	266.05	1,093.00	-1.78	-25.71	1.79	1.50	1.50	0.00
Fox Hills									
1,100.00	6.75	266.05	1,098.96	-1.82	-26.41	1.84	1.50	1.50	0.00
1,200.00	8.25	266.05	1,198.10	-2.72	-39.43	2.74	1.50	1.50	0.00
1,300.00	9.75	266.05	1,296.87	-3.80	-55.04	3.83	1.50	1.50	0.00
1,400.00	11.25	266.05	1,395.19	-5.06	-73.22	5.09	1.50	1.50	0.00
1,500.00	12.75	266.05	1,493.00	-6.49	-93.96	6.54	1.50	1.50	0.00
1,507.18	12.86	266.05	1,500.00	-6.60	-95.55	6.65	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	14.25	266.05	1,590.24	-8.10	-117.25	8.16	1.50	1.50	0.00
1,700.00	15.75	266.05	1,686.83	-9.88	-143.07	9.95	1.50	1.50	0.00
1,793.33	17.15	266.05	1,776.34	-11.70	-169.44	11.79	1.50	1.50	0.00
End Nudge @ 1793.33ft									
1,800.00	17.15	266.05	1,782.71	-11.83	-171.40	11.92	0.00	0.00	0.00
1,900.00	17.15	266.05	1,878.26	-13.87	-200.81	13.97	0.00	0.00	0.00
2,000.00	17.15	266.05	1,973.81	-15.90	-230.23	16.02	0.00	0.00	0.00
2,100.00	17.15	266.05	2,069.37	-17.93	-259.65	18.06	0.00	0.00	0.00
2,200.00	17.15	266.05	2,164.92	-19.96	-289.07	20.11	0.00	0.00	0.00
2,300.00	17.15	266.05	2,260.48	-21.99	-318.48	22.16	0.00	0.00	0.00
2,400.00	17.15	266.05	2,356.03	-24.02	-347.90	24.20	0.00	0.00	0.00
2,500.00	17.15	266.05	2,451.58	-26.05	-377.32	26.25	0.00	0.00	0.00
2,600.00	17.15	266.05	2,547.14	-28.09	-406.74	28.30	0.00	0.00	0.00
2,700.00	17.15	266.05	2,642.69	-30.12	-436.15	30.34	0.00	0.00	0.00
2,800.00	17.15	266.05	2,738.24	-32.15	-465.57	32.39	0.00	0.00	0.00
2,900.00	17.15	266.05	2,833.80	-34.18	-494.99	34.44	0.00	0.00	0.00
3,000.00	17.15	266.05	2,929.35	-36.21	-524.41	36.48	0.00	0.00	0.00
3,100.00	17.15	266.05	3,024.90	-38.24	-553.82	38.53	0.00	0.00	0.00
3,200.00	17.15	266.05	3,120.46	-40.27	-583.24	40.58	0.00	0.00	0.00
3,300.00	17.15	266.05	3,216.01	-42.30	-612.66	42.62	0.00	0.00	0.00
3,400.00	17.15	266.05	3,311.56	-44.34	-642.08	44.67	0.00	0.00	0.00
3,500.00	17.15	266.05	3,407.12	-46.37	-671.49	46.72	0.00	0.00	0.00
3,600.00	17.15	266.05	3,502.67	-48.40	-700.91	48.76	0.00	0.00	0.00
3,700.00	17.15	266.05	3,598.23	-50.43	-730.33	50.81	0.00	0.00	0.00
3,800.00	17.15	266.05	3,693.78	-52.46	-759.75	52.86	0.00	0.00	0.00
3,900.00	17.15	266.05	3,789.33	-54.49	-789.16	54.90	0.00	0.00	0.00
4,000.00	17.15	266.05	3,884.89	-56.52	-818.58	56.95	0.00	0.00	0.00
4,100.00	17.15	266.05	3,980.44	-58.55	-848.00	59.00	0.00	0.00	0.00
4,200.00	17.15	266.05	4,075.99	-60.59	-877.41	61.04	0.00	0.00	0.00
4,279.54	17.15	266.05	4,152.00	-62.20	-900.81	62.67	0.00	0.00	0.00
Parkman									
4,300.00	17.15	266.05	4,171.55	-62.62	-906.83	63.09	0.00	0.00	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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	17.15	266.05	4,267.10	-64.65	-936.25	65.14	0.00	0.00	0.00	
4,500.00	17.15	266.05	4,362.65	-66.68	-965.67	67.18	0.00	0.00	0.00	
4,593.33	17.15	266.05	4,451.84	-68.58	-993.12	69.10	0.00	0.00	0.00	
Begin Drop @ 4593.33ft										
4,600.00	17.02	266.05	4,458.21	-68.71	-995.08	69.23	2.00	-2.00	0.00	
4,681.01	15.40	266.05	4,536.00	-70.27	-1,017.63	70.80	2.00	-2.00	0.00	
Sussex										
4,700.00	15.02	266.05	4,554.32	-70.61	-1,022.60	71.15	2.00	-2.00	0.00	
4,800.00	13.02	266.05	4,651.34	-72.28	-1,046.76	72.83	2.00	-2.00	0.00	
4,900.00	11.02	266.05	4,749.15	-73.71	-1,067.53	74.27	2.00	-2.00	0.00	
5,000.00	9.02	266.05	4,847.62	-74.91	-1,084.88	75.48	2.00	-2.00	0.00	
5,100.00	7.02	266.05	4,946.63	-75.87	-1,098.80	76.45	2.00	-2.00	0.00	
5,200.00	5.02	266.05	5,046.08	-76.59	-1,109.25	77.17	2.00	-2.00	0.00	
5,300.00	3.02	266.05	5,145.83	-77.08	-1,116.24	77.66	2.00	-2.00	0.00	
5,400.00	1.02	266.05	5,245.76	-77.32	-1,119.75	77.90	2.00	-2.00	0.00	
5,450.83	0.00	0.00	5,296.59	-77.35	-1,120.20	77.94	2.00	-2.00	0.00	
End Drop @ 5450.83ft										
5,500.00	0.00	0.00	5,345.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,445.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,545.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,645.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,745.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,845.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,945.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,045.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,145.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,245.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,345.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,445.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,545.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,645.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,745.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,845.76	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
7,040.05	0.00	0.00	6,885.81	-77.35	-1,120.20	77.94	0.00	0.00	0.00	
KOP @ 7040.05ft :: DLS = 8°/100'										
7,100.00	4.80	180.85	6,945.69	-79.86	-1,120.24	80.44	8.00	8.00	0.00	
7,200.00	12.80	180.85	7,044.43	-95.13	-1,120.46	95.72	8.00	8.00	0.00	
7,300.00	20.80	180.85	7,140.09	-124.00	-1,120.89	124.59	8.00	8.00	0.00	
7,400.00	28.80	180.85	7,230.79	-165.90	-1,121.51	166.49	8.00	8.00	0.00	
7,500.00	36.80	180.85	7,314.79	-220.02	-1,122.31	220.61	8.00	8.00	0.00	
7,599.40	44.75	180.85	7,390.00	-284.87	-1,123.27	285.46	8.00	8.00	0.00	
Sharon Springs										
7,600.00	44.80	180.85	7,390.43	-285.30	-1,123.28	285.88	8.00	8.00	0.00	
7,691.39	52.11	180.85	7,451.00	-353.64	-1,124.29	354.22	8.00	8.00	0.00	
Niobrara										
7,700.00	52.80	180.85	7,456.25	-360.46	-1,124.39	361.05	8.00	8.00	0.00	
7,800.00	60.80	180.85	7,510.97	-444.06	-1,125.63	444.65	8.00	8.00	0.00	
7,900.00	68.80	180.85	7,553.52	-534.46	-1,126.97	535.05	8.00	8.00	0.00	
7,936.99	71.76	180.85	7,566.00	-569.27	-1,127.48	569.86	8.00	8.00	0.00	
Nio B										
8,000.00	76.80	180.85	7,583.07	-629.89	-1,128.38	630.48	8.00	8.00	0.00	
8,100.00	84.80	180.85	7,599.05	-728.52	-1,129.84	729.11	8.00	8.00	0.00	
8,167.16	90.17	180.85	7,602.00	-795.58	-1,130.83	796.17	8.00	8.00	0.00	

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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)
End Build @ 8167.16ft - Top of Production									
8,200.00	90.17	180.85	7,601.90	-828.41	-1,131.32	829.01	0.00	0.00	0.00
8,300.00	90.17	180.85	7,601.61	-928.40	-1,132.80	929.00	0.00	0.00	0.00
8,400.00	90.17	180.85	7,601.31	-1,028.39	-1,134.28	1,028.99	0.00	0.00	0.00
8,500.00	90.17	180.85	7,601.02	-1,128.38	-1,135.76	1,128.97	0.00	0.00	0.00
8,600.00	90.17	180.85	7,600.72	-1,228.37	-1,137.24	1,228.96	0.00	0.00	0.00
8,700.00	90.17	180.85	7,600.43	-1,328.36	-1,138.72	1,328.95	0.00	0.00	0.00
8,800.00	90.17	180.85	7,600.13	-1,428.35	-1,140.20	1,428.94	0.00	0.00	0.00
8,900.00	90.17	180.85	7,599.84	-1,528.33	-1,141.68	1,528.93	0.00	0.00	0.00
9,000.00	90.17	180.85	7,599.54	-1,628.32	-1,143.16	1,628.92	0.00	0.00	0.00
9,100.00	90.17	180.85	7,599.25	-1,728.31	-1,144.64	1,728.91	0.00	0.00	0.00
9,200.00	90.17	180.85	7,598.95	-1,828.30	-1,146.12	1,828.90	0.00	0.00	0.00
9,300.00	90.17	180.85	7,598.66	-1,928.29	-1,147.60	1,928.89	0.00	0.00	0.00
9,400.00	90.17	180.85	7,598.36	-2,028.28	-1,149.08	2,028.88	0.00	0.00	0.00
9,500.00	90.17	180.85	7,598.07	-2,128.27	-1,150.56	2,128.87	0.00	0.00	0.00
9,600.00	90.17	180.85	7,597.77	-2,228.26	-1,152.04	2,228.86	0.00	0.00	0.00
9,700.00	90.17	180.85	7,597.48	-2,328.24	-1,153.52	2,328.85	0.00	0.00	0.00
9,800.00	90.17	180.85	7,597.18	-2,428.23	-1,154.99	2,428.84	0.00	0.00	0.00
9,900.00	90.17	180.85	7,596.89	-2,528.22	-1,156.47	2,528.83	0.00	0.00	0.00
10,000.00	90.17	180.85	7,596.59	-2,628.21	-1,157.95	2,628.82	0.00	0.00	0.00
10,100.00	90.17	180.85	7,596.30	-2,728.20	-1,159.43	2,728.81	0.00	0.00	0.00
10,200.00	90.17	180.85	7,596.00	-2,828.19	-1,160.91	2,828.79	0.00	0.00	0.00
10,300.00	90.17	180.85	7,595.71	-2,928.18	-1,162.39	2,928.78	0.00	0.00	0.00
10,400.00	90.17	180.85	7,595.41	-3,028.16	-1,163.87	3,028.77	0.00	0.00	0.00
10,500.00	90.17	180.85	7,595.12	-3,128.15	-1,165.35	3,128.76	0.00	0.00	0.00
10,600.00	90.17	180.85	7,594.82	-3,228.14	-1,166.83	3,228.75	0.00	0.00	0.00
10,700.00	90.17	180.85	7,594.53	-3,328.13	-1,168.31	3,328.74	0.00	0.00	0.00
10,800.00	90.17	180.85	7,594.23	-3,428.12	-1,169.79	3,428.73	0.00	0.00	0.00
10,900.00	90.17	180.85	7,593.94	-3,528.11	-1,171.27	3,528.72	0.00	0.00	0.00
11,000.00	90.17	180.85	7,593.64	-3,628.10	-1,172.75	3,628.71	0.00	0.00	0.00
11,100.00	90.17	180.85	7,593.35	-3,728.08	-1,174.23	3,728.70	0.00	0.00	0.00
11,200.00	90.17	180.85	7,593.05	-3,828.07	-1,175.71	3,828.69	0.00	0.00	0.00
11,300.00	90.17	180.85	7,592.76	-3,928.06	-1,177.19	3,928.68	0.00	0.00	0.00
11,400.00	90.17	180.85	7,592.46	-4,028.05	-1,178.67	4,028.67	0.00	0.00	0.00
11,500.00	90.17	180.85	7,592.17	-4,128.04	-1,180.15	4,128.66	0.00	0.00	0.00
11,600.00	90.17	180.85	7,591.87	-4,228.03	-1,181.63	4,228.65	0.00	0.00	0.00
11,700.00	90.17	180.85	7,591.58	-4,328.02	-1,183.11	4,328.64	0.00	0.00	0.00
11,800.00	90.17	180.85	7,591.28	-4,428.00	-1,184.59	4,428.62	0.00	0.00	0.00
11,900.00	90.17	180.85	7,590.99	-4,527.99	-1,186.07	4,528.61	0.00	0.00	0.00
12,000.00	90.17	180.85	7,590.69	-4,627.98	-1,187.55	4,628.60	0.00	0.00	0.00
12,100.00	90.17	180.85	7,590.40	-4,727.97	-1,189.03	4,728.59	0.00	0.00	0.00
12,200.00	90.17	180.85	7,590.10	-4,827.96	-1,190.51	4,828.58	0.00	0.00	0.00
12,300.00	90.17	180.85	7,589.81	-4,927.95	-1,191.99	4,928.57	0.00	0.00	0.00
12,400.00	90.17	180.85	7,589.51	-5,027.94	-1,193.47	5,028.56	0.00	0.00	0.00
12,500.00	90.17	180.85	7,589.22	-5,127.93	-1,194.95	5,128.55	0.00	0.00	0.00
12,600.00	90.17	180.85	7,588.92	-5,227.91	-1,196.43	5,228.54	0.00	0.00	0.00
12,700.00	90.17	180.85	7,588.63	-5,327.90	-1,197.91	5,328.53	0.00	0.00	0.00
12,800.00	90.17	180.85	7,588.33	-5,427.89	-1,199.39	5,428.52	0.00	0.00	0.00
12,900.00	90.17	180.85	7,588.04	-5,527.88	-1,200.87	5,528.51	0.00	0.00	0.00
13,000.00	90.17	180.85	7,587.74	-5,627.87	-1,202.35	5,628.50	0.00	0.00	0.00
13,100.00	90.17	180.85	7,587.45	-5,727.86	-1,203.83	5,728.49	0.00	0.00	0.00
13,200.00	90.17	180.85	7,587.15	-5,827.85	-1,205.31	5,828.48	0.00	0.00	0.00
13,300.00	90.17	180.85	7,586.86	-5,927.83	-1,206.79	5,928.47	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-5HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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)	
13,400.00	90.17	180.85	7,586.56	-6,027.82	-1,208.27	6,028.45	0.00	0.00	0.00	
13,500.00	90.17	180.85	7,586.27	-6,127.81	-1,209.75	6,128.44	0.00	0.00	0.00	
13,600.00	90.17	180.85	7,585.97	-6,227.80	-1,211.23	6,228.43	0.00	0.00	0.00	
13,700.00	90.17	180.85	7,585.68	-6,327.79	-1,212.71	6,328.42	0.00	0.00	0.00	
13,800.00	90.17	180.85	7,585.38	-6,427.78	-1,214.19	6,428.41	0.00	0.00	0.00	
13,900.00	90.17	180.85	7,585.09	-6,527.77	-1,215.67	6,528.40	0.00	0.00	0.00	
14,000.00	90.17	180.85	7,584.79	-6,627.75	-1,217.15	6,628.39	0.00	0.00	0.00	
14,100.00	90.17	180.85	7,584.50	-6,727.74	-1,218.63	6,728.38	0.00	0.00	0.00	
14,200.00	90.17	180.85	7,584.20	-6,827.73	-1,220.11	6,828.37	0.00	0.00	0.00	
14,300.00	90.17	180.85	7,583.91	-6,927.72	-1,221.59	6,928.36	0.00	0.00	0.00	
14,400.00	90.17	180.85	7,583.61	-7,027.71	-1,223.07	7,028.35	0.00	0.00	0.00	
14,500.00	90.17	180.85	7,583.31	-7,127.70	-1,224.55	7,128.34	0.00	0.00	0.00	
14,600.00	90.17	180.85	7,583.02	-7,227.69	-1,226.03	7,228.33	0.00	0.00	0.00	
14,700.00	90.17	180.85	7,582.72	-7,327.67	-1,227.51	7,328.32	0.00	0.00	0.00	
14,800.00	90.17	180.85	7,582.43	-7,427.66	-1,228.99	7,428.31	0.00	0.00	0.00	
14,900.00	90.17	180.85	7,582.13	-7,527.65	-1,230.47	7,528.30	0.00	0.00	0.00	
15,000.00	90.17	180.85	7,581.84	-7,627.64	-1,231.95	7,628.28	0.00	0.00	0.00	
15,100.00	90.17	180.85	7,581.54	-7,727.63	-1,233.43	7,728.27	0.00	0.00	0.00	
15,200.00	90.17	180.85	7,581.25	-7,827.62	-1,234.91	7,828.26	0.00	0.00	0.00	
15,298.03	90.17	180.85	7,580.96	-7,925.64	-1,236.36	7,926.29	0.00	0.00	0.00	
Begin Turn to BHL @ 15298.03ft										
15,300.00	90.17	180.82	7,580.95	-7,927.61	-1,236.39	7,928.25	1.50	0.00	-1.50	
15,400.00	90.17	179.32	7,580.66	-8,027.60	-1,236.51	8,028.25	1.50	0.00	-1.50	
15,451.71	90.17	178.54	7,580.51	-8,079.31	-1,235.54	8,079.95	1.50	0.00	-1.50	
End Turn @ 15451.71ft										
15,500.00	90.17	178.54	7,580.36	-8,127.58	-1,234.31	8,128.22	0.00	0.00	0.00	
15,600.00	90.17	178.54	7,580.07	-8,227.54	-1,231.77	8,228.19	0.00	0.00	0.00	
15,700.00	90.17	178.54	7,579.77	-8,327.51	-1,229.23	8,328.15	0.00	0.00	0.00	
15,800.00	90.17	178.54	7,579.48	-8,427.48	-1,226.69	8,428.12	0.00	0.00	0.00	
15,900.00	90.17	178.54	7,579.18	-8,527.45	-1,224.14	8,528.09	0.00	0.00	0.00	
16,000.00	90.17	178.54	7,578.89	-8,627.41	-1,221.60	8,628.05	0.00	0.00	0.00	
16,100.00	90.17	178.54	7,578.59	-8,727.38	-1,219.06	8,728.02	0.00	0.00	0.00	
16,200.00	90.17	178.54	7,578.30	-8,827.35	-1,216.51	8,827.98	0.00	0.00	0.00	
16,300.00	90.17	178.54	7,578.00	-8,927.32	-1,213.97	8,927.95	0.00	0.00	0.00	
16,400.00	90.17	178.54	7,577.71	-9,027.28	-1,211.43	9,027.92	0.00	0.00	0.00	
16,500.00	90.17	178.54	7,577.41	-9,127.25	-1,208.88	9,127.88	0.00	0.00	0.00	
16,600.00	90.17	178.54	7,577.12	-9,227.22	-1,206.34	9,227.85	0.00	0.00	0.00	
16,700.00	90.17	178.54	7,576.82	-9,327.18	-1,203.80	9,327.81	0.00	0.00	0.00	
16,800.00	90.17	178.54	7,576.53	-9,427.15	-1,201.25	9,427.78	0.00	0.00	0.00	
16,900.00	90.17	178.54	7,576.23	-9,527.12	-1,198.71	9,527.74	0.00	0.00	0.00	
17,000.00	90.17	178.54	7,575.94	-9,627.09	-1,196.17	9,627.71	0.00	0.00	0.00	
17,100.00	90.17	178.54	7,575.65	-9,727.05	-1,193.62	9,727.68	0.00	0.00	0.00	
17,200.00	90.17	178.54	7,575.35	-9,827.02	-1,191.08	9,827.64	0.00	0.00	0.00	
17,300.00	90.17	178.54	7,575.06	-9,926.99	-1,188.54	9,927.61	0.00	0.00	0.00	
17,400.00	90.17	178.54	7,574.76	-10,026.95	-1,186.00	10,027.57	0.00	0.00	0.00	
17,500.00	90.17	178.54	7,574.47	-10,126.92	-1,183.45	10,127.54	0.00	0.00	0.00	
17,600.00	90.17	178.54	7,574.17	-10,226.89	-1,180.91	10,227.51	0.00	0.00	0.00	
17,700.00	90.17	178.54	7,573.88	-10,326.86	-1,178.37	10,327.47	0.00	0.00	0.00	
17,800.00	90.17	178.54	7,573.58	-10,426.82	-1,175.82	10,427.44	0.00	0.00	0.00	
17,900.00	90.17	178.54	7,573.29	-10,526.79	-1,173.28	10,527.40	0.00	0.00	0.00	
18,000.00	90.17	178.54	7,572.99	-10,626.76	-1,170.74	10,627.37	0.00	0.00	0.00	
18,100.00	90.17	178.54	7,572.70	-10,726.73	-1,168.19	10,727.34	0.00	0.00	0.00	
18,200.00	90.17	178.54	7,572.40	-10,826.69	-1,165.65	10,827.30	0.00	0.00	0.00	
18,300.00	90.17	178.54	7,572.11	-10,926.66	-1,163.11	10,927.27	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-5HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5061.00usft (Drilling Rig)
Site:	1N-68W-03 MC 13-3HZ PAD	North Reference:	True
Well:	MC 3-5HZ	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)
18,400.00	90.17	178.54	7,571.81	-11,026.63	-1,160.56	11,027.23	0.00	0.00	0.00
18,500.00	90.17	178.54	7,571.52	-11,126.59	-1,158.02	11,127.20	0.00	0.00	0.00
18,600.00	90.17	178.54	7,571.22	-11,226.56	-1,155.48	11,227.16	0.00	0.00	0.00
18,700.00	90.17	178.54	7,570.93	-11,326.53	-1,152.93	11,327.13	0.00	0.00	0.00
18,800.00	90.17	178.54	7,570.63	-11,426.50	-1,150.39	11,427.10	0.00	0.00	0.00
18,900.00	90.17	178.54	7,570.34	-11,526.46	-1,147.85	11,527.06	0.00	0.00	0.00
19,000.00	90.17	178.54	7,570.04	-11,626.43	-1,145.31	11,627.03	0.00	0.00	0.00
19,100.00	90.17	178.54	7,569.75	-11,726.40	-1,142.76	11,726.99	0.00	0.00	0.00
19,200.00	90.17	178.54	7,569.45	-11,826.36	-1,140.22	11,826.96	0.00	0.00	0.00
19,300.00	90.17	178.54	7,569.16	-11,926.33	-1,137.68	11,926.93	0.00	0.00	0.00
19,352.84	90.17	178.54	7,569.00	-11,979.15	-1,136.33	11,979.75	0.00	0.00	0.00
TD Well @ 19352.84ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,507.18	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,167.16	7,602.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,094.00	1,093.00	Fox Hills			
4,279.54	4,152.00	Parkman			
4,681.01	4,536.00	Sussex			
7,599.40	7,390.00	Sharon Springs			
7,691.39	7,451.00	Niobrara			
7,936.99	7,566.00	Nio B			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
650.00	650.00	0.00	0.00	Begin Nudge @ 650.00ft
1,793.33	1,776.34	-11.70	-169.44	End Nudge @ 1793.33ft
4,593.33	4,451.84	-68.58	-993.12	Begin Drop @ 4593.33ft
5,450.83	5,296.59	-77.35	-1,120.20	End Drop @ 5450.83ft
7,040.05	6,885.81	-77.35	-1,120.20	KOP @ 7040.05ft :: DLS = 8°/100'
8,167.16	7,602.00	-795.58	-1,130.83	End Build @ 8167.16ft
15,298.03	7,580.96	-7,925.64	-1,236.36	Begin Turn to BHL @ 15298.03ft
15,451.71	7,580.51	-8,079.31	-1,235.54	End Turn @ 15451.71ft
19,352.84	7,569.00	-11,979.15	-1,136.33	TD Well @ 19352.84ft