

US ROCKIES WATTENBERG PLANNING

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

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.076948/-104.997932
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 3-1HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1526.50	9-5/8
7815.00	8796.44	5-1/2

WELL DETAILS: MC 3-1HZ

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1738.67	23.08	274.50	1697.39	23.99	-304.79	1.50	274.50	-22.92	
4	4238.66	23.08	274.50	3997.28	100.88	-1281.81	0.00	0.00	-96.41	
5	4564.79	23.08	262.00	4297.49	97.00	-1408.92	1.50	-95.75	-92.08	
6	7705.21	23.08	262.00	7186.54	-74.34	-2628.03	0.00	0.00	83.51	
7	8796.44	90.01	178.92	7815.00	-794.68	-2880.35	8.00	-83.63	804.73	
8	14908.45	90.01	178.92	7814.46	-6905.61	-2765.00	0.00	0.00	6915.22	MC 3-1HZ_target 1
9	14989.50	90.01	180.13	7814.45	-6986.65	-2764.33	1.50	89.99	6996.26	
10	17408.45	90.01	180.13	7814.23	-9405.60	-2770.00	0.00	0.00	9415.21	MC 3-1HZ_target 2
11	17628.78	90.01	183.44	7814.21	-9625.79	-2776.87	1.50	90.00	9635.42	
12	19988.71	90.01	183.44	7814.00	-11981.48	-2918.44	0.00	0.00	11991.59	MC 3-1HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MC 3-1HZ_SHL	0.00	0.00	0.00	40.076948	-104.997932
MC 3-1HZ_BHL	7814.00	-11981.48	-2918.44	40.044044	-105.008360

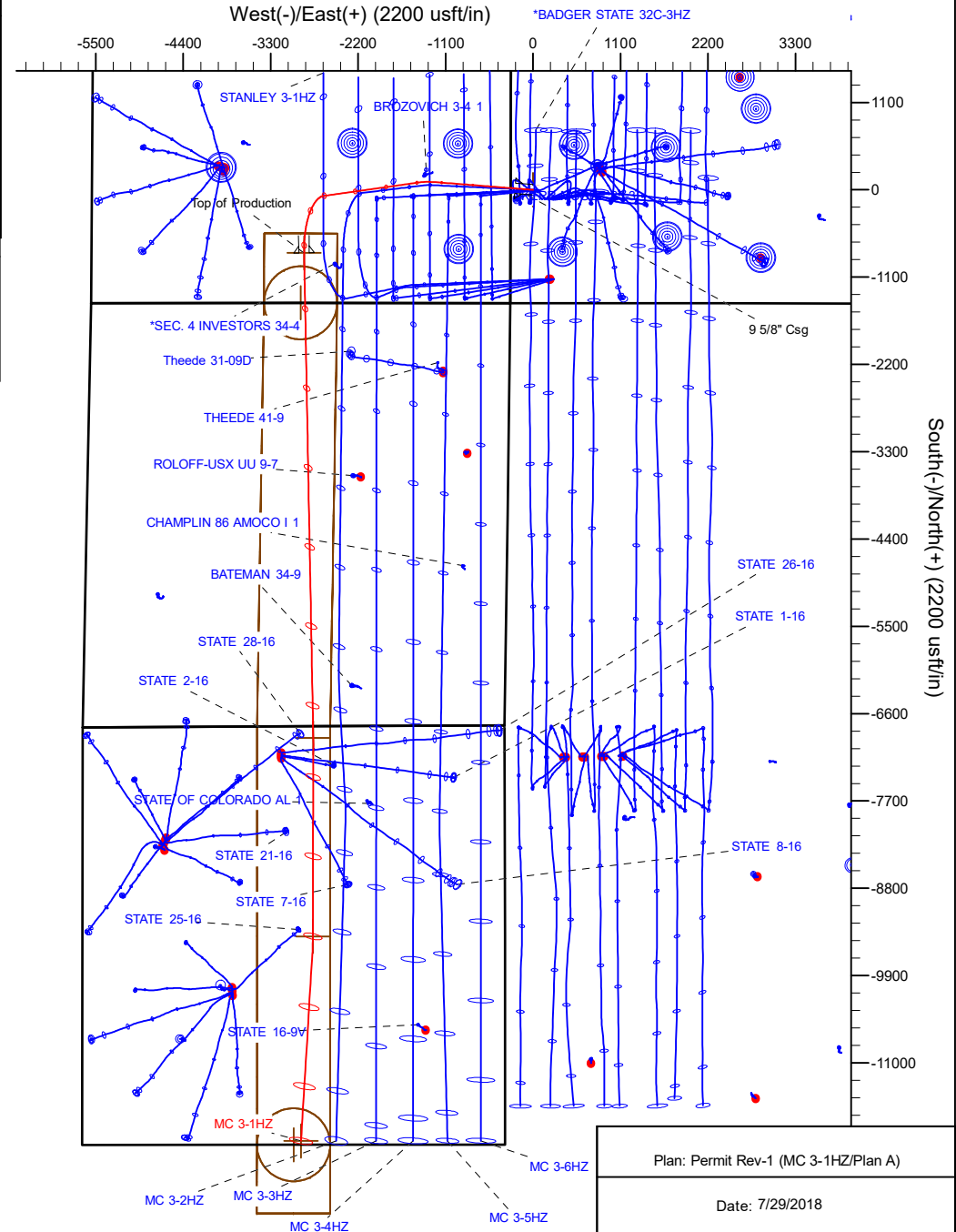
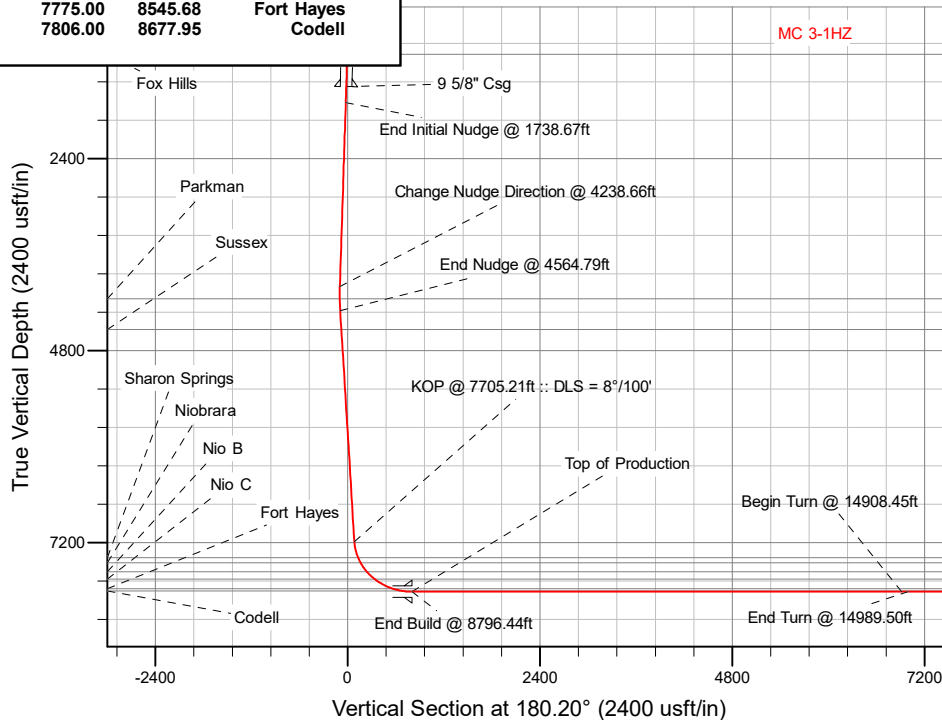
FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
1093.00	1101.34	Fox Hills
4152.00	4406.74	Parkman
4536.00	4824.05	Sussex
7390.00	7931.81	Sharon Springs
7451.00	8004.19	Niobrara
7566.00	8152.61	Nio B
7658.00	8291.86	Nio C
7775.00	8545.68	Fort Hayes
7806.00	8677.95	Codell

SHL
1427' FSL
282' FWL

HEEL
630' FSL
2595' FEL

TOE
50' FSL
2568' FEL



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

Date: 7/29/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	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 3-1HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,554,753.54 usft	Latitude:	40.076948
	+E/-W	0.00 usft	Easting:	1,640,995.16 usft	Longitude:	-104.997932
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	52,071.85962507

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	180.20

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	19,988.71	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

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 3-1HZ	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	
1,738.67	23.08	274.50	1,697.39	23.99	-304.79	1.50	1.50	0.00	274.50	
4,238.66	23.08	274.50	3,997.28	100.88	-1,281.81	0.00	0.00	0.00	0.00	
4,564.80	23.08	262.00	4,297.49	97.00	-1,408.92	1.50	0.00	-3.83	-95.75	
7,705.21	23.08	262.00	7,186.55	-74.34	-2,628.03	0.00	0.00	0.00	0.00	
8,796.44	90.01	178.92	7,815.00	-794.68	-2,880.35	8.00	6.13	-7.61	-83.63	
14,908.45	90.01	178.92	7,814.46	-6,905.61	-2,765.00	0.00	0.00	0.00	0.00	MC 3-1HZ_target 1
14,989.50	90.01	180.13	7,814.45	-6,986.65	-2,764.33	1.50	0.00	1.50	89.99	
17,408.45	90.01	180.13	7,814.23	-9,405.60	-2,770.00	0.00	0.00	0.00	0.00	MC 3-1HZ_target 2
17,628.78	90.01	183.44	7,814.21	-9,625.79	-2,776.87	1.50	0.00	1.50	90.00	
19,988.72	90.01	183.44	7,814.00	-11,981.48	-2,918.44	0.00	0.00	0.00	0.00	MC 3-1HZ_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 3-1HZ	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	274.50	299.99	0.10	-1.30	-0.10	1.50	1.50	0.00
400.00	3.00	274.50	399.91	0.41	-5.22	-0.39	1.50	1.50	0.00
500.00	4.50	274.50	499.69	0.92	-11.74	-0.88	1.50	1.50	0.00
600.00	6.00	274.50	599.27	1.64	-20.86	-1.57	1.50	1.50	0.00
700.00	7.50	274.50	698.57	2.56	-32.58	-2.45	1.50	1.50	0.00
800.00	9.00	274.50	797.54	3.69	-46.88	-3.53	1.50	1.50	0.00
900.00	10.50	274.50	896.09	5.02	-63.76	-4.80	1.50	1.50	0.00
1,000.00	12.00	274.50	994.16	6.55	-83.21	-6.26	1.50	1.50	0.00
1,100.00	13.50	274.50	1,091.70	8.28	-105.21	-7.91	1.50	1.50	0.00
1,101.34	13.52	274.50	1,093.00	8.31	-105.53	-7.94	1.50	1.50	0.00
Fox Hills									
1,200.00	15.00	274.50	1,188.62	10.21	-129.75	-9.76	1.50	1.50	0.00
1,300.00	16.50	274.50	1,284.86	12.34	-156.81	-11.79	1.50	1.50	0.00
1,400.00	18.00	274.50	1,380.36	14.67	-186.37	-14.02	1.50	1.50	0.00
1,500.00	19.50	274.50	1,475.05	17.19	-218.42	-16.43	1.50	1.50	0.00
1,526.50	19.90	274.50	1,500.00	17.89	-227.32	-17.10	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	21.00	274.50	1,568.86	19.91	-252.92	-19.02	1.50	1.50	0.00
1,700.00	22.50	274.50	1,661.74	22.81	-289.86	-21.80	1.50	1.50	0.00
1,738.67	23.08	274.50	1,697.39	23.99	-304.79	-22.92	1.50	1.50	0.00
End Initial Nudge @ 1738.67ft									
1,800.00	23.08	274.50	1,753.82	25.87	-328.76	-24.73	0.00	0.00	0.00
1,900.00	23.08	274.50	1,845.81	28.95	-367.84	-27.67	0.00	0.00	0.00
2,000.00	23.08	274.50	1,937.81	32.03	-406.92	-30.61	0.00	0.00	0.00
2,100.00	23.08	274.50	2,029.80	35.10	-446.01	-33.54	0.00	0.00	0.00
2,200.00	23.08	274.50	2,121.80	38.18	-485.09	-36.48	0.00	0.00	0.00
2,300.00	23.08	274.50	2,213.79	41.25	-524.17	-39.42	0.00	0.00	0.00
2,400.00	23.08	274.50	2,305.79	44.33	-563.25	-42.36	0.00	0.00	0.00
2,500.00	23.08	274.50	2,397.79	47.40	-602.33	-45.30	0.00	0.00	0.00
2,600.00	23.08	274.50	2,489.78	50.48	-641.41	-48.24	0.00	0.00	0.00
2,700.00	23.08	274.50	2,581.78	53.56	-680.49	-51.18	0.00	0.00	0.00
2,800.00	23.08	274.50	2,673.77	56.63	-719.57	-54.12	0.00	0.00	0.00
2,900.00	23.08	274.50	2,765.77	59.71	-758.65	-57.06	0.00	0.00	0.00
3,000.00	23.08	274.50	2,857.77	62.78	-797.73	-60.00	0.00	0.00	0.00
3,100.00	23.08	274.50	2,949.76	65.86	-836.81	-62.94	0.00	0.00	0.00
3,200.00	23.08	274.50	3,041.76	68.93	-875.89	-65.88	0.00	0.00	0.00
3,300.00	23.08	274.50	3,133.75	72.01	-914.97	-68.82	0.00	0.00	0.00
3,400.00	23.08	274.50	3,225.75	75.09	-954.06	-71.76	0.00	0.00	0.00
3,500.00	23.08	274.50	3,317.74	78.16	-993.14	-74.69	0.00	0.00	0.00
3,600.00	23.08	274.50	3,409.74	81.24	-1,032.22	-77.63	0.00	0.00	0.00
3,700.00	23.08	274.50	3,501.74	84.31	-1,071.30	-80.57	0.00	0.00	0.00
3,800.00	23.08	274.50	3,593.73	87.39	-1,110.38	-83.51	0.00	0.00	0.00
3,900.00	23.08	274.50	3,685.73	90.46	-1,149.46	-86.45	0.00	0.00	0.00
4,000.00	23.08	274.50	3,777.72	93.54	-1,188.54	-89.39	0.00	0.00	0.00
4,100.00	23.08	274.50	3,869.72	96.62	-1,227.62	-92.33	0.00	0.00	0.00
4,200.00	23.08	274.50	3,961.72	99.69	-1,266.70	-95.27	0.00	0.00	0.00
4,238.66	23.08	274.50	3,997.28	100.88	-1,281.81	-96.41	0.00	0.00	0.00
Change Nudge Direction @ 4238.66ft									
4,300.00	23.00	272.16	4,053.73	102.28	-1,305.77	-97.72	1.50	-0.12	-3.82
4,400.00	22.96	268.32	4,145.80	102.44	-1,344.80	-97.74	1.50	-0.05	-3.84

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	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)
4,406.74	22.96	268.06	4,152.00	102.35	-1,347.42	-97.65	1.50	0.00	-3.85
Parkman									
4,500.00	23.00	264.48	4,237.87	99.98	-1,383.74	-95.15	1.50	0.05	-3.84
4,564.80	23.08	262.00	4,297.49	97.00	-1,408.92	-92.08	1.50	0.12	-3.82
End Nudge @ 4564.79ft									
4,600.00	23.08	262.00	4,329.88	95.08	-1,422.59	-90.11	0.00	0.00	0.00
4,700.00	23.08	262.00	4,421.88	89.62	-1,461.41	-84.52	0.00	0.00	0.00
4,800.00	23.08	262.00	4,513.87	84.16	-1,500.23	-78.93	0.00	0.00	0.00
4,824.05	23.08	262.00	4,536.00	82.85	-1,509.56	-77.58	0.00	0.00	0.00
Sussex									
4,900.00	23.08	262.00	4,605.87	78.71	-1,539.05	-73.34	0.00	0.00	0.00
5,000.00	23.08	262.00	4,697.86	73.25	-1,577.87	-67.75	0.00	0.00	0.00
5,100.00	23.08	262.00	4,789.86	67.80	-1,616.69	-62.15	0.00	0.00	0.00
5,200.00	23.08	262.00	4,881.86	62.34	-1,655.51	-56.56	0.00	0.00	0.00
5,300.00	23.08	262.00	4,973.85	56.89	-1,694.33	-50.97	0.00	0.00	0.00
5,400.00	23.08	262.00	5,065.85	51.43	-1,733.15	-45.38	0.00	0.00	0.00
5,500.00	23.08	262.00	5,157.84	45.97	-1,771.97	-39.79	0.00	0.00	0.00
5,600.00	23.08	262.00	5,249.84	40.52	-1,810.79	-34.20	0.00	0.00	0.00
5,700.00	23.08	262.00	5,341.84	35.06	-1,849.61	-28.61	0.00	0.00	0.00
5,800.00	23.08	262.00	5,433.83	29.61	-1,888.43	-23.01	0.00	0.00	0.00
5,900.00	23.08	262.00	5,525.83	24.15	-1,927.25	-17.42	0.00	0.00	0.00
6,000.00	23.08	262.00	5,617.82	18.70	-1,966.07	-11.83	0.00	0.00	0.00
6,100.00	23.08	262.00	5,709.82	13.24	-2,004.89	-6.24	0.00	0.00	0.00
6,200.00	23.08	262.00	5,801.81	7.78	-2,043.71	-0.65	0.00	0.00	0.00
6,300.00	23.08	262.00	5,893.81	2.33	-2,082.53	4.94	0.00	0.00	0.00
6,400.00	23.08	262.00	5,985.81	-3.13	-2,121.35	10.53	0.00	0.00	0.00
6,500.00	23.08	262.00	6,077.80	-8.58	-2,160.17	16.12	0.00	0.00	0.00
6,600.00	23.08	262.00	6,169.80	-14.04	-2,198.99	21.72	0.00	0.00	0.00
6,700.00	23.08	262.00	6,261.79	-19.50	-2,237.81	27.31	0.00	0.00	0.00
6,800.00	23.08	262.00	6,353.79	-24.95	-2,276.63	32.90	0.00	0.00	0.00
6,900.00	23.08	262.00	6,445.79	-30.41	-2,315.45	38.49	0.00	0.00	0.00
7,000.00	23.08	262.00	6,537.78	-35.86	-2,354.27	44.08	0.00	0.00	0.00
7,100.00	23.08	262.00	6,629.78	-41.32	-2,393.09	49.67	0.00	0.00	0.00
7,200.00	23.08	262.00	6,721.77	-46.77	-2,431.91	55.26	0.00	0.00	0.00
7,300.00	23.08	262.00	6,813.77	-52.23	-2,470.73	60.85	0.00	0.00	0.00
7,400.00	23.08	262.00	6,905.76	-57.69	-2,509.55	66.45	0.00	0.00	0.00
7,500.00	23.08	262.00	6,997.76	-63.14	-2,548.37	72.04	0.00	0.00	0.00
7,600.00	23.08	262.00	7,089.76	-68.60	-2,587.19	77.63	0.00	0.00	0.00
7,700.00	23.08	262.00	7,181.75	-74.05	-2,626.01	83.22	0.00	0.00	0.00
7,705.21	23.08	262.00	7,186.55	-74.34	-2,628.03	83.51	0.00	0.00	0.00
KOP @ 7705.21ft :: DLS = 8°/100'									
7,800.00	25.02	243.93	7,273.22	-85.75	-2,664.49	95.05	8.00	2.04	-19.06
7,900.00	29.02	228.61	7,362.40	-111.12	-2,701.74	120.55	8.00	4.00	-15.32
7,931.81	30.60	224.59	7,390.00	-121.99	-2,713.21	131.46	8.00	4.96	-12.63
Sharon Springs									
8,000.00	34.34	217.18	7,447.54	-149.69	-2,737.04	159.24	8.00	5.49	-10.87
8,004.19	34.58	216.77	7,451.00	-151.58	-2,738.46	161.14	8.00	5.80	-9.73
Niobrara									
8,100.00	40.46	208.66	7,527.00	-200.71	-2,769.70	210.38	8.00	6.13	-8.47
8,152.61	43.88	205.02	7,566.00	-232.23	-2,785.60	241.95	8.00	6.51	-6.93
Nio B									
8,200.00	47.06	202.11	7,599.23	-263.19	-2,799.08	272.96	8.00	6.70	-6.14
8,291.86	53.39	197.24	7,658.00	-329.64	-2,822.69	339.49	8.00	6.89	-5.30

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	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)
Nio C									
8,300.00	53.96	196.85	7,662.82	-335.91	-2,824.61	345.77	8.00	7.00	-4.80
8,400.00	61.05	192.45	7,716.53	-417.46	-2,845.80	427.39	8.00	7.09	-4.40
8,500.00	68.26	188.63	7,759.32	-506.24	-2,862.23	516.23	8.00	7.22	-3.82
8,545.68	71.59	187.02	7,775.00	-548.74	-2,868.06	558.75	8.00	7.28	-3.53
Fort Hayes									
8,600.00	75.56	185.17	7,790.36	-600.54	-2,873.59	610.57	8.00	7.31	-3.39
8,677.95	81.28	182.64	7,806.00	-676.69	-2,878.77	686.73	8.00	7.34	-3.25
Codell									
8,700.00	82.90	181.94	7,809.03	-698.51	-2,879.64	708.56	8.00	7.36	-3.18
8,796.44	90.01	178.92	7,815.00	-794.69	-2,880.35	804.74	8.00	7.36	-3.13
End Build @ 8796.44ft - Top of Production									
8,800.00	90.01	178.92	7,815.00	-798.25	-2,880.29	808.30	0.00	0.00	0.00
8,900.00	90.01	178.92	7,814.99	-898.23	-2,878.40	908.27	0.00	0.00	0.00
9,000.00	90.01	178.92	7,814.98	-998.21	-2,876.51	1,008.25	0.00	0.00	0.00
9,100.00	90.01	178.92	7,814.97	-1,098.20	-2,874.62	1,108.22	0.00	0.00	0.00
9,200.00	90.01	178.92	7,814.96	-1,198.18	-2,872.74	1,208.20	0.00	0.00	0.00
9,300.00	90.01	178.92	7,814.95	-1,298.16	-2,870.85	1,308.17	0.00	0.00	0.00
9,400.00	90.01	178.92	7,814.94	-1,398.14	-2,868.96	1,408.15	0.00	0.00	0.00
9,500.00	90.01	178.92	7,814.93	-1,498.12	-2,867.07	1,508.12	0.00	0.00	0.00
9,600.00	90.01	178.92	7,814.93	-1,598.11	-2,865.19	1,608.10	0.00	0.00	0.00
9,700.00	90.01	178.92	7,814.92	-1,698.09	-2,863.30	1,708.07	0.00	0.00	0.00
9,800.00	90.01	178.92	7,814.91	-1,798.07	-2,861.41	1,808.05	0.00	0.00	0.00
9,900.00	90.01	178.92	7,814.90	-1,898.05	-2,859.53	1,908.02	0.00	0.00	0.00
10,000.00	90.01	178.92	7,814.89	-1,998.03	-2,857.64	2,008.00	0.00	0.00	0.00
10,100.00	90.01	178.92	7,814.88	-2,098.02	-2,855.75	2,107.97	0.00	0.00	0.00
10,200.00	90.01	178.92	7,814.87	-2,198.00	-2,853.86	2,207.95	0.00	0.00	0.00
10,300.00	90.01	178.92	7,814.86	-2,297.98	-2,851.98	2,307.92	0.00	0.00	0.00
10,400.00	90.01	178.92	7,814.86	-2,397.96	-2,850.09	2,407.90	0.00	0.00	0.00
10,500.00	90.01	178.92	7,814.85	-2,497.95	-2,848.20	2,507.87	0.00	0.00	0.00
10,600.00	90.01	178.92	7,814.84	-2,597.93	-2,846.31	2,607.85	0.00	0.00	0.00
10,700.00	90.01	178.92	7,814.83	-2,697.91	-2,844.43	2,707.82	0.00	0.00	0.00
10,800.00	90.01	178.92	7,814.82	-2,797.89	-2,842.54	2,807.80	0.00	0.00	0.00
10,900.00	90.01	178.92	7,814.81	-2,897.87	-2,840.65	2,907.77	0.00	0.00	0.00
11,000.00	90.01	178.92	7,814.80	-2,997.86	-2,838.76	3,007.75	0.00	0.00	0.00
11,100.00	90.01	178.92	7,814.79	-3,097.84	-2,836.88	3,107.72	0.00	0.00	0.00
11,200.00	90.01	178.92	7,814.79	-3,197.82	-2,834.99	3,207.70	0.00	0.00	0.00
11,300.00	90.01	178.92	7,814.78	-3,297.80	-2,833.10	3,307.67	0.00	0.00	0.00
11,400.00	90.01	178.92	7,814.77	-3,397.79	-2,831.22	3,407.65	0.00	0.00	0.00
11,500.00	90.01	178.92	7,814.76	-3,497.77	-2,829.33	3,507.62	0.00	0.00	0.00
11,600.00	90.01	178.92	7,814.75	-3,597.75	-2,827.44	3,607.60	0.00	0.00	0.00
11,700.00	90.01	178.92	7,814.74	-3,697.73	-2,825.55	3,707.57	0.00	0.00	0.00
11,800.00	90.01	178.92	7,814.73	-3,797.71	-2,823.67	3,807.55	0.00	0.00	0.00
11,900.00	90.01	178.92	7,814.72	-3,897.70	-2,821.78	3,907.52	0.00	0.00	0.00
12,000.00	90.01	178.92	7,814.71	-3,997.68	-2,819.89	4,007.50	0.00	0.00	0.00
12,100.00	90.01	178.92	7,814.71	-4,097.66	-2,818.00	4,107.47	0.00	0.00	0.00
12,200.00	90.01	178.92	7,814.70	-4,197.64	-2,816.12	4,207.45	0.00	0.00	0.00
12,300.00	90.01	178.92	7,814.69	-4,297.63	-2,814.23	4,307.42	0.00	0.00	0.00
12,400.00	90.01	178.92	7,814.68	-4,397.61	-2,812.34	4,407.40	0.00	0.00	0.00
12,500.00	90.01	178.92	7,814.67	-4,497.59	-2,810.46	4,507.37	0.00	0.00	0.00
12,600.00	90.01	178.92	7,814.66	-4,597.57	-2,808.57	4,607.35	0.00	0.00	0.00
12,700.00	90.01	178.92	7,814.65	-4,697.55	-2,806.68	4,707.32	0.00	0.00	0.00
12,800.00	90.01	178.92	7,814.64	-4,797.54	-2,804.79	4,807.30	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	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)
12,900.00	90.01	178.92	7,814.64	-4,897.52	-2,802.91	4,907.27	0.00	0.00	0.00
13,000.00	90.01	178.92	7,814.63	-4,997.50	-2,801.02	5,007.25	0.00	0.00	0.00
13,100.00	90.01	178.92	7,814.62	-5,097.48	-2,799.13	5,107.22	0.00	0.00	0.00
13,200.00	90.01	178.92	7,814.61	-5,197.46	-2,797.24	5,207.20	0.00	0.00	0.00
13,300.00	90.01	178.92	7,814.60	-5,297.45	-2,795.36	5,307.17	0.00	0.00	0.00
13,400.00	90.01	178.92	7,814.59	-5,397.43	-2,793.47	5,407.15	0.00	0.00	0.00
13,500.00	90.01	178.92	7,814.58	-5,497.41	-2,791.58	5,507.12	0.00	0.00	0.00
13,600.00	90.01	178.92	7,814.57	-5,597.39	-2,789.69	5,607.10	0.00	0.00	0.00
13,700.00	90.01	178.92	7,814.57	-5,697.38	-2,787.81	5,707.07	0.00	0.00	0.00
13,800.00	90.01	178.92	7,814.56	-5,797.36	-2,785.92	5,807.05	0.00	0.00	0.00
13,900.00	90.01	178.92	7,814.55	-5,897.34	-2,784.03	5,907.02	0.00	0.00	0.00
14,000.00	90.01	178.92	7,814.54	-5,997.32	-2,782.15	6,007.00	0.00	0.00	0.00
14,100.00	90.01	178.92	7,814.53	-6,097.30	-2,780.26	6,106.97	0.00	0.00	0.00
14,200.00	90.01	178.92	7,814.52	-6,197.29	-2,778.37	6,206.95	0.00	0.00	0.00
14,300.00	90.01	178.92	7,814.51	-6,297.27	-2,776.48	6,306.92	0.00	0.00	0.00
14,400.00	90.01	178.92	7,814.50	-6,397.25	-2,774.60	6,406.90	0.00	0.00	0.00
14,500.00	90.01	178.92	7,814.50	-6,497.23	-2,772.71	6,506.87	0.00	0.00	0.00
14,600.00	90.01	178.92	7,814.49	-6,597.22	-2,770.82	6,606.85	0.00	0.00	0.00
14,700.00	90.01	178.92	7,814.48	-6,697.20	-2,768.93	6,706.82	0.00	0.00	0.00
14,800.00	90.01	178.92	7,814.47	-6,797.18	-2,767.05	6,806.80	0.00	0.00	0.00
14,900.00	90.01	178.92	7,814.46	-6,897.16	-2,765.16	6,906.77	0.00	0.00	0.00
14,908.45	90.01	178.92	7,814.46	-6,905.61	-2,765.00	6,915.22	0.00	0.00	0.00
Begin Turn @ 14908.45ft									
14,989.50	90.01	180.13	7,814.45	-6,986.65	-2,764.33	6,996.26	1.50	0.00	1.50
End Turn @ 14989.50ft									
15,000.00	90.01	180.13	7,814.45	-6,997.16	-2,764.35	7,006.76	0.00	0.00	0.00
15,100.00	90.01	180.13	7,814.44	-7,097.16	-2,764.59	7,106.76	0.00	0.00	0.00
15,200.00	90.01	180.13	7,814.43	-7,197.16	-2,764.82	7,206.76	0.00	0.00	0.00
15,300.00	90.01	180.13	7,814.42	-7,297.16	-2,765.06	7,306.76	0.00	0.00	0.00
15,400.00	90.01	180.13	7,814.42	-7,397.16	-2,765.29	7,406.76	0.00	0.00	0.00
15,500.00	90.01	180.13	7,814.41	-7,497.15	-2,765.53	7,506.76	0.00	0.00	0.00
15,600.00	90.01	180.13	7,814.40	-7,597.15	-2,765.76	7,606.76	0.00	0.00	0.00
15,700.00	90.01	180.13	7,814.39	-7,697.15	-2,766.00	7,706.76	0.00	0.00	0.00
15,800.00	90.01	180.13	7,814.38	-7,797.15	-2,766.23	7,806.76	0.00	0.00	0.00
15,900.00	90.01	180.13	7,814.37	-7,897.15	-2,766.46	7,906.76	0.00	0.00	0.00
16,000.00	90.01	180.13	7,814.36	-7,997.15	-2,766.70	8,006.76	0.00	0.00	0.00
16,100.00	90.01	180.13	7,814.35	-8,097.15	-2,766.93	8,106.76	0.00	0.00	0.00
16,200.00	90.01	180.13	7,814.34	-8,197.15	-2,767.17	8,206.76	0.00	0.00	0.00
16,300.00	90.01	180.13	7,814.33	-8,297.15	-2,767.40	8,306.76	0.00	0.00	0.00
16,400.00	90.01	180.13	7,814.32	-8,397.15	-2,767.64	8,406.76	0.00	0.00	0.00
16,500.00	90.01	180.13	7,814.31	-8,497.15	-2,767.87	8,506.76	0.00	0.00	0.00
16,600.00	90.01	180.13	7,814.30	-8,597.15	-2,768.11	8,606.76	0.00	0.00	0.00
16,700.00	90.01	180.13	7,814.30	-8,697.15	-2,768.34	8,706.76	0.00	0.00	0.00
16,800.00	90.01	180.13	7,814.29	-8,797.15	-2,768.57	8,806.76	0.00	0.00	0.00
16,900.00	90.01	180.13	7,814.28	-8,897.15	-2,768.81	8,906.76	0.00	0.00	0.00
17,000.00	90.01	180.13	7,814.27	-8,997.15	-2,769.04	9,006.76	0.00	0.00	0.00
17,100.00	90.01	180.13	7,814.26	-9,097.15	-2,769.28	9,106.76	0.00	0.00	0.00
17,200.00	90.01	180.13	7,814.25	-9,197.15	-2,769.51	9,206.76	0.00	0.00	0.00
17,300.00	90.01	180.13	7,814.24	-9,297.15	-2,769.75	9,306.76	0.00	0.00	0.00
17,400.00	90.01	180.13	7,814.23	-9,397.15	-2,769.98	9,406.76	0.00	0.00	0.00
17,408.45	90.01	180.13	7,814.23	-9,405.60	-2,770.00	9,415.21	0.00	0.00	0.00
Begin Turn to BHL @ 17408.45ft									
17,500.00	90.01	181.51	7,814.22	-9,497.14	-2,771.31	9,506.75	1.50	0.00	1.50

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	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)
17,600.00	90.01	183.01	7,814.21	-9,597.06	-2,775.25	9,606.69	1.50	0.00	1.50
17,628.78	90.01	183.44	7,814.21	-9,625.79	-2,776.87	9,635.42	1.50	0.00	1.50
End Turn @ 17628.78ft									
17,700.00	90.01	183.44	7,814.20	-9,696.88	-2,781.14	9,706.53	0.00	0.00	0.00
17,800.00	90.01	183.44	7,814.19	-9,796.70	-2,787.14	9,806.37	0.00	0.00	0.00
17,900.00	90.01	183.44	7,814.19	-9,896.52	-2,793.14	9,906.21	0.00	0.00	0.00
18,000.00	90.01	183.44	7,814.18	-9,996.34	-2,799.14	10,006.05	0.00	0.00	0.00
18,100.00	90.01	183.44	7,814.17	-10,096.16	-2,805.14	10,105.89	0.00	0.00	0.00
18,200.00	90.01	183.44	7,814.16	-10,195.98	-2,811.14	10,205.73	0.00	0.00	0.00
18,300.00	90.01	183.44	7,814.15	-10,295.80	-2,817.14	10,305.57	0.00	0.00	0.00
18,400.00	90.01	183.44	7,814.14	-10,395.62	-2,823.13	10,405.41	0.00	0.00	0.00
18,500.00	90.01	183.44	7,814.13	-10,495.44	-2,829.13	10,505.25	0.00	0.00	0.00
18,600.00	90.01	183.44	7,814.12	-10,595.26	-2,835.13	10,605.09	0.00	0.00	0.00
18,700.00	90.01	183.44	7,814.11	-10,695.08	-2,841.13	10,704.94	0.00	0.00	0.00
18,800.00	90.01	183.44	7,814.11	-10,794.90	-2,847.13	10,804.78	0.00	0.00	0.00
18,900.00	90.01	183.44	7,814.10	-10,894.72	-2,853.13	10,904.62	0.00	0.00	0.00
19,000.00	90.01	183.44	7,814.09	-10,994.54	-2,859.13	11,004.46	0.00	0.00	0.00
19,100.00	90.01	183.44	7,814.08	-11,094.36	-2,865.13	11,104.30	0.00	0.00	0.00
19,200.00	90.01	183.44	7,814.07	-11,194.18	-2,871.13	11,204.14	0.00	0.00	0.00
19,300.00	90.01	183.44	7,814.06	-11,294.00	-2,877.12	11,303.98	0.00	0.00	0.00
19,400.00	90.01	183.44	7,814.05	-11,393.82	-2,883.12	11,403.82	0.00	0.00	0.00
19,500.00	90.01	183.44	7,814.04	-11,493.64	-2,889.12	11,503.66	0.00	0.00	0.00
19,600.00	90.01	183.44	7,814.03	-11,593.46	-2,895.12	11,603.50	0.00	0.00	0.00
19,700.00	90.01	183.44	7,814.03	-11,693.28	-2,901.12	11,703.34	0.00	0.00	0.00
19,800.00	90.01	183.44	7,814.02	-11,793.10	-2,907.12	11,803.18	0.00	0.00	0.00
19,900.00	90.01	183.44	7,814.01	-11,892.92	-2,913.12	11,903.02	0.00	0.00	0.00
19,988.72	90.01	183.44	7,814.00	-11,981.48	-2,918.44	11,991.59	0.00	0.00	0.00
TD Well @ 19988.71ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,526.50	1,500.00	9 5/8" Csg	9-5/8	13-1/2
8,796.44	7,815.00	Top of Production	5-1/2	7-7/8

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-1HZ
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 3-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,101.34	1,093.00	Fox Hills				
4,406.74	4,152.00	Parkman				
4,824.05	4,536.00	Sussex				
7,931.81	7,390.00	Sharon Springs				
8,004.19	7,451.00	Niobrara				
8,152.61	7,566.00	Nio B				
8,291.86	7,658.00	Nio C				
8,545.68	7,775.00	Fort Hayes				
8,677.95	7,806.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft	
1,738.67	1,697.39	23.99	-304.79	End Initial Nudge @ 1738.67ft	
4,238.66	3,997.28	100.88	-1,281.81	Change Nudge Direction @ 4238.66ft	
4,564.80	4,297.49	97.00	-1,408.92	End Nudge @ 4564.79ft	
7,705.21	7,186.55	-74.34	-2,628.03	KOP @ 7705.21ft :: DLS = 8°/100'	
8,796.44	7,815.00	-794.68	-2,880.35	End Build @ 8796.44ft	
14,908.45	7,814.46	-6,905.61	-2,765.00	Begin Turn @ 14908.45ft	
14,989.50	7,814.45	-6,986.65	-2,764.33	End Turn @ 14989.50ft	
17,408.45	7,814.23	-9,405.60	-2,770.00	Begin Turn to BHL @ 17408.45ft	
17,628.78	7,814.21	-9,625.79	-2,776.87	End Turn @ 17628.78ft	
19,988.72	7,814.00	-11,981.48	-2,918.44	TD Well @ 19988.71ft	