

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-68W-03 MC 13-3HZ PAD
MC 3-4HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.076947/-104.997772
Survey Program: MWD+IFR

Standard Planning Report

29 July, 2018

Project: WELD-NAD83-UTMFT13N
Site: 1N-68W-03 MC 13-3HZ PAD
Well: MC 3-4HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1511.79	9-5/8
7817.00	8498.74	5-1/2

WELL DETAILS: MC 3-4HZ

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	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	1978.00	22.17	267.20	1941.39	-13.80	-282.06	1.50	267.20	13.94	
4	4778.00	22.17	267.20	4534.38	-65.41	-1337.40	0.00	0.00	66.11	
5	5886.50	0.00	0.00	5615.43	-75.76	-1548.94	2.00	180.00	76.57	
6	7371.88	0.00	0.00	7100.81	-75.76	-1548.94	0.00	0.00	76.57	
7	8498.74	90.15	180.03	7817.00	-793.81	-1549.26	8.00	180.03	794.62	
8	19685.11	90.15	180.03	7788.00	-11980.14	-1554.22	0.00	0.00	11980.95	MC 3-4HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MC 3-4HZ_SHL	0.00	0.00	0.00	40.076947	-104.997772
MC 3-4HZ_BHL	7788.00	-11980.14	-1554.22	40.044047	-105.003325

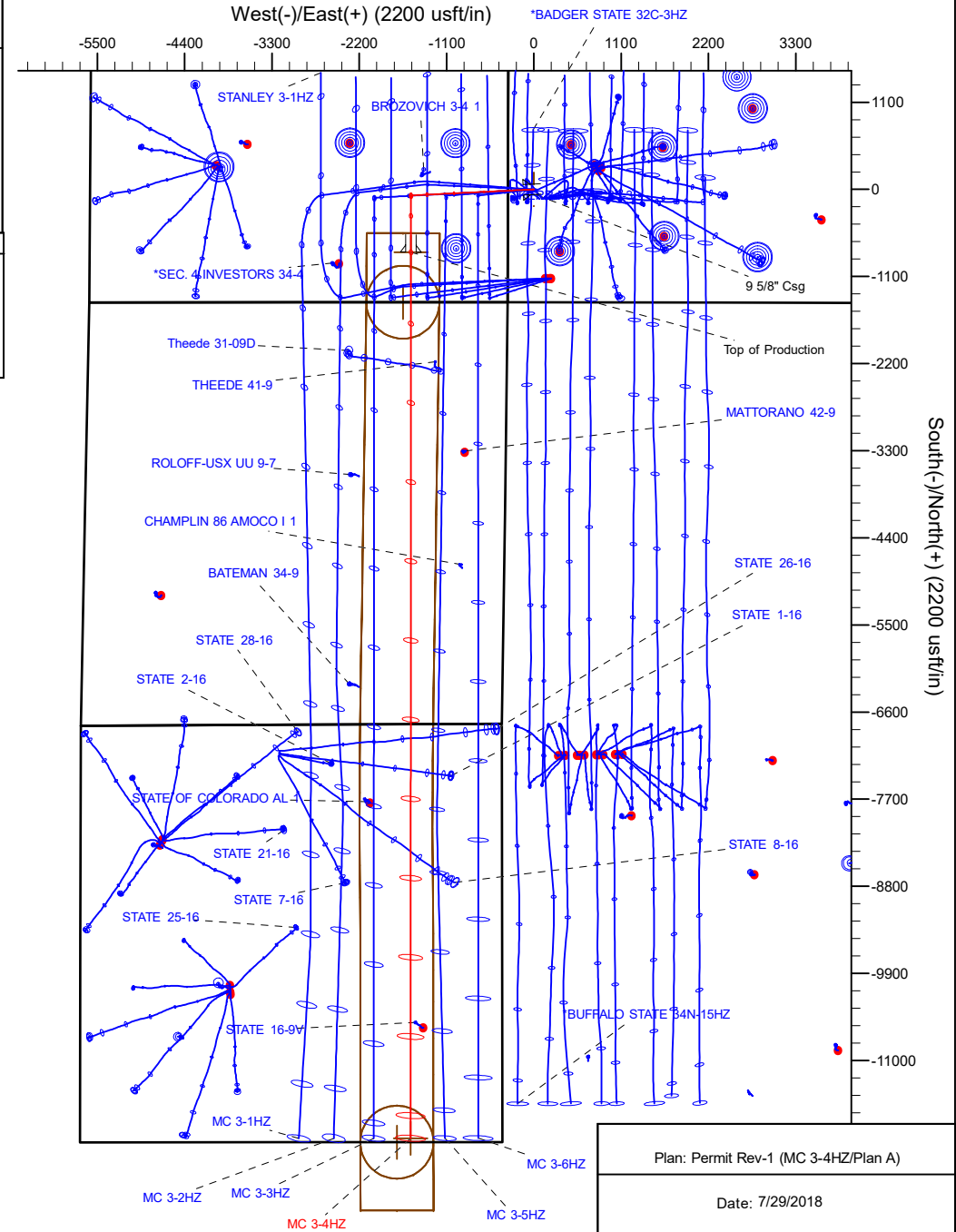
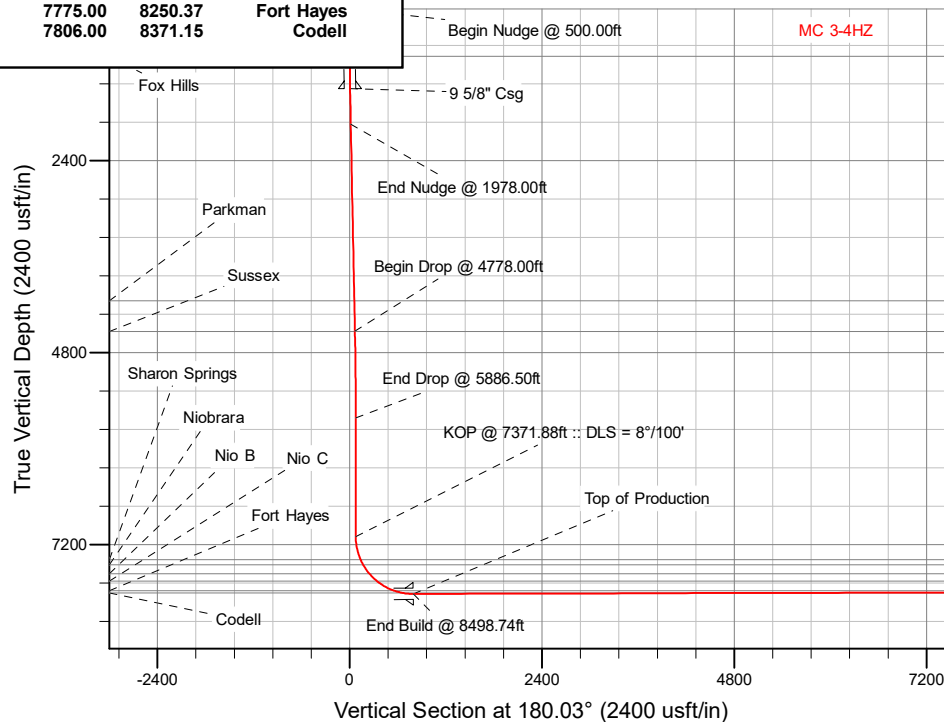
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1093.00	1095.41	Fox Hills
4152.00	4365.09	Parkman
4536.00	4779.74	Sussex
7390.00	7669.57	Sharon Springs
7451.00	7737.78	Niobrara
7566.00	7878.21	Nio B
7658.00	8010.33	Nio C
7775.00	8250.37	Fort Hayes
7806.00	8371.15	Codell

SHL
1427' FSL
327' FWL

HEEL
630' FSL
1219' FEL

TOE
50' FSL
1159' FEL



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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 3-4HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,554,753.18 usft	Latitude:	40.076947
	+E/-W	44.76 usft	Easting:	1,641,039.92 usft	Longitude:	-104.997772
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	52,071.87620702

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	180.03

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+II Fixed:v2:crustal field declinatio
2	1,500.00	19,685.11	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,978.00	22.17	267.20	1,941.39	-13.80	-282.06	1.50	1.50	0.00	267.20	
4,778.00	22.17	267.20	4,534.38	-65.41	-1,337.40	0.00	0.00	0.00	0.00	
5,886.50	0.00	0.00	5,615.43	-75.76	-1,548.94	2.00	-2.00	0.00	180.00	
7,371.88	0.00	0.00	7,100.81	-75.76	-1,548.94	0.00	0.00	0.00	0.00	
8,498.74	90.15	180.03	7,817.00	-793.81	-1,549.26	8.00	8.00	-15.97	180.03	
19,685.11	90.15	180.03	7,788.00	-11,980.14	-1,554.22	0.00	0.00	0.00	0.00	MC 3-4HZ_BHL

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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
Begin Nudge @ 500.00ft									
600.00	1.50	267.20	599.99	-0.06	-1.31	0.06	1.50	1.50	0.00
700.00	3.00	267.20	699.91	-0.26	-5.23	0.26	1.50	1.50	0.00
800.00	4.50	267.20	799.69	-0.58	-11.76	0.58	1.50	1.50	0.00
900.00	6.00	267.20	899.27	-1.02	-20.90	1.03	1.50	1.50	0.00
1,000.00	7.50	267.20	998.57	-1.60	-32.64	1.61	1.50	1.50	0.00
1,095.41	8.93	267.20	1,093.00	-2.26	-46.26	2.29	1.50	1.50	0.00
Fox Hills									
1,100.00	9.00	267.20	1,097.54	-2.30	-46.97	2.32	1.50	1.50	0.00
1,200.00	10.50	267.20	1,196.09	-3.12	-63.89	3.16	1.50	1.50	0.00
1,300.00	12.00	267.20	1,294.16	-4.08	-83.37	4.12	1.50	1.50	0.00
1,400.00	13.50	267.20	1,391.70	-5.16	-105.41	5.21	1.50	1.50	0.00
1,500.00	15.00	267.20	1,488.62	-6.36	-130.00	6.43	1.50	1.50	0.00
1,511.79	15.18	267.20	1,500.00	-6.51	-133.06	6.58	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	16.50	267.20	1,584.86	-7.68	-157.11	7.77	1.50	1.50	0.00
1,700.00	18.00	267.20	1,680.36	-9.13	-186.73	9.23	1.50	1.50	0.00
1,800.00	19.50	267.20	1,775.05	-10.70	-218.83	10.82	1.50	1.50	0.00
1,900.00	21.00	267.20	1,868.86	-12.39	-253.40	12.53	1.50	1.50	0.00
1,978.00	22.17	267.20	1,941.39	-13.80	-282.06	13.94	1.50	1.50	0.00
End Nudge @ 1978.00ft									
2,000.00	22.17	267.20	1,961.77	-14.20	-290.35	14.35	0.00	0.00	0.00
2,100.00	22.17	267.20	2,054.37	-16.04	-328.04	16.22	0.00	0.00	0.00
2,200.00	22.17	267.20	2,146.98	-17.89	-365.73	18.08	0.00	0.00	0.00
2,300.00	22.17	267.20	2,239.59	-19.73	-403.42	19.94	0.00	0.00	0.00
2,400.00	22.17	267.20	2,332.19	-21.57	-441.12	21.81	0.00	0.00	0.00
2,500.00	22.17	267.20	2,424.80	-23.42	-478.81	23.67	0.00	0.00	0.00
2,600.00	22.17	267.20	2,517.41	-25.26	-516.50	25.53	0.00	0.00	0.00
2,700.00	22.17	267.20	2,610.01	-27.10	-554.19	27.39	0.00	0.00	0.00
2,800.00	22.17	267.20	2,702.62	-28.95	-591.88	29.26	0.00	0.00	0.00
2,900.00	22.17	267.20	2,795.23	-30.79	-629.57	31.12	0.00	0.00	0.00
3,000.00	22.17	267.20	2,887.84	-32.63	-667.26	32.98	0.00	0.00	0.00
3,100.00	22.17	267.20	2,980.44	-34.48	-704.95	34.85	0.00	0.00	0.00
3,200.00	22.17	267.20	3,073.05	-36.32	-742.64	36.71	0.00	0.00	0.00
3,300.00	22.17	267.20	3,165.66	-38.16	-780.33	38.57	0.00	0.00	0.00
3,400.00	22.17	267.20	3,258.26	-40.01	-818.02	40.44	0.00	0.00	0.00
3,500.00	22.17	267.20	3,350.87	-41.85	-855.71	42.30	0.00	0.00	0.00
3,600.00	22.17	267.20	3,443.48	-43.69	-893.40	44.16	0.00	0.00	0.00
3,700.00	22.17	267.20	3,536.08	-45.54	-931.09	46.03	0.00	0.00	0.00
3,800.00	22.17	267.20	3,628.69	-47.38	-968.78	47.89	0.00	0.00	0.00
3,900.00	22.17	267.20	3,721.30	-49.22	-1,006.47	49.75	0.00	0.00	0.00
4,000.00	22.17	267.20	3,813.90	-51.07	-1,044.16	51.61	0.00	0.00	0.00
4,100.00	22.17	267.20	3,906.51	-52.91	-1,081.85	53.48	0.00	0.00	0.00
4,200.00	22.17	267.20	3,999.12	-54.75	-1,119.55	55.34	0.00	0.00	0.00
4,300.00	22.17	267.20	4,091.72	-56.60	-1,157.24	57.20	0.00	0.00	0.00
4,365.09	22.17	267.20	4,152.00	-57.80	-1,181.77	58.42	0.00	0.00	0.00
Parkman									
4,400.00	22.17	267.20	4,184.33	-58.44	-1,194.93	59.07	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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)
4,500.00	22.17	267.20	4,276.94	-60.29	-1,232.62	60.93	0.00	0.00	0.00
4,600.00	22.17	267.20	4,369.54	-62.13	-1,270.31	62.79	0.00	0.00	0.00
4,700.00	22.17	267.20	4,462.15	-63.97	-1,308.00	64.66	0.00	0.00	0.00
4,778.00	22.17	267.20	4,534.38	-65.41	-1,337.40	66.11	0.00	0.00	0.00
Begin Drop @ 4778.00ft									
4,779.74	22.14	267.20	4,536.00	-65.44	-1,338.05	66.14	2.00	-2.00	0.00
Sussex									
4,800.00	21.73	267.20	4,554.79	-65.81	-1,345.61	66.52	2.00	-2.00	0.00
4,900.00	19.73	267.20	4,648.31	-67.54	-1,380.96	68.26	2.00	-2.00	0.00
5,000.00	17.73	267.20	4,743.01	-69.11	-1,413.03	69.85	2.00	-2.00	0.00
5,100.00	15.73	267.20	4,838.77	-70.51	-1,441.78	71.27	2.00	-2.00	0.00
5,200.00	13.73	267.20	4,935.48	-71.76	-1,467.18	72.53	2.00	-2.00	0.00
5,300.00	11.73	267.20	5,033.02	-72.83	-1,489.19	73.61	2.00	-2.00	0.00
5,400.00	9.73	267.20	5,131.27	-73.74	-1,507.78	74.53	2.00	-2.00	0.00
5,500.00	7.73	267.20	5,230.10	-74.48	-1,522.94	75.28	2.00	-2.00	0.00
5,600.00	5.73	267.20	5,329.41	-75.06	-1,534.65	75.86	2.00	-2.00	0.00
5,700.00	3.73	267.20	5,429.06	-75.46	-1,542.88	76.27	2.00	-2.00	0.00
5,800.00	1.73	267.20	5,528.94	-75.69	-1,547.64	76.50	2.00	-2.00	0.00
5,886.50	0.00	0.00	5,615.43	-75.76	-1,548.94	76.57	2.00	-2.00	0.00
End Drop @ 5886.50ft									
5,900.00	0.00	0.00	5,628.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,000.00	0.00	0.00	5,728.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,100.00	0.00	0.00	5,828.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,200.00	0.00	0.00	5,928.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,300.00	0.00	0.00	6,028.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,400.00	0.00	0.00	6,128.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,500.00	0.00	0.00	6,228.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,600.00	0.00	0.00	6,328.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,700.00	0.00	0.00	6,428.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,800.00	0.00	0.00	6,528.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
6,900.00	0.00	0.00	6,628.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
7,000.00	0.00	0.00	6,728.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
7,100.00	0.00	0.00	6,828.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
7,200.00	0.00	0.00	6,928.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
7,300.00	0.00	0.00	7,028.93	-75.76	-1,548.94	76.57	0.00	0.00	0.00
7,371.88	0.00	0.00	7,100.81	-75.76	-1,548.94	76.57	0.00	0.00	0.00
KOP @ 7371.88ft :: DLS = 8°/100'									
7,400.00	2.25	180.03	7,128.92	-76.31	-1,548.94	77.12	8.00	8.00	0.00
7,500.00	10.25	180.03	7,228.25	-87.19	-1,548.95	88.00	8.00	8.00	0.00
7,600.00	18.25	180.03	7,325.09	-111.78	-1,548.96	112.59	8.00	8.00	0.00
7,669.57	23.82	180.03	7,390.00	-136.74	-1,548.97	137.55	8.00	8.00	0.00
Sharon Springs									
7,700.00	26.25	180.03	7,417.57	-149.61	-1,548.98	150.42	8.00	8.00	0.00
7,737.78	29.27	180.03	7,451.00	-167.21	-1,548.98	168.02	8.00	8.00	0.00
Niobrara									
7,800.00	34.25	180.03	7,503.89	-199.95	-1,549.00	200.76	8.00	8.00	0.00
7,878.21	40.51	180.03	7,566.00	-247.40	-1,549.02	248.21	8.00	8.00	0.00
Nio B									
7,900.00	42.25	180.03	7,582.35	-261.81	-1,549.02	262.62	8.00	8.00	0.00
8,000.00	50.25	180.03	7,651.45	-333.98	-1,549.06	334.80	8.00	8.00	0.00
8,010.33	51.08	180.03	7,658.00	-341.98	-1,549.06	342.79	8.00	8.00	0.00
Nio C									
8,100.00	58.25	180.03	7,709.83	-415.08	-1,549.09	415.89	8.00	8.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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)
8,200.00	66.25	180.03	7,756.35	-503.50	-1,549.13	504.31	8.00	8.00	0.00
8,250.37	70.28	180.03	7,775.00	-550.28	-1,549.15	551.09	8.00	8.00	0.00
Fort Hayes									
8,300.00	74.25	180.03	7,790.12	-597.54	-1,549.17	598.35	8.00	8.00	0.00
8,371.15	79.94	180.03	7,806.00	-666.87	-1,549.20	667.68	8.00	8.00	0.00
Codell									
8,400.00	82.25	180.03	7,810.46	-695.37	-1,549.22	696.18	8.00	8.00	0.00
8,498.74	90.15	180.03	7,817.00	-793.81	-1,549.26	794.62	8.00	8.00	0.00
End Build @ 8498.74ft - Top of Production									
8,500.00	90.15	180.03	7,817.00	-795.07	-1,549.26	795.88	0.00	0.00	0.00
8,600.00	90.15	180.03	7,816.74	-895.07	-1,549.31	895.88	0.00	0.00	0.00
8,700.00	90.15	180.03	7,816.48	-995.07	-1,549.35	995.88	0.00	0.00	0.00
8,800.00	90.15	180.03	7,816.22	-1,095.07	-1,549.39	1,095.88	0.00	0.00	0.00
8,900.00	90.15	180.03	7,815.96	-1,195.07	-1,549.44	1,195.88	0.00	0.00	0.00
9,000.00	90.15	180.03	7,815.71	-1,295.07	-1,549.48	1,295.88	0.00	0.00	0.00
9,100.00	90.15	180.03	7,815.45	-1,395.07	-1,549.53	1,395.88	0.00	0.00	0.00
9,200.00	90.15	180.03	7,815.19	-1,495.07	-1,549.57	1,495.88	0.00	0.00	0.00
9,300.00	90.15	180.03	7,814.93	-1,595.07	-1,549.62	1,595.88	0.00	0.00	0.00
9,400.00	90.15	180.03	7,814.67	-1,695.07	-1,549.66	1,695.88	0.00	0.00	0.00
9,500.00	90.15	180.03	7,814.41	-1,795.07	-1,549.70	1,795.88	0.00	0.00	0.00
9,600.00	90.15	180.03	7,814.15	-1,895.07	-1,549.75	1,895.88	0.00	0.00	0.00
9,700.00	90.15	180.03	7,813.89	-1,995.07	-1,549.79	1,995.88	0.00	0.00	0.00
9,800.00	90.15	180.03	7,813.63	-2,095.07	-1,549.84	2,095.88	0.00	0.00	0.00
9,900.00	90.15	180.03	7,813.37	-2,195.07	-1,549.88	2,195.88	0.00	0.00	0.00
10,000.00	90.15	180.03	7,813.11	-2,295.07	-1,549.93	2,295.88	0.00	0.00	0.00
10,100.00	90.15	180.03	7,812.85	-2,395.07	-1,549.97	2,395.88	0.00	0.00	0.00
10,200.00	90.15	180.03	7,812.59	-2,495.07	-1,550.01	2,495.88	0.00	0.00	0.00
10,300.00	90.15	180.03	7,812.33	-2,595.07	-1,550.06	2,595.88	0.00	0.00	0.00
10,400.00	90.15	180.03	7,812.08	-2,695.07	-1,550.10	2,695.88	0.00	0.00	0.00
10,500.00	90.15	180.03	7,811.82	-2,795.07	-1,550.15	2,795.88	0.00	0.00	0.00
10,600.00	90.15	180.03	7,811.56	-2,895.07	-1,550.19	2,895.88	0.00	0.00	0.00
10,700.00	90.15	180.03	7,811.30	-2,995.07	-1,550.24	2,995.88	0.00	0.00	0.00
10,800.00	90.15	180.03	7,811.04	-3,095.07	-1,550.28	3,095.88	0.00	0.00	0.00
10,900.00	90.15	180.03	7,810.78	-3,195.06	-1,550.33	3,195.88	0.00	0.00	0.00
11,000.00	90.15	180.03	7,810.52	-3,295.06	-1,550.37	3,295.88	0.00	0.00	0.00
11,100.00	90.15	180.03	7,810.26	-3,395.06	-1,550.41	3,395.88	0.00	0.00	0.00
11,200.00	90.15	180.03	7,810.00	-3,495.06	-1,550.46	3,495.88	0.00	0.00	0.00
11,300.00	90.15	180.03	7,809.74	-3,595.06	-1,550.50	3,595.87	0.00	0.00	0.00
11,400.00	90.15	180.03	7,809.48	-3,695.06	-1,550.55	3,695.87	0.00	0.00	0.00
11,500.00	90.15	180.03	7,809.22	-3,795.06	-1,550.59	3,795.87	0.00	0.00	0.00
11,600.00	90.15	180.03	7,808.96	-3,895.06	-1,550.64	3,895.87	0.00	0.00	0.00
11,700.00	90.15	180.03	7,808.70	-3,995.06	-1,550.68	3,995.87	0.00	0.00	0.00
11,800.00	90.15	180.03	7,808.45	-4,095.06	-1,550.72	4,095.87	0.00	0.00	0.00
11,900.00	90.15	180.03	7,808.19	-4,195.06	-1,550.77	4,195.87	0.00	0.00	0.00
12,000.00	90.15	180.03	7,807.93	-4,295.06	-1,550.81	4,295.87	0.00	0.00	0.00
12,100.00	90.15	180.03	7,807.67	-4,395.06	-1,550.86	4,395.87	0.00	0.00	0.00
12,200.00	90.15	180.03	7,807.41	-4,495.06	-1,550.90	4,495.87	0.00	0.00	0.00
12,300.00	90.15	180.03	7,807.15	-4,595.06	-1,550.95	4,595.87	0.00	0.00	0.00
12,400.00	90.15	180.03	7,806.89	-4,695.06	-1,550.99	4,695.87	0.00	0.00	0.00
12,500.00	90.15	180.03	7,806.63	-4,795.06	-1,551.03	4,795.87	0.00	0.00	0.00
12,600.00	90.15	180.03	7,806.37	-4,895.06	-1,551.08	4,895.87	0.00	0.00	0.00
12,700.00	90.15	180.03	7,806.11	-4,995.06	-1,551.12	4,995.87	0.00	0.00	0.00
12,800.00	90.15	180.03	7,805.85	-5,095.06	-1,551.17	5,095.87	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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	90.15	180.03	7,805.59	-5,195.06	-1,551.21	5,195.87	0.00	0.00	0.00	
13,000.00	90.15	180.03	7,805.33	-5,295.06	-1,551.26	5,295.87	0.00	0.00	0.00	
13,100.00	90.15	180.03	7,805.07	-5,395.06	-1,551.30	5,395.87	0.00	0.00	0.00	
13,200.00	90.15	180.03	7,804.82	-5,495.06	-1,551.34	5,495.87	0.00	0.00	0.00	
13,300.00	90.15	180.03	7,804.56	-5,595.06	-1,551.39	5,595.87	0.00	0.00	0.00	
13,400.00	90.15	180.03	7,804.30	-5,695.06	-1,551.43	5,695.87	0.00	0.00	0.00	
13,500.00	90.15	180.03	7,804.04	-5,795.06	-1,551.48	5,795.87	0.00	0.00	0.00	
13,600.00	90.15	180.03	7,803.78	-5,895.06	-1,551.52	5,895.87	0.00	0.00	0.00	
13,700.00	90.15	180.03	7,803.52	-5,995.06	-1,551.57	5,995.87	0.00	0.00	0.00	
13,800.00	90.15	180.03	7,803.26	-6,095.05	-1,551.61	6,095.87	0.00	0.00	0.00	
13,900.00	90.15	180.03	7,803.00	-6,195.05	-1,551.65	6,195.87	0.00	0.00	0.00	
14,000.00	90.15	180.03	7,802.74	-6,295.05	-1,551.70	6,295.87	0.00	0.00	0.00	
14,100.00	90.15	180.03	7,802.48	-6,395.05	-1,551.74	6,395.87	0.00	0.00	0.00	
14,200.00	90.15	180.03	7,802.22	-6,495.05	-1,551.79	6,495.87	0.00	0.00	0.00	
14,300.00	90.15	180.03	7,801.96	-6,595.05	-1,551.83	6,595.86	0.00	0.00	0.00	
14,400.00	90.15	180.03	7,801.70	-6,695.05	-1,551.88	6,695.86	0.00	0.00	0.00	
14,500.00	90.15	180.03	7,801.44	-6,795.05	-1,551.92	6,795.86	0.00	0.00	0.00	
14,600.00	90.15	180.03	7,801.19	-6,895.05	-1,551.97	6,895.86	0.00	0.00	0.00	
14,700.00	90.15	180.03	7,800.93	-6,995.05	-1,552.01	6,995.86	0.00	0.00	0.00	
14,800.00	90.15	180.03	7,800.67	-7,095.05	-1,552.05	7,095.86	0.00	0.00	0.00	
14,900.00	90.15	180.03	7,800.41	-7,195.05	-1,552.10	7,195.86	0.00	0.00	0.00	
15,000.00	90.15	180.03	7,800.15	-7,295.05	-1,552.14	7,295.86	0.00	0.00	0.00	
15,100.00	90.15	180.03	7,799.89	-7,395.05	-1,552.19	7,395.86	0.00	0.00	0.00	
15,200.00	90.15	180.03	7,799.63	-7,495.05	-1,552.23	7,495.86	0.00	0.00	0.00	
15,300.00	90.15	180.03	7,799.37	-7,595.05	-1,552.28	7,595.86	0.00	0.00	0.00	
15,400.00	90.15	180.03	7,799.11	-7,695.05	-1,552.32	7,695.86	0.00	0.00	0.00	
15,500.00	90.15	180.03	7,798.85	-7,795.05	-1,552.36	7,795.86	0.00	0.00	0.00	
15,600.00	90.15	180.03	7,798.59	-7,895.05	-1,552.41	7,895.86	0.00	0.00	0.00	
15,700.00	90.15	180.03	7,798.33	-7,995.05	-1,552.45	7,995.86	0.00	0.00	0.00	
15,800.00	90.15	180.03	7,798.07	-8,095.05	-1,552.50	8,095.86	0.00	0.00	0.00	
15,900.00	90.15	180.03	7,797.81	-8,195.05	-1,552.54	8,195.86	0.00	0.00	0.00	
16,000.00	90.15	180.03	7,797.56	-8,295.05	-1,552.59	8,295.86	0.00	0.00	0.00	
16,100.00	90.15	180.03	7,797.30	-8,395.05	-1,552.63	8,395.86	0.00	0.00	0.00	
16,200.00	90.15	180.03	7,797.04	-8,495.05	-1,552.67	8,495.86	0.00	0.00	0.00	
16,300.00	90.15	180.03	7,796.78	-8,595.05	-1,552.72	8,595.86	0.00	0.00	0.00	
16,400.00	90.15	180.03	7,796.52	-8,695.05	-1,552.76	8,695.86	0.00	0.00	0.00	
16,500.00	90.15	180.03	7,796.26	-8,795.05	-1,552.81	8,795.86	0.00	0.00	0.00	
16,600.00	90.15	180.03	7,796.00	-8,895.05	-1,552.85	8,895.86	0.00	0.00	0.00	
16,700.00	90.15	180.03	7,795.74	-8,995.04	-1,552.90	8,995.86	0.00	0.00	0.00	
16,800.00	90.15	180.03	7,795.48	-9,095.04	-1,552.94	9,095.86	0.00	0.00	0.00	
16,900.00	90.15	180.03	7,795.22	-9,195.04	-1,552.98	9,195.86	0.00	0.00	0.00	
17,000.00	90.15	180.03	7,794.96	-9,295.04	-1,553.03	9,295.86	0.00	0.00	0.00	
17,100.00	90.15	180.03	7,794.70	-9,395.04	-1,553.07	9,395.86	0.00	0.00	0.00	
17,200.00	90.15	180.03	7,794.44	-9,495.04	-1,553.12	9,495.86	0.00	0.00	0.00	
17,300.00	90.15	180.03	7,794.18	-9,595.04	-1,553.16	9,595.85	0.00	0.00	0.00	
17,400.00	90.15	180.03	7,793.93	-9,695.04	-1,553.21	9,695.85	0.00	0.00	0.00	
17,500.00	90.15	180.03	7,793.67	-9,795.04	-1,553.25	9,795.85	0.00	0.00	0.00	
17,600.00	90.15	180.03	7,793.41	-9,895.04	-1,553.29	9,895.85	0.00	0.00	0.00	
17,700.00	90.15	180.03	7,793.15	-9,995.04	-1,553.34	9,995.85	0.00	0.00	0.00	
17,800.00	90.15	180.03	7,792.89	-10,095.04	-1,553.38	10,095.85	0.00	0.00	0.00	
17,900.00	90.15	180.03	7,792.63	-10,195.04	-1,553.43	10,195.85	0.00	0.00	0.00	
18,000.00	90.15	180.03	7,792.37	-10,295.04	-1,553.47	10,295.85	0.00	0.00	0.00	
18,100.00	90.15	180.03	7,792.11	-10,395.04	-1,553.52	10,395.85	0.00	0.00	0.00	
18,200.00	90.15	180.03	7,791.85	-10,495.04	-1,553.56	10,495.85	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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)	
18,300.00	90.15	180.03	7,791.59	-10,595.04	-1,553.61	10,595.85	0.00	0.00	0.00	
18,400.00	90.15	180.03	7,791.33	-10,695.04	-1,553.65	10,695.85	0.00	0.00	0.00	
18,500.00	90.15	180.03	7,791.07	-10,795.04	-1,553.69	10,795.85	0.00	0.00	0.00	
18,600.00	90.15	180.03	7,790.81	-10,895.04	-1,553.74	10,895.85	0.00	0.00	0.00	
18,700.00	90.15	180.03	7,790.55	-10,995.04	-1,553.78	10,995.85	0.00	0.00	0.00	
18,800.00	90.15	180.03	7,790.30	-11,095.04	-1,553.83	11,095.85	0.00	0.00	0.00	
18,900.00	90.15	180.03	7,790.04	-11,195.04	-1,553.87	11,195.85	0.00	0.00	0.00	
19,000.00	90.15	180.03	7,789.78	-11,295.04	-1,553.92	11,295.85	0.00	0.00	0.00	
19,100.00	90.15	180.03	7,789.52	-11,395.04	-1,553.96	11,395.85	0.00	0.00	0.00	
19,200.00	90.15	180.03	7,789.26	-11,495.04	-1,554.00	11,495.85	0.00	0.00	0.00	
19,300.00	90.15	180.03	7,789.00	-11,595.04	-1,554.05	11,595.85	0.00	0.00	0.00	
19,400.00	90.15	180.03	7,788.74	-11,695.04	-1,554.09	11,695.85	0.00	0.00	0.00	
19,500.00	90.15	180.03	7,788.48	-11,795.04	-1,554.14	11,795.85	0.00	0.00	0.00	
19,600.00	90.15	180.03	7,788.22	-11,895.03	-1,554.18	11,895.85	0.00	0.00	0.00	
19,685.11	90.15	180.03	7,788.00	-11,980.14	-1,554.22	11,980.95	0.00	0.00	0.00	
TD Well @ 19685.11ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,511.79	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,498.74	7,817.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,095.41	1,093.00	Fox Hills				
4,365.09	4,152.00	Parkman				
4,779.74	4,536.00	Sussex				
7,669.57	7,390.00	Sharon Springs				
7,737.78	7,451.00	Niobrara				
7,878.21	7,566.00	Nio B				
8,010.33	7,658.00	Nio C				
8,250.37	7,775.00	Fort Hayes				
8,371.15	7,806.00	Codell				

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-4HZ
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 3-4HZ	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)	
500.00	500.00	0.00	0.00	Begin Nudge @ 500.00ft
1,978.00	1,941.39	-13.80	-282.06	End Nudge @ 1978.00ft
4,778.00	4,534.38	-65.41	-1,337.40	Begin Drop @ 4778.00ft
5,886.50	5,615.43	-75.76	-1,548.94	End Drop @ 5886.50ft
7,371.88	7,100.81	-75.76	-1,548.94	KOP @ 7371.88ft :: DLS = 8°/100'
8,498.74	7,817.00	-793.81	-1,549.26	End Build @ 8498.74ft
19,685.11	7,788.00	-11,980.14	-1,554.22	TD Well @ 19685.11ft