

US ROCKIES WATTENBERG PLANNING

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

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.076948/-104.997825
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 3-3HZ
 Wellbore: Plan A
 Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS			WELL DETAILS: MC 3-3HZ
TVD	MD	Size	
1500.00 7605.00	1512.91 8436.96	9-5/8 5-1/2	
			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	470.00	0.00	0.00	470.00	0.00	0.00	0.00	0.00	0.00	
3	2269.33	26.99	267.00	2203.52	-21.77	-415.45	1.50	267.00	22.14	
4	5069.33	26.99	267.00	4698.56	-88.28	-1684.45	0.00	0.00	89.75	
5	6418.83	0.00	0.00	5998.70	-104.61	-1996.04	2.00	180.00	106.35	
6	7308.94	0.00	0.00	6888.81	-104.61	-1996.04	0.00	0.00	106.35	
7	8436.96	90.24	180.05	7605.00	-823.82	-1996.60	8.00	180.05	825.56	
8	19593.73	90.24	180.05	7558.00	-11980.50	-2005.39	0.00	0.00	11982.24	MC 3-3HZ_BHL

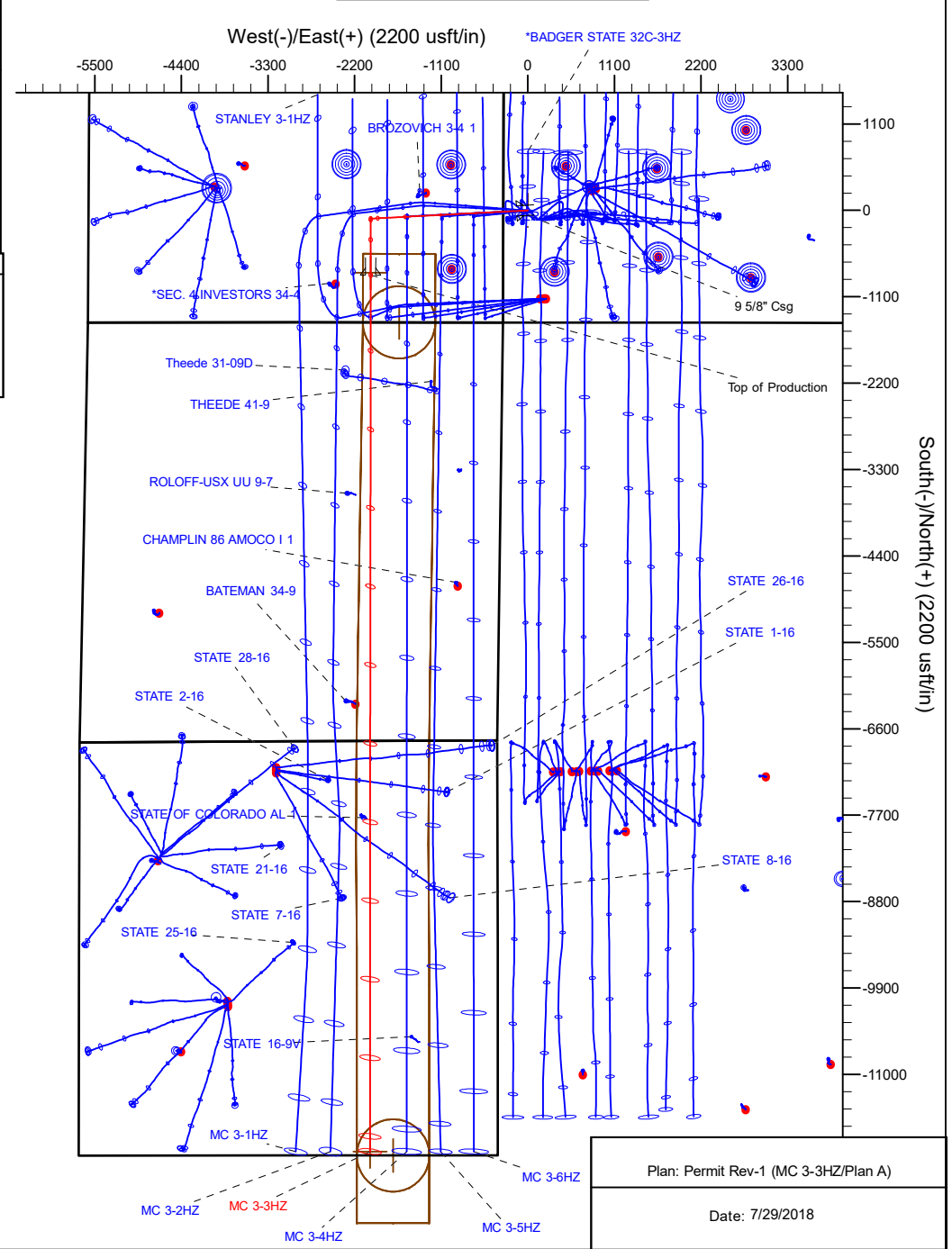
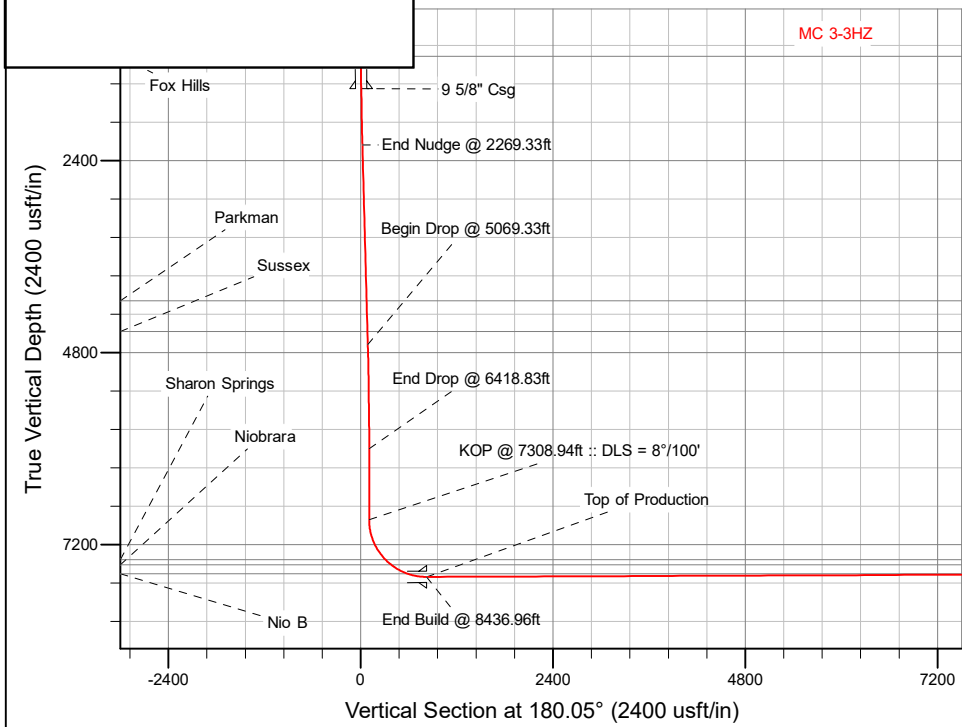
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MC 3-3HZ_SHL	0.00	0.00	0.00	40.076948	-104.997825
MC 3-3HZ_BHL	7558.00	-11980.50	-2005.39	40.044047	-105.004990

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1093.00	1095.80	Fox Hills
4152.00	4455.97	Parkman
4536.00	4886.90	Sussex
7390.00	7864.07	Sharon Springs
7451.00	7955.41	Niobrara
7566.00	8196.48	Nio B

SHL 1427' FSL
312' FWL

HEEL 605' FSL
1681' FEL

TOE 50' FSL
1625' FEL



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

Date: 7/29/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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 3-3HZ					
Well Position	+N-S	0.00 usft	Northing:	14,554,753.54 usft	Latitude:	40.076948
	+E-W	29.93 usft	Easting:	1,641,025.09 usft	Longitude:	-104.997825
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	52,071.87106374

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	180.05

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	19,593.73	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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	
470.00	0.00	0.00	470.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,269.33	26.99	267.00	2,203.52	-21.77	-415.45	1.50	1.50	0.00	267.00	
5,069.33	26.99	267.00	4,698.56	-88.28	-1,684.45	0.00	0.00	0.00	0.00	
6,418.83	0.00	0.00	5,998.70	-104.61	-1,996.04	2.00	-2.00	6.89	180.00	
7,308.94	0.00	0.00	6,888.81	-104.61	-1,996.04	0.00	0.00	0.00	0.00	
8,436.96	90.24	180.05	7,605.00	-823.82	-1,996.60	8.00	8.00	-15.95	180.05	
19,593.73	90.24	180.05	7,558.00	-11,980.50	-2,005.39	0.00	0.00	0.00	0.00	MC 3-3HZ_BHL

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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
470.00	0.00	0.00	470.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 470.00ft									
500.00	0.45	267.00	500.00	-0.01	-0.12	0.01	1.50	1.50	0.00
600.00	1.95	267.00	599.97	-0.12	-2.21	0.12	1.50	1.50	0.00
700.00	3.45	267.00	699.86	-0.36	-6.91	0.37	1.50	1.50	0.00
800.00	4.95	267.00	799.59	-0.75	-14.23	0.76	1.50	1.50	0.00
900.00	6.45	267.00	899.09	-1.27	-24.14	1.29	1.50	1.50	0.00
1,000.00	7.95	267.00	998.30	-1.92	-36.66	1.95	1.50	1.50	0.00
1,095.80	9.39	267.00	1,093.00	-2.68	-51.08	2.72	1.50	1.50	0.00
Fox Hills									
1,100.00	9.45	267.00	1,097.15	-2.71	-51.77	2.76	1.50	1.50	0.00
1,200.00	10.95	267.00	1,195.56	-3.64	-69.45	3.70	1.50	1.50	0.00
1,300.00	12.45	267.00	1,293.48	-4.70	-89.70	4.78	1.50	1.50	0.00
1,400.00	13.95	267.00	1,390.84	-5.90	-112.50	5.99	1.50	1.50	0.00
1,500.00	15.45	267.00	1,487.56	-7.22	-137.84	7.34	1.50	1.50	0.00
1,512.91	15.64	267.00	1,500.00	-7.41	-141.30	7.53	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	16.95	267.00	1,583.59	-8.68	-165.70	8.83	1.50	1.50	0.00
1,700.00	18.45	267.00	1,678.85	-10.28	-196.06	10.45	1.50	1.50	0.00
1,800.00	19.95	267.00	1,773.29	-12.00	-228.90	12.20	1.50	1.50	0.00
1,900.00	21.45	267.00	1,866.83	-13.85	-264.20	14.08	1.50	1.50	0.00
2,000.00	22.95	267.00	1,959.41	-15.82	-301.93	16.09	1.50	1.50	0.00
2,100.00	24.45	267.00	2,050.98	-17.93	-342.07	18.23	1.50	1.50	0.00
2,200.00	25.95	267.00	2,141.46	-20.16	-384.59	20.49	1.50	1.50	0.00
2,269.33	26.99	267.00	2,203.52	-21.77	-415.45	22.14	1.50	1.50	0.00
End Nudge @ 2269.33ft									
2,300.00	26.99	267.00	2,230.85	-22.50	-429.35	22.88	0.00	0.00	0.00
2,400.00	26.99	267.00	2,319.96	-24.88	-474.67	25.29	0.00	0.00	0.00
2,500.00	26.99	267.00	2,409.07	-27.25	-519.99	27.71	0.00	0.00	0.00
2,600.00	26.99	267.00	2,498.17	-29.63	-565.31	30.12	0.00	0.00	0.00
2,700.00	26.99	267.00	2,587.28	-32.00	-610.64	32.53	0.00	0.00	0.00
2,800.00	26.99	267.00	2,676.39	-34.38	-655.96	34.95	0.00	0.00	0.00
2,900.00	26.99	267.00	2,765.50	-36.75	-701.28	37.36	0.00	0.00	0.00
3,000.00	26.99	267.00	2,854.61	-39.13	-746.60	39.78	0.00	0.00	0.00
3,100.00	26.99	267.00	2,943.72	-41.50	-791.92	42.19	0.00	0.00	0.00
3,200.00	26.99	267.00	3,032.83	-43.88	-837.24	44.61	0.00	0.00	0.00
3,300.00	26.99	267.00	3,121.93	-46.25	-882.56	47.02	0.00	0.00	0.00
3,400.00	26.99	267.00	3,211.04	-48.63	-927.88	49.44	0.00	0.00	0.00
3,500.00	26.99	267.00	3,300.15	-51.00	-973.21	51.85	0.00	0.00	0.00
3,600.00	26.99	267.00	3,389.26	-53.38	-1,018.53	54.27	0.00	0.00	0.00
3,700.00	26.99	267.00	3,478.37	-55.75	-1,063.85	56.68	0.00	0.00	0.00
3,800.00	26.99	267.00	3,567.48	-58.13	-1,109.17	59.10	0.00	0.00	0.00
3,900.00	26.99	267.00	3,656.59	-60.50	-1,154.49	61.51	0.00	0.00	0.00
4,000.00	26.99	267.00	3,745.69	-62.88	-1,199.81	63.93	0.00	0.00	0.00
4,100.00	26.99	267.00	3,834.80	-65.25	-1,245.13	66.34	0.00	0.00	0.00
4,200.00	26.99	267.00	3,923.91	-67.63	-1,290.45	68.76	0.00	0.00	0.00
4,300.00	26.99	267.00	4,013.02	-70.01	-1,335.78	71.17	0.00	0.00	0.00
4,400.00	26.99	267.00	4,102.13	-72.38	-1,381.10	73.59	0.00	0.00	0.00
4,455.97	26.99	267.00	4,152.00	-73.71	-1,406.46	74.94	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 3-3HZ	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)
Parkman									
4,500.00	26.99	267.00	4,191.24	-74.76	-1,426.42	76.00	0.00	0.00	0.00
4,600.00	26.99	267.00	4,280.35	-77.13	-1,471.74	78.41	0.00	0.00	0.00
4,700.00	26.99	267.00	4,369.45	-79.51	-1,517.06	80.83	0.00	0.00	0.00
4,800.00	26.99	267.00	4,458.56	-81.88	-1,562.38	83.24	0.00	0.00	0.00
4,886.90	26.99	267.00	4,536.00	-83.95	-1,601.77	85.34	0.00	0.00	0.00
Sussex									
4,900.00	26.99	267.00	4,547.67	-84.26	-1,607.70	85.66	0.00	0.00	0.00
5,000.00	26.99	267.00	4,636.78	-86.63	-1,653.03	88.07	0.00	0.00	0.00
5,069.33	26.99	267.00	4,698.56	-88.28	-1,684.45	89.75	0.00	0.00	0.00
Begin Drop @ 5069.33ft									
5,100.00	26.38	267.00	4,725.96	-89.00	-1,698.20	90.48	2.00	-2.00	0.00
5,200.00	24.38	267.00	4,816.31	-91.24	-1,741.00	92.76	2.00	-2.00	0.00
5,300.00	22.38	267.00	4,908.10	-93.32	-1,780.62	94.87	2.00	-2.00	0.00
5,400.00	20.38	267.00	5,001.21	-95.23	-1,817.02	96.81	2.00	-2.00	0.00
5,500.00	18.38	267.00	5,095.54	-96.96	-1,850.15	98.58	2.00	-2.00	0.00
5,600.00	16.38	267.00	5,190.97	-98.52	-1,879.97	100.17	2.00	-2.00	0.00
5,700.00	14.38	267.00	5,287.39	-99.91	-1,906.45	101.58	2.00	-2.00	0.00
5,800.00	12.38	267.00	5,384.67	-101.12	-1,929.55	102.81	2.00	-2.00	0.00
5,900.00	10.38	267.00	5,482.70	-102.16	-1,949.25	103.86	2.00	-2.00	0.00
6,000.00	8.38	267.00	5,581.36	-103.01	-1,965.52	104.72	2.00	-2.00	0.00
6,100.00	6.38	267.00	5,680.53	-103.68	-1,978.34	105.41	2.00	-2.00	0.00
6,200.00	4.38	267.00	5,780.08	-104.17	-1,987.69	105.91	2.00	-2.00	0.00
6,300.00	2.38	267.00	5,879.90	-104.48	-1,993.58	106.22	2.00	-2.00	0.00
6,400.00	0.38	267.00	5,979.87	-104.60	-1,995.98	106.35	2.00	-2.00	0.00
6,418.83	0.00	0.00	5,998.70	-104.61	-1,996.04	106.35	2.00	-2.00	493.80
End Drop @ 6418.83ft									
6,500.00	0.00	0.00	6,079.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
6,600.00	0.00	0.00	6,179.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
6,700.00	0.00	0.00	6,279.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
6,800.00	0.00	0.00	6,379.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
6,900.00	0.00	0.00	6,479.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
7,000.00	0.00	0.00	6,579.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
7,100.00	0.00	0.00	6,679.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
7,200.00	0.00	0.00	6,779.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
7,300.00	0.00	0.00	6,879.87	-104.61	-1,996.04	106.35	0.00	0.00	0.00
7,308.94	0.00	0.00	6,888.81	-104.61	-1,996.04	106.35	0.00	0.00	0.00
KOP @ 7308.94ft :: DLS = 8°/100'									
7,400.00	7.28	180.05	6,979.63	-110.39	-1,996.04	112.13	8.00	8.00	-197.62
7,500.00	15.28	180.05	7,077.61	-129.94	-1,996.06	131.68	8.00	8.00	0.00
7,600.00	23.28	180.05	7,171.92	-162.94	-1,996.08	164.68	8.00	8.00	0.00
7,700.00	31.28	180.05	7,260.73	-208.75	-1,996.12	210.49	8.00	8.00	0.00
7,800.00	39.28	180.05	7,342.29	-266.46	-1,996.16	268.20	8.00	8.00	0.00
7,864.07	44.41	180.05	7,390.00	-309.19	-1,996.20	310.93	8.00	8.00	0.00
Sharon Springs									
7,900.00	47.28	180.05	7,415.03	-334.97	-1,996.22	336.71	8.00	8.00	0.00
7,955.41	51.72	180.05	7,451.00	-377.09	-1,996.25	378.83	8.00	8.00	0.00
Niobrara									
8,000.00	55.28	180.05	7,477.52	-412.93	-1,996.28	414.67	8.00	8.00	0.00
8,100.00	63.28	180.05	7,528.56	-498.83	-1,996.35	500.58	8.00	8.00	0.00
8,196.48	71.00	180.05	7,566.00	-587.67	-1,996.42	589.41	8.00	8.00	0.00
Nio B									
8,200.00	71.28	180.05	7,567.14	-591.00	-1,996.42	592.74	8.00	8.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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)
8,300.00	79.28	180.05	7,592.52	-687.64	-1,996.50	689.39	8.00	8.00	0.00
8,400.00	87.28	180.05	7,604.20	-786.88	-1,996.57	788.62	8.00	8.00	0.00
8,436.96	90.24	180.05	7,605.00	-823.82	-1,996.60	825.57	8.00	8.00	0.00
End Build @ 8436.96ft - Top of Production									
8,500.00	90.24	180.05	7,604.74	-886.86	-1,996.65	888.61	0.00	0.00	0.00
8,600.00	90.24	180.05	7,604.31	-986.86	-1,996.73	988.61	0.00	0.00	0.00
8,700.00	90.24	180.05	7,603.89	-1,086.86	-1,996.81	1,088.60	0.00	0.00	0.00
8,800.00	90.24	180.05	7,603.47	-1,186.86	-1,996.89	1,188.60	0.00	0.00	0.00
8,900.00	90.24	180.05	7,603.05	-1,286.86	-1,996.97	1,288.60	0.00	0.00	0.00
9,000.00	90.24	180.05	7,602.63	-1,386.86	-1,997.05	1,388.60	0.00	0.00	0.00
9,100.00	90.24	180.05	7,602.21	-1,486.86	-1,997.13	1,488.60	0.00	0.00	0.00
9,200.00	90.24	180.05	7,601.79	-1,586.86	-1,997.20	1,588.60	0.00	0.00	0.00
9,300.00	90.24	180.05	7,601.37	-1,686.86	-1,997.28	1,688.60	0.00	0.00	0.00
9,400.00	90.24	180.05	7,600.94	-1,786.86	-1,997.36	1,788.60	0.00	0.00	0.00
9,500.00	90.24	180.05	7,600.52	-1,886.86	-1,997.44	1,888.60	0.00	0.00	0.00
9,600.00	90.24	180.05	7,600.10	-1,986.85	-1,997.52	1,988.60	0.00	0.00	0.00
9,700.00	90.24	180.05	7,599.68	-2,086.85	-1,997.60	2,088.60	0.00	0.00	0.00
9,800.00	90.24	180.05	7,599.26	-2,186.85	-1,997.68	2,188.59	0.00	0.00	0.00
9,900.00	90.24	180.05	7,598.84	-2,286.85	-1,997.75	2,288.59	0.00	0.00	0.00
10,000.00	90.24	180.05	7,598.42	-2,386.85	-1,997.83	2,388.59	0.00	0.00	0.00
10,100.00	90.24	180.05	7,598.00	-2,486.85	-1,997.91	2,488.59	0.00	0.00	0.00
10,200.00	90.24	180.05	7,597.57	-2,586.85	-1,997.99	2,588.59	0.00	0.00	0.00
10,300.00	90.24	180.05	7,597.15	-2,686.85	-1,998.07	2,688.59	0.00	0.00	0.00
10,400.00	90.24	180.05	7,596.73	-2,786.85	-1,998.15	2,788.59	0.00	0.00	0.00
10,500.00	90.24	180.05	7,596.31	-2,886.85	-1,998.23	2,888.59	0.00	0.00	0.00
10,600.00	90.24	180.05	7,595.89	-2,986.85	-1,998.31	2,988.59	0.00	0.00	0.00
10,700.00	90.24	180.05	7,595.47	-3,086.84	-1,998.38	3,088.59	0.00	0.00	0.00
10,800.00	90.24	180.05	7,595.05	-3,186.84	-1,998.46	3,188.59	0.00	0.00	0.00
10,900.00	90.24	180.05	7,594.62	-3,286.84	-1,998.54	3,288.59	0.00	0.00	0.00
11,000.00	90.24	180.05	7,594.20	-3,386.84	-1,998.62	3,388.58	0.00	0.00	0.00
11,100.00	90.24	180.05	7,593.78	-3,486.84	-1,998.70	3,488.58	0.00	0.00	0.00
11,200.00	90.24	180.05	7,593.36	-3,586.84	-1,998.78	3,588.58	0.00	0.00	0.00
11,300.00	90.24	180.05	7,592.94	-3,686.84	-1,998.86	3,688.58	0.00	0.00	0.00
11,400.00	90.24	180.05	7,592.52	-3,786.84	-1,998.94	3,788.58	0.00	0.00	0.00
11,500.00	90.24	180.05	7,592.10	-3,886.84	-1,999.01	3,888.58	0.00	0.00	0.00
11,600.00	90.24	180.05	7,591.68	-3,986.84	-1,999.09	3,988.58	0.00	0.00	0.00
11,700.00	90.24	180.05	7,591.25	-4,086.83	-1,999.17	4,088.58	0.00	0.00	0.00
11,800.00	90.24	180.05	7,590.83	-4,186.83	-1,999.25	4,188.58	0.00	0.00	0.00
11,900.00	90.24	180.05	7,590.41	-4,286.83	-1,999.33	4,288.58	0.00	0.00	0.00
12,000.00	90.24	180.05	7,589.99	-4,386.83	-1,999.41	4,388.58	0.00	0.00	0.00
12,100.00	90.24	180.05	7,589.57	-4,486.83	-1,999.49	4,488.57	0.00	0.00	0.00
12,200.00	90.24	180.05	7,589.15	-4,586.83	-1,999.57	4,588.57	0.00	0.00	0.00
12,300.00	90.24	180.05	7,588.73	-4,686.83	-1,999.64	4,688.57	0.00	0.00	0.00
12,400.00	90.24	180.05	7,588.31	-4,786.83	-1,999.72	4,788.57	0.00	0.00	0.00
12,500.00	90.24	180.05	7,587.88	-4,886.83	-1,999.80	4,888.57	0.00	0.00	0.00
12,600.00	90.24	180.05	7,587.46	-4,986.83	-1,999.88	4,988.57	0.00	0.00	0.00
12,700.00	90.24	180.05	7,587.04	-5,086.83	-1,999.96	5,088.57	0.00	0.00	0.00
12,800.00	90.24	180.05	7,586.62	-5,186.82	-2,000.04	5,188.57	0.00	0.00	0.00
12,900.00	90.24	180.05	7,586.20	-5,286.82	-2,000.12	5,288.57	0.00	0.00	0.00
13,000.00	90.24	180.05	7,585.78	-5,386.82	-2,000.20	5,388.57	0.00	0.00	0.00
13,100.00	90.24	180.05	7,585.36	-5,486.82	-2,000.27	5,488.57	0.00	0.00	0.00
13,200.00	90.24	180.05	7,584.94	-5,586.82	-2,000.35	5,588.56	0.00	0.00	0.00
13,300.00	90.24	180.05	7,584.51	-5,686.82	-2,000.43	5,688.56	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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	90.24	180.05	7,584.09	-5,786.82	-2,000.51	5,788.56	0.00	0.00	0.00	
13,500.00	90.24	180.05	7,583.67	-5,886.82	-2,000.59	5,888.56	0.00	0.00	0.00	
13,600.00	90.24	180.05	7,583.25	-5,986.82	-2,000.67	5,988.56	0.00	0.00	0.00	
13,700.00	90.24	180.05	7,582.83	-6,086.82	-2,000.75	6,088.56	0.00	0.00	0.00	
13,800.00	90.24	180.05	7,582.41	-6,186.82	-2,000.83	6,188.56	0.00	0.00	0.00	
13,900.00	90.24	180.05	7,581.99	-6,286.81	-2,000.90	6,288.56	0.00	0.00	0.00	
14,000.00	90.24	180.05	7,581.57	-6,386.81	-2,000.98	6,388.56	0.00	0.00	0.00	
14,100.00	90.24	180.05	7,581.14	-6,486.81	-2,001.06	6,488.56	0.00	0.00	0.00	
14,200.00	90.24	180.05	7,580.72	-6,586.81	-2,001.14	6,588.56	0.00	0.00	0.00	
14,300.00	90.24	180.05	7,580.30	-6,686.81	-2,001.22	6,688.55	0.00	0.00	0.00	
14,400.00	90.24	180.05	7,579.88	-6,786.81	-2,001.30	6,788.55	0.00	0.00	0.00	
14,500.00	90.24	180.05	7,579.46	-6,886.81	-2,001.38	6,888.55	0.00	0.00	0.00	
14,600.00	90.24	180.05	7,579.04	-6,986.81	-2,001.45	6,988.55	0.00	0.00	0.00	
14,700.00	90.24	180.05	7,578.62	-7,086.81	-2,001.53	7,088.55	0.00	0.00	0.00	
14,800.00	90.24	180.05	7,578.20	-7,186.81	-2,001.61	7,188.55	0.00	0.00	0.00	
14,900.00	90.24	180.05	7,577.77	-7,286.81	-2,001.69	7,288.55	0.00	0.00	0.00	
15,000.00	90.24	180.05	7,577.35	-7,386.80	-2,001.77	7,388.55	0.00	0.00	0.00	
15,100.00	90.24	180.05	7,576.93	-7,486.80	-2,001.85	7,488.55	0.00	0.00	0.00	
15,200.00	90.24	180.05	7,576.51	-7,586.80	-2,001.93	7,588.55	0.00	0.00	0.00	
15,300.00	90.24	180.05	7,576.09	-7,686.80	-2,002.01	7,688.55	0.00	0.00	0.00	
15,400.00	90.24	180.05	7,575.67	-7,786.80	-2,002.08	7,788.55	0.00	0.00	0.00	
15,500.00	90.24	180.05	7,575.25	-7,886.80	-2,002.16	7,888.54	0.00	0.00	0.00	
15,600.00	90.24	180.05	7,574.82	-7,986.80	-2,002.24	7,988.54	0.00	0.00	0.00	
15,700.00	90.24	180.05	7,574.40	-8,086.80	-2,002.32	8,088.54	0.00	0.00	0.00	
15,800.00	90.24	180.05	7,573.98	-8,186.80	-2,002.40	8,188.54	0.00	0.00	0.00	
15,900.00	90.24	180.05	7,573.56	-8,286.80	-2,002.48	8,288.54	0.00	0.00	0.00	
16,000.00	90.24	180.05	7,573.14	-8,386.80	-2,002.56	8,388.54	0.00	0.00	0.00	
16,100.00	90.24	180.05	7,572.72	-8,486.79	-2,002.64	8,488.54	0.00	0.00	0.00	
16,200.00	90.24	180.05	7,572.30	-8,586.79	-2,002.71	8,588.54	0.00	0.00	0.00	
16,300.00	90.24	180.05	7,571.88	-8,686.79	-2,002.79	8,688.54	0.00	0.00	0.00	
16,400.00	90.24	180.05	7,571.45	-8,786.79	-2,002.87	8,788.54	0.00	0.00	0.00	
16,500.00	90.24	180.05	7,571.03	-8,886.79	-2,002.95	8,888.54	0.00	0.00	0.00	
16,600.00	90.24	180.05	7,570.61	-8,986.79	-2,003.03	8,988.53	0.00	0.00	0.00	
16,700.00	90.24	180.05	7,570.19	-9,086.79	-2,003.11	9,088.53	0.00	0.00	0.00	
16,800.00	90.24	180.05	7,569.77	-9,186.79	-2,003.19	9,188.53	0.00	0.00	0.00	
16,900.00	90.24	180.05	7,569.35	-9,286.79	-2,003.27	9,288.53	0.00	0.00	0.00	
17,000.00	90.24	180.05	7,568.93	-9,386.79	-2,003.34	9,388.53	0.00	0.00	0.00	
17,100.00	90.24	180.05	7,568.51	-9,486.79	-2,003.42	9,488.53	0.00	0.00	0.00	
17,200.00	90.24	180.05	7,568.08	-9,586.78	-2,003.50	9,588.53	0.00	0.00	0.00	
17,300.00	90.24	180.05	7,567.66	-9,686.78	-2,003.58	9,688.53	0.00	0.00	0.00	
17,400.00	90.24	180.05	7,567.24	-9,786.78	-2,003.66	9,788.53	0.00	0.00	0.00	
17,500.00	90.24	180.05	7,566.82	-9,886.78	-2,003.74	9,888.53	0.00	0.00	0.00	
17,600.00	90.24	180.05	7,566.40	-9,986.78	-2,003.82	9,988.53	0.00	0.00	0.00	
17,700.00	90.24	180.05	7,565.98	-10,086.78	-2,003.90	10,088.52	0.00	0.00	0.00	
17,800.00	90.24	180.05	7,565.56	-10,186.78	-2,003.97	10,188.52	0.00	0.00	0.00	
17,900.00	90.24	180.05	7,565.14	-10,286.78	-2,004.05	10,288.52	0.00	0.00	0.00	
18,000.00	90.24	180.05	7,564.71	-10,386.78	-2,004.13	10,388.52	0.00	0.00	0.00	
18,100.00	90.24	180.05	7,564.29	-10,486.78	-2,004.21	10,488.52	0.00	0.00	0.00	
18,200.00	90.24	180.05	7,563.87	-10,586.78	-2,004.29	10,588.52	0.00	0.00	0.00	
18,300.00	90.24	180.05	7,563.45	-10,686.77	-2,004.37	10,688.52	0.00	0.00	0.00	
18,400.00	90.24	180.05	7,563.03	-10,786.77	-2,004.45	10,788.52	0.00	0.00	0.00	
18,500.00	90.24	180.05	7,562.61	-10,886.77	-2,004.52	10,888.52	0.00	0.00	0.00	
18,600.00	90.24	180.05	7,562.19	-10,986.77	-2,004.60	10,988.52	0.00	0.00	0.00	
18,700.00	90.24	180.05	7,561.77	-11,086.77	-2,004.68	11,088.52	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well MC 3-3HZ
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 3-3HZ	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)	
18,800.00	90.24	180.05	7,561.34	-11,186.77	-2,004.76	11,188.52	0.00	0.00	0.00	
18,900.00	90.24	180.05	7,560.92	-11,286.77	-2,004.84	11,288.51	0.00	0.00	0.00	
19,000.00	90.24	180.05	7,560.50	-11,386.77	-2,004.92	11,388.51	0.00	0.00	0.00	
19,100.00	90.24	180.05	7,560.08	-11,486.77	-2,005.00	11,488.51	0.00	0.00	0.00	
19,200.00	90.24	180.05	7,559.66	-11,586.77	-2,005.08	11,588.51	0.00	0.00	0.00	
19,300.00	90.24	180.05	7,559.24	-11,686.77	-2,005.15	11,688.51	0.00	0.00	0.00	
19,400.00	90.24	180.05	7,558.82	-11,786.76	-2,005.23	11,788.51	0.00	0.00	0.00	
19,500.00	90.24	180.05	7,558.40	-11,886.76	-2,005.31	11,888.51	0.00	0.00	0.00	
19,593.73	90.24	180.05	7,558.00	-11,980.50	-2,005.39	11,982.24	0.00	0.00	0.00	
TD Well @ 19593.73ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,512.91	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,436.96	7,605.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,095.80	1,093.00	Fox Hills				
4,455.97	4,152.00	Parkman				
4,886.90	4,536.00	Sussex				
7,864.07	7,390.00	Sharon Springs				
7,955.41	7,451.00	Niobrara				
8,196.48	7,566.00	Nio B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
470.00	470.00	0.00	0.00	Begin Nudge @ 470.00ft	
2,269.33	2,203.52	-21.77	-415.45	End Nudge @ 2269.33ft	
5,069.33	4,698.56	-88.28	-1,684.45	Begin Drop @ 5069.33ft	
6,418.83	5,998.70	-104.61	-1,996.04	End Drop @ 6418.83ft	
7,308.94	6,888.81	-104.61	-1,996.04	KOP @ 7308.94ft :: DLS = 8°/100'	
8,436.96	7,605.00	-823.82	-1,996.60	End Build @ 8436.96ft	
19,593.73	7,558.00	-11,980.50	-2,005.39	TD Well @ 19593.73ft	