

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-66W-15 MAB 15-15HZ PAD**

**MAB 15-3HZ**

## **Plan A**

### **Plan: Permit Rev-1**

SHL Lat/Long: 40.045434/-104.761653

Survey Program: MWD+IFR+MSA

## **Standard Planning Report**

**07 July, 2018**

Project: WELD-NAD83-UTMFT13N  
Site: 1N-66W-15 MAB 15-15HZ PAD  
Well: MAB 15-3HZ  
Wellbore: Plan A  
Design: Permit Rev-1

## US ROCKIES WATTENBERG PLANNING

### CASING DETAILS

TVD	MD	Size
1500.00	1510.60	9-5/8
7431.00	7880.00	5-1/2

WELL DETAILS: MAB 15-3HZ

GL = 5112.00

RKB = 17' @ 5129.00usft (Drilling Rig)

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	850.00	9.00	155.00	847.54	-42.62	19.87	1.50	155.00	-42.47	
4	3650.00	9.00	155.00	3613.06	-439.60	204.99	0.00	0.00	-438.08	
5	4100.00	0.00	0.00	4061.21	-471.56	219.89	2.00	180.00	-469.94	
6	6753.59	0.00	0.00	6714.80	-471.56	219.89	0.00	0.00	-469.94	
7	7880.00	90.11	0.42	7431.00	246.02	225.14	8.00	0.42	247.67	
8	18029.29	90.11	0.42	7411.00	10395.02	299.26	0.00	0.00	10396.93	MAB 15-3HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MAB 15-3HZ_SHL	0.00	0.00	0.00	40.045434	-104.761653
MAB 15-3HZ_BHL	7411.00	10395.02	299.26	40.073980	-104.760583

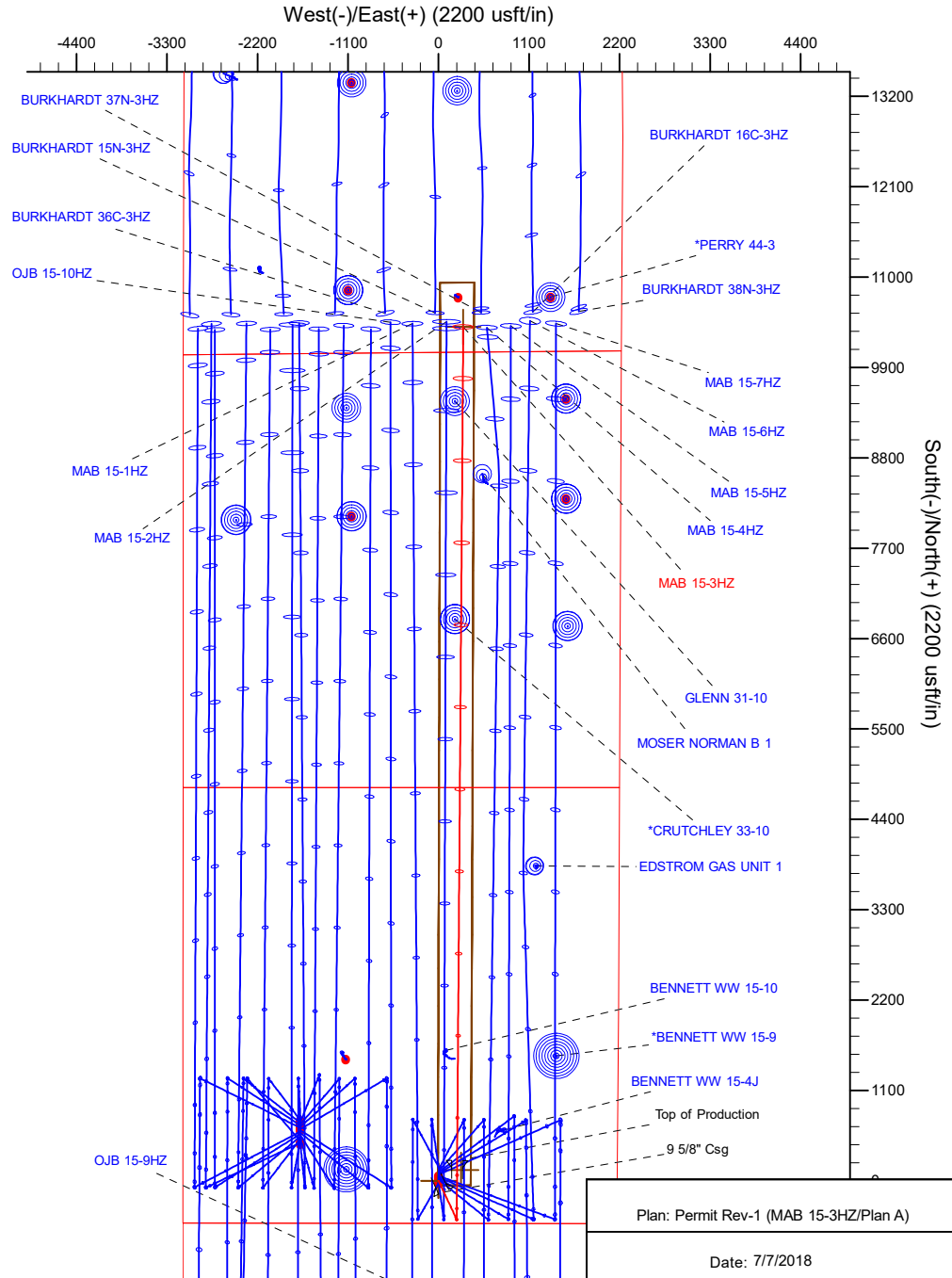
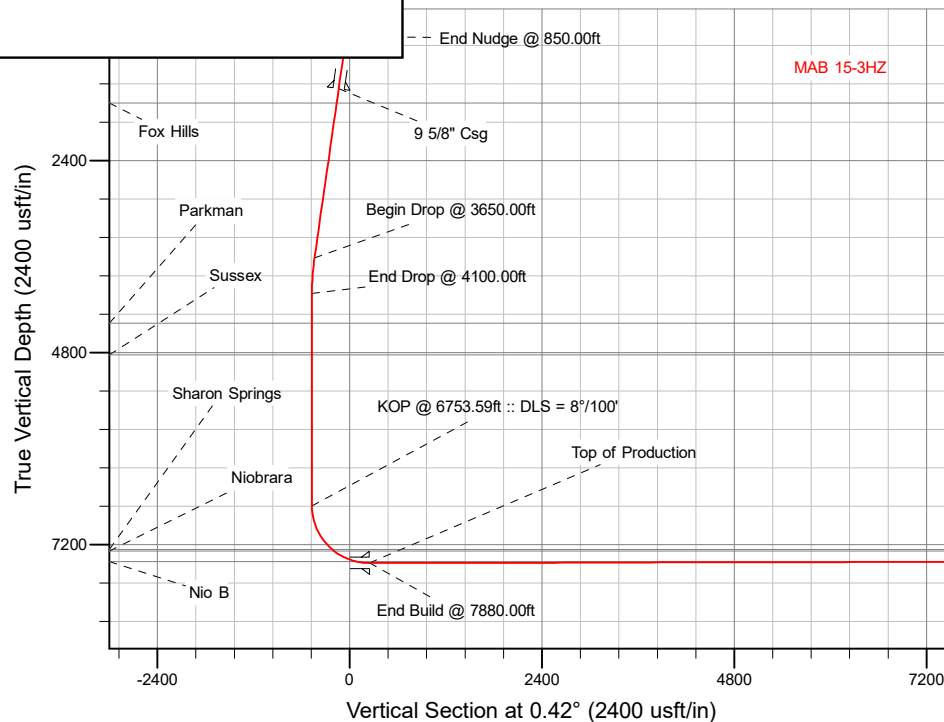
### FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
1679.00	1691.83	Fox Hills
4432.00	4470.79	Parkman
4828.00	4866.79	Sussex
7260.00	7373.26	Sharon Springs
7280.00	7404.93	Niobrara
7413.00	7717.67	Nio B

**SHL**  
**518' FSL**  
**2171' FEL**

**HEEL**  
**765' FSL**  
**1949' FEL**

**TOE**  
**311' FSL**  
**1925' FEL**



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well MAB 15-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		1N-66W-15 MAB 15-15HZ PAD			
Site Position:		Northing:	14,543,337.30 usft	Latitude:	40.045352
From:	Lat/Long	Easting:	1,707,121.54 usft	Longitude:	-104.761654
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	MAB 15-3HZ					
Well Position	+N-S	29.86 usft	Northing:	14,543,367.16 usft	Latitude:	40.045434
	+E-W	0.28 usft	Easting:	1,707,121.74 usft	Longitude:	-104.761653
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,112.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/2/2018	8.07	66.54	52,087.09407882

<b>Design</b>	Permit Rev-1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	0.42

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/7/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	18,029.29	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 MAB 15-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5129.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5129.00usft (Drilling Rig)
Site:	1N-66W-15 MAB 15-15HZ PAD	North Reference:	True
Well:	MAB 15-3HZ	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
850.00	9.00	155.00	847.54	-42.62	19.87	1.50	1.50	0.00	155.00	
3,650.00	9.00	155.00	3,613.06	-439.60	204.99	0.00	0.00	0.00	0.00	
4,100.00	0.00	0.00	4,061.21	-471.56	219.89	2.00	-2.00	0.00	180.00	
6,753.59	0.00	0.00	6,714.80	-471.56	219.89	0.00	0.00	0.00	0.00	
7,880.00	90.11	0.42	7,431.00	246.02	225.14	8.00	8.00	0.04	0.42	
18,029.29	90.11	0.42	7,411.00	10,395.02	299.26	0.00	0.00	0.00	0.00	MAB 15-3HZ_BHL

## Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	155.00	300.00	-0.30	0.14	-0.30	1.50	1.50	0.00
400.00	2.25	155.00	399.96	-2.67	1.24	-2.66	1.50	1.50	0.00
500.00	3.75	155.00	499.82	-7.41	3.46	-7.39	1.50	1.50	0.00
600.00	5.25	155.00	599.51	-14.52	6.77	-14.47	1.50	1.50	0.00
700.00	6.75	155.00	698.96	-24.00	11.19	-23.91	1.50	1.50	0.00
800.00	8.25	155.00	798.10	-35.83	16.71	-35.70	1.50	1.50	0.00
850.00	9.00	155.00	847.54	-42.62	19.87	-42.47	1.50	1.50	0.00
End Nudge @ 850.00ft									
900.00	9.00	155.00	896.92	-49.71	23.18	-49.54	0.00	0.00	0.00
1,000.00	9.00	155.00	995.69	-63.89	29.79	-63.67	0.00	0.00	0.00
1,100.00	9.00	155.00	1,094.46	-78.07	36.40	-77.80	0.00	0.00	0.00
1,200.00	9.00	155.00	1,193.23	-92.24	43.01	-91.93	0.00	0.00	0.00
1,300.00	9.00	155.00	1,292.00	-106.42	49.62	-106.05	0.00	0.00	0.00
1,400.00	9.00	155.00	1,390.76	-120.60	56.24	-120.18	0.00	0.00	0.00
1,500.00	9.00	155.00	1,489.53	-134.78	62.85	-134.31	0.00	0.00	0.00
1,510.60	9.00	155.00	1,500.00	-136.28	63.55	-135.81	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	9.00	155.00	1,588.30	-148.95	69.46	-148.44	0.00	0.00	0.00
1,691.83	9.00	155.00	1,679.00	-161.97	75.53	-161.42	0.00	0.00	0.00
Fox Hills									
1,700.00	9.00	155.00	1,687.07	-163.13	76.07	-162.57	0.00	0.00	0.00
1,800.00	9.00	155.00	1,785.84	-177.31	82.68	-176.70	0.00	0.00	0.00
1,900.00	9.00	155.00	1,884.61	-191.49	89.29	-190.83	0.00	0.00	0.00
2,000.00	9.00	155.00	1,983.38	-205.67	95.90	-204.96	0.00	0.00	0.00
2,100.00	9.00	155.00	2,082.15	-219.84	102.51	-219.09	0.00	0.00	0.00
2,200.00	9.00	155.00	2,180.91	-234.02	109.13	-233.21	0.00	0.00	0.00
2,300.00	9.00	155.00	2,279.68	-248.20	115.74	-247.34	0.00	0.00	0.00
2,400.00	9.00	155.00	2,378.45	-262.38	122.35	-261.47	0.00	0.00	0.00
2,500.00	9.00	155.00	2,477.22	-276.55	128.96	-275.60	0.00	0.00	0.00
2,600.00	9.00	155.00	2,575.99	-290.73	135.57	-289.73	0.00	0.00	0.00
2,700.00	9.00	155.00	2,674.76	-304.91	142.18	-303.86	0.00	0.00	0.00
2,800.00	9.00	155.00	2,773.53	-319.09	148.79	-317.99	0.00	0.00	0.00
2,900.00	9.00	155.00	2,872.30	-333.27	155.40	-332.12	0.00	0.00	0.00
3,000.00	9.00	155.00	2,971.07	-347.44	162.02	-346.25	0.00	0.00	0.00
3,100.00	9.00	155.00	3,069.83	-361.62	168.63	-360.38	0.00	0.00	0.00
3,200.00	9.00	155.00	3,168.60	-375.80	175.24	-374.50	0.00	0.00	0.00
3,300.00	9.00	155.00	3,267.37	-389.98	181.85	-388.63	0.00	0.00	0.00
3,400.00	9.00	155.00	3,366.14	-404.15	188.46	-402.76	0.00	0.00	0.00
3,500.00	9.00	155.00	3,464.91	-418.33	195.07	-416.89	0.00	0.00	0.00
3,600.00	9.00	155.00	3,563.68	-432.51	201.68	-431.02	0.00	0.00	0.00
3,650.00	9.00	155.00	3,613.06	-439.60	204.99	-438.08	0.00	0.00	0.00
Begin Drop @ 3650.00ft									
3,700.00	8.00	155.00	3,662.51	-446.30	208.11	-444.76	2.00	-2.00	0.00
3,800.00	6.00	155.00	3,761.76	-457.34	213.26	-455.77	2.00	-2.00	0.00
3,900.00	4.00	155.00	3,861.38	-465.24	216.94	-463.64	2.00	-2.00	0.00
4,000.00	2.00	155.00	3,961.24	-469.98	219.16	-468.36	2.00	-2.00	0.00
4,100.00	0.00	0.00	4,061.21	-471.56	219.89	-469.94	2.00	-2.00	0.00
End Drop @ 4100.00ft									

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
4,200.00	0.00	0.00	4,161.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,300.00	0.00	0.00	4,261.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,400.00	0.00	0.00	4,361.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,470.79	0.00	0.00	4,432.00	-471.56	219.89	-469.94	0.00	0.00	0.00
<b>Parkman</b>									
4,500.00	0.00	0.00	4,461.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,600.00	0.00	0.00	4,561.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,700.00	0.00	0.00	4,661.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,800.00	0.00	0.00	4,761.21	-471.56	219.89	-469.94	0.00	0.00	0.00
4,866.79	0.00	0.00	4,828.00	-471.56	219.89	-469.94	0.00	0.00	0.00
<b>Sussex</b>									
4,900.00	0.00	0.00	4,861.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,000.00	0.00	0.00	4,961.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,100.00	0.00	0.00	5,061.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,200.00	0.00	0.00	5,161.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,300.00	0.00	0.00	5,261.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,400.00	0.00	0.00	5,361.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,500.00	0.00	0.00	5,461.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,600.00	0.00	0.00	5,561.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,700.00	0.00	0.00	5,661.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,800.00	0.00	0.00	5,761.21	-471.56	219.89	-469.94	0.00	0.00	0.00
5,900.00	0.00	0.00	5,861.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,000.00	0.00	0.00	5,961.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,100.00	0.00	0.00	6,061.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,200.00	0.00	0.00	6,161.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,300.00	0.00	0.00	6,261.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,400.00	0.00	0.00	6,361.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,500.00	0.00	0.00	6,461.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,600.00	0.00	0.00	6,561.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,700.00	0.00	0.00	6,661.21	-471.56	219.89	-469.94	0.00	0.00	0.00
6,753.59	0.00	0.00	6,714.80	-471.56	219.89	-469.94	0.00	0.00	0.00
<b>KOP @ 6753.59ft :: DLS = 8°/100'</b>									
6,800.00	3.71	0.42	6,761.18	-470.06	219.91	-468.44	8.00	8.00	0.00
6,900.00	11.71	0.42	6,860.20	-456.65	220.00	-455.03	8.00	8.00	0.00
7,000.00	19.71	0.42	6,956.38	-429.59	220.20	-427.97	8.00	8.00	0.00
7,100.00	27.71	0.42	7,047.87	-389.41	220.49	-387.78	8.00	8.00	0.00
7,200.00	35.71	0.42	7,132.87	-336.89	220.88	-335.26	8.00	8.00	0.00
7,300.00	43.71	0.42	7,209.73	-273.05	221.34	-271.42	8.00	8.00	0.00
7,373.26	49.57	0.42	7,260.00	-219.81	221.73	-218.18	8.00	8.00	0.00
<b>Sharon Springs</b>									
7,400.00	51.71	0.42	7,276.96	-199.13	221.88	-197.50	8.00	8.00	0.00
7,404.93	52.11	0.42	7,280.00	-195.25	221.91	-193.62	8.00	8.00	0.00
<b>Niobrara</b>									
7,500.00	59.71	0.42	7,333.25	-116.58	222.49	-114.95	8.00	8.00	0.00
7,600.00	67.71	0.42	7,377.50	-27.00	223.14	-25.36	8.00	8.00	0.00
7,700.00	75.71	0.42	7,408.85	67.87	223.83	69.51	8.00	8.00	0.00
7,717.67	77.13	0.42	7,413.00	85.05	223.96	86.69	8.00	8.00	0.00
<b>Nio B</b>									
7,800.00	83.71	0.42	7,426.69	166.18	224.55	167.82	8.00	8.00	0.00
7,880.00	90.11	0.42	7,431.00	246.02	225.14	247.67	8.00	8.00	0.00
<b>End Build @ 7880.00ft - Top of Production</b>									
7,900.00	90.11	0.42	7,430.96	266.02	225.28	267.67	0.00	0.00	0.00
8,000.00	90.11	0.42	7,430.76	366.02	226.01	367.67	0.00	0.00	0.00

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
8,100.00	90.11	0.42	7,430.57	466.02	226.74	467.67	0.00	0.00	0.00	
8,200.00	90.11	0.42	7,430.37	566.01	227.47	567.67	0.00	0.00	0.00	
8,300.00	90.11	0.42	7,430.17	666.01	228.20	667.67	0.00	0.00	0.00	
8,400.00	90.11	0.42	7,429.98	766.01	228.93	767.67	0.00	0.00	0.00	
8,500.00	90.11	0.42	7,429.78	866.01	229.66	867.67	0.00	0.00	0.00	
8,600.00	90.11	0.42	7,429.58	966.00	230.39	967.67	0.00	0.00	0.00	
8,700.00	90.11	0.42	7,429.38	1,066.00	231.12	1,067.67	0.00	0.00	0.00	
8,800.00	90.11	0.42	7,429.19	1,166.00	231.85	1,167.67	0.00	0.00	0.00	
8,900.00	90.11	0.42	7,428.99	1,265.99	232.58	1,267.67	0.00	0.00	0.00	
9,000.00	90.11	0.42	7,428.79	1,365.99	233.32	1,367.67	0.00	0.00	0.00	
9,100.00	90.11	0.42	7,428.60	1,465.99	234.05	1,467.66	0.00	0.00	0.00	
9,200.00	90.11	0.42	7,428.40	1,565.99	234.78	1,567.66	0.00	0.00	0.00	
9,300.00	90.11	0.42	7,428.20	1,665.98	235.51	1,667.66	0.00	0.00	0.00	
9,400.00	90.11	0.42	7,428.01	1,765.98	236.24	1,767.66	0.00	0.00	0.00	
9,500.00	90.11	0.42	7,427.81	1,865.98	236.97	1,867.66	0.00	0.00	0.00	
9,600.00	90.11	0.42	7,427.61	1,965.97	237.70	1,967.66	0.00	0.00	0.00	
9,700.00	90.11	0.42	7,427.41	2,065.97	238.43	2,067.66	0.00	0.00	0.00	
9,800.00	90.11	0.42	7,427.22	2,165.97	239.16	2,167.66	0.00	0.00	0.00	
9,900.00	90.11	0.42	7,427.02	2,265.97	239.89	2,267.66	0.00	0.00	0.00	
10,000.00	90.11	0.42	7,426.82	2,365.96	240.62	2,367.66	0.00	0.00	0.00	
10,100.00	90.11	0.42	7,426.63	2,465.96	241.35	2,467.66	0.00	0.00	0.00	
10,200.00	90.11	0.42	7,426.43	2,565.96	242.08	2,567.66	0.00	0.00	0.00	
10,300.00	90.11	0.42	7,426.23	2,665.95	242.81	2,667.66	0.00	0.00	0.00	
10,400.00	90.11	0.42	7,426.03	2,765.95	243.54	2,767.66	0.00	0.00	0.00	
10,500.00	90.11	0.42	7,425.84	2,865.95	244.27	2,867.66	0.00	0.00	0.00	
10,600.00	90.11	0.42	7,425.64	2,965.95	245.00	2,967.66	0.00	0.00	0.00	
10,700.00	90.11	0.42	7,425.44	3,065.94	245.73	3,067.66	0.00	0.00	0.00	
10,800.00	90.11	0.42	7,425.25	3,165.94	246.46	3,167.66	0.00	0.00	0.00	
10,900.00	90.11	0.42	7,425.05	3,265.94	247.19	3,267.66	0.00	0.00	0.00	
11,000.00	90.11	0.42	7,424.85	3,365.93	247.92	3,367.66	0.00	0.00	0.00	
11,100.00	90.11	0.42	7,424.66	3,465.93	248.65	3,467.66	0.00	0.00	0.00	
11,200.00	90.11	0.42	7,424.46	3,565.93	249.38	3,567.66	0.00	0.00	0.00	
11,300.00	90.11	0.42	7,424.26	3,665.93	250.11	3,667.66	0.00	0.00	0.00	
11,400.00	90.11	0.42	7,424.06	3,765.92	250.84	3,767.66	0.00	0.00	0.00	
11,500.00	90.11	0.42	7,423.87	3,865.92	251.57	3,867.66	0.00	0.00	0.00	
11,600.00	90.11	0.42	7,423.67	3,965.92	252.30	3,967.66	0.00	0.00	0.00	
11,700.00	90.11	0.42	7,423.47	4,065.91	253.03	4,067.66	0.00	0.00	0.00	
11,800.00	90.11	0.42	7,423.28	4,165.91	253.76	4,167.66	0.00	0.00	0.00	
11,900.00	90.11	0.42	7,423.08	4,265.91	254.50	4,267.66	0.00	0.00	0.00	
12,000.00	90.11	0.42	7,422.88	4,365.91	255.23	4,367.66	0.00	0.00	0.00	
12,100.00	90.11	0.42	7,422.68	4,465.90	255.96	4,467.66	0.00	0.00	0.00	
12,200.00	90.11	0.42	7,422.49	4,565.90	256.69	4,567.66	0.00	0.00	0.00	
12,300.00	90.11	0.42	7,422.29	4,665.90	257.42	4,667.66	0.00	0.00	0.00	
12,400.00	90.11	0.42	7,422.09	4,765.89	258.15	4,767.66	0.00	0.00	0.00	
12,500.00	90.11	0.42	7,421.90	4,865.89	258.88	4,867.66	0.00	0.00	0.00	
12,600.00	90.11	0.42	7,421.70	4,965.89	259.61	4,967.66	0.00	0.00	0.00	
12,700.00	90.11	0.42	7,421.50	5,065.89	260.34	5,067.66	0.00	0.00	0.00	
12,800.00	90.11	0.42	7,421.31	5,165.88	261.07	5,167.66	0.00	0.00	0.00	
12,900.00	90.11	0.42	7,421.11	5,265.88	261.80	5,267.66	0.00	0.00	0.00	
13,000.00	90.11	0.42	7,420.91	5,365.88	262.53	5,367.66	0.00	0.00	0.00	
13,100.00	90.11	0.42	7,420.71	5,465.87	263.26	5,467.66	0.00	0.00	0.00	
13,200.00	90.11	0.42	7,420.52	5,565.87	263.99	5,567.66	0.00	0.00	0.00	
13,300.00	90.11	0.42	7,420.32	5,665.87	264.72	5,667.66	0.00	0.00	0.00	
13,400.00	90.11	0.42	7,420.12	5,765.87	265.45	5,767.66	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well MAB 15-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
13,500.00	90.11	0.42	7,419.93	5,865.86	266.18	5,867.66	0.00	0.00	0.00	
13,600.00	90.11	0.42	7,419.73	5,965.86	266.91	5,967.66	0.00	0.00	0.00	
13,700.00	90.11	0.42	7,419.53	6,065.86	267.64	6,067.66	0.00	0.00	0.00	
13,800.00	90.11	0.42	7,419.33	6,165.85	268.37	6,167.66	0.00	0.00	0.00	
13,900.00	90.11	0.42	7,419.14	6,265.85	269.10	6,267.66	0.00	0.00	0.00	
14,000.00	90.11	0.42	7,418.94	6,365.85	269.83	6,367.66	0.00	0.00	0.00	
14,100.00	90.11	0.42	7,418.74	6,465.85	270.56	6,467.66	0.00	0.00	0.00	
14,200.00	90.11	0.42	7,418.55	6,565.84	271.29	6,567.66	0.00	0.00	0.00	
14,300.00	90.11	0.42	7,418.35	6,665.84	272.02	6,667.65	0.00	0.00	0.00	
14,400.00	90.11	0.42	7,418.15	6,765.84	272.75	6,767.65	0.00	0.00	0.00	
14,500.00	90.11	0.42	7,417.96	6,865.83	273.48	6,867.65	0.00	0.00	0.00	
14,600.00	90.11	0.42	7,417.76	6,965.83	274.21	6,967.65	0.00	0.00	0.00	
14,700.00	90.11	0.42	7,417.56	7,065.83	274.94	7,067.65	0.00	0.00	0.00	
14,800.00	90.11	0.42	7,417.36	7,165.83	275.68	7,167.65	0.00	0.00	0.00	
14,900.00	90.11	0.42	7,417.17	7,265.82	276.41	7,267.65	0.00	0.00	0.00	
15,000.00	90.11	0.42	7,416.97	7,365.82	277.14	7,367.65	0.00	0.00	0.00	
15,100.00	90.11	0.42	7,416.77	7,465.82	277.87	7,467.65	0.00	0.00	0.00	
15,200.00	90.11	0.42	7,416.58	7,565.81	278.60	7,567.65	0.00	0.00	0.00	
15,300.00	90.11	0.42	7,416.38	7,665.81	279.33	7,667.65	0.00	0.00	0.00	
15,400.00	90.11	0.42	7,416.18	7,765.81	280.06	7,767.65	0.00	0.00	0.00	
15,500.00	90.11	0.42	7,415.98	7,865.81	280.79	7,867.65	0.00	0.00	0.00	
15,600.00	90.11	0.42	7,415.79	7,965.80	281.52	7,967.65	0.00	0.00	0.00	
15,700.00	90.11	0.42	7,415.59	8,065.80	282.25	8,067.65	0.00	0.00	0.00	
15,800.00	90.11	0.42	7,415.39	8,165.80	282.98	8,167.65	0.00	0.00	0.00	
15,900.00	90.11	0.42	7,415.20	8,265.79	283.71	8,267.65	0.00	0.00	0.00	
16,000.00	90.11	0.42	7,415.00	8,365.79	284.44	8,367.65	0.00	0.00	0.00	
16,100.00	90.11	0.42	7,414.80	8,465.79	285.17	8,467.65	0.00	0.00	0.00	
16,200.00	90.11	0.42	7,414.61	8,565.79	285.90	8,567.65	0.00	0.00	0.00	
16,300.00	90.11	0.42	7,414.41	8,665.78	286.63	8,667.65	0.00	0.00	0.00	
16,400.00	90.11	0.42	7,414.21	8,765.78	287.36	8,767.65	0.00	0.00	0.00	
16,500.00	90.11	0.42	7,414.01	8,865.78	288.09	8,867.65	0.00	0.00	0.00	
16,600.00	90.11	0.42	7,413.82	8,965.77	288.82	8,967.65	0.00	0.00	0.00	
16,700.00	90.11	0.42	7,413.62	9,065.77	289.55	9,067.65	0.00	0.00	0.00	
16,800.00	90.11	0.42	7,413.42	9,165.77	290.28	9,167.65	0.00	0.00	0.00	
16,900.00	90.11	0.42	7,413.23	9,265.77	291.01	9,267.65	0.00	0.00	0.00	
17,000.00	90.11	0.42	7,413.03	9,365.76	291.74	9,367.65	0.00	0.00	0.00	
17,100.00	90.11	0.42	7,412.83	9,465.76	292.47	9,467.65	0.00	0.00	0.00	
17,200.00	90.11	0.42	7,412.63	9,565.76	293.20	9,567.65	0.00	0.00	0.00	
17,300.00	90.11	0.42	7,412.44	9,665.75	293.93	9,667.65	0.00	0.00	0.00	
17,400.00	90.11	0.42	7,412.24	9,765.75	294.66	9,767.65	0.00	0.00	0.00	
17,500.00	90.11	0.42	7,412.04	9,865.75	295.39	9,867.65	0.00	0.00	0.00	
17,600.00	90.11	0.42	7,411.85	9,965.75	296.12	9,967.65	0.00	0.00	0.00	
17,700.00	90.11	0.42	7,411.65	10,065.74	296.86	10,067.65	0.00	0.00	0.00	
17,800.00	90.11	0.42	7,411.45	10,165.74	297.59	10,167.65	0.00	0.00	0.00	
17,900.00	90.11	0.42	7,411.25	10,265.74	298.32	10,267.65	0.00	0.00	0.00	
18,000.00	90.11	0.42	7,411.06	10,365.73	299.05	10,367.65	0.00	0.00	0.00	
18,029.29	90.11	0.42	7,411.00	10,395.02	299.26	10,396.93	0.00	0.00	0.00	
TD Well @ 18029.29ft										



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well MAB 15-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 MAB 15-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MAB 15-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,510.60	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,880.00	7,431.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,691.83	1,679.00	Fox Hills				
4,470.79	4,432.00	Parkman				
4,866.79	4,828.00	Sussex				
7,373.26	7,260.00	Sharon Springs				
7,404.93	7,280.00	Niobrara				
7,717.67	7,413.00	Nio B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
850.00	847.54	-42.62	19.87	End Nudge @ 850.00ft	
3,650.00	3,613.06	-439.60	204.99	Begin Drop @ 3650.00ft	
4,100.00	4,061.21	-471.56	219.89	End Drop @ 4100.00ft	
6,753.59	6,714.80	-471.56	219.89	KOP @ 6753.59ft :: DLS = 8"/100'	
7,880.00	7,431.00	246.02	225.14	End Build @ 7880.00ft	
18,029.29	7,411.00	10,395.02	299.26	TD Well @ 18029.29ft	