

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

5N-67W-18 DAMORE 5-18HZ PAD

DAMORE 18-2HZ

Plan A

Plan: Permit Rev-3

SHL Lat/Long: 40.400981°/-104.942314°

Survey Program: MWD+IFR+MSA

Standard Planning Report

31 December, 2018

Project: WELD-NAD83-UTMFT13N
Site: 5N-67W-18 DAMORE 5-18HZ PAD
Well: DAMORE 18-2HZ
Wellbore: Plan A
Design: Permit Rev-3

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1523.46	9-5/8
7184.00	7797.01	5-1/2

WELL DETAILS: DAMORE 18-2HZ

GL = 4922.00

RKB = 17' @ 4939.00usft (Drilling Rig)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	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	1546.67	19.45	263.30	1521.91	-25.43	-216.49	1.50	263.30	-216.54	
4	4346.67	19.45	263.30	4162.12	-134.21	-1142.48	0.00	0.00	-1142.74	
5	5319.17	0.00	0.00	5116.05	-153.28	-1304.85	2.00	180.00	-1305.14	
6	6670.92	0.00	0.00	6467.80	-153.28	-1304.85	0.00	0.00	-1305.14	
7	7797.01	90.09	89.89	7184.00	-151.86	-587.57	8.00	89.89	-587.86	
8	17668.73	90.09	89.89	7169.00	-132.23	9284.12	0.00	0.00	9283.85	DAMORE 18-2HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
DAMORE 18-2HZ_SHL	0.00	0.00	0.00	40.400981	-104.942314
DAMORE 18-2HZ_BHL	7169.00	-132.23	9284.12	40.400613	-104.908967

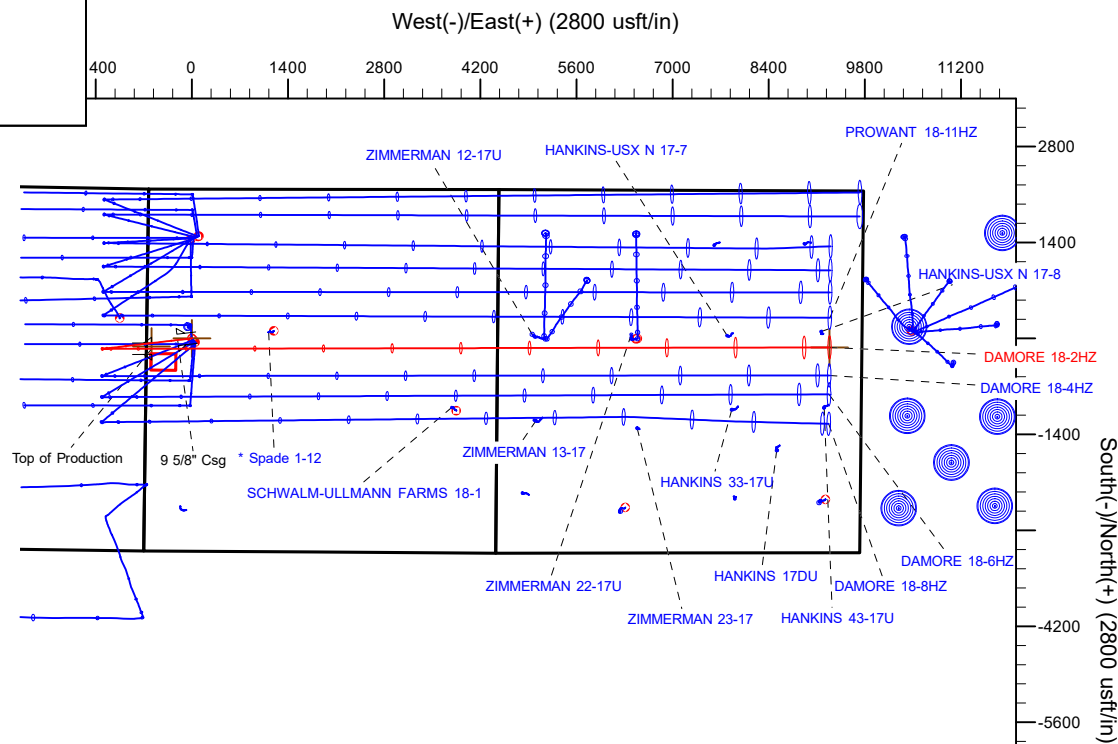
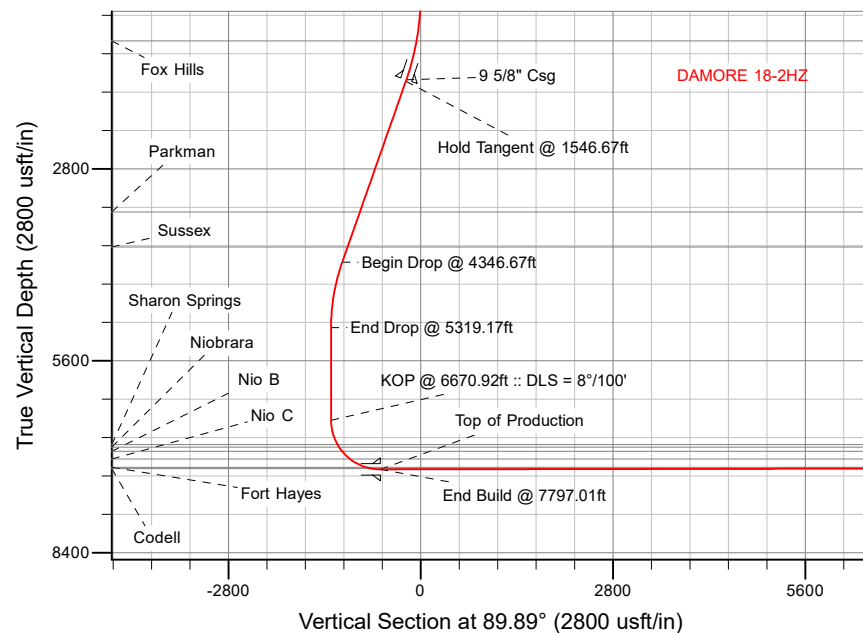
SHL
2178' FNL
661' FWL

HEEL
2330' FNL
75' FWL

TOE
2285' FNL
470' FEL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
932.00	935.68	Fox Hills
3428.00	3568.12	Parkman
3939.00	4110.05	Sussex
6825.00	7044.88	Sharon Springs
6861.00	7087.16	Niobrara
6923.00	7164.21	Nio B
7034.00	7323.90	Nio C
7153.00	7584.44	Fort Hayes
7175.00	7682.28	Codell



Plan: Permit Rev-3 (DAMORE 18-2HZ/Plan A)

Date: 12/31/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	5N-67W-18 DAMORE 5-18HZ PAD			
Site Position:		Northing:	14,672,768.45 usft	Latitude: 40.401012
From:	Lat/Long	Easting:	1,656,467.04 usft	Longitude: -104.942349
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.04 °

Well	DAMORE 18-2HZ			
Well Position	+N/-S	-11.29 usft	Northing:	14,672,757.17 usft
	+E/-W	9.74 usft	Easting:	1,656,476.79 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Ground Level: 4,922.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/21/2018	8.17	66.80	52,229.26782448

Design	Permit Rev-3			
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	89.89

Plan Survey Tool Program	Date	12/30/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-3 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	17,668.73	Permit Rev-3 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	
1,546.67	19.45	263.30	1,521.91	-25.43	-216.49	1.50	1.50	0.00	263.30	
4,346.67	19.45	263.30	4,162.12	-134.21	-1,142.48	0.00	0.00	0.00	0.00	
5,319.17	0.00	0.00	5,116.05	-153.28	-1,304.85	2.00	-2.00	9.94	180.00	
6,670.92	0.00	0.00	6,467.80	-153.28	-1,304.85	0.00	0.00	0.00	0.00	
7,797.01	90.09	89.89	7,184.00	-151.86	-587.57	8.00	8.00	7.98	89.89	
17,668.73	90.09	89.89	7,169.00	-132.23	9,284.12	0.00	0.00	0.00	0.00	DAMORE 18-2HZ_BH

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	263.30	300.00	-0.04	-0.33	-0.33	1.50	1.50	0.00
400.00	2.25	263.30	399.96	-0.34	-2.92	-2.93	1.50	1.50	0.00
500.00	3.75	263.30	499.82	-0.95	-8.12	-8.12	1.50	1.50	0.00
600.00	5.25	263.30	599.51	-1.87	-15.91	-15.92	1.50	1.50	0.00
700.00	6.75	263.30	698.96	-3.09	-26.30	-26.30	1.50	1.50	0.00
800.00	8.25	263.30	798.10	-4.61	-39.26	-39.27	1.50	1.50	0.00
900.00	9.75	263.30	896.87	-6.44	-54.80	-54.81	1.50	1.50	0.00
935.68	10.29	263.30	932.00	-7.16	-60.96	-60.97	1.50	1.50	0.00
Fox Hills									
1,000.00	11.25	263.30	995.19	-8.56	-72.89	-72.91	1.50	1.50	0.00
1,100.00	12.75	263.30	1,093.00	-10.99	-93.54	-93.56	1.50	1.50	0.00
1,200.00	14.25	263.30	1,190.24	-13.71	-116.73	-116.75	1.50	1.50	0.00
1,300.00	15.75	263.30	1,286.83	-16.73	-142.43	-142.46	1.50	1.50	0.00
1,400.00	17.25	263.30	1,382.71	-20.05	-170.64	-170.68	1.50	1.50	0.00
1,500.00	18.75	263.30	1,477.81	-23.65	-201.33	-201.37	1.50	1.50	0.00
1,523.46	19.10	263.30	1,500.00	-24.54	-208.88	-208.93	1.50	1.50	0.00
9 5/8" Csg									
1,546.67	19.45	263.30	1,521.91	-25.43	-216.49	-216.54	1.50	1.50	0.00
Hold Tangent @ 1546.67ft									
1,600.00	19.45	263.30	1,572.20	-27.50	-234.13	-234.18	0.00	0.00	0.00
1,700.00	19.45	263.30	1,666.49	-31.39	-267.20	-267.26	0.00	0.00	0.00
1,800.00	19.45	263.30	1,760.78	-35.27	-300.27	-300.34	0.00	0.00	0.00
1,900.00	19.45	263.30	1,855.08	-39.16	-333.34	-333.42	0.00	0.00	0.00
2,000.00	19.45	263.30	1,949.37	-43.04	-366.42	-366.50	0.00	0.00	0.00
2,100.00	19.45	263.30	2,043.66	-46.93	-399.49	-399.58	0.00	0.00	0.00
2,200.00	19.45	263.30	2,137.95	-50.81	-432.56	-432.65	0.00	0.00	0.00
2,300.00	19.45	263.30	2,232.25	-54.70	-465.63	-465.73	0.00	0.00	0.00
2,400.00	19.45	263.30	2,326.54	-58.58	-498.70	-498.81	0.00	0.00	0.00
2,500.00	19.45	263.30	2,420.83	-62.47	-531.77	-531.89	0.00	0.00	0.00
2,600.00	19.45	263.30	2,515.13	-66.35	-564.84	-564.97	0.00	0.00	0.00
2,700.00	19.45	263.30	2,609.42	-70.24	-597.91	-598.05	0.00	0.00	0.00
2,800.00	19.45	263.30	2,703.71	-74.12	-630.98	-631.12	0.00	0.00	0.00
2,900.00	19.45	263.30	2,798.01	-78.01	-664.05	-664.20	0.00	0.00	0.00
3,000.00	19.45	263.30	2,892.30	-81.89	-697.13	-697.28	0.00	0.00	0.00
3,100.00	19.45	263.30	2,986.59	-85.78	-730.20	-730.36	0.00	0.00	0.00
3,200.00	19.45	263.30	3,080.89	-89.66	-763.27	-763.44	0.00	0.00	0.00
3,300.00	19.45	263.30	3,175.18	-93.55	-796.34	-796.52	0.00	0.00	0.00
3,400.00	19.45	263.30	3,269.47	-97.43	-829.41	-829.59	0.00	0.00	0.00
3,500.00	19.45	263.30	3,363.77	-101.32	-862.48	-862.67	0.00	0.00	0.00
3,568.12	19.45	263.30	3,428.00	-103.96	-885.01	-885.21	0.00	0.00	0.00
Parkman									
3,600.00	19.45	263.30	3,458.06	-105.20	-895.55	-895.75	0.00	0.00	0.00
3,700.00	19.45	263.30	3,552.35	-109.09	-928.62	-928.83	0.00	0.00	0.00
3,800.00	19.45	263.30	3,646.65	-112.97	-961.69	-961.91	0.00	0.00	0.00
3,900.00	19.45	263.30	3,740.94	-116.86	-994.76	-994.99	0.00	0.00	0.00
4,000.00	19.45	263.30	3,835.23	-120.74	-1,027.84	-1,028.07	0.00	0.00	0.00
4,100.00	19.45	263.30	3,929.53	-124.63	-1,060.91	-1,061.14	0.00	0.00	0.00
4,110.05	19.45	263.30	3,939.00	-125.02	-1,064.23	-1,064.47	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
Sussex									
4,200.00	19.45	263.30	4,023.82	-128.51	-1,093.98	-1,094.22	0.00	0.00	0.00
4,300.00	19.45	263.30	4,118.11	-132.40	-1,127.05	-1,127.30	0.00	0.00	0.00
4,346.67	19.45	263.30	4,162.12	-134.21	-1,142.48	-1,142.74	0.00	0.00	0.00
Begin Drop @ 4346.67ft									
4,400.00	18.38	263.30	4,212.57	-136.23	-1,159.65	-1,159.91	2.00	-2.00	0.00
4,500.00	16.38	263.30	4,308.00	-139.71	-1,189.32	-1,189.59	2.00	-2.00	0.00
4,600.00	14.38	263.30	4,404.41	-142.81	-1,215.67	-1,215.94	2.00	-2.00	0.00
4,700.00	12.38	263.30	4,501.69	-145.51	-1,238.66	-1,238.93	2.00	-2.00	0.00
4,800.00	10.38	263.30	4,599.72	-147.81	-1,258.26	-1,258.54	2.00	-2.00	0.00
4,900.00	8.38	263.30	4,698.37	-149.71	-1,274.45	-1,274.73	2.00	-2.00	0.00
5,000.00	6.38	263.30	4,797.54	-151.21	-1,287.21	-1,287.50	2.00	-2.00	0.00
5,100.00	4.38	263.30	4,897.09	-152.31	-1,296.53	-1,296.82	2.00	-2.00	0.00
5,200.00	2.38	263.30	4,996.91	-153.00	-1,302.39	-1,302.68	2.00	-2.00	0.00
5,300.00	0.38	263.30	5,096.88	-153.28	-1,304.79	-1,305.08	2.00	-2.00	0.00
5,319.17	0.00	0.00	5,116.05	-153.28	-1,304.85	-1,305.14	2.00	-2.00	504.52
End Drop @ 5319.17ft									
5,400.00	0.00	0.00	5,196.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
5,500.00	0.00	0.00	5,296.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
5,600.00	0.00	0.00	5,396.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
5,700.00	0.00	0.00	5,496.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
5,800.00	0.00	0.00	5,596.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
5,900.00	0.00	0.00	5,696.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,000.00	0.00	0.00	5,796.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,100.00	0.00	0.00	5,896.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,200.00	0.00	0.00	5,996.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,300.00	0.00	0.00	6,096.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,400.00	0.00	0.00	6,196.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,500.00	0.00	0.00	6,296.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,600.00	0.00	0.00	6,396.88	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
6,670.92	0.00	0.00	6,467.80	-153.28	-1,304.85	-1,305.14	0.00	0.00	0.00
KOP @ 6670.92ft :: DLS = 8°/100'									
6,700.00	2.33	89.89	6,496.87	-153.28	-1,304.26	-1,304.55	8.00	8.00	309.10
6,800.00	10.33	89.89	6,596.18	-153.26	-1,293.25	-1,293.54	8.00	8.00	0.00
6,900.00	18.33	89.89	6,692.99	-153.21	-1,268.53	-1,268.82	8.00	8.00	0.00
7,000.00	26.33	89.89	6,785.42	-153.14	-1,230.57	-1,230.86	8.00	8.00	0.00
7,044.88	29.92	89.89	6,825.00	-153.10	-1,209.42	-1,209.71	8.00	8.00	0.00
Sharon Springs									
7,087.16	33.30	89.89	6,861.00	-153.05	-1,187.26	-1,187.55	8.00	8.00	0.00
Niobrara									
7,100.00	34.33	89.89	6,871.67	-153.04	-1,180.12	-1,180.41	8.00	8.00	0.00
7,164.21	39.46	89.89	6,923.00	-152.96	-1,141.58	-1,141.88	8.00	8.00	0.00
Nio B									
7,200.00	42.33	89.89	6,950.05	-152.91	-1,118.15	-1,118.45	8.00	8.00	0.00
7,300.00	50.33	89.89	7,019.05	-152.77	-1,045.88	-1,046.18	8.00	8.00	0.00
7,323.90	52.24	89.89	7,034.00	-152.73	-1,027.24	-1,027.53	8.00	8.00	0.00
Nio C									
7,400.00	58.33	89.89	7,077.32	-152.61	-964.72	-965.01	8.00	8.00	0.00
7,500.00	66.33	89.89	7,123.73	-152.43	-876.23	-876.52	8.00	8.00	0.00
7,584.44	73.08	89.89	7,153.00	-152.28	-797.07	-797.36	8.00	8.00	0.00
Fort Hayes									
7,600.00	74.33	89.89	7,157.37	-152.25	-782.14	-782.43	8.00	8.00	0.00
7,682.28	80.91	89.89	7,175.00	-152.09	-701.82	-702.11	8.00	8.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
Codell									
7,700.00	82.33	89.89	7,177.58	-152.05	-684.29	-684.58	8.00	8.00	0.00
7,797.01	90.09	89.89	7,184.00	-151.86	-587.57	-587.86	8.00	8.00	0.00
End Build @ 7797.01ft - Top of Production									
7,800.00	90.09	89.89	7,183.99	-151.85	-584.58	-584.87	0.00	0.00	0.00
7,900.00	90.09	89.89	7,183.84	-151.65	-484.58	-484.87	0.00	0.00	0.00
8,000.00	90.09	89.89	7,183.69	-151.45	-384.58	-384.87	0.00	0.00	0.00
8,100.00	90.09	89.89	7,183.54	-151.26	-284.58	-284.87	0.00	0.00	0.00
8,200.00	90.09	89.89	7,183.38	-151.06	-184.58	-184.87	0.00	0.00	0.00
8,300.00	90.09	89.89	7,183.23	-150.86	-84.58	-84.87	0.00	0.00	0.00
8,400.00	90.09	89.89	7,183.08	-150.66	15.42	15.13	0.00	0.00	0.00
8,500.00	90.09	89.89	7,182.93	-150.46	115.42	115.13	0.00	0.00	0.00
8,600.00	90.09	89.89	7,182.78	-150.26	215.42	215.13	0.00	0.00	0.00
8,700.00	90.09	89.89	7,182.62	-150.06	315.42	315.13	0.00	0.00	0.00
8,800.00	90.09	89.89	7,182.47	-149.86	415.42	415.13	0.00	0.00	0.00
8,900.00	90.09	89.89	7,182.32	-149.67	515.42	515.13	0.00	0.00	0.00
9,000.00	90.09	89.89	7,182.17	-149.47	615.42	615.13	0.00	0.00	0.00
9,100.00	90.09	89.89	7,182.02	-149.27	715.42	715.13	0.00	0.00	0.00
9,200.00	90.09	89.89	7,181.86	-149.07	815.42	815.13	0.00	0.00	0.00
9,300.00	90.09	89.89	7,181.71	-148.87	915.42	915.13	0.00	0.00	0.00
9,400.00	90.09	89.89	7,181.56	-148.67	1,015.42	1,015.13	0.00	0.00	0.00
9,500.00	90.09	89.89	7,181.41	-148.47	1,115.42	1,115.13	0.00	0.00	0.00
9,600.00	90.09	89.89	7,181.26	-148.27	1,215.42	1,215.13	0.00	0.00	0.00
9,700.00	90.09	89.89	7,181.10	-148.07	1,315.42	1,315.13	0.00	0.00	0.00
9,800.00	90.09	89.89	7,180.95	-147.88	1,415.42	1,415.13	0.00	0.00	0.00
9,900.00	90.09	89.89	7,180.80	-147.68	1,515.42	1,515.13	0.00	0.00	0.00
10,000.00	90.09	89.89	7,180.65	-147.48	1,615.42	1,615.13	0.00	0.00	0.00
10,100.00	90.09	89.89	7,180.50	-147.28	1,715.42	1,715.13	0.00	0.00	0.00
10,200.00	90.09	89.89	7,180.35	-147.08	1,815.42	1,815.13	0.00	0.00	0.00
10,300.00	90.09	89.89	7,180.19	-146.88	1,915.42	1,915.13	0.00	0.00	0.00
10,400.00	90.09	89.89	7,180.04	-146.68	2,015.42	2,015.13	0.00	0.00	0.00
10,500.00	90.09	89.89	7,179.89	-146.48	2,115.42	2,115.13	0.00	0.00	0.00
10,600.00	90.09	89.89	7,179.74	-146.29	2,215.42	2,215.13	0.00	0.00	0.00
10,700.00	90.09	89.89	7,179.59	-146.09	2,315.42	2,315.13	0.00	0.00	0.00
10,800.00	90.09	89.89	7,179.43	-145.89	2,415.41	2,415.13	0.00	0.00	0.00
10,900.00	90.09	89.89	7,179.28	-145.69	2,515.41	2,515.13	0.00	0.00	0.00
11,000.00	90.09	89.89	7,179.13	-145.49	2,615.41	2,615.13	0.00	0.00	0.00
11,100.00	90.09	89.89	7,178.98	-145.29	2,715.41	2,715.13	0.00	0.00	0.00
11,200.00	90.09	89.89	7,178.83	-145.09	2,815.41	2,815.13	0.00	0.00	0.00
11,300.00	90.09	89.89	7,178.67	-144.89	2,915.41	2,915.13	0.00	0.00	0.00
11,400.00	90.09	89.89	7,178.52	-144.69	3,015.41	3,015.13	0.00	0.00	0.00
11,500.00	90.09	89.89	7,178.37	-144.50	3,115.41	3,115.13	0.00	0.00	0.00
11,600.00	90.09	89.89	7,178.22	-144.30	3,215.41	3,215.13	0.00	0.00	0.00
11,700.00	90.09	89.89	7,178.07	-144.10	3,315.41	3,315.13	0.00	0.00	0.00
11,800.00	90.09	89.89	7,177.91	-143.90	3,415.41	3,415.13	0.00	0.00	0.00
11,900.00	90.09	89.89	7,177.76	-143.70	3,515.41	3,515.13	0.00	0.00	0.00
12,000.00	90.09	89.89	7,177.61	-143.50	3,615.41	3,615.13	0.00	0.00	0.00
12,100.00	90.09	89.89	7,177.46	-143.30	3,715.41	3,715.13	0.00	0.00	0.00
12,200.00	90.09	89.89	7,177.31	-143.10	3,815.41	3,815.13	0.00	0.00	0.00
12,300.00	90.09	89.89	7,177.16	-142.90	3,915.41	3,915.13	0.00	0.00	0.00
12,400.00	90.09	89.89	7,177.00	-142.71	4,015.41	4,015.13	0.00	0.00	0.00
12,500.00	90.09	89.89	7,176.85	-142.51	4,115.41	4,115.13	0.00	0.00	0.00
12,600.00	90.09	89.89	7,176.70	-142.31	4,215.41	4,215.13	0.00	0.00	0.00
12,700.00	90.09	89.89	7,176.55	-142.11	4,315.41	4,315.13	0.00	0.00	0.00

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
12,800.00	90.09	89.89	7,176.40	-141.91	4,415.41	4,415.13	0.00	0.00	0.00
12,900.00	90.09	89.89	7,176.24	-141.71	4,515.41	4,515.13	0.00	0.00	0.00
13,000.00	90.09	89.89	7,176.09	-141.51	4,615.41	4,615.13	0.00	0.00	0.00
13,100.00	90.09	89.89	7,175.94	-141.31	4,715.41	4,715.13	0.00	0.00	0.00
13,200.00	90.09	89.89	7,175.79	-141.12	4,815.41	4,815.13	0.00	0.00	0.00
13,300.00	90.09	89.89	7,175.64	-140.92	4,915.41	4,915.13	0.00	0.00	0.00
13,400.00	90.09	89.89	7,175.48	-140.72	5,015.41	5,015.13	0.00	0.00	0.00
13,500.00	90.09	89.89	7,175.33	-140.52	5,115.41	5,115.13	0.00	0.00	0.00
13,600.00	90.09	89.89	7,175.18	-140.32	5,215.41	5,215.13	0.00	0.00	0.00
13,700.00	90.09	89.89	7,175.03	-140.12	5,315.41	5,315.13	0.00	0.00	0.00
13,800.00	90.09	89.89	7,174.88	-139.92	5,415.41	5,415.13	0.00	0.00	0.00
13,900.00	90.09	89.89	7,174.72	-139.72	5,515.41	5,515.13	0.00	0.00	0.00
14,000.00	90.09	89.89	7,174.57	-139.52	5,615.40	5,615.13	0.00	0.00	0.00
14,100.00	90.09	89.89	7,174.42	-139.33	5,715.40	5,715.13	0.00	0.00	0.00
14,200.00	90.09	89.89	7,174.27	-139.13	5,815.40	5,815.13	0.00	0.00	0.00
14,300.00	90.09	89.89	7,174.12	-138.93	5,915.40	5,915.13	0.00	0.00	0.00
14,400.00	90.09	89.89	7,173.97	-138.73	6,015.40	6,015.13	0.00	0.00	0.00
14,500.00	90.09	89.89	7,173.81	-138.53	6,115.40	6,115.13	0.00	0.00	0.00
14,600.00	90.09	89.89	7,173.66	-138.33	6,215.40	6,215.13	0.00	0.00	0.00
14,700.00	90.09	89.89	7,173.51	-138.13	6,315.40	6,315.13	0.00	0.00	0.00
14,800.00	90.09	89.89	7,173.36	-137.93	6,415.40	6,415.13	0.00	0.00	0.00
14,900.00	90.09	89.89	7,173.21	-137.74	6,515.40	6,515.13	0.00	0.00	0.00
15,000.00	90.09	89.89	7,173.05	-137.54	6,615.40	6,615.13	0.00	0.00	0.00
15,100.00	90.09	89.89	7,172.90	-137.34	6,715.40	6,715.13	0.00	0.00	0.00
15,200.00	90.09	89.89	7,172.75	-137.14	6,815.40	6,815.13	0.00	0.00	0.00
15,300.00	90.09	89.89	7,172.60	-136.94	6,915.40	6,915.13	0.00	0.00	0.00
15,400.00	90.09	89.89	7,172.45	-136.74	7,015.40	7,015.13	0.00	0.00	0.00
15,500.00	90.09	89.89	7,172.29	-136.54	7,115.40	7,115.13	0.00	0.00	0.00
15,600.00	90.09	89.89	7,172.14	-136.34	7,215.40	7,215.12	0.00	0.00	0.00
15,700.00	90.09	89.89	7,171.99	-136.14	7,315.40	7,315.12	0.00	0.00	0.00
15,800.00	90.09	89.89	7,171.84	-135.95	7,415.40	7,415.12	0.00	0.00	0.00
15,900.00	90.09	89.89	7,171.69	-135.75	7,515.40	7,515.12	0.00	0.00	0.00
16,000.00	90.09	89.89	7,171.54	-135.55	7,615.40	7,615.12	0.00	0.00	0.00
16,100.00	90.09	89.89	7,171.38	-135.35	7,715.40	7,715.12	0.00	0.00	0.00
16,200.00	90.09	89.89	7,171.23	-135.15	7,815.40	7,815.12	0.00	0.00	0.00
16,300.00	90.09	89.89	7,171.08	-134.95	7,915.40	7,915.12	0.00	0.00	0.00
16,400.00	90.09	89.89	7,170.93	-134.75	8,015.40	8,015.12	0.00	0.00	0.00
16,500.00	90.09	89.89	7,170.78	-134.55	8,115.40	8,115.12	0.00	0.00	0.00
16,600.00	90.09	89.89	7,170.62	-134.35	8,215.40	8,215.12	0.00	0.00	0.00
16,700.00	90.09	89.89	7,170.47	-134.16	8,315.40	8,315.12	0.00	0.00	0.00
16,800.00	90.09	89.89	7,170.32	-133.96	8,415.40	8,415.12	0.00	0.00	0.00
16,900.00	90.09	89.89	7,170.17	-133.76	8,515.40	8,515.12	0.00	0.00	0.00
17,000.00	90.09	89.89	7,170.02	-133.56	8,615.40	8,615.12	0.00	0.00	0.00
17,100.00	90.09	89.89	7,169.86	-133.36	8,715.40	8,715.12	0.00	0.00	0.00
17,200.00	90.09	89.89	7,169.71	-133.16	8,815.40	8,815.12	0.00	0.00	0.00
17,300.00	90.09	89.89	7,169.56	-132.96	8,915.39	8,915.12	0.00	0.00	0.00
17,400.00	90.09	89.89	7,169.41	-132.76	9,015.39	9,015.12	0.00	0.00	0.00
17,500.00	90.09	89.89	7,169.26	-132.57	9,115.39	9,115.12	0.00	0.00	0.00
17,600.00	90.09	89.89	7,169.10	-132.37	9,215.39	9,215.12	0.00	0.00	0.00
17,668.73	90.09	89.89	7,169.00	-132.23	9,284.12	9,283.85	0.00	0.00	0.00

TD Well @ 17668.73ft

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4939.00usft (Drilling Rig)
Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,797.01	7,184.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
935.68	932.00	Fox Hills				
3,568.12	3,428.00	Parkman				
4,110.05	3,939.00	Sussex				
7,044.88	6,825.00	Sharon Springs				
7,087.16	6,861.00	Niobrara				
7,164.21	6,923.00	Nio B				
7,323.90	7,034.00	Nio C				
7,584.44	7,153.00	Fort Hayes				
7,682.28	7,175.00	Codell				

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	
1,546.67	1,521.91	-25.43	-216.49	Hold Tangent @ 1546.67ft	
4,346.67	4,162.12	-134.21	-1,142.48	Begin Drop @ 4346.67ft	
5,319.17	5,116.05	-153.28	-1,304.85	End Drop @ 5319.17ft	
6,670.92	6,467.80	-153.28	-1,304.85	KOP @ 6670.92ft :: DLS = 8"/100'	
7,797.01	7,184.00	-151.86	-587.57	End Build @ 7797.01ft	
17,668.73	7,169.00	-132.23	9,284.12	TD Well @ 17668.73ft	