

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

DAMORE 18-1HZ

Plan A

Plan: Permit Rev-5

Standard Planning Report

21 January, 2019

Project: WELD-NAD83-UTMFT13N
Site: 5N-67W-18 DAMORE 5-18HZ PAD
Well: DAMORE 18-1HZ
Wellbore: Plan A
Design: Permit Rev-5

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1508.79	9-5/8
6883.00	7177.46	5-1/2

WELL DETAILS: DAMORE 18-1HZ
GL = 4922.00
RKB = 17' @ 4939.00usft (Drilling Rig)

SECTION DETAILS

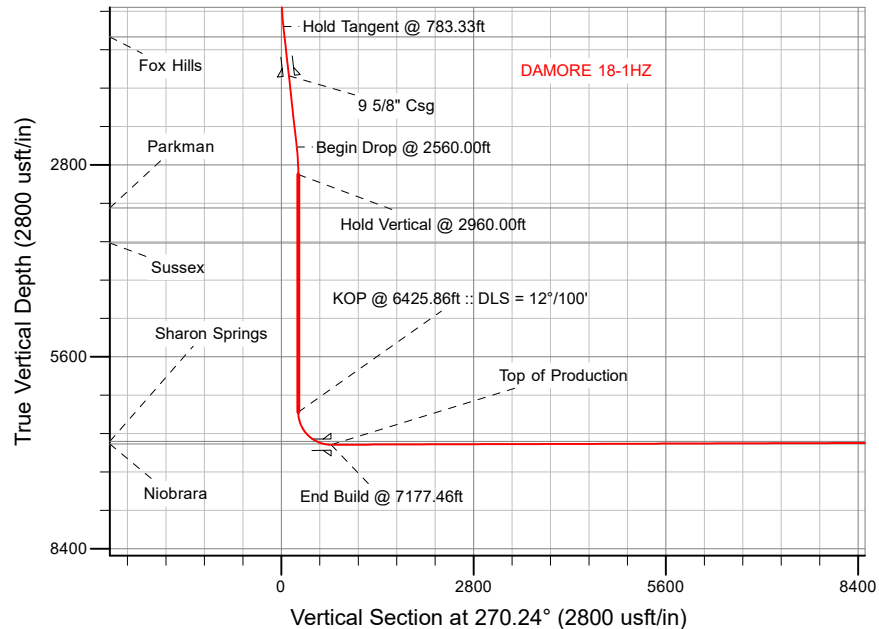
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	783.33	8.00	308.40	781.60	23.09	-29.13	1.50	308.40	29.23	
4	2560.00	8.00	308.40	2540.98	176.68	-222.91	0.00	0.00	223.65	
5	2960.00	0.00	0.00	2939.68	194.00	-244.76	2.00	180.00	245.57	
6	6425.86	0.00	0.00	6405.54	194.00	-244.76	0.00	0.00	245.57	
7	7177.46	90.19	270.24	6883.00	195.98	-723.82	12.00	270.24	724.63	
8	20049.70	90.19	270.24	6840.00	249.42	-13595.88	0.00	0.00	13596.81	DAMORE 18-1HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
DAMORE 18-1HZ_SHL	0.00	0.00	0.00	40.401012	-104.942349
DAMORE 18-1HZ_BHL	6840.00	249.42	-13595.88	40.401687	-104.991184

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
932.00	935.21	Fox Hills
3428.00	3448.32	Parkman
3939.00	3959.32	Sussex
6834.00	6957.64	Sharon Springs
6870.00	7064.17	Niobrara

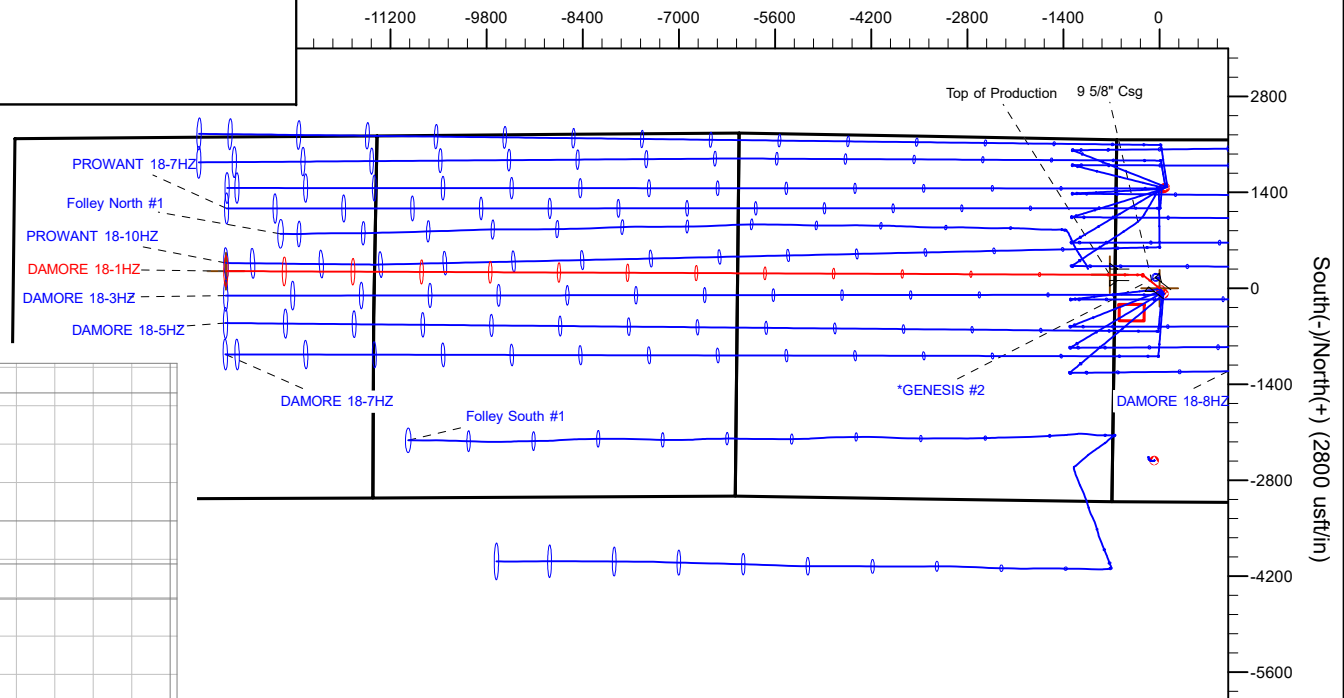


SHL
2167' FNL
652' FWL

HEEL
1979' FNL
75' FEL

TOE
1956' FNL
2164' FEL

West(-)/East(+) (2800 usft/in)



Plan: Permit Rev-5 (DAMORE 18-1HZ/Plan A)

Date: 1/21/2019

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Site 5N-67W-18 DAMORE 5-18HZ PAD
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 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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 18-1HZ			
Well Position	+N/-S	0.00 usft	Northing:	14,672,768.45 usft
	+E/-W	0.00 usft	Easting:	1,656,467.04 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	52,229.28018446

Design	Permit Rev-5			
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	270.24

Plan Survey Tool Program	Date	1/21/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-5 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	20,049.70	Permit Rev-5 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

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Well:	DAMORE 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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	
783.33	8.00	308.40	781.60	23.09	-29.13	1.50	1.50	0.00	308.40	
2,560.00	8.00	308.40	2,540.98	176.68	-222.91	0.00	0.00	0.00	0.00	
2,960.00	0.00	0.00	2,939.68	194.00	-244.76	2.00	-2.00	0.00	180.00	
6,425.86	0.00	0.00	6,405.54	194.00	-244.76	0.00	0.00	0.00	0.00	
7,177.46	90.19	270.24	6,883.00	195.98	-723.82	12.00	12.00	-11.94	270.24	
20,049.70	90.19	270.24	6,840.00	249.42	-13,595.88	0.00	0.00	0.00	0.00	DAMORE 18-1HZ_BH

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 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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	308.40	300.00	0.20	-0.26	0.26	1.50	1.50	0.00
400.00	2.25	308.40	399.96	1.83	-2.31	2.32	1.50	1.50	0.00
500.00	3.75	308.40	499.82	5.08	-6.41	6.43	1.50	1.50	0.00
600.00	5.25	308.40	599.51	9.95	-12.56	12.60	1.50	1.50	0.00
700.00	6.75	308.40	698.96	16.45	-20.75	20.82	1.50	1.50	0.00
783.33	8.00	308.40	781.60	23.09	-29.13	29.23	1.50	1.50	0.00
Hold Tangent @ 783.33ft									
800.00	8.00	308.40	798.11	24.53	-30.95	31.05	0.00	0.00	0.00
900.00	8.00	308.40	897.13	33.18	-41.86	42.00	0.00	0.00	0.00
935.21	8.00	308.40	932.00	36.22	-45.70	45.85	0.00	0.00	0.00
Fox Hills									
1,000.00	8.00	308.40	996.16	41.82	-52.76	52.94	0.00	0.00	0.00
1,100.00	8.00	308.40	1,095.19	50.46	-63.67	63.88	0.00	0.00	0.00
1,200.00	8.00	308.40	1,194.21	59.11	-74.58	74.82	0.00	0.00	0.00
1,300.00	8.00	308.40	1,293.24	67.75	-85.48	85.77	0.00	0.00	0.00
1,400.00	8.00	308.40	1,392.27	76.40	-96.39	96.71	0.00	0.00	0.00
1,500.00	8.00	308.40	1,491.29	85.04	-107.30	107.65	0.00	0.00	0.00
1,508.79	8.00	308.40	1,500.00	85.80	-108.26	108.62	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	8.00	308.40	1,590.32	93.69	-118.21	118.60	0.00	0.00	0.00
1,700.00	8.00	308.40	1,689.35	102.33	-129.11	129.54	0.00	0.00	0.00
1,800.00	8.00	308.40	1,788.37	110.98	-140.02	140.48	0.00	0.00	0.00
1,900.00	8.00	308.40	1,887.40	119.62	-150.93	151.43	0.00	0.00	0.00
2,000.00	8.00	308.40	1,986.43	128.27	-161.83	162.37	0.00	0.00	0.00
2,100.00	8.00	308.40	2,085.46	136.91	-172.74	173.31	0.00	0.00	0.00
2,200.00	8.00	308.40	2,184.48	145.56	-183.65	184.26	0.00	0.00	0.00
2,300.00	8.00	308.40	2,283.51	154.20	-194.55	195.20	0.00	0.00	0.00
2,400.00	8.00	308.40	2,382.54	162.85	-205.46	206.14	0.00	0.00	0.00
2,500.00	8.00	308.40	2,481.56	171.49	-216.37	217.08	0.00	0.00	0.00
2,560.00	8.00	308.40	2,540.98	176.68	-222.91	223.65	0.00	0.00	0.00
Begin Drop @ 2560.00ft									
2,600.00	7.20	308.40	2,580.63	179.96	-227.06	227.81	2.00	-2.00	0.00
2,700.00	5.20	308.40	2,680.04	186.67	-235.52	236.30	2.00	-2.00	0.00
2,800.00	3.20	308.40	2,779.76	191.22	-241.26	242.06	2.00	-2.00	0.00
2,900.00	1.20	308.40	2,879.68	193.60	-244.27	245.08	2.00	-2.00	0.00
2,960.00	0.00	0.00	2,939.68	194.00	-244.76	245.57	2.00	-2.00	0.00
Hold Vertical @ 2960.00ft									
3,000.00	0.00	0.00	2,979.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,100.00	0.00	0.00	3,079.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,200.00	0.00	0.00	3,179.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,300.00	0.00	0.00	3,279.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,400.00	0.00	0.00	3,379.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,448.32	0.00	0.00	3,428.00	194.00	-244.76	245.57	0.00	0.00	0.00
Parkman									
3,500.00	0.00	0.00	3,479.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,600.00	0.00	0.00	3,579.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,700.00	0.00	0.00	3,679.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,800.00	0.00	0.00	3,779.68	194.00	-244.76	245.57	0.00	0.00	0.00

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Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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)
3,900.00	0.00	0.00	3,879.68	194.00	-244.76	245.57	0.00	0.00	0.00
3,959.32	0.00	0.00	3,939.00	194.00	-244.76	245.57	0.00	0.00	0.00
Sussex									
4,000.00	0.00	0.00	3,979.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,100.00	0.00	0.00	4,079.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,200.00	0.00	0.00	4,179.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,300.00	0.00	0.00	4,279.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,400.00	0.00	0.00	4,379.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,500.00	0.00	0.00	4,479.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,600.00	0.00	0.00	4,579.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,700.00	0.00	0.00	4,679.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,800.00	0.00	0.00	4,779.68	194.00	-244.76	245.57	0.00	0.00	0.00
4,900.00	0.00	0.00	4,879.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,000.00	0.00	0.00	4,979.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,100.00	0.00	0.00	5,079.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,200.00	0.00	0.00	5,179.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,300.00	0.00	0.00	5,279.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,400.00	0.00	0.00	5,379.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,500.00	0.00	0.00	5,479.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,600.00	0.00	0.00	5,579.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,700.00	0.00	0.00	5,679.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,800.00	0.00	0.00	5,779.68	194.00	-244.76	245.57	0.00	0.00	0.00
5,900.00	0.00	0.00	5,879.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,000.00	0.00	0.00	5,979.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,100.00	0.00	0.00	6,079.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,200.00	0.00	0.00	6,179.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,300.00	0.00	0.00	6,279.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,400.00	0.00	0.00	6,379.68	194.00	-244.76	245.57	0.00	0.00	0.00
6,425.86	0.00	0.00	6,405.54	194.00	-244.76	245.57	0.00	0.00	0.00
KOP @ 6425.86ft :: DLS = 12°/100'									
6,500.00	8.90	270.24	6,479.38	194.02	-250.51	251.32	12.00	12.00	0.00
6,600.00	20.90	270.24	6,575.85	194.13	-276.17	276.98	12.00	12.00	0.00
6,700.00	32.90	270.24	6,664.86	194.31	-321.32	322.13	12.00	12.00	0.00
6,800.00	44.90	270.24	6,742.55	194.57	-384.00	384.81	12.00	12.00	0.00
6,900.00	56.90	270.24	6,805.51	194.89	-461.46	462.27	12.00	12.00	0.00
6,957.64	63.81	270.24	6,834.00	195.10	-511.52	512.34	12.00	12.00	0.00
Sharon Springs									
7,000.00	68.90	270.24	6,850.98	195.26	-550.31	551.13	12.00	12.00	0.00
7,064.17	76.60	270.24	6,870.00	195.52	-611.55	612.36	12.00	12.00	0.00
Niobrara									
7,100.00	80.90	270.24	6,876.99	195.66	-646.68	647.50	12.00	12.00	0.00
7,177.46	90.19	270.24	6,883.00	195.98	-723.82	724.64	12.00	12.00	0.00
End Build @ 7177.46ft - Top of Production									
7,200.00	90.19	270.24	6,882.93	196.08	-746.36	747.18	0.00	0.00	0.00
7,300.00	90.19	270.24	6,882.59	196.49	-846.36	847.18	0.00	0.00	0.00
7,400.00	90.19	270.24	6,882.26	196.91	-946.36	947.18	0.00	0.00	0.00
7,500.00	90.19	270.24	6,881.92	197.32	-1,046.36	1,047.17	0.00	0.00	0.00
7,600.00	90.19	270.24	6,881.59	197.74	-1,146.36	1,147.17	0.00	0.00	0.00
7,700.00	90.19	270.24	6,881.26	198.15	-1,246.35	1,247.17	0.00	0.00	0.00
7,800.00	90.19	270.24	6,880.92	198.57	-1,346.35	1,347.17	0.00	0.00	0.00
7,900.00	90.19	270.24	6,880.59	198.98	-1,446.35	1,447.17	0.00	0.00	0.00
8,000.00	90.19	270.24	6,880.25	199.40	-1,546.35	1,547.17	0.00	0.00	0.00
8,100.00	90.19	270.24	6,879.92	199.81	-1,646.35	1,647.17	0.00	0.00	0.00

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Wellbore:	Plan A		
Design:	Permit Rev-5		

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	90.19	270.24	6,879.59	200.23	-1,746.35	1,747.17	0.00	0.00	0.00	
8,300.00	90.19	270.24	6,879.25	200.64	-1,846.35	1,847.17	0.00	0.00	0.00	
8,400.00	90.19	270.24	6,878.92	201.06	-1,946.34	1,947.17	0.00	0.00	0.00	
8,500.00	90.19	270.24	6,878.58	201.47	-2,046.34	2,047.17	0.00	0.00	0.00	
8,600.00	90.19	270.24	6,878.25	201.89	-2,146.34	2,147.17	0.00	0.00	0.00	
8,700.00	90.19	270.24	6,877.92	202.30	-2,246.34	2,247.17	0.00	0.00	0.00	
8,800.00	90.19	270.24	6,877.58	202.72	-2,346.34	2,347.17	0.00	0.00	0.00	
8,900.00	90.19	270.24	6,877.25	203.13	-2,446.34	2,447.17	0.00	0.00	0.00	
9,000.00	90.19	270.24	6,876.91	203.55	-2,546.34	2,547.17	0.00	0.00	0.00	
9,100.00	90.19	270.24	6,876.58	203.96	-2,646.33	2,647.17	0.00	0.00	0.00	
9,200.00	90.19	270.24	6,876.25	204.38	-2,746.33	2,747.17	0.00	0.00	0.00	
9,300.00	90.19	270.24	6,875.91	204.79	-2,846.33	2,847.16	0.00	0.00	0.00	
9,400.00	90.19	270.24	6,875.58	205.21	-2,946.33	2,947.16	0.00	0.00	0.00	
9,500.00	90.19	270.24	6,875.24	205.62	-3,046.33	3,047.16	0.00	0.00	0.00	
9,600.00	90.19	270.24	6,874.91	206.04	-3,146.33	3,147.16	0.00	0.00	0.00	
9,700.00	90.19	270.24	6,874.58	206.46	-3,246.33	3,247.16	0.00	0.00	0.00	
9,800.00	90.19	270.24	6,874.24	206.87	-3,346.32	3,347.16	0.00	0.00	0.00	
9,900.00	90.19	270.24	6,873.91	207.29	-3,446.32	3,447.16	0.00	0.00	0.00	
10,000.00	90.19	270.24	6,873.57	207.70	-3,546.32	3,547.16	0.00	0.00	0.00	
10,100.00	90.19	270.24	6,873.24	208.12	-3,646.32	3,647.16	0.00	0.00	0.00	
10,200.00	90.19	270.24	6,872.90	208.53	-3,746.32	3,747.16	0.00	0.00	0.00	
10,300.00	90.19	270.24	6,872.57	208.95	-3,846.32	3,847.16	0.00	0.00	0.00	
10,400.00	90.19	270.24	6,872.24	209.36	-3,946.32	3,947.16	0.00	0.00	0.00	
10,500.00	90.19	270.24	6,871.90	209.78	-4,046.31	4,047.16	0.00	0.00	0.00	
10,600.00	90.19	270.24	6,871.57	210.19	-4,146.31	4,147.16	0.00	0.00	0.00	
10,700.00	90.19	270.24	6,871.23	210.61	-4,246.31	4,247.16	0.00	0.00	0.00	
10,800.00	90.19	270.24	6,870.90	211.02	-4,346.31	4,347.16	0.00	0.00	0.00	
10,900.00	90.19	270.24	6,870.57	211.44	-4,446.31	4,447.16	0.00	0.00	0.00	
11,000.00	90.19	270.24	6,870.23	211.85	-4,546.31	4,547.16	0.00	0.00	0.00	
11,100.00	90.19	270.24	6,869.90	212.27	-4,646.31	4,647.15	0.00	0.00	0.00	
11,200.00	90.19	270.24	6,869.56	212.68	-4,746.30	4,747.15	0.00	0.00	0.00	
11,300.00	90.19	270.24	6,869.23	213.10	-4,846.30	4,847.15	0.00	0.00	0.00	
11,400.00	90.19	270.24	6,868.90	213.51	-4,946.30	4,947.15	0.00	0.00	0.00	
11,500.00	90.19	270.24	6,868.56	213.93	-5,046.30	5,047.15	0.00	0.00	0.00	
11,600.00	90.19	270.24	6,868.23	214.34	-5,146.30	5,147.15	0.00	0.00	0.00	
11,700.00	90.19	270.24	6,867.89	214.76	-5,246.30	5,247.15	0.00	0.00	0.00	
11,800.00	90.19	270.24	6,867.56	215.17	-5,346.30	5,347.15	0.00	0.00	0.00	
11,900.00	90.19	270.24	6,867.23	215.59	-5,446.29	5,447.15	0.00	0.00	0.00	
12,000.00	90.19	270.24	6,866.89	216.00	-5,546.29	5,547.15	0.00	0.00	0.00	
12,100.00	90.19	270.24	6,866.56	216.42	-5,646.29	5,647.15	0.00	0.00	0.00	
12,200.00	90.19	270.24	6,866.22	216.83	-5,746.29	5,747.15	0.00	0.00	0.00	
12,300.00	90.19	270.24	6,865.89	217.25	-5,846.29	5,847.15	0.00	0.00	0.00	
12,400.00	90.19	270.24	6,865.56	217.66	-5,946.29	5,947.15	0.00	0.00	0.00	
12,500.00	90.19	270.24	6,865.22	218.08	-6,046.29	6,047.15	0.00	0.00	0.00	
12,600.00	90.19	270.24	6,864.89	218.49	-6,146.28	6,147.15	0.00	0.00	0.00	
12,700.00	90.19	270.24	6,864.55	218.91	-6,246.28	6,247.15	0.00	0.00	0.00	
12,800.00	90.19	270.24	6,864.22	219.32	-6,346.28	6,347.15	0.00	0.00	0.00	
12,900.00	90.19	270.24	6,863.89	219.74	-6,446.28	6,447.14	0.00	0.00	0.00	
13,000.00	90.19	270.24	6,863.55	220.15	-6,546.28	6,547.14	0.00	0.00	0.00	
13,100.00	90.19	270.24	6,863.22	220.57	-6,646.28	6,647.14	0.00	0.00	0.00	
13,200.00	90.19	270.24	6,862.88	220.98	-6,746.28	6,747.14	0.00	0.00	0.00	
13,300.00	90.19	270.24	6,862.55	221.40	-6,846.28	6,847.14	0.00	0.00	0.00	
13,400.00	90.19	270.24	6,862.21	221.81	-6,946.27	6,947.14	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Site 5N-67W-18 DAMORE 5-18HZ PAD
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 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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	90.19	270.24	6,861.88	222.23	-7,046.27	7,047.14	0.00	0.00	0.00
13,600.00	90.19	270.24	6,861.55	222.64	-7,146.27	7,147.14	0.00	0.00	0.00
13,700.00	90.19	270.24	6,861.21	223.06	-7,246.27	7,247.14	0.00	0.00	0.00
13,800.00	90.19	270.24	6,860.88	223.47	-7,346.27	7,347.14	0.00	0.00	0.00
13,900.00	90.19	270.24	6,860.54	223.89	-7,446.27	7,447.14	0.00	0.00	0.00
14,000.00	90.19	270.24	6,860.21	224.30	-7,546.27	7,547.14	0.00	0.00	0.00
14,100.00	90.19	270.24	6,859.88	224.72	-7,646.26	7,647.14	0.00	0.00	0.00
14,200.00	90.19	270.24	6,859.54	225.14	-7,746.26	7,747.14	0.00	0.00	0.00
14,300.00	90.19	270.24	6,859.21	225.55	-7,846.26	7,847.14	0.00	0.00	0.00
14,400.00	90.19	270.24	6,858.87	225.97	-7,946.26	7,947.14	0.00	0.00	0.00
14,500.00	90.19	270.24	6,858.54	226.38	-8,046.26	8,047.14	0.00	0.00	0.00
14,600.00	90.19	270.24	6,858.21	226.80	-8,146.26	8,147.14	0.00	0.00	0.00
14,700.00	90.19	270.24	6,857.87	227.21	-8,246.26	8,247.13	0.00	0.00	0.00
14,800.00	90.19	270.24	6,857.54	227.63	-8,346.25	8,347.13	0.00	0.00	0.00
14,900.00	90.19	270.24	6,857.20	228.04	-8,446.25	8,447.13	0.00	0.00	0.00
15,000.00	90.19	270.24	6,856.87	228.46	-8,546.25	8,547.13	0.00	0.00	0.00
15,100.00	90.19	270.24	6,856.54	228.87	-8,646.25	8,647.13	0.00	0.00	0.00
15,200.00	90.19	270.24	6,856.20	229.29	-8,746.25	8,747.13	0.00	0.00	0.00
15,300.00	90.19	270.24	6,855.87	229.70	-8,846.25	8,847.13	0.00	0.00	0.00
15,400.00	90.19	270.24	6,855.53	230.12	-8,946.25	8,947.13	0.00	0.00	0.00
15,500.00	90.19	270.24	6,855.20	230.53	-9,046.24	9,047.13	0.00	0.00	0.00
15,600.00	90.19	270.24	6,854.87	230.95	-9,146.24	9,147.13	0.00	0.00	0.00
15,700.00	90.19	270.24	6,854.53	231.36	-9,246.24	9,247.13	0.00	0.00	0.00
15,800.00	90.19	270.24	6,854.20	231.78	-9,346.24	9,347.13	0.00	0.00	0.00
15,900.00	90.19	270.24	6,853.86	232.19	-9,446.24	9,447.13	0.00	0.00	0.00
16,000.00	90.19	270.24	6,853.53	232.61	-9,546.24	9,547.13	0.00	0.00	0.00
16,100.00	90.19	270.24	6,853.19	233.02	-9,646.24	9,647.13	0.00	0.00	0.00
16,200.00	90.19	270.24	6,852.86	233.44	-9,746.23	9,747.13	0.00	0.00	0.00
16,300.00	90.19	270.24	6,852.53	233.85	-9,846.23	9,847.13	0.00	0.00	0.00
16,400.00	90.19	270.24	6,852.19	234.27	-9,946.23	9,947.13	0.00	0.00	0.00
16,500.00	90.19	270.24	6,851.86	234.68	-10,046.23	10,047.12	0.00	0.00	0.00
16,600.00	90.19	270.24	6,851.52	235.10	-10,146.23	10,147.12	0.00	0.00	0.00
16,700.00	90.19	270.24	6,851.19	235.51	-10,246.23	10,247.12	0.00	0.00	0.00
16,800.00	90.19	270.24	6,850.86	235.93	-10,346.23	10,347.12	0.00	0.00	0.00
16,900.00	90.19	270.24	6,850.52	236.34	-10,446.22	10,447.12	0.00	0.00	0.00
17,000.00	90.19	270.24	6,850.19	236.76	-10,546.22	10,547.12	0.00	0.00	0.00
17,100.00	90.19	270.24	6,849.85	237.17	-10,646.22	10,647.12	0.00	0.00	0.00
17,200.00	90.19	270.24	6,849.52	237.59	-10,746.22	10,747.12	0.00	0.00	0.00
17,300.00	90.19	270.24	6,849.19	238.00	-10,846.22	10,847.12	0.00	0.00	0.00
17,400.00	90.19	270.24	6,848.85	238.42	-10,946.22	10,947.12	0.00	0.00	0.00
17,500.00	90.19	270.24	6,848.52	238.83	-11,046.22	11,047.12	0.00	0.00	0.00
17,600.00	90.19	270.24	6,848.18	239.25	-11,146.21	11,147.12	0.00	0.00	0.00
17,700.00	90.19	270.24	6,847.85	239.66	-11,246.21	11,247.12	0.00	0.00	0.00
17,800.00	90.19	270.24	6,847.52	240.08	-11,346.21	11,347.12	0.00	0.00	0.00
17,900.00	90.19	270.24	6,847.18	240.49	-11,446.21	11,447.12	0.00	0.00	0.00
18,000.00	90.19	270.24	6,846.85	240.91	-11,546.21	11,547.12	0.00	0.00	0.00
18,100.00	90.19	270.24	6,846.51	241.32	-11,646.21	11,647.12	0.00	0.00	0.00
18,200.00	90.19	270.24	6,846.18	241.74	-11,746.21	11,747.12	0.00	0.00	0.00
18,300.00	90.19	270.24	6,845.85	242.15	-11,846.20	11,847.11	0.00	0.00	0.00
18,400.00	90.19	270.24	6,845.51	242.57	-11,946.20	11,947.11	0.00	0.00	0.00
18,500.00	90.19	270.24	6,845.18	242.98	-12,046.20	12,047.11	0.00	0.00	0.00
18,600.00	90.19	270.24	6,844.84	243.40	-12,146.20	12,147.11	0.00	0.00	0.00
18,700.00	90.19	270.24	6,844.51	243.82	-12,246.20	12,247.11	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Site 5N-67W-18 DAMORE 5-18HZ PAD
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 18-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

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	90.19	270.24	6,844.18	244.23	-12,346.20	12,347.11	0.00	0.00	0.00	
18,900.00	90.19	270.24	6,843.84	244.65	-12,446.20	12,447.11	0.00	0.00	0.00	
19,000.00	90.19	270.24	6,843.51	245.06	-12,546.19	12,547.11	0.00	0.00	0.00	
19,100.00	90.19	270.24	6,843.17	245.48	-12,646.19	12,647.11	0.00	0.00	0.00	
19,200.00	90.19	270.24	6,842.84	245.89	-12,746.19	12,747.11	0.00	0.00	0.00	
19,300.00	90.19	270.24	6,842.50	246.31	-12,846.19	12,847.11	0.00	0.00	0.00	
19,400.00	90.19	270.24	6,842.17	246.72	-12,946.19	12,947.11	0.00	0.00	0.00	
19,500.00	90.19	270.24	6,841.84	247.14	-13,046.19	13,047.11	0.00	0.00	0.00	
19,600.00	90.19	270.24	6,841.50	247.55	-13,146.19	13,147.11	0.00	0.00	0.00	
19,700.00	90.19	270.24	6,841.17	247.97	-13,246.18	13,247.11	0.00	0.00	0.00	
19,800.00	90.19	270.24	6,840.83	248.38	-13,346.18	13,347.11	0.00	0.00	0.00	
19,900.00	90.19	270.24	6,840.50	248.80	-13,446.18	13,447.11	0.00	0.00	0.00	
20,000.00	90.19	270.24	6,840.17	249.21	-13,546.18	13,547.11	0.00	0.00	0.00	
20,049.70	90.19	270.24	6,840.00	249.42	-13,595.88	13,596.81	0.00	0.00	0.00	
TD Well @ 20049.70ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,508.79	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,177.46	6,883.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
935.21	932.00	Fox Hills				
3,448.32	3,428.00	Parkman				
3,959.32	3,939.00	Sussex				
6,957.64	6,834.00	Sharon Springs				
7,064.17	6,870.00	Niobrara				

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	
783.33	781.60	23.09	-29.13	Hold Tangent @ 783.33ft	
2,560.00	2,540.98	176.68	-222.91	Begin Drop @ 2560.00ft	
2,960.00	2,939.68	194.00	-244.76	Hold Vertical @ 2960.00ft	
6,425.86	6,405.54	194.00	-244.76	KOP @ 6425.86ft :: DLS = 12°/100'	
7,177.46	6,883.00	195.98	-723.82	End Build @ 7177.46ft	
20,049.70	6,840.00	249.42	-13,595.88	TD Well @ 20049.70ft	