

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

DAMORE 18-5HZ

Plan A

Plan: Permit Rev-5

SHL Lat/Long: 40.400886°/-104.942211°

Survey Program: MWD+IFR+MSA

Standard Planning Report

04 January, 2019

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

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1510.89	9-5/8
7048.00	7505.43	5-1/2

WELL DETAILS: DAMORE 18-5HZ

GL = 4922.00

RKB = 17' @ 4939.00usft (Drilling Rig)

SECTION DETAILS

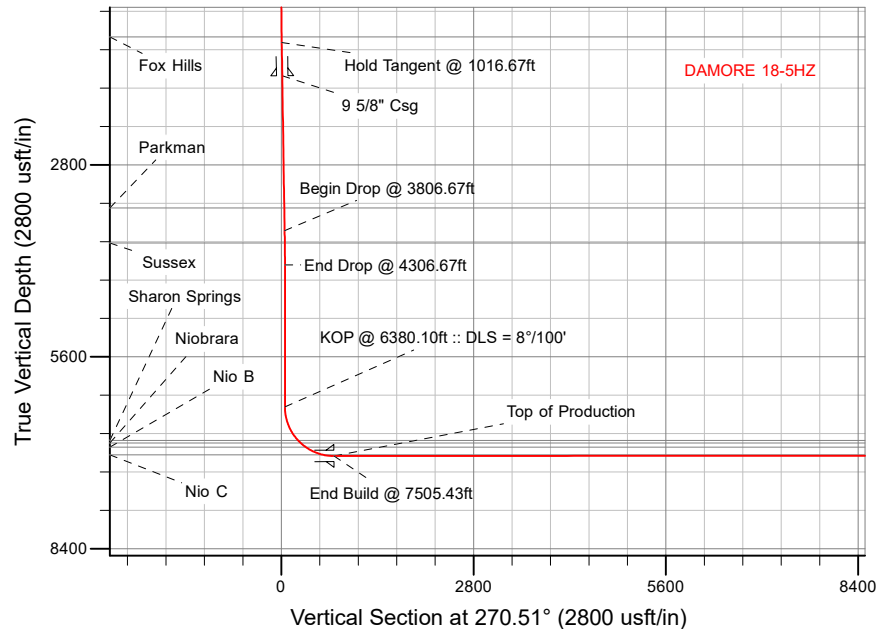
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	
3	1016.67	10.00	185.50	1013.29	-57.76	-5.56	1.50	185.50	5.05	
4	3806.67	10.00	185.50	3760.90	-540.01	-52.00	0.00	0.00	47.19	
5	4306.67	0.00	0.00	4258.37	-583.33	-56.17	2.00	180.00	50.97	
6	6380.10	0.00	0.00	6331.80	-583.33	-56.17	0.00	0.00	50.97	
7	7505.43	90.03	270.51	7048.00	-576.97	-772.67	8.00	270.51	767.51	
8	20373.07	90.03	270.51	7042.00	-462.67	-13639.80	0.00	0.00	13635.14	DAMORE 18-5HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
DAMORE 18-5HZ_SHL	0.00	0.00	0.00	40.400886	-104.942211
DAMORE 18-5HZ_BHL	7042.00	-462.67	-13639.80	40.399605	-104.991202

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
932.00	934.28	Fox Hills
3428.00	3468.63	Parkman
3939.00	3986.64	Sussex
6822.00	6920.00	Sharon Springs
6858.00	6971.14	Niobrara
6920.00	7070.27	Nio B
7031.00	7348.76	Nio C

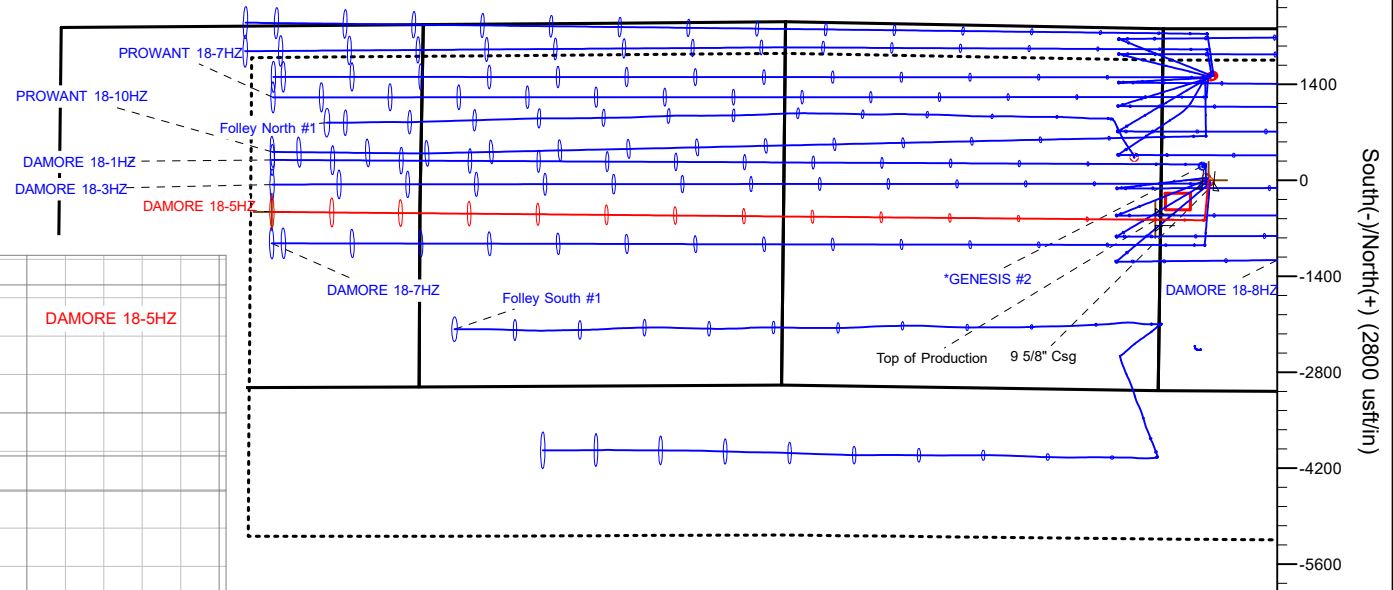


SHL
2213' FNL
691' FWL

HEEL
2494' FSL
75' FEL

TOE
2562' FSL
2156' FEL

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



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

Date: 1/4/2019

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-5HZ
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 18-5HZ	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 18-5HZ			
Well Position	+N/-S	-45.88 usft	Northing:	14,672,722.59 usft
	+E/-W	38.42 usft	Easting:	1,656,505.49 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Latitude: 40.400886
				Longitude: -104.942211
				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	52,229.22949702

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	270.51

Plan Survey Tool Program	Date	1/4/2019		
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	20,373.07	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 18-5HZ	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	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,016.67	10.00	185.50	1,013.29	-57.76	-5.56	1.50	1.50	0.00	185.50	
3,806.67	10.00	185.50	3,760.90	-540.01	-52.00	0.00	0.00	0.00	0.00	
4,306.67	0.00	0.00	4,258.37	-583.33	-56.17	2.00	-2.00	0.00	180.00	
6,380.10	0.00	0.00	6,331.80	-583.33	-56.17	0.00	0.00	0.00	0.00	
7,505.43	90.03	270.51	7,048.00	-576.97	-772.67	8.00	8.00	-7.95	270.51	
20,373.07	90.03	270.51	7,042.00	-462.67	-13,639.80	0.00	0.00	0.00	0.00	DAMORE 18-5HZ_B+

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 18-5HZ	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 350.00ft									
400.00	0.75	185.50	400.00	-0.33	-0.03	0.03	1.50	1.50	0.00
500.00	2.25	185.50	499.96	-2.93	-0.28	0.26	1.50	1.50	0.00
600.00	3.75	185.50	599.82	-8.14	-0.78	0.71	1.50	1.50	0.00
700.00	5.25	185.50	699.51	-15.95	-1.54	1.39	1.50	1.50	0.00
800.00	6.75	185.50	798.96	-26.35	-2.54	2.30	1.50	1.50	0.00
900.00	8.25	185.50	898.10	-39.35	-3.79	3.44	1.50	1.50	0.00
934.28	8.76	185.50	932.00	-44.39	-4.27	3.88	1.50	1.50	0.00
Fox Hills									
1,000.00	9.75	185.50	996.87	-54.92	-5.29	4.80	1.50	1.50	0.00
1,016.67	10.00	185.50	1,013.29	-57.76	-5.56	5.05	1.50	1.50	0.00
Hold Tangent @ 1016.67ft									
1,100.00	10.00	185.50	1,095.35	-72.17	-6.95	6.31	0.00	0.00	0.00
1,200.00	10.00	185.50	1,193.84	-89.45	-8.61	7.82	0.00	0.00	0.00
1,300.00	10.00	185.50	1,292.32	-106.74	-10.28	9.33	0.00	0.00	0.00
1,400.00	10.00	185.50	1,390.80	-124.02	-11.94	10.84	0.00	0.00	0.00
1,500.00	10.00	185.50	1,489.28	-141.31	-13.61	12.35	0.00	0.00	0.00
1,510.89	10.00	185.50	1,500.00	-143.19	-13.79	12.51	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	10.00	185.50	1,587.76	-158.59	-15.27	13.86	0.00	0.00	0.00
1,700.00	10.00	185.50	1,686.24	-175.88	-16.93	15.37	0.00	0.00	0.00
1,800.00	10.00	185.50	1,784.72	-193.16	-18.60	16.88	0.00	0.00	0.00
1,900.00	10.00	185.50	1,883.20	-210.45	-20.26	18.39	0.00	0.00	0.00
2,000.00	10.00	185.50	1,981.68	-227.73	-21.93	19.90	0.00	0.00	0.00
2,100.00	10.00	185.50	2,080.16	-245.02	-23.59	21.41	0.00	0.00	0.00
2,200.00	10.00	185.50	2,178.64	-262.30	-25.26	22.92	0.00	0.00	0.00
2,300.00	10.00	185.50	2,277.12	-279.59	-26.92	24.43	0.00	0.00	0.00
2,400.00	10.00	185.50	2,375.60	-296.87	-28.59	25.94	0.00	0.00	0.00
2,500.00	10.00	185.50	2,474.09	-314.16	-30.25	27.45	0.00	0.00	0.00
2,600.00	10.00	185.50	2,572.57	-331.44	-31.91	28.96	0.00	0.00	0.00
2,700.00	10.00	185.50	2,671.05	-348.72	-33.58	30.47	0.00	0.00	0.00
2,800.00	10.00	185.50	2,769.53	-366.01	-35.24	31.98	0.00	0.00	0.00
2,900.00	10.00	185.50	2,868.01	-383.29	-36.91	33.49	0.00	0.00	0.00
3,000.00	10.00	185.50	2,966.49	-400.58	-38.57	35.00	0.00	0.00	0.00
3,100.00	10.00	185.50	3,064.97	-417.86	-40.24	36.51	0.00	0.00	0.00
3,200.00	10.00	185.50	3,163.45	-435.15	-41.90	38.03	0.00	0.00	0.00
3,300.00	10.00	185.50	3,261.93	-452.43	-43.56	39.54	0.00	0.00	0.00
3,400.00	10.00	185.50	3,360.41	-469.72	-45.23	41.05	0.00	0.00	0.00
3,468.63	10.00	185.50	3,428.00	-481.58	-46.37	42.08	0.00	0.00	0.00
Parkman									
3,500.00	10.00	185.50	3,458.89	-487.00	-46.89	42.56	0.00	0.00	0.00
3,600.00	10.00	185.50	3,557.37	-504.29	-48.56	44.07	0.00	0.00	0.00
3,700.00	10.00	185.50	3,655.85	-521.57	-50.22	45.58	0.00	0.00	0.00
3,800.00	10.00	185.50	3,754.34	-538.86	-51.89	47.09	0.00	0.00	0.00
3,806.67	10.00	185.50	3,760.90	-540.01	-52.00	47.19	0.00	0.00	0.00
Begin Drop @ 3806.67ft									
3,900.00	8.13	185.50	3,853.06	-554.65	-53.41	48.47	2.00	-2.00	0.00
3,986.64	6.40	185.50	3,939.00	-565.56	-54.46	49.42	2.00	-2.00	0.00

Corporate
Planning Report

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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 18-5HZ	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)
Sussex									
4,000.00	6.13	185.50	3,952.28	-567.01	-54.60	49.55	2.00	-2.00	0.00
4,100.00	4.13	185.50	4,051.88	-575.92	-55.45	50.33	2.00	-2.00	0.00
4,200.00	2.13	185.50	4,151.72	-581.36	-55.98	50.80	2.00	-2.00	0.00
4,300.00	0.13	185.50	4,251.70	-583.33	-56.17	50.97	2.00	-2.00	0.00
4,306.67	0.00	0.00	4,258.37	-583.33	-56.17	50.97	2.00	-2.00	0.00
End Drop @ 4306.67ft									
4,400.00	0.00	0.00	4,351.70	-583.33	-56.17	50.97	0.00	0.00	0.00
4,500.00	0.00	0.00	4,451.70	-583.33	-56.17	50.97	0.00	0.00	0.00
4,600.00	0.00	0.00	4,551.70	-583.33	-56.17	50.97	0.00	0.00	0.00
4,700.00	0.00	0.00	4,651.70	-583.33	-56.17	50.97	0.00	0.00	0.00
4,800.00	0.00	0.00	4,751.70	-583.33	-56.17	50.97	0.00	0.00	0.00
4,900.00	0.00	0.00	4,851.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,000.00	0.00	0.00	4,951.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,100.00	0.00	0.00	5,051.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,200.00	0.00	0.00	5,151.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,300.00	0.00	0.00	5,251.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,400.00	0.00	0.00	5,351.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,500.00	0.00	0.00	5,451.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,600.00	0.00	0.00	5,551.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,700.00	0.00	0.00	5,651.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,800.00	0.00	0.00	5,751.70	-583.33	-56.17	50.97	0.00	0.00	0.00
5,900.00	0.00	0.00	5,851.70	-583.33	-56.17	50.97	0.00	0.00	0.00
6,000.00	0.00	0.00	5,951.70	-583.33	-56.17	50.97	0.00	0.00	0.00
6,100.00	0.00	0.00	6,051.70	-583.33	-56.17	50.97	0.00	0.00	0.00
6,200.00	0.00	0.00	6,151.70	-583.33	-56.17	50.97	0.00	0.00	0.00
6,300.00	0.00	0.00	6,251.70	-583.33	-56.17	50.97	0.00	0.00	0.00
6,380.10	0.00	0.00	6,331.80	-583.33	-56.17	50.97	0.00	0.00	0.00
KOP @ 6380.10ft :: DLS = 8°/100'									
6,400.00	1.59	270.51	6,351.70	-583.33	-56.45	51.25	8.00	8.00	0.00
6,500.00	9.59	270.51	6,451.14	-583.24	-66.18	60.99	8.00	8.00	0.00
6,600.00	17.59	270.51	6,548.26	-583.04	-89.66	84.47	8.00	8.00	0.00
6,700.00	25.59	270.51	6,641.17	-582.71	-126.43	121.24	8.00	8.00	0.00
6,800.00	33.59	270.51	6,728.05	-582.27	-175.77	170.58	8.00	8.00	0.00
6,900.00	41.59	270.51	6,807.23	-581.73	-236.72	231.53	8.00	8.00	0.00
6,920.00	43.19	270.51	6,822.00	-581.61	-250.21	245.02	8.00	8.00	0.00
Sharon Springs									
6,971.14	47.28	270.51	6,858.00	-581.29	-286.51	281.32	8.00	8.00	0.00
Niobrara									
7,000.00	49.59	270.51	6,877.15	-581.10	-308.10	302.91	8.00	8.00	0.00
7,070.27	55.21	270.51	6,920.00	-580.60	-363.75	358.57	8.00	8.00	0.00
Nio B									
7,100.00	57.59	270.51	6,936.45	-580.38	-388.51	383.33	8.00	8.00	0.00
7,200.00	65.59	270.51	6,983.99	-579.60	-476.39	471.22	8.00	8.00	0.00
7,300.00	73.59	270.51	7,018.83	-578.77	-570.04	564.86	8.00	8.00	0.00
7,348.76	77.49	270.51	7,031.00	-578.35	-617.24	612.07	8.00	8.00	0.00
Nio C									
7,400.00	81.59	270.51	7,040.30	-577.90	-667.62	662.45	8.00	8.00	0.00
7,500.00	89.59	270.51	7,047.98	-577.02	-767.24	762.07	8.00	8.00	0.00
7,505.43	90.03	270.51	7,048.00	-576.97	-772.67	767.50	8.00	8.00	0.00
End Build @ 7505.43ft - Top of Production									
7,600.00	90.03	270.51	7,047.95	-576.13	-867.23	862.07	0.00	0.00	0.00
7,700.00	90.03	270.51	7,047.91	-575.24	-967.23	962.07	0.00	0.00	0.00

Corporate Planning Report

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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)	
7,800.00	90.03	270.51	7,047.86	-574.35	-1,067.23	1,062.07	0.00	0.00	0.00	
7,900.00	90.03	270.51	7,047.81	-573.46	-1,167.22	1,162.07	0.00	0.00	0.00	
8,000.00	90.03	270.51	7,047.77	-572.58	-1,267.22	1,262.07	0.00	0.00	0.00	
8,100.00	90.03	270.51	7,047.72	-571.69	-1,367.21	1,362.07	0.00	0.00	0.00	
8,200.00	90.03	270.51	7,047.67	-570.80	-1,467.21	1,462.07	0.00	0.00	0.00	
8,300.00	90.03	270.51	7,047.63	-569.91	-1,567.21	1,562.07	0.00	0.00	0.00	
8,400.00	90.03	270.51	7,047.58	-569.02	-1,667.20	1,662.07	0.00	0.00	0.00	
8,500.00	90.03	270.51	7,047.53	-568.13	-1,767.20	1,762.07	0.00	0.00	0.00	
8,600.00	90.03	270.51	7,047.49	-567.25	-1,867.19	1,862.07	0.00	0.00	0.00	
8,700.00	90.03	270.51	7,047.44	-566.36	-1,967.19	1,962.07	0.00	0.00	0.00	
8,800.00	90.03	270.51	7,047.39	-565.47	-2,067.19	2,062.07	0.00	0.00	0.00	
8,900.00	90.03	270.51	7,047.35	-564.58	-2,167.18	2,162.07	0.00	0.00	0.00	
9,000.00	90.03	270.51	7,047.30	-563.69	-2,267.18	2,262.07	0.00	0.00	0.00	
9,100.00	90.03	270.51	7,047.25	-562.80	-2,367.17	2,362.07	0.00	0.00	0.00	
9,200.00	90.03	270.51	7,047.21	-561.92	-2,467.17	2,462.07	0.00	0.00	0.00	
9,300.00	90.03	270.51	7,047.16	-561.03	-2,567.17	2,562.07	0.00	0.00	0.00	
9,400.00	90.03	270.51	7,047.11	-560.14	-2,667.16	2,662.07	0.00	0.00	0.00	
9,500.00	90.03	270.51	7,047.07	-559.25	-2,767.16	2,762.07	0.00	0.00	0.00	
9,600.00	90.03	270.51	7,047.02	-558.36	-2,867.15	2,862.07	0.00	0.00	0.00	
9,700.00	90.03	270.51	7,046.97	-557.47	-2,967.15	2,962.07	0.00	0.00	0.00	
9,800.00	90.03	270.51	7,046.93	-556.59	-3,067.15	3,062.07	0.00	0.00	0.00	
9,900.00	90.03	270.51	7,046.88	-555.70	-3,167.14	3,162.07	0.00	0.00	0.00	
10,000.00	90.03	270.51	7,046.83	-554.81	-3,267.14	3,262.07	0.00	0.00	0.00	
10,100.00	90.03	270.51	7,046.79	-553.92	-3,367.14	3,362.07	0.00	0.00	0.00	
10,200.00	90.03	270.51	7,046.74	-553.03	-3,467.13	3,462.07	0.00	0.00	0.00	
10,300.00	90.03	270.51	7,046.69	-552.15	-3,567.13	3,562.07	0.00	0.00	0.00	
10,400.00	90.03	270.51	7,046.65	-551.26	-3,667.12	3,662.07	0.00	0.00	0.00	
10,500.00	90.03	270.51	7,046.60	-550.37	-3,767.12	3,762.07	0.00	0.00	0.00	
10,600.00	90.03	270.51	7,046.55	-549.48	-3,867.12	3,862.07	0.00	0.00	0.00	
10,700.00	90.03	270.51	7,046.51	-548.59	-3,967.11	3,962.07	0.00	0.00	0.00	
10,800.00	90.03	270.51	7,046.46	-547.70	-4,067.11	4,062.07	0.00	0.00	0.00	
10,900.00	90.03	270.51	7,046.41	-546.82	-4,167.10	4,162.07	0.00	0.00	0.00	
11,000.00	90.03	270.51	7,046.37	-545.93	-4,267.10	4,262.07	0.00	0.00	0.00	
11,100.00	90.03	270.51	7,046.32	-545.04	-4,367.10	4,362.07	0.00	0.00	0.00	
11,200.00	90.03	270.51	7,046.28	-544.15	-4,467.09	4,462.07	0.00	0.00	0.00	
11,300.00	90.03	270.51	7,046.23	-543.26	-4,567.09	4,562.07	0.00	0.00	0.00	
11,400.00	90.03	270.51	7,046.18	-542.37	-4,667.08	4,662.07	0.00	0.00	0.00	
11,500.00	90.03	270.51	7,046.14	-541.49	-4,767.08	4,762.07	0.00	0.00	0.00	
11,600.00	90.03	270.51	7,046.09	-540.60	-4,867.08	4,862.07	0.00	0.00	0.00	
11,700.00	90.03	270.51	7,046.04	-539.71	-4,967.07	4,962.07	0.00	0.00	0.00	
11,800.00	90.03	270.51	7,046.00	-538.82	-5,067.07	5,062.07	0.00	0.00	0.00	
11,900.00	90.03	270.51	7,045.95	-537.93	-5,167.06	5,162.07	0.00	0.00	0.00	
12,000.00	90.03	270.51	7,045.90	-537.04	-5,267.06	5,262.07	0.00	0.00	0.00	
12,100.00	90.03	270.51	7,045.86	-536.16	-5,367.06	5,362.07	0.00	0.00	0.00	
12,200.00	90.03	270.51	7,045.81	-535.27	-5,467.05	5,462.07	0.00	0.00	0.00	
12,300.00	90.03	270.51	7,045.76	-534.38	-5,567.05	5,562.07	0.00	0.00	0.00	
12,400.00	90.03	270.51	7,045.72	-533.49	-5,667.04	5,662.07	0.00	0.00	0.00	
12,500.00	90.03	270.51	7,045.67	-532.60	-5,767.04	5,762.07	0.00	0.00	0.00	
12,600.00	90.03	270.51	7,045.62	-531.71	-5,867.04	5,862.07	0.00	0.00	0.00	
12,700.00	90.03	270.51	7,045.58	-530.83	-5,967.03	5,962.07	0.00	0.00	0.00	
12,800.00	90.03	270.51	7,045.53	-529.94	-6,067.03	6,062.07	0.00	0.00	0.00	
12,900.00	90.03	270.51	7,045.48	-529.05	-6,167.02	6,162.07	0.00	0.00	0.00	
13,000.00	90.03	270.51	7,045.44	-528.16	-6,267.02	6,262.07	0.00	0.00	0.00	
13,100.00	90.03	270.51	7,045.39	-527.27	-6,367.02	6,362.07	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-5HZ
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 18-5HZ	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)
13,200.00	90.03	270.51	7,045.34	-526.38	-6,467.01	6,462.07	0.00	0.00	0.00
13,300.00	90.03	270.51	7,045.30	-525.50	-6,567.01	6,562.07	0.00	0.00	0.00
13,400.00	90.03	270.51	7,045.25	-524.61	-6,667.00	6,662.07	0.00	0.00	0.00
13,500.00	90.03	270.51	7,045.20	-523.72	-6,767.00	6,762.07	0.00	0.00	0.00
13,600.00	90.03	270.51	7,045.16	-522.83	-6,867.00	6,862.07	0.00	0.00	0.00
13,700.00	90.03	270.51	7,045.11	-521.94	-6,966.99	6,962.07	0.00	0.00	0.00
13,800.00	90.03	270.51	7,045.06	-521.06	-7,066.99	7,062.07	0.00	0.00	0.00
13,900.00	90.03	270.51	7,045.02	-520.17	-7,166.98	7,162.07	0.00	0.00	0.00
14,000.00	90.03	270.51	7,044.97	-519.28	-7,266.98	7,262.07	0.00	0.00	0.00
14,100.00	90.03	270.51	7,044.92	-518.39	-7,366.98	7,362.07	0.00	0.00	0.00
14,200.00	90.03	270.51	7,044.88	-517.50	-7,466.97	7,462.07	0.00	0.00	0.00
14,300.00	90.03	270.51	7,044.83	-516.61	-7,566.97	7,562.07	0.00	0.00	0.00
14,400.00	90.03	270.51	7,044.78	-515.73	-7,666.97	7,662.07	0.00	0.00	0.00
14,500.00	90.03	270.51	7,044.74	-514.84	-7,766.96	7,762.07	0.00	0.00	0.00
14,600.00	90.03	270.51	7,044.69	-513.95	-7,866.96	7,862.07	0.00	0.00	0.00
14,700.00	90.03	270.51	7,044.64	-513.06	-7,966.95	7,962.07	0.00	0.00	0.00
14,800.00	90.03	270.51	7,044.60	-512.17	-8,066.95	8,062.07	0.00	0.00	0.00
14,900.00	90.03	270.51	7,044.55	-511.28	-8,166.95	8,162.07	0.00	0.00	0.00
15,000.00	90.03	270.51	7,044.50	-510.40	-8,266.94	8,262.07	0.00	0.00	0.00
15,100.00	90.03	270.51	7,044.46	-509.51	-8,366.94	8,362.07	0.00	0.00	0.00
15,200.00	90.03	270.51	7,044.41	-508.62	-8,466.93	8,462.07	0.00	0.00	0.00
15,300.00	90.03	270.51	7,044.36	-507.73	-8,566.93	8,562.07	0.00	0.00	0.00
15,400.00	90.03	270.51	7,044.32	-506.84	-8,666.93	8,662.07	0.00	0.00	0.00
15,500.00	90.03	270.51	7,044.27	-505.95	-8,766.92	8,762.07	0.00	0.00	0.00
15,600.00	90.03	270.51	7,044.22	-505.07	-8,866.92	8,862.07	0.00	0.00	0.00
15,700.00	90.03	270.51	7,044.18	-504.18	-8,966.91	8,962.07	0.00	0.00	0.00
15,800.00	90.03	270.51	7,044.13	-503.29	-9,066.91	9,062.07	0.00	0.00	0.00
15,900.00	90.03	270.51	7,044.08	-502.40	-9,166.91	9,162.07	0.00	0.00	0.00
16,000.00	90.03	270.51	7,044.04	-501.51	-9,266.90	9,262.07	0.00	0.00	0.00
16,100.00	90.03	270.51	7,043.99	-500.62	-9,366.90	9,362.07	0.00	0.00	0.00
16,200.00	90.03	270.51	7,043.94	-499.74	-9,466.89	9,462.07	0.00	0.00	0.00
16,300.00	90.03	270.51	7,043.90	-498.85	-9,566.89	9,562.07	0.00	0.00	0.00
16,400.00	90.03	270.51	7,043.85	-497.96	-9,666.89	9,662.07	0.00	0.00	0.00
16,500.00	90.03	270.51	7,043.81	-497.07	-9,766.88	9,762.07	0.00	0.00	0.00
16,600.00	90.03	270.51	7,043.76	-496.18	-9,866.88	9,862.07	0.00	0.00	0.00
16,700.00	90.03	270.51	7,043.71	-495.29	-9,966.87	9,962.07	0.00	0.00	0.00
16,800.00	90.03	270.51	7,043.67	-494.41	-10,066.87	10,062.07	0.00	0.00	0.00
16,900.00	90.03	270.51	7,043.62	-493.52	-10,166.87	10,162.07	0.00	0.00	0.00
17,000.00	90.03	270.51	7,043.57	-492.63	-10,266.86	10,262.07	0.00	0.00	0.00
17,100.00	90.03	270.51	7,043.53	-491.74	-10,366.86	10,362.07	0.00	0.00	0.00
17,200.00	90.03	270.51	7,043.48	-490.85	-10,466.85	10,462.07	0.00	0.00	0.00
17,300.00	90.03	270.51	7,043.43	-489.97	-10,566.85	10,562.07	0.00	0.00	0.00
17,400.00	90.03	270.51	7,043.39	-489.08	-10,666.85	10,662.07	0.00	0.00	0.00
17,500.00	90.03	270.51	7,043.34	-488.19	-10,766.84	10,762.07	0.00	0.00	0.00
17,600.00	90.03	270.51	7,043.29	-487.30	-10,866.84	10,862.07	0.00	0.00	0.00
17,700.00	90.03	270.51	7,043.25	-486.41	-10,966.83	10,962.07	0.00	0.00	0.00
17,800.00	90.03	270.51	7,043.20	-485.52	-11,066.83	11,062.07	0.00	0.00	0.00
17,900.00	90.03	270.51	7,043.15	-484.64	-11,166.83	11,162.07	0.00	0.00	0.00
18,000.00	90.03	270.51	7,043.11	-483.75	-11,266.82	11,262.07	0.00	0.00	0.00
18,100.00	90.03	270.51	7,043.06	-482.86	-11,366.82	11,362.07	0.00	0.00	0.00
18,200.00	90.03	270.51	7,043.01	-481.97	-11,466.81	11,462.07	0.00	0.00	0.00
18,300.00	90.03	270.51	7,042.97	-481.08	-11,566.81	11,562.07	0.00	0.00	0.00
18,400.00	90.03	270.51	7,042.92	-480.19	-11,666.81	11,662.07	0.00	0.00	0.00
18,500.00	90.03	270.51	7,042.87	-479.31	-11,766.80	11,762.07	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-5HZ
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 18-5HZ	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)	
18,600.00	90.03	270.51	7,042.83	-478.42	-11,866.80	11,862.07	0.00	0.00	0.00	
18,700.00	90.03	270.51	7,042.78	-477.53	-11,966.80	11,962.07	0.00	0.00	0.00	
18,800.00	90.03	270.51	7,042.73	-476.64	-12,066.79	12,062.07	0.00	0.00	0.00	
18,900.00	90.03	270.51	7,042.69	-475.75	-12,166.79	12,162.07	0.00	0.00	0.00	
19,000.00	90.03	270.51	7,042.64	-474.86	-12,266.78	12,262.07	0.00	0.00	0.00	
19,100.00	90.03	270.51	7,042.59	-473.98	-12,366.78	12,362.07	0.00	0.00	0.00	
19,200.00	90.03	270.51	7,042.55	-473.09	-12,466.78	12,462.07	0.00	0.00	0.00	
19,300.00	90.03	270.51	7,042.50	-472.20	-12,566.77	12,562.07	0.00	0.00	0.00	
19,400.00	90.03	270.51	7,042.45	-471.31	-12,666.77	12,662.07	0.00	0.00	0.00	
19,500.00	90.03	270.51	7,042.41	-470.42	-12,766.76	12,762.07	0.00	0.00	0.00	
19,600.00	90.03	270.51	7,042.36	-469.53	-12,866.76	12,862.07	0.00	0.00	0.00	
19,700.00	90.03	270.51	7,042.31	-468.65	-12,966.76	12,962.07	0.00	0.00	0.00	
19,800.00	90.03	270.51	7,042.27	-467.76	-13,066.75	13,062.07	0.00	0.00	0.00	
19,900.00	90.03	270.51	7,042.22	-466.87	-13,166.75	13,162.07	0.00	0.00	0.00	
20,000.00	90.03	270.51	7,042.17	-465.98	-13,266.74	13,262.07	0.00	0.00	0.00	
20,100.00	90.03	270.51	7,042.13	-465.09	-13,366.74	13,362.07	0.00	0.00	0.00	
20,200.00	90.03	270.51	7,042.08	-464.20	-13,466.74	13,462.07	0.00	0.00	0.00	
20,300.00	90.03	270.51	7,042.03	-463.32	-13,566.73	13,562.07	0.00	0.00	0.00	
20,373.07	90.03	270.51	7,042.00	-462.67	-13,639.80	13,635.14	0.00	0.00	0.00	
TD Well @ 20373.07ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,510.89	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,505.43	7,048.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
934.28	932.00	Fox Hills				
3,468.63	3,428.00	Parkman				
3,986.64	3,939.00	Sussex				
6,920.00	6,822.00	Sharon Springs				
6,971.14	6,858.00	Niobrara				
7,070.27	6,920.00	Nio B				
7,348.76	7,031.00	Nio C				

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-5HZ
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 18-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-5		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
350.00	350.00	0.00	0.00	Begin Nudge @ 350.00ft
1,016.67	1,013.29	-57.76	-5.56	Hold Tangent @ 1016.67ft
3,806.67	3,760.90	-540.01	-52.00	Begin Drop @ 3806.67ft
4,306.67	4,258.37	-583.33	-56.17	End Drop @ 4306.67ft
6,380.10	6,331.80	-583.33	-56.17	KOP @ 6380.10ft :: DLS = 8"/100'
7,505.43	7,048.00	-576.97	-772.67	End Build @ 7505.43ft
20,373.07	7,042.00	-462.67	-13,639.80	TD Well @ 20373.07ft