

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

DAMORE 18-3HZ

Plan A

Plan: Permit Rev-5

SHL Lat/Long: 40.400949°/-104.942280°

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 18-3HZ
Wellbore: Plan A
Design: Permit Rev-5

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1503.81	9-5/8
7184.00	7602.19	5-1/2

WELL DETAILS: DAMORE 18-3HZ

GL = 4922.00

RKB = 17' @ 4939.00usft (Drilling Rig)

SECTION DETAILS

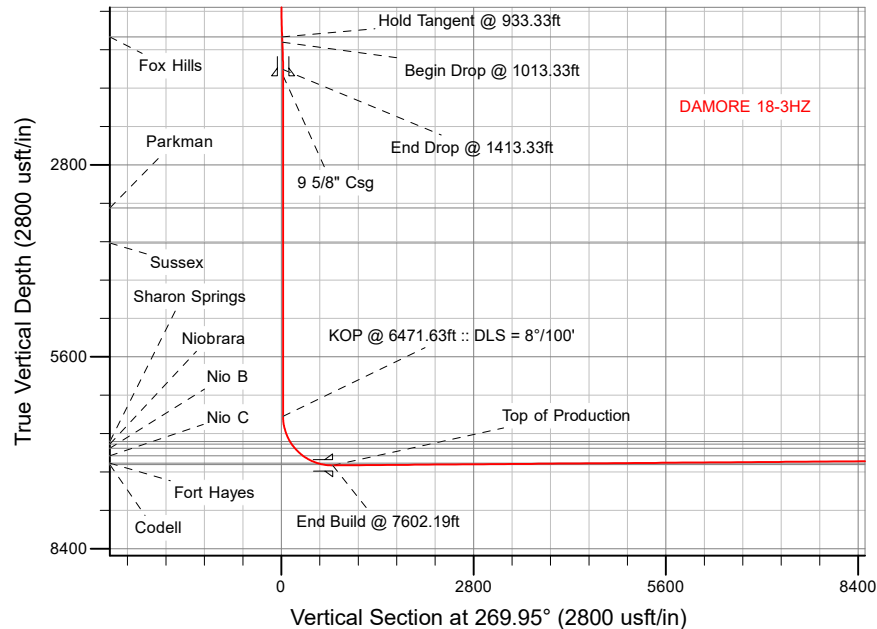
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	933.33	8.00	198.00	931.60	-35.35	-11.49	1.50	198.00	11.52	
4	1013.33	8.00	198.00	1010.82	-45.94	-14.93	0.00	0.00	14.97	
5	1413.33	0.00	0.00	1409.52	-72.46	-23.54	2.00	180.00	23.61	
6	6471.63	0.00	0.00	6467.82	-72.46	-23.54	0.00	0.00	23.61	
7	7602.19	90.45	269.95	7184.00	-73.10	-745.30	8.00	269.95	745.37	
8	20474.60	90.45	269.95	7084.00	-84.62	-13617.32	0.00	0.00	13617.39	DAMORE 18-3HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
DAMORE 18-3HZ_SHL	0.00	0.00	0.00	40.400949	-104.942280
DAMORE 18-3HZ_BHL	7084.00	-84.62	-13617.32	40.400706	-104.991192

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
932.00	933.74	Fox Hills
3428.00	3431.81	Parkman
3939.00	3942.81	Sussex
6839.00	6861.83	Sharon Springs
6875.00	6904.73	Niobrara
6937.00	6983.22	Nio B
7046.00	7144.53	Nio C
7152.00	7381.67	Fort Hayes
7174.00	7476.69	Codell

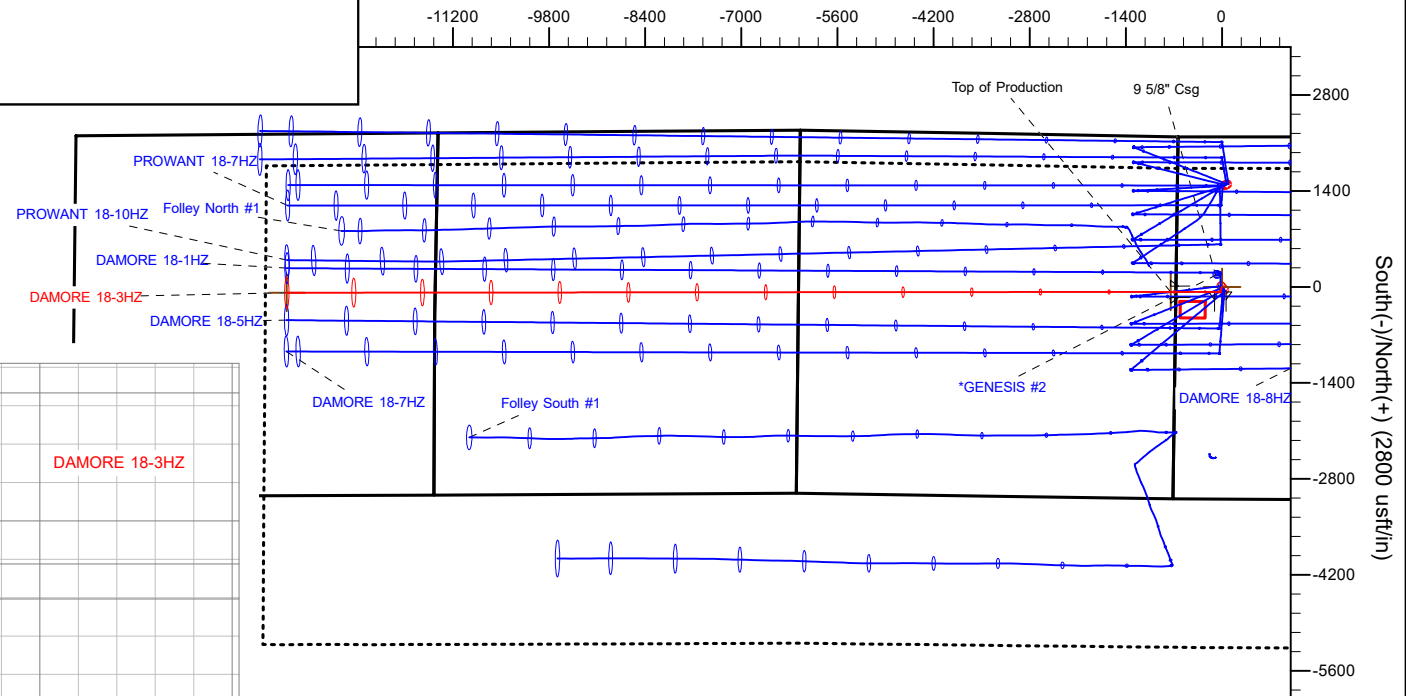


SHL
2190' FNL
671' FWL

HEEL
2265' FNL
75' FEL

TOE
2314' FNL
2159' FEL

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



Plan: Permit Rev-5 (DAMORE 18-3HZ/Plan A)

Date: 1/4/2019

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-3HZ
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 18-3HZ	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 18-3HZ			
Well Position	+N/-S	-22.94 usft	Northing:	14,672,745.52 usft
	+E/-W	19.21 usft	Easting:	1,656,486.27 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Latitude: 40.400949
				Longitude: -104.942280
				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	52,229.25484077

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	269.95

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	20,474.60	Permit Rev-5 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

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Site:	5N-67W-18 DAMORE 5-18HZ PAD	North Reference:	True
Well:	DAMORE 18-3HZ	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
933.33	8.00	198.00	931.60	-35.35	-11.49	1.50	1.50	0.00	198.00	
1,013.33	8.00	198.00	1,010.82	-45.94	-14.93	0.00	0.00	0.00	0.00	
1,413.33	0.00	0.00	1,409.52	-72.46	-23.54	2.00	-2.00	0.00	180.00	
6,471.63	0.00	0.00	6,467.82	-72.46	-23.54	0.00	0.00	0.00	0.00	
7,602.19	90.45	269.95	7,184.00	-73.10	-745.30	8.00	8.00	-7.97	269.95	
20,474.60	90.45	269.95	7,084.00	-84.62	-13,617.32	0.00	0.00	0.00	0.00	DAMORE 18-3HZ_B+

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 18-3HZ	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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 400.00ft									
500.00	1.50	198.00	499.99	-1.24	-0.40	0.41	1.50	1.50	0.00
600.00	3.00	198.00	599.91	-4.98	-1.62	1.62	1.50	1.50	0.00
700.00	4.50	198.00	699.69	-11.20	-3.64	3.65	1.50	1.50	0.00
800.00	6.00	198.00	799.27	-19.90	-6.47	6.48	1.50	1.50	0.00
900.00	7.50	198.00	898.57	-31.08	-10.10	10.13	1.50	1.50	0.00
933.33	8.00	198.00	931.60	-35.35	-11.49	11.52	1.50	1.50	0.00
Hold Tangent @ 933.33ft									
933.74	8.00	198.00	932.00	-35.41	-11.50	11.54	0.00	0.00	0.00
Fox Hills									
1,000.00	8.00	198.00	997.62	-44.18	-14.35	14.39	0.00	0.00	0.00
1,013.33	8.00	198.00	1,010.82	-45.94	-14.93	14.97	0.00	0.00	0.00
Begin Drop @ 1013.33ft									
1,100.00	6.27	198.00	1,096.82	-56.18	-18.25	18.30	2.00	-2.00	0.00
1,200.00	4.27	198.00	1,196.39	-64.91	-21.09	21.15	2.00	-2.00	0.00
1,300.00	2.27	198.00	1,296.22	-70.33	-22.85	22.91	2.00	-2.00	0.00
1,400.00	0.27	198.00	1,396.19	-72.43	-23.53	23.60	2.00	-2.00	0.00
1,413.33	0.00	0.00	1,409.52	-72.46	-23.54	23.61	2.00	-2.00	0.00
End Drop @ 1413.33ft									
1,500.00	0.00	0.00	1,496.19	-72.46	-23.54	23.61	0.00	0.00	0.00
1,503.81	0.00	0.00	1,500.00	-72.46	-23.54	23.61	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	0.00	0.00	1,596.19	-72.46	-23.54	23.61	0.00	0.00	0.00
1,700.00	0.00	0.00	1,696.19	-72.46	-23.54	23.61	0.00	0.00	0.00
1,800.00	0.00	0.00	1,796.19	-72.46	-23.54	23.61	0.00	0.00	0.00
1,900.00	0.00	0.00	1,896.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,000.00	0.00	0.00	1,996.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,100.00	0.00	0.00	2,096.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,200.00	0.00	0.00	2,196.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,300.00	0.00	0.00	2,296.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,400.00	0.00	0.00	2,396.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,500.00	0.00	0.00	2,496.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,600.00	0.00	0.00	2,596.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,700.00	0.00	0.00	2,696.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,800.00	0.00	0.00	2,796.19	-72.46	-23.54	23.61	0.00	0.00	0.00
2,900.00	0.00	0.00	2,896.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,000.00	0.00	0.00	2,996.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,100.00	0.00	0.00	3,096.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,200.00	0.00	0.00	3,196.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,300.00	0.00	0.00	3,296.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,400.00	0.00	0.00	3,396.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,431.81	0.00	0.00	3,428.00	-72.46	-23.54	23.61	0.00	0.00	0.00
Parkman									
3,500.00	0.00	0.00	3,496.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,600.00	0.00	0.00	3,596.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,700.00	0.00	0.00	3,696.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,800.00	0.00	0.00	3,796.19	-72.46	-23.54	23.61	0.00	0.00	0.00
3,900.00	0.00	0.00	3,896.19	-72.46	-23.54	23.61	0.00	0.00	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 18-3HZ	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)
3,942.81	0.00	0.00	3,939.00	-72.46	-23.54	23.61	0.00	0.00	0.00
Sussex									
4,000.00	0.00	0.00	3,996.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,100.00	0.00	0.00	4,096.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,200.00	0.00	0.00	4,196.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,300.00	0.00	0.00	4,296.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,400.00	0.00	0.00	4,396.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,500.00	0.00	0.00	4,496.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,600.00	0.00	0.00	4,596.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,700.00	0.00	0.00	4,696.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,800.00	0.00	0.00	4,796.19	-72.46	-23.54	23.61	0.00	0.00	0.00
4,900.00	0.00	0.00	4,896.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,000.00	0.00	0.00	4,996.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,100.00	0.00	0.00	5,096.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,200.00	0.00	0.00	5,196.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,300.00	0.00	0.00	5,296.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,400.00	0.00	0.00	5,396.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,500.00	0.00	0.00	5,496.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,600.00	0.00	0.00	5,596.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,700.00	0.00	0.00	5,696.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,800.00	0.00	0.00	5,796.19	-72.46	-23.54	23.61	0.00	0.00	0.00
5,900.00	0.00	0.00	5,896.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,000.00	0.00	0.00	5,996.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,100.00	0.00	0.00	6,096.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,200.00	0.00	0.00	6,196.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,300.00	0.00	0.00	6,296.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,400.00	0.00	0.00	6,396.19	-72.46	-23.54	23.61	0.00	0.00	0.00
6,471.63	0.00	0.00	6,467.82	-72.46	-23.54	23.61	0.00	0.00	0.00
KOP @ 6471.63ft :: DLS = 8°/100'									
6,500.00	2.27	269.95	6,496.18	-72.46	-24.10	24.17	8.00	8.00	0.00
6,600.00	10.27	269.95	6,595.51	-72.47	-35.02	35.08	8.00	8.00	0.00
6,700.00	18.27	269.95	6,692.34	-72.49	-59.65	59.71	8.00	8.00	0.00
6,800.00	26.27	269.95	6,784.81	-72.52	-97.51	97.57	8.00	8.00	0.00
6,861.83	31.22	269.95	6,839.00	-72.55	-127.23	127.30	8.00	8.00	0.00
Sharon Springs									
6,900.00	34.27	269.95	6,871.10	-72.57	-147.88	147.94	8.00	8.00	0.00
6,904.73	34.65	269.95	6,875.00	-72.57	-150.55	150.61	8.00	8.00	0.00
Niobrara									
6,983.22	40.93	269.95	6,937.00	-72.61	-198.62	198.68	8.00	8.00	0.00
Nio B									
7,000.00	42.27	269.95	6,949.55	-72.62	-209.76	209.83	8.00	8.00	0.00
7,100.00	50.27	269.95	7,018.62	-72.69	-281.96	282.03	8.00	8.00	0.00
7,144.53	53.83	269.95	7,046.00	-72.72	-317.07	317.14	8.00	8.00	0.00
Nio C									
7,200.00	58.27	269.95	7,076.97	-72.76	-363.08	363.14	8.00	8.00	0.00
7,300.00	66.27	269.95	7,123.46	-72.84	-451.52	451.58	8.00	8.00	0.00
7,381.67	72.80	269.95	7,152.00	-72.91	-527.99	528.05	8.00	8.00	0.00
Fort Hayes									
7,400.00	74.27	269.95	7,157.20	-72.92	-545.57	545.63	8.00	8.00	0.00
7,476.69	80.41	269.95	7,174.00	-72.99	-620.36	620.43	8.00	8.00	0.00
Codell									
7,500.00	82.27	269.95	7,177.51	-73.01	-643.40	643.47	8.00	8.00	0.00
7,600.00	90.27	269.95	7,184.01	-73.10	-743.11	743.17	8.00	8.00	0.00

Corporate Planning Report

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Well:	DAMORE 18-3HZ	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)
7,602.19	90.44	269.95	7,184.00	-73.10	-745.30	745.36	8.00	8.00	0.00
End Build @ 7602.19ft - Top of Production									
7,602.19	90.45	269.95	7,184.00	-73.10	-745.30	745.37	8.00	8.00	0.00
7,700.00	90.45	269.95	7,183.24	-73.19	-843.11	843.17	0.00	0.00	0.00
7,800.00	90.45	269.95	7,182.46	-73.28	-943.10	943.17	0.00	0.00	0.00
7,900.00	90.45	269.95	7,181.68	-73.37	-1,043.10	1,043.16	0.00	0.00	0.00
8,000.00	90.45	269.95	7,180.91	-73.46	-1,143.10	1,143.16	0.00	0.00	0.00
8,100.00	90.45	269.95	7,180.13	-73.55	-1,243.09	1,243.16	0.00	0.00	0.00
8,200.00	90.45	269.95	7,179.35	-73.64	-1,343.09	1,343.16	0.00	0.00	0.00
8,300.00	90.45	269.95	7,178.58	-73.73	-1,443.09	1,443.15	0.00	0.00	0.00
8,400.00	90.45	269.95	7,177.80	-73.82	-1,543.09	1,543.15	0.00	0.00	0.00
8,500.00	90.45	269.95	7,177.02	-73.91	-1,643.08	1,643.15	0.00	0.00	0.00
8,600.00	90.45	269.95	7,176.25	-74.00	-1,743.08	1,743.14	0.00	0.00	0.00
8,700.00	90.45	269.95	7,175.47	-74.09	-1,843.08	1,843.14	0.00	0.00	0.00
8,800.00	90.45	269.95	7,174.69	-74.18	-1,943.07	1,943.14	0.00	0.00	0.00
8,900.00	90.45	269.95	7,173.92	-74.26	-2,043.07	2,043.13	0.00	0.00	0.00
9,000.00	90.45	269.95	7,173.14	-74.35	-2,143.07	2,143.13	0.00	0.00	0.00
9,100.00	90.45	269.95	7,172.36	-74.44	-2,243.06	2,243.13	0.00	0.00	0.00
9,200.00	90.45	269.95	7,171.59	-74.53	-2,343.06	2,343.13	0.00	0.00	0.00
9,300.00	90.45	269.95	7,170.81	-74.62	-2,443.06	2,443.12	0.00	0.00	0.00
9,400.00	90.45	269.95	7,170.03	-74.71	-2,543.05	2,543.12	0.00	0.00	0.00
9,500.00	90.45	269.95	7,169.25	-74.80	-2,643.05	2,643.12	0.00	0.00	0.00
9,600.00	90.45	269.95	7,168.48	-74.89	-2,743.05	2,743.11	0.00	0.00	0.00
9,700.00	90.45	269.95	7,167.70	-74.98	-2,843.05	2,843.11	0.00	0.00	0.00
9,800.00	90.45	269.95	7,166.92	-75.07	-2,943.04	2,943.11	0.00	0.00	0.00
9,900.00	90.45	269.95	7,166.15	-75.16	-3,043.04	3,043.10	0.00	0.00	0.00
10,000.00	90.45	269.95	7,165.37	-75.25	-3,143.04	3,143.10	0.00	0.00	0.00
10,100.00	90.45	269.95	7,164.59	-75.34	-3,243.03	3,243.10	0.00	0.00	0.00
10,200.00	90.45	269.95	7,163.82	-75.43	-3,343.03	3,343.10	0.00	0.00	0.00
10,300.00	90.45	269.95	7,163.04	-75.52	-3,443.03	3,443.09	0.00	0.00	0.00
10,400.00	90.45	269.95	7,162.26	-75.61	-3,543.02	3,543.09	0.00	0.00	0.00
10,500.00	90.45	269.95	7,161.49	-75.70	-3,643.02	3,643.09	0.00	0.00	0.00
10,600.00	90.45	269.95	7,160.71	-75.79	-3,743.02	3,743.08	0.00	0.00	0.00
10,700.00	90.45	269.95	7,159.93	-75.87	-3,843.02	3,843.08	0.00	0.00	0.00
10,800.00	90.45	269.95	7,159.16	-75.96	-3,943.01	3,943.08	0.00	0.00	0.00
10,900.00	90.45	269.95	7,158.38	-76.05	-4,043.01	4,043.07	0.00	0.00	0.00
11,000.00	90.45	269.95	7,157.60	-76.14	-4,143.01	4,143.07	0.00	0.00	0.00
11,100.00	90.45	269.95	7,156.83	-76.23	-4,243.00	4,243.07	0.00	0.00	0.00
11,200.00	90.45	269.95	7,156.05	-76.32	-4,343.00	4,343.06	0.00	0.00	0.00
11,300.00	90.45	269.95	7,155.27	-76.41	-4,443.00	4,443.06	0.00	0.00	0.00
11,400.00	90.45	269.95	7,154.49	-76.50	-4,542.99	4,543.06	0.00	0.00	0.00
11,500.00	90.45	269.95	7,153.72	-76.59	-4,642.99	4,643.06	0.00	0.00	0.00
11,600.00	90.45	269.95	7,152.94	-76.68	-4,742.99	4,743.05	0.00	0.00	0.00
11,700.00	90.45	269.95	7,152.16	-76.77	-4,842.98	4,843.05	0.00	0.00	0.00
11,800.00	90.45	269.95	7,151.39	-76.86	-4,942.98	4,943.05	0.00	0.00	0.00
11,900.00	90.45	269.95	7,150.61	-76.95	-5,042.98	5,043.04	0.00	0.00	0.00
12,000.00	90.45	269.95	7,149.83	-77.04	-5,142.98	5,143.04	0.00	0.00	0.00
12,100.00	90.45	269.95	7,149.06	-77.13	-5,242.97	5,243.04	0.00	0.00	0.00
12,200.00	90.45	269.95	7,148.28	-77.22	-5,342.97	5,343.03	0.00	0.00	0.00
12,300.00	90.45	269.95	7,147.50	-77.31	-5,442.97	5,443.03	0.00	0.00	0.00
12,400.00	90.45	269.95	7,146.73	-77.40	-5,542.96	5,543.03	0.00	0.00	0.00
12,500.00	90.45	269.95	7,145.95	-77.49	-5,642.96	5,643.03	0.00	0.00	0.00
12,600.00	90.45	269.95	7,145.17	-77.57	-5,742.96	5,743.02	0.00	0.00	0.00
12,700.00	90.45	269.95	7,144.40	-77.66	-5,842.95	5,843.02	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-3HZ
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 18-3HZ	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)
12,800.00	90.45	269.95	7,143.62	-77.75	-5,942.95	5,943.02	0.00	0.00	0.00
12,900.00	90.45	269.95	7,142.84	-77.84	-6,042.95	6,043.01	0.00	0.00	0.00
13,000.00	90.45	269.95	7,142.07	-77.93	-6,142.94	6,143.01	0.00	0.00	0.00
13,100.00	90.45	269.95	7,141.29	-78.02	-6,242.94	6,243.01	0.00	0.00	0.00
13,200.00	90.45	269.95	7,140.51	-78.11	-6,342.94	6,343.00	0.00	0.00	0.00
13,300.00	90.45	269.95	7,139.74	-78.20	-6,442.94	6,443.00	0.00	0.00	0.00
13,400.00	90.45	269.95	7,138.96	-78.29	-6,542.93	6,543.00	0.00	0.00	0.00
13,500.00	90.45	269.95	7,138.18	-78.38	-6,642.93	6,643.00	0.00	0.00	0.00
13,600.00	90.45	269.95	7,137.40	-78.47	-6,742.93	6,742.99	0.00	0.00	0.00
13,700.00	90.45	269.95	7,136.63	-78.56	-6,842.92	6,842.99	0.00	0.00	0.00
13,800.00	90.45	269.95	7,135.85	-78.65	-6,942.92	6,942.99	0.00	0.00	0.00
13,900.00	90.45	269.95	7,135.07	-78.74	-7,042.92	7,042.98	0.00	0.00	0.00
14,000.00	90.45	269.95	7,134.30	-78.83	-7,142.91	7,142.98	0.00	0.00	0.00
14,100.00	90.45	269.95	7,133.52	-78.92	-7,242.91	7,242.98	0.00	0.00	0.00
14,200.00	90.45	269.95	7,132.74	-79.01	-7,342.91	7,342.97	0.00	0.00	0.00
14,300.00	90.45	269.95	7,131.97	-79.10	-7,442.91	7,442.97	0.00	0.00	0.00
14,400.00	90.45	269.95	7,131.19	-79.19	-7,542.90	7,542.97	0.00	0.00	0.00
14,500.00	90.45	269.95	7,130.41	-79.27	-7,642.90	7,642.97	0.00	0.00	0.00
14,600.00	90.45	269.95	7,129.64	-79.36	-7,742.90	7,742.96	0.00	0.00	0.00
14,700.00	90.45	269.95	7,128.86	-79.45	-7,842.89	7,842.96	0.00	0.00	0.00
14,800.00	90.45	269.95	7,128.08	-79.54	-7,942.89	7,942.96	0.00	0.00	0.00
14,900.00	90.45	269.95	7,127.31	-79.63	-8,042.89	8,042.95	0.00	0.00	0.00
15,000.00	90.45	269.95	7,126.53	-79.72	-8,142.88	8,142.95	0.00	0.00	0.00
15,100.00	90.45	269.95	7,125.75	-79.81	-8,242.88	8,242.95	0.00	0.00	0.00
15,200.00	90.45	269.95	7,124.98	-79.90	-8,342.88	8,342.94	0.00	0.00	0.00
15,300.00	90.45	269.95	7,124.20	-79.99	-8,442.87	8,442.94	0.00	0.00	0.00
15,400.00	90.45	269.95	7,123.42	-80.08	-8,542.87	8,542.94	0.00	0.00	0.00
15,500.00	90.45	269.95	7,122.64	-80.17	-8,642.87	8,642.94	0.00	0.00	0.00
15,600.00	90.45	269.95	7,121.87	-80.26	-8,742.87	8,742.93	0.00	0.00	0.00
15,700.00	90.45	269.95	7,121.09	-80.35	-8,842.86	8,842.93	0.00	0.00	0.00
15,800.00	90.45	269.95	7,120.31	-80.44	-8,942.86	8,942.93	0.00	0.00	0.00
15,900.00	90.45	269.95	7,119.54	-80.53	-9,042.86	9,042.92	0.00	0.00	0.00
16,000.00	90.45	269.95	7,118.76	-80.62	-9,142.85	9,142.92	0.00	0.00	0.00
16,100.00	90.45	269.95	7,117.98	-80.71	-9,242.85	9,242.92	0.00	0.00	0.00
16,200.00	90.45	269.95	7,117.21	-80.80	-9,342.85	9,342.91	0.00	0.00	0.00
16,300.00	90.45	269.95	7,116.43	-80.89	-9,442.84	9,442.91	0.00	0.00	0.00
16,400.00	90.45	269.95	7,115.65	-80.97	-9,542.84	9,542.91	0.00	0.00	0.00
16,500.00	90.45	269.95	7,114.88	-81.06	-9,642.84	9,642.91	0.00	0.00	0.00
16,600.00	90.45	269.95	7,114.10	-81.15	-9,742.83	9,742.90	0.00	0.00	0.00
16,700.00	90.45	269.95	7,113.32	-81.24	-9,842.83	9,842.90	0.00	0.00	0.00
16,800.00	90.45	269.95	7,112.55	-81.33	-9,942.83	9,942.90	0.00	0.00	0.00
16,900.00	90.45	269.95	7,111.77	-81.42	-10,042.83	10,042.89	0.00	0.00	0.00
17,000.00	90.45	269.95	7,110.99	-81.51	-10,142.82	10,142.89	0.00	0.00	0.00
17,100.00	90.45	269.95	7,110.22	-81.60	-10,242.82	10,242.89	0.00	0.00	0.00
17,200.00	90.45	269.95	7,109.44	-81.69	-10,342.82	10,342.88	0.00	0.00	0.00
17,300.00	90.45	269.95	7,108.66	-81.78	-10,442.81	10,442.88	0.00	0.00	0.00
17,400.00	90.45	269.95	7,107.88	-81.87	-10,542.81	10,542.88	0.00	0.00	0.00
17,500.00	90.45	269.95	7,107.11	-81.96	-10,642.81	10,642.87	0.00	0.00	0.00
17,600.00	90.45	269.95	7,106.33	-82.05	-10,742.80	10,742.87	0.00	0.00	0.00
17,700.00	90.45	269.95	7,105.55	-82.14	-10,842.80	10,842.87	0.00	0.00	0.00
17,800.00	90.45	269.95	7,104.78	-82.23	-10,942.80	10,942.87	0.00	0.00	0.00
17,900.00	90.45	269.95	7,104.00	-82.32	-11,042.80	11,042.86	0.00	0.00	0.00
18,000.00	90.45	269.95	7,103.22	-82.41	-11,142.79	11,142.86	0.00	0.00	0.00
18,100.00	90.45	269.95	7,102.45	-82.50	-11,242.79	11,242.86	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-3HZ
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 18-3HZ	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)	
18,200.00	90.45	269.95	7,101.67	-82.58	-11,342.79	11,342.85	0.00	0.00	0.00	
18,300.00	90.45	269.95	7,100.89	-82.67	-11,442.78	11,442.85	0.00	0.00	0.00	
18,400.00	90.45	269.95	7,100.12	-82.76	-11,542.78	11,542.85	0.00	0.00	0.00	
18,500.00	90.45	269.95	7,099.34	-82.85	-11,642.78	11,642.84	0.00	0.00	0.00	
18,600.00	90.45	269.95	7,098.56	-82.94	-11,742.77	11,742.84	0.00	0.00	0.00	
18,700.00	90.45	269.95	7,097.79	-83.03	-11,842.77	11,842.84	0.00	0.00	0.00	
18,800.00	90.45	269.95	7,097.01	-83.12	-11,942.77	11,942.84	0.00	0.00	0.00	
18,900.00	90.45	269.95	7,096.23	-83.21	-12,042.76	12,042.83	0.00	0.00	0.00	
19,000.00	90.45	269.95	7,095.46	-83.30	-12,142.76	12,142.83	0.00	0.00	0.00	
19,100.00	90.45	269.95	7,094.68	-83.39	-12,242.76	12,242.83	0.00	0.00	0.00	
19,200.00	90.45	269.95	7,093.90	-83.48	-12,342.76	12,342.82	0.00	0.00	0.00	
19,300.00	90.45	269.95	7,093.12	-83.57	-12,442.75	12,442.82	0.00	0.00	0.00	
19,400.00	90.45	269.95	7,092.35	-83.66	-12,542.75	12,542.82	0.00	0.00	0.00	
19,500.00	90.45	269.95	7,091.57	-83.75	-12,642.75	12,642.81	0.00	0.00	0.00	
19,600.00	90.45	269.95	7,090.79	-83.84	-12,742.74	12,742.81	0.00	0.00	0.00	
19,700.00	90.45	269.95	7,090.02	-83.93	-12,842.74	12,842.81	0.00	0.00	0.00	
19,800.00	90.45	269.95	7,089.24	-84.02	-12,942.74	12,942.81	0.00	0.00	0.00	
19,900.00	90.45	269.95	7,088.46	-84.11	-13,042.73	13,042.80	0.00	0.00	0.00	
20,000.00	90.45	269.95	7,087.69	-84.20	-13,142.73	13,142.80	0.00	0.00	0.00	
20,100.00	90.45	269.95	7,086.91	-84.28	-13,242.73	13,242.80	0.00	0.00	0.00	
20,200.00	90.45	269.95	7,086.13	-84.37	-13,342.72	13,342.79	0.00	0.00	0.00	
20,300.00	90.45	269.95	7,085.36	-84.46	-13,442.72	13,442.79	0.00	0.00	0.00	
20,400.00	90.45	269.95	7,084.58	-84.55	-13,542.72	13,542.79	0.00	0.00	0.00	
20,474.60	90.45	269.95	7,084.00	-84.62	-13,617.32	13,617.39	0.00	0.00	0.00	
TD Well @ 20474.60ft										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,503.81	1,500.00	9 5/8" Csg	9-5/8	13-1/2		
7,602.19	7,184.00	Top of Production	5-1/2	7-7/8		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
933.74	932.00	Fox Hills				
3,431.81	3,428.00	Parkman				
3,942.81	3,939.00	Sussex				
6,861.83	6,839.00	Sharon Springs				
6,904.73	6,875.00	Niobrara				
6,983.22	6,937.00	Nio B				
7,144.53	7,046.00	Nio C				
7,381.67	7,152.00	Fort Hayes				
7,476.69	7,174.00	Codell				

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DAMORE 18-3HZ
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 18-3HZ	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)	
400.00	400.00	0.00	0.00	Begin Nudge @ 400.00ft
933.33	931.60	-35.35	-11.49	Hold Tangent @ 933.33ft
1,013.33	1,010.82	-45.94	-14.93	Begin Drop @ 1013.33ft
1,413.33	1,409.52	-72.46	-23.54	End Drop @ 1413.33ft
6,471.63	6,467.82	-72.46	-23.54	KOP @ 6471.63ft :: DLS = 8"/100'
7,602.19	7,184.00	-73.10	-745.30	End Build @ 7602.19ft
20,474.60	7,084.00	-84.62	-13,617.32	TD Well @ 20474.60ft