

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-11HZ**

Plan A

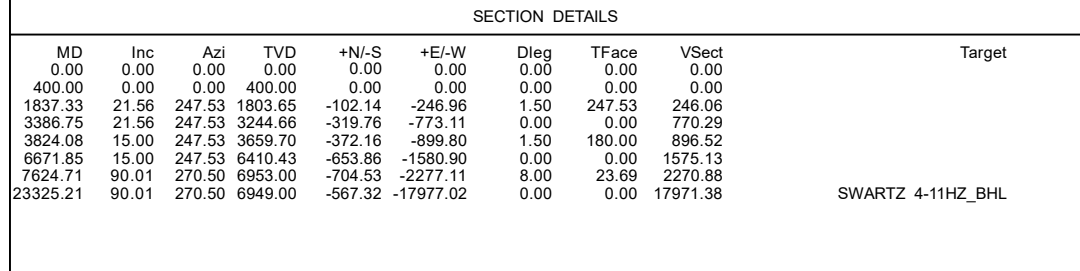
Plan: Permit Rev-1

Standard Planning Report

16 December, 2021

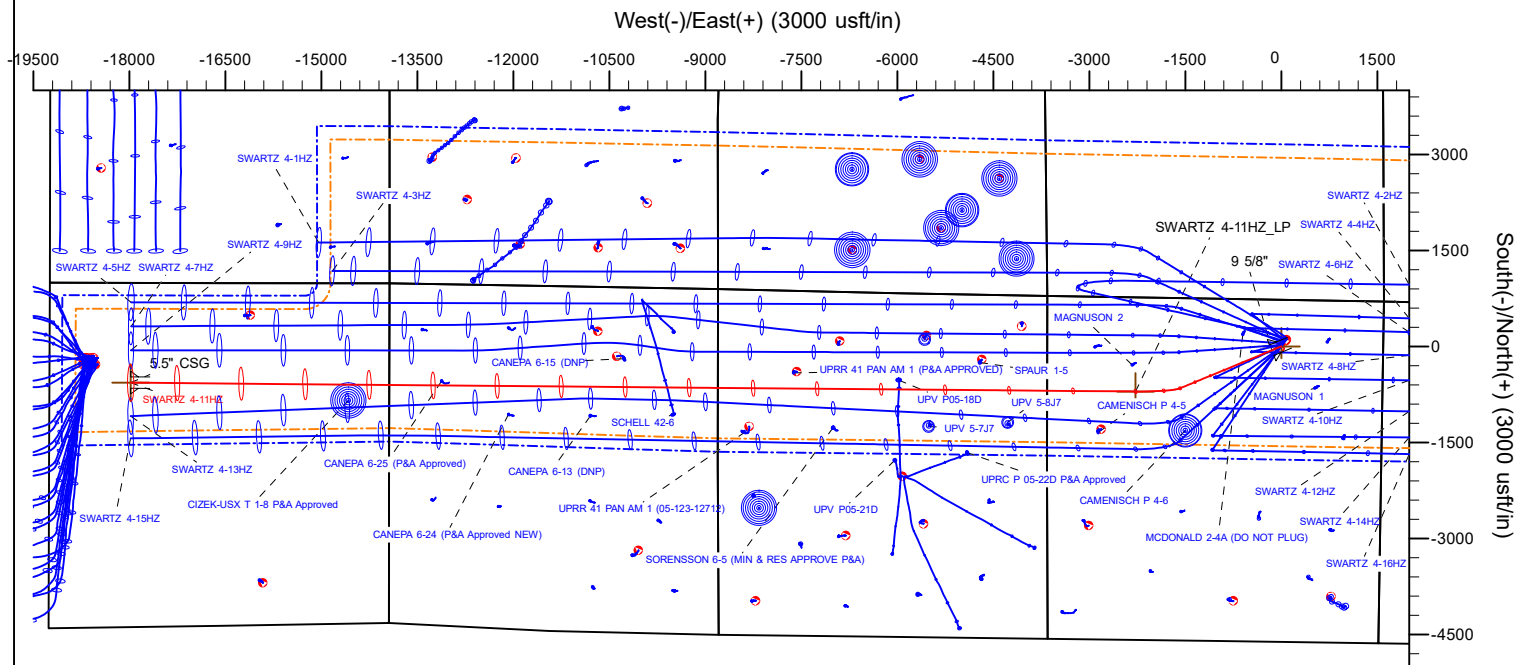
US ROCKIES WATTENBERG PLANNING

CASING DETAILS			
TVD	MD	Name	Size
1500.00	1515.80	9 5/8"	9-5/8
6949.00	23325.21	5.5" CSG	5-1/2

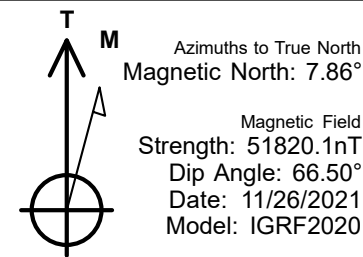


WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	Northing	Easting	Latitude	Longitude	
SWARTZ 4-11HZ_SHL	0.00	14621482.27	1670612.31	40.260142	-104.891766	
SWARTZ 4-11HZ_LP	6953.00	14620774.96	1668336.06	40.258207	-104.899928	
SWARTZ 4-11HZ_BHL	6949.00	14620893.00	1652636.00	40.258566	-104.956202	

WELL DETAILS: SWARTZ 4-11HZ	
GL = 4825'	
RKB = 17' @ 4842.00usft (RIG)	
Plan: Permit Rev-1 (SWARTZ 4-11HZ/Plan A)	
Date:	12/16/2021



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
707.00	707.33	Fox Hills
3598.00	3760.06	Parkman
4080.00	4259.21	Sussex
6841.00	7217.44	Sharon Springs
6871.00	7277.49	Niobrara



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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		3N-67W-04 SWARTZ 2-4HZ PAD			
Site Position:		Northing:	14,621,599.90 usft	Latitude:	40.260465
From:	Map	Easting:	1,670,705.29 usft	Longitude:	-104.891433
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well		SWARTZ 4-11HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,482.27 usft	Latitude:	40.260142
	+E/-W	0.00 usft	Easting:	1,670,612.31 usft	Longitude:	-104.891766
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:		0.07 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	11/26/2021	7.86	66.50	51,820.07887787

Design	Permit Rev-1				
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	270.50	

Plan Survey Tool Program	Date	12/15/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD Fixed:v2:standard declination	
2	2,000.00	23,325.21	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,837.33	21.56	247.53	1,803.65	-102.14	-246.96	1.50	1.50	0.00	247.53	
3,386.75	21.56	247.53	3,244.66	-319.76	-773.11	0.00	0.00	0.00	0.00	
3,824.08	15.00	247.53	3,659.70	-372.16	-899.80	1.50	-1.50	0.00	180.00	
6,671.85	15.00	247.53	6,410.43	-653.86	-1,580.90	0.00	0.00	0.00	0.00	
7,624.71	90.01	270.50	6,953.00	-704.53	-2,277.11	8.00	7.87	2.41	23.69	
23,325.21	90.01	270.50	6,949.00	-567.32	-17,977.02	0.00	0.00	0.00	0.00	SWARTZ 4-11HZ_BH

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
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	247.53	499.99	-0.50	-1.21	1.21	1.50	1.50	0.00
600.00	3.00	247.53	599.91	-2.00	-4.84	4.82	1.50	1.50	0.00
700.00	4.50	247.53	699.69	-4.50	-10.88	10.84	1.50	1.50	0.00
707.33	4.61	247.53	707.00	-4.72	-11.42	11.38	1.50	1.50	0.00
Fox Hills									
800.00	6.00	247.53	799.27	-8.00	-19.34	19.27	1.50	1.50	0.00
900.00	7.50	247.53	898.57	-12.49	-30.20	30.09	1.50	1.50	0.00
1,000.00	9.00	247.53	997.54	-17.97	-43.46	43.30	1.50	1.50	0.00
1,100.00	10.50	247.53	1,096.09	-24.45	-59.11	58.89	1.50	1.50	0.00
1,200.00	12.00	247.53	1,194.16	-31.90	-77.13	76.85	1.50	1.50	0.00
1,300.00	13.50	247.53	1,291.70	-40.34	-97.53	97.17	1.50	1.50	0.00
1,400.00	15.00	247.53	1,388.62	-49.74	-120.27	119.83	1.50	1.50	0.00
1,500.00	16.50	247.53	1,484.86	-60.12	-145.36	144.82	1.50	1.50	0.00
1,515.80	16.74	247.53	1,500.00	-61.85	-149.53	148.99	1.50	1.50	0.00
9 5/8"									
1,600.00	18.00	247.53	1,580.36	-71.45	-172.76	172.13	1.50	1.50	0.00
1,700.00	19.50	247.53	1,675.05	-83.74	-202.46	201.72	1.50	1.50	0.00
1,800.00	21.00	247.53	1,768.86	-96.97	-234.44	233.59	1.50	1.50	0.00
1,837.33	21.56	247.53	1,803.65	-102.14	-246.96	246.06	1.50	1.50	0.00
Hold Tangent @ 1837.33ft									
1,900.00	21.56	247.53	1,861.93	-110.95	-268.24	267.27	0.00	0.00	0.00
2,000.00	21.56	247.53	1,954.94	-124.99	-302.20	301.10	0.00	0.00	0.00
2,100.00	21.56	247.53	2,047.94	-139.04	-336.16	334.93	0.00	0.00	0.00
2,200.00	21.56	247.53	2,140.94	-153.08	-370.12	368.77	0.00	0.00	0.00
2,300.00	21.56	247.53	2,233.95	-167.13	-404.07	402.60	0.00	0.00	0.00
2,400.00	21.56	247.53	2,326.95	-181.17	-438.03	436.43	0.00	0.00	0.00
2,500.00	21.56	247.53	2,419.95	-195.21	-471.99	470.27	0.00	0.00	0.00
2,600.00	21.56	247.53	2,512.96	-209.26	-505.95	504.10	0.00	0.00	0.00
2,700.00	21.56	247.53	2,605.96	-223.30	-539.90	537.94	0.00	0.00	0.00
2,800.00	21.56	247.53	2,698.96	-237.35	-573.86	571.77	0.00	0.00	0.00
2,900.00	21.56	247.53	2,791.97	-251.39	-607.82	605.60	0.00	0.00	0.00
3,000.00	21.56	247.53	2,884.97	-265.44	-641.78	639.44	0.00	0.00	0.00
3,100.00	21.56	247.53	2,977.97	-279.48	-675.74	673.27	0.00	0.00	0.00
3,200.00	21.56	247.53	3,070.98	-293.53	-709.69	707.10	0.00	0.00	0.00
3,300.00	21.56	247.53	3,163.98	-307.57	-743.65	740.94	0.00	0.00	0.00
3,386.75	21.56	247.53	3,244.66	-319.76	-773.11	770.29	0.00	0.00	0.00
Begin Drop @ 3386.75ft									
3,400.00	21.36	247.53	3,256.99	-321.61	-777.59	774.75	1.50	-1.50	0.00
3,500.00	19.86	247.53	3,350.59	-335.06	-810.12	807.16	1.50	-1.50	0.00
3,600.00	18.36	247.53	3,445.08	-347.58	-840.37	837.31	1.50	-1.50	0.00
3,700.00	16.86	247.53	3,540.39	-359.14	-868.33	865.16	1.50	-1.50	0.00
3,760.06	15.96	247.53	3,598.00	-365.63	-884.01	880.79	1.50	-1.50	0.00
Parkman									
3,800.00	15.36	247.53	3,636.46	-369.75	-893.97	890.71	1.50	-1.50	0.00
3,824.08	15.00	247.53	3,659.70	-372.16	-899.80	896.52	1.50	-1.50	0.00
Hold Vertical @ 3824.08ft									
3,900.00	15.00	247.53	3,733.03	-379.67	-917.96	914.61	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,000.00	15.00	247.53	3,829.62	-389.56	-941.87	938.44	0.00	0.00	0.00	
4,100.00	15.00	247.53	3,926.21	-399.45	-965.79	962.27	0.00	0.00	0.00	
4,200.00	15.00	247.53	4,022.81	-409.34	-989.71	986.10	0.00	0.00	0.00	
4,259.21	15.00	247.53	4,080.00	-415.20	-1,003.87	1,000.21	0.00	0.00	0.00	
Sussex										
4,300.00	15.00	247.53	4,119.40	-419.24	-1,013.62	1,009.93	0.00	0.00	0.00	
4,400.00	15.00	247.53	4,215.99	-429.13	-1,037.54	1,033.76	0.00	0.00	0.00	
4,500.00	15.00	247.53	4,312.58	-439.02	-1,061.46	1,057.59	0.00	0.00	0.00	
4,600.00	15.00	247.53	4,409.18	-448.91	-1,085.38	1,081.42	0.00	0.00	0.00	
4,700.00	15.00	247.53	4,505.77	-458.80	-1,109.29	1,105.25	0.00	0.00	0.00	
4,800.00	15.00	247.53	4,602.36	-468.70	-1,133.21	1,129.08	0.00	0.00	0.00	
4,900.00	15.00	247.53	4,698.95	-478.59	-1,157.13	1,152.91	0.00	0.00	0.00	
5,000.00	15.00	247.53	4,795.55	-488.48	-1,181.04	1,176.74	0.00	0.00	0.00	
5,100.00	15.00	247.53	4,892.14	-498.37	-1,204.96	1,200.57	0.00	0.00	0.00	
5,200.00	15.00	247.53	4,988.73	-508.26	-1,228.88	1,224.39	0.00	0.00	0.00	
5,300.00	15.00	247.53	5,085.32	-518.16	-1,252.79	1,248.22	0.00	0.00	0.00	
5,400.00	15.00	247.53	5,181.92	-528.05	-1,276.71	1,272.05	0.00	0.00	0.00	
5,500.00	15.00	247.53	5,278.51	-537.94	-1,300.63	1,295.88	0.00	0.00	0.00	
5,600.00	15.00	247.53	5,375.10	-547.83	-1,324.54	1,319.71	0.00	0.00	0.00	
5,700.00	15.00	247.53	5,471.69	-557.72	-1,348.46	1,343.54	0.00	0.00	0.00	
5,800.00	15.00	247.53	5,568.29	-567.62	-1,372.38	1,367.37	0.00	0.00	0.00	
5,900.00	15.00	247.53	5,664.88	-577.51	-1,396.30	1,391.20	0.00	0.00	0.00	
6,000.00	15.00	247.53	5,761.47	-587.40	-1,420.21	1,415.03	0.00	0.00	0.00	
6,100.00	15.00	247.53	5,858.06	-597.29	-1,444.13	1,438.86	0.00	0.00	0.00	
6,200.00	15.00	247.53	5,954.66	-607.18	-1,468.05	1,462.69	0.00	0.00	0.00	
6,300.00	15.00	247.53	6,051.25	-617.08	-1,491.96	1,486.52	0.00	0.00	0.00	
6,400.00	15.00	247.53	6,147.84	-626.97	-1,515.88	1,510.35	0.00	0.00	0.00	
6,500.00	15.00	247.53	6,244.44	-636.86	-1,539.80	1,534.18	0.00	0.00	0.00	
6,600.00	15.00	247.53	6,341.03	-646.75	-1,563.71	1,558.01	0.00	0.00	0.00	
6,671.85	15.00	247.53	6,410.43	-653.86	-1,580.90	1,575.13	0.00	0.00	0.00	
KOP @ 6671.85ft :: DLS = 8°/100'										
6,700.00	17.09	250.61	6,437.48	-656.63	-1,588.17	1,582.38	8.00	7.41	10.94	
6,750.00	20.87	254.58	6,484.76	-661.43	-1,603.69	1,597.86	8.00	7.58	7.95	
6,800.00	24.73	257.37	6,530.84	-666.09	-1,622.49	1,616.61	8.00	7.70	5.58	
6,850.00	28.62	259.45	6,575.52	-670.57	-1,644.47	1,638.56	8.00	7.78	4.15	
6,900.00	32.53	261.06	6,618.56	-674.85	-1,669.53	1,663.58	8.00	7.83	3.23	
6,950.00	36.46	262.36	6,659.76	-678.92	-1,697.55	1,691.56	8.00	7.86	2.60	
7,000.00	40.41	263.44	6,698.92	-682.74	-1,728.39	1,722.36	8.00	7.89	2.16	
7,050.00	44.36	264.36	6,735.84	-686.31	-1,761.90	1,755.84	8.00	7.90	1.83	
7,100.00	48.32	265.16	6,770.36	-689.61	-1,797.91	1,791.82	8.00	7.92	1.59	
7,150.00	52.28	265.86	6,802.29	-692.61	-1,836.25	1,830.14	8.00	7.93	1.41	
7,200.00	56.25	266.49	6,831.49	-695.31	-1,876.74	1,870.60	8.00	7.93	1.26	
7,217.44	57.63	266.70	6,841.00	-696.18	-1,891.33	1,885.18	8.00	7.94	1.18	
Sharon Springs										
7,250.00	60.22	267.07	6,857.81	-697.69	-1,919.17	1,913.01	8.00	7.94	1.13	
7,277.49	62.40	267.37	6,871.00	-698.86	-1,943.25	1,937.08	8.00	7.94	1.08	
Niobrara										
7,300.00	64.19	267.60	6,881.12	-699.75	-1,963.35	1,957.17	8.00	7.95	1.04	
7,350.00	68.16	268.10	6,901.31	-701.46	-2,009.04	2,002.85	8.00	7.95	0.99	
7,400.00	72.14	268.57	6,918.28	-702.83	-2,056.04	2,049.83	8.00	7.95	0.94	
7,450.00	76.12	269.02	6,931.96	-703.84	-2,104.12	2,097.90	8.00	7.95	0.90	
7,500.00	80.09	269.45	6,942.26	-704.49	-2,153.03	2,146.80	8.00	7.95	0.87	
7,550.00	84.07	269.88	6,949.15	-704.78	-2,202.54	2,196.31	8.00	7.96	0.85	

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,600.00	88.05	270.30	6,952.58	-704.70	-2,252.41	2,246.18	8.00	7.96	0.84
7,624.71	90.01	270.50	6,953.00	-704.53	-2,277.11	2,270.88	8.00	7.96	0.83
End Build @ 7624.71ft									
7,700.00	90.01	270.50	6,952.98	-703.87	-2,352.41	2,346.17	0.00	0.00	0.00
7,800.00	90.01	270.50	6,952.96	-703.00	-2,452.40	2,446.17	0.00	0.00	0.00
7,900.00	90.01	270.50	6,952.93	-702.12	-2,552.40	2,546.17	0.00	0.00	0.00
8,000.00	90.01	270.50	6,952.90	-701.25	-2,652.39	2,646.17	0.00	0.00	0.00
8,100.00	90.01	270.50	6,952.88	-700.38	-2,752.39	2,746.17	0.00	0.00	0.00
8,200.00	90.01	270.50	6,952.85	-699.50	-2,852.39	2,846.17	0.00	0.00	0.00
8,300.00	90.01	270.50	6,952.83	-698.63	-2,952.38	2,946.17	0.00	0.00	0.00
8,400.00	90.01	270.50	6,952.80	-697.75	-3,052.38	3,046.17	0.00	0.00	0.00
8,500.00	90.01	270.50	6,952.78	-696.88	-3,152.37	3,146.17	0.00	0.00	0.00
8,600.00	90.01	270.50	6,952.75	-696.01	-3,252.37	3,246.17	0.00	0.00	0.00
8,700.00	90.01	270.50	6,952.73	-695.13	-3,352.37	3,346.17	0.00	0.00	0.00
8,800.00	90.01	270.50	6,952.70	-694.26	-3,452.36	3,446.17	0.00	0.00	0.00
8,900.00	90.01	270.50	6,952.68	-693.38	-3,552.36	3,546.17	0.00	0.00	0.00
9,000.00	90.01	270.50	6,952.65	-692.51	-3,652.36	3,646.17	0.00	0.00	0.00
9,100.00	90.01	270.50	6,952.62	-691.64	-3,752.35	3,746.17	0.00	0.00	0.00
9,200.00	90.01	270.50	6,952.60	-690.76	-3,852.35	3,846.17	0.00	0.00	0.00
9,300.00	90.01	270.50	6,952.57	-689.89	-3,952.34	3,946.17	0.00	0.00	0.00
9,400.00	90.01	270.50	6,952.55	-689.02	-4,052.34	4,046.17	0.00	0.00	0.00
9,500.00	90.01	270.50	6,952.52	-688.14	-4,152.34	4,146.17	0.00	0.00	0.00
9,600.00	90.01	270.50	6,952.50	-687.27	-4,252.33	4,246.17	0.00	0.00	0.00
9,700.00	90.01	270.50	6,952.47	-686.39	-4,352.33	4,346.17	0.00	0.00	0.00
9,800.00	90.01	270.50	6,952.45	-685.52	-4,452.33	4,446.17	0.00	0.00	0.00
9,900.00	90.01	270.50	6,952.42	-684.65	-4,552.32	4,546.17	0.00	0.00	0.00
10,000.00	90.01	270.50	6,952.39	-683.77	-4,652.32	4,646.17	0.00	0.00	0.00
10,100.00	90.01	270.50	6,952.37	-682.90	-4,752.31	4,746.17	0.00	0.00	0.00
10,200.00	90.01	270.50	6,952.34	-682.02	-4,852.31	4,846.17	0.00	0.00	0.00
10,300.00	90.01	270.50	6,952.32	-681.15	-4,952.31	4,946.17	0.00	0.00	0.00
10,400.00	90.01	270.50	6,952.29	-680.28	-5,052.30	5,046.17	0.00	0.00	0.00
10,500.00	90.01	270.50	6,952.27	-679.40	-5,152.30	5,146.17	0.00	0.00	0.00
10,600.00	90.01	270.50	6,952.24	-678.53	-5,252.29	5,246.17	0.00	0.00	0.00
10,700.00	90.01	270.50	6,952.22	-677.65	-5,352.29	5,346.17	0.00	0.00	0.00
10,800.00	90.01	270.50	6,952.19	-676.78	-5,452.29	5,446.17	0.00	0.00	0.00
10,900.00	90.01	270.50	6,952.17	-675.91	-5,552.28	5,546.17	0.00	0.00	0.00
11,000.00	90.01	270.50	6,952.14	-675.03	-5,652.28	5,646.17	0.00	0.00	0.00
11,100.00	90.01	270.50	6,952.11	-674.16	-5,752.28	5,746.17	0.00	0.00	0.00
11,200.00	90.01	270.50	6,952.09	-673.28	-5,852.27	5,846.17	0.00	0.00	0.00
11,300.00	90.01	270.50	6,952.06	-672.41	-5,952.27	5,946.17	0.00	0.00	0.00
11,400.00	90.01	270.50	6,952.04	-671.54	-6,052.26	6,046.17	0.00	0.00	0.00
11,500.00	90.01	270.50	6,952.01	-670.66	-6,152.26	6,146.17	0.00	0.00	0.00
11,600.00	90.01	270.50	6,951.99	-669.79	-6,252.26	6,246.17	0.00	0.00	0.00
11,700.00	90.01	270.50	6,951.96	-668.92	-6,352.25	6,346.17	0.00	0.00	0.00
11,800.00	90.01	270.50	6,951.94	-668.04	-6,452.25	6,446.17	0.00	0.00	0.00
11,900.00	90.01	270.50	6,951.91	-667.17	-6,552.24	6,546.17	0.00	0.00	0.00
12,000.00	90.01	270.50	6,951.89	-666.29	-6,652.24	6,646.17	0.00	0.00	0.00
12,100.00	90.01	270.50	6,951.86	-665.42	-6,752.24	6,746.17	0.00	0.00	0.00
12,200.00	90.01	270.50	6,951.83	-664.55	-6,852.23	6,846.17	0.00	0.00	0.00
12,300.00	90.01	270.50	6,951.81	-663.67	-6,952.23	6,946.17	0.00	0.00	0.00
12,400.00	90.01	270.50	6,951.78	-662.80	-7,052.23	7,046.17	0.00	0.00	0.00
12,500.00	90.01	270.50	6,951.76	-661.92	-7,152.22	7,146.17	0.00	0.00	0.00
12,600.00	90.01	270.50	6,951.73	-661.05	-7,252.22	7,246.17	0.00	0.00	0.00
12,700.00	90.01	270.50	6,951.71	-660.18	-7,352.21	7,346.17	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.00	90.01	270.50	6,951.68	-659.30	-7,452.21	7,446.17	0.00	0.00	0.00
12,900.00	90.01	270.50	6,951.66	-658.43	-7,552.21	7,546.17	0.00	0.00	0.00
13,000.00	90.01	270.50	6,951.63	-657.55	-7,652.20	7,646.17	0.00	0.00	0.00
13,100.00	90.01	270.50	6,951.61	-656.68	-7,752.20	7,746.17	0.00	0.00	0.00
13,200.00	90.01	270.50	6,951.58	-655.81	-7,852.20	7,846.17	0.00	0.00	0.00
13,300.00	90.01	270.50	6,951.55	-654.93	-7,952.19	7,946.17	0.00	0.00	0.00
13,400.00	90.01	270.50	6,951.53	-654.06	-8,052.19	8,046.17	0.00	0.00	0.00
13,500.00	90.01	270.50	6,951.50	-653.19	-8,152.18	8,146.17	0.00	0.00	0.00
13,600.00	90.01	270.50	6,951.48	-652.31	-8,252.18	8,246.17	0.00	0.00	0.00
13,700.00	90.01	270.50	6,951.45	-651.44	-8,352.18	8,346.17	0.00	0.00	0.00
13,800.00	90.01	270.50	6,951.43	-650.56	-8,452.17	8,446.17	0.00	0.00	0.00
13,900.00	90.01	270.50	6,951.40	-649.69	-8,552.17	8,546.17	0.00	0.00	0.00
14,000.00	90.01	270.50	6,951.38	-648.82	-8,652.16	8,646.17	0.00	0.00	0.00
14,100.00	90.01	270.50	6,951.35	-647.94	-8,752.16	8,746.17	0.00	0.00	0.00
14,200.00	90.01	270.50	6,951.32	-647.07	-8,852.16	8,846.17	0.00	0.00	0.00
14,300.00	90.01	270.50	6,951.30	-646.19	-8,952.15	8,946.17	0.00	0.00	0.00
14,400.00	90.01	270.50	6,951.27	-645.32	-9,052.15	9,046.17	0.00	0.00	0.00
14,500.00	90.01	270.50	6,951.25	-644.45	-9,152.15	9,146.17	0.00	0.00	0.00
14,600.00	90.01	270.50	6,951.22	-643.57	-9,252.14	9,246.17	0.00	0.00	0.00
14,700.00	90.01	270.50	6,951.20	-642.70	-9,352.14	9,346.17	0.00	0.00	0.00
14,800.00	90.01	270.50	6,951.17	-641.82	-9,452.13	9,446.17	0.00	0.00	0.00
14,900.00	90.01	270.50	6,951.15	-640.95	-9,552.13	9,546.17	0.00	0.00	0.00
15,000.00	90.01	270.50	6,951.12	-640.08	-9,652.13	9,646.17	0.00	0.00	0.00
15,100.00	90.01	270.50	6,951.10	-639.20	-9,752.12	9,746.17	0.00	0.00	0.00
15,200.00	90.01	270.50	6,951.07	-638.33	-9,852.12	9,846.17	0.00	0.00	0.00
15,300.00	90.01	270.50	6,951.04	-637.45	-9,952.12	9,946.17	0.00	0.00	0.00
15,400.00	90.01	270.50	6,951.02	-636.58	-10,052.11	10,046.17	0.00	0.00	0.00
15,500.00	90.01	270.50	6,950.99	-635.71	-10,152.11	10,146.17	0.00	0.00	0.00
15,600.00	90.01	270.50	6,950.97	-634.83	-10,252.10	10,246.17	0.00	0.00	0.00
15,700.00	90.01	270.50	6,950.94	-633.96	-10,352.10	10,346.17	0.00	0.00	0.00
15,800.00	90.01	270.50	6,950.92	-633.09	-10,452.10	10,446.17	0.00	0.00	0.00
15,900.00	90.01	270.50	6,950.89	-632.21	-10,552.09	10,546.17	0.00	0.00	0.00
16,000.00	90.01	270.50	6,950.87	-631.34	-10,652.09	10,646.17	0.00	0.00	0.00
16,100.00	90.01	270.50	6,950.84	-630.46	-10,752.08	10,746.17	0.00	0.00	0.00
16,200.00	90.01	270.50	6,950.82	-629.59	-10,852.08	10,846.17	0.00	0.00	0.00
16,300.00	90.01	270.50	6,950.79	-628.72	-10,952.08	10,946.17	0.00	0.00	0.00
16,400.00	90.01	270.50	6,950.76	-627.84	-11,052.07	11,046.17	0.00	0.00	0.00
16,500.00	90.01	270.50	6,950.74	-626.97	-11,152.07	11,146.17	0.00	0.00	0.00
16,600.00	90.01	270.50	6,950.71	-626.09	-11,252.07	11,246.17	0.00	0.00	0.00
16,700.00	90.01	270.50	6,950.69	-625.22	-11,352.06	11,346.17	0.00	0.00	0.00
16,800.00	90.01	270.50	6,950.66	-624.35	-11,452.06	11,446.17	0.00	0.00	0.00
16,900.00	90.01	270.50	6,950.64	-623.47	-11,552.05	11,546.17	0.00	0.00	0.00
17,000.00	90.01	270.50	6,950.61	-622.60	-11,652.05	11,646.17	0.00	0.00	0.00
17,100.00	90.01	270.50	6,950.59	-621.72	-11,752.05	11,746.17	0.00	0.00	0.00
17,200.00	90.01	270.50	6,950.56	-620.85	-11,852.04	11,846.17	0.00	0.00	0.00
17,300.00	90.01	270.50	6,950.54	-619.98	-11,952.04	11,946.17	0.00	0.00	0.00
17,400.00	90.01	270.50	6,950.51	-619.10	-12,052.03	12,046.17	0.00	0.00	0.00
17,500.00	90.01	270.50	6,950.48	-618.23	-12,152.03	12,146.17	0.00	0.00	0.00
17,600.00	90.01	270.50	6,950.46	-617.36	-12,252.03	12,246.17	0.00	0.00	0.00
17,700.00	90.01	270.50	6,950.43	-616.48	-12,352.02	12,346.17	0.00	0.00	0.00
17,800.00	90.01	270.50	6,950.41	-615.61	-12,452.02	12,446.17	0.00	0.00	0.00
17,900.00	90.01	270.50	6,950.38	-614.73	-12,552.02	12,546.17	0.00	0.00	0.00
18,000.00	90.01	270.50	6,950.36	-613.86	-12,652.01	12,646.17	0.00	0.00	0.00
18,100.00	90.01	270.50	6,950.33	-612.99	-12,752.01	12,746.17	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,200.00	90.01	270.50	6,950.31	-612.11	-12,852.00	12,846.17	0.00	0.00	0.00
18,300.00	90.01	270.50	6,950.28	-611.24	-12,952.00	12,946.17	0.00	0.00	0.00
18,400.00	90.01	270.50	6,950.25	-610.36	-13,052.00	13,046.17	0.00	0.00	0.00
18,500.00	90.01	270.50	6,950.23	-609.49	-13,151.99	13,146.17	0.00	0.00	0.00
18,600.00	90.01	270.50	6,950.20	-608.62	-13,251.99	13,246.17	0.00	0.00	0.00
18,700.00	90.01	270.50	6,950.18	-607.74	-13,351.99	13,346.17	0.00	0.00	0.00
18,800.00	90.01	270.50	6,950.15	-606.87	-13,451.98	13,446.17	0.00	0.00	0.00
18,900.00	90.01	270.50	6,950.13	-605.99	-13,551.98	13,546.17	0.00	0.00	0.00
19,000.00	90.01	270.50	6,950.10	-605.12	-13,651.97	13,646.17	0.00	0.00	0.00
19,100.00	90.01	270.50	6,950.08	-604.25	-13,751.97	13,746.17	0.00	0.00	0.00
19,200.00	90.01	270.50	6,950.05	-603.37	-13,851.97	13,846.17	0.00	0.00	0.00
19,300.00	90.01	270.50	6,950.03	-602.50	-13,951.96	13,946.17	0.00	0.00	0.00
19,400.00	90.01	270.50	6,950.00	-601.63	-14,051.96	14,046.17	0.00	0.00	0.00
19,500.00	90.01	270.50	6,949.97	-600.75	-14,151.95	14,146.17	0.00	0.00	0.00
19,600.00	90.01	270.50	6,949.95	-599.88	-14,251.95	14,246.17	0.00	0.00	0.00
19,700.00	90.01	270.50	6,949.92	-599.00	-14,351.95	14,346.17	0.00	0.00	0.00
19,800.00	90.01	270.50	6,949.90	-598.13	-14,451.94	14,446.17	0.00	0.00	0.00
19,900.00	90.01	270.50	6,949.87	-597.26	-14,551.94	14,546.17	0.00	0.00	0.00
20,000.00	90.01	270.50	6,949.85	-596.38	-14,651.94	14,646.17	0.00	0.00	0.00
20,100.00	90.01	270.50	6,949.82	-595.51	-14,751.93	14,746.17	0.00	0.00	0.00
20,200.00	90.01	270.50	6,949.80	-594.63	-14,851.93	14,846.17	0.00	0.00	0.00
20,300.00	90.01	270.50	6,949.77	-593.76	-14,951.92	14,946.17	0.00	0.00	0.00
20,400.00	90.01	270.50	6,949.75	-592.89	-15,051.92	15,046.17	0.00	0.00	0.00
20,500.00	90.01	270.50	6,949.72	-592.01	-15,151.92	15,146.17	0.00	0.00	0.00
20,600.00	90.01	270.50	6,949.69	-591.14	-15,251.91	15,246.17	0.00	0.00	0.00
20,700.00	90.01	270.50	6,949.67	-590.26	-15,351.91	15,346.17	0.00	0.00	0.00
20,800.00	90.01	270.50	6,949.64	-589.39	-15,451.90	15,446.17	0.00	0.00	0.00
20,900.00	90.01	270.50	6,949.62	-588.52	-15,551.90	15,546.17	0.00	0.00	0.00
21,000.00	90.01	270.50	6,949.59	-587.64	-15,651.90	15,646.17	0.00	0.00	0.00
21,100.00	90.01	270.50	6,949.57	-586.77	-15,751.89	15,746.17	0.00	0.00	0.00
21,200.00	90.01	270.50	6,949.54	-585.89	-15,851.89	15,846.17	0.00	0.00	0.00
21,300.00	90.01	270.50	6,949.52	-585.02	-15,951.89	15,946.17	0.00	0.00	0.00
21,400.00	90.01	270.50	6,949.49	-584.15	-16,051.88	16,046.17	0.00	0.00	0.00
21,500.00	90.01	270.50	6,949.47	-583.27	-16,151.88	16,146.17	0.00	0.00	0.00
21,600.00	90.01	270.50	6,949.44	-582.40	-16,251.87	16,246.17	0.00	0.00	0.00
21,700.00	90.01	270.50	6,949.41	-581.53	-16,351.87	16,346.17	0.00	0.00	0.00
21,800.00	90.01	270.50	6,949.39	-580.65	-16,451.87	16,446.17	0.00	0.00	0.00
21,900.00	90.01	270.50	6,949.36	-579.78	-16,551.86	16,546.17	0.00	0.00	0.00
22,000.00	90.01	270.50	6,949.34	-578.90	-16,651.86	16,646.17	0.00	0.00	0.00
22,100.00	90.01	270.50	6,949.31	-578.03	-16,751.86	16,746.17	0.00	0.00	0.00
22,200.00	90.01	270.50	6,949.29	-577.16	-16,851.85	16,846.17	0.00	0.00	0.00
22,300.00	90.01	270.50	6,949.26	-576.28	-16,951.85	16,946.17	0.00	0.00	0.00
22,400.00	90.01	270.50	6,949.24	-575.41	-17,051.84	17,046.17	0.00	0.00	0.00
22,500.00	90.01	270.50	6,949.21	-574.53	-17,151.84	17,146.17	0.00	0.00	0.00
22,600.00	90.01	270.50	6,949.18	-573.66	-17,251.84	17,246.17	0.00	0.00	0.00
22,700.00	90.01	270.50	6,949.16	-572.79	-17,351.83	17,346.17	0.00	0.00	0.00
22,800.00	90.01	270.50	6,949.13	-571.91	-17,451.83	17,446.17	0.00	0.00	0.00
22,900.00	90.01	270.50	6,949.11	-571.04	-17,551.82	17,546.17	0.00	0.00	0.00
23,000.00	90.01	270.50	6,949.08	-570.16	-17,651.82	17,646.17	0.00	0.00	0.00
23,100.00	90.01	270.50	6,949.06	-569.29	-17,751.82	17,746.17	0.00	0.00	0.00
23,200.00	90.01	270.50	6,949.03	-568.42	-17,851.81	17,846.17	0.00	0.00	0.00
23,300.00	90.01	270.50	6,949.01	-567.54	-17,951.81	17,946.17	0.00	0.00	0.00
23,325.21	90.01	270.50	6,949.00	-567.32	-17,977.02	17,971.38	0.00	0.00	0.00
TD Well @ 23325.21ft									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4842.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,515.80	1,500.00	9 5/8"		9-5/8	13-1/2
23,325.21	6,949.00	5.5" CSG		5-1/2	7-7/8

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
707.33	707.00	Fox Hills				
3,760.06	3,598.00	Parkman				
4,259.21	4,080.00	Sussex				
7,217.44	6,841.00	Sharon Springs				
7,277.49	6,871.00	Niobrara				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
400.00	400.00	0.00	0.00	Begin Nudge @ 400.00ft	
1,837.33	1,803.65	-102.14	-246.96	Hold Tangent @ 1837.33ft	
3,386.75	3,244.66	-319.76	-773.11	Begin Drop @ 3386.75ft	
3,824.08	3,659.70	-372.16	-899.80	Hold Vertical @ 3824.08ft	
6,671.85	6,410.43	-653.86	-1,580.90	KOP @ 6671.85ft :: DLS = 8°/100'	
7,624.71	6,953.00	-704.53	-2,277.11	End Build @ 7624.71ft	
23,325.21	6,949.00	-567.32	-17,977.02	TD Well @ 23325.21ft	