

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-04 SWARTZ 2-4HZ PAD  
SWARTZ 4-12HZ**

**Plan C**

**Plan: Permit Rev-1**

## **Standard Planning Report**

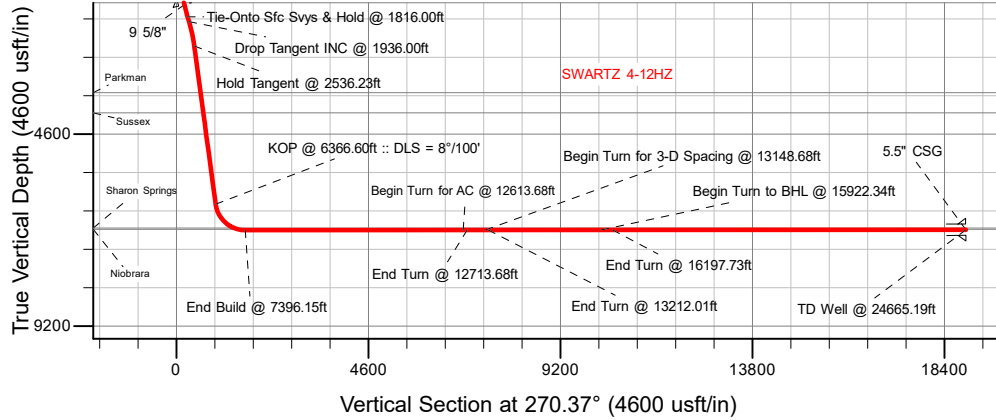
**04 April, 2024**

Project: WELD-NAD83-UTMFT13N  
Site: 3N-67W-04 SWARTZ 2-4HZ PAD  
Well: SWARTZ 4-12HZ  
Wellbore: Plan C  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Name	Size
1500.00	1519.97	9 5/8"	9-5/8
6888.00	24665.19	5.5" CSG	5-1/2



## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1816.00	16.82	263.44	1786.31	-35.74	-263.12	0.00	0.00	262.88	
1936.00	16.82	263.44	1901.18	-39.71	-297.62	0.00	0.00	297.35	
2536.23	8.00	254.44	2486.85	-60.88	-424.39	1.50	-172.00	423.99	
6366.60	8.00	254.44	6279.95	-203.88	-937.93	0.00	0.00	936.60	
7396.15	90.04	270.75	6900.00	-219.07	-1648.47	8.00	16.46	1647.02	
12613.68	90.04	270.75	6896.35	-150.77	-6865.55	0.00	0.00	6864.44	
12713.68	90.04	272.25	6896.28	-148.16	-6965.52	1.50	90.00	6964.41	
13148.68	90.04	272.25	6895.98	-131.08	-7400.18	0.00	0.00	7399.18	
13212.01	90.04	273.20	6895.94	-128.07	-7463.44	1.50	90.00	7462.46	
15922.34	90.04	273.20	6894.04	23.23	-10169.55	0.00	0.00	10169.48	
16197.73	90.04	269.07	6893.85	28.68	-10444.83	1.50	-90.00	10444.79	
24665.19	90.04	269.07	6888.00	-108.89	-18911.16	0.00	0.00	18910.06	SWARTZ 4-12HZ BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-12HZ SHL	0.00	14621470.50	1670603.01	40.260110	-104.891800
SWARTZ 4-12HZ LP	6900.00	14621249.42	1668954.81	40.259508	-104.897708
SWARTZ 4-12HZ BHL	6888.00	14621338.53	1651692.00	40.259791	-104.959585

SHL  
741' FNL  
1602' FEL

LP  
986' FNL  
1998' FWL

BHL  
1114' FNL  
324' FWL

## WELL DETAILS: SWARTZ 4-12HZ

GL = 4825'

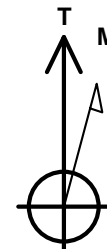
RKB = 26' @ 4851.00usft (BIG RIG)

Plan: Permit Rev-1 (SWARTZ 4-12HZ/Plan C)

Date: 4/4/2024

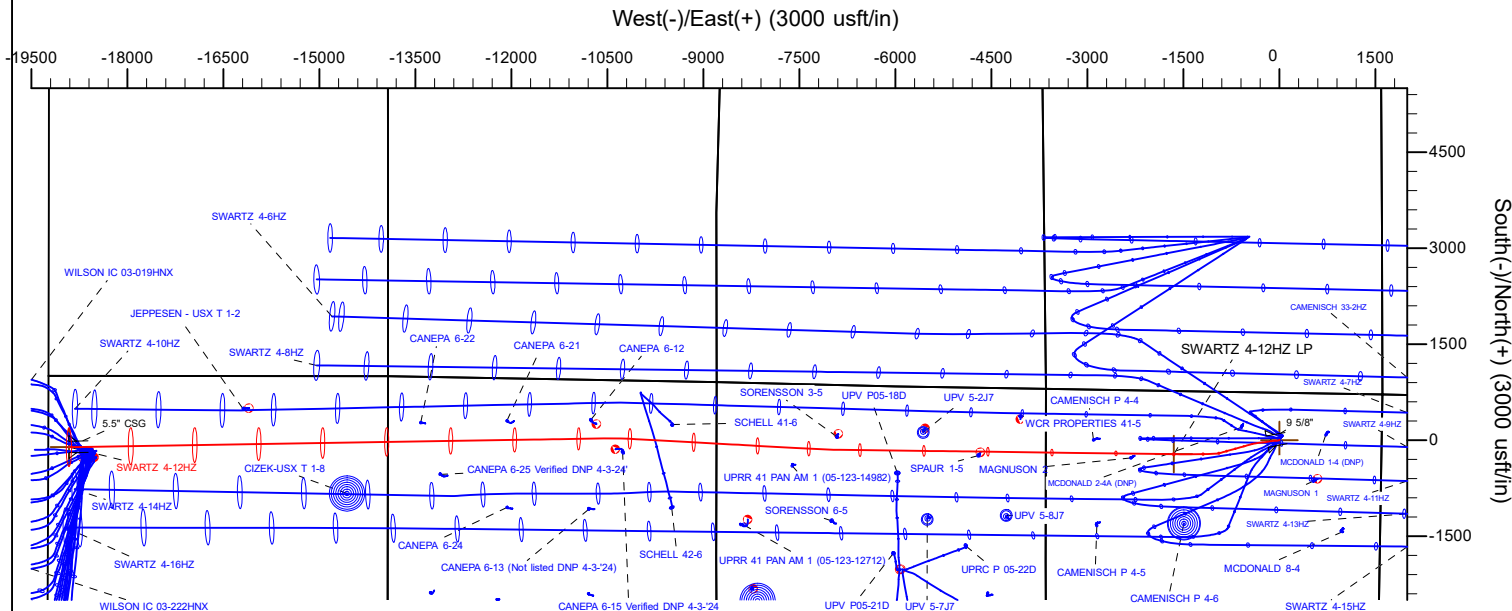
## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
716.00	717.01	Fox Hills
3607.00	3667.38	Parkman
4089.00	4154.12	Sussex
6850.00	7126.35	Sharon Springs
6880.00	7225.94	Niobrara



Azimuths to True North  
Magnetic North: 7.61°

Magnetic Field  
Strength: 51572.1nT  
Dip Angle: 66.41°  
Date: 4/3/2024  
Model: IGRF2020



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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
From:	Map	Easting:	1,670,705.29 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.260465
		Longitude:	-104.891433

Well	SWARTZ 4-12HZ		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	3.28 usft	Wellhead Elevation:	usft
Grid Convergence:	0.07 °		
		Latitude:	40.260110
		Longitude:	-104.891800
		Ground Level:	4,825.00 usft

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	4/3/2024	7.61	66.41	51,572.09648309

Design	Permit Rev-1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	1,816.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	270.37	

Plan Survey Tool Program	Date	4/4/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	91.00	1,816.00	Total MWD+IFR Surface Surveys	APC_ISCWSA REV 2 MWD+I	
				Fixed:v2:crustal field declinatio	
2	1,816.00	24,665.19	Permit Rev-1 (Plan C)	APC_ISCWSA REV 2 MWD+I	
				Fixed:v2:Rockies, crustal dec +	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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
1,816.00	16.82	263.44	1,786.31	-35.74	-263.12	0.00	0.00	0.00	0.00	
1,936.00	16.82	263.44	1,901.18	-39.71	-297.62	0.00	0.00	0.00	0.00	
2,536.23	8.00	254.44	2,486.85	-60.88	-424.39	1.50	-1.47	-1.50	-172.00	
6,366.60	8.00	254.44	6,279.95	-203.88	-937.93	0.00	0.00	0.00	0.00	
7,396.15	90.04	270.75	6,900.00	-219.07	-1,648.47	8.00	7.97	1.58	16.46	
12,613.68	90.04	270.75	6,896.35	-150.77	-6,865.55	0.00	0.00	0.00	0.00	
12,713.68	90.04	272.25	6,896.28	-148.16	-6,965.52	1.50	0.00	1.50	90.00	
13,148.68	90.04	272.25	6,895.98	-131.08	-7,400.18	0.00	0.00	0.00	0.00	
13,212.01	90.04	273.20	6,895.94	-128.07	-7,463.44	1.50	0.00	1.50	90.00	
15,922.34	90.04	273.20	6,894.04	23.23	-10,169.55	0.00	0.00	0.00	0.00	
16,197.73	90.04	269.07	6,893.85	28.68	-10,444.83	1.50	0.00	-1.50	-90.00	
24,665.19	90.04	269.07	6,888.00	-108.89	-18,911.16	0.00	0.00	0.00	0.00	SWARTZ 4-12HZ BHI

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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
91.00	0.18	121.94	91.00	-0.07	0.11	-0.11	0.20	0.20	0.00
183.00	0.62	63.83	183.00	0.07	0.68	-0.68	0.59	0.48	-63.16
275.00	0.69	85.74	274.99	0.34	1.68	-1.68	0.28	0.08	23.82
365.00	0.85	226.40	364.99	-0.08	1.73	-1.74	1.61	0.18	156.29
455.00	4.20	252.96	454.89	-1.51	-1.90	1.89	3.85	3.72	29.51
544.00	4.47	251.77	543.64	-3.55	-8.31	8.29	0.32	0.30	-1.34
634.00	4.79	250.51	633.34	-5.90	-15.18	15.15	0.37	0.36	-1.40
723.00	5.87	256.36	721.96	-8.22	-23.11	23.06	1.36	1.21	6.57
813.00	7.78	271.93	811.32	-9.10	-33.67	33.61	2.94	2.12	17.30
902.00	8.44	273.99	899.43	-8.44	-46.21	46.15	0.81	0.74	2.31
992.00	10.06	261.74	988.27	-9.11	-60.58	60.52	2.82	1.80	-13.61
1,081.00	13.37	264.03	1,075.40	-11.30	-78.51	78.44	3.75	3.72	2.57
1,170.00	15.17	267.22	1,161.65	-12.93	-100.38	100.29	2.21	2.02	3.58
1,260.00	14.75	265.92	1,248.60	-14.32	-123.57	123.47	0.60	-0.47	-1.44
1,349.00	15.45	259.81	1,334.53	-17.22	-146.54	146.43	1.95	0.79	-6.87
1,439.00	14.26	259.31	1,421.52	-21.40	-169.23	169.09	1.33	-1.32	-0.56
1,519.97	14.25	258.98	1,500.00	-25.15	-188.81	188.65	0.10	-0.01	-0.41
9 5/8"									
1,529.00	14.25	258.94	1,508.75	-25.58	-190.99	190.83	0.10	-0.01	-0.41
1,618.00	13.79	261.24	1,595.10	-29.30	-212.23	212.04	0.81	-0.52	2.58
1,708.00	14.48	263.39	1,682.38	-32.22	-234.01	233.79	0.96	0.77	2.39
1,797.00	16.62	262.84	1,768.12	-35.09	-257.69	257.46	2.41	2.40	-0.62
1,816.00	16.82	263.44	1,786.31	-35.74	-263.12	262.88	1.39	1.05	3.16
Tie-onto Sfc Svcs & Hold @ 1816.00ft									
1,900.00	16.82	263.44	1,866.72	-38.52	-287.27	287.01	0.00	0.00	0.00
1,936.00	16.82	263.44	1,901.18	-39.71	-297.62	297.35	0.00	0.00	0.00
Drop Tangent INC @ 1936.00ft									
2,000.00	15.87	262.95	1,962.59	-41.84	-315.50	315.22	1.50	-1.48	-0.76
2,100.00	14.39	262.06	2,059.12	-45.24	-341.38	341.08	1.50	-1.48	-0.89
2,200.00	12.91	260.98	2,156.30	-48.70	-364.71	364.39	1.50	-1.48	-1.09
2,300.00	11.44	259.61	2,254.05	-52.25	-385.50	385.16	1.50	-1.47	-1.36
2,400.00	9.97	257.85	2,352.30	-55.86	-403.72	403.35	1.50	-1.46	-1.76
2,500.00	8.52	255.50	2,451.00	-59.53	-419.36	418.97	1.50	-1.45	-2.35
2,536.23	8.00	254.44	2,486.85	-60.88	-424.39	423.99	1.50	-1.44	-2.93
Hold Tangent @ 2536.23ft									
2,600.00	8.00	254.44	2,550.00	-63.26	-432.94	432.52	0.00	0.00	0.00
2,700.00	8.00	254.44	2,649.03	-66.99	-446.35	445.90	0.00	0.00	0.00
2,800.00	8.00	254.44	2,748.06	-70.73	-459.75	459.29	0.00	0.00	0.00
2,900.00	8.00	254.44	2,847.08	-74.46	-473.16	472.67	0.00	0.00	0.00
3,000.00	8.00	254.44	2,946.11	-78.19	-486.57	486.05	0.00	0.00	0.00
3,100.00	8.00	254.44	3,045.14	-81.93	-499.97	499.43	0.00	0.00	0.00
3,200.00	8.00	254.44	3,144.16	-85.66	-513.38	512.82	0.00	0.00	0.00
3,300.00	8.00	254.44	3,243.19	-89.39	-526.79	526.20	0.00	0.00	0.00
3,400.00	8.00	254.44	3,342.22	-93.13	-540.20	539.58	0.00	0.00	0.00
3,500.00	8.00	254.44	3,441.24	-96.86	-553.60	552.97	0.00	0.00	0.00
3,600.00	8.00	254.44	3,540.27	-100.59	-567.01	566.35	0.00	0.00	0.00
3,667.38	8.00	254.44	3,607.00	-103.11	-576.04	575.37	0.00	0.00	0.00
Parkman									
3,700.00	8.00	254.44	3,639.30	-104.33	-580.42	579.73	0.00	0.00	0.00
3,800.00	8.00	254.44	3,738.33	-108.06	-593.82	593.11	0.00	0.00	0.00
3,900.00	8.00	254.44	3,837.35	-111.79	-607.23	606.50	0.00	0.00	0.00
4,000.00	8.00	254.44	3,936.38	-115.53	-620.64	619.88	0.00	0.00	0.00
4,100.00	8.00	254.44	4,035.41	-119.26	-634.05	633.26	0.00	0.00	0.00

# Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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)
4,154.12	8.00	254.44	4,089.00	-121.28	-641.30	640.51	0.00	0.00	0.00
<b>Sussex</b>									
4,200.00	8.00	254.44	4,134.43	-122.99	-647.45	646.65	0.00	0.00	0.00
4,300.00	8.00	254.44	4,233.46	-126.73	-660.86	660.03	0.00	0.00	0.00
4,400.00	8.00	254.44	4,332.49	-130.46	-674.27	673.41	0.00	0.00	0.00
4,500.00	8.00	254.44	4,431.51	-134.19	-687.68	686.79	0.00	0.00	0.00
4,600.00	8.00	254.44	4,530.54	-137.93	-701.08	700.18	0.00	0.00	0.00
4,700.00	8.00	254.44	4,629.57	-141.66	-714.49	713.56	0.00	0.00	0.00
4,800.00	8.00	254.44	4,728.59	-145.39	-727.90	726.94	0.00	0.00	0.00
4,900.00	8.00	254.44	4,827.62	-149.13	-741.30	740.33	0.00	0.00	0.00
5,000.00	8.00	254.44	4,926.65	-152.86	-754.71	753.71	0.00	0.00	0.00
5,100.00	8.00	254.44	5,025.67	-156.59	-768.12	767.09	0.00	0.00	0.00
5,200.00	8.00	254.44	5,124.70	-160.33	-781.53	780.47	0.00	0.00	0.00
5,300.00	8.00	254.44	5,223.73	-164.06	-794.93	793.86	0.00	0.00	0.00
5,400.00	8.00	254.44	5,322.75	-167.79	-808.34	807.24	0.00	0.00	0.00
5,500.00	8.00	254.44	5,421.78	-171.53	-821.75	820.62	0.00	0.00	0.00
5,600.00	8.00	254.44	5,520.81	-175.26	-835.16	834.01	0.00	0.00	0.00
5,700.00	8.00	254.44	5,619.83	-178.99	-848.56	847.39	0.00	0.00	0.00
5,800.00	8.00	254.44	5,718.86	-182.73	-861.97	860.77	0.00	0.00	0.00
5,900.00	8.00	254.44	5,817.89	-186.46	-875.38	874.15	0.00	0.00	0.00
6,000.00	8.00	254.44	5,916.92	-190.19	-888.78	887.54	0.00	0.00	0.00
6,100.00	8.00	254.44	6,015.94	-193.93	-902.19	900.92	0.00	0.00	0.00
6,200.00	8.00	254.44	6,114.97	-197.66	-915.60	914.30	0.00	0.00	0.00
6,300.00	8.00	254.44	6,214.00	-201.39	-929.01	927.69	0.00	0.00	0.00
6,366.60	8.00	254.44	6,279.95	-203.88	-937.93	936.60	0.00	0.00	0.00
<b>KOP @ 6366.60ft :: DLS = 8°/100'</b>									
6,400.00	10.59	258.56	6,312.91	-205.11	-943.18	941.84	8.00	7.75	12.34
6,450.00	14.52	261.98	6,361.70	-206.90	-953.90	952.54	8.00	7.86	6.84
6,500.00	18.48	263.97	6,409.63	-208.61	-967.99	966.62	8.00	7.92	3.97
6,550.00	22.46	265.27	6,456.47	-210.23	-985.40	984.02	8.00	7.95	2.60
6,600.00	26.44	266.20	6,501.98	-211.75	-1,006.03	1,004.64	8.00	7.96	1.85
6,650.00	30.42	266.90	6,545.94	-213.18	-1,029.79	1,028.39	8.00	7.97	1.40
6,700.00	34.41	267.45	6,588.14	-214.49	-1,056.55	1,055.15	8.00	7.98	1.10
6,750.00	38.40	267.89	6,628.37	-215.69	-1,086.20	1,084.78	8.00	7.98	0.90
6,800.00	42.40	268.27	6,666.44	-216.77	-1,118.58	1,117.16	8.00	7.99	0.75
6,850.00	46.39	268.59	6,702.16	-217.73	-1,153.54	1,152.11	8.00	7.99	0.65
6,900.00	50.39	268.88	6,735.35	-218.55	-1,190.91	1,189.47	8.00	7.99	0.57
6,950.00	54.38	269.13	6,765.87	-219.24	-1,230.50	1,229.06	8.00	7.99	0.50
7,000.00	58.38	269.36	6,793.55	-219.78	-1,272.12	1,270.68	8.00	7.99	0.46
7,050.00	62.37	269.56	6,818.26	-220.19	-1,315.57	1,314.12	8.00	7.99	0.42
7,100.00	66.37	269.76	6,839.88	-220.46	-1,360.64	1,359.19	8.00	7.99	0.39
7,126.35	68.47	269.86	6,850.00	-220.54	-1,384.97	1,383.52	8.00	7.99	0.37
<b>Sharon Springs</b>									
7,150.00	70.36	269.94	6,858.31	-220.58	-1,407.11	1,405.66	8.00	7.99	0.36
7,200.00	74.36	270.12	6,873.46	-220.55	-1,454.75	1,453.30	8.00	7.99	0.35
7,225.94	76.43	270.20	6,880.00	-220.48	-1,479.85	1,478.40	8.00	7.99	0.34
<b>Niobrara</b>									
7,250.00	78.36	270.28	6,885.25	-220.38	-1,503.33	1,501.88	8.00	7.99	0.33
7,300.00	82.35	270.44	6,893.62	-220.07	-1,552.61	1,551.16	8.00	7.99	0.32
7,350.00	86.35	270.60	6,898.54	-219.61	-1,602.36	1,600.91	8.00	7.99	0.32
7,396.15	90.04	270.75	6,900.00	-219.07	-1,648.47	1,647.02	8.00	7.99	0.32
<b>End Build @ 7396.15ft</b>									
7,400.00	90.04	270.75	6,899.99	-219.02	-1,652.32	1,650.88	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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)
7,500.00	90.04	270.75	6,899.92	-217.71	-1,752.32	1,750.87	0.00	0.00	0.00
7,600.00	90.04	270.75	6,899.85	-216.40	-1,852.31	1,850.87	0.00	0.00	0.00
7,700.00	90.04	270.75	6,899.78	-215.09	-1,952.30	1,950.87	0.00	0.00	0.00
7,800.00	90.04	270.75	6,899.72	-213.78	-2,052.29	2,050.87	0.00	0.00	0.00
7,900.00	90.04	270.75	6,899.65	-212.47	-2,152.28	2,150.86	0.00	0.00	0.00
8,000.00	90.04	270.75	6,899.58	-211.17	-2,252.27	2,250.86	0.00	0.00	0.00
8,100.00	90.04	270.75	6,899.51	-209.86	-2,352.26	2,350.86	0.00	0.00	0.00
8,200.00	90.04	270.75	6,899.44	-208.55	-2,452.26	2,450.86	0.00	0.00	0.00
8,300.00	90.04	270.75	6,899.37	-207.24	-2,552.25	2,550.86	0.00	0.00	0.00
8,400.00	90.04	270.75	6,899.30	-205.93	-2,652.24	2,650.85	0.00	0.00	0.00
8,500.00	90.04	270.75	6,899.23	-204.62	-2,752.23	2,750.85	0.00	0.00	0.00
8,600.00	90.04	270.75	6,899.16	-203.31	-2,852.22	2,850.85	0.00	0.00	0.00
8,700.00	90.04	270.75	6,899.09	-202.00	-2,952.21	2,950.85	0.00	0.00	0.00
8,800.00	90.04	270.75	6,899.02	-200.69	-3,052.20	3,050.84	0.00	0.00	0.00
8,900.00	90.04	270.75	6,898.95	-199.38	-3,152.20	3,150.84	0.00	0.00	0.00
9,000.00	90.04	270.75	6,898.88	-198.08	-3,252.19	3,250.84	0.00	0.00	0.00
9,100.00	90.04	270.75	6,898.81	-196.77	-3,352.18	3,350.84	0.00	0.00	0.00
9,200.00	90.04	270.75	6,898.74	-195.46	-3,452.17	3,450.84	0.00	0.00	0.00
9,300.00	90.04	270.75	6,898.67	-194.15	-3,552.16	3,550.83	0.00	0.00	0.00
9,400.00	90.04	270.75	6,898.60	-192.84	-3,652.15	3,650.83	0.00	0.00	0.00
9,500.00	90.04	270.75	6,898.53	-191.53	-3,752.14	3,750.83	0.00	0.00	0.00
9,600.00	90.04	270.75	6,898.46	-190.22	-3,852.14	3,850.83	0.00	0.00	0.00
9,700.00	90.04	270.75	6,898.39	-188.91	-3,952.13	3,950.82	0.00	0.00	0.00
9,800.00	90.04	270.75	6,898.32	-187.60	-4,052.12	4,050.82	0.00	0.00	0.00
9,900.00	90.04	270.75	6,898.25	-186.30	-4,152.11	4,150.82	0.00	0.00	0.00
10,000.00	90.04	270.75	6,898.18	-184.99	-4,252.10	4,250.82	0.00	0.00	0.00
10,100.00	90.04	270.75	6,898.11	-183.68	-4,352.09	4,350.82	0.00	0.00	0.00
10,200.00	90.04	270.75	6,898.04	-182.37	-4,452.08	4,450.81	0.00	0.00	0.00
10,300.00	90.04	270.75	6,897.97	-181.06	-4,552.08	4,550.81	0.00	0.00	0.00
10,400.00	90.04	270.75	6,897.90	-179.75	-4,652.07	4,650.81	0.00	0.00	0.00
10,500.00	90.04	270.75	6,897.83	-178.44	-4,752.06	4,750.81	0.00	0.00	0.00
10,600.00	90.04	270.75	6,897.76	-177.13	-4,852.05	4,850.80	0.00	0.00	0.00
10,700.00	90.04	270.75	6,897.69	-175.82	-4,952.04	4,950.80	0.00	0.00	0.00
10,800.00	90.04	270.75	6,897.62	-174.51	-5,052.03	5,050.80	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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)
12,700.00	90.04	272.04	6,896.29	-148.67	-6,951.85	6,950.74	1.50	0.00	1.50
12,713.68	90.04	272.25	6,896.28	-148.16	-6,965.52	6,964.41	1.50	0.00	1.50
End Turn @ 12713.68ft									
12,800.00	90.04	272.25	6,896.22	-144.77	-7,051.77	7,050.69	0.00	0.00	0.00
12,900.00	90.04	272.25	6,896.15	-140.84	-7,151.70	7,150.64	0.00	0.00	0.00
13,000.00	90.04	272.25	6,896.08	-136.92	-7,251.62	7,250.58	0.00	0.00	0.00
13,100.00	90.04	272.25	6,896.01	-132.99	-7,351.54	7,350.53	0.00	0.00	0.00
13,148.68	90.04	272.25	6,895.98	-131.08	-7,400.18	7,399.18	0.00	0.00	0.00
Begin Turn for 3-D Spacing @ 13148.68ft									
13,200.00	90.04	273.02	6,895.95	-128.72	-7,451.45	7,450.46	1.50	0.00	1.50
13,212.01	90.04	273.20	6,895.94	-128.07	-7,463.44	7,462.46	1.50	0.00	1.50
End Turn @ 13212.01ft									
13,300.00	90.04	273.20	6,895.88	-123.16	-7,551.29	7,550.34	0.00	0.00	0.00
13,400.00	90.04	273.20	6,895.81	-117.57	-7,651.14	7,650.22	0.00	0.00	0.00
13,500.00	90.04	273.20	6,895.74	-111.99	-7,750.98	7,750.10	0.00	0.00	0.00
13,600.00	90.04	273.20	6,895.67	-106.41	-7,850.83	7,849.98	0.00	0.00	0.00
13,700.00	90.04	273.20	6,895.60	-100.83	-7,950.67	7,949.85	0.00	0.00	0.00
13,800.00	90.04	273.20	6,895.53	-95.25	-8,050.51	8,049.73	0.00	0.00	0.00
13,900.00	90.04	273.20	6,895.46	-89.66	-8,150.36	8,149.61	0.00	0.00	0.00
14,000.00	90.04	273.20	6,895.39	-84.08	-8,250.20	8,249.49	0.00	0.00	0.00
14,100.00	90.04	273.20	6,895.32	-78.50	-8,350.05	8,349.37	0.00	0.00	0.00
14,200.00	90.04	273.20	6,895.25	-72.92	-8,449.89	8,449.24	0.00	0.00	0.00
14,300.00	90.04	273.20	6,895.18	-67.33	-8,549.74	8,549.12	0.00	0.00	0.00
14,400.00	90.04	273.20	6,895.11	-61.75	-8,649.58	8,649.00	0.00	0.00	0.00
14,500.00	90.04	273.20	6,895.04	-56.17	-8,749.42	8,748.88	0.00	0.00	0.00
14,600.00	90.04	273.20	6,894.97	-50.59	-8,849.27	8,848.76	0.00	0.00	0.00
14,700.00	90.04	273.20	6,894.90	-45.01	-8,949.11	8,948.63	0.00	0.00	0.00
14,800.00	90.04	273.20	6,894.83	-39.42	-9,048.96	9,048.51	0.00	0.00	0.00
14,900.00	90.04	273.20	6,894.76	-33.84	-9,148.80	9,148.39	0.00	0.00	0.00
15,000.00	90.04	273.20	6,894.69	-28.26	-9,248.64	9,248.27	0.00	0.00	0.00
15,100.00	90.04	273.20	6,894.62	-22.68	-9,348.49	9,348.15	0.00	0.00	0.00
15,200.00	90.04	273.20	6,894.55	-17.10	-9,448.33	9,448.02	0.00	0.00	0.00
15,300.00	90.04	273.20	6,894.48	-11.51	-9,548.18	9,547.90	0.00	0.00	0.00
15,400.00	90.04	273.20	6,894.41	-5.93	-9,648.02	9,647.78	0.00	0.00	0.00
15,500.00	90.04	273.20	6,894.34	-0.35	-9,747.86	9,747.66	0.00	0.00	0.00
15,600.00	90.04	273.20	6,894.27	5.23	-9,847.71	9,847.54	0.00	0.00	0.00
15,700.00	90.04	273.20	6,894.20	10.82	-9,947.55	9,947.41	0.00	0.00	0.00
15,800.00	90.04	273.20	6,894.13	16.40	-10,047.40	10,047.29	0.00	0.00	0.00
15,900.00	90.04	273.20	6,894.06	21.98	-10,147.24	10,147.17	0.00	0.00	0.00
15,922.34	90.04	273.20	6,894.04	23.23	-10,169.55	10,169.48	0.00	0.00	0.00
Begin Turn to BHL @ 15922.34ft									
16,000.00	90.04	272.04	6,893.99	26.77	-10,247.12	10,247.08	1.50	0.00	-1.50
16,100.00	90.04	270.54	6,893.92	29.02	-10,347.09	10,347.07	1.50	0.00	-1.50
16,197.73	90.04	269.07	6,893.85	28.68	-10,444.82	10,444.79	1.50	0.00	-1.50
End Turn @ 16197.73ft									
16,200.00	90.04	269.07	6,893.85	28.64	-10,447.09	10,447.06	0.00	0.00	0.00
16,300.00	90.04	269.07	6,893.78	27.02	-10,547.08	10,547.03	0.00	0.00	0.00
16,400.00	90.04	269.07	6,893.71	25.39	-10,647.06	10,647.01	0.00	0.00	0.00
16,500.00	90.04	269.07	6,893.64	23.77	-10,747.05	10,746.98	0.00	0.00	0.00
16,600.00	90.04	269.07	6,893.58	22.14	-10,847.04	10,846.96	0.00	0.00	0.00
16,700.00	90.04	269.07	6,893.51	20.52	-10,947.03	10,946.93	0.00	0.00	0.00
16,800.00	90.04	269.07	6,893.44	18.89	-11,047.01	11,046.90	0.00	0.00	0.00
16,900.00	90.04	269.07	6,893.37	17.27	-11,147.00	11,146.88	0.00	0.00	0.00



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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)
17,000.00	90.04	269.07	6,893.30	15.64	-11,246.99	11,246.85	0.00	0.00	0.00
17,100.00	90.04	269.07	6,893.23	14.02	-11,346.97	11,346.83	0.00	0.00	0.00
17,200.00	90.04	269.07	6,893.16	12.40	-11,446.96	11,446.80	0.00	0.00	0.00
17,300.00	90.04	269.07	6,893.09	10.77	-11,546.95	11,546.77	0.00	0.00	0.00
17,400.00	90.04	269.07	6,893.02	9.15	-11,646.93	11,646.75	0.00	0.00	0.00
17,500.00	90.04	269.07	6,892.95	7.52	-11,746.92	11,746.72	0.00	0.00	0.00
17,600.00	90.04	269.07	6,892.88	5.90	-11,846.91	11,846.70	0.00	0.00	0.00
17,700.00	90.04	269.07	6,892.81	4.27	-11,946.89	11,946.67	0.00	0.00	0.00
17,800.00	90.04	269.07	6,892.75	2.65	-12,046.88	12,046.65	0.00	0.00	0.00
17,900.00	90.04	269.07	6,892.68	1.02	-12,146.87	12,146.62	0.00	0.00	0.00
18,000.00	90.04	269.07	6,892.61	-0.60	-12,246.85	12,246.59	0.00	0.00	0.00
18,100.00	90.04	269.07	6,892.54	-2.23	-12,346.84	12,346.57	0.00	0.00	0.00
18,200.00	90.04	269.07	6,892.47	-3.85	-12,446.83	12,446.54	0.00	0.00	0.00
18,300.00	90.04	269.07	6,892.40	-5.48	-12,546.81	12,546.52	0.00	0.00	0.00
18,400.00	90.04	269.07	6,892.33	-7.10	-12,646.80	12,646.49	0.00	0.00	0.00
18,500.00	90.04	269.07	6,892.26	-8.73	-12,746.79	12,746.47	0.00	0.00	0.00
18,600.00	90.04	269.07	6,892.19	-10.35	-12,846.77	12,846.44	0.00	0.00	0.00
18,700.00	90.04	269.07	6,892.12	-11.98	-12,946.76	12,946.41	0.00	0.00	0.00
18,800.00	90.04	269.07	6,892.05	-13.60	-13,046.75	13,046.39	0.00	0.00	0.00
18,900.00	90.04	269.07	6,891.99	-15.22	-13,146.73	13,146.36	0.00	0.00	0.00
19,000.00	90.04	269.07	6,891.92	-16.85	-13,246.72	13,246.34	0.00	0.00	0.00
19,100.00	90.04	269.07	6,891.85	-18.47	-13,346.71	13,346.31	0.00	0.00	0.00
19,200.00	90.04	269.07	6,891.78	-20.10	-13,446.69	13,446.28	0.00	0.00	0.00
19,300.00	90.04	269.07	6,891.71	-21.72	-13,546.68	13,546.26	0.00	0.00	0.00
19,400.00	90.04	269.07	6,891.64	-23.35	-13,646.67	13,646.23	0.00	0.00	0.00
19,500.00	90.04	269.07	6,891.57	-24.97	-13,746.65	13,746.21	0.00	0.00	0.00
19,600.00	90.04	269.07	6,891.50	-26.60	-13,846.64	13,846.18	0.00	0.00	0.00
19,700.00	90.04	269.07	6,891.43	-28.22	-13,946.63	13,946.16	0.00	0.00	0.00
19,800.00	90.04	269.07	6,891.36	-29.85	-14,046.62	14,046.13	0.00	0.00	0.00
19,900.00	90.04	269.07	6,891.29	-31.47	-14,146.60	14,146.10	0.00	0.00	0.00
20,000.00	90.04	269.07	6,891.22	-33.10	-14,246.59	14,246.08	0.00	0.00	0.00
20,100.00	90.04	269.07	6,891.16	-34.72	-14,346.58	14,346.05	0.00	0.00	0.00
20,200.00	90.04	269.07	6,891.09	-36.35	-14,446.56	14,446.03	0.00	0.00	0.00
20,300.00	90.04	269.07	6,891.02	-37.97	-14,546.55	14,546.00	0.00	0.00	0.00
20,400.00	90.04	269.07	6,890.95	-39.59	-14,646.54	14,645.97	0.00	0.00	0.00
20,500.00	90.04	269.07	6,890.88	-41.22	-14,746.52	14,745.95	0.00	0.00	0.00
20,600.00	90.04	269.07	6,890.81	-42.84	-14,846.51	14,845.92	0.00	0.00	0.00
20,700.00	90.04	269.07	6,890.74	-44.47	-14,946.50	14,945.90	0.00	0.00	0.00
20,800.00	90.04	269.07	6,890.67	-46.09	-15,046.48	15,045.87	0.00	0.00	0.00
20,900.00	90.04	269.07	6,890.60	-47.72	-15,146.47	15,145.85	0.00	0.00	0.00
21,000.00	90.04	269.07	6,890.53	-49.34	-15,246.46	15,245.82	0.00	0.00	0.00
21,100.00	90.04	269.07	6,890.46	-50.97	-15,346.44	15,345.79	0.00	0.00	0.00
21,200.00	90.04	269.07	6,890.40	-52.59	-15,446.43	15,445.77	0.00	0.00	0.00
21,300.00	90.04	269.07	6,890.33	-54.22	-15,546.42	15,545.74	0.00	0.00	0.00
21,400.00	90.04	269.07	6,890.26	-55.84	-15,646.40	15,645.72	0.00	0.00	0.00
21,500.00	90.04	269.07	6,890.19	-57.47	-15,746.39	15,745.69	0.00	0.00	0.00
21,600.00	90.04	269.07	6,890.12	-59.09	-15,846.38	15,845.67	0.00	0.00	0.00
21,700.00	90.04	269.07	6,890.05	-60.72	-15,946.36	15,945.64	0.00	0.00	0.00
21,800.00	90.04	269.07	6,889.98	-62.34	-16,046.35	16,045.61	0.00	0.00	0.00
21,900.00	90.04	269.07	6,889.91	-63.96	-16,146.34	16,145.59	0.00	0.00	0.00
22,000.00	90.04	269.07	6,889.84	-65.59	-16,246.32	16,245.56	0.00	0.00	0.00
22,100.00	90.04	269.07	6,889.77	-67.21	-16,346.31	16,345.54	0.00	0.00	0.00
22,200.00	90.04	269.07	6,889.70	-68.84	-16,446.30	16,445.51	0.00	0.00	0.00
22,300.00	90.04	269.07	6,889.64	-70.46	-16,546.28	16,545.48	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	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)
22,400.00	90.04	269.07	6,889.57	-72.09	-16,646.27	16,645.46	0.00	0.00	0.00
22,500.00	90.04	269.07	6,889.50	-73.71	-16,746.26	16,745.43	0.00	0.00	0.00
22,600.00	90.04	269.07	6,889.43	-75.34	-16,846.25	16,845.41	0.00	0.00	0.00
22,700.00	90.04	269.07	6,889.36	-76.96	-16,946.23	16,945.38	0.00	0.00	0.00
22,800.00	90.04	269.07	6,889.29	-78.59	-17,046.22	17,045.36	0.00	0.00	0.00
22,900.00	90.04	269.07	6,889.22	-80.21	-17,146.21	17,145.33	0.00	0.00	0.00
23,000.00	90.04	269.07	6,889.15	-81.84	-17,246.19	17,245.30	0.00	0.00	0.00
23,100.00	90.04	269.07	6,889.08	-83.46	-17,346.18	17,345.28	0.00	0.00	0.00
23,200.00	90.04	269.07	6,889.01	-85.09	-17,446.17	17,445.25	0.00	0.00	0.00
23,300.00	90.04	269.07	6,888.94	-86.71	-17,546.15	17,545.23	0.00	0.00	0.00
23,400.00	90.04	269.07	6,888.87	-88.33	-17,646.14	17,645.20	0.00	0.00	0.00
23,500.00	90.04	269.07	6,888.81	-89.96	-17,746.13	17,745.18	0.00	0.00	0.00
23,600.00	90.04	269.07	6,888.74	-91.58	-17,846.11	17,845.15	0.00	0.00	0.00
23,700.00	90.04	269.07	6,888.67	-93.21	-17,946.10	17,945.12	0.00	0.00	0.00
23,800.00	90.04	269.07	6,888.60	-94.83	-18,046.09	18,045.10	0.00	0.00	0.00
23,900.00	90.04	269.07	6,888.53	-96.46	-18,146.07	18,145.07	0.00	0.00	0.00
24,000.00	90.04	269.07	6,888.46	-98.08	-18,246.06	18,245.05	0.00	0.00	0.00
24,100.00	90.04	269.07	6,888.39	-99.71	-18,346.05	18,345.02	0.00	0.00	0.00
24,200.00	90.04	269.07	6,888.32	-101.33	-18,446.03	18,444.99	0.00	0.00	0.00
24,300.00	90.04	269.07	6,888.25	-102.96	-18,546.02	18,544.97	0.00	0.00	0.00
24,400.00	90.04	269.07	6,888.18	-104.58	-18,646.01	18,644.94	0.00	0.00	0.00
24,500.00	90.04	269.07	6,888.11	-106.21	-18,745.99	18,744.92	0.00	0.00	0.00
24,600.00	90.04	269.07	6,888.05	-107.83	-18,845.98	18,844.89	0.00	0.00	0.00
24,665.19	90.04	269.07	6,888.00	-108.89	-18,911.16	18,910.06	0.00	0.00	0.00
TD Well @ 24665.19ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,519.97	1,500.00	9 5/8"	9-5/8	13-1/2	
24,665.19	6,888.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
717.01	716.00	Fox Hills				
3,667.38	3,607.00	Parkman				
4,154.12	4,089.00	Sussex				
7,126.35	6,850.00	Sharon Springs				
7,225.94	6,880.00	Niobrara				

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 26' @ 4851.00usft (BIG RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan C		
<b>Design:</b>	Permit Rev-1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,816.00	1,786.31	-35.74	-263.12	Tie-onto Sfc Svys & Hold @ 1816.00ft
1,936.00	1,901.18	-39.71	-297.62	Drop Tangent INC @ 1936.00ft
2,536.23	2,486.85	-60.88	-424.39	Hold Tangent @ 2536.23ft
6,366.60	6,279.95	-203.88	-937.93	KOP @ 6366.60ft :: DLS = 8"/100'
7,396.15	6,900.00	-219.07	-1,648.47	End Build @ 7396.15ft
12,613.68	6,896.35	-150.77	-6,865.55	Begin Turn for AC @ 12613.68ft
12,713.68	6,896.28	-148.16	-6,965.52	End Turn @ 12713.68ft
13,148.68	6,895.98	-131.08	-7,400.18	Begin Turn for 3-D Spacing @ 13148.68ft
13,212.01	6,895.94	-128.07	-7,463.44	End Turn @ 13212.01ft
15,922.34	6,894.04	23.23	-10,169.55	Begin Turn to BHL @ 15922.34ft
16,197.73	6,893.85	28.68	-10,444.82	End Turn @ 16197.73ft
24,665.19	6,888.00	-108.89	-18,911.16	TD Well @ 24665.19ft