

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-04 SWARTZ 2-4HZ PAD  
SWARTZ 4-16HZ**

**Plan C**

**Plan: Permit Rev-1**

## **Standard Planning Report**

**04 April, 2024**

Magnetic Field  
Strength: 51572.0nT  
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 4-16HZ
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 4-16HZ	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:	Map	Northing:	14,621,599.90 usft	Latitude:	40.260465
From:		Easting:	1,670,705.29 usft	Longitude:	-104.891433
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	SWARTZ 4-16HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,621,423.45 usft	Latitude:	40.259981
	+E/-W	0.00 usft	Easting:	1,670,565.82 usft	Longitude:	-104.891933
Position Uncertainty	3.28 usft		Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:	0.07 °					

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	4/3/2024	7.61	66.41	51,572.01500832

Design	Permit Rev-1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	1,849.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	270.49	

Plan Survey Tool Program	Date	4/3/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	91.00	1,849.00	Total Surface MWD+IFR Surveys	APC_ISCWSA REV 2 MWD+I	Fixed:v2:crustal field declinatio
2	1,849.00	25,115.86	Permit Rev-1 (Plan C)	APC_ISCWSA REV 2 MWD+I	Fixed:v2:Rockies, crustal dec +

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Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-16HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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
1,849.00	20.96	223.39	1,804.95	-224.84	-241.73	0.00	0.00	0.00	0.00	
1,949.00	20.96	223.39	1,898.33	-250.84	-266.31	0.00	0.00	0.00	0.00	
2,876.67	14.15	202.00	2,783.17	-477.04	-423.11	1.00	-0.73	-2.31	-146.42	
6,610.22	14.15	202.00	6,403.44	-1,323.29	-765.01	0.00	0.00	0.00	0.00	
7,670.95	90.02	270.41	7,038.00	-1,466.98	-1,479.60	8.00	7.15	6.45	69.00	
7,870.95	90.02	270.41	7,037.93	-1,465.55	-1,679.59	0.00	0.00	0.00	0.00	
7,886.72	90.02	270.65	7,037.92	-1,465.41	-1,695.36	1.50	0.02	1.50	89.39	
20,109.59	90.02	270.65	7,033.12	-1,327.49	-13,917.45	0.00	0.00	0.00	0.00	SWARTZ 4-16HZ INT
20,145.15	90.02	270.11	7,033.11	-1,327.25	-13,953.00	1.50	0.00	-1.50	-89.81	
25,115.86	90.02	270.11	7,031.00	-1,317.43	-18,923.71	0.00	0.00	0.00	0.00	SWARTZ 4-16HZ BHI

# Planning Report

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<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 4-16HZ	<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	0.14	161.20	91.00	-0.09	0.03	-0.03	0.15	0.15	0.00
183.00	0.28	149.06	183.00	-0.39	0.18	-0.19	0.16	0.15	-13.20
275.00	1.57	219.12	274.99	-1.56	-0.50	0.48	1.63	1.40	76.15
365.00	1.45	213.41	364.96	-3.47	-1.90	1.87	0.21	-0.13	-6.34
454.00	2.98	228.63	453.89	-5.94	-4.26	4.21	1.83	1.72	17.10
544.00	4.90	235.34	543.67	-9.67	-9.17	9.09	2.19	2.13	7.46
633.00	7.79	228.32	632.12	-15.85	-16.81	16.67	3.36	3.25	-7.89
723.00	8.91	232.71	721.16	-24.13	-26.91	26.70	1.43	1.24	4.88
812.00	9.50	234.33	809.02	-32.58	-38.36	38.08	0.72	0.66	1.82
902.00	9.96	232.98	897.72	-41.60	-50.61	50.25	0.57	0.51	-1.50
991.00	10.56	235.35	985.30	-50.87	-63.46	63.02	0.82	0.67	2.66
1,081.00	12.61	230.85	1,073.46	-61.77	-77.87	77.33	2.49	2.28	-5.00
1,170.00	14.45	230.62	1,159.99	-74.95	-93.98	93.34	2.07	2.07	-0.26
1,259.00	15.88	227.49	1,245.89	-90.22	-111.54	110.77	1.85	1.61	-3.52
1,349.00	15.99	229.40	1,332.43	-106.61	-130.03	129.12	0.60	0.12	2.12
1,439.00	16.62	225.10	1,418.81	-123.76	-148.56	147.50	1.51	0.70	-4.78
1,524.08	18.16	222.69	1,500.00	-142.09	-166.17	164.95	2.00	1.81	-2.83
9 5/8"									
1,528.00	18.23	222.59	1,503.73	-143.00	-167.00	165.77	2.00	1.83	-2.59
1,618.00	19.77	222.75	1,588.82	-164.54	-186.86	185.45	1.71	1.71	0.18
1,707.00	20.65	221.73	1,672.34	-187.30	-207.53	205.92	1.07	0.99	-1.15
1,797.00	21.15	222.34	1,756.42	-211.15	-229.02	227.21	0.61	0.56	0.68
1,849.00	20.96	223.39	1,804.95	-224.84	-241.73	239.80	0.81	-0.37	2.02
Tie-Onto Sfc Svcs & Hold @ 1849.00ft									
1,900.00	20.96	223.39	1,852.57	-238.10	-254.26	252.22	0.00	0.00	0.00
1,949.00	20.96	223.39	1,898.33	-250.84	-266.31	264.15	0.00	0.00	0.00
Drop Tangent INC @ 1949.00ft									
2,000.00	20.54	222.59	1,946.02	-264.05	-278.63	276.36	1.00	-0.83	-1.58
2,100.00	19.72	220.91	2,039.92	-289.71	-301.54	299.06	1.00	-0.82	-1.67
2,200.00	18.92	219.11	2,134.29	-315.04	-322.82	320.11	1.00	-0.80	-1.81
2,300.00	18.14	217.14	2,229.10	-340.03	-342.44	339.52	1.00	-0.78	-1.96
2,400.00	17.37	215.02	2,324.34	-364.66	-360.41	357.27	1.00	-0.76	-2.13
2,500.00	16.64	212.70	2,419.97	-388.94	-376.71	373.37	1.00	-0.74	-2.31
2,600.00	15.93	210.18	2,515.96	-412.85	-391.34	387.80	1.00	-0.71	-2.52
2,700.00	15.25	207.44	2,612.28	-436.39	-404.30	400.56	1.00	-0.68	-2.74
2,800.00	14.61	204.46	2,708.90	-459.54	-415.59	411.65	1.00	-0.64	-2.98
2,876.67	14.15	202.00	2,783.17	-477.04	-423.11	419.01	1.00	-0.60	-3.21
Hold Tangent @ 2876.67ft									
2,900.00	14.15	202.00	2,805.79	-482.33	-425.24	421.10	0.00	0.00	0.00
3,000.00	14.15	202.00	2,902.76	-504.99	-434.40	430.07	0.00	0.00	0.00
3,100.00	14.15	202.00	2,999.72	-527.66	-443.56	439.03	0.00	0.00	0.00
3,200.00	14.15	202.00	3,096.69	-550.32	-452.72	447.99	0.00	0.00	0.00
3,300.00	14.15	202.00	3,193.66	-572.99	-461.87	456.96	0.00	0.00	0.00
3,400.00	14.15	202.00	3,290.62	-595.66	-471.03	465.92	0.00	0.00	0.00
3,500.00	14.15	202.00	3,387.59	-618.32	-480.19	474.88	0.00	0.00	0.00
3,600.00	14.15	202.00	3,484.55	-640.99	-489.35	483.85	0.00	0.00	0.00
3,700.00	14.15	202.00	3,581.52	-663.65	-498.50	492.81	0.00	0.00	0.00
3,726.28	14.15	202.00	3,607.00	-669.61	-500.91	495.17	0.00	0.00	0.00
Parkman									
3,800.00	14.15	202.00	3,678.49	-686.32	-507.66	501.77	0.00	0.00	0.00
3,900.00	14.15	202.00	3,775.45	-708.99	-516.82	510.74	0.00	0.00	0.00
4,000.00	14.15	202.00	3,872.42	-731.65	-525.98	519.70	0.00	0.00	0.00
4,100.00	14.15	202.00	3,969.38	-754.32	-535.13	528.66	0.00	0.00	0.00

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<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-16HZ	<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)
4,200.00	14.15	202.00	4,066.35	-776.98	-544.29	537.63	0.00	0.00	0.00
4,223.36	14.15	202.00	4,089.00	-782.28	-546.43	539.72	0.00	0.00	0.00
Sussex									
4,300.00	14.15	202.00	4,163.32	-799.65	-553.45	546.59	0.00	0.00	0.00
4,400.00	14.15	202.00	4,260.28	-822.32	-562.61	555.55	0.00	0.00	0.00
4,500.00	14.15	202.00	4,357.25	-844.98	-571.77	564.52	0.00	0.00	0.00
4,600.00	14.15	202.00	4,454.21	-867.65	-580.92	573.48	0.00	0.00	0.00
4,700.00	14.15	202.00	4,551.18	-890.31	-590.08	582.45	0.00	0.00	0.00
4,800.00	14.15	202.00	4,648.14	-912.98	-599.24	591.41	0.00	0.00	0.00
4,900.00	14.15	202.00	4,745.11	-935.65	-608.40	600.37	0.00	0.00	0.00
5,000.00	14.15	202.00	4,842.08	-958.31	-617.55	609.34	0.00	0.00	0.00
5,100.00	14.15	202.00	4,939.04	-980.98	-626.71	618.30	0.00	0.00	0.00
5,200.00	14.15	202.00	5,036.01	-1,003.64	-635.87	627.26	0.00	0.00	0.00
5,300.00	14.15	202.00	5,132.97	-1,026.31	-645.03	636.23	0.00	0.00	0.00
5,400.00	14.15	202.00	5,229.94	-1,048.98	-654.18	645.19	0.00	0.00	0.00
5,500.00	14.15	202.00	5,326.91	-1,071.64	-663.34	654.15	0.00	0.00	0.00
5,600.00	14.15	202.00	5,423.87	-1,094.31	-672.50	663.12	0.00	0.00	0.00
5,700.00	14.15	202.00	5,520.84	-1,116.97	-681.66	672.08	0.00	0.00	0.00
5,800.00	14.15	202.00	5,617.80	-1,139.64	-690.82	681.04	0.00	0.00	0.00
5,900.00	14.15	202.00	5,714.77	-1,162.31	-699.97	690.01	0.00	0.00	0.00
6,000.00	14.15	202.00	5,811.74	-1,184.97	-709.13	698.97	0.00	0.00	0.00
6,100.00	14.15	202.00	5,908.70	-1,207.64	-718.29	707.93	0.00	0.00	0.00
6,200.00	14.15	202.00	6,005.67	-1,230.31	-727.45	716.90	0.00	0.00	0.00
6,300.00	14.15	202.00	6,102.63	-1,252.97	-736.60	725.86	0.00	0.00	0.00
6,400.00	14.15	202.00	6,199.60	-1,275.64	-745.76	734.82	0.00	0.00	0.00
6,500.00	14.15	202.00	6,296.57	-1,298.30	-754.92	743.79	0.00	0.00	0.00
6,600.00	14.15	202.00	6,393.53	-1,320.97	-764.08	752.75	0.00	0.00	0.00
6,610.22	14.15	202.00	6,403.44	-1,323.29	-765.01	753.67	0.00	0.00	0.00
KOP @ 6610.22ft :: DLS = 8°/100'									
6,650.00	15.57	213.13	6,441.90	-1,332.27	-769.75	758.33	8.00	3.57	27.99
6,700.00	17.99	224.20	6,489.78	-1,343.43	-778.81	767.29	8.00	4.84	22.14
6,750.00	20.89	232.51	6,536.93	-1,354.39	-791.27	779.66	8.00	5.80	16.62
6,800.00	24.09	238.79	6,583.13	-1,365.11	-807.08	795.38	8.00	6.41	12.56
6,850.00	27.50	243.64	6,628.14	-1,375.53	-826.16	814.37	8.00	6.80	9.69
6,900.00	31.03	247.47	6,671.76	-1,385.60	-848.42	836.54	8.00	7.07	7.67
6,950.00	34.66	250.59	6,713.76	-1,395.26	-873.74	861.78	8.00	7.25	6.23
7,000.00	38.35	253.17	6,753.95	-1,404.48	-902.01	889.96	8.00	7.39	5.17
7,050.00	42.09	255.37	6,792.12	-1,413.21	-933.08	920.96	8.00	7.48	4.39
7,100.00	45.87	257.26	6,828.09	-1,421.41	-966.81	954.62	8.00	7.55	3.79
7,132.18	48.32	258.36	6,850.00	-1,426.38	-989.85	977.62	8.00	7.60	3.41
Sharon Springs									
7,150.00	49.68	258.93	6,861.69	-1,429.03	-1,003.04	990.78	8.00	7.63	3.21
7,178.96	51.89	259.81	6,880.00	-1,433.16	-1,025.09	1,012.79	8.00	7.64	3.04
Niobrara									
7,200.00	53.50	260.42	6,892.75	-1,436.03	-1,041.57	1,029.26	8.00	7.66	2.89
7,250.00	57.35	261.77	6,921.12	-1,442.40	-1,082.24	1,069.86	8.00	7.69	2.70
7,300.00	61.20	263.00	6,946.66	-1,448.08	-1,124.83	1,112.41	8.00	7.71	2.47
7,350.00	65.07	264.15	6,969.26	-1,453.07	-1,169.15	1,156.68	8.00	7.73	2.30
7,400.00	68.94	265.23	6,988.78	-1,457.32	-1,214.97	1,202.46	8.00	7.75	2.16
7,450.00	72.83	266.25	7,005.15	-1,460.82	-1,262.07	1,249.53	8.00	7.76	2.05
7,500.00	76.71	267.23	7,018.29	-1,463.56	-1,310.23	1,297.66	8.00	7.77	1.96
7,550.00	80.60	268.18	7,028.12	-1,465.52	-1,359.20	1,346.62	8.00	7.78	1.90
7,576.68	82.68	268.68	7,032.00	-1,466.24	-1,385.58	1,372.99	8.00	7.78	1.87

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<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 4-16HZ	<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)
<b>Nio B</b>									
7,600.00	84.49	269.11	7,034.61	-1,466.69	-1,408.75	1,396.16	8.00	7.79	1.85
7,650.00	88.39	270.03	7,037.71	-1,467.06	-1,458.65	1,446.05	8.00	7.79	1.83
7,669.91	90.02	270.41	7,038.00	-1,466.99	-1,478.55	1,465.95	8.42	8.20	1.92
<b>Nio C</b>									
7,670.95	90.02	270.41	7,038.00	-1,466.98	-1,479.60	1,467.00	0.00	0.00	0.00
<b>End Build @ 7670.95ft</b>									
7,700.00	90.02	270.41	7,037.99	-1,466.78	-1,508.64	1,496.04	0.00	0.00	0.00
7,800.00	90.02	270.41	7,037.95	-1,466.06	-1,608.64	1,596.04	0.00	0.00	0.00
7,870.95	90.02	270.41	7,037.93	-1,465.55	-1,679.59	1,667.00	0.00	0.00	0.00
<b>Begin Turn for Setback Buffer @ 7870.95ft</b>									
7,886.72	90.02	270.65	7,037.92	-1,465.41	-1,695.36	1,682.77	1.50	0.02	1.50
<b>End Turn @ 7886.72ft</b>									
7,900.00	90.02	270.65	7,037.92	-1,465.26	-1,708.64	1,696.04	0.00	0.00	0.00
8,000.00	90.02	270.65	7,037.88	-1,464.13	-1,808.63	1,796.04	0.00	0.00	0.00
8,100.00	90.02	270.65	7,037.84	-1,463.00	-1,908.62	1,896.04	0.00	0.00	0.00
8,200.00	90.02	270.65	7,037.80	-1,461.87	-2,008.62	1,996.04	0.00	0.00	0.00
8,300.00	90.02	270.65	7,037.76	-1,460.74	-2,108.61	2,096.04	0.00	0.00	0.00
8,400.00	90.02	270.65	7,037.72	-1,459.62	-2,208.61	2,196.04	0.00	0.00	0.00
8,500.00	90.02	270.65	7,037.68	-1,458.49	-2,308.60	2,296.04	0.00	0.00	0.00
8,600.00	90.02	270.65	7,037.64	-1,457.36	-2,408.59	2,396.04	0.00	0.00	0.00
8,700.00	90.02	270.65	7,037.60	-1,456.23	-2,508.59	2,496.04	0.00	0.00	0.00
8,800.00	90.02	270.65	7,037.57	-1,455.10	-2,608.58	2,596.04	0.00	0.00	0.00
8,900.00	90.02	270.65	7,037.53	-1,453.97	-2,708.57	2,696.04	0.00	0.00	0.00
9,000.00	90.02	270.65	7,037.49	-1,452.85	-2,808.57	2,796.04	0.00	0.00	0.00
9,100.00	90.02	270.65	7,037.45	-1,451.72	-2,908.56	2,896.04	0.00	0.00	0.00
9,200.00	90.02	270.65	7,037.41	-1,450.59	-3,008.55	2,996.04	0.00	0.00	0.00
9,300.00	90.02	270.65	7,037.37	-1,449.46	-3,108.55	3,096.04	0.00	0.00	0.00
9,400.00	90.02	270.65	7,037.33	-1,448.33	-3,208.54	3,196.04	0.00	0.00	0.00
9,500.00	90.02	270.65	7,037.29	-1,447.20	-3,308.54	3,296.04	0.00	0.00	0.00
9,600.00	90.02	270.65	7,037.25	-1,446.08	-3,408.53	3,396.04	0.00	0.00	0.00
9,700.00	90.02	270.65	7,037.21	-1,444.95	-3,508.52	3,496.04	0.00	0.00	0.00
9,800.00	90.02	270.65	7,037.17	-1,443.82	-3,608.52	3,596.04	0.00	0.00	0.00
9,900.00	90.02	270.65	7,037.13	-1,442.69	-3,708.51	3,696.04	0.00	0.00	0.00
10,000.00	90.02	270.65	7,037.09	-1,441.56	-3,808.50	3,796.04	0.00	0.00	0.00
10,100.00	90.02	270.65	7,037.05	-1,440.43	-3,908.50	3,896.04	0.00	0.00	0.00
10,200.00	90.02	270.65	7,037.01	-1,439.31	-4,008.49	3,996.04	0.00	0.00	0.00
10,300.00	90.02	270.65	7,036.98	-1,438.18	-4,108.48	4,096.03	0.00	0.00	0.00
10,400.00	90.02	270.65	7,036.94	-1,437.05	-4,208.48	4,196.03	0.00	0.00	0.00
10,500.00	90.02	270.65	7,036.90	-1,435.92	-4,308.47	4,296.03	0.00	0.00	0.00
10,600.00	90.02	270.65	7,036.86	-1,434.79	-4,408.47	4,396.03	0.00	0.00	0.00
10,700.00	90.02	270.65	7,036.82	-1,433.66	-4,508.46	4,496.03	0.00	0.00	0.00
10,800.00	90.02	270.65	7,036.78	-1,432.53	-4,608.45	4,596.03	0.00	0.00	0.00
10,900.00	90.02	270.65	7,036.74	-1,431.41	-4,708.45	4,696.03	0.00	0.00	0.00
11,000.00	90.02	270.65	7,036.70	-1,430.28	-4,808.44	4,796.03	0.00	0.00	0.00
11,100.00	90.02	270.65	7,036.66	-1,429.15	-4,908.43	4,896.03	0.00	0.00	0.00
11,200.00	90.02	270.65	7,036.62	-1,428.02	-5,008.43	4,996.03	0.00	0.00	0.00
11,300.00	90.02	270.65	7,036.58	-1,426.89	-5,108.42	5,096.03	0.00	0.00	0.00
11,400.00	90.02	270.65	7,036.54	-1,425.76	-5,208.41	5,196.03	0.00	0.00	0.00
11,500.00	90.02	270.65	7,036.50	-1,424.64	-5,308.41	5,296.03	0.00	0.00	0.00
11,600.00	90.02	270.65	7,036.46	-1,423.51	-5,408.40	5,396.03	0.00	0.00	0.00
11,700.00	90.02	270.65	7,036.43	-1,422.38	-5,508.40	5,496.03	0.00	0.00	0.00
11,800.00	90.02	270.65	7,036.39	-1,421.25	-5,608.39	5,596.03	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 4-16HZ
<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 4-16HZ	<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)	
11,900.00	90.02	270.65	7,036.35	-1,420.12	-5,708.38	5,696.03	0.00	0.00	0.00	
12,000.00	90.02	270.65	7,036.31	-1,418.99	-5,808.38	5,796.03	0.00	0.00	0.00	
12,100.00	90.02	270.65	7,036.27	-1,417.87	-5,908.37	5,896.03	0.00	0.00	0.00	
12,200.00	90.02	270.65	7,036.23	-1,416.74	-6,008.36	5,996.03	0.00	0.00	0.00	
12,300.00	90.02	270.65	7,036.19	-1,415.61	-6,108.36	6,096.03	0.00	0.00	0.00	
12,400.00	90.02	270.65	7,036.15	-1,414.48	-6,208.35	6,196.03	0.00	0.00	0.00	
12,500.00	90.02	270.65	7,036.11	-1,413.35	-6,308.34	6,296.03	0.00	0.00	0.00	
12,600.00	90.02	270.65	7,036.07	-1,412.22	-6,408.34	6,396.03	0.00	0.00	0.00	
12,700.00	90.02	270.65	7,036.03	-1,411.10	-6,508.33	6,496.03	0.00	0.00	0.00	
12,800.00	90.02	270.65	7,035.99	-1,409.97	-6,608.33	6,596.03	0.00	0.00	0.00	
12,900.00	90.02	270.65	7,035.95	-1,408.84	-6,708.32	6,696.03	0.00	0.00	0.00	
13,000.00	90.02	270.65	7,035.91	-1,407.71	-6,808.31	6,796.02	0.00	0.00	0.00	
13,100.00	90.02	270.65	7,035.88	-1,406.58	-6,908.31	6,896.02	0.00	0.00	0.00	
13,200.00	90.02	270.65	7,035.84	-1,405.45	-7,008.30	6,996.02	0.00	0.00	0.00	
13,300.00	90.02	270.65	7,035.80	-1,404.32	-7,108.29	7,096.02	0.00	0.00	0.00	
13,400.00	90.02	270.65	7,035.76	-1,403.20	-7,208.29	7,196.02	0.00	0.00	0.00	
13,500.00	90.02	270.65	7,035.72	-1,402.07	-7,308.28	7,296.02	0.00	0.00	0.00	
13,600.00	90.02	270.65	7,035.68	-1,400.94	-7,408.27	7,396.02	0.00	0.00	0.00	
13,700.00	90.02	270.65	7,035.64	-1,399.81	-7,508.27	7,496.02	0.00	0.00	0.00	
13,800.00	90.02	270.65	7,035.60	-1,398.68	-7,608.26	7,596.02	0.00	0.00	0.00	
13,900.00	90.02	270.65	7,035.56	-1,397.55	-7,708.26	7,696.02	0.00	0.00	0.00	
14,000.00	90.02	270.65	7,035.52	-1,396.43	-7,808.25	7,796.02	0.00	0.00	0.00	
14,100.00	90.02	270.65	7,035.48	-1,395.30	-7,908.24	7,896.02	0.00	0.00	0.00	
14,200.00	90.02	270.65	7,035.44	-1,394.17	-8,008.24	7,996.02	0.00	0.00	0.00	
14,300.00	90.02	270.65	7,035.40	-1,393.04	-8,108.23	8,096.02	0.00	0.00	0.00	
14,400.00	90.02	270.65	7,035.36	-1,391.91	-8,208.22	8,196.02	0.00	0.00	0.00	
14,500.00	90.02	270.65	7,035.32	-1,390.78	-8,308.22	8,296.02	0.00	0.00	0.00	
14,600.00	90.02	270.65	7,035.29	-1,389.66	-8,408.21	8,396.02	0.00	0.00	0.00	
14,700.00	90.02	270.65	7,035.25	-1,388.53	-8,508.20	8,496.02	0.00	0.00	0.00	
14,800.00	90.02	270.65	7,035.21	-1,387.40	-8,608.20	8,596.02	0.00	0.00	0.00	
14,900.00	90.02	270.65	7,035.17	-1,386.27	-8,708.19	8,696.02	0.00	0.00	0.00	
15,000.00	90.02	270.65	7,035.13	-1,385.14	-8,808.18	8,796.02	0.00	0.00	0.00	
15,100.00	90.02	270.65	7,035.09	-1,384.01	-8,908.18	8,896.02	0.00	0.00	0.00	
15,200.00	90.02	270.65	7,035.05	-1,382.89	-9,008.17	8,996.02	0.00	0.00	0.00	
15,300.00	90.02	270.65	7,035.01	-1,381.76	-9,108.17	9,096.02	0.00	0.00	0.00	
15,400.00	90.02	270.65	7,034.97	-1,380.63	-9,208.16	9,196.02	0.00	0.00	0.00	
15,500.00	90.02	270.65	7,034.93	-1,379.50	-9,308.15	9,296.02	0.00	0.00	0.00	
15,600.00	90.02	270.65	7,034.89	-1,378.37	-9,408.15	9,396.01	0.00	0.00	0.00	
15,700.00	90.02	270.65	7,034.85	-1,377.24	-9,508.14	9,496.01	0.00	0.00	0.00	
15,800.00	90.02	270.65	7,034.81	-1,376.11	-9,608.13	9,596.01	0.00	0.00	0.00	
15,900.00	90.02	270.65	7,034.77	-1,374.99	-9,708.13	9,696.01	0.00	0.00	0.00	
16,000.00	90.02	270.65	7,034.74	-1,373.86	-9,808.12	9,796.01	0.00	0.00	0.00	
16,100.00	90.02	270.65	7,034.70	-1,372.73	-9,908.11	9,896.01	0.00	0.00	0.00	
16,200.00	90.02	270.65	7,034.66	-1,371.60	-10,008.11	9,996.01	0.00	0.00	0.00	
16,300.00	90.02	270.65	7,034.62	-1,370.47	-10,108.10	10,096.01	0.00	0.00	0.00	
16,400.00	90.02	270.65	7,034.58	-1,369.34	-10,208.10	10,196.01	0.00	0.00	0.00	
16,500.00	90.02	270.65	7,034.54	-1,368.22	-10,308.09	10,296.01	0.00	0.00	0.00	
16,600.00	90.02	270.65	7,034.50	-1,367.09	-10,408.08	10,396.01	0.00	0.00	0.00	
16,700.00	90.02	270.65	7,034.46	-1,365.96	-10,508.08	10,496.01	0.00	0.00	0.00	
16,800.00	90.02	270.65	7,034.42	-1,364.83	-10,608.07	10,596.01	0.00	0.00	0.00	
16,900.00	90.02	270.65	7,034.38	-1,363.70	-10,708.06	10,696.01	0.00	0.00	0.00	
17,000.00	90.02	270.65	7,034.34	-1,362.57	-10,808.06	10,796.01	0.00	0.00	0.00	
17,100.00	90.02	270.65	7,034.30	-1,361.45	-10,908.05	10,896.01	0.00	0.00	0.00	
17,200.00	90.02	270.65	7,034.26	-1,360.32	-11,008.04	10,996.01	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 4-16HZ
<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 4-16HZ	<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)
17,300.00	90.02	270.65	7,034.22	-1,359.19	-11,108.04	11,096.01	0.00	0.00	0.00
17,400.00	90.02	270.65	7,034.19	-1,358.06	-11,208.03	11,196.01	0.00	0.00	0.00
17,500.00	90.02	270.65	7,034.15	-1,356.93	-11,308.03	11,296.01	0.00	0.00	0.00
17,600.00	90.02	270.65	7,034.11	-1,355.80	-11,408.02	11,396.01	0.00	0.00	0.00
17,700.00	90.02	270.65	7,034.07	-1,354.68	-11,508.01	11,496.01	0.00	0.00	0.00
17,800.00	90.02	270.65	7,034.03	-1,353.55	-11,608.01	11,596.01	0.00	0.00	0.00
17,900.00	90.02	270.65	7,033.99	-1,352.42	-11,708.00	11,696.01	0.00	0.00	0.00
18,000.00	90.02	270.65	7,033.95	-1,351.29	-11,807.99	11,796.01	0.00	0.00	0.00
18,100.00	90.02	270.65	7,033.91	-1,350.16	-11,907.99	11,896.01	0.00	0.00	0.00
18,200.00	90.02	270.65	7,033.87	-1,349.03	-12,007.98	11,996.01	0.00	0.00	0.00
18,300.00	90.02	270.65	7,033.83	-1,347.91	-12,107.97	12,096.00	0.00	0.00	0.00
18,400.00	90.02	270.65	7,033.79	-1,346.78	-12,207.97	12,196.00	0.00	0.00	0.00
18,500.00	90.02	270.65	7,033.75	-1,345.65	-12,307.96	12,296.00	0.00	0.00	0.00
18,600.00	90.02	270.65	7,033.71	-1,344.52	-12,407.96	12,396.00	0.00	0.00	0.00
18,700.00	90.02	270.65	7,033.67	-1,343.39	-12,507.95	12,496.00	0.00	0.00	0.00
18,800.00	90.02	270.65	7,033.63	-1,342.26	-12,607.94	12,596.00	0.00	0.00	0.00
18,900.00	90.02	270.65	7,033.60	-1,341.13	-12,707.94	12,696.00	0.00	0.00	0.00
19,000.00	90.02	270.65	7,033.56	-1,340.01	-12,807.93	12,796.00	0.00	0.00	0.00
19,100.00	90.02	270.65	7,033.52	-1,338.88	-12,907.92	12,896.00	0.00	0.00	0.00
19,200.00	90.02	270.65	7,033.48	-1,337.75	-13,007.92	12,996.00	0.00	0.00	0.00
19,300.00	90.02	270.65	7,033.44	-1,336.62	-13,107.91	13,096.00	0.00	0.00	0.00
19,400.00	90.02	270.65	7,033.40	-1,335.49	-13,207.90	13,196.00	0.00	0.00	0.00
19,500.00	90.02	270.65	7,033.36	-1,334.36	-13,307.90	13,296.00	0.00	0.00	0.00
19,600.00	90.02	270.65	7,033.32	-1,333.24	-13,407.89	13,396.00	0.00	0.00	0.00
19,700.00	90.02	270.65	7,033.28	-1,332.11	-13,507.89	13,496.00	0.00	0.00	0.00
19,800.00	90.02	270.65	7,033.24	-1,330.98	-13,607.88	13,596.00	0.00	0.00	0.00
19,900.00	90.02	270.65	7,033.20	-1,329.85	-13,707.87	13,696.00	0.00	0.00	0.00
20,000.00	90.02	270.65	7,033.16	-1,328.72	-13,807.87	13,796.00	0.00	0.00	0.00
20,109.59	90.02	270.65	7,033.12	-1,327.49	-13,917.45	13,905.59	0.00	0.00	0.00
Begin Turn to BHL @ 20109.59ft									
20,145.15	90.02	270.11	7,033.11	-1,327.25	-13,953.00	13,941.14	1.50	0.00	-1.50
End Turn @ 20145.15ft									
20,200.00	90.02	270.11	7,033.08	-1,327.14	-14,007.86	13,996.00	0.00	0.00	0.00
20,300.00	90.02	270.11	7,033.04	-1,326.94	-14,107.86	14,095.99	0.00	0.00	0.00
20,400.00	90.02	270.11	7,033.00	-1,326.75	-14,207.86	14,195.99	0.00	0.00	0.00
20,500.00	90.02	270.11	7,032.96	-1,326.55	-14,307.86	14,295.99	0.00	0.00	0.00
20,600.00	90.02	270.11	7,032.91	-1,326.35	-14,407.86	14,395.99	0.00	0.00	0.00
20,700.00	90.02	270.11	7,032.87	-1,326.15	-14,507.86	14,495.99	0.00	0.00	0.00
20,800.00	90.02	270.11	7,032.83	-1,325.96	-14,607.86	14,595.98	0.00	0.00	0.00
20,900.00	90.02	270.11	7,032.79	-1,325.76	-14,707.86	14,695.98	0.00	0.00	0.00
21,000.00	90.02	270.11	7,032.74	-1,325.56	-14,807.86	14,795.98	0.00	0.00	0.00
21,100.00	90.02	270.11	7,032.70	-1,325.36	-14,907.86	14,895.98	0.00	0.00	0.00
21,200.00	90.02	270.11	7,032.66	-1,325.17	-15,007.86	14,995.97	0.00	0.00	0.00
21,300.00	90.02	270.11	7,032.62	-1,324.97	-15,107.86	15,095.97	0.00	0.00	0.00
21,400.00	90.02	270.11	7,032.57	-1,324.77	-15,207.86	15,195.97	0.00	0.00	0.00
21,500.00	90.02	270.11	7,032.53	-1,324.57	-15,307.86	15,295.97	0.00	0.00	0.00
21,600.00	90.02	270.11	7,032.49	-1,324.38	-15,407.86	15,395.97	0.00	0.00	0.00
21,700.00	90.02	270.11	7,032.45	-1,324.18	-15,507.86	15,495.96	0.00	0.00	0.00
21,800.00	90.02	270.11	7,032.40	-1,323.98	-15,607.86	15,595.96	0.00	0.00	0.00
21,900.00	90.02	270.11	7,032.36	-1,323.78	-15,707.85	15,695.96	0.00	0.00	0.00
22,000.00	90.02	270.11	7,032.32	-1,323.59	-15,807.85	15,795.96	0.00	0.00	0.00
22,100.00	90.02	270.11	7,032.28	-1,323.39	-15,907.85	15,895.96	0.00	0.00	0.00
22,200.00	90.02	270.11	7,032.24	-1,323.19	-16,007.85	15,995.95	0.00	0.00	0.00
22,300.00	90.02	270.11	7,032.19	-1,322.99	-16,107.85	16,095.95	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 4-16HZ
<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 4-16HZ	<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	90.02	270.11	7,032.15	-1,322.80	-16,207.85	16,195.95	0.00	0.00	0.00	
22,500.00	90.02	270.11	7,032.11	-1,322.60	-16,307.85	16,295.95	0.00	0.00	0.00	
22,600.00	90.02	270.11	7,032.07	-1,322.40	-16,407.85	16,395.94	0.00	0.00	0.00	
22,700.00	90.02	270.11	7,032.02	-1,322.20	-16,507.85	16,495.94	0.00	0.00	0.00	
22,800.00	90.02	270.11	7,031.98	-1,322.01	-16,607.85	16,595.94	0.00	0.00	0.00	
22,900.00	90.02	270.11	7,031.94	-1,321.81	-16,707.85	16,695.94	0.00	0.00	0.00	
23,000.00	90.02	270.11	7,031.90	-1,321.61	-16,807.85	16,795.94	0.00	0.00	0.00	
23,100.00	90.02	270.11	7,031.85	-1,321.41	-16,907.85	16,895.93	0.00	0.00	0.00	
23,200.00	90.02	270.11	7,031.81	-1,321.21	-17,007.85	16,995.93	0.00	0.00	0.00	
23,300.00	90.02	270.11	7,031.77	-1,321.02	-17,107.85	17,095.93	0.00	0.00	0.00	
23,400.00	90.02	270.11	7,031.73	-1,320.82	-17,207.85	17,195.93	0.00	0.00	0.00	
23,500.00	90.02	270.11	7,031.68	-1,320.62	-17,307.85	17,295.92	0.00	0.00	0.00	
23,600.00	90.02	270.11	7,031.64	-1,320.42	-17,407.85	17,395.92	0.00	0.00	0.00	
23,700.00	90.02	270.11	7,031.60	-1,320.23	-17,507.85	17,495.92	0.00	0.00	0.00	
23,800.00	90.02	270.11	7,031.56	-1,320.03	-17,607.85	17,595.92	0.00	0.00	0.00	
23,900.00	90.02	270.11	7,031.52	-1,319.83	-17,707.85	17,695.92	0.00	0.00	0.00	
24,000.00	90.02	270.11	7,031.47	-1,319.63	-17,807.85	17,795.91	0.00	0.00	0.00	
24,100.00	90.02	270.11	7,031.43	-1,319.44	-17,907.85	17,895.91	0.00	0.00	0.00	
24,200.00	90.02	270.11	7,031.39	-1,319.24	-18,007.85	17,995.91	0.00	0.00	0.00	
24,300.00	90.02	270.11	7,031.35	-1,319.04	-18,107.85	18,095.91	0.00	0.00	0.00	
24,400.00	90.02	270.11	7,031.30	-1,318.84	-18,207.85	18,195.91	0.00	0.00	0.00	
24,500.00	90.02	270.11	7,031.26	-1,318.65	-18,307.85	18,295.90	0.00	0.00	0.00	
24,600.00	90.02	270.11	7,031.22	-1,318.45	-18,407.85	18,395.90	0.00	0.00	0.00	
24,700.00	90.02	270.11	7,031.18	-1,318.25	-18,507.85	18,495.90	0.00	0.00	0.00	
24,800.00	90.02	270.11	7,031.13	-1,318.05	-18,607.85	18,595.90	0.00	0.00	0.00	
24,900.00	90.02	270.11	7,031.09	-1,317.86	-18,707.85	18,695.89	0.00	0.00	0.00	
25,000.00	90.02	270.11	7,031.05	-1,317.66	-18,807.85	18,795.89	0.00	0.00	0.00	
25,100.00	90.02	270.11	7,031.01	-1,317.46	-18,907.85	18,895.89	0.00	0.00	0.00	
25,115.86	90.02	270.11	7,031.00	-1,317.43	-18,923.71	18,911.75	0.00	0.00	0.00	
TD Well @ 25115.86ft - 5.5" CSG										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,524.08	1,500.00	9 5/8"	9-5/8	13-1/2	
25,115.86	7,031.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
717.77	716.00	Fox Hills				
3,726.28	3,607.00	Parkman				
4,223.36	4,089.00	Sussex				
7,132.18	6,850.00	Sharon Springs				
7,178.96	6,880.00	Niobrara				
7,576.68	7,032.00	Nio B				
7,669.91	7,038.00	Nio C		0.00		

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-16HZ
<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 4-16HZ	<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)	
1,849.00	1,804.95	-224.84	-241.73	Tie-onto Sfc Svys & Hold @ 1849.00ft
1,949.00	1,898.33	-250.84	-266.31	Drop Tangent INC @ 1949.00ft
2,876.67	2,783.17	-477.04	-423.11	Hold Tangent @ 2876.67ft
6,610.22	6,403.44	-1,323.29	-765.01	KOP @ 6610.22ft :: DLS = 8"/100'
7,670.95	7,038.00	-1,466.98	-1,479.60	End Build @ 7670.95ft
7,870.95	7,037.93	-1,465.55	-1,679.59	Begin Turn for Setback Buffer @ 7870.95ft
7,886.72	7,037.92	-1,465.41	-1,695.36	End Turn @ 7886.72ft
20,109.59	7,033.12	-1,327.49	-13,917.45	Begin Turn to BHL @ 20109.59ft
20,145.15	7,033.11	-1,327.25	-13,953.00	End Turn @ 20145.15ft
25,115.86	7,031.00	-1,317.43	-18,923.71	TD Well @ 25115.86ft