

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-9HZ**

Plan B

Plan: Permit Rev-1

Standard Planning Report

26 June, 2023

US ROCKIES WATTENBERG PLANNING

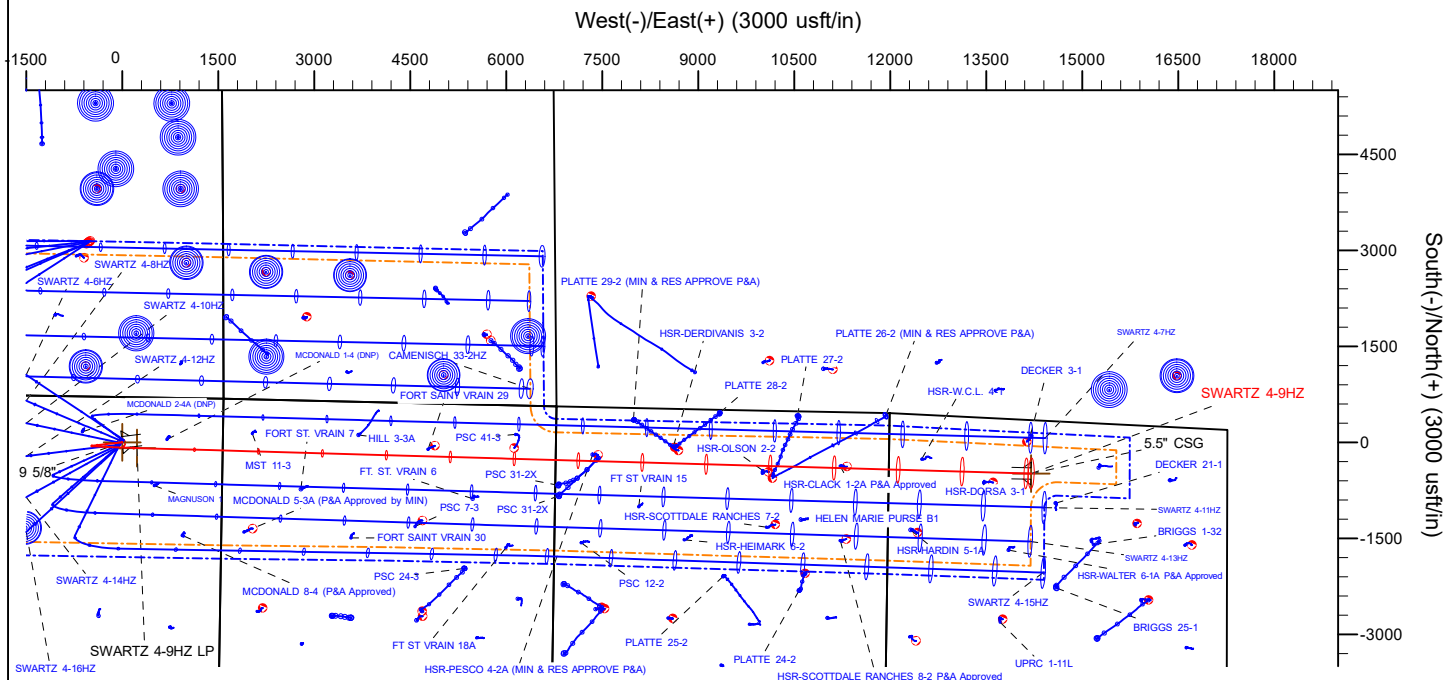
CASING DETAILS			
TVD	MD	Name	Size
1500.00	1500.00	9 5/8"	9-5/8
7329.00	21580.13	5.5" CSG	5-1/2



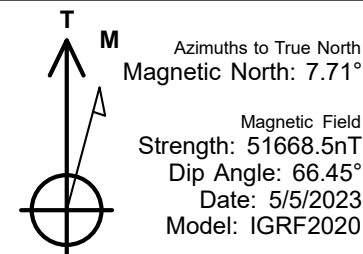
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2725.00	0.00	0.00	2725.00	0.00	0.00	0.00	0.00	0.00	
3258.33	8.00	263.44	3256.60	-4.25	-36.93	1.50	263.44	-36.79	
6384.51	8.00	263.44	6352.36	-53.95	-469.16	0.00	0.00	-467.44	
7600.19	89.34	91.63	7167.00	-90.04	231.17	8.00	-171.74	233.63	
21580.13	89.34	91.63	7329.00	-488.14	14204.50	0.00	0.00	14212.64	SWARTZ 4-9HZ BHL

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-9HZ SHL	0.00	14621505.79	1670630.91	40.260207	-104.891699
SWARTZ 4-9HZ LP	7167.00	14621416.03	1670862.19	40.259959	-104.890871
SWARTZ 4-9HZ BHL	7329.00	14621035.00	1684836.00	40.258855	-104.840786

WELL DETAILS: SWARTZ 4-9HZ
GL = 4825'
RKB = 17' @ 4842.00usft (RIG)
Plan: Permit Rev-1 (SWARTZ 4-9HZ/Plan B)
Date: 6/27/2023



FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
707.00	707.00	Fox Hills
3598.00	3603.09	Parkman
4080.00	4089.82	Sussex
6841.00	6896.00	Sharon Springs
6871.00	6932.40	Niobrara
7023.00	7146.21	Nio B
7055.00	7202.40	Nio C
7157.00	7488.35	Fort Hayes
7178.00	8549.20	Codell



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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 4-9HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,505.79 usft	Latitude:	40.260207
	+E/-W	0.00 usft	Easting:	1,670,630.91 usft	Longitude:	-104.891700
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:		0.07 °				

Wellbore	Plan B				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	5/5/2023	7.71	66.45	51,668.48971281

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	91.63	

Plan Survey Tool Program		Date	5/8/2023		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio	
2	2,000.00	21,580.13	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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	
2,725.00	0.00	0.00	2,725.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,258.33	8.00	263.44	3,256.60	-4.25	-36.93	1.50	1.50	0.00	263.44	
6,384.51	8.00	263.44	6,352.36	-53.95	-469.16	0.00	0.00	0.00	0.00	
7,600.19	89.34	91.63	7,167.00	-90.04	231.17	8.00	6.69	-14.13	-171.74	
21,580.13	89.34	91.63	7,329.00	-488.14	14,204.50	0.00	0.00	0.00	0.00	SWARTZ 4-9HZ BHL

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
707.00	0.00	0.00	707.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,725.00	0.00	0.00	2,725.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2725.00ft									
2,800.00	1.13	263.44	2,800.00	-0.08	-0.73	-0.73	1.50	1.50	0.00
2,900.00	2.63	263.44	2,899.94	-0.46	-3.98	-3.97	1.50	1.50	0.00
3,000.00	4.13	263.44	2,999.76	-1.13	-9.83	-9.79	1.50	1.50	0.00
3,100.00	5.63	263.44	3,099.40	-2.10	-18.27	-18.21	1.50	1.50	0.00
3,200.00	7.13	263.44	3,198.78	-3.37	-29.30	-29.20	1.50	1.50	0.00
3,258.33	8.00	263.44	3,256.60	-4.25	-36.93	-36.79	1.50	1.50	0.00
Hold Tangent @ 3258.33ft									
3,300.00	8.00	263.44	3,297.86	-4.91	-42.69	-42.53	0.00	0.00	0.00
3,400.00	8.00	263.44	3,396.89	-6.50	-56.52	-56.31	0.00	0.00	0.00
3,500.00	8.00	263.44	3,495.92	-8.09	-70.34	-70.08	0.00	0.00	0.00
3,600.00	8.00	263.44	3,594.94	-9.68	-84.17	-83.86	0.00	0.00	0.00
3,603.09	8.00	263.44	3,598.00	-9.73	-84.60	-84.29	0.00	0.00	0.00
Parkman									
3,700.00	8.00	263.44	3,693.97	-11.27	-98.00	-97.64	0.00	0.00	0.00
3,800.00	8.00	263.44	3,793.00	-12.86	-111.82	-111.41	0.00	0.00	0.00
3,900.00	8.00	263.44	3,892.02	-14.45	-125.65	-125.19	0.00	0.00	0.00
4,000.00	8.00	263.44	3,991.05	-16.04	-139.47	-138.96	0.00	0.00	0.00
4,089.82	8.00	263.44	4,080.00	-17.47	-151.89	-151.33	0.00	0.00	0.00
Sussex									
4,100.00	8.00	263.44	4,090.08	-17.63	-153.30	-152.74	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)	
4,200.00	8.00	263.44	4,189.10	-19.22	-167.13	-166.51	0.00	0.00	0.00	
4,300.00	8.00	263.44	4,288.13	-20.81	-180.95	-180.29	0.00	0.00	0.00	
4,400.00	8.00	263.44	4,387.16	-22.40	-194.78	-194.06	0.00	0.00	0.00	
4,500.00	8.00	263.44	4,486.19	-23.99	-208.61	-207.84	0.00	0.00	0.00	
4,600.00	8.00	263.44	4,585.21	-25.58	-222.43	-221.61	0.00	0.00	0.00	
4,700.00	8.00	263.44	4,684.24	-27.17	-236.26	-235.39	0.00	0.00	0.00	
4,800.00	8.00	263.44	4,783.27	-28.76	-250.08	-249.16	0.00	0.00	0.00	
4,900.00	8.00	263.44	4,882.29	-30.35	-263.91	-262.94	0.00	0.00	0.00	
5,000.00	8.00	263.44	4,981.32	-31.94	-277.74	-276.72	0.00	0.00	0.00	
5,100.00	8.00	263.44	5,080.35	-33.53	-291.56	-290.49	0.00	0.00	0.00	
5,200.00	8.00	263.44	5,179.37	-35.12	-305.39	-304.27	0.00	0.00	0.00	
5,300.00	8.00	263.44	5,278.40	-36.71	-319.21	-318.04	0.00	0.00	0.00	
5,400.00	8.00	263.44	5,377.43	-38.30	-333.04	-331.82	0.00	0.00	0.00	
5,500.00	8.00	263.44	5,476.45	-39.89	-346.87	-345.59	0.00	0.00	0.00	
5,600.00	8.00	263.44	5,575.48	-41.48	-360.69	-359.37	0.00	0.00	0.00	
5,700.00	8.00	263.44	5,674.51	-43.07	-374.52	-373.14	0.00	0.00	0.00	
5,800.00	8.00	263.44	5,773.53	-44.66	-388.35	-386.92	0.00	0.00	0.00	
5,900.00	8.00	263.44	5,872.56	-46.25	-402.17	-400.69	0.00	0.00	0.00	
6,000.00	8.00	263.44	5,971.59	-47.84	-416.00	-414.47	0.00	0.00	0.00	
6,100.00	8.00	263.44	6,070.61	-49.43	-429.82	-428.24	0.00	0.00	0.00	
6,200.00	8.00	263.44	6,169.64	-51.02	-443.65	-442.02	0.00	0.00	0.00	
6,300.00	8.00	263.44	6,268.67	-52.61	-457.48	-455.79	0.00	0.00	0.00	
6,384.51	8.00	263.44	6,352.36	-53.95	-469.16	-467.44	0.00	0.00	0.00	
KOP @ 6384.51ft :: DLS = 8°/100'										
6,400.00	6.78	261.93	6,367.72	-54.20	-471.14	-469.40	8.00	-7.90	-9.74	
6,450.00	2.91	248.49	6,417.53	-55.08	-475.24	-473.48	8.00	-7.73	-26.89	
6,500.00	1.75	132.54	6,467.51	-56.07	-475.86	-474.07	8.00	-2.33	-231.90	
6,550.00	5.44	103.73	6,517.40	-57.14	-472.99	-471.18	8.00	7.39	-57.61	
6,600.00	9.39	98.56	6,566.97	-58.32	-466.65	-464.81	8.00	7.90	-10.34	
6,650.00	13.37	96.44	6,615.98	-59.57	-456.87	-454.99	8.00	7.96	-4.24	
6,700.00	17.36	95.29	6,664.19	-60.91	-443.70	-441.78	8.00	7.98	-2.32	
6,750.00	21.35	94.55	6,711.35	-62.32	-427.19	-425.24	8.00	7.99	-1.47	
6,800.00	25.35	94.04	6,757.25	-63.79	-407.43	-405.45	8.00	7.99	-1.03	
6,850.00	29.34	93.66	6,801.65	-65.33	-384.52	-382.51	8.00	7.99	-0.76	
6,896.00	33.02	93.38	6,841.00	-66.79	-360.76	-358.71	8.00	7.99	-0.60	
Sharon Springs										
6,900.00	33.34	93.36	6,844.35	-66.92	-358.57	-356.52	8.00	7.99	-0.53	
6,932.40	35.93	93.20	6,871.00	-67.97	-340.19	-338.12	8.00	8.00	-0.50	
Niobrara										
6,950.00	37.34	93.12	6,885.13	-68.55	-329.70	-327.62	8.00	8.00	-0.45	
7,000.00	41.33	92.92	6,923.79	-70.22	-298.06	-295.94	8.00	8.00	-0.40	
7,050.00	45.33	92.75	6,960.15	-71.91	-263.80	-261.65	8.00	8.00	-0.34	
7,100.00	49.33	92.60	6,994.03	-73.63	-227.08	-224.90	8.00	8.00	-0.30	
7,146.21	53.03	92.48	7,023.00	-75.22	-191.12	-188.90	8.00	8.00	-0.26	
Nio B										
7,150.00	53.33	92.47	7,025.27	-75.35	-188.09	-185.87	8.00	8.00	-0.25	
7,200.00	57.33	92.35	7,053.71	-77.08	-147.01	-144.76	8.00	8.00	-0.24	
7,202.40	57.52	92.35	7,055.00	-77.17	-144.99	-142.74	8.00	8.00	-0.23	
Nio C										
7,250.00	61.33	92.25	7,079.21	-78.81	-104.05	-101.77	8.00	8.00	-0.22	
7,300.00	65.33	92.14	7,101.65	-80.52	-59.41	-57.10	8.00	8.00	-0.20	
7,350.00	69.33	92.05	7,120.92	-82.21	-13.32	-10.98	8.00	8.00	-0.19	
7,400.00	73.32	91.96	7,136.93	-83.86	34.01	36.38	8.00	8.00	-0.18	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)
7,450.00	77.32	91.88	7,149.59	-85.48	82.34	84.74	8.00	8.00	-0.17
7,488.35	80.39	91.81	7,157.00	-86.69	119.94	122.36	8.00	8.00	-0.17
Fort Hayes									
7,500.00	81.32	91.79	7,158.85	-87.06	131.44	133.86	8.00	8.00	-0.16
7,550.00	85.32	91.71	7,164.66	-88.57	181.07	183.51	8.00	8.00	-0.16
7,600.19	89.34	91.63	7,167.00	-90.04	231.17	233.63	8.00	8.00	-0.16
End Build @ 7600.19ft									
7,700.00	89.34	91.63	7,168.16	-92.88	330.93	333.44	0.00	0.00	0.00
7,800.00	89.34	91.63	7,169.32	-95.73	430.89	433.44	0.00	0.00	0.00
7,900.00	89.34	91.63	7,170.48	-98.57	530.84	533.43	0.00	0.00	0.00
8,000.00	89.34	91.63	7,171.64	-101.42	630.79	633.42	0.00	0.00	0.00
8,100.00	89.34	91.63	7,172.79	-104.27	730.75	733.42	0.00	0.00	0.00
8,200.00	89.34	91.63	7,173.95	-107.12	830.70	833.41	0.00	0.00	0.00
8,300.00	89.34	91.63	7,175.11	-109.96	930.65	933.40	0.00	0.00	0.00
8,400.00	89.34	91.63	7,176.27	-112.81	1,030.60	1,033.40	0.00	0.00	0.00
8,500.00	89.34	91.63	7,177.43	-115.66	1,130.56	1,133.39	0.00	0.00	0.00
8,549.20	89.34	91.63	7,178.00	-117.06	1,179.73	1,182.59	0.00	0.00	0.00
Codell									
8,600.00	89.34	91.63	7,178.59	-118.51	1,230.51	1,233.38	0.00	0.00	0.00
8,700.00	89.34	91.63	7,179.75	-121.36	1,330.46	1,333.38	0.00	0.00	0.00
8,800.00	89.34	91.63	7,180.91	-124.20	1,430.41	1,433.37	0.00	0.00	0.00
8,900.00	89.34	91.63	7,182.07	-127.05	1,530.37	1,533.36	0.00	0.00	0.00
9,000.00	89.34	91.63	7,183.22	-129.90	1,630.32	1,633.36	0.00	0.00	0.00
9,100.00	89.34	91.63	7,184.38	-132.75	1,730.27	1,733.35	0.00	0.00	0.00
9,200.00	89.34	91.63	7,185.54	-135.59	1,830.23	1,833.34	0.00	0.00	0.00
9,300.00	89.34	91.63	7,186.70	-138.44	1,930.18	1,933.34	0.00	0.00	0.00
9,400.00	89.34	91.63	7,187.86	-141.29	2,030.13	2,033.33	0.00	0.00	0.00
9,500.00	89.34	91.63	7,189.02	-144.14	2,130.08	2,133.32	0.00	0.00	0.00
9,600.00	89.34	91.63	7,190.18	-146.98	2,230.04	2,233.32	0.00	0.00	0.00
9,700.00	89.34	91.63	7,191.34	-149.83	2,329.99	2,333.31	0.00	0.00	0.00
9,800.00	89.34	91.63	7,192.49	-152.68	2,429.94	2,433.30	0.00	0.00	0.00
9,900.00	89.34	91.63	7,193.65	-155.53	2,529.89	2,533.30	0.00	0.00	0.00
10,000.00	89.34	91.63	7,194.81	-158.38	2,629.85	2,633.29	0.00	0.00	0.00
10,100.00	89.34	91.63	7,195.97	-161.22	2,729.80	2,733.28	0.00	0.00	0.00
10,200.00	89.34	91.63	7,197.13	-164.07	2,829.75	2,833.28	0.00	0.00	0.00
10,300.00	89.34	91.63	7,198.29	-166.92	2,929.71	2,933.27	0.00	0.00	0.00
10,400.00	89.34	91.63	7,199.45	-169.77	3,029.66	3,033.26	0.00	0.00	0.00
10,500.00	89.34	91.63	7,200.61	-172.61	3,129.61	3,133.25	0.00	0.00	0.00
10,600.00	89.34	91.63	7,201.76	-175.46	3,229.56	3,233.25	0.00	0.00	0.00
10,700.00	89.34	91.63	7,202.92	-178.31	3,329.52	3,333.24	0.00	0.00	0.00
10,800.00	89.34	91.63	7,204.08	-181.16	3,429.47	3,433.23	0.00	0.00	0.00
10,900.00	89.34	91.63	7,205.24	-184.01	3,529.42	3,533.23	0.00	0.00	0.00
11,000.00	89.34	91.63	7,206.40	-186.85	3,629.37	3,633.22	0.00	0.00	0.00
11,100.00	89.34	91.63	7,207.56	-189.70	3,729.33	3,733.21	0.00	0.00	0.00
11,200.00	89.34	91.63	7,208.72	-192.55	3,829.28	3,833.21	0.00	0.00	0.00
11,300.00	89.34	91.63	7,209.88	-195.40	3,929.23	3,933.20	0.00	0.00	0.00
11,400.00	89.34	91.63	7,211.03	-198.24	4,029.19	4,033.19	0.00	0.00	0.00
11,500.00	89.34	91.63	7,212.19	-201.09	4,129.14	4,133.19	0.00	0.00	0.00
11,600.00	89.34	91.63	7,213.35	-203.94	4,229.09	4,233.18	0.00	0.00	0.00
11,700.00	89.34	91.63	7,214.51	-206.79	4,329.04	4,333.17	0.00	0.00	0.00
11,800.00	89.34	91.63	7,215.67	-209.63	4,429.00	4,433.17	0.00	0.00	0.00
11,900.00	89.34	91.63	7,216.83	-212.48	4,528.95	4,533.16	0.00	0.00	0.00
12,000.00	89.34	91.63	7,217.99	-215.33	4,628.90	4,633.15	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)
12,100.00	89.34	91.63	7,219.15	-218.18	4,728.85	4,733.15	0.00	0.00	0.00
12,200.00	89.34	91.63	7,220.30	-221.03	4,828.81	4,833.14	0.00	0.00	0.00
12,300.00	89.34	91.63	7,221.46	-223.87	4,928.76	4,933.13	0.00	0.00	0.00
12,400.00	89.34	91.63	7,222.62	-226.72	5,028.71	5,033.13	0.00	0.00	0.00
12,500.00	89.34	91.63	7,223.78	-229.57	5,128.67	5,133.12	0.00	0.00	0.00
12,600.00	89.34	91.63	7,224.94	-232.42	5,228.62	5,233.11	0.00	0.00	0.00
12,700.00	89.34	91.63	7,226.10	-235.26	5,328.57	5,333.11	0.00	0.00	0.00
12,800.00	89.34	91.63	7,227.26	-238.11	5,428.52	5,433.10	0.00	0.00	0.00
12,900.00	89.34	91.63	7,228.42	-240.96	5,528.48	5,533.09	0.00	0.00	0.00
13,000.00	89.34	91.63	7,229.58	-243.81	5,628.43	5,633.09	0.00	0.00	0.00
13,100.00	89.34	91.63	7,230.73	-246.65	5,728.38	5,733.08	0.00	0.00	0.00
13,200.00	89.34	91.63	7,231.89	-249.50	5,828.33	5,833.07	0.00	0.00	0.00
13,300.00	89.34	91.63	7,233.05	-252.35	5,928.29	5,933.07	0.00	0.00	0.00
13,400.00	89.34	91.63	7,234.21	-255.20	6,028.24	6,033.06	0.00	0.00	0.00
13,500.00	89.34	91.63	7,235.37	-258.05	6,128.19	6,133.05	0.00	0.00	0.00
13,600.00	89.34	91.63	7,236.53	-260.89	6,228.15	6,233.05	0.00	0.00	0.00
13,700.00	89.34	91.63	7,237.69	-263.74	6,328.10	6,333.04	0.00	0.00	0.00
13,800.00	89.34	91.63	7,238.85	-266.59	6,428.05	6,433.03	0.00	0.00	0.00
13,900.00	89.34	91.63	7,240.00	-269.44	6,528.00	6,533.03	0.00	0.00	0.00
14,000.00	89.34	91.63	7,241.16	-272.28	6,627.96	6,633.02	0.00	0.00	0.00
14,100.00	89.34	91.63	7,242.32	-275.13	6,727.91	6,733.01	0.00	0.00	0.00
14,200.00	89.34	91.63	7,243.48	-277.98	6,827.86	6,833.01	0.00	0.00	0.00
14,300.00	89.34	91.63	7,244.64	-280.83	6,927.82	6,933.00	0.00	0.00	0.00
14,400.00	89.34	91.63	7,245.80	-283.67	7,027.77	7,032.99	0.00	0.00	0.00
14,500.00	89.34	91.63	7,246.96	-286.52	7,127.72	7,132.99	0.00	0.00	0.00
14,600.00	89.34	91.63	7,248.12	-289.37	7,227.67	7,232.98	0.00	0.00	0.00
14,700.00	89.34	91.63	7,249.27	-292.22	7,327.63	7,332.97	0.00	0.00	0.00
14,800.00	89.34	91.63	7,250.43	-295.07	7,427.58	7,432.97	0.00	0.00	0.00
14,900.00	89.34	91.63	7,251.59	-297.91	7,527.53	7,532.96	0.00	0.00	0.00
15,000.00	89.34	91.63	7,252.75	-300.76	7,627.48	7,632.95	0.00	0.00	0.00
15,100.00	89.34	91.63	7,253.91	-303.61	7,727.44	7,732.95	0.00	0.00	0.00
15,200.00	89.34	91.63	7,255.07	-306.46	7,827.39	7,832.94	0.00	0.00	0.00
15,300.00	89.34	91.63	7,256.23	-309.30	7,927.34	7,932.93	0.00	0.00	0.00
15,400.00	89.34	91.63	7,257.39	-312.15	8,027.30	8,032.93	0.00	0.00	0.00
15,500.00	89.34	91.63	7,258.54	-315.00	8,127.25	8,132.92	0.00	0.00	0.00
15,600.00	89.34	91.63	7,259.70	-317.85	8,227.20	8,232.91	0.00	0.00	0.00
15,700.00	89.34	91.63	7,260.86	-320.69	8,327.15	8,332.91	0.00	0.00	0.00
15,800.00	89.34	91.63	7,262.02	-323.54	8,427.11	8,432.90	0.00	0.00	0.00
15,900.00	89.34	91.63	7,263.18	-326.39	8,527.06	8,532.89	0.00	0.00	0.00
16,000.00	89.34	91.63	7,264.34	-329.24	8,627.01	8,632.89	0.00	0.00	0.00
16,100.00	89.34	91.63	7,265.50	-332.09	8,726.96	8,732.88	0.00	0.00	0.00
16,200.00	89.34	91.63	7,266.66	-334.93	8,826.92	8,832.87	0.00	0.00	0.00
16,300.00	89.34	91.63	7,267.81	-337.78	8,926.87	8,932.87	0.00	0.00	0.00
16,400.00	89.34	91.63	7,268.97	-340.63	9,026.82	9,032.86	0.00	0.00	0.00
16,500.00	89.34	91.63	7,270.13	-343.48	9,126.78	9,132.85	0.00	0.00	0.00
16,600.00	89.34	91.63	7,271.29	-346.32	9,226.73	9,232.85	0.00	0.00	0.00
16,700.00	89.34	91.63	7,272.45	-349.17	9,326.68	9,332.84	0.00	0.00	0.00
16,800.00	89.34	91.63	7,273.61	-352.02	9,426.63	9,432.83	0.00	0.00	0.00
16,900.00	89.34	91.63	7,274.77	-354.87	9,526.59	9,532.83	0.00	0.00	0.00
17,000.00	89.34	91.63	7,275.93	-357.71	9,626.54	9,632.82	0.00	0.00	0.00
17,100.00	89.34	91.63	7,277.09	-360.56	9,726.49	9,732.81	0.00	0.00	0.00
17,200.00	89.34	91.63	7,278.24	-363.41	9,826.44	9,832.81	0.00	0.00	0.00
17,300.00	89.34	91.63	7,279.40	-366.26	9,926.40	9,932.80	0.00	0.00	0.00
17,400.00	89.34	91.63	7,280.56	-369.11	10,026.35	10,032.79	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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)
17,500.00	89.34	91.63	7,281.72	-371.95	10,126.30	10,132.79	0.00	0.00	0.00
17,600.00	89.34	91.63	7,282.88	-374.80	10,226.26	10,232.78	0.00	0.00	0.00
17,700.00	89.34	91.63	7,284.04	-377.65	10,326.21	10,332.77	0.00	0.00	0.00
17,800.00	89.34	91.63	7,285.20	-380.50	10,426.16	10,432.76	0.00	0.00	0.00
17,900.00	89.34	91.63	7,286.36	-383.34	10,526.11	10,532.76	0.00	0.00	0.00
18,000.00	89.34	91.63	7,287.51	-386.19	10,626.07	10,632.75	0.00	0.00	0.00
18,100.00	89.34	91.63	7,288.67	-389.04	10,726.02	10,732.74	0.00	0.00	0.00
18,200.00	89.34	91.63	7,289.83	-391.89	10,825.97	10,832.74	0.00	0.00	0.00
18,300.00	89.34	91.63	7,290.99	-394.73	10,925.92	10,932.73	0.00	0.00	0.00
18,400.00	89.34	91.63	7,292.15	-397.58	11,025.88	11,032.72	0.00	0.00	0.00
18,500.00	89.34	91.63	7,293.31	-400.43	11,125.83	11,132.72	0.00	0.00	0.00
18,600.00	89.34	91.63	7,294.47	-403.28	11,225.78	11,232.71	0.00	0.00	0.00
18,700.00	89.34	91.63	7,295.63	-406.13	11,325.74	11,332.70	0.00	0.00	0.00
18,800.00	89.34	91.63	7,296.78	-408.97	11,425.69	11,432.70	0.00	0.00	0.00
18,900.00	89.34	91.63	7,297.94	-411.82	11,525.64	11,532.69	0.00	0.00	0.00
19,000.00	89.34	91.63	7,299.10	-414.67	11,625.59	11,632.68	0.00	0.00	0.00
19,100.00	89.34	91.63	7,300.26	-417.52	11,725.55	11,732.68	0.00	0.00	0.00
19,200.00	89.34	91.63	7,301.42	-420.36	11,825.50	11,832.67	0.00	0.00	0.00
19,300.00	89.34	91.63	7,302.58	-423.21	11,925.45	11,932.66	0.00	0.00	0.00
19,400.00	89.34	91.63	7,303.74	-426.06	12,025.40	12,032.66	0.00	0.00	0.00
19,500.00	89.34	91.63	7,304.90	-428.91	12,125.36	12,132.65	0.00	0.00	0.00
19,600.00	89.34	91.63	7,306.05	-431.75	12,225.31	12,232.64	0.00	0.00	0.00
19,700.00	89.34	91.63	7,307.21	-434.60	12,325.26	12,332.64	0.00	0.00	0.00
19,800.00	89.34	91.63	7,308.37	-437.45	12,425.22	12,432.63	0.00	0.00	0.00
19,900.00	89.34	91.63	7,309.53	-440.30	12,525.17	12,532.62	0.00	0.00	0.00
20,000.00	89.34	91.63	7,310.69	-443.15	12,625.12	12,632.62	0.00	0.00	0.00
20,100.00	89.34	91.63	7,311.85	-445.99	12,725.07	12,732.61	0.00	0.00	0.00
20,200.00	89.34	91.63	7,313.01	-448.84	12,825.03	12,832.60	0.00	0.00	0.00
20,300.00	89.34	91.63	7,314.17	-451.69	12,924.98	12,932.60	0.00	0.00	0.00
20,400.00	89.34	91.63	7,315.33	-454.54	13,024.93	13,032.59	0.00	0.00	0.00
20,500.00	89.34	91.63	7,316.48	-457.38	13,124.88	13,132.58	0.00	0.00	0.00
20,600.00	89.34	91.63	7,317.64	-460.23	13,224.84	13,232.58	0.00	0.00	0.00
20,700.00	89.34	91.63	7,318.80	-463.08	13,324.79	13,332.57	0.00	0.00	0.00
20,800.00	89.34	91.63	7,319.96	-465.93	13,424.74	13,432.56	0.00	0.00	0.00
20,900.00	89.34	91.63	7,321.12	-468.77	13,524.70	13,532.56	0.00	0.00	0.00
21,000.00	89.34	91.63	7,322.28	-471.62	13,624.65	13,632.55	0.00	0.00	0.00
21,100.00	89.34	91.63	7,323.44	-474.47	13,724.60	13,732.54	0.00	0.00	0.00
21,200.00	89.34	91.63	7,324.60	-477.32	13,824.55	13,832.54	0.00	0.00	0.00
21,300.00	89.34	91.63	7,325.75	-480.17	13,924.51	13,932.53	0.00	0.00	0.00
21,400.00	89.34	91.63	7,326.91	-483.01	14,024.46	14,032.52	0.00	0.00	0.00
21,500.00	89.34	91.63	7,328.07	-485.86	14,124.41	14,132.52	0.00	0.00	0.00
21,580.13	89.34	91.63	7,329.00	-488.14	14,204.50	14,212.64	0.00	0.00	0.00
TD Well @ 21580.13ft - 5.5" CSG									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,500.00	1,500.00	9 5/8"	9-5/8	13-1/2	
21,580.13	7,329.00	5.5" CSG	5-1/2	7-7/8	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-9HZ
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 4-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
707.00	707.00	Fox Hills				
3,603.09	3,598.00	Parkman				
4,089.82	4,080.00	Sussex				
6,896.00	6,841.00	Sharon Springs				
6,932.40	6,871.00	Niobrara				
7,146.21	7,023.00	Nio B				
7,202.40	7,055.00	Nio C				
7,488.35	7,157.00	Fort Hayes				
8,549.20	7,178.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,725.00	2,725.00	0.00	0.00	Begin Nudge @ 2725.00ft	
3,258.33	3,256.60	-4.25	-36.93	Hold Tangent @ 3258.33ft	
6,384.51	6,352.36	-53.95	-469.16	KOP @ 6384.51ft :: DLS = 8"/100'	
7,600.19	7,167.00	-90.04	231.17	End Build @ 7600.19ft	
21,580.13	7,329.00	-488.14	14,204.50	TD Well @ 21580.13ft	