

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-04 SWARTZ 2-4HZ PAD  
SWARTZ 4-10HZ**

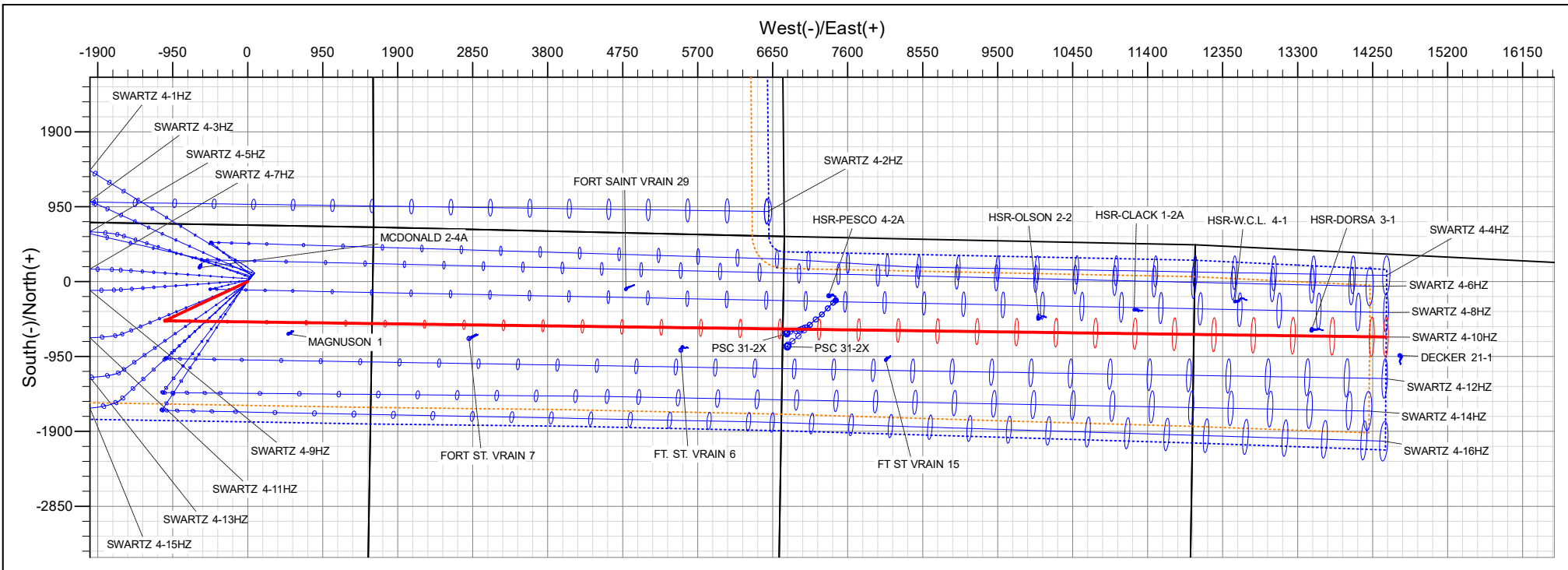
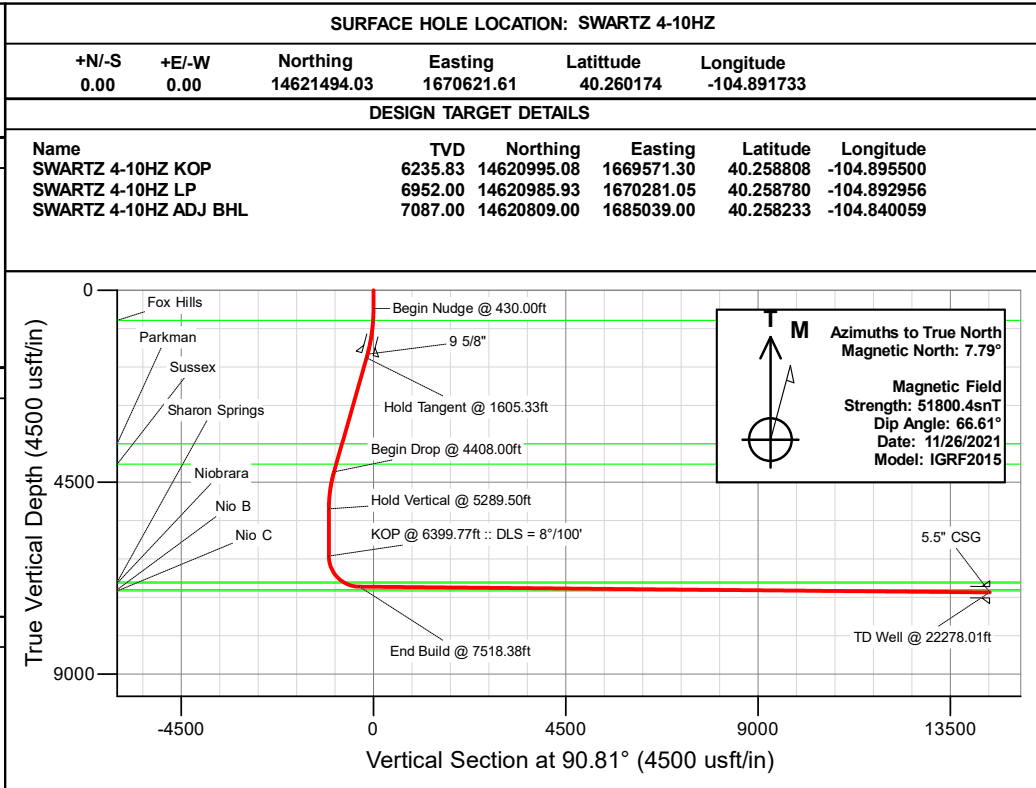
**Plan A**

**Plan: Permit Rev-2**

## **Standard Planning Report**

**25 January, 2022**

<b>Project:</b> WELD-NAD83-UTMFT13N <b>Site:</b> 3N-67W-04 SWARTZ 2-4HZ PAD <b>Well:</b> SWARTZ 4-10HZ <b>Wellbore:</b> Plan A <b>Design:</b> Permit Rev-2										
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	430.00	0.00	0.00	430.00	0.00	0.00	0.00	0.00	0.00	
3	1605.33	17.63	244.66	1586.87	-76.78	-162.14	1.50	244.66	-161.04	
4	4408.00	17.63	244.66	4257.91	-440.08	-929.31	0.00	0.00	-923.00	
5	5289.50	0.00	0.00	5125.56	-497.66	-1050.92	2.00	180.00	-1043.78	
6	6399.77	0.00	0.00	6235.83	-497.66	-1050.92	0.00	0.00	-1043.78	
7	7518.22	89.48	90.76	6952.00	-507.07	-341.33	8.00	90.76	-334.13	
8	22278.01	89.48	90.76	7087.00	-702.64	14416.54	0.00	0.00	14425.03	
CASING DETAILS				FORMATION TOP DETAILS						
TVD	MD	Name	Size	TVDPath	MDPath	Formation				
1500.00	1514.51	9 5/8"	9-5/8	707.00	707.24	Fox Hills				
7087.00	22278.01	5.5" CSG	5-1/2	3598.00	3715.57	Parkman				
				4080.00	4221.33	Sussex				
				6841.00	7120.64	Sharon Springs				
				6871.00	7180.79	Niobrara				
				7023.00	15280.85	Nio B				
				7055.00	18779.43	Nio C				
ELEVATION										
GROUND ELEVATION: 4825.00										
RKB = 17' @ 4842ft										
FOOTAGE CALLOUTS										
SHL	LP									BHL



## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	3N-67W-04 SWARTZ 2-4HZ PAD				
<b>Site Position:</b>	<b>Northing:</b>	14,621,599.90 usft	<b>Latitude:</b>	40.260465	
<b>From:</b> Map	<b>Easting:</b>	1,670,705.29 usft	<b>Longitude:</b>	-104.891433	
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.07 °

<b>Well</b>	SWARTZ 4-10HZ					
<b>Well Position</b>	<b>+N/-S</b>	-105.77 usft	<b>Northing:</b>	14,621,494.03 usft	<b>Latitude:</b>	40.260174
	<b>+E/-W</b>	-83.81 usft	<b>Easting:</b>	1,670,621.61 usft	<b>Longitude:</b>	-104.891733
<b>Position Uncertainty</b>	3.28 usft		<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,825.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	11/26/2021	7.79	66.61	51,800.37846061

<b>Design</b>	Permit Rev-2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	90.81

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/25/2022			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	2,000.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD Fixed:v2:standard declination	
2	2,000.00	22,278.01	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +	

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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	
430.00	0.00	0.00	430.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,605.33	17.63	244.66	1,586.87	-76.78	-162.14	1.50	1.50	0.00	244.66	
4,408.00	17.63	244.66	4,257.91	-440.08	-929.31	0.00	0.00	0.00	0.00	
5,289.50	0.00	0.00	5,125.56	-497.66	-1,050.92	2.00	-2.00	0.00	180.00	
6,399.77	0.00	0.00	6,235.83	-497.66	-1,050.92	0.00	0.00	0.00	0.00	
7,518.22	89.48	90.76	6,952.00	-507.07	-341.33	8.00	8.00	8.11	90.76	
22,278.01	89.48	90.76	7,087.00	-702.64	14,416.54	0.00	0.00	0.00	0.00	SWARTZ 4-10HZ AD.

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<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	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	0.00
430.00	0.00	0.00	430.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 430.00ft</b>										
500.00	1.05	244.66	500.00	-0.27	-0.58	-0.58	1.50	1.50	0.00	
600.00	2.55	244.66	599.94	-1.62	-3.42	-3.40	1.50	1.50	0.00	
700.00	4.05	244.66	699.78	-4.08	-8.62	-8.56	1.50	1.50	0.00	
707.24	4.16	244.66	707.00	-4.30	-9.09	-9.03	1.50	1.50	0.00	
<b>Fox Hills</b>										
800.00	5.55	244.66	799.42	-7.66	-16.18	-16.07	1.50	1.50	0.00	
900.00	7.05	244.66	898.81	-12.36	-26.10	-25.92	1.50	1.50	0.00	
1,000.00	8.55	244.66	997.89	-18.17	-38.37	-38.11	1.50	1.50	0.00	
1,100.00	10.05	244.66	1,096.57	-25.08	-52.97	-52.61	1.50	1.50	0.00	
1,200.00	11.55	244.66	1,194.80	-33.10	-69.91	-69.43	1.50	1.50	0.00	
1,300.00	13.05	244.66	1,292.50	-42.22	-89.16	-88.55	1.50	1.50	0.00	
1,400.00	14.55	244.66	1,389.61	-52.43	-110.72	-109.96	1.50	1.50	0.00	
1,500.00	16.05	244.66	1,486.06	-63.72	-134.56	-133.65	1.50	1.50	0.00	
1,514.51	16.27	244.66	1,500.00	-65.45	-138.21	-137.28	1.50	1.50	0.00	
<b>9 5/8"</b>										
1,600.00	17.55	244.66	1,581.79	-76.09	-160.69	-159.59	1.50	1.50	0.00	
1,605.33	17.63	244.66	1,586.87	-76.78	-162.14	-161.04	1.50	1.50	0.00	
<b>Hold Tangent @ 1605.33ft</b>										
1,700.00	17.63	244.66	1,677.09	-89.05	-188.06	-186.78	0.00	0.00	0.00	
1,800.00	17.63	244.66	1,772.40	-102.02	-215.43	-213.96	0.00	0.00	0.00	
1,900.00	17.63	244.66	1,867.70	-114.98	-242.80	-241.15	0.00	0.00	0.00	
2,000.00	17.63	244.66	1,963.00	-127.94	-270.17	-268.34	0.00	0.00	0.00	
2,100.00	17.63	244.66	2,058.31	-140.90	-297.55	-295.52	0.00	0.00	0.00	
2,200.00	17.63	244.66	2,153.61	-153.87	-324.92	-322.71	0.00	0.00	0.00	
2,300.00	17.63	244.66	2,248.91	-166.83	-352.29	-349.90	0.00	0.00	0.00	
2,400.00	17.63	244.66	2,344.22	-179.79	-379.66	-377.09	0.00	0.00	0.00	
2,500.00	17.63	244.66	2,439.52	-192.75	-407.04	-404.27	0.00	0.00	0.00	
2,600.00	17.63	244.66	2,534.82	-205.72	-434.41	-431.46	0.00	0.00	0.00	
2,700.00	17.63	244.66	2,630.13	-218.68	-461.78	-458.65	0.00	0.00	0.00	
2,800.00	17.63	244.66	2,725.43	-231.64	-489.16	-485.83	0.00	0.00	0.00	
2,900.00	17.63	244.66	2,820.73	-244.60	-516.53	-513.02	0.00	0.00	0.00	
3,000.00	17.63	244.66	2,916.04	-257.57	-543.90	-540.21	0.00	0.00	0.00	
3,100.00	17.63	244.66	3,011.34	-270.53	-571.27	-567.39	0.00	0.00	0.00	
3,200.00	17.63	244.66	3,106.64	-283.49	-598.65	-594.58	0.00	0.00	0.00	
3,300.00	17.63	244.66	3,201.95	-296.45	-626.02	-621.77	0.00	0.00	0.00	
3,400.00	17.63	244.66	3,297.25	-309.42	-653.39	-648.95	0.00	0.00	0.00	
3,500.00	17.63	244.66	3,392.55	-322.38	-680.77	-676.14	0.00	0.00	0.00	
3,600.00	17.63	244.66	3,487.86	-335.34	-708.14	-703.33	0.00	0.00	0.00	
3,700.00	17.63	244.66	3,583.16	-348.30	-735.51	-730.51	0.00	0.00	0.00	
3,715.57	17.63	244.66	3,598.00	-350.32	-739.77	-734.75	0.00	0.00	0.00	
<b>Parkman</b>										
3,800.00	17.63	244.66	3,678.46	-361.27	-762.88	-757.70	0.00	0.00	0.00	
3,900.00	17.63	244.66	3,773.77	-374.23	-790.26	-784.89	0.00	0.00	0.00	
4,000.00	17.63	244.66	3,869.07	-387.19	-817.63	-812.07	0.00	0.00	0.00	
4,100.00	17.63	244.66	3,964.37	-400.15	-845.00	-839.26	0.00	0.00	0.00	
4,200.00	17.63	244.66	4,059.68	-413.12	-872.38	-866.45	0.00	0.00	0.00	
4,221.33	17.63	244.66	4,080.00	-415.88	-878.21	-872.25	0.00	0.00	0.00	

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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>Sussex</b>									
4,300.00	17.63	244.66	4,154.98	-426.08	-899.75	-893.63	0.00	0.00	0.00
4,400.00	17.63	244.66	4,250.28	-439.04	-927.12	-920.82	0.00	0.00	0.00
4,408.00	17.63	244.66	4,257.91	-440.08	-929.31	-923.00	0.00	0.00	0.00
<b>Begin Drop @ 4408.00ft</b>									
4,500.00	15.79	244.66	4,346.02	-451.40	-953.22	-946.74	2.00	-2.00	0.00
4,600.00	13.79	244.66	4,442.70	-462.32	-976.29	-969.65	2.00	-2.00	0.00
4,700.00	11.79	244.66	4,540.21	-471.80	-996.29	-989.53	2.00	-2.00	0.00
4,800.00	9.79	244.66	4,638.44	-479.81	-1,013.21	-1,006.33	2.00	-2.00	0.00
4,900.00	7.79	244.66	4,737.26	-486.35	-1,027.02	-1,020.05	2.00	-2.00	0.00
5,000.00	5.79	244.66	4,836.55	-491.41	-1,037.71	-1,030.66	2.00	-2.00	0.00
5,100.00	3.79	244.66	4,936.20	-494.98	-1,045.26	-1,038.15	2.00	-2.00	0.00
5,200.00	1.79	244.66	5,036.08	-497.07	-1,049.65	-1,042.52	2.00	-2.00	0.00
5,289.50	0.00	0.00	5,125.56	-497.66	-1,050.92	-1,043.78	2.00	-2.00	0.00
<b>Hold Vertical @ 5289.50ft</b>									
5,300.00	0.00	0.00	5,136.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,400.00	0.00	0.00	5,236.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,500.00	0.00	0.00	5,336.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,600.00	0.00	0.00	5,436.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,700.00	0.00	0.00	5,536.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,800.00	0.00	0.00	5,636.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
5,900.00	0.00	0.00	5,736.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,000.00	0.00	0.00	5,836.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,100.00	0.00	0.00	5,936.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,200.00	0.00	0.00	6,036.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,300.00	0.00	0.00	6,136.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,399.77	0.00	0.00	6,235.83	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
<b>KOP @ 6399.77ft :: DLS = 8°/100'</b>									
6,400.00	0.00	90.76	6,236.06	-497.66	-1,050.92	-1,043.78	0.00	0.00	0.00
6,500.00	8.02	90.76	6,335.73	-497.76	-1,043.92	-1,036.78	8.02	8.02	0.00
6,600.00	16.02	90.76	6,433.46	-498.03	-1,023.11	-1,015.97	8.00	8.00	0.00
6,700.00	24.02	90.76	6,527.35	-498.49	-988.91	-981.77	8.00	8.00	0.00
6,800.00	32.02	90.76	6,615.55	-499.11	-941.98	-934.83	8.00	8.00	0.00
6,900.00	40.02	90.76	6,696.37	-499.89	-883.23	-876.07	8.00	8.00	0.00
7,000.00	48.02	90.76	6,768.22	-500.81	-813.80	-806.64	8.00	8.00	0.00
7,100.00	56.02	90.76	6,829.71	-501.85	-735.05	-727.88	8.00	8.00	0.00
7,120.64	57.67	90.76	6,841.00	-502.08	-717.78	-710.61	8.00	8.00	0.00
<b>Sharon Springs</b>									
7,180.79	62.48	90.76	6,871.00	-502.77	-665.66	-658.49	8.00	8.00	0.00
<b>Niobrara</b>									
7,200.00	64.02	90.76	6,879.65	-503.00	-648.51	-641.33	8.00	8.00	0.00
7,300.00	72.02	90.76	6,917.05	-504.22	-555.86	-548.68	8.00	8.00	0.00
7,400.00	80.02	90.76	6,941.19	-505.51	-458.91	-451.72	8.00	8.00	0.00
7,500.00	88.02	90.76	6,951.60	-506.83	-359.55	-352.35	8.00	8.00	0.00
7,518.22	89.48	90.76	6,952.00	-507.07	-341.33	-334.13	8.00	8.00	0.00
7,518.38	89.48	90.76	6,952.00	-507.07	-341.18	-333.97	0.00	0.00	0.00
<b>End Build @ 7518.38ft</b>									
7,600.00	89.48	90.76	6,952.75	-508.15	-259.56	-252.35	0.00	0.00	0.00
7,700.00	89.48	90.76	6,953.66	-509.48	-159.58	-152.36	0.00	0.00	0.00
7,800.00	89.48	90.76	6,954.58	-510.80	-59.59	-52.36	0.00	0.00	0.00
7,900.00	89.48	90.76	6,955.49	-512.13	40.40	47.63	0.00	0.00	0.00
8,000.00	89.48	90.76	6,956.41	-513.45	140.39	147.63	0.00	0.00	0.00
8,100.00	89.48	90.76	6,957.32	-514.78	240.37	247.63	0.00	0.00	0.00

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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)	
8,200.00	89.48	90.76	6,958.23	-516.10	340.36	347.62	0.00	0.00	0.00	
8,300.00	89.48	90.76	6,959.15	-517.43	440.35	447.62	0.00	0.00	0.00	
8,400.00	89.48	90.76	6,960.06	-518.75	540.33	547.61	0.00	0.00	0.00	
8,500.00	89.48	90.76	6,960.98	-520.08	640.32	647.61	0.00	0.00	0.00	
8,600.00	89.48	90.76	6,961.89	-521.40	740.31	747.60	0.00	0.00	0.00	
8,700.00	89.48	90.76	6,962.81	-522.73	840.29	847.60	0.00	0.00	0.00	
8,800.00	89.48	90.76	6,963.72	-524.05	940.28	947.60	0.00	0.00	0.00	
8,900.00	89.48	90.76	6,964.64	-525.38	1,040.27	1,047.59	0.00	0.00	0.00	
9,000.00	89.48	90.76	6,965.55	-526.70	1,140.26	1,147.59	0.00	0.00	0.00	
9,100.00	89.48	90.76	6,966.47	-528.03	1,240.24	1,247.58	0.00	0.00	0.00	
9,200.00	89.48	90.76	6,967.38	-529.35	1,340.23	1,347.58	0.00	0.00	0.00	
9,300.00	89.48	90.76	6,968.30	-530.68	1,440.22	1,447.57	0.00	0.00	0.00	
9,400.00	89.48	90.76	6,969.21	-532.00	1,540.20	1,547.57	0.00	0.00	0.00	
9,500.00	89.48	90.76	6,970.13	-533.33	1,640.19	1,647.57	0.00	0.00	0.00	
9,600.00	89.48	90.76	6,971.04	-534.65	1,740.18	1,747.56	0.00	0.00	0.00	
9,700.00	89.48	90.76	6,971.95	-535.98	1,840.16	1,847.56	0.00	0.00	0.00	
9,800.00	89.48	90.76	6,972.87	-537.30	1,940.15	1,947.55	0.00	0.00	0.00	
9,900.00	89.48	90.76	6,973.78	-538.63	2,040.14	2,047.55	0.00	0.00	0.00	
10,000.00	89.48	90.76	6,974.70	-539.95	2,140.13	2,147.55	0.00	0.00	0.00	
10,100.00	89.48	90.76	6,975.61	-541.28	2,240.11	2,247.54	0.00	0.00	0.00	
10,200.00	89.48	90.76	6,976.53	-542.60	2,340.10	2,347.54	0.00	0.00	0.00	
10,300.00	89.48	90.76	6,977.44	-543.93	2,440.09	2,447.53	0.00	0.00	0.00	
10,400.00	89.48	90.76	6,978.36	-545.25	2,540.07	2,547.53	0.00	0.00	0.00	
10,500.00	89.48	90.76	6,979.27	-546.58	2,640.06	2,647.52	0.00	0.00	0.00	
10,600.00	89.48	90.76	6,980.19	-547.90	2,740.05	2,747.52	0.00	0.00	0.00	
10,700.00	89.48	90.76	6,981.10	-549.23	2,840.04	2,847.52	0.00	0.00	0.00	
10,800.00	89.48	90.76	6,982.02	-550.55	2,940.02	2,947.51	0.00	0.00	0.00	
10,900.00	89.48	90.76	6,982.93	-551.88	3,040.01	3,047.51	0.00	0.00	0.00	
11,000.00	89.48	90.76	6,983.85	-553.20	3,140.00	3,147.50	0.00	0.00	0.00	
11,100.00	89.48	90.76	6,984.76	-554.53	3,239.98	3,247.50	0.00	0.00	0.00	
11,200.00	89.48	90.76	6,985.67	-555.85	3,339.97	3,347.49	0.00	0.00	0.00	
11,300.00	89.48	90.76	6,986.59	-557.18	3,439.96	3,447.49	0.00	0.00	0.00	
11,400.00	89.48	90.76	6,987.50	-558.50	3,539.94	3,547.49	0.00	0.00	0.00	
11,500.00	89.48	90.76	6,988.42	-559.83	3,639.93	3,647.48	0.00	0.00	0.00	
11,600.00	89.48	90.76	6,989.33	-561.15	3,739.92	3,747.48	0.00	0.00	0.00	
11,700.00	89.48	90.76	6,990.25	-562.48	3,839.91	3,847.47	0.00	0.00	0.00	
11,800.00	89.48	90.76	6,991.16	-563.80	3,939.89	3,947.47	0.00	0.00	0.00	
11,900.00	89.48	90.76	6,992.08	-565.13	4,039.88	4,047.47	0.00	0.00	0.00	
12,000.00	89.48	90.76	6,992.99	-566.45	4,139.87	4,147.46	0.00	0.00	0.00	
12,100.00	89.48	90.76	6,993.91	-567.78	4,239.85	4,247.46	0.00	0.00	0.00	
12,200.00	89.48	90.76	6,994.82	-569.10	4,339.84	4,347.45	0.00	0.00	0.00	
12,300.00	89.48	90.76	6,995.74	-570.43	4,439.83	4,447.45	0.00	0.00	0.00	
12,400.00	89.48	90.76	6,996.65	-571.75	4,539.81	4,547.44	0.00	0.00	0.00	
12,500.00	89.48	90.76	6,997.56	-573.08	4,639.80	4,647.44	0.00	0.00	0.00	
12,600.00	89.48	90.76	6,998.48	-574.40	4,739.79	4,747.44	0.00	0.00	0.00	
12,700.00	89.48	90.76	6,999.39	-575.73	4,839.78	4,847.43	0.00	0.00	0.00	
12,800.00	89.48	90.76	7,000.31	-577.05	4,939.76	4,947.43	0.00	0.00	0.00	
12,900.00	89.48	90.76	7,001.22	-578.38	5,039.75	5,047.42	0.00	0.00	0.00	
13,000.00	89.48	90.76	7,002.14	-579.70	5,139.74	5,147.42	0.00	0.00	0.00	
13,100.00	89.48	90.76	7,003.05	-581.03	5,239.72	5,247.41	0.00	0.00	0.00	
13,200.00	89.48	90.76	7,003.97	-582.35	5,339.71	5,347.41	0.00	0.00	0.00	
13,300.00	89.48	90.76	7,004.88	-583.68	5,439.70	5,447.41	0.00	0.00	0.00	
13,400.00	89.48	90.76	7,005.80	-585.00	5,539.69	5,547.40	0.00	0.00	0.00	
13,500.00	89.48	90.76	7,006.71	-586.33	5,639.67	5,647.40	0.00	0.00	0.00	

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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)	
13,600.00	89.48	90.76	7,007.63	-587.65	5,739.66	5,747.39	0.00	0.00	0.00	
13,700.00	89.48	90.76	7,008.54	-588.98	5,839.65	5,847.39	0.00	0.00	0.00	
13,800.00	89.48	90.76	7,009.46	-590.30	5,939.63	5,947.38	0.00	0.00	0.00	
13,900.00	89.48	90.76	7,010.37	-591.63	6,039.62	6,047.38	0.00	0.00	0.00	
14,000.00	89.48	90.76	7,011.28	-592.95	6,139.61	6,147.38	0.00	0.00	0.00	
14,100.00	89.48	90.76	7,012.20	-594.28	6,239.59	6,247.37	0.00	0.00	0.00	
14,200.00	89.48	90.76	7,013.11	-595.60	6,339.58	6,347.37	0.00	0.00	0.00	
14,300.00	89.48	90.76	7,014.03	-596.93	6,439.57	6,447.36	0.00	0.00	0.00	
14,400.00	89.48	90.76	7,014.94	-598.25	6,539.56	6,547.36	0.00	0.00	0.00	
14,500.00	89.48	90.76	7,015.86	-599.58	6,639.54	6,647.36	0.00	0.00	0.00	
14,600.00	89.48	90.76	7,016.77	-600.90	6,739.53	6,747.35	0.00	0.00	0.00	
14,700.00	89.48	90.76	7,017.69	-602.23	6,839.52	6,847.35	0.00	0.00	0.00	
14,800.00	89.48	90.76	7,018.60	-603.55	6,939.50	6,947.34	0.00	0.00	0.00	
14,900.00	89.48	90.76	7,019.52	-604.88	7,039.49	7,047.34	0.00	0.00	0.00	
15,000.00	89.48	90.76	7,020.43	-606.20	7,139.48	7,147.33	0.00	0.00	0.00	
15,100.00	89.48	90.76	7,021.35	-607.53	7,239.46	7,247.33	0.00	0.00	0.00	
15,200.00	89.48	90.76	7,022.26	-608.85	7,339.45	7,347.33	0.00	0.00	0.00	
15,280.85	89.48	90.76	7,023.00	-609.92	7,420.29	7,428.17	0.00	0.00	0.00	
<b>Nio B</b>										
15,300.00	89.48	90.76	7,023.18	-610.18	7,439.44	7,447.32	0.00	0.00	0.00	
15,400.00	89.48	90.76	7,024.09	-611.50	7,539.43	7,547.32	0.00	0.00	0.00	
15,500.00	89.48	90.76	7,025.00	-612.83	7,639.41	7,647.31	0.00	0.00	0.00	
15,600.00	89.48	90.76	7,025.92	-614.15	7,739.40	7,747.31	0.00	0.00	0.00	
15,700.00	89.48	90.76	7,026.83	-615.48	7,839.39	7,847.30	0.00	0.00	0.00	
15,800.00	89.48	90.76	7,027.75	-616.80	7,939.37	7,947.30	0.00	0.00	0.00	
15,900.00	89.48	90.76	7,028.66	-618.13	8,039.36	8,047.30	0.00	0.00	0.00	
16,000.00	89.48	90.76	7,029.58	-619.45	8,139.35	8,147.29	0.00	0.00	0.00	
16,100.00	89.48	90.76	7,030.49	-620.78	8,239.34	8,247.29	0.00	0.00	0.00	
16,200.00	89.48	90.76	7,031.41	-622.10	8,339.32	8,347.28	0.00	0.00	0.00	
16,300.00	89.48	90.76	7,032.32	-623.43	8,439.31	8,447.28	0.00	0.00	0.00	
16,400.00	89.48	90.76	7,033.24	-624.75	8,539.30	8,547.28	0.00	0.00	0.00	
16,500.00	89.48	90.76	7,034.15	-626.08	8,639.28	8,647.27	0.00	0.00	0.00	
16,600.00	89.48	90.76	7,035.07	-627.40	8,739.27	8,747.27	0.00	0.00	0.00	
16,700.00	89.48	90.76	7,035.98	-628.73	8,839.26	8,847.26	0.00	0.00	0.00	
16,800.00	89.48	90.76	7,036.90	-630.05	8,939.24	8,947.26	0.00	0.00	0.00	
16,900.00	89.48	90.76	7,037.81	-631.38	9,039.23	9,047.25	0.00	0.00	0.00	
17,000.00	89.48	90.76	7,038.72	-632.70	9,139.22	9,147.25	0.00	0.00	0.00	
17,100.00	89.48	90.76	7,039.64	-634.03	9,239.21	9,247.25	0.00	0.00	0.00	
17,200.00	89.48	90.76	7,040.55	-635.35	9,339.19	9,347.24	0.00	0.00	0.00	
17,300.00	89.48	90.76	7,041.47	-636.68	9,439.18	9,447.24	0.00	0.00	0.00	
17,400.00	89.48	90.76	7,042.38	-638.00	9,539.17	9,547.23	0.00	0.00	0.00	
17,500.00	89.48	90.76	7,043.30	-639.33	9,639.15	9,647.23	0.00	0.00	0.00	
17,600.00	89.48	90.76	7,044.21	-640.65	9,739.14	9,747.22	0.00	0.00	0.00	
17,700.00	89.48	90.76	7,045.13	-641.98	9,839.13	9,847.22	0.00	0.00	0.00	
17,800.00	89.48	90.76	7,046.04	-643.30	9,939.12	9,947.22	0.00	0.00	0.00	
17,900.00	89.48	90.76	7,046.96	-644.63	10,039.10	10,047.21	0.00	0.00	0.00	
18,000.00	89.48	90.76	7,047.87	-645.95	10,139.09	10,147.21	0.00	0.00	0.00	
18,100.00	89.48	90.76	7,048.79	-647.28	10,239.08	10,247.20	0.00	0.00	0.00	
18,200.00	89.48	90.76	7,049.70	-648.60	10,339.06	10,347.20	0.00	0.00	0.00	
18,300.00	89.48	90.76	7,050.62	-649.93	10,439.05	10,447.19	0.00	0.00	0.00	
18,400.00	89.48	90.76	7,051.53	-651.25	10,539.04	10,547.19	0.00	0.00	0.00	
18,500.00	89.48	90.76	7,052.44	-652.58	10,639.02	10,647.19	0.00	0.00	0.00	
18,600.00	89.48	90.76	7,053.36	-653.90	10,739.01	10,747.18	0.00	0.00	0.00	

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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)
18,700.00	89.48	90.76	7,054.27	-655.23	10,839.00	10,847.18	0.00	0.00	0.00
18,779.43	89.48	90.76	7,055.00	-656.28	10,918.42	10,926.60	0.00	0.00	0.00
<b>Nio C</b>									
18,800.00	89.48	90.76	7,055.19	-656.55	10,938.99	10,947.17	0.00	0.00	0.00
18,900.00	89.48	90.76	7,056.10	-657.88	11,038.97	11,047.17	0.00	0.00	0.00
19,000.00	89.48	90.76	7,057.02	-659.20	11,138.96	11,147.17	0.00	0.00	0.00
19,100.00	89.48	90.76	7,057.93	-660.53	11,238.95	11,247.16	0.00	0.00	0.00
19,200.00	89.48	90.76	7,058.85	-661.85	11,338.93	11,347.16	0.00	0.00	0.00
19,300.00	89.48	90.76	7,059.76	-663.18	11,438.92	11,447.15	0.00	0.00	0.00
19,400.00	89.48	90.76	7,060.68	-664.50	11,538.91	11,547.15	0.00	0.00	0.00
19,500.00	89.48	90.76	7,061.59	-665.83	11,638.89	11,647.14	0.00	0.00	0.00
19,600.00	89.48	90.76	7,062.51	-667.15	11,738.88	11,747.14	0.00	0.00	0.00
19,700.00	89.48	90.76	7,063.42	-668.48	11,838.87	11,847.14	0.00	0.00	0.00
19,800.00	89.48	90.76	7,064.33	-669.80	11,938.86	11,947.13	0.00	0.00	0.00
19,900.00	89.48	90.76	7,065.25	-671.13	12,038.84	12,047.13	0.00	0.00	0.00
20,000.00	89.48	90.76	7,066.16	-672.45	12,138.83	12,147.12	0.00	0.00	0.00
20,100.00	89.48	90.76	7,067.08	-673.78	12,238.82	12,247.12	0.00	0.00	0.00
20,200.00	89.48	90.76	7,067.99	-675.10	12,338.80	12,347.11	0.00	0.00	0.00
20,300.00	89.48	90.76	7,068.91	-676.43	12,438.79	12,447.11	0.00	0.00	0.00
20,400.00	89.48	90.76	7,069.82	-677.75	12,538.78	12,547.11	0.00	0.00	0.00
20,500.00	89.48	90.76	7,070.74	-679.08	12,638.77	12,647.10	0.00	0.00	0.00
20,600.00	89.48	90.76	7,071.65	-680.40	12,738.75	12,747.10	0.00	0.00	0.00
20,700.00	89.48	90.76	7,072.57	-681.73	12,838.74	12,847.09	0.00	0.00	0.00
20,800.00	89.48	90.76	7,073.48	-683.05	12,938.73	12,947.09	0.00	0.00	0.00
20,900.00	89.48	90.76	7,074.40	-684.38	13,038.71	13,047.09	0.00	0.00	0.00
21,000.00	89.48	90.76	7,075.31	-685.70	13,138.70	13,147.08	0.00	0.00	0.00
21,100.00	89.48	90.76	7,076.23	-687.03	13,238.69	13,247.08	0.00	0.00	0.00
21,200.00	89.48	90.76	7,077.14	-688.35	13,338.67	13,347.07	0.00	0.00	0.00
21,300.00	89.48	90.76	7,078.05	-689.68	13,438.66	13,447.07	0.00	0.00	0.00
21,400.00	89.48	90.76	7,078.97	-691.00	13,538.65	13,547.06	0.00	0.00	0.00
21,500.00	89.48	90.76	7,079.88	-692.33	13,638.64	13,647.06	0.00	0.00	0.00
21,600.00	89.48	90.76	7,080.80	-693.65	13,738.62	13,747.06	0.00	0.00	0.00
21,700.00	89.48	90.76	7,081.71	-694.98	13,838.61	13,847.05	0.00	0.00	0.00
21,800.00	89.48	90.76	7,082.63	-696.30	13,938.60	13,947.05	0.00	0.00	0.00
21,900.00	89.48	90.76	7,083.54	-697.63	14,038.58	14,047.04	0.00	0.00	0.00
22,000.00	89.48	90.76	7,084.46	-698.95	14,138.57	14,147.04	0.00	0.00	0.00
22,100.00	89.48	90.76	7,085.37	-700.28	14,238.56	14,247.03	0.00	0.00	0.00
22,200.00	89.48	90.76	7,086.29	-701.60	14,338.54	14,347.03	0.00	0.00	0.00
22,271.01	89.48	90.76	7,086.94	-702.54	14,409.54	14,418.04	0.00	0.00	0.00
<b>TD Well @ 22278.01ft</b>									
22,278.01	89.48	90.76	7,087.00	-702.64	14,416.54	14,425.04	0.00	0.00	0.00

## Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-10HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SWARTZ 4-10HZ KOP - plan hits target center - Point	0.00	0.00	6,235.83	-497.66	-1,050.92	14,620,995.08	1,669,571.30	40.258808	-104.895500
SWARTZ 4-10HZ LP - plan misses target center by 0.61usft at 7518.38usft MD (6952.00 TVD, -507.07 N, -341.17 E) - Point	0.00	0.00	6,952.00	-507.68	-341.18	14,620,985.93	1,670,281.05	40.258780	-104.892956
SWARTZ 4-10HZ ADJ B - plan hits target center - Point	0.00	0.00	7,087.00	-702.64	14,416.54	14,620,809.00	1,685,039.00	40.258233	-104.840060

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
1,514.51	1,500.00	9 5/8"	9-5/8	13-1/2	
22,278.01	7,087.00	5.5" CSG	5-1/2	7-7/8	

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
707.24	707.00	Fox Hills			
3,715.57	3,598.00	Parkman			
4,221.33	4,080.00	Sussex			
7,120.64	6,841.00	Sharon Springs			
7,180.79	6,871.00	Niobrara			
15,280.85	7,023.00	Nio B			
18,779.43	7,055.00	Nio C			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
430.00	430.00	0.00	0.00	Begin Nudge @ 430.00ft	
1,605.33	1,586.87	-76.78	-162.14	Hold Tangent @ 1605.33ft	
4,408.00	4,257.91	-440.08	-929.31	Begin Drop @ 4408.00ft	
5,289.50	5,125.56	-497.66	-1,050.92	Hold Vertical @ 5289.50ft	
6,399.77	6,235.83	-497.66	-1,050.92	KOP @ 6399.77ft :: DLS = 8°/100'	
7,518.38	6,952.00	-507.07	-341.18	End Build @ 7518.38ft	
22,271.01	7,086.94	-702.54	14,409.54	TD Well @ 22278.01ft	