

US ROCKIES WATTENBERG PLANNING

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

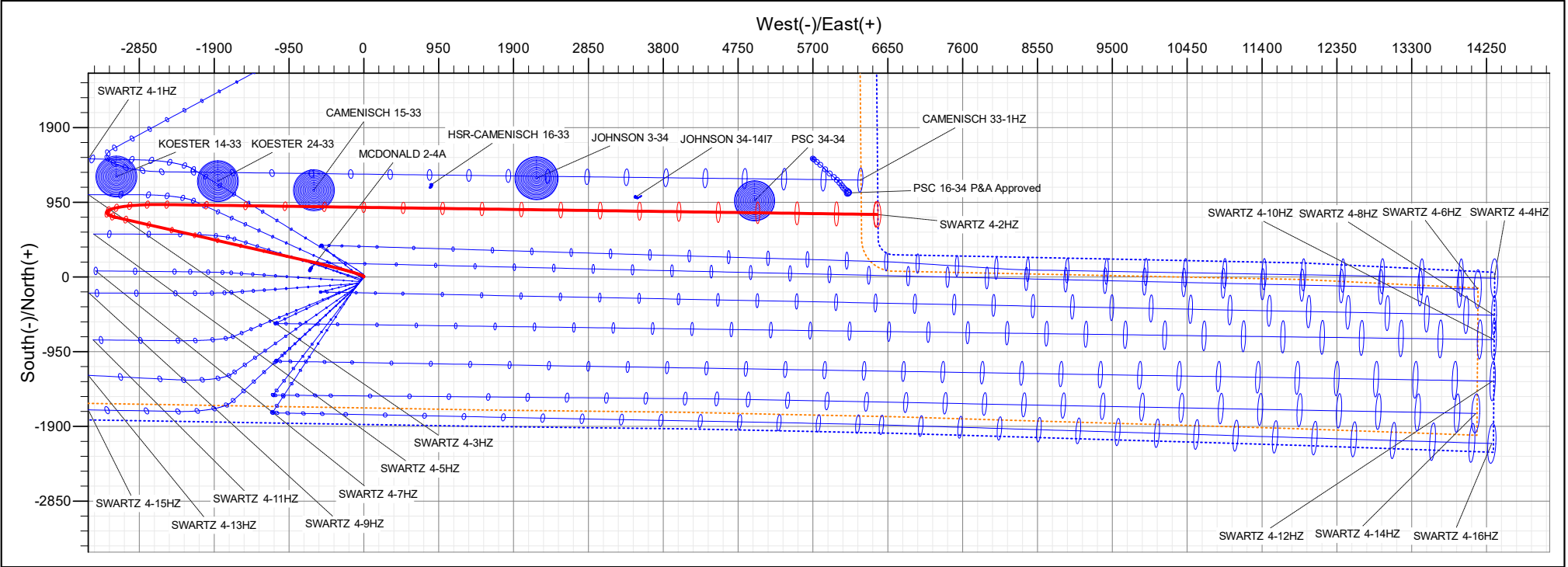
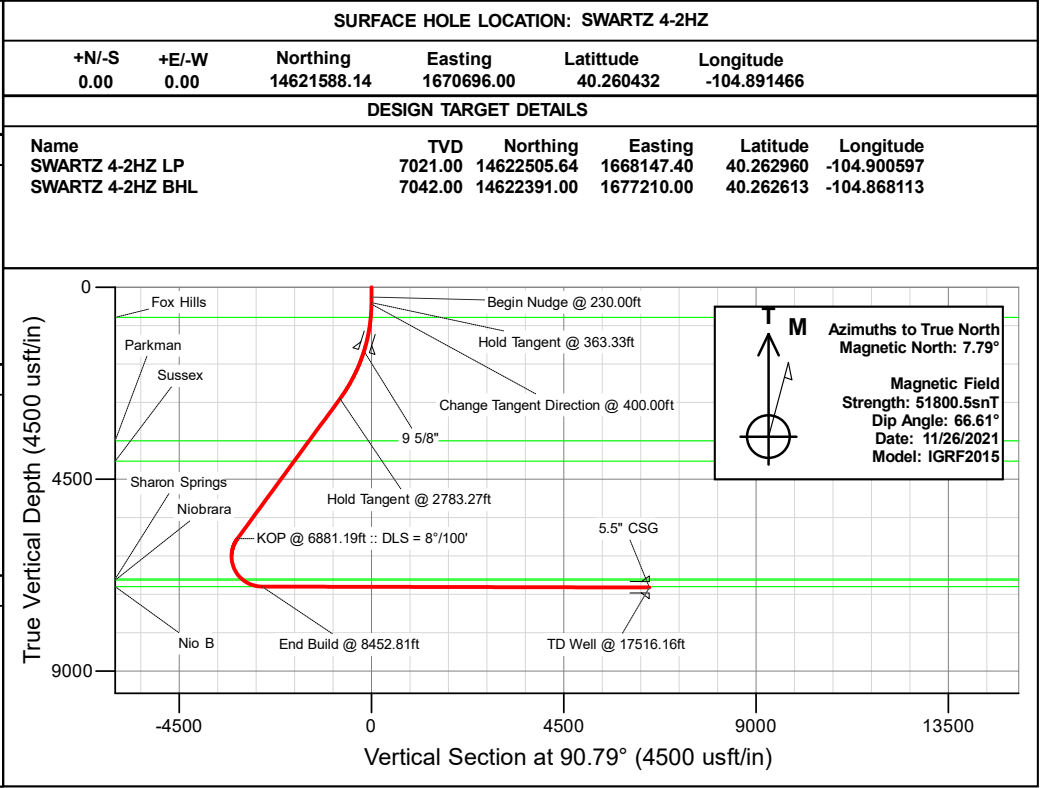
Plan A

Plan: Permit Rev-1

Standard Planning Report

15 December, 2021

Project: WELD-NAD83-UTMFT13N Site: 3N-67W-04 SWARTZ 2-4HZ PAD Well: SWARTZ 4-2HZ Wellbore: Plan A Design: Permit Rev-1										
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	230.00	0.00	0.00	230.00	0.00	0.00	0.00	0.00	0.00	
3	363.33	2.00	340.00	363.31	2.19	-0.80	1.50	340.00	-0.83	
4	400.00	2.00	340.00	399.95	3.39	-1.23	0.00	0.00	-1.28	
5	2783.27	36.80	282.85	2617.45	207.90	-735.37	1.50	-59.47	-738.17	
6	6881.19	36.80	282.85	5898.78	753.83	-3128.64	0.00	0.00	-3138.74	
7	8452.81	89.87	90.79	7021.00	920.62	-2547.47	8.00	165.09	-2559.93	
8	17516.16	89.87	90.79	7042.00	794.88	6514.98	0.00	0.00	6503.40	
CASING DETAILS					FORMATION TOP DETAILS					
TVD	MD	Name	Size		TVDPath	MDPath		Formation		
1500.00	1519.57	9 5/8"	9-5/8		707.00	707.79		Fox Hills		
7042.00	17516.16	5.5" CSG	5-1/2		3598.00	4007.84		Parkman		
					4080.00	4609.79		Sussex		
					6841.00	7932.15		Sharon Springs		
					6871.00	7979.50		Niobrara		
					7023.00	9316.31		Nio B		
ELEVATION										
GROUND ELEVATION:				4825.00						
RKB = 17' @				4842ft						
FOOTAGE CALLOUTS										
SHL				LP				BHL		



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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

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

Well		SWARTZ 4-2HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,588.14 usft	Latitude:	40.260433
	+E/-W	0.00 usft	Easting:	1,670,696.00 usft	Longitude:	-104.891466
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:		0.07 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	11/26/2021	7.86	66.50	51,820.26252152

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	90.79	

Plan Survey Tool Program	Date	12/8/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	
2	2,000.00	17,516.16	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II	
				Fixed:v2:Rockies, crustal dec +	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
230.00	0.00	0.00	230.00	0.00	0.00	0.00	0.00	0.00	0.00	
363.33	2.00	340.00	363.31	2.19	-0.80	1.50	1.50	0.00	340.00	
400.00	2.00	340.00	399.95	3.39	-1.23	0.00	0.00	0.00	0.00	
2,783.27	36.80	282.85	2,617.45	207.90	-735.37	1.50	1.46	-2.40	-59.47	
6,881.19	36.80	282.85	5,898.78	753.83	-3,128.64	0.00	0.00	0.00	0.00	
8,452.81	89.87	90.79	7,021.00	920.62	-2,547.47	8.00	3.38	10.69	165.09	
17,516.16	89.87	90.79	7,042.00	794.88	6,514.98	0.00	0.00	0.00	0.00	SWARTZ 4-2HZ_BHL

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
230.00	0.00	0.00	230.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 230.00ft									
300.00	1.05	340.00	300.00	0.60	-0.22	-0.23	1.50	1.50	0.00
363.33	2.00	340.00	363.31	2.19	-0.80	-0.83	1.50	1.50	0.00
Hold Tangent @ 363.33ft									
400.00	2.00	340.00	399.95	3.39	-1.23	-1.28	0.00	0.00	0.00
Change Tangent Direction @ 400.00ft									
500.00	3.05	314.92	499.86	6.91	-3.71	-3.81	1.50	1.05	-25.08
600.00	4.37	303.72	599.64	10.90	-8.77	-8.92	1.50	1.32	-11.20
700.00	5.78	297.84	699.25	15.37	-16.39	-16.60	1.50	1.41	-5.89
707.79	5.89	297.50	707.00	15.73	-17.09	-17.30	1.50	1.43	-4.36
Fox Hills									
800.00	7.22	294.27	798.61	20.30	-26.57	-26.85	1.50	1.45	-3.50
900.00	8.69	291.90	897.64	25.70	-39.31	-39.66	1.50	1.46	-2.37
1,000.00	10.16	290.21	996.29	31.57	-54.60	-55.03	1.50	1.47	-1.69
1,100.00	11.64	288.94	1,094.48	37.89	-72.42	-72.94	1.50	1.48	-1.27
1,200.00	13.13	287.96	1,192.15	44.66	-92.77	-93.38	1.50	1.49	-0.98
1,300.00	14.62	287.17	1,289.23	51.89	-115.63	-116.33	1.50	1.49	-0.79
1,400.00	16.11	286.52	1,385.66	59.56	-140.98	-141.79	1.50	1.49	-0.64
1,500.00	17.60	285.99	1,481.36	67.67	-168.81	-169.73	1.50	1.49	-0.54
1,519.57	17.89	285.89	1,500.00	69.31	-174.55	-175.49	1.50	1.49	-0.49
9 5/8"									
1,600.00	19.09	285.53	1,576.28	76.21	-199.10	-200.14	1.50	1.49	-0.45
1,700.00	20.59	285.14	1,670.34	85.18	-231.83	-232.99	1.50	1.49	-0.39
1,800.00	22.08	284.80	1,763.48	94.57	-266.98	-268.26	1.50	1.49	-0.34
1,900.00	23.58	284.50	1,855.65	104.38	-304.51	-305.92	1.50	1.50	-0.30
2,000.00	25.07	284.23	1,946.77	114.60	-344.41	-345.96	1.50	1.50	-0.27
2,100.00	26.57	283.99	2,036.78	125.22	-386.65	-388.34	1.50	1.50	-0.24
2,200.00	28.06	283.78	2,125.63	136.23	-431.20	-433.04	1.50	1.50	-0.21
2,300.00	29.56	283.59	2,213.25	147.62	-478.03	-480.02	1.50	1.50	-0.19
2,400.00	31.06	283.41	2,299.57	159.40	-527.10	-529.25	1.50	1.50	-0.18
2,500.00	32.56	283.25	2,384.55	171.55	-578.39	-580.70	1.50	1.50	-0.16
2,600.00	34.05	283.10	2,468.13	184.06	-631.85	-634.33	1.50	1.50	-0.15
2,700.00	35.55	282.96	2,550.24	196.92	-687.46	-690.11	1.50	1.50	-0.14
2,783.27	36.80	282.85	2,617.45	207.90	-735.37	-738.17	1.50	1.50	-0.13
Hold Tangent @ 2783.27ft									
2,800.00	36.80	282.85	2,630.85	210.13	-745.14	-747.97	0.00	0.00	0.00
2,900.00	36.80	282.85	2,710.92	223.45	-803.54	-806.55	0.00	0.00	0.00
3,000.00	36.80	282.85	2,790.99	236.77	-861.95	-865.13	0.00	0.00	0.00
3,100.00	36.80	282.85	2,871.07	250.09	-920.35	-923.71	0.00	0.00	0.00
3,200.00	36.80	282.85	2,951.14	263.42	-978.75	-982.29	0.00	0.00	0.00
3,300.00	36.80	282.85	3,031.21	276.74	-1,037.15	-1,040.87	0.00	0.00	0.00
3,400.00	36.80	282.85	3,111.28	290.06	-1,095.55	-1,099.45	0.00	0.00	0.00
3,500.00	36.80	282.85	3,191.36	303.38	-1,153.96	-1,158.03	0.00	0.00	0.00
3,600.00	36.80	282.85	3,271.43	316.71	-1,212.36	-1,216.61	0.00	0.00	0.00
3,700.00	36.80	282.85	3,351.50	330.03	-1,270.76	-1,275.19	0.00	0.00	0.00
3,800.00	36.80	282.85	3,431.58	343.35	-1,329.16	-1,333.77	0.00	0.00	0.00
3,900.00	36.80	282.85	3,511.65	356.67	-1,387.56	-1,392.35	0.00	0.00	0.00
4,000.00	36.80	282.85	3,591.72	369.99	-1,445.97	-1,450.93	0.00	0.00	0.00
4,007.84	36.80	282.85	3,598.00	371.04	-1,450.54	-1,455.52	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Parkman									
4,100.00	36.80	282.85	3,671.80	383.32	-1,504.37	-1,509.51	0.00	0.00	0.00
4,200.00	36.80	282.85	3,751.87	396.64	-1,562.77	-1,568.09	0.00	0.00	0.00
4,300.00	36.80	282.85	3,831.94	409.96	-1,621.17	-1,626.67	0.00	0.00	0.00
4,400.00	36.80	282.85	3,912.02	423.28	-1,679.58	-1,685.25	0.00	0.00	0.00
4,500.00	36.80	282.85	3,992.09	436.61	-1,737.98	-1,743.83	0.00	0.00	0.00
4,600.00	36.80	282.85	4,072.16	449.93	-1,796.38	-1,802.41	0.00	0.00	0.00
4,609.79	36.80	282.85	4,080.00	451.23	-1,802.10	-1,808.15	0.00	0.00	0.00
Sussex									
4,700.00	36.80	282.85	4,152.24	463.25	-1,854.78	-1,860.99	0.00	0.00	0.00
4,800.00	36.80	282.85	4,232.31	476.57	-1,913.18	-1,919.57	0.00	0.00	0.00
4,900.00	36.80	282.85	4,312.38	489.90	-1,971.59	-1,978.15	0.00	0.00	0.00
5,000.00	36.80	282.85	4,392.45	503.22	-2,029.99	-2,036.73	0.00	0.00	0.00
5,100.00	36.80	282.85	4,472.53	516.54	-2,088.39	-2,095.31	0.00	0.00	0.00
5,200.00	36.80	282.85	4,552.60	529.86	-2,146.79	-2,153.89	0.00	0.00	0.00
5,300.00	36.80	282.85	4,632.67	543.18	-2,205.19	-2,212.47	0.00	0.00	0.00
5,400.00	36.80	282.85	4,712.75	556.51	-2,263.60	-2,271.05	0.00	0.00	0.00
5,500.00	36.80	282.85	4,792.82	569.83	-2,322.00	-2,329.63	0.00	0.00	0.00
5,600.00	36.80	282.85	4,872.89	583.15	-2,380.40	-2,388.21	0.00	0.00	0.00
5,700.00	36.80	282.85	4,952.97	596.47	-2,438.80	-2,446.80	0.00	0.00	0.00
5,800.00	36.80	282.85	5,033.04	609.80	-2,497.21	-2,505.38	0.00	0.00	0.00
5,900.00	36.80	282.85	5,113.11	623.12	-2,555.61	-2,563.96	0.00	0.00	0.00
6,000.00	36.80	282.85	5,193.19	636.44	-2,614.01	-2,622.54	0.00	0.00	0.00
6,100.00	36.80	282.85	5,273.26	649.76	-2,672.41	-2,681.12	0.00	0.00	0.00
6,200.00	36.80	282.85	5,353.33	663.08	-2,730.81	-2,739.70	0.00	0.00	0.00
6,300.00	36.80	282.85	5,433.41	676.41	-2,789.22	-2,798.28	0.00	0.00	0.00
6,400.00	36.80	282.85	5,513.48	689.73	-2,847.62	-2,856.86	0.00	0.00	0.00
6,500.00	36.80	282.85	5,593.55	703.05	-2,906.02	-2,915.44	0.00	0.00	0.00
6,600.00	36.80	282.85	5,673.63	716.37	-2,964.42	-2,974.02	0.00	0.00	0.00
6,700.00	36.80	282.85	5,753.70	729.70	-3,022.82	-3,032.60	0.00	0.00	0.00
6,800.00	36.80	282.85	5,833.77	743.02	-3,081.23	-3,091.18	0.00	0.00	0.00
6,881.19	36.80	282.85	5,898.78	753.83	-3,128.64	-3,138.74	0.00	0.00	0.00
KOP @ 6881.19ft :: DLS = 8°/100'									
6,900.00	35.35	283.52	5,913.99	756.36	-3,139.43	-3,149.56	8.00	-7.72	3.56
6,950.00	31.51	285.56	5,955.71	763.25	-3,166.09	-3,176.31	8.00	-7.68	4.08
7,000.00	27.71	288.09	5,999.17	770.36	-3,189.73	-3,200.05	8.00	-7.60	5.07
7,050.00	23.97	291.36	6,044.17	777.68	-3,210.25	-3,220.67	8.00	-7.48	6.53
7,100.00	20.32	295.73	6,090.48	785.14	-3,227.54	-3,238.05	8.00	-7.30	8.74
7,150.00	16.83	301.86	6,137.87	792.74	-3,241.51	-3,252.13	8.00	-6.99	12.28
7,200.00	13.60	310.95	6,186.12	800.41	-3,252.10	-3,262.83	8.00	-6.45	18.17
7,250.00	10.90	324.94	6,234.99	808.14	-3,259.26	-3,270.09	8.00	-5.42	27.99
7,300.00	9.17	345.85	6,284.23	815.87	-3,262.95	-3,273.89	8.00	-3.45	41.81
7,350.00	9.01	11.35	6,333.63	823.58	-3,263.15	-3,274.20	8.00	-0.31	50.99
7,400.00	10.50	33.47	6,382.92	831.22	-3,259.87	-3,271.02	8.00	2.96	44.25
7,450.00	13.07	48.60	6,431.87	838.76	-3,253.11	-3,264.37	8.00	5.15	30.26
7,500.00	16.22	58.40	6,480.25	846.17	-3,242.92	-3,254.28	8.00	6.31	19.60
7,550.00	19.68	64.96	6,527.81	853.39	-3,229.34	-3,240.80	8.00	6.91	13.12
7,600.00	23.31	69.59	6,574.33	860.41	-3,212.43	-3,223.99	8.00	7.25	9.26
7,650.00	27.03	73.02	6,619.58	867.18	-3,192.29	-3,203.94	8.00	7.45	6.86
7,700.00	30.82	75.66	6,663.34	873.67	-3,169.00	-3,180.75	8.00	7.58	5.29
7,750.00	34.66	77.78	6,705.39	879.86	-3,142.69	-3,154.52	8.00	7.67	4.23
7,800.00	38.52	79.52	6,745.53	885.70	-3,113.47	-3,125.39	8.00	7.73	3.48
7,850.00	42.41	80.98	6,783.56	891.18	-3,081.50	-3,093.49	8.00	7.77	2.93

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,900.00	46.31	82.25	6,819.31	896.27	-3,046.92	-3,058.99	8.00	7.80	2.53
7,932.15	48.82	82.97	6,841.00	899.32	-3,023.39	-3,035.50	8.00	7.82	2.26
Sharon Springs									
7,950.00	50.22	83.35	6,852.59	900.93	-3,009.91	-3,022.05	8.00	7.83	2.13
7,979.50	52.53	83.95	6,871.00	903.48	-2,987.00	-2,999.18	8.00	7.84	2.02
Niobrara									
8,000.00	54.14	84.34	6,883.24	905.15	-2,970.65	-2,982.85	8.00	7.85	1.92
8,050.00	58.07	85.24	6,911.11	908.91	-2,929.32	-2,941.58	8.00	7.86	1.79
8,100.00	62.01	86.06	6,936.08	912.19	-2,886.14	-2,898.44	8.00	7.87	1.64
8,150.00	65.95	86.82	6,958.01	914.98	-2,841.30	-2,853.65	8.00	7.88	1.53
8,200.00	69.89	87.54	6,976.80	917.25	-2,795.03	-2,807.41	8.00	7.89	1.44
8,250.00	73.84	88.23	6,992.35	919.00	-2,747.56	-2,759.97	8.00	7.89	1.37
8,300.00	77.79	88.88	7,004.60	920.22	-2,699.11	-2,711.54	8.00	7.90	1.31
8,350.00	81.74	89.52	7,013.48	920.90	-2,649.92	-2,662.36	8.00	7.90	1.27
8,400.00	85.69	90.14	7,018.95	921.05	-2,600.23	-2,612.68	8.00	7.90	1.25
8,452.81	89.87	90.79	7,021.00	920.62	-2,547.47	-2,559.93	8.00	7.90	1.24
End Build @ 8452.81ft									
8,500.00	89.87	90.79	7,021.11	919.96	-2,500.29	-2,512.73	0.00	0.00	0.00
8,600.00	89.87	90.79	7,021.34	918.58	-2,400.30	-2,412.73	0.00	0.00	0.00
8,700.00	89.87	90.79	7,021.57	917.19	-2,300.30	-2,312.73	0.00	0.00	0.00
8,800.00	89.87	90.79	7,021.80	915.80	-2,200.31	-2,212.73	0.00	0.00	0.00
8,900.00	89.87	90.79	7,022.04	914.41	-2,100.32	-2,112.73	0.00	0.00	0.00
9,000.00	89.87	90.79	7,022.27	913.03	-2,000.33	-2,012.73	0.00	0.00	0.00
9,100.00	89.87	90.79	7,022.50	911.64	-1,900.34	-1,912.73	0.00	0.00	0.00
9,200.00	89.87	90.79	7,022.73	910.25	-1,800.35	-1,812.73	0.00	0.00	0.00
9,300.00	89.87	90.79	7,022.96	908.87	-1,700.36	-1,712.73	0.00	0.00	0.00
9,316.31	89.87	90.79	7,023.00	908.64	-1,684.06	-1,696.43	0.00	0.00	0.00
Nio B									
9,400.00	89.87	90.79	7,023.19	907.48	-1,600.37	-1,612.73	0.00	0.00	0.00
9,500.00	89.87	90.79	7,023.43	906.09	-1,500.38	-1,512.73	0.00	0.00	0.00
9,600.00	89.87	90.79	7,023.66	904.70	-1,400.39	-1,412.73	0.00	0.00	0.00
9,700.00	89.87	90.79	7,023.89	903.32	-1,300.40	-1,312.73	0.00	0.00	0.00
9,800.00	89.87	90.79	7,024.12	901.93	-1,200.41	-1,212.74	0.00	0.00	0.00
9,900.00	89.87	90.79	7,024.35	900.54	-1,100.42	-1,112.74	0.00	0.00	0.00
10,000.00	89.87	90.79	7,024.58	899.15	-1,000.43	-1,012.74	0.00	0.00	0.00
10,100.00	89.87	90.79	7,024.82	897.77	-900.44	-912.74	0.00	0.00	0.00
10,200.00	89.87	90.79	7,025.05	896.38	-800.45	-812.74	0.00	0.00	0.00
10,300.00	89.87	90.79	7,025.28	894.99	-700.46	-712.74	0.00	0.00	0.00
10,400.00	89.87	90.79	7,025.51	893.61	-600.47	-612.74	0.00	0.00	0.00
10,500.00	89.87	90.79	7,025.74	892.22	-500.48	-512.74	0.00	0.00	0.00
10,600.00	89.87	90.79	7,025.97	890.83	-400.49	-412.74	0.00	0.00	0.00
10,700.00	89.87	90.79	7,026.21	889.44	-300.50	-312.74	0.00	0.00	0.00
10,800.00	89.87	90.79	7,026.44	888.06	-200.51	-212.74	0.00	0.00	0.00
10,900.00	89.87	90.79	7,026.67	886.67	-100.52	-112.74	0.00	0.00	0.00
11,000.00	89.87	90.79	7,026.90	885.28	-0.53	-12.74	0.00	0.00	0.00
11,100.00	89.87	90.79	7,027.13	883.89	99.46	87.26	0.00	0.00	0.00
11,200.00	89.87	90.79	7,027.36	882.51	199.45	187.26	0.00	0.00	0.00
11,300.00	89.87	90.79	7,027.60	881.12	299.44	287.26	0.00	0.00	0.00
11,400.00	89.87	90.79	7,027.83	879.73	399.43	387.26	0.00	0.00	0.00
11,500.00	89.87	90.79	7,028.06	878.35	499.42	487.26	0.00	0.00	0.00
11,600.00	89.87	90.79	7,028.29	876.96	599.41	587.26	0.00	0.00	0.00
11,700.00	89.87	90.79	7,028.52	875.57	699.40	687.26	0.00	0.00	0.00
11,800.00	89.87	90.79	7,028.76	874.18	799.39	787.26	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,900.00	89.87	90.79	7,028.99	872.80	899.38	887.26	0.00	0.00	0.00
12,000.00	89.87	90.79	7,029.22	871.41	999.37	987.26	0.00	0.00	0.00
12,100.00	89.87	90.79	7,029.45	870.02	1,099.36	1,087.26	0.00	0.00	0.00
12,200.00	89.87	90.79	7,029.68	868.63	1,199.35	1,187.26	0.00	0.00	0.00
12,300.00	89.87	90.79	7,029.91	867.25	1,299.34	1,287.26	0.00	0.00	0.00
12,400.00	89.87	90.79	7,030.15	865.86	1,399.33	1,387.26	0.00	0.00	0.00
12,500.00	89.87	90.79	7,030.38	864.47	1,499.32	1,487.26	0.00	0.00	0.00
12,600.00	89.87	90.79	7,030.61	863.09	1,599.31	1,587.26	0.00	0.00	0.00
12,700.00	89.87	90.79	7,030.84	861.70	1,699.30	1,687.26	0.00	0.00	0.00
12,800.00	89.87	90.79	7,031.07	860.31	1,799.29	1,787.26	0.00	0.00	0.00
12,900.00	89.87	90.79	7,031.30	858.92	1,899.28	1,887.26	0.00	0.00	0.00
13,000.00	89.87	90.79	7,031.54	857.54	1,999.27	1,987.26	0.00	0.00	0.00
13,100.00	89.87	90.79	7,031.77	856.15	2,099.26	2,087.26	0.00	0.00	0.00
13,200.00	89.87	90.79	7,032.00	854.76	2,199.25	2,187.26	0.00	0.00	0.00
13,300.00	89.87	90.79	7,032.23	853.37	2,299.24	2,287.26	0.00	0.00	0.00
13,400.00	89.87	90.79	7,032.46	851.99	2,399.23	2,387.26	0.00	0.00	0.00
13,500.00	89.87	90.79	7,032.69	850.60	2,499.22	2,487.25	0.00	0.00	0.00
13,600.00	89.87	90.79	7,032.93	849.21	2,599.21	2,587.25	0.00	0.00	0.00
13,700.00	89.87	90.79	7,033.16	847.83	2,699.20	2,687.25	0.00	0.00	0.00
13,800.00	89.87	90.79	7,033.39	846.44	2,799.19	2,787.25	0.00	0.00	0.00
13,900.00	89.87	90.79	7,033.62	845.05	2,899.18	2,887.25	0.00	0.00	0.00
14,000.00	89.87	90.79	7,033.85	843.66	2,999.17	2,987.25	0.00	0.00	0.00
14,100.00	89.87	90.79	7,034.08	842.28	3,099.16	3,087.25	0.00	0.00	0.00
14,200.00	89.87	90.79	7,034.32	840.89	3,199.15	3,187.25	0.00	0.00	0.00
14,300.00	89.87	90.79	7,034.55	839.50	3,299.14	3,287.25	0.00	0.00	0.00
14,400.00	89.87	90.79	7,034.78	838.11	3,399.13	3,387.25	0.00	0.00	0.00
14,500.00	89.87	90.79	7,035.01	836.73	3,499.12	3,487.25	0.00	0.00	0.00
14,600.00	89.87	90.79	7,035.24	835.34	3,599.11	3,587.25	0.00	0.00	0.00
14,700.00	89.87	90.79	7,035.47	833.95	3,699.10	3,687.25	0.00	0.00	0.00
14,800.00	89.87	90.79	7,035.71	832.57	3,799.09	3,787.25	0.00	0.00	0.00
14,900.00	89.87	90.79	7,035.94	831.18	3,899.08	3,887.25	0.00	0.00	0.00
15,000.00	89.87	90.79	7,036.17	829.79	3,999.07	3,987.25	0.00	0.00	0.00
15,100.00	89.87	90.79	7,036.40	828.40	4,099.06	4,087.25	0.00	0.00	0.00
15,200.00	89.87	90.79	7,036.63	827.02	4,199.05	4,187.25	0.00	0.00	0.00
15,300.00	89.87	90.79	7,036.87	825.63	4,299.04	4,287.25	0.00	0.00	0.00
15,400.00	89.87	90.79	7,037.10	824.24	4,399.03	4,387.25	0.00	0.00	0.00
15,500.00	89.87	90.79	7,037.33	822.85	4,499.02	4,487.25	0.00	0.00	0.00
15,600.00	89.87	90.79	7,037.56	821.47	4,599.01	4,587.25	0.00	0.00	0.00
15,700.00	89.87	90.79	7,037.79	820.08	4,699.00	4,687.25	0.00	0.00	0.00
15,800.00	89.87	90.79	7,038.02	818.69	4,798.99	4,787.25	0.00	0.00	0.00
15,900.00	89.87	90.79	7,038.26	817.31	4,898.98	4,887.25	0.00	0.00	0.00
16,000.00	89.87	90.79	7,038.49	815.92	4,998.97	4,987.25	0.00	0.00	0.00
16,100.00	89.87	90.79	7,038.72	814.53	5,098.96	5,087.25	0.00	0.00	0.00
16,200.00	89.87	90.79	7,038.95	813.14	5,198.95	5,187.25	0.00	0.00	0.00
16,300.00	89.87	90.79	7,039.18	811.76	5,298.94	5,287.25	0.00	0.00	0.00
16,400.00	89.87	90.79	7,039.41	810.37	5,398.93	5,387.25	0.00	0.00	0.00
16,500.00	89.87	90.79	7,039.65	808.98	5,498.92	5,487.25	0.00	0.00	0.00
16,600.00	89.87	90.79	7,039.88	807.59	5,598.91	5,587.25	0.00	0.00	0.00
16,700.00	89.87	90.79	7,040.11	806.21	5,698.90	5,687.25	0.00	0.00	0.00
16,800.00	89.87	90.79	7,040.34	804.82	5,798.89	5,787.25	0.00	0.00	0.00
16,900.00	89.87	90.79	7,040.57	803.43	5,898.88	5,887.25	0.00	0.00	0.00
17,000.00	89.87	90.79	7,040.80	802.05	5,998.87	5,987.25	0.00	0.00	0.00
17,100.00	89.87	90.79	7,041.04	800.66	6,098.86	6,087.25	0.00	0.00	0.00
17,200.00	89.87	90.79	7,041.27	799.27	6,198.85	6,187.25	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-2HZ
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 4-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,300.00	89.87	90.79	7,041.50	797.88	6,298.84	6,287.24	0.00	0.00	0.00
17,400.00	89.87	90.79	7,041.73	796.50	6,398.83	6,387.24	0.00	0.00	0.00
17,500.00	89.87	90.79	7,041.96	795.11	6,498.82	6,487.24	0.00	0.00	0.00
17,516.16	89.87	90.79	7,042.00	794.88	6,514.98	6,503.40	0.00	0.00	0.00
TD Well @ 17516.16ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,519.57	1,500.00	9 5/8"	9-5/8	13-1/2	
17,516.16	7,042.00	5.5" CSG	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
707.79	707.00	Fox Hills			
4,007.84	3,598.00	Parkman			
4,609.79	4,080.00	Sussex			
7,932.15	6,841.00	Sharon Springs			
7,979.50	6,871.00	Niobrara			
9,316.31	7,023.00	Nio B			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
230.00	230.00	0.00	0.00	Begin Nudge @ 230.00ft
363.33	363.31	2.19	-0.80	Hold Tangent @ 363.33ft
400.00	399.95	3.39	-1.23	Change Tangent Direction @ 400.00ft
2,783.27	2,617.45	207.90	-735.37	Hold Tangent @ 2783.27ft
6,881.19	5,898.78	753.83	-3,128.64	KOP @ 6881.19ft :: DLS = 8°/100'
8,452.81	7,021.00	920.62	-2,547.47	End Build @ 8452.81ft
17,516.16	7,042.00	794.88	6,514.98	TD Well @ 17516.16ft