

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-14HZ**

Plan B

Plan: Permit Rev-1

Standard Planning Report

26 June, 2023

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-14HZ
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 4-14HZ	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 4-14HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,446.98 usft	Latitude:	40.260045
	+E/-W	0.00 usft	Easting:	1,670,584.42 usft	Longitude:	-104.891867
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	51,668.38780533

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	270.66	

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	24,392.49	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

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Wellbore:	Plan B		
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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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,388.00	17.07	241.22	1,371.24	-81.01	-147.48	1.50	1.50	0.00	241.22	
6,904.65	17.07	241.22	6,644.86	-860.65	-1,566.81	0.00	0.00	0.00	0.00	
7,844.76	90.02	270.66	7,172.00	-932.25	-2,260.33	8.00	7.76	3.13	30.55	
10,344.76	90.02	270.66	7,171.13	-903.46	-4,760.16	0.00	0.00	0.00	0.00	
10,400.76	90.02	271.50	7,171.11	-902.40	-4,816.15	1.50	0.00	1.50	90.00	
17,480.00	90.02	271.50	7,168.64	-717.09	-11,892.97	0.00	0.00	0.00	0.00	
17,746.67	90.02	267.50	7,168.54	-719.41	-12,159.57	1.50	0.00	-1.50	-90.00	
18,740.00	90.02	267.50	7,168.20	-762.74	-13,151.96	0.00	0.00	0.00	0.00	
18,924.34	90.03	270.27	7,168.11	-766.34	-13,336.24	1.50	0.01	1.50	89.74	
24,392.49	90.03	270.27	7,165.00	-741.04	-18,804.34	0.00	0.00	0.00	0.00	SWARTZ 4-14HZ BHI

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Well:	SWARTZ 4-14HZ	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	241.22	300.00	-0.16	-0.29	0.28	1.50	1.50	0.00
400.00	2.25	241.22	399.96	-1.42	-2.58	2.56	1.50	1.50	0.00
500.00	3.75	241.22	499.82	-3.94	-7.17	7.12	1.50	1.50	0.00
600.00	5.25	241.22	599.51	-7.71	-14.04	13.95	1.50	1.50	0.00
700.00	6.75	241.22	698.96	-12.75	-23.21	23.06	1.50	1.50	0.00
708.10	6.87	241.22	707.00	-13.21	-24.05	23.89	1.50	1.50	0.00
Fox Hills									
800.00	8.25	241.22	798.10	-19.03	-34.65	34.42	1.50	1.50	0.00
900.00	9.75	241.22	896.87	-26.56	-48.36	48.05	1.50	1.50	0.00
1,000.00	11.25	241.22	995.19	-35.34	-64.33	63.92	1.50	1.50	0.00
1,100.00	12.75	241.22	1,093.00	-45.35	-82.55	82.02	1.50	1.50	0.00
1,200.00	14.25	241.22	1,190.24	-56.58	-103.01	102.35	1.50	1.50	0.00
1,300.00	15.75	241.22	1,286.83	-69.04	-125.70	124.89	1.50	1.50	0.00
1,388.00	17.07	241.22	1,371.24	-81.01	-147.48	146.54	1.50	1.50	0.00
Hold Tangent @ 1388.00ft									
1,400.00	17.07	241.22	1,382.71	-82.71	-150.57	149.61	0.00	0.00	0.00
1,500.00	17.07	241.22	1,478.31	-96.84	-176.30	175.17	0.00	0.00	0.00
1,522.69	17.07	241.22	1,500.00	-100.05	-182.14	180.97	0.00	0.00	0.00
9 5/8"									
1,600.00	17.07	241.22	1,573.90	-110.97	-202.03	200.74	0.00	0.00	0.00
1,700.00	17.07	241.22	1,669.50	-125.11	-227.76	226.30	0.00	0.00	0.00
1,800.00	17.07	241.22	1,765.09	-139.24	-253.48	251.86	0.00	0.00	0.00
1,900.00	17.07	241.22	1,860.68	-153.37	-279.21	277.43	0.00	0.00	0.00
2,000.00	17.07	241.22	1,956.28	-167.50	-304.94	302.99	0.00	0.00	0.00
2,100.00	17.07	241.22	2,051.87	-181.64	-330.67	328.55	0.00	0.00	0.00
2,200.00	17.07	241.22	2,147.47	-195.77	-356.40	354.12	0.00	0.00	0.00
2,300.00	17.07	241.22	2,243.06	-209.90	-382.12	379.68	0.00	0.00	0.00
2,400.00	17.07	241.22	2,338.66	-224.03	-407.85	405.24	0.00	0.00	0.00
2,500.00	17.07	241.22	2,434.25	-238.17	-433.58	430.81	0.00	0.00	0.00
2,600.00	17.07	241.22	2,529.85	-252.30	-459.31	456.37	0.00	0.00	0.00
2,700.00	17.07	241.22	2,625.44	-266.43	-485.04	481.94	0.00	0.00	0.00
2,800.00	17.07	241.22	2,721.04	-280.56	-510.76	507.50	0.00	0.00	0.00
2,900.00	17.07	241.22	2,816.63	-294.70	-536.49	533.06	0.00	0.00	0.00
3,000.00	17.07	241.22	2,912.23	-308.83	-562.22	558.63	0.00	0.00	0.00
3,100.00	17.07	241.22	3,007.82	-322.96	-587.95	584.19	0.00	0.00	0.00
3,200.00	17.07	241.22	3,103.42	-337.09	-613.68	609.75	0.00	0.00	0.00
3,300.00	17.07	241.22	3,199.01	-351.23	-639.40	635.32	0.00	0.00	0.00
3,400.00	17.07	241.22	3,294.60	-365.36	-665.13	660.88	0.00	0.00	0.00
3,500.00	17.07	241.22	3,390.20	-379.49	-690.86	686.44	0.00	0.00	0.00
3,600.00	17.07	241.22	3,485.79	-393.62	-716.59	712.01	0.00	0.00	0.00
3,700.00	17.07	241.22	3,581.39	-407.75	-742.32	737.57	0.00	0.00	0.00
3,717.38	17.07	241.22	3,598.00	-410.21	-746.79	742.01	0.00	0.00	0.00
Parkman									
3,800.00	17.07	241.22	3,676.98	-421.89	-768.05	763.13	0.00	0.00	0.00
3,900.00	17.07	241.22	3,772.58	-436.02	-793.77	788.70	0.00	0.00	0.00
4,000.00	17.07	241.22	3,868.17	-450.15	-819.50	814.26	0.00	0.00	0.00
4,100.00	17.07	241.22	3,963.77	-464.28	-845.23	839.82	0.00	0.00	0.00
4,200.00	17.07	241.22	4,059.36	-478.42	-870.96	865.39	0.00	0.00	0.00
4,221.59	17.07	241.22	4,080.00	-481.47	-876.51	870.91	0.00	0.00	0.00

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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)
Sussex									
4,300.00	17.07	241.22	4,154.96	-492.55	-896.69	890.95	0.00	0.00	0.00
4,400.00	17.07	241.22	4,250.55	-506.68	-922.41	916.52	0.00	0.00	0.00
4,500.00	17.07	241.22	4,346.15	-520.81	-948.14	942.08	0.00	0.00	0.00
4,600.00	17.07	241.22	4,441.74	-534.95	-973.87	967.64	0.00	0.00	0.00
4,700.00	17.07	241.22	4,537.34	-549.08	-999.60	993.21	0.00	0.00	0.00
4,800.00	17.07	241.22	4,632.93	-563.21	-1,025.33	1,018.77	0.00	0.00	0.00
4,900.00	17.07	241.22	4,728.52	-577.34	-1,051.05	1,044.33	0.00	0.00	0.00
5,000.00	17.07	241.22	4,824.12	-591.48	-1,076.78	1,069.90	0.00	0.00	0.00
5,100.00	17.07	241.22	4,919.71	-605.61	-1,102.51	1,095.46	0.00	0.00	0.00
5,200.00	17.07	241.22	5,015.31	-619.74	-1,128.24	1,121.02	0.00	0.00	0.00
5,300.00	17.07	241.22	5,110.90	-633.87	-1,153.97	1,146.59	0.00	0.00	0.00
5,400.00	17.07	241.22	5,206.50	-648.01	-1,179.69	1,172.15	0.00	0.00	0.00
5,500.00	17.07	241.22	5,302.09	-662.14	-1,205.42	1,197.71	0.00	0.00	0.00
5,600.00	17.07	241.22	5,397.69	-676.27	-1,231.15	1,223.28	0.00	0.00	0.00
5,700.00	17.07	241.22	5,493.28	-690.40	-1,256.88	1,248.84	0.00	0.00	0.00
5,800.00	17.07	241.22	5,588.88	-704.54	-1,282.61	1,274.40	0.00	0.00	0.00
5,900.00	17.07	241.22	5,684.47	-718.67	-1,308.33	1,299.97	0.00	0.00	0.00
6,000.00	17.07	241.22	5,780.07	-732.80	-1,334.06	1,325.53	0.00	0.00	0.00
6,100.00	17.07	241.22	5,875.66	-746.93	-1,359.79	1,351.10	0.00	0.00	0.00
6,200.00	17.07	241.22	5,971.26	-761.07	-1,385.52	1,376.66	0.00	0.00	0.00
6,300.00	17.07	241.22	6,066.85	-775.20	-1,411.25	1,402.22	0.00	0.00	0.00
6,400.00	17.07	241.22	6,162.45	-789.33	-1,436.97	1,427.79	0.00	0.00	0.00
6,500.00	17.07	241.22	6,258.04	-803.46	-1,462.70	1,453.35	0.00	0.00	0.00
6,600.00	17.07	241.22	6,353.63	-817.59	-1,488.43	1,478.91	0.00	0.00	0.00
6,700.00	17.07	241.22	6,449.23	-831.73	-1,514.16	1,504.48	0.00	0.00	0.00
6,800.00	17.07	241.22	6,544.82	-845.86	-1,539.89	1,530.04	0.00	0.00	0.00
6,904.65	17.07	241.22	6,644.86	-860.65	-1,566.81	1,556.79	0.00	0.00	0.00
KOP @ 6904.65ft :: DLS = 8°/100'									
6,950.00	20.28	246.55	6,687.82	-866.98	-1,579.86	1,569.77	8.00	7.07	11.74
7,000.00	23.95	250.79	6,734.14	-873.77	-1,597.39	1,587.22	8.00	7.34	8.49
7,050.00	27.70	253.95	6,779.14	-880.33	-1,618.15	1,607.90	8.00	7.51	6.33
7,100.00	31.51	256.41	6,822.61	-886.61	-1,642.03	1,631.71	8.00	7.62	4.91
7,121.77	33.19	257.32	6,841.00	-889.26	-1,653.38	1,643.02	8.00	7.68	4.17
Sharon Springs									
7,150.00	35.36	258.38	6,864.33	-892.60	-1,668.92	1,658.53	8.00	7.71	3.77
7,158.22	36.00	258.67	6,871.00	-893.55	-1,673.62	1,663.21	8.00	7.73	3.51
Niobrara									
7,200.00	39.24	260.01	6,904.09	-898.26	-1,698.68	1,688.22	8.00	7.76	3.21
7,250.00	43.14	261.39	6,941.71	-903.57	-1,731.17	1,720.64	8.00	7.79	2.76
7,300.00	47.05	262.58	6,977.00	-908.49	-1,766.23	1,755.64	8.00	7.82	2.38
7,350.00	50.97	263.63	7,009.80	-913.01	-1,803.69	1,793.05	8.00	7.84	2.10
7,371.35	52.64	264.04	7,023.00	-914.81	-1,820.37	1,809.71	8.00	7.85	1.93
Nio B									
7,400.00	54.90	264.57	7,039.93	-917.10	-1,843.36	1,832.68	8.00	7.86	1.84
7,426.92	57.02	265.04	7,055.00	-919.12	-1,865.58	1,854.87	8.00	7.87	1.74
Nio C									
7,450.00	58.83	265.42	7,067.25	-920.75	-1,885.06	1,874.33	8.00	7.87	1.66
7,500.00	62.77	266.20	7,091.64	-923.93	-1,928.59	1,917.82	8.00	7.88	1.57
7,550.00	66.72	266.93	7,112.97	-926.63	-1,973.72	1,962.91	8.00	7.89	1.46
7,600.00	70.67	267.62	7,131.13	-928.84	-2,020.24	2,009.41	8.00	7.90	1.38
7,650.00	74.62	268.28	7,146.05	-930.54	-2,067.92	2,057.07	8.00	7.90	1.31
7,696.83	78.32	268.87	7,157.00	-931.67	-2,113.43	2,102.56	8.00	7.91	1.26

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Well:	SWARTZ 4-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
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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)
Fort Hayes									
7,700.00	78.57	268.91	7,157.64	-931.73	-2,116.53	2,105.66	8.00	7.91	1.24
7,750.00	82.52	269.52	7,165.85	-932.41	-2,165.84	2,154.96	8.00	7.91	1.23
7,800.00	86.48	270.13	7,170.63	-932.56	-2,215.60	2,204.71	8.00	7.91	1.21
7,843.12	89.89	270.64	7,172.00	-932.27	-2,258.69	2,247.80	8.00	7.91	1.20
Codell									
7,844.76	90.02	270.66	7,172.00	-932.25	-2,260.33	2,249.44	8.00	7.91	1.19
End Build @ 7844.76ft									
7,900.00	90.02	270.66	7,171.98	-931.62	-2,315.57	2,304.68	0.00	0.00	0.00
8,000.00	90.02	270.66	7,171.95	-930.47	-2,415.56	2,404.68	0.00	0.00	0.00
8,100.00	90.02	270.66	7,171.91	-929.31	-2,515.55	2,504.68	0.00	0.00	0.00
8,200.00	90.02	270.66	7,171.88	-928.16	-2,615.55	2,604.68	0.00	0.00	0.00
8,300.00	90.02	270.66	7,171.84	-927.01	-2,715.54	2,704.68	0.00	0.00	0.00
8,400.00	90.02	270.66	7,171.81	-925.86	-2,815.53	2,804.68	0.00	0.00	0.00
8,500.00	90.02	270.66	7,171.77	-924.71	-2,915.53	2,904.68	0.00	0.00	0.00
8,600.00	90.02	270.66	7,171.74	-923.55	-3,015.52	3,004.68	0.00	0.00	0.00
8,700.00	90.02	270.66	7,171.70	-922.40	-3,115.52	3,104.68	0.00	0.00	0.00
8,800.00	90.02	270.66	7,171.67	-921.25	-3,215.51	3,204.68	0.00	0.00	0.00
8,900.00	90.02	270.66	7,171.63	-920.10	-3,315.50	3,304.68	0.00	0.00	0.00
9,000.00	90.02	270.66	7,171.60	-918.95	-3,415.50	3,404.68	0.00	0.00	0.00
9,100.00	90.02	270.66	7,171.56	-917.79	-3,515.49	3,504.68	0.00	0.00	0.00
9,200.00	90.02	270.66	7,171.53	-916.64	-3,615.48	3,604.68	0.00	0.00	0.00
9,300.00	90.02	270.66	7,171.49	-915.49	-3,715.48	3,704.68	0.00	0.00	0.00
9,400.00	90.02	270.66	7,171.46	-914.34	-3,815.47	3,804.68	0.00	0.00	0.00
9,500.00	90.02	270.66	7,171.42	-913.19	-3,915.46	3,904.68	0.00	0.00	0.00
9,600.00	90.02	270.66	7,171.39	-912.04	-4,015.46	4,004.68	0.00	0.00	0.00
9,700.00	90.02	270.66	7,171.35	-910.88	-4,115.45	4,104.68	0.00	0.00	0.00
9,800.00	90.02	270.66	7,171.32	-909.73	-4,215.44	4,204.68	0.00	0.00	0.00
9,900.00	90.02	270.66	7,171.28	-908.58	-4,315.44	4,304.68	0.00	0.00	0.00
10,000.00	90.02	270.66	7,171.25	-907.43	-4,415.43	4,404.68	0.00	0.00	0.00
10,100.00	90.02	270.66	7,171.21	-906.28	-4,515.42	4,504.68	0.00	0.00	0.00
10,200.00	90.02	270.66	7,171.18	-905.12	-4,615.42	4,604.68	0.00	0.00	0.00
10,300.00	90.02	270.66	7,171.14	-903.97	-4,715.41	4,704.68	0.00	0.00	0.00
10,344.76	90.02	270.66	7,171.13	-903.46	-4,760.16	4,749.44	0.00	0.00	0.00
Begin Turn for AC @ 10344.76ft									
10,400.76	90.02	271.50	7,171.11	-902.40	-4,816.15	4,805.44	1.50	0.00	1.50
End Turn @ 10400.76ft									
10,500.00	90.02	271.50	7,171.07	-899.80	-4,915.36	4,904.67	0.00	0.00	0.00
10,600.00	90.02	271.50	7,171.04	-897.19	-5,015.33	5,004.66	0.00	0.00	0.00
10,700.00	90.02	271.50	7,171.00	-894.57	-5,115.29	5,104.65	0.00	0.00	0.00
10,800.00	90.02	271.50	7,170.97	-891.95	-5,215.26	5,204.64	0.00	0.00	0.00
10,900.00	90.02	271.50	7,170.93	-889.33	-5,315.22	5,304.63	0.00	0.00	0.00
11,000.00	90.02	271.50	7,170.90	-886.71	-5,415.19	5,404.62	0.00	0.00	0.00
11,100.00	90.02	271.50	7,170.87	-884.10	-5,515.16	5,504.61	0.00	0.00	0.00
11,200.00	90.02	271.50	7,170.83	-881.48	-5,615.12	5,604.60	0.00	0.00	0.00
11,300.00	90.02	271.50	7,170.80	-878.86	-5,715.09	5,704.58	0.00	0.00	0.00
11,400.00	90.02	271.50	7,170.76	-876.24	-5,815.05	5,804.57	0.00	0.00	0.00
11,500.00	90.02	271.50	7,170.73	-873.63	-5,915.02	5,904.56	0.00	0.00	0.00
11,600.00	90.02	271.50	7,170.69	-871.01	-6,014.98	6,004.55	0.00	0.00	0.00
11,700.00	90.02	271.50	7,170.66	-868.39	-6,114.95	6,104.54	0.00	0.00	0.00
11,800.00	90.02	271.50	7,170.62	-865.77	-6,214.92	6,204.53	0.00	0.00	0.00
11,900.00	90.02	271.50	7,170.59	-863.16	-6,314.88	6,304.52	0.00	0.00	0.00
12,000.00	90.02	271.50	7,170.55	-860.54	-6,414.85	6,404.51	0.00	0.00	0.00
12,100.00	90.02	271.50	7,170.52	-857.92	-6,514.81	6,504.50	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-14HZ
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 4-14HZ	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)
12,200.00	90.02	271.50	7,170.48	-855.30	-6,614.78	6,604.49	0.00	0.00	0.00
12,300.00	90.02	271.50	7,170.45	-852.68	-6,714.74	6,704.48	0.00	0.00	0.00
12,400.00	90.02	271.50	7,170.41	-850.07	-6,814.71	6,804.47	0.00	0.00	0.00
12,500.00	90.02	271.50	7,170.38	-847.45	-6,914.68	6,904.46	0.00	0.00	0.00
12,600.00	90.02	271.50	7,170.34	-844.83	-7,014.64	7,004.44	0.00	0.00	0.00
12,700.00	90.02	271.50	7,170.31	-842.21	-7,114.61	7,104.43	0.00	0.00	0.00
12,800.00	90.02	271.50	7,170.27	-839.60	-7,214.57	7,204.42	0.00	0.00	0.00
12,900.00	90.02	271.50	7,170.24	-836.98	-7,314.54	7,304.41	0.00	0.00	0.00
13,000.00	90.02	271.50	7,170.20	-834.36	-7,414.50	7,404.40	0.00	0.00	0.00
13,100.00	90.02	271.50	7,170.17	-831.74	-7,514.47	7,504.39	0.00	0.00	0.00
13,200.00	90.02	271.50	7,170.13	-829.13	-7,614.44	7,604.38	0.00	0.00	0.00
13,300.00	90.02	271.50	7,170.10	-826.51	-7,714.40	7,704.37	0.00	0.00	0.00
13,400.00	90.02	271.50	7,170.06	-823.89	-7,814.37	7,804.36	0.00	0.00	0.00
13,500.00	90.02	271.50	7,170.03	-821.27	-7,914.33	7,904.35	0.00	0.00	0.00
13,600.00	90.02	271.50	7,169.99	-818.65	-8,014.30	8,004.34	0.00	0.00	0.00
13,700.00	90.02	271.50	7,169.96	-816.04	-8,114.26	8,104.33	0.00	0.00	0.00
13,800.00	90.02	271.50	7,169.92	-813.42	-8,214.23	8,204.32	0.00	0.00	0.00
13,900.00	90.02	271.50	7,169.89	-810.80	-8,314.20	8,304.30	0.00	0.00	0.00
14,000.00	90.02	271.50	7,169.85	-808.18	-8,414.16	8,404.29	0.00	0.00	0.00
14,100.00	90.02	271.50	7,169.82	-805.57	-8,514.13	8,504.28	0.00	0.00	0.00
14,200.00	90.02	271.50	7,169.78	-802.95	-8,614.09	8,604.27	0.00	0.00	0.00
14,300.00	90.02	271.50	7,169.75	-800.33	-8,714.06	8,704.26	0.00	0.00	0.00
14,400.00	90.02	271.50	7,169.71	-797.71	-8,814.02	8,804.25	0.00	0.00	0.00
14,500.00	90.02	271.50	7,169.68	-795.10	-8,913.99	8,904.24	0.00	0.00	0.00
14,600.00	90.02	271.50	7,169.64	-792.48	-9,013.96	9,004.23	0.00	0.00	0.00
14,700.00	90.02	271.50	7,169.61	-789.86	-9,113.92	9,104.22	0.00	0.00	0.00
14,800.00	90.02	271.50	7,169.57	-787.24	-9,213.89	9,204.21	0.00	0.00	0.00
14,900.00	90.02	271.50	7,169.54	-784.62	-9,313.85	9,304.20	0.00	0.00	0.00
15,000.00	90.02	271.50	7,169.50	-782.01	-9,413.82	9,404.19	0.00	0.00	0.00
15,100.00	90.02	271.50	7,169.47	-779.39	-9,513.78	9,504.18	0.00	0.00	0.00
15,200.00	90.02	271.50	7,169.43	-776.77	-9,613.75	9,604.17	0.00	0.00	0.00
15,300.00	90.02	271.50	7,169.40	-774.15	-9,713.72	9,704.15	0.00	0.00	0.00
15,400.00	90.02	271.50	7,169.36	-771.54	-9,813.68	9,804.14	0.00	0.00	0.00
15,500.00	90.02	271.50	7,169.33	-768.92	-9,913.65	9,904.13	0.00	0.00	0.00
15,600.00	90.02	271.50	7,169.29	-766.30	-10,013.61	10,004.12	0.00	0.00	0.00
15,700.00	90.02	271.50	7,169.26	-763.68	-10,113.58	10,104.11	0.00	0.00	0.00
15,800.00	90.02	271.50	7,169.22	-761.07	-10,213.54	10,204.10	0.00	0.00	0.00
15,900.00	90.02	271.50	7,169.19	-758.45	-10,313.51	10,304.09	0.00	0.00	0.00
16,000.00	90.02	271.50	7,169.15	-755.83	-10,413.48	10,404.08	0.00	0.00	0.00
16,100.00	90.02	271.50	7,169.12	-753.21	-10,513.44	10,504.07	0.00	0.00	0.00
16,200.00	90.02	271.50	7,169.08	-750.59	-10,613.41	10,604.06	0.00	0.00	0.00
16,300.00	90.02	271.50	7,169.05	-747.98	-10,713.37	10,704.05	0.00	0.00	0.00
16,400.00	90.02	271.50	7,169.02	-745.36	-10,813.34	10,804.04	0.00	0.00	0.00
16,500.00	90.02	271.50	7,168.98	-742.74	-10,913.31	10,904.03	0.00	0.00	0.00
16,600.00	90.02	271.50	7,168.95	-740.12	-11,013.27	11,004.01	0.00	0.00	0.00
16,700.00	90.02	271.50	7,168.91	-737.51	-11,113.24	11,104.00	0.00	0.00	0.00
16,800.00	90.02	271.50	7,168.88	-734.89	-11,213.20	11,203.99	0.00	0.00	0.00
16,900.00	90.02	271.50	7,168.84	-732.27	-11,313.17	11,303.98	0.00	0.00	0.00
17,000.00	90.02	271.50	7,168.81	-729.65	-11,413.13	11,403.97	0.00	0.00	0.00
17,100.00	90.02	271.50	7,168.77	-727.04	-11,513.10	11,503.96	0.00	0.00	0.00
17,200.00	90.02	271.50	7,168.74	-724.42	-11,613.07	11,603.95	0.00	0.00	0.00
17,300.00	90.02	271.50	7,168.70	-721.80	-11,713.03	11,703.94	0.00	0.00	0.00
17,400.00	90.02	271.50	7,168.67	-719.18	-11,813.00	11,803.93	0.00	0.00	0.00
17,480.00	90.02	271.50	7,168.64	-717.09	-11,892.97	11,883.92	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-14HZ
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 4-14HZ	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)
Begin Turn for AC @ 17480.00ft									
17,500.00	90.02	271.20	7,168.63	-716.62	-11,912.96	11,903.92	1.50	0.00	-1.50
17,600.00	90.02	269.70	7,168.60	-715.83	-12,012.96	12,003.92	1.50	0.00	-1.50
17,700.00	90.02	268.20	7,168.56	-717.66	-12,112.94	12,103.87	1.50	0.00	-1.50
17,746.67	90.02	267.50	7,168.54	-719.41	-12,159.57	12,150.48	1.50	0.00	-1.50
End Turn @ 17746.67ft									
17,800.00	90.02	267.50	7,168.53	-721.74	-12,212.85	12,203.73	0.00	0.00	0.00
17,900.00	90.02	267.50	7,168.49	-726.10	-12,312.76	12,303.58	0.00	0.00	0.00
18,000.00	90.02	267.50	7,168.46	-730.46	-12,412.66	12,403.43	0.00	0.00	0.00
18,100.00	90.02	267.50	7,168.42	-734.83	-12,512.57	12,503.27	0.00	0.00	0.00
18,200.00	90.02	267.50	7,168.39	-739.19	-12,612.47	12,603.12	0.00	0.00	0.00
18,300.00	90.02	267.50	7,168.35	-743.55	-12,712.38	12,702.97	0.00	0.00	0.00
18,400.00	90.02	267.50	7,168.32	-747.91	-12,812.28	12,802.82	0.00	0.00	0.00
18,500.00	90.02	267.50	7,168.28	-752.27	-12,912.19	12,902.67	0.00	0.00	0.00
18,600.00	90.02	267.50	7,168.25	-756.64	-13,012.09	13,002.51	0.00	0.00	0.00
18,700.00	90.02	267.50	7,168.21	-761.00	-13,112.00	13,102.36	0.00	0.00	0.00
18,740.00	90.02	267.50	7,168.20	-762.74	-13,151.96	13,142.30	0.00	0.00	0.00
Begin Turn to BHL @ 18740.00ft									
18,800.00	90.02	268.40	7,168.18	-764.89	-13,211.92	13,202.23	1.50	0.01	1.50
18,900.00	90.03	269.90	7,168.13	-766.37	-13,311.91	13,302.20	1.50	0.01	1.50
18,924.34	90.03	270.27	7,168.11	-766.34	-13,336.24	13,326.53	1.50	0.01	1.50
End Turn @ 18924.34ft									
19,000.00	90.03	270.27	7,168.07	-765.99	-13,411.91	13,402.19	0.00	0.00	0.00
19,100.00	90.03	270.27	7,168.01	-765.53	-13,511.90	13,502.19	0.00	0.00	0.00
19,200.00	90.03	270.27	7,167.96	-765.06	-13,611.90	13,602.19	0.00	0.00	0.00
19,300.00	90.03	270.27	7,167.90	-764.60	-13,711.90	13,702.19	0.00	0.00	0.00
19,400.00	90.03	270.27	7,167.84	-764.14	-13,811.90	13,802.18	0.00	0.00	0.00
19,500.00	90.03	270.27	7,167.79	-763.68	-13,911.90	13,902.18	0.00	0.00	0.00
19,600.00	90.03	270.27	7,167.73	-763.21	-14,011.90	14,002.18	0.00	0.00	0.00
19,700.00	90.03	270.27	7,167.67	-762.75	-14,111.90	14,102.18	0.00	0.00	0.00
19,800.00	90.03	270.27	7,167.61	-762.29	-14,211.90	14,202.17	0.00	0.00	0.00
19,900.00	90.03	270.27	7,167.56	-761.82	-14,311.90	14,302.17	0.00	0.00	0.00
20,000.00	90.03	270.27	7,167.50	-761.36	-14,411.89	14,402.17	0.00	0.00	0.00
20,100.00	90.03	270.27	7,167.44	-760.90	-14,511.89	14,502.17	0.00	0.00	0.00
20,200.00	90.03	270.27	7,167.39	-760.44	-14,611.89	14,602.16	0.00	0.00	0.00
20,300.00	90.03	270.27	7,167.33	-759.97	-14,711.89	14,702.16	0.00	0.00	0.00
20,400.00	90.03	270.27	7,167.27	-759.51	-14,811.89	14,802.16	0.00	0.00	0.00
20,500.00	90.03	270.27	7,167.22	-759.05	-14,911.89	14,902.16	0.00	0.00	0.00
20,600.00	90.03	270.27	7,167.16	-758.59	-15,011.89	15,002.15	0.00	0.00	0.00
20,700.00	90.03	270.27	7,167.10	-758.12	-15,111.89	15,102.15	0.00	0.00	0.00
20,800.00	90.03	270.27	7,167.05	-757.66	-15,211.89	15,202.15	0.00	0.00	0.00
20,900.00	90.03	270.27	7,166.99	-757.20	-15,311.89	15,302.15	0.00	0.00	0.00
21,000.00	90.03	270.27	7,166.93	-756.74	-15,411.88	15,402.14	0.00	0.00	0.00
21,100.00	90.03	270.27	7,166.87	-756.27	-15,511.88	15,502.14	0.00	0.00	0.00
21,200.00	90.03	270.27	7,166.82	-755.81	-15,611.88	15,602.14	0.00	0.00	0.00
21,300.00	90.03	270.27	7,166.76	-755.35	-15,711.88	15,702.14	0.00	0.00	0.00
21,400.00	90.03	270.27	7,166.70	-754.89	-15,811.88	15,802.14	0.00	0.00	0.00
21,500.00	90.03	270.27	7,166.65	-754.42	-15,911.88	15,902.13	0.00	0.00	0.00
21,600.00	90.03	270.27	7,166.59	-753.96	-16,011.88	16,002.13	0.00	0.00	0.00
21,700.00	90.03	270.27	7,166.53	-753.50	-16,111.88	16,102.13	0.00	0.00	0.00
21,800.00	90.03	270.27	7,166.48	-753.04	-16,211.88	16,202.13	0.00	0.00	0.00
21,900.00	90.03	270.27	7,166.42	-752.57	-16,311.87	16,302.12	0.00	0.00	0.00
22,000.00	90.03	270.27	7,166.36	-752.11	-16,411.87	16,402.12	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-14HZ
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 4-14HZ	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)
22,100.00	90.03	270.27	7,166.31	-751.65	-16,511.87	16,502.12	0.00	0.00	0.00
22,200.00	90.03	270.27	7,166.25	-751.19	-16,611.87	16,602.12	0.00	0.00	0.00
22,300.00	90.03	270.27	7,166.19	-750.72	-16,711.87	16,702.11	0.00	0.00	0.00
22,400.00	90.03	270.27	7,166.13	-750.26	-16,811.87	16,802.11	0.00	0.00	0.00
22,500.00	90.03	270.27	7,166.08	-749.80	-16,911.87	16,902.11	0.00	0.00	0.00
22,600.00	90.03	270.27	7,166.02	-749.34	-17,011.87	17,002.11	0.00	0.00	0.00
22,700.00	90.03	270.27	7,165.96	-748.87	-17,111.87	17,102.10	0.00	0.00	0.00
22,800.00	90.03	270.27	7,165.91	-748.41	-17,211.86	17,202.10	0.00	0.00	0.00
22,900.00	90.03	270.27	7,165.85	-747.95	-17,311.86	17,302.10	0.00	0.00	0.00
23,000.00	90.03	270.27	7,165.79	-747.49	-17,411.86	17,402.10	0.00	0.00	0.00
23,100.00	90.03	270.27	7,165.74	-747.02	-17,511.86	17,502.09	0.00	0.00	0.00
23,200.00	90.03	270.27	7,165.68	-746.56	-17,611.86	17,602.09	0.00	0.00	0.00
23,300.00	90.03	270.27	7,165.62	-746.10	-17,711.86	17,702.09	0.00	0.00	0.00
23,400.00	90.03	270.27	7,165.57	-745.63	-17,811.86	17,802.09	0.00	0.00	0.00
23,500.00	90.03	270.27	7,165.51	-745.17	-17,911.86	17,902.08	0.00	0.00	0.00
23,600.00	90.03	270.27	7,165.45	-744.71	-18,011.86	18,002.08	0.00	0.00	0.00
23,700.00	90.03	270.27	7,165.39	-744.25	-18,111.85	18,102.08	0.00	0.00	0.00
23,800.00	90.03	270.27	7,165.34	-743.78	-18,211.85	18,202.08	0.00	0.00	0.00
23,900.00	90.03	270.27	7,165.28	-743.32	-18,311.85	18,302.08	0.00	0.00	0.00
24,000.00	90.03	270.27	7,165.22	-742.86	-18,411.85	18,402.07	0.00	0.00	0.00
24,100.00	90.03	270.27	7,165.17	-742.40	-18,511.85	18,502.07	0.00	0.00	0.00
24,200.00	90.03	270.27	7,165.11	-741.93	-18,611.85	18,602.07	0.00	0.00	0.00
24,300.00	90.03	270.27	7,165.05	-741.47	-18,711.85	18,702.07	0.00	0.00	0.00
24,392.49	90.03	270.27	7,165.00	-741.04	-18,804.34	18,794.55	0.00	0.00	0.00
TD Well @ 24392.49ft - 5.5" CSG									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,522.69	1,500.00	9 5/8"	9-5/8	13-1/2	
24,392.49	7,165.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.10	707.00	Fox Hills				
3,717.38	3,598.00	Parkman				
4,221.59	4,080.00	Sussex				
7,121.77	6,841.00	Sharon Springs				
7,158.22	6,871.00	Niobrara				
7,371.35	7,023.00	Nio B				
7,426.92	7,055.00	Nio C				
7,696.83	7,157.00	Fort Hayes				
7,843.12	7,172.00	Codell		0.00		

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-14HZ
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 4-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,388.00	1,371.24	-81.01	-147.48	Hold Tangent @ 1388.00ft
6,904.65	6,644.86	-860.65	-1,566.81	KOP @ 6904.65ft :: DLS = 8"/100'
7,844.76	7,172.00	-932.25	-2,260.33	End Build @ 7844.76ft
10,344.76	7,171.13	-903.46	-4,760.16	Begin Turn for AC @ 10344.76ft
10,400.76	7,171.11	-902.40	-4,816.15	End Turn @ 10400.76ft
17,480.00	7,168.64	-717.09	-11,892.97	Begin Turn for AC @ 17480.00ft
17,746.67	7,168.54	-719.41	-12,159.57	End Turn @ 17746.67ft
18,740.00	7,168.20	-762.74	-13,151.96	Begin Turn to BHL @ 18740.00ft
18,924.34	7,168.11	-766.34	-13,336.24	End Turn @ 18924.34ft
24,392.49	7,165.00	-741.04	-18,804.34	TD Well @ 24392.49ft