

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-1HZ**

Plan A

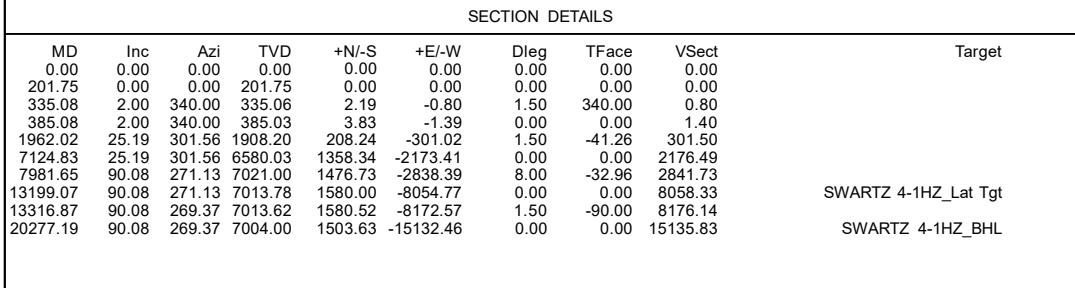
Plan: Permit Rev-1

Standard Planning Report

08 December, 2021

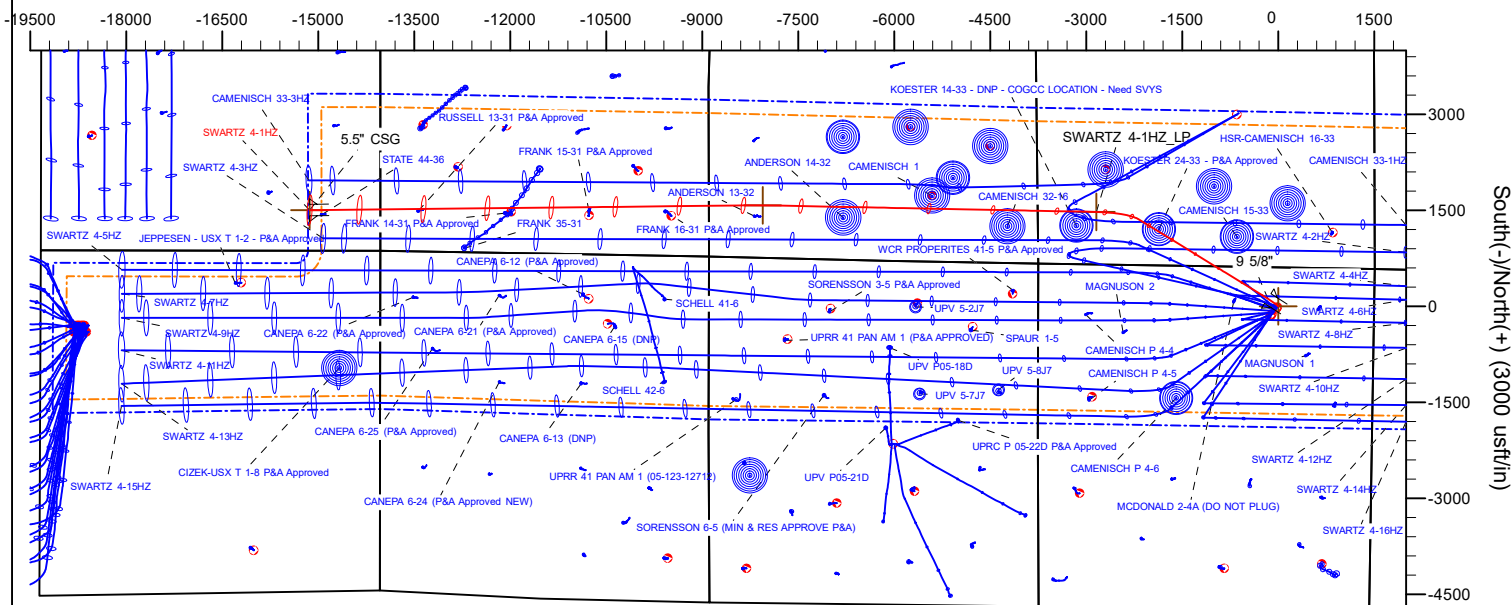
US ROCKIES WATTENBERG PLANNING

CASING DETAILS			
TVD	MD	Name	Size
1500.00	1521.85	9 5/8"	9-5/8
7004.00	20277.19	5.5" CSG	5-1/2

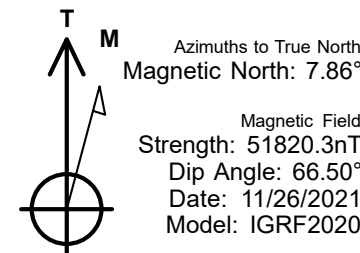


WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-1HZ_SHL	0.00	14621599.90	1670705.29	40.260465	-104.891432
SWARTZ 4-1HZ_LP	7021.00	14623073.15	1667865.09	40.264520	-104.901607
SWARTZ 4-1HZ_BHL	7004.00	14623085.00	1655571.00	40.264581	-104.945677

WELL DETAILS: SWARTZ 4-1HZ
GL = 4825'
RKB = 17' @ 4842.00usft (RIG)
Plan: Permit Rev-1 (SWARTZ 4-1HZ/Plan A)
Date: 12/16/2021



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
707.00	708.00	Fox Hills
3598.00	3829.41	Parkman
4080.00	4362.07	Sussex
6841.00	7454.03	Sharon Springs
6871.00	7501.80	Niobrara



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-1HZ
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 4-1HZ	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 4-1HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,599.90 usft	Latitude:	40.260465
	+E/-W	0.00 usft	Easting:	1,670,705.29 usft	Longitude:	-104.891433
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	51,820.28291812

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	270.13	

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	20,277.19	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I	Fixed:v2:Rockies, crustal dec +

Planning Report

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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 4-1HZ	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	
201.75	0.00	0.00	201.75	0.00	0.00	0.00	0.00	0.00	0.00	
335.08	2.00	340.00	335.06	2.19	-0.80	1.50	1.50	0.00	340.00	
385.08	2.00	340.00	385.03	3.83	-1.39	0.00	0.00	0.00	0.00	
1,962.02	25.19	301.56	1,908.20	208.24	-301.02	1.50	1.47	-2.44	-41.26	
7,124.83	25.19	301.56	6,580.03	1,358.34	-2,173.41	0.00	0.00	0.00	0.00	
7,981.66	90.08	271.13	7,021.00	1,476.73	-2,838.39	8.00	7.57	-3.55	-32.96	
13,199.07	90.08	271.13	7,013.78	1,580.00	-8,054.77	0.00	0.00	0.00	0.00	SWARTZ 4-1HZ_Lat
13,316.87	90.08	269.37	7,013.62	1,580.52	-8,172.57	1.50	0.00	-1.50	-90.00	
20,277.19	90.08	269.37	7,004.00	1,503.63	-15,132.46	0.00	0.00	0.00	0.00	SWARTZ 4-1HZ_BHL

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-1HZ
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 4-1HZ	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
201.75	0.00	0.00	201.75	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 201.75ft									
300.00	1.47	340.00	299.99	1.19	-0.43	0.43	1.50	1.50	0.00
335.08	2.00	340.00	335.06	2.19	-0.80	0.80	1.50	1.50	0.00
Hold Tangent @ 335.08ft									
385.08	2.00	340.00	385.03	3.83	-1.39	1.40	0.00	0.00	0.00
Change Tangent Direction @ 385.08ft									
400.00	2.17	336.11	399.93	4.33	-1.60	1.61	1.50	1.16	-26.11
500.00	3.49	320.96	499.81	8.42	-4.28	4.30	1.50	1.31	-15.15
600.00	4.91	314.31	599.54	13.77	-9.26	9.29	1.50	1.42	-6.65
700.00	6.36	310.67	699.05	20.37	-16.52	16.57	1.50	1.46	-3.64
708.00	6.48	310.44	707.00	20.96	-17.20	17.25	1.50	1.47	-2.76
Fox Hills									
800.00	7.84	308.38	798.28	28.22	-26.07	26.14	1.50	1.47	-2.24
900.00	9.32	306.82	897.16	37.31	-37.90	37.99	1.50	1.48	-1.56
1,000.00	10.81	305.68	995.62	47.63	-52.00	52.11	1.50	1.49	-1.14
1,100.00	12.30	304.82	1,093.59	59.18	-68.36	68.49	1.50	1.49	-0.86
1,200.00	13.79	304.14	1,191.01	71.95	-86.97	87.13	1.50	1.49	-0.68
1,300.00	15.28	303.59	1,287.81	85.93	-107.81	108.01	1.50	1.49	-0.55
1,400.00	16.78	303.13	1,383.92	101.11	-130.88	131.11	1.50	1.49	-0.45
1,500.00	18.27	302.75	1,479.27	117.48	-156.15	156.42	1.50	1.50	-0.38
1,521.85	18.60	302.68	1,500.00	121.22	-161.96	162.24	1.50	1.50	-0.35
9 5/8"									
1,600.00	19.77	302.43	1,573.81	135.03	-183.61	183.92	1.50	1.50	-0.32
1,700.00	21.27	302.15	1,667.46	153.75	-213.24	213.59	1.50	1.50	-0.28
1,800.00	22.76	301.90	1,760.17	173.62	-245.03	245.42	1.50	1.50	-0.25
1,900.00	24.26	301.68	1,851.86	194.64	-278.93	279.38	1.50	1.50	-0.22
1,962.02	25.19	301.56	1,908.20	208.24	-301.02	301.50	1.50	1.50	-0.20
Hold Tangent @ 1962.02ft									
2,000.00	25.19	301.56	1,942.56	216.70	-314.80	315.29	0.00	0.00	0.00
2,100.00	25.19	301.56	2,033.05	238.98	-351.07	351.61	0.00	0.00	0.00
2,200.00	25.19	301.56	2,123.54	261.25	-387.33	387.92	0.00	0.00	0.00
2,300.00	25.19	301.56	2,214.03	283.53	-423.60	424.24	0.00	0.00	0.00
2,400.00	25.19	301.56	2,304.52	305.81	-459.87	460.56	0.00	0.00	0.00
2,500.00	25.19	301.56	2,395.01	328.08	-496.13	496.88	0.00	0.00	0.00
2,600.00	25.19	301.56	2,485.50	350.36	-532.40	533.19	0.00	0.00	0.00
2,700.00	25.19	301.56	2,575.99	372.64	-568.67	569.51	0.00	0.00	0.00
2,800.00	25.19	301.56	2,666.48	394.91	-604.93	605.83	0.00	0.00	0.00
2,900.00	25.19	301.56	2,756.97	417.19	-641.20	642.15	0.00	0.00	0.00
3,000.00	25.19	301.56	2,847.46	439.47	-677.47	678.46	0.00	0.00	0.00
3,100.00	25.19	301.56	2,937.96	461.74	-713.73	714.78	0.00	0.00	0.00
3,200.00	25.19	301.56	3,028.45	484.02	-750.00	751.10	0.00	0.00	0.00
3,300.00	25.19	301.56	3,118.94	506.30	-786.27	787.42	0.00	0.00	0.00
3,400.00	25.19	301.56	3,209.43	528.57	-822.54	823.73	0.00	0.00	0.00
3,500.00	25.19	301.56	3,299.92	550.85	-858.80	860.05	0.00	0.00	0.00
3,600.00	25.19	301.56	3,390.41	573.13	-895.07	896.37	0.00	0.00	0.00
3,700.00	25.19	301.56	3,480.90	595.40	-931.34	932.68	0.00	0.00	0.00
3,800.00	25.19	301.56	3,571.39	617.68	-967.60	969.00	0.00	0.00	0.00
3,829.41	25.19	301.56	3,598.00	624.23	-978.27	979.68	0.00	0.00	0.00
Parkman									
3,900.00	25.19	301.56	3,661.88	639.96	-1,003.87	1,005.32	0.00	0.00	0.00

Planning Report

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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 4-1HZ	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)	
4,000.00	25.19	301.56	3,752.37	662.23	-1,040.14	1,041.64	0.00	0.00	0.00	
4,100.00	25.19	301.56	3,842.86	684.51	-1,076.40	1,077.95	0.00	0.00	0.00	
4,200.00	25.19	301.56	3,933.35	706.79	-1,112.67	1,114.27	0.00	0.00	0.00	
4,300.00	25.19	301.56	4,023.84	729.06	-1,148.94	1,150.59	0.00	0.00	0.00	
4,362.07	25.19	301.56	4,080.00	742.89	-1,171.45	1,173.13	0.00	0.00	0.00	
Sussex										
4,400.00	25.19	301.56	4,114.33	751.34	-1,185.20	1,186.91	0.00	0.00	0.00	
4,500.00	25.19	301.56	4,204.82	773.62	-1,221.47	1,223.22	0.00	0.00	0.00	
4,600.00	25.19	301.56	4,295.31	795.89	-1,257.74	1,259.54	0.00	0.00	0.00	
4,700.00	25.19	301.56	4,385.80	818.17	-1,294.00	1,295.86	0.00	0.00	0.00	
4,800.00	25.19	301.56	4,476.29	840.45	-1,330.27	1,332.18	0.00	0.00	0.00	
4,900.00	25.19	301.56	4,566.78	862.72	-1,366.54	1,368.49	0.00	0.00	0.00	
5,000.00	25.19	301.56	4,657.27	885.00	-1,402.81	1,404.81	0.00	0.00	0.00	
5,100.00	25.19	301.56	4,747.76	907.28	-1,439.07	1,441.13	0.00	0.00	0.00	
5,200.00	25.19	301.56	4,838.25	929.55	-1,475.34	1,477.44	0.00	0.00	0.00	
5,300.00	25.19	301.56	4,928.74	951.83	-1,511.61	1,513.76	0.00	0.00	0.00	
5,400.00	25.19	301.56	5,019.23	974.11	-1,547.87	1,550.08	0.00	0.00	0.00	
5,500.00	25.19	301.56	5,109.72	996.38	-1,584.14	1,586.40	0.00	0.00	0.00	
5,600.00	25.19	301.56	5,200.21	1,018.66	-1,620.41	1,622.71	0.00	0.00	0.00	
5,700.00	25.19	301.56	5,290.70	1,040.94	-1,656.67	1,659.03	0.00	0.00	0.00	
5,800.00	25.19	301.56	5,381.19	1,063.21	-1,692.94	1,695.35	0.00	0.00	0.00	
5,900.00	25.19	301.56	5,471.68	1,085.49	-1,729.21	1,731.67	0.00	0.00	0.00	
6,000.00	25.19	301.56	5,562.17	1,107.77	-1,765.47	1,767.98	0.00	0.00	0.00	
6,100.00	25.19	301.56	5,652.66	1,130.04	-1,801.74	1,804.30	0.00	0.00	0.00	
6,200.00	25.19	301.56	5,743.15	1,152.32	-1,838.01	1,840.62	0.00	0.00	0.00	
6,300.00	25.19	301.56	5,833.64	1,174.60	-1,874.27	1,876.93	0.00	0.00	0.00	
6,400.00	25.19	301.56	5,924.13	1,196.87	-1,910.54	1,913.25	0.00	0.00	0.00	
6,500.00	25.19	301.56	6,014.62	1,219.15	-1,946.81	1,949.57	0.00	0.00	0.00	
6,600.00	25.19	301.56	6,105.11	1,241.43	-1,983.08	1,985.89	0.00	0.00	0.00	
6,700.00	25.19	301.56	6,195.60	1,263.70	-2,019.34	2,022.20	0.00	0.00	0.00	
6,800.00	25.19	301.56	6,286.09	1,285.98	-2,055.61	2,058.52	0.00	0.00	0.00	
6,900.00	25.19	301.56	6,376.58	1,308.26	-2,091.88	2,094.84	0.00	0.00	0.00	
7,000.00	25.19	301.56	6,467.07	1,330.53	-2,128.14	2,131.16	0.00	0.00	0.00	
7,100.00	25.19	301.56	6,557.56	1,352.81	-2,164.41	2,167.47	0.00	0.00	0.00	
7,124.83	25.19	301.56	6,580.03	1,358.34	-2,173.41	2,176.49	0.00	0.00	0.00	
KOP @ 7124.83ft :: DLS = 8°/100'										
7,150.00	26.90	299.14	6,602.64	1,363.92	-2,182.95	2,186.04	8.00	6.79	-9.62	
7,200.00	30.40	295.09	6,646.52	1,374.79	-2,204.30	2,207.41	8.00	7.00	-8.09	
7,250.00	34.00	291.82	6,688.82	1,385.36	-2,228.74	2,231.88	8.00	7.20	-6.55	
7,300.00	37.67	289.11	6,729.35	1,395.56	-2,256.17	2,259.33	8.00	7.35	-5.42	
7,350.00	41.40	286.82	6,767.91	1,405.35	-2,286.45	2,289.63	8.00	7.45	-4.58	
7,400.00	45.16	284.85	6,804.30	1,414.68	-2,319.42	2,322.63	8.00	7.53	-3.95	
7,450.00	48.96	283.11	6,838.36	1,423.51	-2,354.94	2,358.16	8.00	7.59	-3.46	
7,454.03	49.27	282.98	6,841.00	1,424.19	-2,357.91	2,361.13	8.00	7.62	-3.24	
Sharon Springs										
7,500.00	52.78	281.57	6,869.91	1,431.78	-2,392.82	2,396.06	8.00	7.64	-3.07	
7,501.80	52.91	281.52	6,871.00	1,432.07	-2,394.23	2,397.47	8.00	7.65	-2.92	
Niobrara										
7,550.00	56.61	280.18	6,898.80	1,439.47	-2,432.88	2,436.14	8.00	7.67	-2.78	
7,600.00	60.46	278.91	6,924.90	1,446.53	-2,474.93	2,478.21	8.00	7.70	-2.55	
7,650.00	64.32	277.73	6,948.07	1,452.93	-2,518.77	2,522.06	8.00	7.72	-2.36	
7,700.00	68.19	276.62	6,968.20	1,458.63	-2,564.17	2,567.47	8.00	7.74	-2.21	
7,750.00	72.07	275.57	6,985.19	1,463.62	-2,610.91	2,614.23	8.00	7.75	-2.10	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-1HZ
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 4-1HZ	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)
7,800.00	75.95	274.57	6,998.96	1,467.86	-2,658.78	2,662.11	8.00	7.76	-2.01
7,850.00	79.84	273.60	7,009.44	1,471.34	-2,707.54	2,710.87	8.00	7.77	-1.94
7,900.00	83.73	272.65	7,016.59	1,474.04	-2,756.94	2,760.28	8.00	7.78	-1.89
7,950.00	87.62	271.72	7,020.37	1,475.94	-2,806.75	2,810.09	8.00	7.78	-1.86
7,981.66	90.08	271.13	7,021.00	1,476.73	-2,838.39	2,841.73	8.00	7.78	-1.85
End Build @ 7981.65ft									
8,000.00	90.08	271.13	7,020.98	1,477.09	-2,856.73	2,860.07	0.00	0.00	0.00
8,100.00	90.08	271.13	7,020.84	1,479.07	-2,956.71	2,960.06	0.00	0.00	0.00
8,200.00	90.08	271.13	7,020.70	1,481.05	-3,056.69	3,060.04	0.00	0.00	0.00
8,300.00	90.08	271.13	7,020.56	1,483.03	-3,156.67	3,160.03	0.00	0.00	0.00
8,400.00	90.08	271.13	7,020.42	1,485.01	-3,256.65	3,260.01	0.00	0.00	0.00
8,500.00	90.08	271.13	7,020.28	1,486.99	-3,356.63	3,359.99	0.00	0.00	0.00
8,600.00	90.08	271.13	7,020.15	1,488.97	-3,456.61	3,459.98	0.00	0.00	0.00
8,700.00	90.08	271.13	7,020.01	1,490.94	-3,556.59	3,559.96	0.00	0.00	0.00
8,800.00	90.08	271.13	7,019.87	1,492.92	-3,656.57	3,659.95	0.00	0.00	0.00
8,900.00	90.08	271.13	7,019.73	1,494.90	-3,756.55	3,759.93	0.00	0.00	0.00
9,000.00	90.08	271.13	7,019.59	1,496.88	-3,856.53	3,859.92	0.00	0.00	0.00
9,100.00	90.08	271.13	7,019.45	1,498.86	-3,956.51	3,959.90	0.00	0.00	0.00
9,200.00	90.08	271.13	7,019.32	1,500.84	-4,056.49	4,059.89	0.00	0.00	0.00
9,300.00	90.08	271.13	7,019.18	1,502.82	-4,156.47	4,159.87	0.00	0.00	0.00
9,400.00	90.08	271.13	7,019.04	1,504.80	-4,256.45	4,259.86	0.00	0.00	0.00
9,500.00	90.08	271.13	7,018.90	1,506.78	-4,356.43	4,359.84	0.00	0.00	0.00
9,600.00	90.08	271.13	7,018.76	1,508.76	-4,456.41	4,459.82	0.00	0.00	0.00
9,700.00	90.08	271.13	7,018.62	1,510.74	-4,556.39	4,559.81	0.00	0.00	0.00
9,800.00	90.08	271.13	7,018.48	1,512.72	-4,656.37	4,659.79	0.00	0.00	0.00
9,900.00	90.08	271.13	7,018.35	1,514.70	-4,756.35	4,759.78	0.00	0.00	0.00
10,000.00	90.08	271.13	7,018.21	1,516.68	-4,856.33	4,859.76	0.00	0.00	0.00
10,100.00	90.08	271.13	7,018.07	1,518.66	-4,956.31	4,959.75	0.00	0.00	0.00
10,200.00	90.08	271.13	7,017.93	1,520.64	-5,056.29	5,059.73	0.00	0.00	0.00
10,300.00	90.08	271.13	7,017.79	1,522.62	-5,156.27	5,159.72	0.00	0.00	0.00
10,400.00	90.08	271.13	7,017.65	1,524.59	-5,256.25	5,259.70	0.00	0.00	0.00
10,500.00	90.08	271.13	7,017.52	1,526.57	-5,356.24	5,359.69	0.00	0.00	0.00
10,600.00	90.08	271.13	7,017.38	1,528.55	-5,456.22	5,459.67	0.00	0.00	0.00
10,700.00	90.08	271.13	7,017.24	1,530.53	-5,556.20	5,559.65	0.00	0.00	0.00
10,800.00	90.08	271.13	7,017.10	1,532.51	-5,656.18	5,659.64	0.00	0.00	0.00
10,900.00	90.08	271.13	7,016.96	1,534.49	-5,756.16	5,759.62	0.00	0.00	0.00
11,000.00	90.08	271.13	7,016.82	1,536.47	-5,856.14	5,859.61	0.00	0.00	0.00
11,100.00	90.08	271.13	7,016.69	1,538.45	-5,956.12	5,959.59	0.00	0.00	0.00
11,200.00	90.08	271.13	7,016.55	1,540.43	-6,056.10	6,059.58	0.00	0.00	0.00
11,300.00	90.08	271.13	7,016.41	1,542.41	-6,156.08	6,159.56	0.00	0.00	0.00
11,400.00	90.08	271.13	7,016.27	1,544.39	-6,256.06	6,259.55	0.00	0.00	0.00
11,500.00	90.08	271.13	7,016.13	1,546.37	-6,356.04	6,359.53	0.00	0.00	0.00
11,600.00	90.08	271.13	7,015.99	1,548.35	-6,456.02	6,459.52	0.00	0.00	0.00
11,700.00	90.08	271.13	7,015.86	1,550.33	-6,556.00	6,559.50	0.00	0.00	0.00
11,800.00	90.08	271.13	7,015.72	1,552.31	-6,655.98	6,659.48	0.00	0.00	0.00
11,900.00	90.08	271.13	7,015.58	1,554.29	-6,755.96	6,759.47	0.00	0.00	0.00
12,000.00	90.08	271.13	7,015.44	1,556.27	-6,855.94	6,859.45	0.00	0.00	0.00
12,100.00	90.08	271.13	7,015.30	1,558.24	-6,955.92	6,959.44	0.00	0.00	0.00
12,200.00	90.08	271.13	7,015.16	1,560.22	-7,055.90	7,059.42	0.00	0.00	0.00
12,300.00	90.08	271.13	7,015.02	1,562.20	-7,155.88	7,159.41	0.00	0.00	0.00
12,400.00	90.08	271.13	7,014.89	1,564.18	-7,255.86	7,259.39	0.00	0.00	0.00
12,500.00	90.08	271.13	7,014.75	1,566.16	-7,355.84	7,359.38	0.00	0.00	0.00
12,600.00	90.08	271.13	7,014.61	1,568.14	-7,455.82	7,459.36	0.00	0.00	0.00
12,700.00	90.08	271.13	7,014.47	1,570.12	-7,555.80	7,559.35	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-1HZ
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 4-1HZ	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)
12,800.00	90.08	271.13	7,014.33	1,572.10	-7,655.78	7,659.33	0.00	0.00	0.00
12,900.00	90.08	271.13	7,014.19	1,574.08	-7,755.76	7,759.31	0.00	0.00	0.00
13,000.00	90.08	271.13	7,014.06	1,576.06	-7,855.74	7,859.30	0.00	0.00	0.00
13,100.00	90.08	271.13	7,013.92	1,578.04	-7,955.72	7,959.28	0.00	0.00	0.00
13,199.07	90.08	271.13	7,013.78	1,580.00	-8,054.77	8,058.33	0.00	0.00	0.00
Begin Turn to BHL @ 13199.07ft									
13,300.00	90.08	269.62	7,013.64	1,580.66	-8,155.70	8,159.26	1.50	0.00	-1.50
13,316.87	90.08	269.37	7,013.62	1,580.52	-8,172.57	8,176.14	1.50	0.00	-1.50
End Turn @ 13316.87ft									
13,400.00	90.08	269.37	7,013.50	1,579.60	-8,255.69	8,259.26	0.00	0.00	0.00
13,500.00	90.08	269.37	7,013.36	1,578.49	-8,355.69	8,359.25	0.00	0.00	0.00
13,600.00	90.08	269.37	7,013.23	1,577.39	-8,455.68	8,459.24	0.00	0.00	0.00
13,700.00	90.08	269.37	7,013.09	1,576.28	-8,555.67	8,559.23	0.00	0.00	0.00
13,800.00	90.08	269.37	7,012.95	1,575.18	-8,655.67	8,659.22	0.00	0.00	0.00
13,900.00	90.08	269.37	7,012.81	1,574.07	-8,755.66	8,759.21	0.00	0.00	0.00
14,000.00	90.08	269.37	7,012.67	1,572.97	-8,855.66	8,859.20	0.00	0.00	0.00
14,100.00	90.08	269.37	7,012.54	1,571.86	-8,955.65	8,959.19	0.00	0.00	0.00
14,200.00	90.08	269.37	7,012.40	1,570.76	-9,055.64	9,059.18	0.00	0.00	0.00
14,300.00	90.08	269.37	7,012.26	1,569.66	-9,155.64	9,159.17	0.00	0.00	0.00
14,400.00	90.08	269.37	7,012.12	1,568.55	-9,255.63	9,259.17	0.00	0.00	0.00
14,500.00	90.08	269.37	7,011.98	1,567.45	-9,355.62	9,359.16	0.00	0.00	0.00
14,600.00	90.08	269.37	7,011.84	1,566.34	-9,455.62	9,459.15	0.00	0.00	0.00
14,700.00	90.08	269.37	7,011.71	1,565.24	-9,555.61	9,559.14	0.00	0.00	0.00
14,800.00	90.08	269.37	7,011.57	1,564.13	-9,655.61	9,659.13	0.00	0.00	0.00
14,900.00	90.08	269.37	7,011.43	1,563.03	-9,755.60	9,759.12	0.00	0.00	0.00
15,000.00	90.08	269.37	7,011.29	1,561.92	-9,855.59	9,859.11	0.00	0.00	0.00
15,100.00	90.08	269.37	7,011.15	1,560.82	-9,955.59	9,959.10	0.00	0.00	0.00
15,200.00	90.08	269.37	7,011.02	1,559.71	-10,055.58	10,059.09	0.00	0.00	0.00
15,300.00	90.08	269.37	7,010.88	1,558.61	-10,155.58	10,159.09	0.00	0.00	0.00
15,400.00	90.08	269.37	7,010.74	1,557.50	-10,255.57	10,259.08	0.00	0.00	0.00
15,500.00	90.08	269.37	7,010.60	1,556.40	-10,355.56	10,359.07	0.00	0.00	0.00
15,600.00	90.08	269.37	7,010.46	1,555.30	-10,455.56	10,459.06	0.00	0.00	0.00
15,700.00	90.08	269.37	7,010.32	1,554.19	-10,555.55	10,559.05	0.00	0.00	0.00
15,800.00	90.08	269.37	7,010.19	1,553.09	-10,655.54	10,659.04	0.00	0.00	0.00
15,900.00	90.08	269.37	7,010.05	1,551.98	-10,755.54	10,759.03	0.00	0.00	0.00
16,000.00	90.08	269.37	7,009.91	1,550.88	-10,855.53	10,859.02	0.00	0.00	0.00
16,100.00	90.08	269.37	7,009.77	1,549.77	-10,955.53	10,959.01	0.00	0.00	0.00
16,200.00	90.08	269.37	7,009.63	1,548.67	-11,055.52	11,059.00	0.00	0.00	0.00
16,300.00	90.08	269.37	7,009.50	1,547.56	-11,155.51	11,159.00	0.00	0.00	0.00
16,400.00	90.08	269.37	7,009.36	1,546.46	-11,255.51	11,258.99	0.00	0.00	0.00
16,500.00	90.08	269.37	7,009.22	1,545.35	-11,355.50	11,358.98	0.00	0.00	0.00
16,600.00	90.08	269.37	7,009.08	1,544.25	-11,455.49	11,458.97	0.00	0.00	0.00
16,700.00	90.08	269.37	7,008.94	1,543.14	-11,555.49	11,558.96	0.00	0.00	0.00
16,800.00	90.08	269.37	7,008.80	1,542.04	-11,655.48	11,658.95	0.00	0.00	0.00
16,900.00	90.08	269.37	7,008.67	1,540.94	-11,755.48	11,758.94	0.00	0.00	0.00
17,000.00	90.08	269.37	7,008.53	1,539.83	-11,855.47	11,858.93	0.00	0.00	0.00
17,100.00	90.08	269.37	7,008.39	1,538.73	-11,955.46	11,958.92	0.00	0.00	0.00
17,200.00	90.08	269.37	7,008.25	1,537.62	-12,055.46	12,058.92	0.00	0.00	0.00
17,300.00	90.08	269.37	7,008.11	1,536.52	-12,155.45	12,158.91	0.00	0.00	0.00
17,400.00	90.08	269.37	7,007.98	1,535.41	-12,255.45	12,258.90	0.00	0.00	0.00
17,500.00	90.08	269.37	7,007.84	1,534.31	-12,355.44	12,358.89	0.00	0.00	0.00
17,600.00	90.08	269.37	7,007.70	1,533.20	-12,455.43	12,458.88	0.00	0.00	0.00
17,700.00	90.08	269.37	7,007.56	1,532.10	-12,555.43	12,558.87	0.00	0.00	0.00
17,800.00	90.08	269.37	7,007.42	1,530.99	-12,655.42	12,658.86	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-1HZ
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 4-1HZ	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)
17,900.00	90.08	269.37	7,007.28	1,529.89	-12,755.41	12,758.85	0.00	0.00	0.00
18,000.00	90.08	269.37	7,007.15	1,528.78	-12,855.41	12,858.84	0.00	0.00	0.00
18,100.00	90.08	269.37	7,007.01	1,527.68	-12,955.40	12,958.83	0.00	0.00	0.00
18,200.00	90.08	269.37	7,006.87	1,526.58	-13,055.40	13,058.83	0.00	0.00	0.00
18,300.00	90.08	269.37	7,006.73	1,525.47	-13,155.39	13,158.82	0.00	0.00	0.00
18,400.00	90.08	269.37	7,006.59	1,524.37	-13,255.38	13,258.81	0.00	0.00	0.00
18,500.00	90.08	269.37	7,006.46	1,523.26	-13,355.38	13,358.80	0.00	0.00	0.00
18,600.00	90.08	269.37	7,006.32	1,522.16	-13,455.37	13,458.79	0.00	0.00	0.00
18,700.00	90.08	269.37	7,006.18	1,521.05	-13,555.36	13,558.78	0.00	0.00	0.00
18,800.00	90.08	269.37	7,006.04	1,519.95	-13,655.36	13,658.77	0.00	0.00	0.00
18,900.00	90.08	269.37	7,005.90	1,518.84	-13,755.35	13,758.76	0.00	0.00	0.00
19,000.00	90.08	269.37	7,005.76	1,517.74	-13,855.35	13,858.75	0.00	0.00	0.00
19,100.00	90.08	269.37	7,005.63	1,516.63	-13,955.34	13,958.74	0.00	0.00	0.00
19,200.00	90.08	269.37	7,005.49	1,515.53	-14,055.33	14,058.74	0.00	0.00	0.00
19,300.00	90.08	269.37	7,005.35	1,514.42	-14,155.33	14,158.73	0.00	0.00	0.00
19,400.00	90.08	269.37	7,005.21	1,513.32	-14,255.32	14,258.72	0.00	0.00	0.00
19,500.00	90.08	269.37	7,005.07	1,512.22	-14,355.31	14,358.71	0.00	0.00	0.00
19,600.00	90.08	269.37	7,004.94	1,511.11	-14,455.31	14,458.70	0.00	0.00	0.00
19,700.00	90.08	269.37	7,004.80	1,510.01	-14,555.30	14,558.69	0.00	0.00	0.00
19,800.00	90.08	269.37	7,004.66	1,508.90	-14,655.30	14,658.68	0.00	0.00	0.00
19,900.00	90.08	269.37	7,004.52	1,507.80	-14,755.29	14,758.67	0.00	0.00	0.00
20,000.00	90.08	269.37	7,004.38	1,506.69	-14,855.28	14,858.66	0.00	0.00	0.00
20,100.00	90.08	269.37	7,004.24	1,505.59	-14,955.28	14,958.66	0.00	0.00	0.00
20,200.00	90.08	269.37	7,004.11	1,504.48	-15,055.27	15,058.65	0.00	0.00	0.00
20,277.19	90.08	269.37	7,004.00	1,503.63	-15,132.46	15,135.83	0.00	0.00	0.00
TD Well @ 20277.19ft - 5.5" CSG									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,521.85	1,500.00	9 5/8"	9-5/8	13-1/2	
20,277.19	7,004.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.00	707.00	Fox Hills				
3,829.41	3,598.00	Parkman				
4,362.07	4,080.00	Sussex				
7,454.03	6,841.00	Sharon Springs				
7,501.80	6,871.00	Niobrara				

Planning Report

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

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
201.75	201.75	0.00	0.00	Begin Nudge @ 201.75ft
335.08	335.06	2.19	-0.80	Hold Tangent @ 335.08ft
385.08	385.03	3.83	-1.39	Change Tangent Direction @ 385.08ft
1,962.02	1,908.20	208.24	-301.02	Hold Tangent @ 1962.02ft
7,124.83	6,580.03	1,358.34	-2,173.41	KOP @ 7124.83ft :: DLS = 8°/100'
7,981.66	7,021.00	1,476.73	-2,838.39	End Build @ 7981.65ft
13,199.07	7,013.78	1,580.00	-8,054.77	Begin Turn to BHL @ 13199.07ft
13,316.87	7,013.62	1,580.52	-8,172.57	End Turn @ 13316.87ft
20,277.19	7,004.00	1,503.63	-15,132.46	TD Well @ 20277.19ft