

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-7HZ**

Plan B

Plan: Permit Rev-1

Standard Planning Report

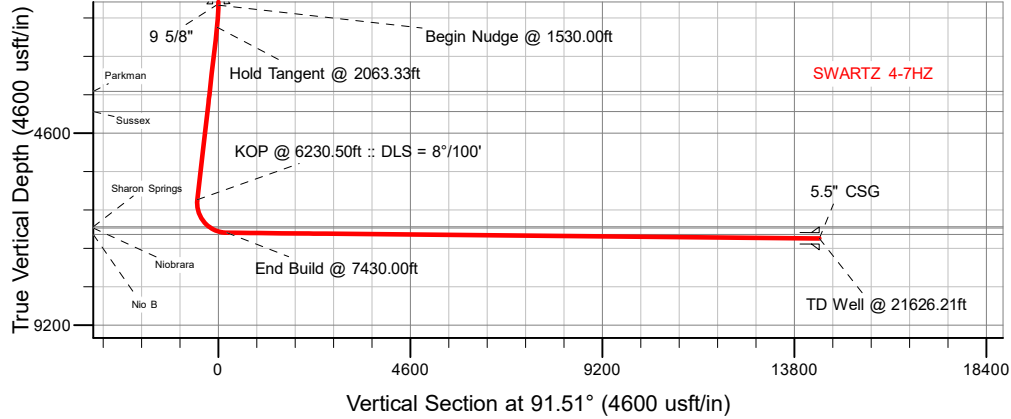
26 June, 2023

Project: WELD-NAD83-UTMFT13N
 Site: 3N-67W-04 SWARTZ 2-4HZ PAD
 Well: SWARTZ 4-7HZ
 Wellbore: Plan B
 Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Name	Size
1500.00	1500.00	9 5/8"	9-5/8
7120.00	21626.21	5.5" CSG	5-1/2



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1530.00	0.00	0.00	1530.00	0.00	0.00	0.00	0.00	0.00	
2063.33	8.00	306.95	2061.60	22.35	-29.71	1.50	306.95	-30.29	
6230.50	8.00	306.95	6188.21	370.97	-493.19	0.00	0.00	-502.79	
7430.00	89.45	91.51	6983.00	416.50	212.95	8.00	144.34	201.90	
21626.21	89.45	91.51	7120.00	42.07	14403.56	0.00	0.00	14397.45	SWARTZ 4-7HZ BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-7HZ SHL	0.00	14621529.32	1670649.50	40.260271	-104.891633
SWARTZ 4-7HZ LP	6983.00	14621946.08	1670861.94	40.261415	-104.890869
SWARTZ 4-7HZ BHL	7120.00	14621589.00	1685053.00	40.260375	-104.840004

SHL
681' FNL
1556' FEL

LP
261' FNL
1349' FEL

BHL
270' FNL
2435' FWL

WELL DETAILS: SWARTZ 4-7HZ

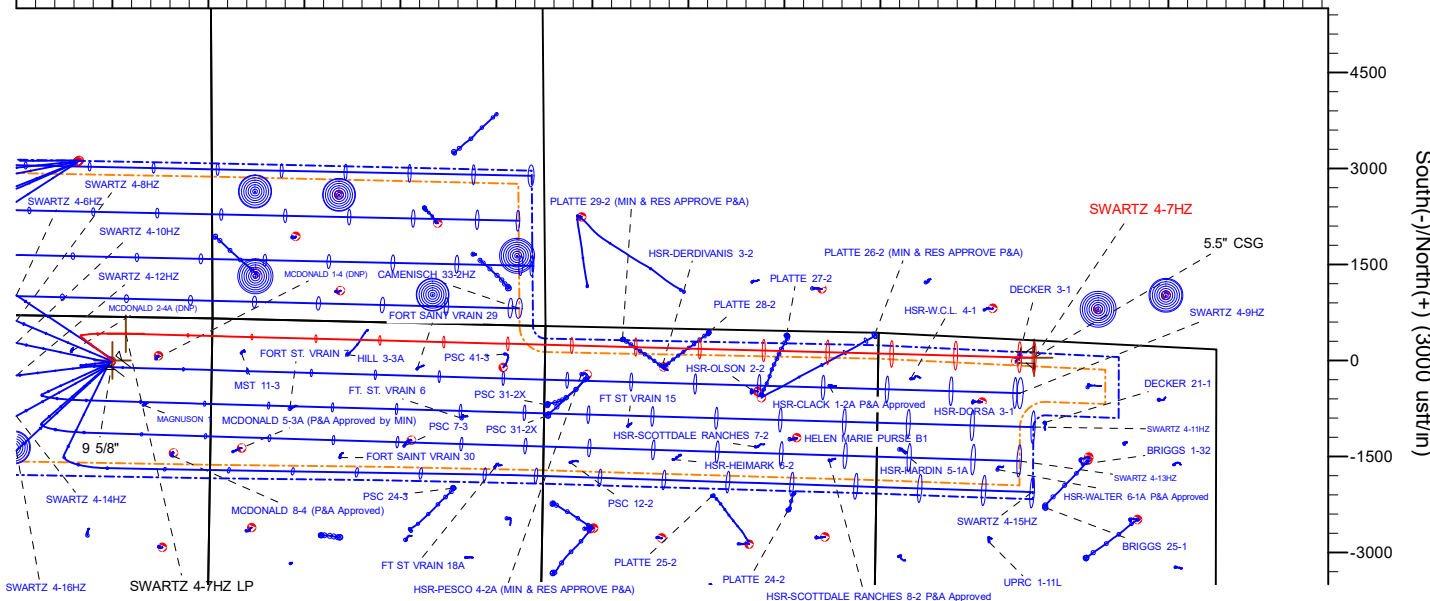
GL = 4825'

RKB = 17' @ 4842.00usft (RIG)

Plan: Permit Rev-1 (SWARTZ 4-7HZ/Plan B)

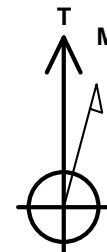
Date: 6/27/2023

West(-)/East(+) (3000 usft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
707.00	707.00	Fox Hills
3598.00	3614.83	Parkman
4080.00	4101.57	Sussex
6841.00	6977.28	Sharon Springs
6871.00	7030.22	Niobrara
7023.00	11574.60	Nio B



↑ T
M
Azimuths to True North
Magnetic North: 7.71°

Magnetic Field
Strength: 51668.5nT
Dip Angle: 66.45°
Date: 5/5/2023
Model: IGRF2020

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	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
From:	Map	Easting:	1,670,705.29 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.260465
		Longitude:	-104.891433

Well SWARTZ 4-7HZ			
Well Position	+N/-S	0.00 usft	Northing: 14,621,529.32 usft
	+E/-W	0.00 usft	Easting: 1,670,649.50 usft
Position Uncertainty		3.28 usft	Wellhead Elevation: usft
Grid Convergence:		0.07 °	Ground Level: 4,825.00 usft

Wellbore Plan B					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	5/5/2023	7.71	66.45	51,668.53048203

Design Permit Rev-1				
Audit Notes:				
Version:		Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	91.51

Plan Survey Tool Program		Date 5/8/2023		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,000.00 Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I	Fixed:v2:crustal field declinatio
2	2,000.00	21,626.21 Permit Rev-1 (Plan B)	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 4-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,530.00	0.00	0.00	1,530.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,063.33	8.00	306.95	2,061.60	22.35	-29.71	1.50	1.50	0.00	306.95	
6,230.50	8.00	306.95	6,188.21	370.97	-493.19	0.00	0.00	0.00	0.00	
7,430.00	89.45	91.51	6,983.00	416.50	212.95	8.00	6.79	12.05	144.34	
21,626.21	89.45	91.51	7,120.00	42.07	14,403.56	0.00	0.00	0.00	0.00	SWARTZ 4-7HZ BHL

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	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	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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
707.00	0.00	0.00	707.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,530.00	0.00	0.00	1,530.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1530.00ft										
1,600.00	1.05	306.95	1,600.00	0.39	-0.51	-0.52	1.50	1.50	0.00	0.00
1,700.00	2.55	306.95	1,699.94	2.27	-3.02	-3.08	1.50	1.50	0.00	0.00
1,800.00	4.05	306.95	1,799.78	5.73	-7.62	-7.77	1.50	1.50	0.00	0.00
1,900.00	5.55	306.95	1,899.42	10.76	-14.31	-14.59	1.50	1.50	0.00	0.00
2,000.00	7.05	306.95	1,998.81	17.36	-23.08	-23.53	1.50	1.50	0.00	0.00
2,063.33	8.00	306.95	2,061.60	22.35	-29.71	-30.29	1.50	1.50	0.00	0.00
Hold Tangent @ 2063.33ft										
2,100.00	8.00	306.95	2,097.91	25.41	-33.79	-34.44	0.00	0.00	0.00	0.00
2,200.00	8.00	306.95	2,196.94	33.78	-44.91	-45.78	0.00	0.00	0.00	0.00
2,300.00	8.00	306.95	2,295.97	42.14	-56.03	-57.12	0.00	0.00	0.00	0.00
2,400.00	8.00	306.95	2,394.99	50.51	-67.15	-68.46	0.00	0.00	0.00	0.00
2,500.00	8.00	306.95	2,494.02	58.88	-78.27	-79.80	0.00	0.00	0.00	0.00
2,600.00	8.00	306.95	2,593.05	67.24	-89.40	-91.14	0.00	0.00	0.00	0.00
2,700.00	8.00	306.95	2,692.07	75.61	-100.52	-102.48	0.00	0.00	0.00	0.00
2,800.00	8.00	306.95	2,791.10	83.97	-111.64	-113.81	0.00	0.00	0.00	0.00
2,900.00	8.00	306.95	2,890.13	92.34	-122.76	-125.15	0.00	0.00	0.00	0.00
3,000.00	8.00	306.95	2,989.15	100.71	-133.88	-136.49	0.00	0.00	0.00	0.00
3,100.00	8.00	306.95	3,088.18	109.07	-145.01	-147.83	0.00	0.00	0.00	0.00
3,200.00	8.00	306.95	3,187.21	117.44	-156.13	-159.17	0.00	0.00	0.00	0.00
3,300.00	8.00	306.95	3,286.23	125.80	-167.25	-170.51	0.00	0.00	0.00	0.00
3,400.00	8.00	306.95	3,385.26	134.17	-178.37	-181.85	0.00	0.00	0.00	0.00
3,500.00	8.00	306.95	3,484.29	142.54	-189.50	-193.19	0.00	0.00	0.00	0.00
3,600.00	8.00	306.95	3,583.31	150.90	-200.62	-204.52	0.00	0.00	0.00	0.00
3,614.83	8.00	306.95	3,598.00	152.14	-202.27	-206.21	0.00	0.00	0.00	0.00
Parkman										
3,700.00	8.00	306.95	3,682.34	159.27	-211.74	-215.86	0.00	0.00	0.00	0.00
3,800.00	8.00	306.95	3,781.37	167.63	-222.86	-227.20	0.00	0.00	0.00	0.00
3,900.00	8.00	306.95	3,880.39	176.00	-233.98	-238.54	0.00	0.00	0.00	0.00
4,000.00	8.00	306.95	3,979.42	184.37	-245.11	-249.88	0.00	0.00	0.00	0.00
4,100.00	8.00	306.95	4,078.45	192.73	-256.23	-261.22	0.00	0.00	0.00	0.00
4,101.57	8.00	306.95	4,080.00	192.86	-256.40	-261.40	0.00	0.00	0.00	0.00
Sussex										

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	8.00	306.95	4,177.47	201.10	-267.35	-272.56	0.00	0.00	0.00
4,300.00	8.00	306.95	4,276.50	209.46	-278.47	-283.90	0.00	0.00	0.00
4,400.00	8.00	306.95	4,375.53	217.83	-289.60	-295.23	0.00	0.00	0.00
4,500.00	8.00	306.95	4,474.56	226.20	-300.72	-306.57	0.00	0.00	0.00
4,600.00	8.00	306.95	4,573.58	234.56	-311.84	-317.91	0.00	0.00	0.00
4,700.00	8.00	306.95	4,672.61	242.93	-322.96	-329.25	0.00	0.00	0.00
4,800.00	8.00	306.95	4,771.64	251.29	-334.08	-340.59	0.00	0.00	0.00
4,900.00	8.00	306.95	4,870.66	259.66	-345.21	-351.93	0.00	0.00	0.00
5,000.00	8.00	306.95	4,969.69	268.03	-356.33	-363.27	0.00	0.00	0.00
5,100.00	8.00	306.95	5,068.72	276.39	-367.45	-374.61	0.00	0.00	0.00
5,200.00	8.00	306.95	5,167.74	284.76	-378.57	-385.94	0.00	0.00	0.00
5,300.00	8.00	306.95	5,266.77	293.12	-389.69	-397.28	0.00	0.00	0.00
5,400.00	8.00	306.95	5,365.80	301.49	-400.82	-408.62	0.00	0.00	0.00
5,500.00	8.00	306.95	5,464.82	309.86	-411.94	-419.96	0.00	0.00	0.00
5,600.00	8.00	306.95	5,563.85	318.22	-423.06	-431.30	0.00	0.00	0.00
5,700.00	8.00	306.95	5,662.88	326.59	-434.18	-442.64	0.00	0.00	0.00
5,800.00	8.00	306.95	5,761.90	334.95	-445.31	-453.98	0.00	0.00	0.00
5,900.00	8.00	306.95	5,860.93	343.32	-456.43	-465.32	0.00	0.00	0.00
6,000.00	8.00	306.95	5,959.96	351.68	-467.55	-476.65	0.00	0.00	0.00
6,100.00	8.00	306.95	6,058.98	360.05	-478.67	-487.99	0.00	0.00	0.00
6,200.00	8.00	306.95	6,158.01	368.42	-489.79	-499.33	0.00	0.00	0.00
6,230.50	8.00	306.95	6,188.21	370.97	-493.19	-502.79	0.00	0.00	0.00
KOP @ 6230.50ft :: DLS = 8°/100'									
6,250.00	6.79	314.66	6,207.55	372.59	-495.09	-504.74	8.00	-6.19	39.54
6,300.00	4.75	349.95	6,257.31	376.71	-497.56	-507.31	8.00	-4.09	70.59
6,350.00	5.56	34.81	6,307.13	380.74	-496.53	-506.40	8.00	1.62	89.72
6,400.00	8.44	58.27	6,356.76	384.66	-492.03	-502.00	8.00	5.75	46.92
6,450.00	11.97	68.99	6,405.97	388.45	-484.06	-494.13	8.00	7.07	21.43
6,500.00	15.73	74.76	6,454.50	392.10	-472.68	-482.85	8.00	7.52	11.55
6,550.00	19.59	78.33	6,502.14	395.57	-457.92	-468.19	8.00	7.70	7.14
6,600.00	23.49	80.76	6,548.64	398.87	-439.88	-450.23	8.00	7.80	4.86
6,650.00	27.41	82.53	6,593.78	401.97	-418.62	-429.07	8.00	7.86	3.54
6,700.00	31.36	83.88	6,637.34	404.85	-394.26	-404.80	8.00	7.89	2.71
6,750.00	35.31	84.96	6,679.11	407.51	-366.92	-377.53	8.00	7.91	2.16
6,800.00	39.28	85.84	6,718.87	409.93	-336.73	-347.41	8.00	7.93	1.77
6,850.00	43.25	86.59	6,756.45	412.09	-303.83	-314.58	8.00	7.94	1.50
6,900.00	47.22	87.24	6,791.66	414.00	-268.39	-279.21	8.00	7.95	1.29
6,950.00	51.20	87.80	6,824.31	415.63	-230.58	-241.45	8.00	7.95	1.13
6,977.28	53.37	88.09	6,841.00	416.40	-209.01	-219.91	8.00	7.96	1.04
Sharon Springs									
7,000.00	55.18	88.31	6,854.27	416.98	-190.58	-201.50	8.00	7.96	0.99
7,030.22	57.58	88.59	6,871.00	417.66	-165.42	-176.37	8.00	7.96	0.94
Niobrara									
7,050.00	59.16	88.77	6,881.37	418.05	-148.59	-159.55	8.00	7.96	0.90
7,100.00	63.14	89.19	6,905.49	418.82	-104.81	-115.81	8.00	7.97	0.85
7,150.00	67.13	89.59	6,926.51	419.30	-59.46	-70.48	8.00	7.97	0.79
7,200.00	71.11	89.96	6,944.33	419.48	-12.75	-23.80	8.00	7.97	0.74
7,250.00	75.10	90.32	6,958.86	419.37	35.08	24.02	8.00	7.97	0.71
7,300.00	79.08	90.66	6,970.03	418.95	83.81	72.74	8.00	7.97	0.68
7,350.00	83.07	90.99	6,977.79	418.24	133.19	122.12	8.00	7.97	0.67
7,400.00	87.06	91.32	6,982.09	417.24	182.98	171.92	8.00	7.97	0.65
7,430.00	89.45	91.51	6,983.00	416.50	212.95	201.90	8.00	7.97	0.65
End Build @ 7430.00ft									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,500.00	89.45	91.51	6,983.68	414.65	282.93	271.90	0.00	0.00	0.00
7,600.00	89.45	91.51	6,984.64	412.02	382.89	371.90	0.00	0.00	0.00
7,700.00	89.45	91.51	6,985.61	409.38	482.85	471.89	0.00	0.00	0.00
7,800.00	89.45	91.51	6,986.57	406.74	582.81	571.89	0.00	0.00	0.00
7,900.00	89.45	91.51	6,987.54	404.10	682.77	671.88	0.00	0.00	0.00
8,000.00	89.45	91.51	6,988.50	401.47	782.73	771.88	0.00	0.00	0.00
8,100.00	89.45	91.51	6,989.47	398.83	882.69	871.87	0.00	0.00	0.00
8,200.00	89.45	91.51	6,990.43	396.19	982.65	971.87	0.00	0.00	0.00
8,300.00	89.45	91.51	6,991.40	393.55	1,082.61	1,071.86	0.00	0.00	0.00
8,400.00	89.45	91.51	6,992.36	390.92	1,182.57	1,171.86	0.00	0.00	0.00
8,500.00	89.45	91.51	6,993.33	388.28	1,282.53	1,271.85	0.00	0.00	0.00
8,600.00	89.45	91.51	6,994.29	385.64	1,382.49	1,371.85	0.00	0.00	0.00
8,700.00	89.45	91.51	6,995.26	383.00	1,482.45	1,471.85	0.00	0.00	0.00
8,800.00	89.45	91.51	6,996.22	380.37	1,582.41	1,571.84	0.00	0.00	0.00
8,900.00	89.45	91.51	6,997.19	377.73	1,682.37	1,671.84	0.00	0.00	0.00
9,000.00	89.45	91.51	6,998.15	375.09	1,782.33	1,771.83	0.00	0.00	0.00
9,100.00	89.45	91.51	6,999.12	372.45	1,882.30	1,871.83	0.00	0.00	0.00
9,200.00	89.45	91.51	7,000.08	369.82	1,982.26	1,971.82	0.00	0.00	0.00
9,300.00	89.45	91.51	7,001.05	367.18	2,082.22	2,071.82	0.00	0.00	0.00
9,400.00	89.45	91.51	7,002.01	364.54	2,182.18	2,171.81	0.00	0.00	0.00
9,500.00	89.45	91.51	7,002.98	361.90	2,282.14	2,271.81	0.00	0.00	0.00
9,600.00	89.45	91.51	7,003.94	359.27	2,382.10	2,371.80	0.00	0.00	0.00
9,700.00	89.45	91.51	7,004.91	356.63	2,482.06	2,471.80	0.00	0.00	0.00
9,800.00	89.45	91.51	7,005.87	353.99	2,582.02	2,571.79	0.00	0.00	0.00
9,900.00	89.45	91.51	7,006.84	351.35	2,681.98	2,671.79	0.00	0.00	0.00
10,000.00	89.45	91.51	7,007.80	348.72	2,781.94	2,771.78	0.00	0.00	0.00
10,100.00	89.45	91.51	7,008.77	346.08	2,881.90	2,871.78	0.00	0.00	0.00
10,200.00	89.45	91.51	7,009.74	343.44	2,981.86	2,971.78	0.00	0.00	0.00
10,300.00	89.45	91.51	7,010.70	340.80	3,081.82	3,071.77	0.00	0.00	0.00
10,400.00	89.45	91.51	7,011.67	338.17	3,181.78	3,171.77	0.00	0.00	0.00
10,500.00	89.45	91.51	7,012.63	335.53	3,281.74	3,271.76	0.00	0.00	0.00
10,600.00	89.45	91.51	7,013.60	332.89	3,381.70	3,371.76	0.00	0.00	0.00
10,700.00	89.45	91.51	7,014.56	330.25	3,481.66	3,471.75	0.00	0.00	0.00
10,800.00	89.45	91.51	7,015.53	327.62	3,581.62	3,571.75	0.00	0.00	0.00
10,900.00	89.45	91.51	7,016.49	324.98	3,681.59	3,671.74	0.00	0.00	0.00
11,000.00	89.45	91.51	7,017.46	322.34	3,781.55	3,771.74	0.00	0.00	0.00
11,100.00	89.45	91.51	7,018.42	319.70	3,881.51	3,871.73	0.00	0.00	0.00
11,200.00	89.45	91.51	7,019.39	317.07	3,981.47	3,971.73	0.00	0.00	0.00
11,300.00	89.45	91.51	7,020.35	314.43	4,081.43	4,071.72	0.00	0.00	0.00
11,400.00	89.45	91.51	7,021.32	311.79	4,181.39	4,171.72	0.00	0.00	0.00
11,500.00	89.45	91.51	7,022.28	309.15	4,281.35	4,271.72	0.00	0.00	0.00
11,574.60	89.45	91.51	7,023.00	307.19	4,355.92	4,346.31	0.00	0.00	0.00
Nio B									
11,600.00	89.45	91.51	7,023.25	306.52	4,381.31	4,371.71	0.00	0.00	0.00
11,700.00	89.45	91.51	7,024.21	303.88	4,481.27	4,471.71	0.00	0.00	0.00
11,800.00	89.45	91.51	7,025.18	301.24	4,581.23	4,571.70	0.00	0.00	0.00
11,900.00	89.45	91.51	7,026.14	298.60	4,681.19	4,671.70	0.00	0.00	0.00
12,000.00	89.45	91.51	7,027.11	295.97	4,781.15	4,771.69	0.00	0.00	0.00
12,100.00	89.45	91.51	7,028.07	293.33	4,881.11	4,871.69	0.00	0.00	0.00
12,200.00	89.45	91.51	7,029.04	290.69	4,981.07	4,971.68	0.00	0.00	0.00
12,300.00	89.45	91.51	7,030.00	288.05	5,081.03	5,071.68	0.00	0.00	0.00
12,400.00	89.45	91.51	7,030.97	285.42	5,180.99	5,171.67	0.00	0.00	0.00
12,500.00	89.45	91.51	7,031.93	282.78	5,280.95	5,271.67	0.00	0.00	0.00
12,600.00	89.45	91.51	7,032.90	280.14	5,380.91	5,371.66	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	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)
12,700.00	89.45	91.51	7,033.86	277.50	5,480.88	5,471.66	0.00	0.00	0.00
12,800.00	89.45	91.51	7,034.83	274.87	5,580.84	5,571.65	0.00	0.00	0.00
12,900.00	89.45	91.51	7,035.79	272.23	5,680.80	5,671.65	0.00	0.00	0.00
13,000.00	89.45	91.51	7,036.76	269.59	5,780.76	5,771.65	0.00	0.00	0.00
13,100.00	89.45	91.51	7,037.72	266.95	5,880.72	5,871.64	0.00	0.00	0.00
13,200.00	89.45	91.51	7,038.69	264.32	5,980.68	5,971.64	0.00	0.00	0.00
13,300.00	89.45	91.51	7,039.65	261.68	6,080.64	6,071.63	0.00	0.00	0.00
13,400.00	89.45	91.51	7,040.62	259.04	6,180.60	6,171.63	0.00	0.00	0.00
13,500.00	89.45	91.51	7,041.58	256.40	6,280.56	6,271.62	0.00	0.00	0.00
13,600.00	89.45	91.51	7,042.55	253.77	6,380.52	6,371.62	0.00	0.00	0.00
13,700.00	89.45	91.51	7,043.51	251.13	6,480.48	6,471.61	0.00	0.00	0.00
13,800.00	89.45	91.51	7,044.48	248.49	6,580.44	6,571.61	0.00	0.00	0.00
13,900.00	89.45	91.51	7,045.44	245.85	6,680.40	6,671.60	0.00	0.00	0.00
14,000.00	89.45	91.51	7,046.41	243.22	6,780.36	6,771.60	0.00	0.00	0.00
14,100.00	89.45	91.51	7,047.37	240.58	6,880.32	6,871.59	0.00	0.00	0.00
14,200.00	89.45	91.51	7,048.34	237.94	6,980.28	6,971.59	0.00	0.00	0.00
14,300.00	89.45	91.51	7,049.30	235.30	7,080.24	7,071.58	0.00	0.00	0.00
14,400.00	89.45	91.51	7,050.27	232.67	7,180.20	7,171.58	0.00	0.00	0.00
14,500.00	89.45	91.51	7,051.23	230.03	7,280.17	7,271.58	0.00	0.00	0.00
14,600.00	89.45	91.51	7,052.20	227.39	7,380.13	7,371.57	0.00	0.00	0.00
14,700.00	89.45	91.51	7,053.16	224.75	7,480.09	7,471.57	0.00	0.00	0.00
14,800.00	89.45	91.51	7,054.13	222.12	7,580.05	7,571.56	0.00	0.00	0.00
14,900.00	89.45	91.51	7,055.09	219.48	7,680.01	7,671.56	0.00	0.00	0.00
15,000.00	89.45	91.51	7,056.06	216.84	7,779.97	7,771.55	0.00	0.00	0.00
15,100.00	89.45	91.51	7,057.02	214.20	7,879.93	7,871.55	0.00	0.00	0.00
15,200.00	89.45	91.51	7,057.99	211.57	7,979.89	7,971.54	0.00	0.00	0.00
15,300.00	89.45	91.51	7,058.95	208.93	8,079.85	8,071.54	0.00	0.00	0.00
15,400.00	89.45	91.51	7,059.92	206.29	8,179.81	8,171.53	0.00	0.00	0.00
15,500.00	89.45	91.51	7,060.88	203.65	8,279.77	8,271.53	0.00	0.00	0.00
15,600.00	89.45	91.51	7,061.85	201.02	8,379.73	8,371.52	0.00	0.00	0.00
15,700.00	89.45	91.51	7,062.81	198.38	8,479.69	8,471.52	0.00	0.00	0.00
15,800.00	89.45	91.51	7,063.78	195.74	8,579.65	8,571.52	0.00	0.00	0.00
15,900.00	89.45	91.51	7,064.74	193.10	8,679.61	8,671.51	0.00	0.00	0.00
16,000.00	89.45	91.51	7,065.71	190.47	8,779.57	8,771.51	0.00	0.00	0.00
16,100.00	89.45	91.51	7,066.67	187.83	8,879.53	8,871.50	0.00	0.00	0.00
16,200.00	89.45	91.51	7,067.64	185.19	8,979.49	8,971.50	0.00	0.00	0.00
16,300.00	89.45	91.51	7,068.60	182.55	9,079.46	9,071.49	0.00	0.00	0.00
16,400.00	89.45	91.51	7,069.57	179.92	9,179.42	9,171.49	0.00	0.00	0.00
16,500.00	89.45	91.51	7,070.53	177.28	9,279.38	9,271.48	0.00	0.00	0.00
16,600.00	89.45	91.51	7,071.50	174.64	9,379.34	9,371.48	0.00	0.00	0.00
16,700.00	89.45	91.51	7,072.46	172.00	9,479.30	9,471.47	0.00	0.00	0.00
16,800.00	89.45	91.51	7,073.43	169.37	9,579.26	9,571.47	0.00	0.00	0.00
16,900.00	89.45	91.51	7,074.39	166.73	9,679.22	9,671.46	0.00	0.00	0.00
17,000.00	89.45	91.51	7,075.36	164.09	9,779.18	9,771.46	0.00	0.00	0.00
17,100.00	89.45	91.51	7,076.32	161.45	9,879.14	9,871.45	0.00	0.00	0.00
17,200.00	89.45	91.51	7,077.29	158.82	9,979.10	9,971.45	0.00	0.00	0.00
17,300.00	89.45	91.51	7,078.25	156.18	10,079.06	10,071.45	0.00	0.00	0.00
17,400.00	89.45	91.51	7,079.22	153.54	10,179.02	10,171.44	0.00	0.00	0.00
17,500.00	89.45	91.51	7,080.18	150.90	10,278.98	10,271.44	0.00	0.00	0.00
17,600.00	89.45	91.51	7,081.15	148.27	10,378.94	10,371.43	0.00	0.00	0.00
17,700.00	89.45	91.51	7,082.11	145.63	10,478.90	10,471.43	0.00	0.00	0.00
17,800.00	89.45	91.51	7,083.08	142.99	10,578.86	10,571.42	0.00	0.00	0.00
17,900.00	89.45	91.51	7,084.04	140.35	10,678.82	10,671.42	0.00	0.00	0.00
18,000.00	89.45	91.51	7,085.01	137.72	10,778.78	10,771.41	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	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)
18,100.00	89.45	91.51	7,085.97	135.08	10,878.75	10,871.41	0.00	0.00	0.00
18,200.00	89.45	91.51	7,086.94	132.44	10,978.71	10,971.40	0.00	0.00	0.00
18,300.00	89.45	91.51	7,087.90	129.80	11,078.67	11,071.40	0.00	0.00	0.00
18,400.00	89.45	91.51	7,088.87	127.17	11,178.63	11,171.39	0.00	0.00	0.00
18,500.00	89.45	91.51	7,089.83	124.53	11,278.59	11,271.39	0.00	0.00	0.00
18,600.00	89.45	91.51	7,090.80	121.89	11,378.55	11,371.38	0.00	0.00	0.00
18,700.00	89.45	91.51	7,091.76	119.25	11,478.51	11,471.38	0.00	0.00	0.00
18,800.00	89.45	91.51	7,092.73	116.62	11,578.47	11,571.38	0.00	0.00	0.00
18,900.00	89.45	91.51	7,093.69	113.98	11,678.43	11,671.37	0.00	0.00	0.00
19,000.00	89.45	91.51	7,094.66	111.34	11,778.39	11,771.37	0.00	0.00	0.00
19,100.00	89.45	91.51	7,095.62	108.70	11,878.35	11,871.36	0.00	0.00	0.00
19,200.00	89.45	91.51	7,096.59	106.06	11,978.31	11,971.36	0.00	0.00	0.00
19,300.00	89.45	91.51	7,097.55	103.43	12,078.27	12,071.35	0.00	0.00	0.00
19,400.00	89.45	91.51	7,098.52	100.79	12,178.23	12,171.35	0.00	0.00	0.00
19,500.00	89.45	91.51	7,099.48	98.15	12,278.19	12,271.34	0.00	0.00	0.00
19,600.00	89.45	91.51	7,100.45	95.51	12,378.15	12,371.34	0.00	0.00	0.00
19,700.00	89.45	91.51	7,101.41	92.88	12,478.11	12,471.33	0.00	0.00	0.00
19,800.00	89.45	91.51	7,102.38	90.24	12,578.07	12,571.33	0.00	0.00	0.00
19,900.00	89.45	91.51	7,103.34	87.60	12,678.04	12,671.32	0.00	0.00	0.00
20,000.00	89.45	91.51	7,104.31	84.96	12,778.00	12,771.32	0.00	0.00	0.00
20,100.00	89.45	91.51	7,105.27	82.33	12,877.96	12,871.31	0.00	0.00	0.00
20,200.00	89.45	91.51	7,106.24	79.69	12,977.92	12,971.31	0.00	0.00	0.00
20,300.00	89.45	91.51	7,107.20	77.05	13,077.88	13,071.31	0.00	0.00	0.00
20,400.00	89.45	91.51	7,108.17	74.41	13,177.84	13,171.30	0.00	0.00	0.00
20,500.00	89.45	91.51	7,109.13	71.78	13,277.80	13,271.30	0.00	0.00	0.00
20,600.00	89.45	91.51	7,110.10	69.14	13,377.76	13,371.29	0.00	0.00	0.00
20,700.00	89.45	91.51	7,111.06	66.50	13,477.72	13,471.29	0.00	0.00	0.00
20,800.00	89.45	91.51	7,112.03	63.86	13,577.68	13,571.28	0.00	0.00	0.00
20,900.00	89.45	91.51	7,112.99	61.23	13,677.64	13,671.28	0.00	0.00	0.00
21,000.00	89.45	91.51	7,113.96	58.59	13,777.60	13,771.27	0.00	0.00	0.00
21,100.00	89.45	91.51	7,114.92	55.95	13,877.56	13,871.27	0.00	0.00	0.00
21,200.00	89.45	91.51	7,115.89	53.31	13,977.52	13,971.26	0.00	0.00	0.00
21,300.00	89.45	91.51	7,116.85	50.68	14,077.48	14,071.26	0.00	0.00	0.00
21,400.00	89.45	91.51	7,117.82	48.04	14,177.44	14,171.25	0.00	0.00	0.00
21,500.00	89.45	91.51	7,118.78	45.40	14,277.40	14,271.25	0.00	0.00	0.00
21,600.00	89.45	91.51	7,119.75	42.76	14,377.36	14,371.25	0.00	0.00	0.00
21,626.21	89.45	91.51	7,120.00	42.07	14,403.56	14,397.45	0.00	0.00	0.00
TD Well @ 21626.21ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,500.00	1,500.00	9 5/8"	9-5/8	13-1/2	
21,626.21	7,120.00	5.5" CSG	5-1/2	7-7/8	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-7HZ
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 4-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
707.00	707.00	Fox Hills			
3,614.83	3,598.00	Parkman			
4,101.57	4,080.00	Sussex			
6,977.28	6,841.00	Sharon Springs			
7,030.22	6,871.00	Niobrara			
11,574.60	7,023.00	Nio B			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,530.00	1,530.00	0.00	0.00		Begin Nudge @ 1530.00ft
2,063.33	2,061.60	22.35	-29.71		Hold Tangent @ 2063.33ft
6,230.50	6,188.21	370.97	-493.19		KOP @ 6230.50ft :: DLS = 8"/100'
7,430.00	6,983.00	416.50	212.95		End Build @ 7430.00ft
21,626.21	7,120.00	42.07	14,403.56		TD Well @ 21626.21ft