

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-8HZ**

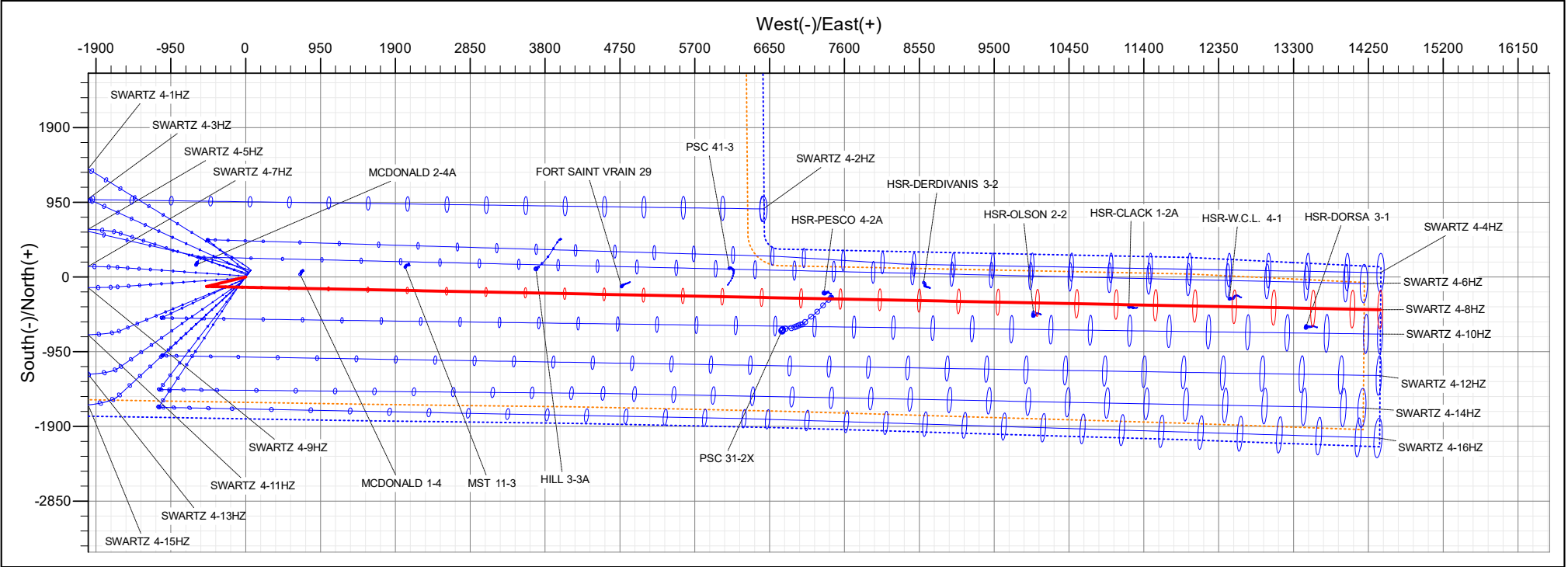
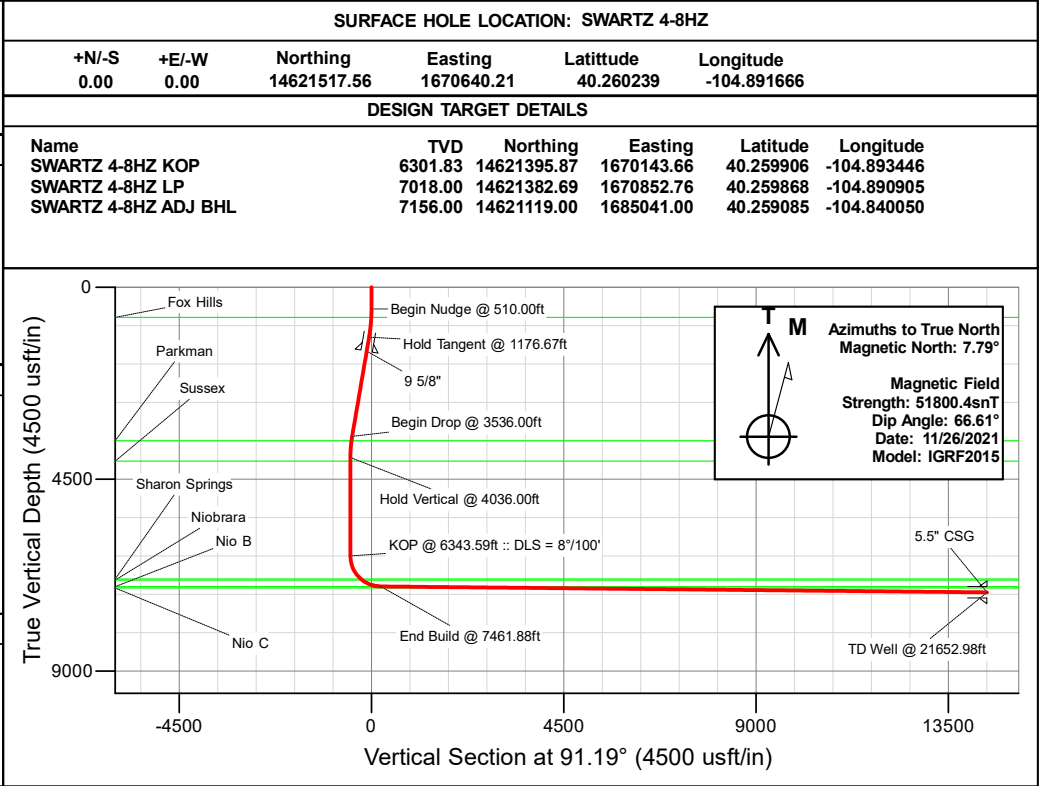
Plan A

Plan: Permit Rev-2

Standard Planning Report

25 January, 2022

Project: WELD-NAD83-UTMFT13N Site: 3N-67W-04 SWARTZ 2-4HZ PAD Well: SWARTZ 4-8HZ Wellbore: Plan A Design: Permit Rev-2										
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	510.00	0.00	0.00	510.00	0.00	0.00	0.00	0.00	0.00	
3	1176.67	10.00	256.30	1173.29	-13.74	-56.38	1.50	256.30	-56.08	
4	3536.00	10.00	256.30	3496.78	-110.77	-454.42	0.00	0.00	-452.02	
5	4036.00	0.00	0.00	3994.24	-121.08	-496.70	2.00	180.00	-494.08	
6	6343.59	0.00	0.00	6301.83	-121.08	-496.70	0.00	0.00	-494.08	
7	7461.63	89.44	91.13	7018.00	-135.13	212.39	8.00	91.13	215.15	
8	21652.98	89.44	91.13	7156.00	-416.16	14400.29	0.00	0.00	14405.83	
CASING DETAILS					FORMATION TOP DETAILS					
TVD	MD	Name	Size		TVDPath	MDPath		Formation		
1500.00	1508.42	9 5/8"	9-5/8		707.00	707.09		Fox Hills		
7156.00	21652.98	5.5" CSG	5-1/2		3598.00	3638.48		Parkman		
					4080.00	4121.76		Sussex		
					6841.00	6954.03		Sharon Springs		
					6871.00	7001.44		Niobrara		
					7023.00	7976.23		Nio B		
					7055.00	11266.88		Nio C		
ELEVATION										
GROUND ELEVATION: 4825.00										
RKB = 17' @ 4842ft										
FOOTAGE CALLOUTS										
SHL				LP				BHL		



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 4-8HZ
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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 "	Grid Convergence:	0.07 °

Well	SWARTZ 4-8HZ					
Well Position	+N/-S	-82.26 usft	Northing:	14,621,517.56 usft	Latitude:	40.260239
	+E/-W	-65.18 usft	Easting:	1,670,640.21 usft	Longitude:	-104.891666
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,825.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/26/2021	7.79	66.61	51,800.41873729

Design	Permit Rev-2			
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	91.19

Plan Survey Tool Program	Date	1/25/2022		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,000.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD Fixed:v2:standard declination
2	2,000.00	21,652.98	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4842.00usft (RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
510.00	0.00	0.00	510.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,176.67	10.00	256.30	1,173.29	-13.74	-56.38	1.50	1.50	0.00	256.30	
3,536.00	10.00	256.30	3,496.78	-110.77	-454.42	0.00	0.00	0.00	0.00	
4,036.00	0.00	0.00	3,994.24	-121.08	-496.70	2.00	-2.00	0.00	180.00	
6,343.59	0.00	0.00	6,301.83	-121.08	-496.70	0.00	0.00	0.00	0.00	
7,461.63	89.44	91.13	7,018.00	-135.13	212.39	8.00	8.00	8.15	91.13	
21,652.98	89.44	91.13	7,156.00	-416.16	14,400.29	0.00	0.00	0.00	0.00	SWARTZ 4-8HZ ADJ

Corporate
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
300.00	0.00	0.00	300.00	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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
510.00	0.00	0.00	510.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 510.00ft									
600.00	1.35	256.30	599.99	-0.25	-1.03	-1.02	1.50	1.50	0.00
700.00	2.85	256.30	699.92	-1.12	-4.59	-4.57	1.50	1.50	0.00
707.09	2.96	256.30	707.00	-1.20	-4.94	-4.91	1.50	1.50	0.00
Fox Hills									
800.00	4.35	256.30	799.72	-2.61	-10.69	-10.63	1.50	1.50	0.00
900.00	5.85	256.30	899.32	-4.71	-19.33	-19.22	1.50	1.50	0.00
1,000.00	7.35	256.30	998.66	-7.43	-30.49	-30.33	1.50	1.50	0.00
1,100.00	8.85	256.30	1,097.66	-10.77	-44.18	-43.95	1.50	1.50	0.00
1,176.67	10.00	256.30	1,173.29	-13.74	-56.38	-56.08	1.50	1.50	0.00
Hold Tangent @ 1176.67ft									
1,200.00	10.00	256.30	1,196.27	-14.70	-60.32	-60.00	0.00	0.00	0.00
1,300.00	10.00	256.30	1,294.75	-18.82	-77.19	-76.78	0.00	0.00	0.00
1,400.00	10.00	256.30	1,393.23	-22.93	-94.06	-93.56	0.00	0.00	0.00
1,500.00	10.00	256.30	1,491.71	-27.04	-110.93	-110.34	0.00	0.00	0.00
1,508.42	10.00	256.30	1,500.00	-27.39	-112.35	-111.76	0.00	0.00	0.00
9 5/8"									
1,600.00	10.00	256.30	1,590.19	-31.15	-127.80	-127.12	0.00	0.00	0.00
1,700.00	10.00	256.30	1,688.67	-35.27	-144.67	-143.91	0.00	0.00	0.00
1,800.00	10.00	256.30	1,787.15	-39.38	-161.54	-160.69	0.00	0.00	0.00
1,900.00	10.00	256.30	1,885.63	-43.49	-178.41	-177.47	0.00	0.00	0.00
2,000.00	10.00	256.30	1,984.11	-47.60	-195.28	-194.25	0.00	0.00	0.00
2,100.00	10.00	256.30	2,082.59	-51.72	-212.15	-211.03	0.00	0.00	0.00
2,200.00	10.00	256.30	2,181.07	-55.83	-229.02	-227.81	0.00	0.00	0.00
2,300.00	10.00	256.30	2,279.55	-59.94	-245.89	-244.60	0.00	0.00	0.00
2,400.00	10.00	256.30	2,378.04	-64.06	-262.76	-261.38	0.00	0.00	0.00
2,500.00	10.00	256.30	2,476.52	-68.17	-279.64	-278.16	0.00	0.00	0.00
2,600.00	10.00	256.30	2,575.00	-72.28	-296.51	-294.94	0.00	0.00	0.00
2,700.00	10.00	256.30	2,673.48	-76.39	-313.38	-311.72	0.00	0.00	0.00
2,800.00	10.00	256.30	2,771.96	-80.51	-330.25	-328.50	0.00	0.00	0.00
2,900.00	10.00	256.30	2,870.44	-84.62	-347.12	-345.29	0.00	0.00	0.00
3,000.00	10.00	256.30	2,968.92	-88.73	-363.99	-362.07	0.00	0.00	0.00
3,100.00	10.00	256.30	3,067.40	-92.84	-380.86	-378.85	0.00	0.00	0.00
3,200.00	10.00	256.30	3,165.88	-96.96	-397.73	-395.63	0.00	0.00	0.00
3,300.00	10.00	256.30	3,264.36	-101.07	-414.60	-412.41	0.00	0.00	0.00
3,400.00	10.00	256.30	3,362.84	-105.18	-431.47	-429.20	0.00	0.00	0.00
3,500.00	10.00	256.30	3,461.32	-109.29	-448.34	-445.98	0.00	0.00	0.00
3,536.00	10.00	256.30	3,496.78	-110.77	-454.42	-452.02	0.00	0.00	0.00
Begin Drop @ 3536.00ft									
3,600.00	8.72	256.30	3,559.92	-113.24	-464.53	-462.08	2.00	-2.00	0.00
3,638.48	7.95	256.30	3,598.00	-114.56	-469.95	-467.47	2.00	-2.00	0.00
Parkman									
3,700.00	6.72	256.30	3,659.01	-116.42	-477.58	-475.06	2.00	-2.00	0.00
3,800.00	4.72	256.30	3,758.51	-118.78	-487.26	-484.69	2.00	-2.00	0.00
3,900.00	2.72	256.30	3,858.29	-120.32	-493.57	-490.96	2.00	-2.00	0.00
4,000.00	0.72	256.30	3,958.24	-121.03	-496.48	-493.86	2.00	-2.00	0.00

Corporate
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,036.00	0.00	0.00	3,994.24	-121.08	-496.70	-494.08	2.00	-2.00	0.00
Hold Vertical @ 4036.00ft									
4,100.00	0.00	0.00	4,058.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,121.76	0.00	0.00	4,080.00	-121.08	-496.70	-494.08	0.00	0.00	0.00
Sussex									
4,200.00	0.00	0.00	4,158.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,300.00	0.00	0.00	4,258.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,400.00	0.00	0.00	4,358.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,500.00	0.00	0.00	4,458.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,600.00	0.00	0.00	4,558.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,700.00	0.00	0.00	4,658.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,800.00	0.00	0.00	4,758.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
4,900.00	0.00	0.00	4,858.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,000.00	0.00	0.00	4,958.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,100.00	0.00	0.00	5,058.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,200.00	0.00	0.00	5,158.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,300.00	0.00	0.00	5,258.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,400.00	0.00	0.00	5,358.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,500.00	0.00	0.00	5,458.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,600.00	0.00	0.00	5,558.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,700.00	0.00	0.00	5,658.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,800.00	0.00	0.00	5,758.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
5,900.00	0.00	0.00	5,858.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
6,000.00	0.00	0.00	5,958.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
6,100.00	0.00	0.00	6,058.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
6,200.00	0.00	0.00	6,158.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
6,300.00	0.00	0.00	6,258.24	-121.08	-496.70	-494.08	0.00	0.00	0.00
6,343.59	0.00	0.00	6,301.83	-121.08	-496.70	-494.08	0.00	0.00	0.00
KOP @ 6343.59ft :: DLS = 8°/100'									
6,400.00	4.51	91.13	6,358.18	-121.13	-494.48	-491.86	8.00	8.00	0.00
6,500.00	12.51	91.13	6,457.00	-121.42	-479.69	-477.07	8.00	8.00	0.00
6,600.00	20.51	91.13	6,552.80	-121.98	-451.30	-448.67	8.00	8.00	0.00
6,700.00	28.51	91.13	6,643.71	-122.80	-409.85	-407.21	8.00	8.00	0.00
6,800.00	36.51	91.13	6,727.97	-123.87	-356.16	-353.51	8.00	8.00	0.00
6,900.00	44.51	91.13	6,803.94	-125.15	-291.26	-288.60	8.00	8.00	0.00
6,954.03	48.84	91.13	6,841.00	-125.93	-251.97	-249.30	8.00	8.00	0.00
Sharon Springs									
7,000.00	52.51	91.13	6,870.13	-126.63	-216.43	-213.75	8.00	8.00	0.00
7,001.44	52.63	91.13	6,871.00	-126.66	-215.29	-212.61	8.00	8.00	0.00
Niobrara									
7,100.00	60.51	91.13	6,925.26	-128.28	-133.11	-130.42	8.00	8.00	0.00
7,200.00	68.51	91.13	6,968.25	-130.07	-42.93	-40.22	8.00	8.00	0.00
7,300.00	76.51	91.13	6,998.28	-131.96	52.35	55.08	8.00	8.00	0.00
7,400.00	84.51	91.13	7,014.75	-133.91	150.88	153.63	8.00	8.00	0.00
7,461.63	89.44	91.13	7,018.00	-135.13	212.39	215.15	8.00	8.00	0.00
7,461.88	89.44	91.13	7,018.00	-135.13	212.64	215.40	0.00	0.00	0.00
End Build @ 7461.88ft									
7,500.00	89.44	91.13	7,018.37	-135.89	250.76	253.53	0.00	0.00	0.00
7,600.00	89.44	91.13	7,019.34	-137.87	350.73	353.52	0.00	0.00	0.00
7,700.00	89.44	91.13	7,020.31	-139.85	450.71	453.52	0.00	0.00	0.00
7,800.00	89.44	91.13	7,021.29	-141.83	550.68	553.51	0.00	0.00	0.00
7,900.00	89.44	91.13	7,022.26	-143.81	650.66	653.51	0.00	0.00	0.00
7,976.23	89.44	91.13	7,023.00	-145.32	726.87	729.73	0.00	0.00	0.00

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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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Nio B									
8,000.00	89.44	91.13	7,023.23	-145.79	750.64	753.50	0.00	0.00	0.00
8,100.00	89.44	91.13	7,024.20	-147.77	850.61	853.50	0.00	0.00	0.00
8,200.00	89.44	91.13	7,025.18	-149.75	950.59	953.49	0.00	0.00	0.00
8,300.00	89.44	91.13	7,026.15	-151.73	1,050.56	1,053.49	0.00	0.00	0.00
8,400.00	89.44	91.13	7,027.12	-153.71	1,150.54	1,153.48	0.00	0.00	0.00
8,500.00	89.44	91.13	7,028.09	-155.69	1,250.51	1,253.48	0.00	0.00	0.00
8,600.00	89.44	91.13	7,029.07	-157.67	1,350.49	1,353.47	0.00	0.00	0.00
8,700.00	89.44	91.13	7,030.04	-159.65	1,450.47	1,453.47	0.00	0.00	0.00
8,800.00	89.44	91.13	7,031.01	-161.63	1,550.44	1,553.46	0.00	0.00	0.00
8,900.00	89.44	91.13	7,031.98	-163.61	1,650.42	1,653.46	0.00	0.00	0.00
9,000.00	89.44	91.13	7,032.96	-165.59	1,750.39	1,753.45	0.00	0.00	0.00
9,100.00	89.44	91.13	7,033.93	-167.57	1,850.37	1,853.45	0.00	0.00	0.00
9,200.00	89.44	91.13	7,034.90	-169.55	1,950.34	1,953.44	0.00	0.00	0.00
9,300.00	89.44	91.13	7,035.87	-171.53	2,050.32	2,053.44	0.00	0.00	0.00
9,400.00	89.44	91.13	7,036.85	-173.51	2,150.30	2,153.44	0.00	0.00	0.00
9,500.00	89.44	91.13	7,037.82	-175.49	2,250.27	2,253.43	0.00	0.00	0.00
9,600.00	89.44	91.13	7,038.79	-177.47	2,350.25	2,353.43	0.00	0.00	0.00
9,700.00	89.44	91.13	7,039.76	-179.45	2,450.22	2,453.42	0.00	0.00	0.00
9,800.00	89.44	91.13	7,040.74	-181.43	2,550.20	2,553.42	0.00	0.00	0.00
9,900.00	89.44	91.13	7,041.71	-183.42	2,650.17	2,653.41	0.00	0.00	0.00
10,000.00	89.44	91.13	7,042.68	-185.40	2,750.15	2,753.41	0.00	0.00	0.00
10,100.00	89.44	91.13	7,043.65	-187.38	2,850.12	2,853.40	0.00	0.00	0.00
10,200.00	89.44	91.13	7,044.63	-189.36	2,950.10	2,953.40	0.00	0.00	0.00
10,300.00	89.44	91.13	7,045.60	-191.34	3,050.08	3,053.39	0.00	0.00	0.00
10,400.00	89.44	91.13	7,046.57	-193.32	3,150.05	3,153.39	0.00	0.00	0.00
10,500.00	89.44	91.13	7,047.54	-195.30	3,250.03	3,253.38	0.00	0.00	0.00
10,600.00	89.44	91.13	7,048.52	-197.28	3,350.00	3,353.38	0.00	0.00	0.00
10,700.00	89.44	91.13	7,049.49	-199.26	3,449.98	3,453.37	0.00	0.00	0.00
10,800.00	89.44	91.13	7,050.46	-201.24	3,549.95	3,553.37	0.00	0.00	0.00
10,900.00	89.44	91.13	7,051.43	-203.22	3,649.93	3,653.36	0.00	0.00	0.00
11,000.00	89.44	91.13	7,052.40	-205.20	3,749.91	3,753.36	0.00	0.00	0.00
11,100.00	89.44	91.13	7,053.38	-207.18	3,849.88	3,853.35	0.00	0.00	0.00
11,200.00	89.44	91.13	7,054.35	-209.16	3,949.86	3,953.35	0.00	0.00	0.00
11,266.88	89.44	91.13	7,055.00	-210.48	4,016.72	4,020.22	0.00	0.00	0.00
Nio C									
11,300.00	89.44	91.13	7,055.32	-211.14	4,049.83	4,053.34	0.00	0.00	0.00
11,400.00	89.44	91.13	7,056.29	-213.12	4,149.81	4,153.34	0.00	0.00	0.00
11,500.00	89.44	91.13	7,057.27	-215.10	4,249.78	4,253.33	0.00	0.00	0.00
11,600.00	89.44	91.13	7,058.24	-217.08	4,349.76	4,353.33	0.00	0.00	0.00
11,700.00	89.44	91.13	7,059.21	-219.06	4,449.74	4,453.33	0.00	0.00	0.00
11,800.00	89.44	91.13	7,060.18	-221.04	4,549.71	4,553.32	0.00	0.00	0.00
11,900.00	89.44	91.13	7,061.16	-223.02	4,649.69	4,653.32	0.00	0.00	0.00
12,000.00	89.44	91.13	7,062.13	-225.00	4,749.66	4,753.31	0.00	0.00	0.00
12,100.00	89.44	91.13	7,063.10	-226.98	4,849.64	4,853.31	0.00	0.00	0.00
12,200.00	89.44	91.13	7,064.07	-228.96	4,949.61	4,953.30	0.00	0.00	0.00
12,300.00	89.44	91.13	7,065.05	-230.94	5,049.59	5,053.30	0.00	0.00	0.00
12,400.00	89.44	91.13	7,066.02	-232.92	5,149.57	5,153.29	0.00	0.00	0.00
12,500.00	89.44	91.13	7,066.99	-234.90	5,249.54	5,253.29	0.00	0.00	0.00
12,600.00	89.44	91.13	7,067.96	-236.88	5,349.52	5,353.28	0.00	0.00	0.00
12,700.00	89.44	91.13	7,068.94	-238.86	5,449.49	5,453.28	0.00	0.00	0.00
12,800.00	89.44	91.13	7,069.91	-240.84	5,549.47	5,553.27	0.00	0.00	0.00
12,900.00	89.44	91.13	7,070.88	-242.82	5,649.44	5,653.27	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 4-8HZ
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,000.00	89.44	91.13	7,071.85	-244.80	5,749.42	5,753.26	0.00	0.00	0.00
13,100.00	89.44	91.13	7,072.83	-246.78	5,849.39	5,853.26	0.00	0.00	0.00
13,200.00	89.44	91.13	7,073.80	-248.76	5,949.37	5,953.25	0.00	0.00	0.00
13,300.00	89.44	91.13	7,074.77	-250.74	6,049.35	6,053.25	0.00	0.00	0.00
13,400.00	89.44	91.13	7,075.74	-252.73	6,149.32	6,153.24	0.00	0.00	0.00
13,500.00	89.44	91.13	7,076.72	-254.71	6,249.30	6,253.24	0.00	0.00	0.00
13,600.00	89.44	91.13	7,077.69	-256.69	6,349.27	6,353.23	0.00	0.00	0.00
13,700.00	89.44	91.13	7,078.66	-258.67	6,449.25	6,453.23	0.00	0.00	0.00
13,800.00	89.44	91.13	7,079.63	-260.65	6,549.22	6,553.23	0.00	0.00	0.00
13,900.00	89.44	91.13	7,080.61	-262.63	6,649.20	6,653.22	0.00	0.00	0.00
14,000.00	89.44	91.13	7,081.58	-264.61	6,749.18	6,753.22	0.00	0.00	0.00
14,100.00	89.44	91.13	7,082.55	-266.59	6,849.15	6,853.21	0.00	0.00	0.00
14,200.00	89.44	91.13	7,083.52	-268.57	6,949.13	6,953.21	0.00	0.00	0.00
14,300.00	89.44	91.13	7,084.50	-270.55	7,049.10	7,053.20	0.00	0.00	0.00
14,400.00	89.44	91.13	7,085.47	-272.53	7,149.08	7,153.20	0.00	0.00	0.00
14,500.00	89.44	91.13	7,086.44	-274.51	7,249.05	7,253.19	0.00	0.00	0.00
14,600.00	89.44	91.13	7,087.41	-276.49	7,349.03	7,353.19	0.00	0.00	0.00
14,700.00	89.44	91.13	7,088.39	-278.47	7,449.01	7,453.18	0.00	0.00	0.00
14,800.00	89.44	91.13	7,089.36	-280.45	7,548.98	7,553.18	0.00	0.00	0.00
14,900.00	89.44	91.13	7,090.33	-282.43	7,648.96	7,653.17	0.00	0.00	0.00
15,000.00	89.44	91.13	7,091.30	-284.41	7,748.93	7,753.17	0.00	0.00	0.00
15,100.00	89.44	91.13	7,092.28	-286.39	7,848.91	7,853.16	0.00	0.00	0.00
15,200.00	89.44	91.13	7,093.25	-288.37	7,948.88	7,953.16	0.00	0.00	0.00
15,300.00	89.44	91.13	7,094.22	-290.35	8,048.86	8,053.15	0.00	0.00	0.00
15,400.00	89.44	91.13	7,095.19	-292.33	8,148.84	8,153.15	0.00	0.00	0.00
15,500.00	89.44	91.13	7,096.17	-294.31	8,248.81	8,253.14	0.00	0.00	0.00
15,600.00	89.44	91.13	7,097.14	-296.29	8,348.79	8,353.14	0.00	0.00	0.00
15,700.00	89.44	91.13	7,098.11	-298.27	8,448.76	8,453.13	0.00	0.00	0.00
15,800.00	89.44	91.13	7,099.08	-300.25	8,548.74	8,553.13	0.00	0.00	0.00
15,900.00	89.44	91.13	7,100.06	-302.23	8,648.71	8,653.12	0.00	0.00	0.00
16,000.00	89.44	91.13	7,101.03	-304.21	8,748.69	8,753.12	0.00	0.00	0.00
16,100.00	89.44	91.13	7,102.00	-306.19	8,848.66	8,853.12	0.00	0.00	0.00
16,200.00	89.44	91.13	7,102.97	-308.17	8,948.64	8,953.11	0.00	0.00	0.00
16,300.00	89.44	91.13	7,103.94	-310.15	9,048.62	9,053.11	0.00	0.00	0.00
16,400.00	89.44	91.13	7,104.92	-312.13	9,148.59	9,153.10	0.00	0.00	0.00
16,500.00	89.44	91.13	7,105.89	-314.11	9,248.57	9,253.10	0.00	0.00	0.00
16,600.00	89.44	91.13	7,106.86	-316.09	9,348.54	9,353.09	0.00	0.00	0.00
16,700.00	89.44	91.13	7,107.83	-318.07	9,448.52	9,453.09	0.00	0.00	0.00
16,800.00	89.44	91.13	7,108.81	-320.05	9,548.49	9,553.08	0.00	0.00	0.00
16,900.00	89.44	91.13	7,109.78	-322.04	9,648.47	9,653.08	0.00	0.00	0.00
17,000.00	89.44	91.13	7,110.75	-324.02	9,748.45	9,753.07	0.00	0.00	0.00
17,100.00	89.44	91.13	7,111.72	-326.00	9,848.42	9,853.07	0.00	0.00	0.00
17,200.00	89.44	91.13	7,112.70	-327.98	9,948.40	9,953.06	0.00	0.00	0.00
17,300.00	89.44	91.13	7,113.67	-329.96	10,048.37	10,053.06	0.00	0.00	0.00
17,400.00	89.44	91.13	7,114.64	-331.94	10,148.35	10,153.05	0.00	0.00	0.00
17,500.00	89.44	91.13	7,115.61	-333.92	10,248.32	10,253.05	0.00	0.00	0.00
17,600.00	89.44	91.13	7,116.59	-335.90	10,348.30	10,353.04	0.00	0.00	0.00
17,700.00	89.44	91.13	7,117.56	-337.88	10,448.28	10,453.04	0.00	0.00	0.00
17,800.00	89.44	91.13	7,118.53	-339.86	10,548.25	10,553.03	0.00	0.00	0.00
17,900.00	89.44	91.13	7,119.50	-341.84	10,648.23	10,653.03	0.00	0.00	0.00
18,000.00	89.44	91.13	7,120.48	-343.82	10,748.20	10,753.02	0.00	0.00	0.00
18,100.00	89.44	91.13	7,121.45	-345.80	10,848.18	10,853.02	0.00	0.00	0.00
18,200.00	89.44	91.13	7,122.42	-347.78	10,948.15	10,953.02	0.00	0.00	0.00
18,300.00	89.44	91.13	7,123.39	-349.76	11,048.13	11,053.01	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 4-8HZ
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,400.00	89.44	91.13	7,124.37	-351.74	11,148.11	11,153.01	0.00	0.00	0.00
18,500.00	89.44	91.13	7,125.34	-353.72	11,248.08	11,253.00	0.00	0.00	0.00
18,600.00	89.44	91.13	7,126.31	-355.70	11,348.06	11,353.00	0.00	0.00	0.00
18,700.00	89.44	91.13	7,127.28	-357.68	11,448.03	11,452.99	0.00	0.00	0.00
18,800.00	89.44	91.13	7,128.26	-359.66	11,548.01	11,552.99	0.00	0.00	0.00
18,900.00	89.44	91.13	7,129.23	-361.64	11,647.98	11,652.98	0.00	0.00	0.00
19,000.00	89.44	91.13	7,130.20	-363.62	11,747.96	11,752.98	0.00	0.00	0.00
19,100.00	89.44	91.13	7,131.17	-365.60	11,847.93	11,852.97	0.00	0.00	0.00
19,200.00	89.44	91.13	7,132.15	-367.58	11,947.91	11,952.97	0.00	0.00	0.00
19,300.00	89.44	91.13	7,133.12	-369.56	12,047.89	12,052.96	0.00	0.00	0.00
19,400.00	89.44	91.13	7,134.09	-371.54	12,147.86	12,152.96	0.00	0.00	0.00
19,500.00	89.44	91.13	7,135.06	-373.52	12,247.84	12,252.95	0.00	0.00	0.00
19,600.00	89.44	91.13	7,136.04	-375.50	12,347.81	12,352.95	0.00	0.00	0.00
19,700.00	89.44	91.13	7,137.01	-377.48	12,447.79	12,452.94	0.00	0.00	0.00
19,800.00	89.44	91.13	7,137.98	-379.46	12,547.76	12,552.94	0.00	0.00	0.00
19,900.00	89.44	91.13	7,138.95	-381.44	12,647.74	12,652.93	0.00	0.00	0.00
20,000.00	89.44	91.13	7,139.93	-383.42	12,747.72	12,752.93	0.00	0.00	0.00
20,100.00	89.44	91.13	7,140.90	-385.40	12,847.69	12,852.92	0.00	0.00	0.00
20,200.00	89.44	91.13	7,141.87	-387.38	12,947.67	12,952.92	0.00	0.00	0.00
20,300.00	89.44	91.13	7,142.84	-389.36	13,047.64	13,052.91	0.00	0.00	0.00
20,400.00	89.44	91.13	7,143.82	-391.35	13,147.62	13,152.91	0.00	0.00	0.00
20,500.00	89.44	91.13	7,144.79	-393.33	13,247.59	13,252.91	0.00	0.00	0.00
20,600.00	89.44	91.13	7,145.76	-395.31	13,347.57	13,352.90	0.00	0.00	0.00
20,700.00	89.44	91.13	7,146.73	-397.29	13,447.55	13,452.90	0.00	0.00	0.00
20,800.00	89.44	91.13	7,147.71	-399.27	13,547.52	13,552.89	0.00	0.00	0.00
20,900.00	89.44	91.13	7,148.68	-401.25	13,647.50	13,652.89	0.00	0.00	0.00
21,000.00	89.44	91.13	7,149.65	-403.23	13,747.47	13,752.88	0.00	0.00	0.00
21,100.00	89.44	91.13	7,150.62	-405.21	13,847.45	13,852.88	0.00	0.00	0.00
21,200.00	89.44	91.13	7,151.60	-407.19	13,947.42	13,952.87	0.00	0.00	0.00
21,300.00	89.44	91.13	7,152.57	-409.17	14,047.40	14,052.87	0.00	0.00	0.00
21,400.00	89.44	91.13	7,153.54	-411.15	14,147.37	14,152.86	0.00	0.00	0.00
21,500.00	89.44	91.13	7,154.51	-413.13	14,247.35	14,252.86	0.00	0.00	0.00
21,600.00	89.44	91.13	7,155.48	-415.11	14,347.33	14,352.85	0.00	0.00	0.00
21,652.98	89.44	91.13	7,156.00	-416.16	14,400.29	14,405.83	0.00	0.00	0.00
TD Well @ 21652.98ft									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SWARTZ 4-8HZ LP - hit/miss target - Shape - Point	0.00	0.00	7,018.00	-135.13	212.39	14,621,382.68	1,670,852.76	40.259868	-104.890905
SWARTZ 4-8HZ KOP - plan hits target center - Point	0.00	0.00	6,301.83	-121.08	-496.70	14,621,395.87	1,670,143.65	40.259906	-104.893447
SWARTZ 4-8HZ ADJ Bf - plan hits target center - Point	0.00	0.00	7,156.00	-416.16	14,400.29	14,621,119.00	1,685,041.00	40.259085	-104.840051

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 4-8HZ
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 4-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,508.42	1,500.00	9 5/8"	9-5/8	13-1/2	
21,652.98	7,156.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
707.09	707.00	Fox Hills				
3,638.48	3,598.00	Parkman				
4,121.76	4,080.00	Sussex				
6,954.03	6,841.00	Sharon Springs				
7,001.44	6,871.00	Niobrara				
7,976.23	7,023.00	Nio B				
11,266.88	7,055.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
510.00	510.00	0.00	0.00	Begin Nudge @ 510.00ft	
1,176.67	1,173.29	-13.74	-56.38	Hold Tangent @ 1176.67ft	
3,536.00	3,496.78	-110.77	-454.42	Begin Drop @ 3536.00ft	
4,036.00	3,994.24	-121.08	-496.70	Hold Vertical @ 4036.00ft	
6,343.59	6,301.83	-121.08	-496.70	KOP @ 6343.59ft :: DLS = 8"/100'	
7,461.88	7,018.00	-135.13	212.64	End Build @ 7461.88ft	
21,652.98	7,156.00	-416.16	14,400.29	TD Well @ 21652.98ft	