

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-11HZ**

Plan B

Plan: Permit Rev-1

Standard Planning Report

26 June, 2023

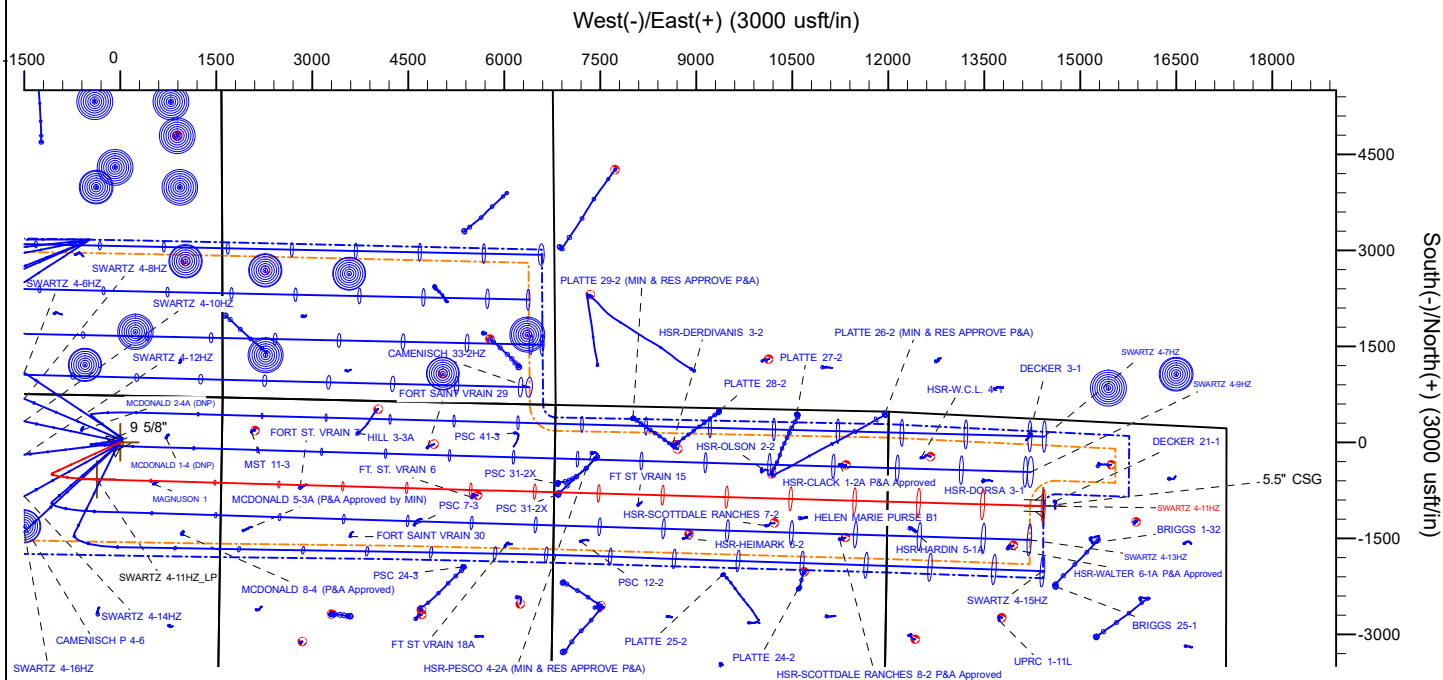
US ROCKIES WATTENBERG PLANNING

CASING DETAILS			
TVD	MD	Name	Size
1500.00	1513.84	9 5/8"	9-5/8
7180.00	22350.15	5.5" CSG	5-1/2



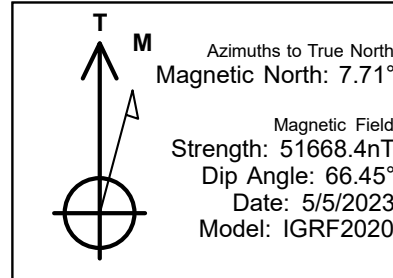
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	
1152.67	12.04	245.50	1146.77	-34.84	-76.46	1.50	245.50	-75.44	
6305.59	12.04	245.50	6186.34	-480.59	-1054.55	0.00	0.00	-1040.54	
7558.44	89.43	91.62	7033.00	-578.88	-360.61	8.00	-153.43	-344.10	
22350.15	89.43	91.62	7180.00	-995.88	14424.48	0.00	0.00	14446.87	SWARTZ 4-11HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-11HZ_SHL	0.00	14621482.27	1670612.31	40.260142	-104.891766
SWARTZ 4-11HZ_LP	7033.00	14620902.95	1670252.41	40.258552	-104.893059
SWARTZ 4-11HZ_BHL	7180.00	14620504.00	1685038.00	40.257396	-104.840065



WELL DETAILS: SWARTZ 4-11HZ	
GL = 4825'	
RKB = 17' @ 4842.00usft (RIG)	
Plan: Permit Rev-1 (SWARTZ 4-11HZ/Plan B)	
Date:	6/27/2023

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
707.00	707.52	Fox Hills
3598.00	3659.03	Parkman
4080.00	4151.87	Sussex
6841.00	7027.40	Sharon Springs
6871.00	7073.13	Niobrara
7023.00	7445.30	Nio B
7055.00	9772.23	Nio C



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
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 4-11HZ	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 4-11HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,482.27 usft	Latitude:	40.260142
	+E/-W	0.00 usft	Easting:	1,670,612.31 usft	Longitude:	-104.891766
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	51,668.44895417

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	91.62	

Plan Survey Tool Program		Date	6/1/2023		
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	22,350.15	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I 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 4-11HZ	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	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,152.67	12.04	245.50	1,146.77	-34.84	-76.46	1.50	1.50	0.00	245.50	
6,305.59	12.04	245.50	6,186.34	-480.59	-1,054.55	0.00	0.00	0.00	0.00	
7,558.44	89.43	91.62	7,033.00	-578.88	-360.61	8.00	6.18	-12.28	-153.43	
22,350.15	89.43	91.62	7,180.00	-995.88	14,424.49	0.00	0.00	0.00	0.00	SWARTZ 4-11HZ_BH

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 4-11HZ	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 350.00ft									
400.00	0.75	245.50	400.00	-0.14	-0.30	-0.29	1.50	1.50	0.00
500.00	2.25	245.50	499.96	-1.22	-2.68	-2.64	1.50	1.50	0.00
600.00	3.75	245.50	599.82	-3.39	-7.44	-7.34	1.50	1.50	0.00
700.00	5.25	245.50	699.51	-6.65	-14.58	-14.39	1.50	1.50	0.00
707.52	5.36	245.50	707.00	-6.93	-15.21	-15.01	1.50	1.50	0.00
Fox Hills									
800.00	6.75	245.50	798.96	-10.98	-24.09	-23.77	1.50	1.50	0.00
900.00	8.25	245.50	898.10	-16.39	-35.97	-35.49	1.50	1.50	0.00
1,000.00	9.75	245.50	996.87	-22.88	-50.20	-49.54	1.50	1.50	0.00
1,100.00	11.25	245.50	1,095.19	-30.44	-66.79	-65.90	1.50	1.50	0.00
1,152.67	12.04	245.50	1,146.77	-34.84	-76.46	-75.44	1.50	1.50	0.00
Hold Tangent @ 1152.67ft									
1,200.00	12.04	245.50	1,193.06	-38.94	-85.44	-84.31	0.00	0.00	0.00
1,300.00	12.04	245.50	1,290.86	-47.59	-104.43	-103.04	0.00	0.00	0.00
1,400.00	12.04	245.50	1,388.66	-56.24	-123.41	-121.77	0.00	0.00	0.00
1,500.00	12.04	245.50	1,486.47	-64.89	-142.39	-140.50	0.00	0.00	0.00
1,513.84	12.04	245.50	1,500.00	-66.09	-145.02	-143.09	0.00	0.00	0.00
9 5/8"									
1,600.00	12.04	245.50	1,584.27	-73.54	-161.37	-159.23	0.00	0.00	0.00
1,700.00	12.04	245.50	1,682.07	-82.19	-180.35	-177.96	0.00	0.00	0.00
1,800.00	12.04	245.50	1,779.87	-90.84	-199.33	-196.68	0.00	0.00	0.00
1,900.00	12.04	245.50	1,877.67	-99.49	-218.31	-215.41	0.00	0.00	0.00
2,000.00	12.04	245.50	1,975.47	-108.14	-237.29	-234.14	0.00	0.00	0.00
2,100.00	12.04	245.50	2,073.27	-116.79	-256.28	-252.87	0.00	0.00	0.00
2,200.00	12.04	245.50	2,171.07	-125.44	-275.26	-271.60	0.00	0.00	0.00
2,300.00	12.04	245.50	2,268.87	-134.09	-294.24	-290.33	0.00	0.00	0.00
2,400.00	12.04	245.50	2,366.67	-142.74	-313.22	-309.06	0.00	0.00	0.00
2,500.00	12.04	245.50	2,464.47	-151.39	-332.20	-327.79	0.00	0.00	0.00
2,600.00	12.04	245.50	2,562.27	-160.04	-351.18	-346.52	0.00	0.00	0.00
2,700.00	12.04	245.50	2,660.07	-168.69	-370.16	-365.25	0.00	0.00	0.00
2,800.00	12.04	245.50	2,757.87	-177.34	-389.14	-383.98	0.00	0.00	0.00
2,900.00	12.04	245.50	2,855.67	-185.99	-408.13	-402.71	0.00	0.00	0.00
3,000.00	12.04	245.50	2,953.47	-194.64	-427.11	-421.43	0.00	0.00	0.00
3,100.00	12.04	245.50	3,051.27	-203.29	-446.09	-440.16	0.00	0.00	0.00
3,200.00	12.04	245.50	3,149.07	-211.94	-465.07	-458.89	0.00	0.00	0.00
3,300.00	12.04	245.50	3,246.87	-220.59	-484.05	-477.62	0.00	0.00	0.00
3,400.00	12.04	245.50	3,344.67	-229.25	-503.03	-496.35	0.00	0.00	0.00
3,500.00	12.04	245.50	3,442.47	-237.90	-522.01	-515.08	0.00	0.00	0.00
3,600.00	12.04	245.50	3,540.27	-246.55	-541.00	-533.81	0.00	0.00	0.00
3,659.03	12.04	245.50	3,598.00	-251.65	-552.20	-544.86	0.00	0.00	0.00
Parkman									
3,700.00	12.04	245.50	3,638.07	-255.20	-559.98	-552.54	0.00	0.00	0.00
3,800.00	12.04	245.50	3,735.87	-263.85	-578.96	-571.27	0.00	0.00	0.00
3,900.00	12.04	245.50	3,833.67	-272.50	-597.94	-590.00	0.00	0.00	0.00
4,000.00	12.04	245.50	3,931.47	-281.15	-616.92	-608.73	0.00	0.00	0.00
4,100.00	12.04	245.50	4,029.27	-289.80	-635.90	-627.45	0.00	0.00	0.00
4,151.87	12.04	245.50	4,080.00	-294.28	-645.75	-637.17	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 4-11HZ	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)
Sussex									
4,200.00	12.04	245.50	4,127.07	-298.45	-654.88	-646.18	0.00	0.00	0.00
4,300.00	12.04	245.50	4,224.87	-307.10	-673.86	-664.91	0.00	0.00	0.00
4,400.00	12.04	245.50	4,322.67	-315.75	-692.85	-683.64	0.00	0.00	0.00
4,500.00	12.04	245.50	4,420.47	-324.40	-711.83	-702.37	0.00	0.00	0.00
4,600.00	12.04	245.50	4,518.27	-333.05	-730.81	-721.10	0.00	0.00	0.00
4,700.00	12.04	245.50	4,616.07	-341.70	-749.79	-739.83	0.00	0.00	0.00
4,800.00	12.04	245.50	4,713.87	-350.35	-768.77	-758.56	0.00	0.00	0.00
4,900.00	12.04	245.50	4,811.67	-359.00	-787.75	-777.29	0.00	0.00	0.00
5,000.00	12.04	245.50	4,909.47	-367.65	-806.73	-796.02	0.00	0.00	0.00
5,100.00	12.04	245.50	5,007.27	-376.30	-825.71	-814.75	0.00	0.00	0.00
5,200.00	12.04	245.50	5,105.07	-384.95	-844.70	-833.48	0.00	0.00	0.00
5,300.00	12.04	245.50	5,202.87	-393.60	-863.68	-852.20	0.00	0.00	0.00
5,400.00	12.04	245.50	5,300.67	-402.25	-882.66	-870.93	0.00	0.00	0.00
5,500.00	12.04	245.50	5,398.47	-410.90	-901.64	-889.66	0.00	0.00	0.00
5,600.00	12.04	245.50	5,496.27	-419.55	-920.62	-908.39	0.00	0.00	0.00
5,700.00	12.04	245.50	5,594.07	-428.20	-939.60	-927.12	0.00	0.00	0.00
5,800.00	12.04	245.50	5,691.87	-436.85	-958.58	-945.85	0.00	0.00	0.00
5,900.00	12.04	245.50	5,789.67	-445.50	-977.57	-964.58	0.00	0.00	0.00
6,000.00	12.04	245.50	5,887.48	-454.15	-996.55	-983.31	0.00	0.00	0.00
6,100.00	12.04	245.50	5,985.28	-462.80	-1,015.53	-1,002.04	0.00	0.00	0.00
6,200.00	12.04	245.50	6,083.08	-471.45	-1,034.51	-1,020.77	0.00	0.00	0.00
6,305.59	12.04	245.50	6,186.34	-480.59	-1,054.55	-1,040.54	0.00	0.00	0.00
KOP @ 6305.59ft :: DLS = 8°/100'									
6,350.00	9.00	235.30	6,230.00	-484.49	-1,061.62	-1,047.50	8.00	-6.84	-22.98
6,400.00	6.26	212.87	6,279.57	-489.00	-1,066.32	-1,052.07	8.00	-5.49	-44.86
6,450.00	5.41	173.55	6,329.33	-493.64	-1,067.54	-1,053.15	8.00	-1.71	-78.64
6,500.00	7.15	139.86	6,379.04	-498.36	-1,065.26	-1,050.75	8.00	3.50	-67.38
6,550.00	10.25	122.78	6,428.47	-503.15	-1,059.51	-1,044.87	8.00	6.19	-34.16
6,600.00	13.81	113.97	6,477.37	-507.98	-1,050.32	-1,035.54	8.00	7.13	-17.62
6,650.00	17.56	108.78	6,525.50	-512.84	-1,037.71	-1,022.80	8.00	7.50	-10.36
6,700.00	21.40	105.39	6,572.63	-517.69	-1,021.77	-1,006.73	8.00	7.68	-6.78
6,750.00	25.29	103.00	6,618.53	-522.52	-1,002.56	-987.39	8.00	7.77	-4.79
6,800.00	29.20	101.21	6,662.97	-527.29	-980.18	-964.88	8.00	7.83	-3.58
6,850.00	33.14	99.81	6,705.74	-532.00	-954.74	-939.32	8.00	7.87	-2.80
6,900.00	37.09	98.68	6,746.64	-536.61	-926.36	-910.82	8.00	7.89	-2.26
6,950.00	41.04	97.74	6,785.45	-541.09	-895.18	-879.52	8.00	7.91	-1.88
7,000.00	45.00	96.94	6,822.00	-545.44	-861.35	-845.58	8.00	7.92	-1.61
7,027.40	47.18	96.54	6,841.00	-547.76	-841.74	-825.92	8.00	7.93	-1.44
Sharon Springs									
7,050.00	48.97	96.24	6,856.10	-549.63	-825.03	-809.17	8.00	7.94	-1.35
7,073.13	50.81	95.94	6,871.00	-551.51	-807.45	-791.53	8.00	7.94	-1.28
Niobrara									
7,100.00	52.94	95.62	6,887.59	-553.64	-786.42	-770.45	8.00	7.94	-1.21
7,150.00	56.92	95.06	6,916.31	-557.44	-745.68	-729.62	8.00	7.95	-1.12
7,200.00	60.89	94.55	6,942.13	-561.02	-703.02	-686.88	8.00	7.95	-1.02
7,250.00	64.87	94.08	6,964.92	-564.37	-658.65	-642.44	8.00	7.96	-0.94
7,300.00	68.85	93.64	6,984.56	-567.46	-612.79	-596.50	8.00	7.96	-0.88
7,350.00	72.83	93.22	7,000.97	-570.28	-565.65	-549.31	8.00	7.96	-0.84
7,400.00	76.81	92.82	7,014.06	-572.83	-517.48	-501.07	8.00	7.96	-0.80
7,445.30	80.42	92.47	7,023.00	-574.87	-473.12	-456.68	8.00	7.96	-0.78
Nio B									
7,450.00	80.79	92.43	7,023.77	-575.07	-468.49	-452.04	8.00	7.96	-0.77

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Well:	SWARTZ 4-11HZ	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	84.78	92.05	7,030.05	-577.01	-418.93	-402.45	8.00	7.96	-0.76
7,550.00	88.76	91.68	7,032.87	-578.64	-369.05	-352.54	8.00	7.96	-0.75
7,558.44	89.43	91.62	7,033.00	-578.88	-360.61	-344.10	8.00	7.97	-0.75
End Build @ 7558.44ft									
7,600.00	89.43	91.62	7,033.41	-580.05	-319.07	-302.55	0.00	0.00	0.00
7,700.00	89.43	91.62	7,034.41	-582.87	-219.12	-202.55	0.00	0.00	0.00
7,800.00	89.43	91.62	7,035.40	-585.69	-119.16	-102.56	0.00	0.00	0.00
7,900.00	89.43	91.62	7,036.39	-588.51	-19.21	-2.56	0.00	0.00	0.00
8,000.00	89.43	91.62	7,037.39	-591.33	80.75	97.43	0.00	0.00	0.00
8,100.00	89.43	91.62	7,038.38	-594.15	180.70	197.43	0.00	0.00	0.00
8,200.00	89.43	91.62	7,039.38	-596.97	280.66	297.42	0.00	0.00	0.00
8,300.00	89.43	91.62	7,040.37	-599.78	380.61	397.42	0.00	0.00	0.00
8,400.00	89.43	91.62	7,041.36	-602.60	480.57	497.41	0.00	0.00	0.00
8,500.00	89.43	91.62	7,042.36	-605.42	580.53	597.41	0.00	0.00	0.00
8,600.00	89.43	91.62	7,043.35	-608.24	680.48	697.40	0.00	0.00	0.00
8,700.00	89.43	91.62	7,044.34	-611.06	780.44	797.40	0.00	0.00	0.00
8,800.00	89.43	91.62	7,045.34	-613.88	880.39	897.39	0.00	0.00	0.00
8,900.00	89.43	91.62	7,046.33	-616.70	980.35	997.39	0.00	0.00	0.00
9,000.00	89.43	91.62	7,047.33	-619.52	1,080.30	1,097.38	0.00	0.00	0.00
9,100.00	89.43	91.62	7,048.32	-622.34	1,180.26	1,197.38	0.00	0.00	0.00
9,200.00	89.43	91.62	7,049.31	-625.16	1,280.21	1,297.37	0.00	0.00	0.00
9,300.00	89.43	91.62	7,050.31	-627.98	1,380.17	1,397.37	0.00	0.00	0.00
9,400.00	89.43	91.62	7,051.30	-630.80	1,480.12	1,497.36	0.00	0.00	0.00
9,500.00	89.43	91.62	7,052.29	-633.61	1,580.08	1,597.36	0.00	0.00	0.00
9,600.00	89.43	91.62	7,053.29	-636.43	1,680.03	1,697.35	0.00	0.00	0.00
9,700.00	89.43	91.62	7,054.28	-639.25	1,779.99	1,797.35	0.00	0.00	0.00
9,772.23	89.43	91.62	7,055.00	-641.29	1,852.19	1,869.58	0.00	0.00	0.00
Nio C									
9,800.00	89.43	91.62	7,055.28	-642.07	1,879.94	1,897.34	0.00	0.00	0.00
9,900.00	89.43	91.62	7,056.27	-644.89	1,979.90	1,997.34	0.00	0.00	0.00
10,000.00	89.43	91.62	7,057.26	-647.71	2,079.86	2,097.33	0.00	0.00	0.00
10,100.00	89.43	91.62	7,058.26	-650.53	2,179.81	2,197.33	0.00	0.00	0.00
10,200.00	89.43	91.62	7,059.25	-653.35	2,279.77	2,297.33	0.00	0.00	0.00
10,300.00	89.43	91.62	7,060.25	-656.17	2,379.72	2,397.32	0.00	0.00	0.00
10,400.00	89.43	91.62	7,061.24	-658.99	2,479.68	2,497.32	0.00	0.00	0.00
10,500.00	89.43	91.62	7,062.23	-661.81	2,579.63	2,597.31	0.00	0.00	0.00
10,600.00	89.43	91.62	7,063.23	-664.63	2,679.59	2,697.31	0.00	0.00	0.00
10,700.00	89.43	91.62	7,064.22	-667.44	2,779.54	2,797.30	0.00	0.00	0.00
10,800.00	89.43	91.62	7,065.21	-670.26	2,879.50	2,897.30	0.00	0.00	0.00
10,900.00	89.43	91.62	7,066.21	-673.08	2,979.45	2,997.29	0.00	0.00	0.00
11,000.00	89.43	91.62	7,067.20	-675.90	3,079.41	3,097.29	0.00	0.00	0.00
11,100.00	89.43	91.62	7,068.20	-678.72	3,179.36	3,197.28	0.00	0.00	0.00
11,200.00	89.43	91.62	7,069.19	-681.54	3,279.32	3,297.28	0.00	0.00	0.00
11,300.00	89.43	91.62	7,070.18	-684.36	3,379.27	3,397.27	0.00	0.00	0.00
11,400.00	89.43	91.62	7,071.18	-687.18	3,479.23	3,497.27	0.00	0.00	0.00
11,500.00	89.43	91.62	7,072.17	-690.00	3,579.18	3,597.26	0.00	0.00	0.00
11,600.00	89.43	91.62	7,073.16	-692.82	3,679.14	3,697.26	0.00	0.00	0.00
11,700.00	89.43	91.62	7,074.16	-695.64	3,779.10	3,797.25	0.00	0.00	0.00
11,800.00	89.43	91.62	7,075.15	-698.46	3,879.05	3,897.25	0.00	0.00	0.00
11,900.00	89.43	91.62	7,076.15	-701.27	3,979.01	3,997.24	0.00	0.00	0.00
12,000.00	89.43	91.62	7,077.14	-704.09	4,078.96	4,097.24	0.00	0.00	0.00
12,100.00	89.43	91.62	7,078.13	-706.91	4,178.92	4,197.23	0.00	0.00	0.00
12,200.00	89.43	91.62	7,079.13	-709.73	4,278.87	4,297.23	0.00	0.00	0.00
12,300.00	89.43	91.62	7,080.12	-712.55	4,378.83	4,397.22	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
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 4-11HZ	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)	
12,400.00	89.43	91.62	7,081.12	-715.37	4,478.78	4,497.22	0.00	0.00	0.00	
12,500.00	89.43	91.62	7,082.11	-718.19	4,578.74	4,597.21	0.00	0.00	0.00	
12,600.00	89.43	91.62	7,083.10	-721.01	4,678.69	4,697.21	0.00	0.00	0.00	
12,700.00	89.43	91.62	7,084.10	-723.83	4,778.65	4,797.20	0.00	0.00	0.00	
12,800.00	89.43	91.62	7,085.09	-726.65	4,878.60	4,897.20	0.00	0.00	0.00	
12,900.00	89.43	91.62	7,086.08	-729.47	4,978.56	4,997.19	0.00	0.00	0.00	
13,000.00	89.43	91.62	7,087.08	-732.29	5,078.51	5,097.19	0.00	0.00	0.00	
13,100.00	89.43	91.62	7,088.07	-735.10	5,178.47	5,197.18	0.00	0.00	0.00	
13,200.00	89.43	91.62	7,089.07	-737.92	5,278.43	5,297.18	0.00	0.00	0.00	
13,300.00	89.43	91.62	7,090.06	-740.74	5,378.38	5,397.17	0.00	0.00	0.00	
13,400.00	89.43	91.62	7,091.05	-743.56	5,478.34	5,497.17	0.00	0.00	0.00	
13,500.00	89.43	91.62	7,092.05	-746.38	5,578.29	5,597.16	0.00	0.00	0.00	
13,600.00	89.43	91.62	7,093.04	-749.20	5,678.25	5,697.16	0.00	0.00	0.00	
13,700.00	89.43	91.62	7,094.03	-752.02	5,778.20	5,797.15	0.00	0.00	0.00	
13,800.00	89.43	91.62	7,095.03	-754.84	5,878.16	5,897.15	0.00	0.00	0.00	
13,900.00	89.43	91.62	7,096.02	-757.66	5,978.11	5,997.14	0.00	0.00	0.00	
14,000.00	89.43	91.62	7,097.02	-760.48	6,078.07	6,097.14	0.00	0.00	0.00	
14,100.00	89.43	91.62	7,098.01	-763.30	6,178.02	6,197.13	0.00	0.00	0.00	
14,200.00	89.43	91.62	7,099.00	-766.12	6,277.98	6,297.13	0.00	0.00	0.00	
14,300.00	89.43	91.62	7,100.00	-768.93	6,377.93	6,397.12	0.00	0.00	0.00	
14,400.00	89.43	91.62	7,100.99	-771.75	6,477.89	6,497.12	0.00	0.00	0.00	
14,500.00	89.43	91.62	7,101.98	-774.57	6,577.84	6,597.11	0.00	0.00	0.00	
14,600.00	89.43	91.62	7,102.98	-777.39	6,677.80	6,697.11	0.00	0.00	0.00	
14,700.00	89.43	91.62	7,103.97	-780.21	6,777.75	6,797.10	0.00	0.00	0.00	
14,800.00	89.43	91.62	7,104.97	-783.03	6,877.71	6,897.10	0.00	0.00	0.00	
14,900.00	89.43	91.62	7,105.96	-785.85	6,977.67	6,997.09	0.00	0.00	0.00	
15,000.00	89.43	91.62	7,106.95	-788.67	7,077.62	7,097.09	0.00	0.00	0.00	
15,100.00	89.43	91.62	7,107.95	-791.49	7,177.58	7,197.08	0.00	0.00	0.00	
15,200.00	89.43	91.62	7,108.94	-794.31	7,277.53	7,297.08	0.00	0.00	0.00	
15,300.00	89.43	91.62	7,109.94	-797.13	7,377.49	7,397.07	0.00	0.00	0.00	
15,400.00	89.43	91.62	7,110.93	-799.95	7,477.44	7,497.07	0.00	0.00	0.00	
15,500.00	89.43	91.62	7,111.92	-802.76	7,577.40	7,597.06	0.00	0.00	0.00	
15,600.00	89.43	91.62	7,112.92	-805.58	7,677.35	7,697.06	0.00	0.00	0.00	
15,700.00	89.43	91.62	7,113.91	-808.40	7,777.31	7,797.05	0.00	0.00	0.00	
15,800.00	89.43	91.62	7,114.90	-811.22	7,877.26	7,897.05	0.00	0.00	0.00	
15,900.00	89.43	91.62	7,115.90	-814.04	7,977.22	7,997.04	0.00	0.00	0.00	
16,000.00	89.43	91.62	7,116.89	-816.86	8,077.17	8,097.04	0.00	0.00	0.00	
16,100.00	89.43	91.62	7,117.89	-819.68	8,177.13	8,197.03	0.00	0.00	0.00	
16,200.00	89.43	91.62	7,118.88	-822.50	8,277.08	8,297.03	0.00	0.00	0.00	
16,300.00	89.43	91.62	7,119.87	-825.32	8,377.04	8,397.02	0.00	0.00	0.00	
16,400.00	89.43	91.62	7,120.87	-828.14	8,477.00	8,497.02	0.00	0.00	0.00	
16,500.00	89.43	91.62	7,121.86	-830.96	8,576.95	8,597.01	0.00	0.00	0.00	
16,600.00	89.43	91.62	7,122.85	-833.78	8,676.91	8,697.01	0.00	0.00	0.00	
16,700.00	89.43	91.62	7,123.85	-836.59	8,776.86	8,797.00	0.00	0.00	0.00	
16,800.00	89.43	91.62	7,124.84	-839.41	8,876.82	8,897.00	0.00	0.00	0.00	
16,900.00	89.43	91.62	7,125.84	-842.23	8,976.77	8,996.99	0.00	0.00	0.00	
17,000.00	89.43	91.62	7,126.83	-845.05	9,076.73	9,096.99	0.00	0.00	0.00	
17,100.00	89.43	91.62	7,127.82	-847.87	9,176.68	9,196.98	0.00	0.00	0.00	
17,200.00	89.43	91.62	7,128.82	-850.69	9,276.64	9,296.98	0.00	0.00	0.00	
17,300.00	89.43	91.62	7,129.81	-853.51	9,376.59	9,396.97	0.00	0.00	0.00	
17,400.00	89.43	91.62	7,130.81	-856.33	9,476.55	9,496.97	0.00	0.00	0.00	
17,500.00	89.43	91.62	7,131.80	-859.15	9,576.50	9,596.96	0.00	0.00	0.00	
17,600.00	89.43	91.62	7,132.79	-861.97	9,676.46	9,696.96	0.00	0.00	0.00	
17,700.00	89.43	91.62	7,133.79	-864.79	9,776.41	9,796.95	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
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 4-11HZ	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)
17,800.00	89.43	91.62	7,134.78	-867.61	9,876.37	9,896.95	0.00	0.00	0.00
17,900.00	89.43	91.62	7,135.77	-870.42	9,976.32	9,996.94	0.00	0.00	0.00
18,000.00	89.43	91.62	7,136.77	-873.24	10,076.28	10,096.94	0.00	0.00	0.00
18,100.00	89.43	91.62	7,137.76	-876.06	10,176.24	10,196.94	0.00	0.00	0.00
18,200.00	89.43	91.62	7,138.76	-878.88	10,276.19	10,296.93	0.00	0.00	0.00
18,300.00	89.43	91.62	7,139.75	-881.70	10,376.15	10,396.93	0.00	0.00	0.00
18,400.00	89.43	91.62	7,140.74	-884.52	10,476.10	10,496.92	0.00	0.00	0.00
18,500.00	89.43	91.62	7,141.74	-887.34	10,576.06	10,596.92	0.00	0.00	0.00
18,600.00	89.43	91.62	7,142.73	-890.16	10,676.01	10,696.91	0.00	0.00	0.00
18,700.00	89.43	91.62	7,143.72	-892.98	10,775.97	10,796.91	0.00	0.00	0.00
18,800.00	89.43	91.62	7,144.72	-895.80	10,875.92	10,896.90	0.00	0.00	0.00
18,900.00	89.43	91.62	7,145.71	-898.62	10,975.88	10,996.90	0.00	0.00	0.00
19,000.00	89.43	91.62	7,146.71	-901.44	11,075.83	11,096.89	0.00	0.00	0.00
19,100.00	89.43	91.62	7,147.70	-904.25	11,175.79	11,196.89	0.00	0.00	0.00
19,200.00	89.43	91.62	7,148.69	-907.07	11,275.74	11,296.88	0.00	0.00	0.00
19,300.00	89.43	91.62	7,149.69	-909.89	11,375.70	11,396.88	0.00	0.00	0.00
19,400.00	89.43	91.62	7,150.68	-912.71	11,475.65	11,496.87	0.00	0.00	0.00
19,500.00	89.43	91.62	7,151.68	-915.53	11,575.61	11,596.87	0.00	0.00	0.00
19,600.00	89.43	91.62	7,152.67	-918.35	11,675.57	11,696.86	0.00	0.00	0.00
19,700.00	89.43	91.62	7,153.66	-921.17	11,775.52	11,796.86	0.00	0.00	0.00
19,800.00	89.43	91.62	7,154.66	-923.99	11,875.48	11,896.85	0.00	0.00	0.00
19,900.00	89.43	91.62	7,155.65	-926.81	11,975.43	11,996.85	0.00	0.00	0.00
20,000.00	89.43	91.62	7,156.64	-929.63	12,075.39	12,096.84	0.00	0.00	0.00
20,100.00	89.43	91.62	7,157.64	-932.45	12,175.34	12,196.84	0.00	0.00	0.00
20,200.00	89.43	91.62	7,158.63	-935.27	12,275.30	12,296.83	0.00	0.00	0.00
20,300.00	89.43	91.62	7,159.63	-938.08	12,375.25	12,396.83	0.00	0.00	0.00
20,400.00	89.43	91.62	7,160.62	-940.90	12,475.21	12,496.82	0.00	0.00	0.00
20,500.00	89.43	91.62	7,161.61	-943.72	12,575.16	12,596.82	0.00	0.00	0.00
20,600.00	89.43	91.62	7,162.61	-946.54	12,675.12	12,696.81	0.00	0.00	0.00
20,700.00	89.43	91.62	7,163.60	-949.36	12,775.07	12,796.81	0.00	0.00	0.00
20,800.00	89.43	91.62	7,164.59	-952.18	12,875.03	12,896.80	0.00	0.00	0.00
20,900.00	89.43	91.62	7,165.59	-955.00	12,974.98	12,996.80	0.00	0.00	0.00
21,000.00	89.43	91.62	7,166.58	-957.82	13,074.94	13,096.79	0.00	0.00	0.00
21,100.00	89.43	91.62	7,167.58	-960.64	13,174.90	13,196.79	0.00	0.00	0.00
21,200.00	89.43	91.62	7,168.57	-963.46	13,274.85	13,296.78	0.00	0.00	0.00
21,300.00	89.43	91.62	7,169.56	-966.28	13,374.81	13,396.78	0.00	0.00	0.00
21,400.00	89.43	91.62	7,170.56	-969.10	13,474.76	13,496.77	0.00	0.00	0.00
21,500.00	89.43	91.62	7,171.55	-971.91	13,574.72	13,596.77	0.00	0.00	0.00
21,600.00	89.43	91.62	7,172.55	-974.73	13,674.67	13,696.76	0.00	0.00	0.00
21,700.00	89.43	91.62	7,173.54	-977.55	13,774.63	13,796.76	0.00	0.00	0.00
21,800.00	89.43	91.62	7,174.53	-980.37	13,874.58	13,896.75	0.00	0.00	0.00
21,900.00	89.43	91.62	7,175.53	-983.19	13,974.54	13,996.75	0.00	0.00	0.00
22,000.00	89.43	91.62	7,176.52	-986.01	14,074.49	14,096.74	0.00	0.00	0.00
22,100.00	89.43	91.62	7,177.51	-988.83	14,174.45	14,196.74	0.00	0.00	0.00
22,200.00	89.43	91.62	7,178.51	-991.65	14,274.40	14,296.73	0.00	0.00	0.00
22,300.00	89.43	91.62	7,179.50	-994.47	14,374.36	14,396.73	0.00	0.00	0.00
22,350.15	89.43	91.62	7,180.00	-995.88	14,424.49	14,446.87	0.00	0.00	0.00
TD Well @ 22350.15ft									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-11HZ
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 4-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,513.84	1,500.00	9 5/8"	9-5/8	13-1/2	
22,350.15	7,180.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
707.52	707.00	Fox Hills				
3,659.03	3,598.00	Parkman				
4,151.87	4,080.00	Sussex				
7,027.40	6,841.00	Sharon Springs				
7,073.13	6,871.00	Niobrara				
7,445.30	7,023.00	Nio B				
9,772.23	7,055.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
350.00	350.00	0.00	0.00	Begin Nudge @ 350.00ft	
1,152.67	1,146.77	-34.84	-76.46	Hold Tangent @ 1152.67ft	
6,305.59	6,186.34	-480.59	-1,054.55	KOP @ 6305.59ft :: DLS = 8"/100'	
7,558.44	7,033.00	-578.88	-360.61	End Build @ 7558.44ft	
22,350.15	7,180.00	-995.88	14,424.49	TD Well @ 22350.15ft	