

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-13HZ**

Plan C

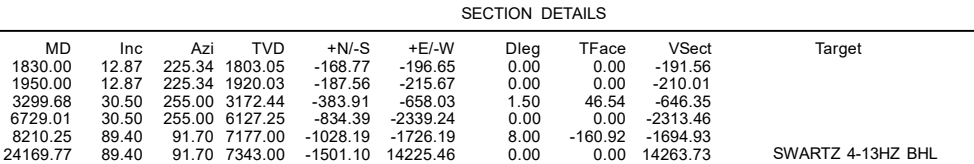
Plan: Permit Rev-1

Standard Planning Report

04 April, 2024

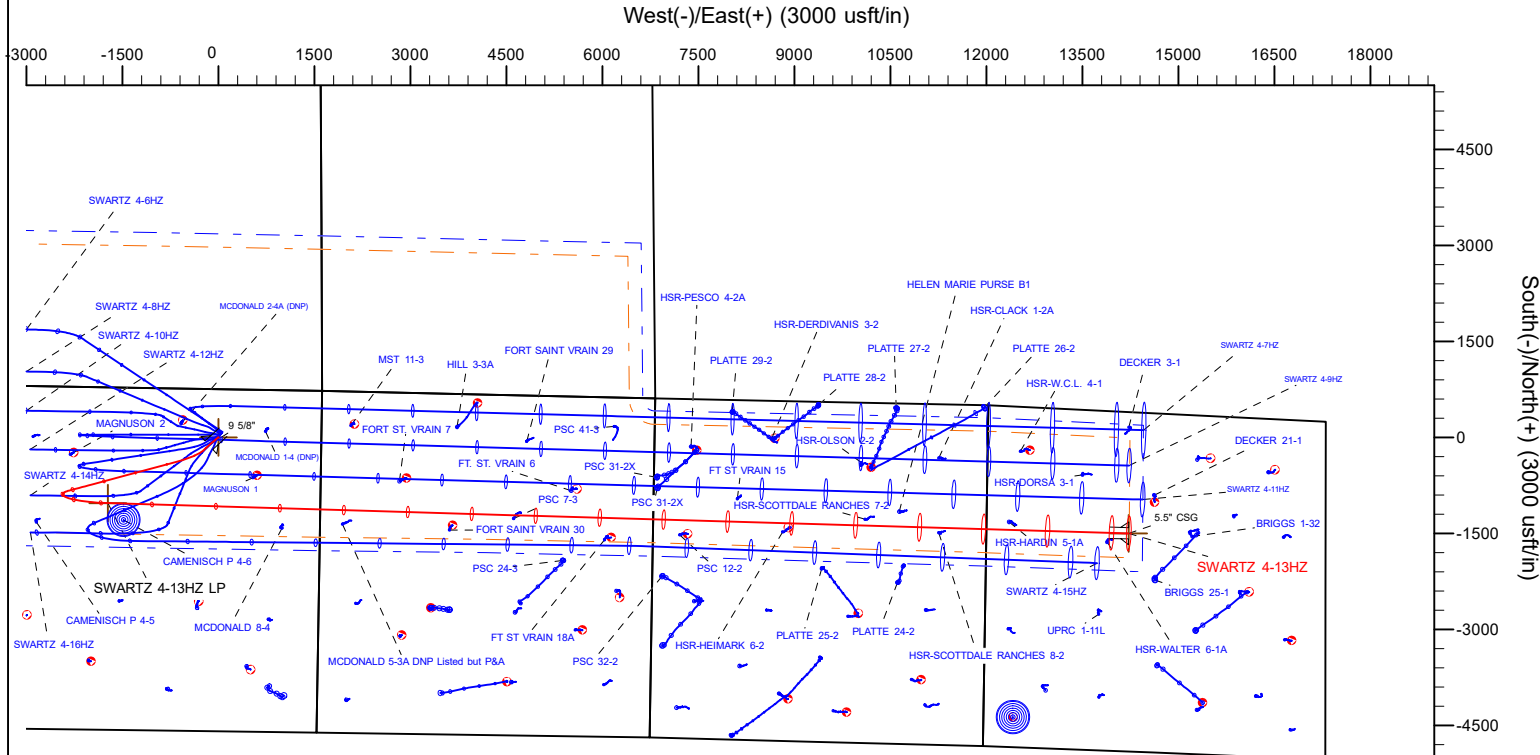
US ROCKIES WATTENBERG PLANNING

CASING DETAILS			
TVD	MD	Name	Size
1500.00	1519.39	9 5/8"	9-5/8
7343.00	24169.77	5.5" CSG	5-1/2

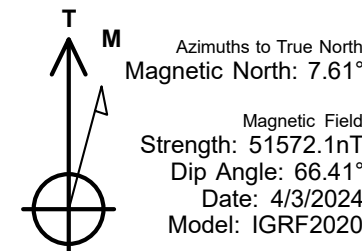


WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-13HZ SHL	0.00	14621458.74	1670593.72	40.260077	-104.891833
SWARTZ 4-13HZ LP	7177.00	14620428.44	1668868.79	40.257254	-104.898020
SWARTZ 4-13HZ BHL	7343.00	14619975.00	1684821.00	40.255944	-104.840846

WELL DETAILS: SWARTZ 4-13HZ
GL = 4825'
RKB = 26' @ 4851.00usft (BIG RIG)
Plan: Permit Rev-1 (SWARTZ 4-13HZ/Plan C)
Date: 4/4/2024



FORMATION TOP DETAILS		
TVDPPath	MDPPath	Formation
716.00	717.00	Fox Hills
3607.00	3804.03	Parkman
4089.00	4363.44	Sussex
6850.00	7498.76	Sharon Springs
6880.00	7535.43	Niobrara
7032.00	7750.57	Nio B
7064.00	7806.99	Nio C
7166.00	8091.01	Fort Hayes
7187.00	9171.60	Codell



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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 4-13HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,621,458.74 usft	Latitude:	40.260078
	+E/-W	0.00 usft	Easting:	1,670,593.72 usft	Longitude:	-104.891833
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:		0.07 °				

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	4/3/2024	7.61	66.41	51,572.07612081

Design	Permit Rev-1				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	1,830.00
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.00	0.00	0.00	91.70

Plan Survey Tool Program		Date	4/4/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	91.00	1,830.00	Total Surface MWD+IFR Surveys	APC_ISCWSA REV 2 MWD+I	Fixed:v2:crustal field declinatio
2	1,830.00	24,169.77	Permit Rev-1 (Plan C)	APC_ISCWSA REV 2 MWD+I	Fixed:v2:Rockies, crustal dec +

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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
1,830.00	12.87	225.34	1,803.05	-168.77	-196.65	0.00	0.00	0.00	0.00	
1,950.00	12.87	225.34	1,920.03	-187.56	-215.67	0.00	0.00	0.00	0.00	
3,299.68	30.50	255.00	3,172.44	-383.91	-658.03	1.50	1.31	2.20	46.54	
6,729.01	30.50	255.00	6,127.25	-834.39	-2,339.24	0.00	0.00	0.00	0.00	
8,210.25	89.40	91.70	7,177.00	-1,028.19	-1,726.19	8.00	3.98	-11.02	-160.92	
24,169.77	89.40	91.70	7,343.00	-1,501.10	14,225.46	0.00	0.00	0.00	0.00	SWARTZ 4-13HZ BHI

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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
91.00	0.66	67.98	91.00	0.18	0.44	0.43	0.73	0.73	0.00
183.00	0.92	48.49	182.99	0.87	1.48	1.46	0.40	0.28	-21.18
275.00	0.64	219.71	274.99	0.96	1.71	1.68	1.69	-0.30	186.11
365.00	1.95	235.07	364.96	-0.30	0.13	0.14	1.49	1.46	17.07
455.00	2.71	219.81	454.89	-2.82	-2.49	-2.40	1.08	0.84	-16.96
544.00	3.90	234.76	543.74	-6.18	-6.31	-6.12	1.64	1.34	16.80
634.00	5.59	232.10	633.43	-10.64	-12.27	-11.94	1.89	1.88	-2.96
723.00	6.08	232.64	721.97	-16.16	-19.43	-18.94	0.55	0.55	0.61
813.00	7.15	226.14	811.37	-22.93	-27.26	-26.57	1.45	1.19	-7.22
902.00	10.16	226.78	899.34	-32.15	-36.98	-36.01	3.38	3.38	0.72
992.00	11.86	227.63	987.68	-43.82	-49.59	-48.27	1.90	1.89	0.94
1,081.00	13.29	232.52	1,074.55	-56.21	-64.47	-62.77	2.00	1.61	5.49
1,170.00	14.60	232.86	1,160.92	-69.20	-81.53	-79.44	1.47	1.47	0.38
1,260.00	14.92	231.43	1,247.95	-83.28	-99.63	-97.12	0.54	0.36	-1.59
1,349.00	13.91	228.28	1,334.15	-97.54	-116.58	-113.63	1.44	-1.13	-3.54
1,439.00	13.01	227.82	1,421.68	-111.54	-132.16	-128.79	1.01	-1.00	-0.51
1,519.39	13.05	227.47	1,500.00	-123.76	-145.55	-141.82	0.11	0.06	-0.43
9 5/8"									
1,529.00	13.06	227.43	1,509.36	-125.22	-147.15	-143.37	0.11	0.06	-0.43
1,618.00	12.92	227.97	1,596.08	-138.69	-161.95	-157.76	0.21	-0.16	0.61
1,708.00	12.34	230.38	1,683.91	-151.56	-176.83	-172.26	0.87	-0.64	2.68
1,797.00	12.38	229.08	1,770.84	-163.87	-191.37	-186.42	0.32	0.04	-1.46
1,830.00	12.87	225.34	1,803.05	-168.77	-196.65	-191.56	2.89	1.48	-11.33
Tie-Onto Sfc Svys & Hold @ 1830.00ft									
1,900.00	12.87	225.34	1,871.29	-179.73	-207.74	-202.32	0.00	0.00	0.00
1,950.00	12.87	225.34	1,920.03	-187.56	-215.67	-210.01	0.00	0.00	0.00
Build Sail Angle @ 1950.00ft									
2,000.00	13.40	227.69	1,968.72	-195.37	-223.91	-218.01	1.50	1.05	4.70
2,100.00	14.51	231.87	2,065.77	-210.90	-242.33	-235.97	1.50	1.11	4.18
2,200.00	15.68	235.45	2,162.32	-226.30	-263.32	-256.49	1.50	1.18	3.58
2,300.00	16.91	238.54	2,258.31	-241.56	-286.86	-279.56	1.50	1.23	3.09
2,400.00	18.17	241.21	2,353.66	-256.66	-312.93	-305.18	1.50	1.27	2.67
2,500.00	19.47	243.55	2,448.31	-271.60	-341.52	-333.32	1.50	1.30	2.33
2,600.00	20.80	245.59	2,542.19	-286.36	-372.61	-363.95	1.50	1.32	2.05
2,700.00	22.14	247.41	2,635.25	-300.93	-406.18	-397.07	1.50	1.35	1.81
2,800.00	23.51	249.02	2,727.42	-315.31	-442.20	-432.65	1.50	1.36	1.61
2,900.00	24.88	250.47	2,818.64	-329.49	-480.65	-470.66	1.50	1.38	1.44
3,000.00	26.27	251.77	2,908.84	-343.45	-521.50	-511.08	1.50	1.39	1.30
3,100.00	27.68	252.95	2,997.96	-357.19	-564.73	-553.88	1.50	1.40	1.18
3,200.00	29.09	254.02	3,085.93	-370.69	-610.30	-599.04	1.50	1.41	1.07
3,299.68	30.50	255.00	3,172.44	-383.91	-658.03	-646.35	1.50	1.42	0.98
Hold Tangent @ 3299.68ft									
3,400.00	30.50	255.00	3,258.88	-397.09	-707.21	-695.12	0.00	0.00	0.00
3,500.00	30.50	255.00	3,345.04	-410.22	-756.24	-743.73	0.00	0.00	0.00
3,600.00	30.50	255.00	3,431.20	-423.36	-805.26	-792.35	0.00	0.00	0.00
3,700.00	30.50	255.00	3,517.36	-436.49	-854.28	-840.96	0.00	0.00	0.00
3,800.00	30.50	255.00	3,603.53	-449.63	-903.31	-889.57	0.00	0.00	0.00
3,804.03	30.50	255.00	3,607.00	-450.16	-905.29	-891.53	0.00	0.00	0.00
Parkman									
3,900.00	30.50	255.00	3,689.69	-462.77	-952.33	-938.19	0.00	0.00	0.00
4,000.00	30.50	255.00	3,775.85	-475.90	-1,001.36	-986.80	0.00	0.00	0.00
4,100.00	30.50	255.00	3,862.02	-489.04	-1,050.38	-1,035.41	0.00	0.00	0.00
4,200.00	30.50	255.00	3,948.18	-502.18	-1,099.41	-1,084.03	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)
4,300.00	30.50	255.00	4,034.34	-515.31	-1,148.43	-1,132.64	0.00	0.00	0.00
4,363.44	30.50	255.00	4,089.00	-523.64	-1,179.53	-1,163.48	0.00	0.00	0.00
Sussex									
4,400.00	30.50	255.00	4,120.51	-528.45	-1,197.46	-1,181.25	0.00	0.00	0.00
4,500.00	30.50	255.00	4,206.67	-541.58	-1,246.48	-1,229.87	0.00	0.00	0.00
4,600.00	30.50	255.00	4,292.83	-554.72	-1,295.50	-1,278.48	0.00	0.00	0.00
4,700.00	30.50	255.00	4,378.99	-567.86	-1,344.53	-1,327.09	0.00	0.00	0.00
4,800.00	30.50	255.00	4,465.16	-580.99	-1,393.55	-1,375.70	0.00	0.00	0.00
4,900.00	30.50	255.00	4,551.32	-594.13	-1,442.58	-1,424.32	0.00	0.00	0.00
5,000.00	30.50	255.00	4,637.48	-607.26	-1,491.60	-1,472.93	0.00	0.00	0.00
5,100.00	30.50	255.00	4,723.65	-620.40	-1,540.63	-1,521.54	0.00	0.00	0.00
5,200.00	30.50	255.00	4,809.81	-633.54	-1,589.65	-1,570.16	0.00	0.00	0.00
5,300.00	30.50	255.00	4,895.97	-646.67	-1,638.68	-1,618.77	0.00	0.00	0.00
5,400.00	30.50	255.00	4,982.13	-659.81	-1,687.70	-1,667.38	0.00	0.00	0.00
5,500.00	30.50	255.00	5,068.30	-672.94	-1,736.72	-1,716.00	0.00	0.00	0.00
5,600.00	30.50	255.00	5,154.46	-686.08	-1,785.75	-1,764.61	0.00	0.00	0.00
5,700.00	30.50	255.00	5,240.62	-699.22	-1,834.77	-1,813.22	0.00	0.00	0.00
5,800.00	30.50	255.00	5,326.79	-712.35	-1,883.80	-1,861.84	0.00	0.00	0.00
5,900.00	30.50	255.00	5,412.95	-725.49	-1,932.82	-1,910.45	0.00	0.00	0.00
6,000.00	30.50	255.00	5,499.11	-738.62	-1,981.85	-1,959.06	0.00	0.00	0.00
6,100.00	30.50	255.00	5,585.27	-751.76	-2,030.87	-2,007.68	0.00	0.00	0.00
6,200.00	30.50	255.00	5,671.44	-764.90	-2,079.90	-2,056.29	0.00	0.00	0.00
6,300.00	30.50	255.00	5,757.60	-778.03	-2,128.92	-2,104.90	0.00	0.00	0.00
6,400.00	30.50	255.00	5,843.76	-791.17	-2,177.94	-2,153.52	0.00	0.00	0.00
6,500.00	30.50	255.00	5,929.93	-804.30	-2,226.97	-2,202.13	0.00	0.00	0.00
6,600.00	30.50	255.00	6,016.09	-817.44	-2,275.99	-2,250.74	0.00	0.00	0.00
6,700.00	30.50	255.00	6,102.25	-830.58	-2,325.02	-2,299.35	0.00	0.00	0.00
6,729.01	30.50	255.00	6,127.25	-834.39	-2,339.24	-2,313.46	0.00	0.00	0.00
KOP @ 6729.01ft :: DLS = 8°/100'									
6,750.00	28.92	253.86	6,145.48	-837.18	-2,349.26	-2,323.39	8.00	-7.54	-5.41
6,800.00	25.19	250.64	6,190.00	-844.07	-2,370.92	-2,344.84	8.00	-7.45	-6.45
6,850.00	21.56	246.40	6,235.89	-851.28	-2,389.39	-2,363.09	8.00	-7.26	-8.48
6,900.00	18.08	240.58	6,282.93	-858.77	-2,404.58	-2,378.04	8.00	-6.97	-11.65
6,950.00	14.85	232.21	6,330.88	-866.51	-2,416.40	-2,389.63	8.00	-6.46	-16.73
7,000.00	12.08	219.74	6,379.51	-874.46	-2,424.81	-2,397.80	8.00	-5.55	-24.93
7,050.00	10.14	201.43	6,428.58	-882.59	-2,429.77	-2,402.51	8.00	-3.87	-36.63
7,100.00	9.57	178.13	6,477.87	-890.84	-2,431.24	-2,403.74	8.00	-1.15	-46.59
7,150.00	10.58	155.85	6,527.11	-899.19	-2,429.23	-2,401.48	8.00	2.03	-44.57
7,200.00	12.81	139.33	6,576.09	-907.58	-2,423.73	-2,395.74	8.00	4.46	-33.03
7,250.00	15.74	128.24	6,624.54	-915.99	-2,414.79	-2,386.55	8.00	5.87	-22.18
7,300.00	19.06	120.74	6,672.26	-924.36	-2,402.44	-2,373.96	8.00	6.64	-15.01
7,350.00	22.60	115.44	6,718.98	-932.67	-2,386.74	-2,358.02	8.00	7.07	-10.58
7,400.00	26.26	111.54	6,764.50	-940.86	-2,367.77	-2,338.81	8.00	7.32	-7.81
7,450.00	30.00	108.54	6,808.59	-948.90	-2,345.62	-2,316.44	8.00	7.49	-6.00
7,498.76	33.70	106.21	6,850.00	-956.55	-2,321.06	-2,291.66	8.00	7.59	-4.78
Sharon Springs									
7,500.00	33.80	106.16	6,851.03	-956.75	-2,320.40	-2,291.00	8.00	7.63	-4.30
7,535.43	36.51	104.74	6,880.00	-962.17	-2,300.74	-2,271.18	8.00	7.66	-4.01
Niobrara									
7,550.00	37.63	104.20	6,891.62	-964.36	-2,292.23	-2,262.61	8.00	7.69	-3.65
7,600.00	41.49	102.56	6,930.16	-971.72	-2,261.25	-2,231.43	8.00	7.72	-3.28
7,650.00	45.38	101.16	6,966.47	-978.76	-2,227.62	-2,197.60	8.00	7.76	-2.81
7,700.00	49.27	99.93	7,000.35	-985.48	-2,191.48	-2,161.28	8.00	7.79	-2.46

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)
7,750.00	53.18	98.83	7,031.66	-991.82	-2,153.03	-2,122.66	8.00	7.82	-2.19
7,750.57	53.23	98.82	7,032.00	-991.89	-2,152.58	-2,122.21	8.00	7.83	-2.07
Nio B									
7,800.00	57.10	97.85	7,060.23	-997.76	-2,112.44	-2,081.91	8.00	7.83	-1.97
7,806.99	57.65	97.72	7,064.00	-998.56	-2,106.61	-2,076.06	8.00	7.84	-1.87
Nio C									
7,850.00	61.02	96.94	7,085.93	-1,003.27	-2,069.92	-2,039.25	8.00	7.85	-1.80
7,900.00	64.95	96.11	7,108.64	-1,008.33	-2,025.68	-1,994.87	8.00	7.86	-1.67
7,950.00	68.89	95.32	7,128.24	-1,012.90	-1,979.92	-1,948.99	8.00	7.87	-1.57
8,000.00	72.82	94.58	7,144.63	-1,016.98	-1,932.87	-1,901.85	8.00	7.88	-1.49
8,050.00	76.77	93.87	7,157.74	-1,020.53	-1,884.76	-1,853.65	8.00	7.88	-1.43
8,091.01	80.00	93.30	7,166.00	-1,023.03	-1,844.67	-1,813.51	8.00	7.88	-1.38
Fort Hayes									
8,100.00	80.71	93.18	7,167.51	-1,023.53	-1,835.82	-1,804.65	8.00	7.89	-1.37
8,150.00	84.65	92.50	7,173.88	-1,025.99	-1,786.30	-1,755.08	8.00	7.89	-1.35
8,200.00	88.60	91.83	7,176.82	-1,027.87	-1,736.43	-1,705.18	8.00	7.89	-1.33
8,210.25	89.40	91.70	7,177.00	-1,028.19	-1,726.19	-1,694.93	8.00	7.89	-1.33
End Build @ 8210.25ft									
8,300.00	89.40	91.70	7,177.93	-1,030.85	-1,636.48	-1,605.18	0.00	0.00	0.00
8,400.00	89.40	91.70	7,178.97	-1,033.81	-1,536.53	-1,505.19	0.00	0.00	0.00
8,500.00	89.40	91.70	7,180.01	-1,036.78	-1,436.58	-1,405.19	0.00	0.00	0.00
8,600.00	89.40	91.70	7,181.05	-1,039.74	-1,336.63	-1,305.20	0.00	0.00	0.00
8,700.00	89.40	91.70	7,182.09	-1,042.70	-1,236.68	-1,205.20	0.00	0.00	0.00
8,800.00	89.40	91.70	7,183.14	-1,045.67	-1,136.73	-1,105.21	0.00	0.00	0.00
8,900.00	89.40	91.70	7,184.18	-1,048.63	-1,036.78	-1,005.22	0.00	0.00	0.00
9,000.00	89.40	91.70	7,185.22	-1,051.59	-936.83	-905.22	0.00	0.00	0.00
9,100.00	89.40	91.70	7,186.26	-1,054.56	-836.88	-805.23	0.00	0.00	0.00
9,171.60	89.40	91.70	7,187.00	-1,056.68	-765.31	-733.63	0.00	0.00	0.00
Codell									
9,200.00	89.40	91.70	7,187.30	-1,057.52	-736.93	-705.23	0.00	0.00	0.00
9,300.00	89.40	91.70	7,188.34	-1,060.48	-636.98	-605.24	0.00	0.00	0.00
9,400.00	89.40	91.70	7,189.38	-1,063.44	-537.03	-505.24	0.00	0.00	0.00
9,500.00	89.40	91.70	7,190.42	-1,066.41	-437.08	-405.25	0.00	0.00	0.00
9,600.00	89.40	91.70	7,191.46	-1,069.37	-337.13	-305.25	0.00	0.00	0.00
9,700.00	89.40	91.70	7,192.50	-1,072.33	-237.17	-205.26	0.00	0.00	0.00
9,800.00	89.40	91.70	7,193.54	-1,075.30	-137.22	-105.26	0.00	0.00	0.00
9,900.00	89.40	91.70	7,194.58	-1,078.26	-37.27	-5.27	0.00	0.00	0.00
10,000.00	89.40	91.70	7,195.62	-1,081.22	62.68	94.73	0.00	0.00	0.00
10,100.00	89.40	91.70	7,196.66	-1,084.19	162.63	194.72	0.00	0.00	0.00
10,200.00	89.40	91.70	7,197.70	-1,087.15	262.58	294.71	0.00	0.00	0.00
10,300.00	89.40	91.70	7,198.74	-1,090.11	362.53	394.71	0.00	0.00	0.00
10,400.00	89.40	91.70	7,199.78	-1,093.08	462.48	494.70	0.00	0.00	0.00
10,500.00	89.40	91.70	7,200.82	-1,096.04	562.43	594.70	0.00	0.00	0.00
10,600.00	89.40	91.70	7,201.86	-1,099.00	662.38	694.69	0.00	0.00	0.00
10,700.00	89.40	91.70	7,202.90	-1,101.97	762.33	794.69	0.00	0.00	0.00
10,800.00	89.40	91.70	7,203.94	-1,104.93	862.28	894.68	0.00	0.00	0.00
10,900.00	89.40	91.70	7,204.98	-1,107.89	962.23	994.68	0.00	0.00	0.00
11,000.00	89.40	91.70	7,206.02	-1,110.86	1,062.18	1,094.67	0.00	0.00	0.00
11,100.00	89.40	91.70	7,207.06	-1,113.82	1,162.13	1,194.67	0.00	0.00	0.00
11,200.00	89.40	91.70	7,208.10	-1,116.78	1,262.09	1,294.66	0.00	0.00	0.00
11,300.00	89.40	91.70	7,209.14	-1,119.74	1,362.04	1,394.66	0.00	0.00	0.00
11,400.00	89.40	91.70	7,210.18	-1,122.71	1,461.99	1,494.65	0.00	0.00	0.00
11,500.00	89.40	91.70	7,211.22	-1,125.67	1,561.94	1,594.64	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)	
11,600.00	89.40	91.70	7,212.26	-1,128.63	1,661.89	1,694.64	0.00	0.00	0.00	
11,700.00	89.40	91.70	7,213.30	-1,131.60	1,761.84	1,794.63	0.00	0.00	0.00	
11,800.00	89.40	91.70	7,214.34	-1,134.56	1,861.79	1,894.63	0.00	0.00	0.00	
11,900.00	89.40	91.70	7,215.38	-1,137.52	1,961.74	1,994.62	0.00	0.00	0.00	
12,000.00	89.40	91.70	7,216.42	-1,140.49	2,061.69	2,094.62	0.00	0.00	0.00	
12,100.00	89.40	91.70	7,217.46	-1,143.45	2,161.64	2,194.61	0.00	0.00	0.00	
12,200.00	89.40	91.70	7,218.50	-1,146.41	2,261.59	2,294.61	0.00	0.00	0.00	
12,300.00	89.40	91.70	7,219.54	-1,149.38	2,361.54	2,394.60	0.00	0.00	0.00	
12,400.00	89.40	91.70	7,220.58	-1,152.34	2,461.49	2,494.60	0.00	0.00	0.00	
12,500.00	89.40	91.70	7,221.62	-1,155.30	2,561.44	2,594.59	0.00	0.00	0.00	
12,600.00	89.40	91.70	7,222.66	-1,158.27	2,661.39	2,694.58	0.00	0.00	0.00	
12,700.00	89.40	91.70	7,223.70	-1,161.23	2,761.35	2,794.58	0.00	0.00	0.00	
12,800.00	89.40	91.70	7,224.74	-1,164.19	2,861.30	2,894.57	0.00	0.00	0.00	
12,900.00	89.40	91.70	7,225.78	-1,167.16	2,961.25	2,994.57	0.00	0.00	0.00	
13,000.00	89.40	91.70	7,226.82	-1,170.12	3,061.20	3,094.56	0.00	0.00	0.00	
13,100.00	89.40	91.70	7,227.86	-1,173.08	3,161.15	3,194.56	0.00	0.00	0.00	
13,200.00	89.40	91.70	7,228.90	-1,176.05	3,261.10	3,294.55	0.00	0.00	0.00	
13,300.00	89.40	91.70	7,229.94	-1,179.01	3,361.05	3,394.55	0.00	0.00	0.00	
13,400.00	89.40	91.70	7,230.98	-1,181.97	3,461.00	3,494.54	0.00	0.00	0.00	
13,500.00	89.40	91.70	7,232.02	-1,184.93	3,560.95	3,594.54	0.00	0.00	0.00	
13,600.00	89.40	91.70	7,233.06	-1,187.90	3,660.90	3,694.53	0.00	0.00	0.00	
13,700.00	89.40	91.70	7,234.10	-1,190.86	3,760.85	3,794.53	0.00	0.00	0.00	
13,800.00	89.40	91.70	7,235.14	-1,193.82	3,860.80	3,894.52	0.00	0.00	0.00	
13,900.00	89.40	91.70	7,236.18	-1,196.79	3,960.75	3,994.51	0.00	0.00	0.00	
14,000.00	89.40	91.70	7,237.22	-1,199.75	4,060.70	4,094.51	0.00	0.00	0.00	
14,100.00	89.40	91.70	7,238.26	-1,202.71	4,160.66	4,194.50	0.00	0.00	0.00	
14,200.00	89.40	91.70	7,239.30	-1,205.68	4,260.61	4,294.50	0.00	0.00	0.00	
14,300.00	89.40	91.70	7,240.34	-1,208.64	4,360.56	4,394.49	0.00	0.00	0.00	
14,400.00	89.40	91.70	7,241.38	-1,211.60	4,460.51	4,494.49	0.00	0.00	0.00	
14,500.00	89.40	91.70	7,242.42	-1,214.57	4,560.46	4,594.48	0.00	0.00	0.00	
14,600.00	89.40	91.70	7,243.46	-1,217.53	4,660.41	4,694.48	0.00	0.00	0.00	
14,700.00	89.40	91.70	7,244.50	-1,220.49	4,760.36	4,794.47	0.00	0.00	0.00	
14,800.00	89.40	91.70	7,245.54	-1,223.46	4,860.31	4,894.47	0.00	0.00	0.00	
14,900.00	89.40	91.70	7,246.58	-1,226.42	4,960.26	4,994.46	0.00	0.00	0.00	
15,000.00	89.40	91.70	7,247.62	-1,229.38	5,060.21	5,094.46	0.00	0.00	0.00	
15,100.00	89.40	91.70	7,248.66	-1,232.35	5,160.16	5,194.45	0.00	0.00	0.00	
15,200.00	89.40	91.70	7,249.70	-1,235.31	5,260.11	5,294.44	0.00	0.00	0.00	
15,300.00	89.40	91.70	7,250.74	-1,238.27	5,360.06	5,394.44	0.00	0.00	0.00	
15,400.00	89.40	91.70	7,251.78	-1,241.23	5,460.01	5,494.43	0.00	0.00	0.00	
15,500.00	89.40	91.70	7,252.82	-1,244.20	5,559.96	5,594.43	0.00	0.00	0.00	
15,600.00	89.40	91.70	7,253.86	-1,247.16	5,659.92	5,694.42	0.00	0.00	0.00	
15,700.00	89.40	91.70	7,254.90	-1,250.12	5,759.87	5,794.42	0.00	0.00	0.00	
15,800.00	89.40	91.70	7,255.94	-1,253.09	5,859.82	5,894.41	0.00	0.00	0.00	
15,900.00	89.40	91.70	7,256.98	-1,256.05	5,959.77	5,994.41	0.00	0.00	0.00	
16,000.00	89.40	91.70	7,258.02	-1,259.01	6,059.72	6,094.40	0.00	0.00	0.00	
16,100.00	89.40	91.70	7,259.06	-1,261.98	6,159.67	6,194.40	0.00	0.00	0.00	
16,200.00	89.40	91.70	7,260.10	-1,264.94	6,259.62	6,294.39	0.00	0.00	0.00	
16,300.00	89.40	91.70	7,261.14	-1,267.90	6,359.57	6,394.38	0.00	0.00	0.00	
16,400.00	89.40	91.70	7,262.18	-1,270.87	6,459.52	6,494.38	0.00	0.00	0.00	
16,500.00	89.40	91.70	7,263.22	-1,273.83	6,559.47	6,594.37	0.00	0.00	0.00	
16,600.00	89.40	91.70	7,264.26	-1,276.79	6,659.42	6,694.37	0.00	0.00	0.00	
16,700.00	89.40	91.70	7,265.31	-1,279.76	6,759.37	6,794.36	0.00	0.00	0.00	
16,800.00	89.40	91.70	7,266.35	-1,282.72	6,859.32	6,894.36	0.00	0.00	0.00	
16,900.00	89.40	91.70	7,267.39	-1,285.68	6,959.27	6,994.35	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)
17,000.00	89.40	91.70	7,268.43	-1,288.65	7,059.22	7,094.35	0.00	0.00	0.00
17,100.00	89.40	91.70	7,269.47	-1,291.61	7,159.18	7,194.34	0.00	0.00	0.00
17,200.00	89.40	91.70	7,270.51	-1,294.57	7,259.13	7,294.34	0.00	0.00	0.00
17,300.00	89.40	91.70	7,271.55	-1,297.54	7,359.08	7,394.33	0.00	0.00	0.00
17,400.00	89.40	91.70	7,272.59	-1,300.50	7,459.03	7,494.33	0.00	0.00	0.00
17,500.00	89.40	91.70	7,273.63	-1,303.46	7,558.98	7,594.32	0.00	0.00	0.00
17,600.00	89.40	91.70	7,274.67	-1,306.42	7,658.93	7,694.31	0.00	0.00	0.00
17,700.00	89.40	91.70	7,275.71	-1,309.39	7,758.88	7,794.31	0.00	0.00	0.00
17,800.00	89.40	91.70	7,276.75	-1,312.35	7,858.83	7,894.30	0.00	0.00	0.00
17,900.00	89.40	91.70	7,277.79	-1,315.31	7,958.78	7,994.30	0.00	0.00	0.00
18,000.00	89.40	91.70	7,278.83	-1,318.28	8,058.73	8,094.29	0.00	0.00	0.00
18,100.00	89.40	91.70	7,279.87	-1,321.24	8,158.68	8,194.29	0.00	0.00	0.00
18,200.00	89.40	91.70	7,280.91	-1,324.20	8,258.63	8,294.28	0.00	0.00	0.00
18,300.00	89.40	91.70	7,281.95	-1,327.17	8,358.58	8,394.28	0.00	0.00	0.00
18,400.00	89.40	91.70	7,282.99	-1,330.13	8,458.53	8,494.27	0.00	0.00	0.00
18,500.00	89.40	91.70	7,284.03	-1,333.09	8,558.48	8,594.27	0.00	0.00	0.00
18,600.00	89.40	91.70	7,285.07	-1,336.06	8,658.44	8,694.26	0.00	0.00	0.00
18,700.00	89.40	91.70	7,286.11	-1,339.02	8,758.39	8,794.26	0.00	0.00	0.00
18,800.00	89.40	91.70	7,287.15	-1,341.98	8,858.34	8,894.25	0.00	0.00	0.00
18,900.00	89.40	91.70	7,288.19	-1,344.95	8,958.29	8,994.24	0.00	0.00	0.00
19,000.00	89.40	91.70	7,289.23	-1,347.91	9,058.24	9,094.24	0.00	0.00	0.00
19,100.00	89.40	91.70	7,290.27	-1,350.87	9,158.19	9,194.23	0.00	0.00	0.00
19,200.00	89.40	91.70	7,291.31	-1,353.84	9,258.14	9,294.23	0.00	0.00	0.00
19,300.00	89.40	91.70	7,292.35	-1,356.80	9,358.09	9,394.22	0.00	0.00	0.00
19,400.00	89.40	91.70	7,293.39	-1,359.76	9,458.04	9,494.22	0.00	0.00	0.00
19,500.00	89.40	91.70	7,294.43	-1,362.72	9,557.99	9,594.21	0.00	0.00	0.00
19,600.00	89.40	91.70	7,295.47	-1,365.69	9,657.94	9,694.21	0.00	0.00	0.00
19,700.00	89.40	91.70	7,296.51	-1,368.65	9,757.89	9,794.20	0.00	0.00	0.00
19,800.00	89.40	91.70	7,297.55	-1,371.61	9,857.84	9,894.20	0.00	0.00	0.00
19,900.00	89.40	91.70	7,298.59	-1,374.58	9,957.79	9,994.19	0.00	0.00	0.00
20,000.00	89.40	91.70	7,299.63	-1,377.54	10,057.75	10,094.18	0.00	0.00	0.00
20,100.00	89.40	91.70	7,300.67	-1,380.50	10,157.70	10,194.18	0.00	0.00	0.00
20,200.00	89.40	91.70	7,301.71	-1,383.47	10,257.65	10,294.17	0.00	0.00	0.00
20,300.00	89.40	91.70	7,302.75	-1,386.43	10,357.60	10,394.17	0.00	0.00	0.00
20,400.00	89.40	91.70	7,303.79	-1,389.39	10,457.55	10,494.16	0.00	0.00	0.00
20,500.00	89.40	91.70	7,304.83	-1,392.36	10,557.50	10,594.16	0.00	0.00	0.00
20,600.00	89.40	91.70	7,305.87	-1,395.32	10,657.45	10,694.15	0.00	0.00	0.00
20,700.00	89.40	91.70	7,306.91	-1,398.28	10,757.40	10,794.15	0.00	0.00	0.00
20,800.00	89.40	91.70	7,307.95	-1,401.25	10,857.35	10,894.14	0.00	0.00	0.00
20,900.00	89.40	91.70	7,308.99	-1,404.21	10,957.30	10,994.14	0.00	0.00	0.00
21,000.00	89.40	91.70	7,310.03	-1,407.17	11,057.25	11,094.13	0.00	0.00	0.00
21,100.00	89.40	91.70	7,311.07	-1,410.14	11,157.20	11,194.13	0.00	0.00	0.00
21,200.00	89.40	91.70	7,312.11	-1,413.10	11,257.15	11,294.12	0.00	0.00	0.00
21,300.00	89.40	91.70	7,313.15	-1,416.06	11,357.10	11,394.11	0.00	0.00	0.00
21,400.00	89.40	91.70	7,314.19	-1,419.02	11,457.05	11,494.11	0.00	0.00	0.00
21,500.00	89.40	91.70	7,315.23	-1,421.99	11,557.01	11,594.10	0.00	0.00	0.00
21,600.00	89.40	91.70	7,316.27	-1,424.95	11,656.96	11,694.10	0.00	0.00	0.00
21,700.00	89.40	91.70	7,317.31	-1,427.91	11,756.91	11,794.09	0.00	0.00	0.00
21,800.00	89.40	91.70	7,318.35	-1,430.88	11,856.86	11,894.09	0.00	0.00	0.00
21,900.00	89.40	91.70	7,319.39	-1,433.84	11,956.81	11,994.08	0.00	0.00	0.00
22,000.00	89.40	91.70	7,320.43	-1,436.80	12,056.76	12,094.08	0.00	0.00	0.00
22,100.00	89.40	91.70	7,321.47	-1,439.77	12,156.71	12,194.07	0.00	0.00	0.00
22,200.00	89.40	91.70	7,322.51	-1,442.73	12,256.66	12,294.07	0.00	0.00	0.00
22,300.00	89.40	91.70	7,323.55	-1,445.69	12,356.61	12,394.06	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
22,400.00	89.40	91.70	7,324.59	-1,448.66	12,456.56	12,494.05	0.00	0.00	0.00
22,500.00	89.40	91.70	7,325.63	-1,451.62	12,556.51	12,594.05	0.00	0.00	0.00
22,600.00	89.40	91.70	7,326.67	-1,454.58	12,656.46	12,694.04	0.00	0.00	0.00
22,700.00	89.40	91.70	7,327.71	-1,457.55	12,756.41	12,794.04	0.00	0.00	0.00
22,800.00	89.40	91.70	7,328.75	-1,460.51	12,856.36	12,894.03	0.00	0.00	0.00
22,900.00	89.40	91.70	7,329.79	-1,463.47	12,956.31	12,994.03	0.00	0.00	0.00
23,000.00	89.40	91.70	7,330.83	-1,466.44	13,056.27	13,094.02	0.00	0.00	0.00
23,100.00	89.40	91.70	7,331.87	-1,469.40	13,156.22	13,194.02	0.00	0.00	0.00
23,200.00	89.40	91.70	7,332.91	-1,472.36	13,256.17	13,294.01	0.00	0.00	0.00
23,300.00	89.40	91.70	7,333.95	-1,475.33	13,356.12	13,394.01	0.00	0.00	0.00
23,400.00	89.40	91.70	7,334.99	-1,478.29	13,456.07	13,494.00	0.00	0.00	0.00
23,500.00	89.40	91.70	7,336.03	-1,481.25	13,556.02	13,594.00	0.00	0.00	0.00
23,600.00	89.40	91.70	7,337.07	-1,484.21	13,655.97	13,693.99	0.00	0.00	0.00
23,700.00	89.40	91.70	7,338.11	-1,487.18	13,755.92	13,793.98	0.00	0.00	0.00
23,800.00	89.40	91.70	7,339.15	-1,490.14	13,855.87	13,893.98	0.00	0.00	0.00
23,900.00	89.40	91.70	7,340.19	-1,493.10	13,955.82	13,993.97	0.00	0.00	0.00
24,000.00	89.40	91.70	7,341.23	-1,496.07	14,055.77	14,093.97	0.00	0.00	0.00
24,100.00	89.40	91.70	7,342.27	-1,499.03	14,155.72	14,193.96	0.00	0.00	0.00
24,169.77	89.40	91.70	7,343.00	-1,501.10	14,225.46	14,263.73	0.00	0.00	0.00
TD Well @ 24169.77ft - 5.5" CSG									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,519.39	1,500.00	9 5/8"	9-5/8	13-1/2	
24,169.77	7,343.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
717.00	716.00	Fox Hills				
3,804.03	3,607.00	Parkman				
4,363.44	4,089.00	Sussex				
7,498.76	6,850.00	Sharon Springs				
7,535.43	6,880.00	Niobrara				
7,750.57	7,032.00	Nio B				
7,806.99	7,064.00	Nio C				
8,091.01	7,166.00	Fort Hayes				
9,171.60	7,187.00	Codell				

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 26' @ 4851.00usft (BIG RIG)
Site:	3N-67W-04 SWARTZ 2-4HZ PAD	North Reference:	True
Well:	SWARTZ 4-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
Design:	Permit Rev-1		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,830.00	1,803.05	-168.77	-196.65	Tie-onto Sfc Svys & Hold @ 1830.00ft	
1,950.00	1,920.03	-187.56	-215.67	Build Sail Angle @ 1950.00ft	
3,299.68	3,172.44	-383.91	-658.03	Hold Tangent @ 3299.68ft	
6,729.01	6,127.25	-834.39	-2,339.24	KOP @ 6729.01ft :: DLS = 8"/100'	
8,210.25	7,177.00	-1,028.19	-1,726.19	End Build @ 8210.25ft	
24,169.77	7,343.00	-1,501.10	14,225.46	TD Well @ 24169.77ft	