

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-04 SWARTZ 2-4HZ PAD
SWARTZ 4-15HZ**

Plan C

Plan: Permit Rev-1

Standard Planning Report

04 April, 2024

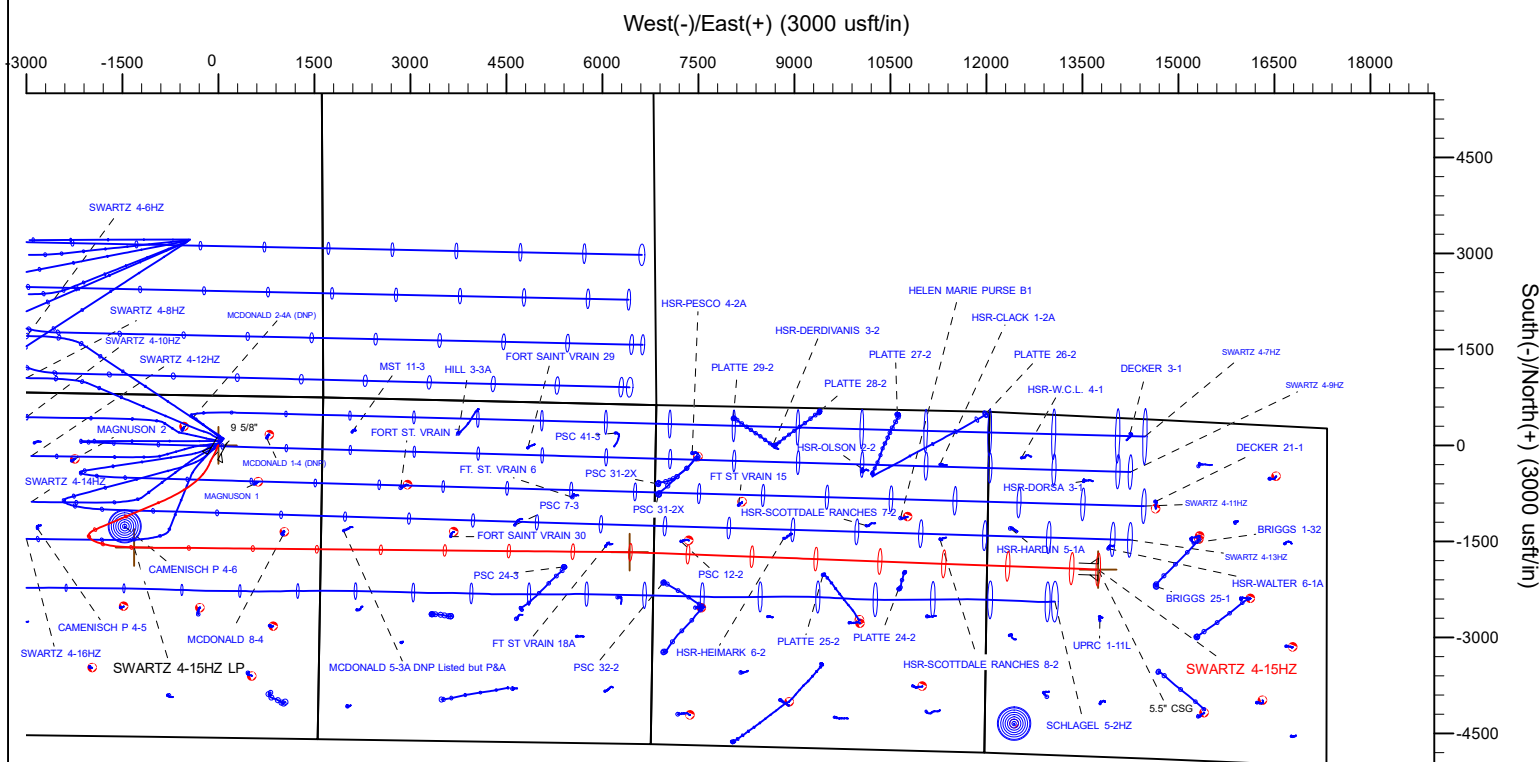
US ROCKIES WATTENBERG PLANNING

CASING DETAILS			
TVD	MD	Name	Size
1500.00	1522.12	9 5/8"	9-5/8
7034.70	23013.71	5.5" CSG	5-1/2



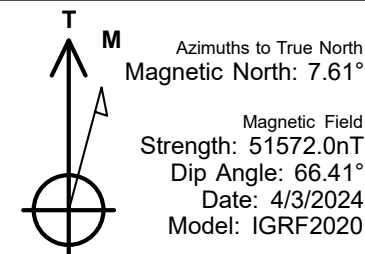
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1838.00	16.16	204.00	1803.89	-260.92	-126.56	0.00	0.00	-119.78	
2038.00	16.16	204.00	1995.98	-311.78	-149.20	0.00	0.00	-141.10	
4441.67	33.50	247.00	4184.72	-884.97	-907.01	1.00	67.54	-883.85	
6445.36	33.50	247.00	5855.57	-1317.08	-1925.00	0.00	0.00	-1890.34	
7944.07	89.48	90.55	6899.00	-1595.90	-1316.13	8.00	-152.56	-1274.47	
15689.66	89.48	90.55	6968.79	-1670.00	6428.79	0.00	0.00	6469.78	SWARTZ 4-15HZ INT TGT
15795.58	89.48	92.14	6969.74	-1672.48	6534.68	1.50	89.99	6575.69	
23013.71	89.48	92.14	7034.70	-1941.65	13747.49	0.00	0.00	13793.05	SWARTZ 4-15HZ BHL

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-15HZ SHL	0.00	14621435.21	1670575.12	40.260013	-104.891900
SWARTZ 4-15HZ LP	6899.00	14619837.71	1669260.94	40.255630	-104.896617
SWARTZ 4-15HZ BHL	7034.70	14619510.32	1684324.97	40.254671	-104.842627



WELL DETAILS: SWARTZ 4-15HZ
GL = 4825'
RKB = 26' @ 4851.00usft (BIG RIG)
Plan: Permit Rev-1 (SWARTZ 4-15HZ/Plan C)
Date: 4/4/2024

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
716.00	717.10	Fox Hills
3607.00	3770.33	Parkman
4089.00	4327.54	Sussex
6850.00	7679.64	Sharon Springs
6880.00	7782.45	Niobrara



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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
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 4-15HZ		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	3.28 usft	Wellhead Elevation:	
Grid Convergence:	0.07 °		
		Latitude:	40.260013
		Longitude:	-104.891900
		Ground Level:	4,825.00 usft

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	4/3/2024	7.61	66.41	51,572.03537438

Design	Permit Rev-1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	1,838.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	91.48	

Plan Survey Tool Program	Date	4/3/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	91.00	1,838.00	Total Surface MWD+IFR Surveys	APC_ISCWSA REV 2 MWD+I	
			Fixed:v2:crustal field declinatio		
2	1,838.00	23,013.71	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 4-15HZ	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
1,838.00	16.16	204.00	1,803.89	-260.92	-126.56	0.00	0.00	0.00	0.00	
2,038.00	16.16	204.00	1,995.98	-311.78	-149.20	0.00	0.00	0.00	0.00	
4,441.67	33.50	247.00	4,184.72	-884.97	-907.01	1.00	0.72	1.79	67.54	
6,445.36	33.50	247.00	5,855.57	-1,317.08	-1,925.00	0.00	0.00	0.00	0.00	
7,944.07	89.48	90.55	6,899.00	-1,595.90	-1,316.13	8.00	3.74	-10.44	-152.56	
15,689.66	89.48	90.55	6,968.79	-1,670.00	6,428.79	0.00	0.00	0.00	0.00	SWARTZ 4-15HZ INT
15,795.58	89.48	92.14	6,969.74	-1,672.48	6,534.68	1.50	0.00	1.50	89.99	
23,013.71	89.48	92.14	7,034.70	-1,941.65	13,747.49	0.00	0.00	0.00	0.00	SWARTZ 4-15HZ BHI

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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	0.19	334.92	91.00	0.12	-0.06	-0.06	0.21	0.21	0.00
183.00	0.17	223.14	183.00	0.16	-0.22	-0.22	0.32	-0.02	-121.50
275.00	0.52	177.37	275.00	-0.35	-0.29	-0.28	0.46	0.38	-49.75
365.00	2.04	202.52	364.97	-2.24	-0.88	-0.83	1.76	1.69	27.94
454.00	2.35	211.05	453.91	-5.27	-2.43	-2.30	0.51	0.35	9.58
544.00	5.26	206.94	543.70	-10.53	-5.25	-4.98	3.25	3.23	-4.57
633.00	5.51	214.88	632.31	-17.67	-9.55	-9.09	0.88	0.28	8.92
723.00	5.80	215.09	721.87	-24.94	-14.63	-13.98	0.32	0.32	0.23
812.00	7.06	197.79	810.32	-33.83	-18.89	-18.01	2.58	1.42	-19.44
902.00	10.03	197.87	899.31	-46.55	-22.98	-21.77	3.30	3.30	0.09
991.00	11.28	199.67	986.77	-62.13	-28.29	-26.68	1.45	1.40	2.02
1,081.00	12.27	202.05	1,074.88	-79.28	-34.84	-32.79	1.23	1.10	2.64
1,170.00	15.05	203.54	1,161.35	-98.64	-43.01	-40.45	3.15	3.12	1.67
1,259.00	15.91	207.09	1,247.12	-120.10	-53.18	-50.06	1.44	0.97	3.99
1,349.00	16.13	207.28	1,333.63	-142.19	-64.53	-60.84	0.25	0.24	0.21
1,439.00	16.15	208.89	1,420.08	-164.26	-76.31	-72.04	0.50	0.02	1.79
1,522.12	15.76	209.56	1,500.00	-184.20	-87.46	-82.67	0.52	-0.47	0.81
9 5/8"									
1,528.00	15.73	209.61	1,505.66	-185.59	-88.25	-83.43	0.52	-0.47	0.83
1,618.00	15.13	209.73	1,592.42	-206.39	-100.10	-94.74	0.67	-0.67	0.13
1,707.00	16.01	206.17	1,678.15	-227.50	-111.27	-105.36	1.46	0.99	-4.00
1,797.00	16.54	203.69	1,764.55	-250.37	-121.90	-115.39	0.97	0.59	-2.76
1,838.00	16.16	204.00	1,803.89	-260.92	-126.56	-119.78	0.95	-0.93	0.76
Tie-onto Sfc Svcs & Hold @ 1838.00ft									
1,900.00	16.16	204.00	1,863.44	-276.69	-133.58	-126.39	0.00	0.00	0.00
2,000.00	16.16	204.00	1,959.49	-302.11	-144.90	-137.05	0.00	0.00	0.00
2,038.00	16.16	204.00	1,995.98	-311.78	-149.20	-141.10	0.00	0.00	0.00
Build Sail Angle INC @ 2038.00ft									
2,100.00	16.41	206.03	2,055.50	-327.53	-156.55	-148.04	1.00	0.40	3.27
2,200.00	16.84	209.17	2,151.32	-352.87	-169.81	-160.64	1.00	0.44	3.14
2,300.00	17.33	212.15	2,246.91	-378.12	-184.80	-174.97	1.00	0.48	2.98
2,400.00	17.85	214.97	2,342.23	-403.29	-201.51	-191.03	1.00	0.52	2.82
2,500.00	18.41	217.63	2,437.27	-428.36	-219.94	-208.80	1.00	0.56	2.66
2,600.00	19.01	220.13	2,531.99	-453.32	-240.08	-228.29	1.00	0.60	2.50
2,700.00	19.64	222.48	2,626.35	-478.17	-261.93	-249.49	1.00	0.63	2.35
2,800.00	20.30	224.69	2,720.34	-502.89	-285.48	-272.39	1.00	0.66	2.21
2,900.00	20.98	226.76	2,813.92	-527.49	-310.72	-296.99	1.00	0.68	2.07
3,000.00	21.69	228.70	2,907.07	-551.95	-337.64	-323.27	1.00	0.71	1.94
3,100.00	22.42	230.53	2,999.76	-576.27	-366.24	-351.23	1.00	0.73	1.83
3,200.00	23.16	232.24	3,091.95	-600.43	-396.51	-380.87	1.00	0.75	1.71
3,300.00	23.93	233.85	3,183.62	-624.44	-428.44	-412.16	1.00	0.77	1.61
3,400.00	24.71	235.37	3,274.75	-648.28	-462.01	-445.11	1.00	0.78	1.52
3,500.00	25.50	236.80	3,365.30	-671.94	-497.23	-479.71	1.00	0.80	1.43
3,600.00	26.31	238.15	3,455.25	-695.43	-534.07	-515.93	1.00	0.81	1.35
3,700.00	27.13	239.42	3,544.57	-718.73	-572.53	-553.77	1.00	0.82	1.27
3,770.33	27.72	240.27	3,607.00	-735.00	-600.54	-581.36	1.00	0.83	1.21
Parkman									
3,800.00	27.96	240.62	3,633.23	-741.83	-612.59	-593.23	1.00	0.83	1.18
3,900.00	28.81	241.76	3,721.21	-764.73	-654.25	-634.28	1.00	0.84	1.14
4,000.00	29.66	242.84	3,808.48	-787.42	-697.49	-676.92	1.00	0.85	1.08
4,100.00	30.51	243.86	3,895.00	-809.90	-742.29	-721.12	1.00	0.86	1.02
4,200.00	31.38	244.84	3,980.77	-832.15	-788.65	-766.89	1.00	0.87	0.97
4,300.00	32.25	245.76	4,065.74	-854.17	-836.54	-814.20	1.00	0.87	0.93

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 4-15HZ	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)
4,327.54	32.49	246.01	4,089.00	-860.20	-850.00	-827.50	1.00	0.88	0.90
Sussex									
4,400.00	33.13	246.64	4,149.90	-875.96	-885.97	-863.05	1.00	0.88	0.88
4,441.67	33.50	247.00	4,184.72	-884.97	-907.01	-883.85	1.00	0.88	0.85
Hold Tangent @ 4441.67ft									
4,500.00	33.50	247.00	4,233.36	-897.55	-936.64	-913.15	0.00	0.00	0.00
4,600.00	33.50	247.00	4,316.75	-919.12	-987.45	-963.38	0.00	0.00	0.00
4,700.00	33.50	247.00	4,400.14	-940.68	-1,038.25	-1,013.61	0.00	0.00	0.00
4,800.00	33.50	247.00	4,483.53	-962.25	-1,089.06	-1,063.84	0.00	0.00	0.00
4,900.00	33.50	247.00	4,566.92	-983.81	-1,139.86	-1,114.07	0.00	0.00	0.00
5,000.00	33.50	247.00	4,650.31	-1,005.38	-1,190.67	-1,164.31	0.00	0.00	0.00
5,100.00	33.50	247.00	4,733.69	-1,026.95	-1,241.48	-1,214.54	0.00	0.00	0.00
5,200.00	33.50	247.00	4,817.08	-1,048.51	-1,292.28	-1,264.77	0.00	0.00	0.00
5,300.00	33.50	247.00	4,900.47	-1,070.08	-1,343.09	-1,315.00	0.00	0.00	0.00
5,400.00	33.50	247.00	4,983.86	-1,091.64	-1,393.90	-1,365.24	0.00	0.00	0.00
5,500.00	33.50	247.00	5,067.25	-1,113.21	-1,444.70	-1,415.47	0.00	0.00	0.00
5,600.00	33.50	247.00	5,150.64	-1,134.77	-1,495.51	-1,465.70	0.00	0.00	0.00
5,700.00	33.50	247.00	5,234.03	-1,156.34	-1,546.31	-1,515.93	0.00	0.00	0.00
5,800.00	33.50	247.00	5,317.41	-1,177.91	-1,597.12	-1,566.16	0.00	0.00	0.00
5,900.00	33.50	247.00	5,400.80	-1,199.47	-1,647.93	-1,616.40	0.00	0.00	0.00
6,000.00	33.50	247.00	5,484.19	-1,221.04	-1,698.73	-1,666.63	0.00	0.00	0.00
6,100.00	33.50	247.00	5,567.58	-1,242.60	-1,749.54	-1,716.86	0.00	0.00	0.00
6,200.00	33.50	247.00	5,650.97	-1,264.17	-1,800.34	-1,767.09	0.00	0.00	0.00
6,300.00	33.50	247.00	5,734.36	-1,285.74	-1,851.15	-1,817.32	0.00	0.00	0.00
6,400.00	33.50	247.00	5,817.75	-1,307.30	-1,901.96	-1,867.56	0.00	0.00	0.00
6,445.36	33.50	247.00	5,855.57	-1,317.08	-1,925.00	-1,890.34	0.00	0.00	0.00
KOP @ 6445.36ft :: DLS = 8°/100'									
6,450.00	33.17	246.69	5,859.45	-1,318.09	-1,927.35	-1,892.66	8.00	-7.09	-6.74
6,500.00	29.68	242.93	5,902.11	-1,329.14	-1,950.94	-1,915.96	8.00	-6.98	-7.51
6,550.00	26.32	238.30	5,946.26	-1,340.60	-1,971.40	-1,936.12	8.00	-6.72	-9.27
6,600.00	23.15	232.46	5,991.67	-1,352.42	-1,988.64	-1,953.04	8.00	-6.34	-11.68
6,650.00	20.26	224.97	6,038.13	-1,364.54	-2,002.55	-1,966.64	8.00	-5.79	-14.98
6,700.00	17.78	215.31	6,085.41	-1,376.90	-2,013.09	-1,976.85	8.00	-4.96	-19.32
6,750.00	15.91	203.07	6,133.28	-1,389.44	-2,020.18	-1,983.62	8.00	-3.74	-24.48
6,800.00	14.88	188.46	6,181.50	-1,402.09	-2,023.81	-1,986.93	8.00	-2.06	-29.21
6,850.00	14.86	172.82	6,229.85	-1,414.81	-2,023.96	-1,986.74	8.00	-0.03	-31.27
6,900.00	15.86	158.16	6,278.08	-1,427.52	-2,020.61	-1,983.07	8.00	2.01	-29.32
6,950.00	17.71	145.84	6,325.96	-1,440.16	-2,013.80	-1,975.93	8.00	3.70	-24.64
7,000.00	20.18	136.11	6,373.26	-1,452.67	-2,003.55	-1,965.36	8.00	4.93	-19.47
7,050.00	23.06	128.56	6,419.75	-1,465.00	-1,989.91	-1,951.40	8.00	5.77	-15.09
7,100.00	26.22	122.68	6,465.19	-1,477.07	-1,972.94	-1,934.14	8.00	6.33	-11.77
7,150.00	29.58	118.02	6,509.38	-1,488.84	-1,952.74	-1,913.64	8.00	6.71	-9.33
7,200.00	33.07	114.24	6,552.09	-1,500.24	-1,929.40	-1,890.01	8.00	6.97	-7.55
7,250.00	36.65	111.12	6,593.12	-1,511.22	-1,903.03	-1,863.37	8.00	7.16	-6.25
7,300.00	40.30	108.48	6,632.26	-1,521.73	-1,873.77	-1,833.84	8.00	7.30	-5.27
7,350.00	44.00	106.22	6,669.33	-1,531.70	-1,841.74	-1,801.57	8.00	7.40	-4.53
7,400.00	47.74	104.24	6,704.14	-1,541.11	-1,807.12	-1,766.72	8.00	7.48	-3.96
7,450.00	51.51	102.48	6,736.52	-1,549.89	-1,770.07	-1,729.45	8.00	7.54	-3.51
7,500.00	55.30	100.90	6,766.33	-1,558.02	-1,730.77	-1,689.95	8.00	7.59	-3.16
7,550.00	59.11	99.46	6,793.40	-1,565.43	-1,689.40	-1,648.41	8.00	7.62	-2.88
7,600.00	62.94	98.13	6,817.62	-1,572.12	-1,646.18	-1,605.03	8.00	7.65	-2.66
7,650.00	66.78	96.89	6,838.86	-1,578.02	-1,601.32	-1,560.03	8.00	7.68	-2.48
7,679.64	69.06	96.19	6,850.00	-1,581.15	-1,574.04	-1,532.67	8.00	7.69	-2.37

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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)
Sharon Springs									
7,700.00	70.63	95.72	6,857.02	-1,583.13	-1,555.02	-1,513.62	8.00	7.70	-2.31
7,750.00	74.48	94.60	6,872.00	-1,587.42	-1,507.53	-1,466.02	8.00	7.71	-2.24
7,782.45	76.99	93.90	6,880.00	-1,589.74	-1,476.16	-1,434.61	8.00	7.72	-2.17
Niobrara									
7,800.00	78.34	93.52	6,883.75	-1,590.85	-1,459.06	-1,417.48	8.00	7.72	-2.13
7,850.00	82.21	92.48	6,892.19	-1,593.43	-1,409.85	-1,368.23	8.00	7.73	-2.10
7,900.00	86.07	91.45	6,897.30	-1,595.13	-1,360.15	-1,318.50	8.00	7.73	-2.06
7,944.07	89.48	90.55	6,899.00	-1,595.90	-1,316.13	-1,274.47	8.00	7.74	-2.04
End Build @ 7944.07ft									
8,000.00	89.48	90.55	6,899.51	-1,596.43	-1,260.20	-1,218.55	0.00	0.00	0.00
8,100.00	89.48	90.55	6,900.41	-1,597.39	-1,160.21	-1,118.57	0.00	0.00	0.00
8,200.00	89.48	90.55	6,901.31	-1,598.34	-1,060.22	-1,018.59	0.00	0.00	0.00
8,300.00	89.48	90.55	6,902.21	-1,599.30	-960.23	-918.60	0.00	0.00	0.00
8,400.00	89.48	90.55	6,903.11	-1,600.26	-860.24	-818.62	0.00	0.00	0.00
8,500.00	89.48	90.55	6,904.01	-1,601.21	-760.25	-718.64	0.00	0.00	0.00
8,600.00	89.48	90.55	6,904.91	-1,602.17	-660.26	-618.66	0.00	0.00	0.00
8,700.00	89.48	90.55	6,905.82	-1,603.13	-560.27	-518.67	0.00	0.00	0.00
8,800.00	89.48	90.55	6,906.72	-1,604.08	-460.27	-418.69	0.00	0.00	0.00
8,900.00	89.48	90.55	6,907.62	-1,605.04	-360.28	-318.71	0.00	0.00	0.00
9,000.00	89.48	90.55	6,908.52	-1,606.00	-260.29	-218.72	0.00	0.00	0.00
9,100.00	89.48	90.55	6,909.42	-1,606.95	-160.30	-118.74	0.00	0.00	0.00
9,200.00	89.48	90.55	6,910.32	-1,607.91	-60.31	-18.76	0.00	0.00	0.00
9,300.00	89.48	90.55	6,911.22	-1,608.87	39.68	81.22	0.00	0.00	0.00
9,400.00	89.48	90.55	6,912.12	-1,609.82	139.67	181.21	0.00	0.00	0.00
9,500.00	89.48	90.55	6,913.02	-1,610.78	239.67	281.19	0.00	0.00	0.00
9,600.00	89.48	90.55	6,913.92	-1,611.74	339.66	381.17	0.00	0.00	0.00
9,700.00	89.48	90.55	6,914.82	-1,612.69	439.65	481.15	0.00	0.00	0.00
9,800.00	89.48	90.55	6,915.73	-1,613.65	539.64	581.14	0.00	0.00	0.00
9,900.00	89.48	90.55	6,916.63	-1,614.61	639.63	681.12	0.00	0.00	0.00
10,000.00	89.48	90.55	6,917.53	-1,615.57	739.62	781.10	0.00	0.00	0.00
10,100.00	89.48	90.55	6,918.43	-1,616.52	839.61	881.09	0.00	0.00	0.00
10,200.00	89.48	90.55	6,919.33	-1,617.48	939.61	981.07	0.00	0.00	0.00
10,300.00	89.48	90.55	6,920.23	-1,618.44	1,039.60	1,081.05	0.00	0.00	0.00
10,400.00	89.48	90.55	6,921.13	-1,619.39	1,139.59	1,181.03	0.00	0.00	0.00
10,500.00	89.48	90.55	6,922.03	-1,620.35	1,239.58	1,281.02	0.00	0.00	0.00
10,600.00	89.48	90.55	6,922.93	-1,621.31	1,339.57	1,381.00	0.00	0.00	0.00
10,700.00	89.48	90.55	6,923.83	-1,622.26	1,439.56	1,480.98	0.00	0.00	0.00
10,800.00	89.48	90.55	6,924.74	-1,623.22	1,539.55	1,580.96	0.00	0.00	0.00
10,900.00	89.48	90.55	6,925.64	-1,624.18	1,639.54	1,680.95	0.00	0.00	0.00
11,000.00	89.48	90.55	6,926.54	-1,625.13	1,739.54	1,780.93	0.00	0.00	0.00
11,100.00	89.48	90.55	6,927.44	-1,626.09	1,839.53	1,880.91	0.00	0.00	0.00
11,200.00	89.48	90.55	6,928.34	-1,627.05	1,939.52	1,980.90	0.00	0.00	0.00
11,300.00	89.48	90.55	6,929.24	-1,628.00	2,039.51	2,080.88	0.00	0.00	0.00
11,400.00	89.48	90.55	6,930.14	-1,628.96	2,139.50	2,180.86	0.00	0.00	0.00
11,500.00	89.48	90.55	6,931.04	-1,629.92	2,239.49	2,280.84	0.00	0.00	0.00
11,600.00	89.48	90.55	6,931.94	-1,630.87	2,339.48	2,380.83	0.00	0.00	0.00
11,700.00	89.48	90.55	6,932.84	-1,631.83	2,439.48	2,480.81	0.00	0.00	0.00
11,800.00	89.48	90.55	6,933.75	-1,632.79	2,539.47	2,580.79	0.00	0.00	0.00
11,900.00	89.48	90.55	6,934.65	-1,633.74	2,639.46	2,680.77	0.00	0.00	0.00
12,000.00	89.48	90.55	6,935.55	-1,634.70	2,739.45	2,780.76	0.00	0.00	0.00
12,100.00	89.48	90.55	6,936.45	-1,635.66	2,839.44	2,880.74	0.00	0.00	0.00
12,200.00	89.48	90.55	6,937.35	-1,636.61	2,939.43	2,980.72	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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)
12,300.00	89.48	90.55	6,938.25	-1,637.57	3,039.42	3,080.71	0.00	0.00	0.00
12,400.00	89.48	90.55	6,939.15	-1,638.53	3,139.42	3,180.69	0.00	0.00	0.00
12,500.00	89.48	90.55	6,940.05	-1,639.48	3,239.41	3,280.67	0.00	0.00	0.00
12,600.00	89.48	90.55	6,940.95	-1,640.44	3,339.40	3,380.65	0.00	0.00	0.00
12,700.00	89.48	90.55	6,941.85	-1,641.40	3,439.39	3,480.64	0.00	0.00	0.00
12,800.00	89.48	90.55	6,942.76	-1,642.35	3,539.38	3,580.62	0.00	0.00	0.00
12,900.00	89.48	90.55	6,943.66	-1,643.31	3,639.37	3,680.60	0.00	0.00	0.00
13,000.00	89.48	90.55	6,944.56	-1,644.27	3,739.36	3,780.58	0.00	0.00	0.00
13,100.00	89.48	90.55	6,945.46	-1,645.22	3,839.35	3,880.57	0.00	0.00	0.00
13,200.00	89.48	90.55	6,946.36	-1,646.18	3,939.35	3,980.55	0.00	0.00	0.00
13,300.00	89.48	90.55	6,947.26	-1,647.14	4,039.34	4,080.53	0.00	0.00	0.00
13,400.00	89.48	90.55	6,948.16	-1,648.09	4,139.33	4,180.52	0.00	0.00	0.00
13,500.00	89.48	90.55	6,949.06	-1,649.05	4,239.32	4,280.50	0.00	0.00	0.00
13,600.00	89.48	90.55	6,949.96	-1,650.01	4,339.31	4,380.48	0.00	0.00	0.00
13,700.00	89.48	90.55	6,950.86	-1,650.96	4,439.30	4,480.46	0.00	0.00	0.00
13,800.00	89.48	90.55	6,951.76	-1,651.92	4,539.29	4,580.45	0.00	0.00	0.00
13,900.00	89.48	90.55	6,952.67	-1,652.88	4,639.29	4,680.43	0.00	0.00	0.00
14,000.00	89.48	90.55	6,953.57	-1,653.83	4,739.28	4,780.41	0.00	0.00	0.00
14,100.00	89.48	90.55	6,954.47	-1,654.79	4,839.27	4,880.39	0.00	0.00	0.00
14,200.00	89.48	90.55	6,955.37	-1,655.75	4,939.26	4,980.38	0.00	0.00	0.00
14,300.00	89.48	90.55	6,956.27	-1,656.70	5,039.25	5,080.36	0.00	0.00	0.00
14,400.00	89.48	90.55	6,957.17	-1,657.66	5,139.24	5,180.34	0.00	0.00	0.00
14,500.00	89.48	90.55	6,958.07	-1,658.62	5,239.23	5,280.33	0.00	0.00	0.00
14,600.00	89.48	90.55	6,958.97	-1,659.57	5,339.23	5,380.31	0.00	0.00	0.00
14,700.00	89.48	90.55	6,959.87	-1,660.53	5,439.22	5,480.29	0.00	0.00	0.00
14,800.00	89.48	90.55	6,960.77	-1,661.49	5,539.21	5,580.27	0.00	0.00	0.00
14,900.00	89.48	90.55	6,961.68	-1,662.45	5,639.20	5,680.26	0.00	0.00	0.00
15,000.00	89.48	90.55	6,962.58	-1,663.40	5,739.19	5,780.24	0.00	0.00	0.00
15,100.00	89.48	90.55	6,963.48	-1,664.36	5,839.18	5,880.22	0.00	0.00	0.00
15,200.00	89.48	90.55	6,964.38	-1,665.32	5,939.17	5,980.20	0.00	0.00	0.00
15,300.00	89.48	90.55	6,965.28	-1,666.27	6,039.16	6,080.19	0.00	0.00	0.00
15,400.00	89.48	90.55	6,966.18	-1,667.23	6,139.16	6,180.17	0.00	0.00	0.00
15,500.00	89.48	90.55	6,967.08	-1,668.19	6,239.15	6,280.15	0.00	0.00	0.00
15,600.00	89.48	90.55	6,967.98	-1,669.14	6,339.14	6,380.13	0.00	0.00	0.00
15,689.66	89.48	90.55	6,968.79	-1,670.00	6,428.79	6,469.78	0.00	0.00	0.00
Begin Turn to BHL @ 15689.66ft									
15,700.00	89.48	90.70	6,968.88	-1,670.11	6,439.13	6,480.12	1.50	0.00	1.50
15,795.58	89.48	92.14	6,969.74	-1,672.48	6,534.68	6,575.70	1.50	0.00	1.50
End Turn @ 15795.58ft									
15,800.00	89.48	92.14	6,969.78	-1,672.65	6,539.09	6,580.11	0.00	0.00	0.00
15,900.00	89.48	92.14	6,970.68	-1,676.38	6,639.02	6,680.10	0.00	0.00	0.00
16,000.00	89.48	92.14	6,971.58	-1,680.10	6,738.94	6,780.09	0.00	0.00	0.00
16,100.00	89.48	92.14	6,972.48	-1,683.83	6,838.87	6,880.08	0.00	0.00	0.00
16,200.00	89.48	92.14	6,973.38	-1,687.56	6,938.80	6,980.07	0.00	0.00	0.00
16,300.00	89.48	92.14	6,974.28	-1,691.29	7,038.72	7,080.06	0.00	0.00	0.00
16,400.00	89.48	92.14	6,975.18	-1,695.02	7,138.65	7,180.05	0.00	0.00	0.00
16,500.00	89.48	92.14	6,976.08	-1,698.75	7,238.58	7,280.04	0.00	0.00	0.00
16,600.00	89.48	92.14	6,976.98	-1,702.48	7,338.50	7,380.03	0.00	0.00	0.00
16,700.00	89.48	92.14	6,977.88	-1,706.21	7,438.43	7,480.02	0.00	0.00	0.00
16,800.00	89.48	92.14	6,978.78	-1,709.94	7,538.36	7,580.00	0.00	0.00	0.00
16,900.00	89.48	92.14	6,979.68	-1,713.67	7,638.28	7,679.99	0.00	0.00	0.00
17,000.00	89.48	92.14	6,980.58	-1,717.40	7,738.21	7,779.98	0.00	0.00	0.00
17,100.00	89.48	92.14	6,981.48	-1,721.12	7,838.13	7,879.97	0.00	0.00	0.00
17,200.00	89.48	92.14	6,982.38	-1,724.85	7,938.06	7,979.96	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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)	
17,300.00	89.48	92.14	6,983.28	-1,728.58	8,037.99	8,079.95	0.00	0.00	0.00	
17,400.00	89.48	92.14	6,984.18	-1,732.31	8,137.91	8,179.94	0.00	0.00	0.00	
17,500.00	89.48	92.14	6,985.08	-1,736.04	8,237.84	8,279.93	0.00	0.00	0.00	
17,600.00	89.48	92.14	6,985.98	-1,739.77	8,337.77	8,379.92	0.00	0.00	0.00	
17,700.00	89.48	92.14	6,986.88	-1,743.50	8,437.69	8,479.91	0.00	0.00	0.00	
17,800.00	89.48	92.14	6,987.78	-1,747.23	8,537.62	8,579.90	0.00	0.00	0.00	
17,900.00	89.48	92.14	6,988.68	-1,750.96	8,637.55	8,679.89	0.00	0.00	0.00	
18,000.00	89.48	92.14	6,989.58	-1,754.69	8,737.47	8,779.88	0.00	0.00	0.00	
18,100.00	89.48	92.14	6,990.48	-1,758.41	8,837.40	8,879.87	0.00	0.00	0.00	
18,200.00	89.48	92.14	6,991.38	-1,762.14	8,937.32	8,979.86	0.00	0.00	0.00	
18,300.00	89.48	92.14	6,992.28	-1,765.87	9,037.25	9,079.85	0.00	0.00	0.00	
18,400.00	89.48	92.14	6,993.18	-1,769.60	9,137.18	9,179.83	0.00	0.00	0.00	
18,500.00	89.48	92.14	6,994.08	-1,773.33	9,237.10	9,279.82	0.00	0.00	0.00	
18,600.00	89.48	92.14	6,994.98	-1,777.06	9,337.03	9,379.81	0.00	0.00	0.00	
18,700.00	89.48	92.14	6,995.88	-1,780.79	9,436.96	9,479.80	0.00	0.00	0.00	
18,800.00	89.48	92.14	6,996.78	-1,784.52	9,536.88	9,579.79	0.00	0.00	0.00	
18,900.00	89.48	92.14	6,997.68	-1,788.25	9,636.81	9,679.78	0.00	0.00	0.00	
19,000.00	89.48	92.14	6,998.58	-1,791.98	9,736.74	9,779.77	0.00	0.00	0.00	
19,100.00	89.48	92.14	6,999.48	-1,795.71	9,836.66	9,879.76	0.00	0.00	0.00	
19,200.00	89.48	92.14	7,000.38	-1,799.43	9,936.59	9,979.75	0.00	0.00	0.00	
19,300.00	89.48	92.14	7,001.28	-1,803.16	10,036.52	10,079.74	0.00	0.00	0.00	
19,400.00	89.48	92.14	7,002.18	-1,806.89	10,136.44	10,179.73	0.00	0.00	0.00	
19,500.00	89.48	92.14	7,003.08	-1,810.62	10,236.37	10,279.72	0.00	0.00	0.00	
19,600.00	89.48	92.14	7,003.98	-1,814.35	10,336.29	10,379.71	0.00	0.00	0.00	
19,700.00	89.48	92.14	7,004.88	-1,818.08	10,436.22	10,479.70	0.00	0.00	0.00	
19,800.00	89.48	92.14	7,005.78	-1,821.81	10,536.15	10,579.69	0.00	0.00	0.00	
19,900.00	89.48	92.14	7,006.68	-1,825.54	10,636.07	10,679.68	0.00	0.00	0.00	
20,000.00	89.48	92.14	7,007.58	-1,829.27	10,736.00	10,779.66	0.00	0.00	0.00	
20,100.00	89.48	92.14	7,008.48	-1,833.00	10,835.93	10,879.65	0.00	0.00	0.00	
20,200.00	89.48	92.14	7,009.38	-1,836.73	10,935.85	10,979.64	0.00	0.00	0.00	
20,300.00	89.48	92.14	7,010.28	-1,840.45	11,035.78	11,079.63	0.00	0.00	0.00	
20,400.00	89.48	92.14	7,011.18	-1,844.18	11,135.71	11,179.62	0.00	0.00	0.00	
20,500.00	89.48	92.14	7,012.08	-1,847.91	11,235.63	11,279.61	0.00	0.00	0.00	
20,600.00	89.48	92.14	7,012.98	-1,851.64	11,335.56	11,379.60	0.00	0.00	0.00	
20,700.00	89.48	92.14	7,013.88	-1,855.37	11,435.48	11,479.59	0.00	0.00	0.00	
20,800.00	89.48	92.14	7,014.78	-1,859.10	11,535.41	11,579.58	0.00	0.00	0.00	
20,900.00	89.48	92.14	7,015.68	-1,862.83	11,635.34	11,679.57	0.00	0.00	0.00	
21,000.00	89.48	92.14	7,016.58	-1,866.56	11,735.26	11,779.56	0.00	0.00	0.00	
21,100.00	89.48	92.14	7,017.48	-1,870.29	11,835.19	11,879.55	0.00	0.00	0.00	
21,200.00	89.48	92.14	7,018.38	-1,874.02	11,935.12	11,979.54	0.00	0.00	0.00	
21,300.00	89.48	92.14	7,019.28	-1,877.74	12,035.04	12,079.53	0.00	0.00	0.00	
21,400.00	89.48	92.14	7,020.18	-1,881.47	12,134.97	12,179.52	0.00	0.00	0.00	
21,500.00	89.48	92.14	7,021.08	-1,885.20	12,234.90	12,279.51	0.00	0.00	0.00	
21,600.00	89.48	92.14	7,021.98	-1,888.93	12,334.82	12,379.49	0.00	0.00	0.00	
21,700.00	89.48	92.14	7,022.88	-1,892.66	12,434.75	12,479.48	0.00	0.00	0.00	
21,800.00	89.48	92.14	7,023.78	-1,896.39	12,534.68	12,579.47	0.00	0.00	0.00	
21,900.00	89.48	92.14	7,024.68	-1,900.12	12,634.60	12,679.46	0.00	0.00	0.00	
22,000.00	89.48	92.14	7,025.58	-1,903.85	12,734.53	12,779.45	0.00	0.00	0.00	
22,100.00	89.48	92.14	7,026.48	-1,907.58	12,834.45	12,879.44	0.00	0.00	0.00	
22,200.00	89.48	92.14	7,027.38	-1,911.31	12,934.38	12,979.43	0.00	0.00	0.00	
22,300.00	89.48	92.14	7,028.28	-1,915.04	13,034.31	13,079.42	0.00	0.00	0.00	
22,400.00	89.48	92.14	7,029.18	-1,918.76	13,134.23	13,179.41	0.00	0.00	0.00	
22,500.00	89.48	92.14	7,030.08	-1,922.49	13,234.16	13,279.40	0.00	0.00	0.00	
22,600.00	89.48	92.14	7,030.98	-1,926.22	13,334.09	13,379.39	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-15HZ
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 4-15HZ	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)
22,700.00	89.48	92.14	7,031.88	-1,929.95	13,434.01	13,479.38	0.00	0.00	0.00
22,800.00	89.48	92.14	7,032.78	-1,933.68	13,533.94	13,579.37	0.00	0.00	0.00
22,900.00	89.48	92.14	7,033.68	-1,937.41	13,633.87	13,679.36	0.00	0.00	0.00
23,000.00	89.48	92.14	7,034.58	-1,941.14	13,733.79	13,779.35	0.00	0.00	0.00
23,013.71	89.48	92.14	7,034.70	-1,941.65	13,747.49	13,793.05	0.00	0.00	0.00
TD Well @ 23013.71ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,522.12	1,500.00	9 5/8"	9-5/8	13-1/2
23,013.71	7,034.70	5.5" CSG	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
717.10	716.00	Fox Hills			
3,770.33	3,607.00	Parkman			
4,327.54	4,089.00	Sussex			
7,679.64	6,850.00	Sharon Springs			
7,782.45	6,880.00	Niobrara			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,838.00	1,803.89	-260.92	-126.56	Tie-onto Sfc Svys & Hold @ 1838.00ft
2,038.00	1,995.98	-311.78	-149.20	Build Sail Angle INC @ 2038.00ft
4,441.67	4,184.72	-884.97	-907.01	Hold Tangent @ 4441.67ft
6,445.36	5,855.57	-1,317.08	-1,925.00	KOP @ 6445.36ft :: DLS = 8°/100'
7,944.07	6,899.00	-1,595.90	-1,316.13	End Build @ 7944.07ft
15,689.66	6,968.79	-1,670.00	6,428.79	Begin Turn to BHL @ 15689.66ft
15,795.58	6,969.74	-1,672.48	6,534.68	End Turn @ 15795.58ft
23,013.71	7,034.70	-1,941.65	13,747.49	TD Well @ 23013.71ft