

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-67W-04 SWARTZ 2-4HZ PAD  
SWARTZ 4-6HZ**

**Plan B**

**Plan: Permit Rev-1**

## **Standard Planning Report**

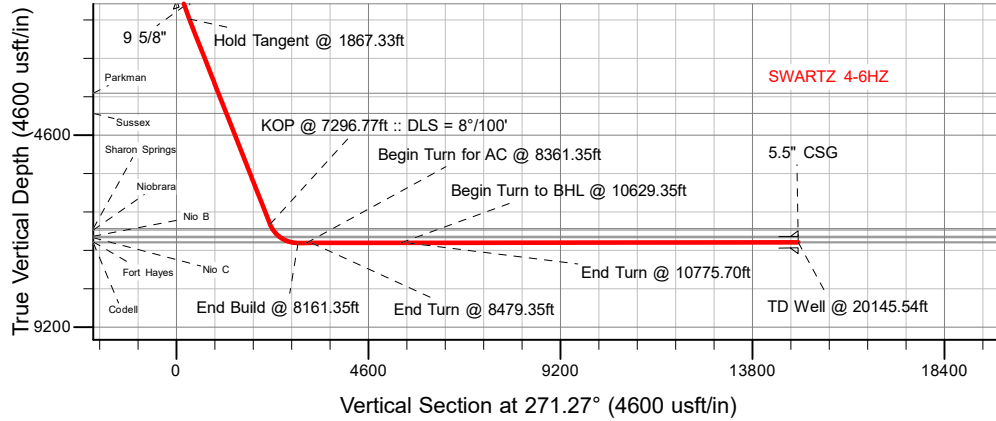
**26 June, 2023**

Project: WELD-NAD83-UTMFT13N  
Site: 3N-67W-04 SWARTZ 2-4HZ PAD  
Well: SWARTZ 4-6HZ  
Wellbore: Plan B  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Name	Size
1500.00	1526.50	9 5/8"	9-5/8
7166.00	20145.54	5.5" CSG	5-1/2



SHL  
669' FNL  
1547' FEL

LP  
882' FSL  
836' FWL

BHL  
935' FSL  
875' FEL

## 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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
1867.33	25.01	303.68	1814.89	198.62	-298.04	1.50	303.68	302.37	
7296.77	25.01	303.68	6735.23	1471.56	-2208.19	0.00	0.00	2240.26	
8161.35	90.08	271.27	7182.00	1598.27	-2875.54	8.00	-34.99	2910.25	
8361.35	90.08	271.27	7181.72	1602.70	-3075.49	0.00	0.00	3110.25	
8479.35	90.08	269.50	7181.56	1603.50	-3193.48	1.50	-90.00	3228.23	
10629.35	90.08	269.50	7178.55	1584.73	-5343.40	0.00	0.00	5377.21	
10775.70	90.08	271.70	7178.36	1586.26	-5489.73	1.50	90.11	5523.54	
20145.54	90.08	271.70	7166.00	1863.45	-14855.46	0.00	0.00	14893.11	SWARTZ 4-6HZ BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
SWARTZ 4-6HZ SHL	0.00	14621541.09	1670658.80	40.260303	-104.891599
SWARTZ 4-6HZ LP	7182.00	14623135.84	1667781.31	40.264692	-104.901907
SWARTZ 4-6HZ BHL	7166.00	14623386.37	1655801.07	40.265408	-104.944852

## WELL DETAILS: SWARTZ 4-6HZ

GL = 4825'

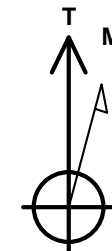
RKB = 17' @ 4842.00usft (RIG)

Plan: Permit Rev-1 (SWARTZ 4-6HZ/Plan B)

Date: 6/26/2023

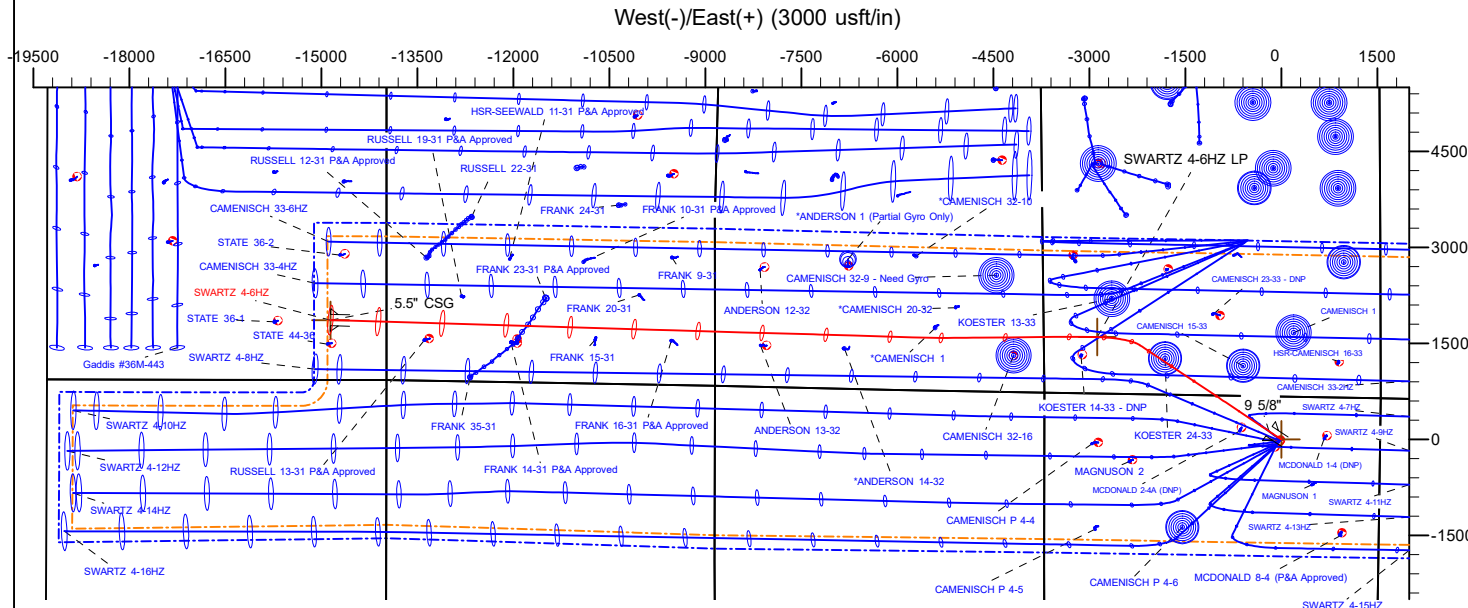
## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
707.00	708.50	Fox Hills
3598.00	3834.94	Parkman
4080.00	4366.81	Sussex
6841.00	7417.97	Sharon Springs
6871.00	7454.47	Niobrara
7023.00	7666.05	Nio B
7055.00	7720.41	Nio C
7157.00	7967.61	Fort Hayes
7178.00	8083.42	Codell



Azimuths to True North  
Magnetic North: 7.71°

Magnetic Field  
Strength: 51668.6nT  
Dip Angle: 66.45°  
Date: 5/5/2023  
Model: IGRF2020



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Permit Rev-1		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 4-6HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,621,541.09 usft	Latitude:	40.260304
	+E/-W	0.00 usft	Easting:	1,670,658.80 usft	Longitude:	-104.891600
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,825.00 usft
Grid Convergence:		0.07 °				

<b>Wellbore</b>	Plan B				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF202013	5/5/2023	7.71	66.45	51,668.55087565

<b>Design</b>	Permit Rev-1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	271.27	

<b>Plan Survey Tool Program</b>		<b>Date</b>	6/22/2023		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
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	20,145.54	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well SWARTZ 4-6HZ
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 4-6HZ	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,867.33	25.01	303.68	1,814.89	198.62	-298.04	1.50	1.50	0.00	303.68	
7,296.77	25.01	303.68	6,735.23	1,471.56	-2,208.19	0.00	0.00	0.00	0.00	
8,161.35	90.08	271.27	7,182.00	1,598.27	-2,875.54	8.00	7.53	-3.75	-34.99	
8,361.35	90.08	271.27	7,181.72	1,602.70	-3,075.49	0.00	0.00	0.00	0.00	
8,479.35	90.08	269.50	7,181.56	1,603.50	-3,193.48	1.50	0.00	-1.50	-90.00	
10,629.35	90.08	269.50	7,178.55	1,584.73	-5,343.40	0.00	0.00	0.00	0.00	
10,775.70	90.08	271.70	7,178.36	1,586.26	-5,489.73	1.50	0.00	1.50	90.11	
20,145.54	90.08	271.70	7,166.00	1,863.45	-14,855.46	0.00	0.00	0.00	0.00	SWARTZ 4-6HZ BHL

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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
Begin Nudge @ 200.00ft									
300.00	1.50	303.68	299.99	0.73	-1.09	1.11	1.50	1.50	0.00
400.00	3.00	303.68	399.91	2.90	-4.36	4.42	1.50	1.50	0.00
500.00	4.50	303.68	499.69	6.53	-9.80	9.94	1.50	1.50	0.00
600.00	6.00	303.68	599.27	11.60	-17.41	17.67	1.50	1.50	0.00
700.00	7.50	303.68	698.57	18.12	-27.19	27.59	1.50	1.50	0.00
708.50	7.63	303.68	707.00	18.74	-28.12	28.53	1.50	1.50	0.00
Fox Hills									
800.00	9.00	303.68	797.54	26.08	-39.13	39.70	1.50	1.50	0.00
900.00	10.50	303.68	896.09	35.47	-53.23	54.00	1.50	1.50	0.00
1,000.00	12.00	303.68	994.16	46.29	-69.46	70.47	1.50	1.50	0.00
1,100.00	13.50	303.68	1,091.70	58.53	-87.82	89.10	1.50	1.50	0.00
1,200.00	15.00	303.68	1,188.62	72.18	-108.31	109.88	1.50	1.50	0.00
1,300.00	16.50	303.68	1,284.86	87.23	-130.89	132.80	1.50	1.50	0.00
1,400.00	18.00	303.68	1,380.36	103.67	-155.57	157.83	1.50	1.50	0.00
1,500.00	19.50	303.68	1,475.05	121.50	-182.32	184.97	1.50	1.50	0.00
1,526.50	19.90	303.68	1,500.00	126.45	-189.75	192.51	1.50	1.50	0.00
9 5/8"									
1,600.00	21.00	303.68	1,568.86	140.69	-211.12	214.19	1.50	1.50	0.00
1,700.00	22.50	303.68	1,661.74	161.24	-241.95	245.47	1.50	1.50	0.00
1,800.00	24.00	303.68	1,753.62	183.13	-274.80	278.79	1.50	1.50	0.00
1,867.33	25.01	303.68	1,814.89	198.62	-298.04	302.37	1.50	1.50	0.00
Hold Tangent @ 1867.33ft									
1,900.00	25.01	303.68	1,844.49	206.28	-309.53	314.03	0.00	0.00	0.00
2,000.00	25.01	303.68	1,935.11	229.72	-344.72	349.72	0.00	0.00	0.00
2,100.00	25.01	303.68	2,025.74	253.17	-379.90	385.41	0.00	0.00	0.00
2,200.00	25.01	303.68	2,116.36	276.61	-415.08	421.11	0.00	0.00	0.00
2,300.00	25.01	303.68	2,206.98	300.06	-450.26	456.80	0.00	0.00	0.00
2,400.00	25.01	303.68	2,297.61	323.50	-485.44	492.49	0.00	0.00	0.00
2,500.00	25.01	303.68	2,388.23	346.95	-520.62	528.18	0.00	0.00	0.00
2,600.00	25.01	303.68	2,478.85	370.39	-555.80	563.88	0.00	0.00	0.00
2,700.00	25.01	303.68	2,569.48	393.84	-590.98	599.57	0.00	0.00	0.00
2,800.00	25.01	303.68	2,660.10	417.28	-626.17	635.26	0.00	0.00	0.00
2,900.00	25.01	303.68	2,750.72	440.73	-661.35	670.95	0.00	0.00	0.00
3,000.00	25.01	303.68	2,841.35	464.18	-696.53	706.64	0.00	0.00	0.00
3,100.00	25.01	303.68	2,931.97	487.62	-731.71	742.34	0.00	0.00	0.00
3,200.00	25.01	303.68	3,022.59	511.07	-766.89	778.03	0.00	0.00	0.00
3,300.00	25.01	303.68	3,113.22	534.51	-802.07	813.72	0.00	0.00	0.00
3,400.00	25.01	303.68	3,203.84	557.96	-837.25	849.41	0.00	0.00	0.00
3,500.00	25.01	303.68	3,294.47	581.40	-872.43	885.11	0.00	0.00	0.00
3,600.00	25.01	303.68	3,385.09	604.85	-907.62	920.80	0.00	0.00	0.00
3,700.00	25.01	303.68	3,475.71	628.29	-942.80	956.49	0.00	0.00	0.00
3,800.00	25.01	303.68	3,566.34	651.74	-977.98	992.18	0.00	0.00	0.00
3,834.94	25.01	303.68	3,598.00	659.93	-990.27	1,004.65	0.00	0.00	0.00
Parkman									
3,900.00	25.01	303.68	3,656.96	675.18	-1,013.16	1,027.88	0.00	0.00	0.00
4,000.00	25.01	303.68	3,747.58	698.63	-1,048.34	1,063.57	0.00	0.00	0.00
4,100.00	25.01	303.68	3,838.21	722.07	-1,083.52	1,099.26	0.00	0.00	0.00
4,200.00	25.01	303.68	3,928.83	745.52	-1,118.70	1,134.95	0.00	0.00	0.00
4,300.00	25.01	303.68	4,019.45	768.96	-1,153.88	1,170.64	0.00	0.00	0.00
4,366.81	25.01	303.68	4,080.00	784.63	-1,177.39	1,194.49	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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)
<b>Sussex</b>									
4,400.00	25.01	303.68	4,110.08	792.41	-1,189.07	1,206.34	0.00	0.00	0.00
4,500.00	25.01	303.68	4,200.70	815.85	-1,224.25	1,242.03	0.00	0.00	0.00
4,600.00	25.01	303.68	4,291.32	839.30	-1,259.43	1,277.72	0.00	0.00	0.00
4,700.00	25.01	303.68	4,381.95	862.74	-1,294.61	1,313.41	0.00	0.00	0.00
4,800.00	25.01	303.68	4,472.57	886.19	-1,329.79	1,349.11	0.00	0.00	0.00
4,900.00	25.01	303.68	4,563.19	909.63	-1,364.97	1,384.80	0.00	0.00	0.00
5,000.00	25.01	303.68	4,653.82	933.08	-1,400.15	1,420.49	0.00	0.00	0.00
5,100.00	25.01	303.68	4,744.44	956.53	-1,435.33	1,456.18	0.00	0.00	0.00
5,200.00	25.01	303.68	4,835.06	979.97	-1,470.52	1,491.87	0.00	0.00	0.00
5,300.00	25.01	303.68	4,925.69	1,003.42	-1,505.70	1,527.57	0.00	0.00	0.00
5,400.00	25.01	303.68	5,016.31	1,026.86	-1,540.88	1,563.26	0.00	0.00	0.00
5,500.00	25.01	303.68	5,106.93	1,050.31	-1,576.06	1,598.95	0.00	0.00	0.00
5,600.00	25.01	303.68	5,197.56	1,073.75	-1,611.24	1,634.64	0.00	0.00	0.00
5,700.00	25.01	303.68	5,288.18	1,097.20	-1,646.42	1,670.34	0.00	0.00	0.00
5,800.00	25.01	303.68	5,378.80	1,120.64	-1,681.60	1,706.03	0.00	0.00	0.00
5,900.00	25.01	303.68	5,469.43	1,144.09	-1,716.78	1,741.72	0.00	0.00	0.00
6,000.00	25.01	303.68	5,560.05	1,167.53	-1,751.97	1,777.41	0.00	0.00	0.00
6,100.00	25.01	303.68	5,650.67	1,190.98	-1,787.15	1,813.10	0.00	0.00	0.00
6,200.00	25.01	303.68	5,741.30	1,214.42	-1,822.33	1,848.80	0.00	0.00	0.00
6,300.00	25.01	303.68	5,831.92	1,237.87	-1,857.51	1,884.49	0.00	0.00	0.00
6,400.00	25.01	303.68	5,922.54	1,261.31	-1,892.69	1,920.18	0.00	0.00	0.00
6,500.00	25.01	303.68	6,013.17	1,284.76	-1,927.87	1,955.87	0.00	0.00	0.00
6,600.00	25.01	303.68	6,103.79	1,308.20	-1,963.05	1,991.57	0.00	0.00	0.00
6,700.00	25.01	303.68	6,194.41	1,331.65	-1,998.23	2,027.26	0.00	0.00	0.00
6,800.00	25.01	303.68	6,285.04	1,355.09	-2,033.42	2,062.95	0.00	0.00	0.00
6,900.00	25.01	303.68	6,375.66	1,378.54	-2,068.60	2,098.64	0.00	0.00	0.00
7,000.00	25.01	303.68	6,466.28	1,401.98	-2,103.78	2,134.33	0.00	0.00	0.00
7,100.00	25.01	303.68	6,556.91	1,425.43	-2,138.96	2,170.03	0.00	0.00	0.00
7,200.00	25.01	303.68	6,647.53	1,448.88	-2,174.14	2,205.72	0.00	0.00	0.00
7,296.77	25.01	303.68	6,735.23	1,471.56	-2,208.19	2,240.26	0.00	0.00	0.00
<b>KOP @ 7296.77ft :: DLS = 8°/100'</b>									
7,300.00	25.22	303.33	6,738.15	1,472.32	-2,209.33	2,241.42	8.00	6.57	-10.77
7,350.00	28.60	298.58	6,782.74	1,483.90	-2,228.75	2,261.09	8.00	6.75	-9.51
7,400.00	32.10	294.76	6,825.88	1,495.20	-2,251.33	2,283.91	8.00	7.01	-7.62
7,417.98	33.39	293.57	6,841.00	1,499.17	-2,260.20	2,292.87	8.00	7.15	-6.63
<b>Sharon Springs</b>									
7,450.00	35.70	291.64	6,867.38	1,506.15	-2,276.96	2,309.79	8.00	7.23	-6.04
7,454.47	36.03	291.39	6,871.00	1,507.11	-2,279.40	2,312.24	8.00	7.28	-5.65
<b>Niobrara</b>									
7,500.00	39.37	289.02	6,907.02	1,516.70	-2,305.53	2,338.58	8.00	7.34	-5.20
7,550.00	43.09	286.78	6,944.62	1,526.80	-2,336.89	2,370.16	8.00	7.44	-4.47
7,600.00	46.85	284.84	6,979.99	1,536.41	-2,370.89	2,404.36	8.00	7.51	-3.89
7,650.00	50.64	283.12	7,012.95	1,545.47	-2,407.36	2,441.02	8.00	7.57	-3.44
7,666.05	51.86	282.61	7,023.00	1,548.26	-2,419.56	2,453.28	8.00	7.60	-3.19
<b>Nio B</b>									
7,700.00	54.44	281.58	7,043.36	1,553.94	-2,446.12	2,479.96	8.00	7.62	-3.03
7,720.41	56.00	280.99	7,055.00	1,557.22	-2,462.56	2,496.47	8.00	7.64	-2.88
<b>Nio C</b>									
7,750.00	58.27	280.18	7,071.06	1,561.79	-2,486.99	2,520.99	8.00	7.66	-2.75
7,800.00	62.11	278.89	7,095.91	1,568.96	-2,529.77	2,563.92	8.00	7.68	-2.58
7,850.00	65.96	277.69	7,117.79	1,575.44	-2,574.24	2,608.53	8.00	7.70	-2.40
7,900.00	69.82	276.56	7,136.61	1,581.17	-2,620.20	2,654.60	8.00	7.72	-2.26

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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)
7,950.00	73.69	275.48	7,152.26	1,586.15	-2,667.42	2,701.92	8.00	7.73	-2.15
7,967.61	75.05	275.11	7,157.00	1,587.71	-2,684.30	2,718.83	8.00	7.74	-2.09
<b>Fort Hayes</b>									
8,000.00	77.56	274.45	7,164.67	1,590.34	-2,715.66	2,750.24	8.00	7.75	-2.06
8,050.00	81.44	273.45	7,173.77	1,593.72	-2,764.70	2,799.34	8.00	7.75	-2.01
8,083.42	84.03	272.79	7,178.00	1,595.52	-2,797.80	2,832.47	8.00	7.76	-1.97
<b>Codell</b>									
8,100.00	85.32	272.46	7,179.54	1,596.28	-2,814.29	2,848.98	8.00	7.76	-1.96
8,150.00	89.20	271.49	7,181.93	1,598.00	-2,864.19	2,898.90	8.00	7.76	-1.94
8,161.35	90.08	271.27	7,182.00	1,598.27	-2,875.54	2,910.25	8.00	7.76	-1.94
<b>End Build @ 8161.35ft</b>									
8,200.00	90.08	271.27	7,181.95	1,599.13	-2,914.18	2,948.90	0.00	0.00	0.00
8,300.00	90.08	271.27	7,181.81	1,601.34	-3,014.15	3,048.90	0.00	0.00	0.00
8,361.35	90.08	271.27	7,181.72	1,602.70	-3,075.49	3,110.25	0.00	0.00	0.00
<b>Begin Turn for AC @ 8361.35ft</b>									
8,400.00	90.08	270.69	7,181.67	1,603.36	-3,114.13	3,148.90	1.50	0.00	-1.50
8,479.35	90.08	269.50	7,181.56	1,603.50	-3,193.48	3,228.23	1.50	0.00	-1.50
<b>End Turn @ 8479.35ft</b>									
8,500.00	90.08	269.50	7,181.53	1,603.32	-3,214.13	3,248.88	0.00	0.00	0.00
8,600.00	90.08	269.50	7,181.39	1,602.44	-3,314.13	3,348.83	0.00	0.00	0.00
8,700.00	90.08	269.50	7,181.25	1,601.57	-3,414.12	3,448.78	0.00	0.00	0.00
8,800.00	90.08	269.50	7,181.11	1,600.70	-3,514.12	3,548.73	0.00	0.00	0.00
8,900.00	90.08	269.50	7,180.97	1,599.82	-3,614.11	3,648.68	0.00	0.00	0.00
9,000.00	90.08	269.50	7,180.83	1,598.95	-3,714.11	3,748.64	0.00	0.00	0.00
9,100.00	90.08	269.50	7,180.69	1,598.08	-3,814.11	3,848.59	0.00	0.00	0.00
9,200.00	90.08	269.50	7,180.55	1,597.21	-3,914.10	3,948.54	0.00	0.00	0.00
9,300.00	90.08	269.50	7,180.41	1,596.33	-4,014.10	4,048.49	0.00	0.00	0.00
9,400.00	90.08	269.50	7,180.27	1,595.46	-4,114.09	4,148.44	0.00	0.00	0.00
9,500.00	90.08	269.50	7,180.13	1,594.59	-4,214.09	4,248.40	0.00	0.00	0.00
9,600.00	90.08	269.50	7,179.99	1,593.72	-4,314.09	4,348.35	0.00	0.00	0.00
9,700.00	90.08	269.50	7,179.85	1,592.84	-4,414.08	4,448.30	0.00	0.00	0.00
9,800.00	90.08	269.50	7,179.71	1,591.97	-4,514.08	4,548.25	0.00	0.00	0.00
9,900.00	90.08	269.50	7,179.57	1,591.10	-4,614.07	4,648.21	0.00	0.00	0.00
10,000.00	90.08	269.50	7,179.43	1,590.23	-4,714.07	4,748.16	0.00	0.00	0.00
10,100.00	90.08	269.50	7,179.29	1,589.35	-4,814.07	4,848.11	0.00	0.00	0.00
10,200.00	90.08	269.50	7,179.15	1,588.48	-4,914.06	4,948.06	0.00	0.00	0.00
10,300.00	90.08	269.50	7,179.01	1,587.61	-5,014.06	5,048.01	0.00	0.00	0.00
10,400.00	90.08	269.50	7,178.87	1,586.74	-5,114.05	5,147.97	0.00	0.00	0.00
10,500.00	90.08	269.50	7,178.74	1,585.86	-5,214.05	5,247.92	0.00	0.00	0.00
10,600.00	90.08	269.50	7,178.60	1,584.99	-5,314.05	5,347.87	0.00	0.00	0.00
10,629.35	90.08	269.50	7,178.55	1,584.73	-5,343.40	5,377.21	0.00	0.00	0.00
<b>Begin Turn to BHL @ 10629.35ft</b>									
10,700.00	90.08	270.56	7,178.46	1,584.77	-5,414.04	5,447.84	1.50	0.00	1.50
10,775.70	90.08	271.70	7,178.36	1,586.26	-5,489.73	5,523.54	1.50	0.00	1.50
<b>End Turn @ 10775.70ft</b>									
10,800.00	90.08	271.70	7,178.32	1,586.98	-5,514.02	5,547.84	0.00	0.00	0.00
10,900.00	90.08	271.70	7,178.19	1,589.94	-5,613.97	5,647.83	0.00	0.00	0.00
11,000.00	90.08	271.70	7,178.06	1,592.90	-5,713.93	5,747.83	0.00	0.00	0.00
11,100.00	90.08	271.70	7,177.93	1,595.85	-5,813.89	5,847.83	0.00	0.00	0.00
11,200.00	90.08	271.70	7,177.80	1,598.81	-5,913.84	5,947.83	0.00	0.00	0.00
11,300.00	90.08	271.70	7,177.66	1,601.77	-6,013.80	6,047.82	0.00	0.00	0.00
11,400.00	90.08	271.70	7,177.53	1,604.73	-6,113.75	6,147.82	0.00	0.00	0.00
11,500.00	90.08	271.70	7,177.40	1,607.69	-6,213.71	6,247.82	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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	90.08	271.70	7,177.27	1,610.65	-6,313.67	6,347.81	0.00	0.00	0.00	
11,700.00	90.08	271.70	7,177.14	1,613.60	-6,413.62	6,447.81	0.00	0.00	0.00	
11,800.00	90.08	271.70	7,177.01	1,616.56	-6,513.58	6,547.81	0.00	0.00	0.00	
11,900.00	90.08	271.70	7,176.87	1,619.52	-6,613.54	6,647.81	0.00	0.00	0.00	
12,000.00	90.08	271.70	7,176.74	1,622.48	-6,713.49	6,747.80	0.00	0.00	0.00	
12,100.00	90.08	271.70	7,176.61	1,625.44	-6,813.45	6,847.80	0.00	0.00	0.00	
12,200.00	90.08	271.70	7,176.48	1,628.40	-6,913.40	6,947.80	0.00	0.00	0.00	
12,300.00	90.08	271.70	7,176.35	1,631.35	-7,013.36	7,047.79	0.00	0.00	0.00	
12,400.00	90.08	271.70	7,176.21	1,634.31	-7,113.32	7,147.79	0.00	0.00	0.00	
12,500.00	90.08	271.70	7,176.08	1,637.27	-7,213.27	7,247.79	0.00	0.00	0.00	
12,600.00	90.08	271.70	7,175.95	1,640.23	-7,313.23	7,347.79	0.00	0.00	0.00	
12,700.00	90.08	271.70	7,175.82	1,643.19	-7,413.18	7,447.78	0.00	0.00	0.00	
12,800.00	90.08	271.70	7,175.69	1,646.15	-7,513.14	7,547.78	0.00	0.00	0.00	
12,900.00	90.08	271.70	7,175.55	1,649.10	-7,613.10	7,647.78	0.00	0.00	0.00	
13,000.00	90.08	271.70	7,175.42	1,652.06	-7,713.05	7,747.77	0.00	0.00	0.00	
13,100.00	90.08	271.70	7,175.29	1,655.02	-7,813.01	7,847.77	0.00	0.00	0.00	
13,200.00	90.08	271.70	7,175.16	1,657.98	-7,912.97	7,947.77	0.00	0.00	0.00	
13,300.00	90.08	271.70	7,175.03	1,660.94	-8,012.92	8,047.77	0.00	0.00	0.00	
13,400.00	90.08	271.70	7,174.90	1,663.90	-8,112.88	8,147.76	0.00	0.00	0.00	
13,500.00	90.08	271.70	7,174.76	1,666.85	-8,212.83	8,247.76	0.00	0.00	0.00	
13,600.00	90.08	271.70	7,174.63	1,669.81	-8,312.79	8,347.76	0.00	0.00	0.00	
13,700.00	90.08	271.70	7,174.50	1,672.77	-8,412.75	8,447.75	0.00	0.00	0.00	
13,800.00	90.08	271.70	7,174.37	1,675.73	-8,512.70	8,547.75	0.00	0.00	0.00	
13,900.00	90.08	271.70	7,174.24	1,678.69	-8,612.66	8,647.75	0.00	0.00	0.00	
14,000.00	90.08	271.70	7,174.10	1,681.65	-8,712.61	8,747.75	0.00	0.00	0.00	
14,100.00	90.08	271.70	7,173.97	1,684.60	-8,812.57	8,847.74	0.00	0.00	0.00	
14,200.00	90.08	271.70	7,173.84	1,687.56	-8,912.53	8,947.74	0.00	0.00	0.00	
14,300.00	90.08	271.70	7,173.71	1,690.52	-9,012.48	9,047.74	0.00	0.00	0.00	
14,400.00	90.08	271.70	7,173.58	1,693.48	-9,112.44	9,147.73	0.00	0.00	0.00	
14,500.00	90.08	271.70	7,173.44	1,696.44	-9,212.40	9,247.73	0.00	0.00	0.00	
14,600.00	90.08	271.70	7,173.31	1,699.40	-9,312.35	9,347.73	0.00	0.00	0.00	
14,700.00	90.08	271.70	7,173.18	1,702.35	-9,412.31	9,447.73	0.00	0.00	0.00	
14,800.00	90.08	271.70	7,173.05	1,705.31	-9,512.26	9,547.72	0.00	0.00	0.00	
14,900.00	90.08	271.70	7,172.92	1,708.27	-9,612.22	9,647.72	0.00	0.00	0.00	
15,000.00	90.08	271.70	7,172.79	1,711.23	-9,712.18	9,747.72	0.00	0.00	0.00	
15,100.00	90.08	271.70	7,172.65	1,714.19	-9,812.13	9,847.72	0.00	0.00	0.00	
15,200.00	90.08	271.70	7,172.52	1,717.15	-9,912.09	9,947.71	0.00	0.00	0.00	
15,300.00	90.08	271.70	7,172.39	1,720.10	-10,012.04	10,047.71	0.00	0.00	0.00	
15,400.00	90.08	271.70	7,172.26	1,723.06	-10,112.00	10,147.71	0.00	0.00	0.00	
15,500.00	90.08	271.70	7,172.13	1,726.02	-10,211.96	10,247.70	0.00	0.00	0.00	
15,600.00	90.08	271.70	7,171.99	1,728.98	-10,311.91	10,347.70	0.00	0.00	0.00	
15,700.00	90.08	271.70	7,171.86	1,731.94	-10,411.87	10,447.70	0.00	0.00	0.00	
15,800.00	90.08	271.70	7,171.73	1,734.90	-10,511.83	10,547.70	0.00	0.00	0.00	
15,900.00	90.08	271.70	7,171.60	1,737.85	-10,611.78	10,647.69	0.00	0.00	0.00	
16,000.00	90.08	271.70	7,171.47	1,740.81	-10,711.74	10,747.69	0.00	0.00	0.00	
16,100.00	90.08	271.70	7,171.33	1,743.77	-10,811.69	10,847.69	0.00	0.00	0.00	
16,200.00	90.08	271.70	7,171.20	1,746.73	-10,911.65	10,947.68	0.00	0.00	0.00	
16,300.00	90.08	271.70	7,171.07	1,749.69	-11,011.61	11,047.68	0.00	0.00	0.00	
16,400.00	90.08	271.70	7,170.94	1,752.64	-11,111.56	11,147.68	0.00	0.00	0.00	
16,500.00	90.08	271.70	7,170.81	1,755.60	-11,211.52	11,247.68	0.00	0.00	0.00	
16,600.00	90.08	271.70	7,170.68	1,758.56	-11,311.47	11,347.67	0.00	0.00	0.00	
16,700.00	90.08	271.70	7,170.54	1,761.52	-11,411.43	11,447.67	0.00	0.00	0.00	
16,800.00	90.08	271.70	7,170.41	1,764.48	-11,511.39	11,547.67	0.00	0.00	0.00	
16,900.00	90.08	271.70	7,170.28	1,767.44	-11,611.34	11,647.66	0.00	0.00	0.00	



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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	90.08	271.70	7,170.15	1,770.39	-11,711.30	11,747.66	0.00	0.00	0.00
17,100.00	90.08	271.70	7,170.02	1,773.35	-11,811.26	11,847.66	0.00	0.00	0.00
17,200.00	90.08	271.70	7,169.88	1,776.31	-11,911.21	11,947.66	0.00	0.00	0.00
17,300.00	90.08	271.70	7,169.75	1,779.27	-12,011.17	12,047.65	0.00	0.00	0.00
17,400.00	90.08	271.70	7,169.62	1,782.23	-12,111.12	12,147.65	0.00	0.00	0.00
17,500.00	90.08	271.70	7,169.49	1,785.19	-12,211.08	12,247.65	0.00	0.00	0.00
17,600.00	90.08	271.70	7,169.36	1,788.14	-12,311.04	12,347.64	0.00	0.00	0.00
17,700.00	90.08	271.70	7,169.23	1,791.10	-12,410.99	12,447.64	0.00	0.00	0.00
17,800.00	90.08	271.70	7,169.09	1,794.06	-12,510.95	12,547.64	0.00	0.00	0.00
17,900.00	90.08	271.70	7,168.96	1,797.02	-12,610.90	12,647.64	0.00	0.00	0.00
18,000.00	90.08	271.70	7,168.83	1,799.98	-12,710.86	12,747.63	0.00	0.00	0.00
18,100.00	90.08	271.70	7,168.70	1,802.94	-12,810.82	12,847.63	0.00	0.00	0.00
18,200.00	90.08	271.70	7,168.57	1,805.89	-12,910.77	12,947.63	0.00	0.00	0.00
18,300.00	90.08	271.70	7,168.43	1,808.85	-13,010.73	13,047.62	0.00	0.00	0.00
18,400.00	90.08	271.70	7,168.30	1,811.81	-13,110.69	13,147.62	0.00	0.00	0.00
18,500.00	90.08	271.70	7,168.17	1,814.77	-13,210.64	13,247.62	0.00	0.00	0.00
18,600.00	90.08	271.70	7,168.04	1,817.73	-13,310.60	13,347.62	0.00	0.00	0.00
18,700.00	90.08	271.70	7,167.91	1,820.69	-13,410.55	13,447.61	0.00	0.00	0.00
18,800.00	90.08	271.70	7,167.77	1,823.64	-13,510.51	13,547.61	0.00	0.00	0.00
18,900.00	90.08	271.70	7,167.64	1,826.60	-13,610.47	13,647.61	0.00	0.00	0.00
19,000.00	90.08	271.70	7,167.51	1,829.56	-13,710.42	13,747.60	0.00	0.00	0.00
19,100.00	90.08	271.70	7,167.38	1,832.52	-13,810.38	13,847.60	0.00	0.00	0.00
19,200.00	90.08	271.70	7,167.25	1,835.48	-13,910.33	13,947.60	0.00	0.00	0.00
19,300.00	90.08	271.70	7,167.12	1,838.44	-14,010.29	14,047.60	0.00	0.00	0.00
19,400.00	90.08	271.70	7,166.98	1,841.39	-14,110.25	14,147.59	0.00	0.00	0.00
19,500.00	90.08	271.70	7,166.85	1,844.35	-14,210.20	14,247.59	0.00	0.00	0.00
19,600.00	90.08	271.70	7,166.72	1,847.31	-14,310.16	14,347.59	0.00	0.00	0.00
19,700.00	90.08	271.70	7,166.59	1,850.27	-14,410.12	14,447.58	0.00	0.00	0.00
19,800.00	90.08	271.70	7,166.46	1,853.23	-14,510.07	14,547.58	0.00	0.00	0.00
19,900.00	90.08	271.70	7,166.32	1,856.19	-14,610.03	14,647.58	0.00	0.00	0.00
20,000.00	90.08	271.70	7,166.19	1,859.14	-14,709.98	14,747.58	0.00	0.00	0.00
20,100.00	90.08	271.70	7,166.06	1,862.10	-14,809.94	14,847.57	0.00	0.00	0.00
20,145.54	90.08	271.70	7,166.00	1,863.45	-14,855.46	14,893.11	0.00	0.00	0.00
TD Well @ 20145.54ft - 5.5" CSG									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.50	1,500.00	9 5/8"	9-5/8	13-1/2	
20,145.54	7,166.00	5.5" CSG	5-1/2	7-7/8	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 4-6HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4842.00usft (RIG)
<b>Site:</b>	3N-67W-04 SWARTZ 2-4HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 4-6HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.50	707.00	Fox Hills				
3,834.94	3,598.00	Parkman				
4,366.81	4,080.00	Sussex				
7,417.98	6,841.00	Sharon Springs				
7,454.47	6,871.00	Niobrara				
7,666.05	7,023.00	Nio B				
7,720.41	7,055.00	Nio C				
7,967.61	7,157.00	Fort Hayes				
8,083.42	7,178.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft	
1,867.33	1,814.89	198.62	-298.04	Hold Tangent @ 1867.33ft	
7,296.77	6,735.23	1,471.56	-2,208.19	KOP @ 7296.77ft :: DLS = 8"/100'	
8,161.35	7,182.00	1,598.27	-2,875.54	End Build @ 8161.35ft	
8,361.35	7,181.72	1,602.70	-3,075.49	Begin Turn for AC @ 8361.35ft	
8,479.35	7,181.56	1,603.50	-3,193.48	End Turn @ 8479.35ft	
10,629.35	7,178.55	1,584.73	-5,343.40	Begin Turn to BHL @ 10629.35ft	
10,775.70	7,178.36	1,586.26	-5,489.73	End Turn @ 10775.70ft	
20,145.54	7,166.00	1,863.45	-14,855.46	TD Well @ 20145.54ft	