

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-65W-13 Swartz 16-13HZ Pad  
SWARTZ 1C-25HZ**

**Plan B**

**Plan: Permit Rev-1**

## **Standard Planning Report**

**13 December, 2016**



Azimuths to True North  
Magnetic North: 8.20°

Magnetic Field  
Strength: 52572.2snT  
Dip Angle: 66.72°  
Date: 7/29/2015  
Model: IGRF2010

SITE: 2N-65W-13 Swartz 16-13HZ Pad

Well: SWARTZ 1C-25HZ  
Wellbore: Plan B  
Design: Permit Rev-1

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1372.00	1387.67	Fox Hills Mkr
4068.00	4160.94	Parkman
4449.00	4559.83	Sussex
6858.00	6980.10	Sharon Springs
6910.00	7039.14	Niobrara
6971.00	7112.94	Nio B
7045.00	7212.63	Nio C
7172.00	7447.60	Fort Hayes
7195.00	7517.54	Codell

#### WELL DETAILS: SWARTZ 1C-25HZ

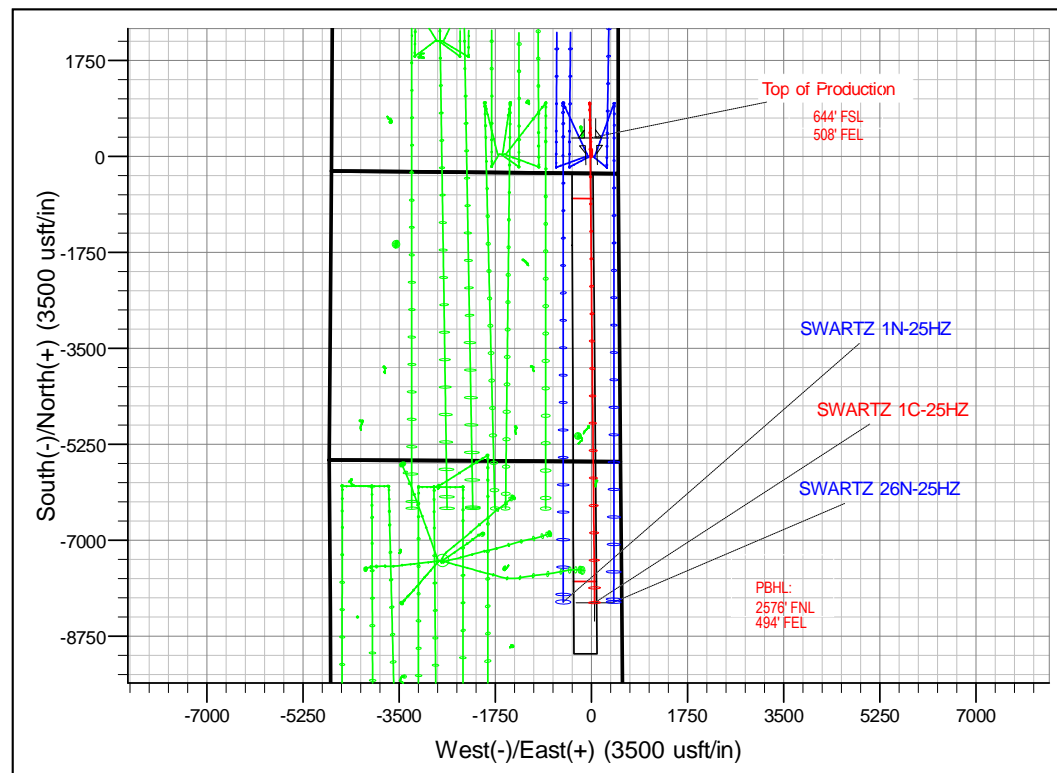
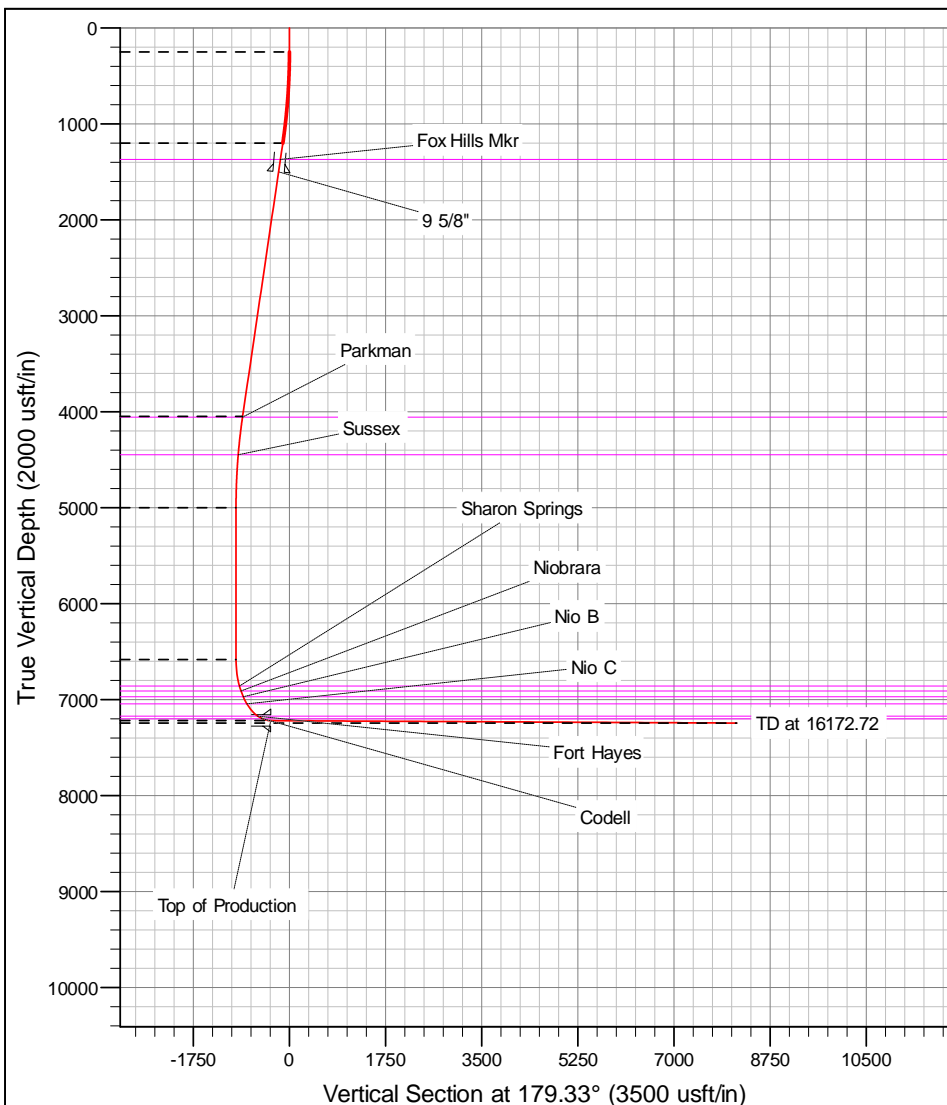
+N/-S	+E/-W	GL: 4956.00 Northing	RKB = 17' @ 4973.00usft (D Rig) Easting	Latitude 40.131977	Longitude -104.604688	Slot
0.00	0.00	14575037.87	1750910.89			

#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00
1210.83	14.41	358.23	1200.73	120.15	-3.71	1.50	-120.19
4151.93	14.41	358.23	4049.27	851.85	-26.29	0.00	-852.10
5112.76	0.00	0.00	5000.00	972.00	-30.00	1.50	-972.28
6695.99	0.00	0.00	6583.23	972.00	-30.00	0.00	-972.28
7694.10	89.83	179.44	7219.84	337.30	-23.80	9.00	-337.55
16172.72	89.83	179.44	7245.00	-8140.88	59.00	0.00	8141.02

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SWARTZ 1C-25HZ_PBHL	7245.00	-8140.88	59.00	14566897.33	1751006.09	40.109621	-104.604477



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 1C-25HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Site:</b>	2N-65W-13 Swartz 16-13HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 1C-25HZ	<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						2N-65W-13 Swartz 16-13HZ Pad											
Site Position:						Northing:			14,575,037.83 usft			Latitude:			40.131978		
From:			Lat/Long			Easting:			1,750,820.88 usft			Longitude:			-104.605010		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.25		

Well	SWARTZ 1C-25HZ					
Well Position	+N-S	-0.36 usft	Northing:	14,575,037.87 usft	Latitude:	40.131977
	+E-W	90.00 usft	Easting:	1,750,910.89 usft	Longitude:	-104.604688
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,956.00 usft

<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>
	IGRF2010	7/29/2015	8.20	66.72	52,572.24611966

<b>Design</b>	Permit Rev-1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	179.33

<b>Plan Survey Tool Program</b>	<b>Date</b>	12/13/2016			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	250.00	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex	
2	1,500.00	16,172.72	Permit Rev-1 (Plan B)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex	

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 1C-25HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Site:</b>	2N-65W-13 Swartz 16-13HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 1C-25HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,210.83	14.41	358.23	1,200.73	120.15	-3.71	1.50	1.50	0.00	358.23	
4,151.93	14.41	358.23	4,049.27	851.85	-26.29	0.00	0.00	0.00	0.00	
5,112.76	0.00	0.00	5,000.00	972.00	-30.00	1.50	-1.50	0.00	180.00	
6,695.99	0.00	0.00	6,583.23	972.00	-30.00	0.00	0.00	0.00	0.00	
7,694.10	89.83	179.44	7,219.84	337.30	-23.80	9.00	9.00	0.00	179.44	
16,172.72	89.83	179.44	7,245.00	-8,140.88	59.00	0.00	0.00	0.00	0.00	SWARTZ 1C-25HZ

# Corporate Planning Report

**Database:** PLANNING  
**Company:** US ROCKIES WATTENBERG PLANNING  
**Project:** WELD-NAD83-UTMFT13N  
**Site:** 2N-65W-13 Swartz 16-13HZ Pad  
**Well:** SWARTZ 1C-25HZ  
**Wellbore:** Plan B  
**Design:** Permit Rev-1

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**

Well SWARTZ 1C-25HZ  
 RKB = 17' @ 4973.00usft (D Rig)  
 RKB = 17' @ 4973.00usft (D Rig)  
 True  
 Minimum Curvature

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.75	358.23	300.00	0.33	-0.01	-0.33	1.50	1.50	0.00
400.00	2.25	358.23	399.96	2.94	-0.09	-2.94	1.50	1.50	0.00
500.00	3.75	358.23	499.82	8.17	-0.25	-8.18	1.50	1.50	0.00
600.00	5.25	358.23	599.51	16.02	-0.49	-16.02	1.50	1.50	0.00
700.00	6.75	358.23	698.96	26.46	-0.82	-26.47	1.50	1.50	0.00
800.00	8.25	358.23	798.10	39.51	-1.22	-39.52	1.50	1.50	0.00
900.00	9.75	358.23	896.87	55.15	-1.70	-55.16	1.50	1.50	0.00
1,000.00	11.25	358.23	995.19	73.36	-2.26	-73.38	1.50	1.50	0.00
1,100.00	12.75	358.23	1,093.00	94.14	-2.91	-94.17	1.50	1.50	0.00
1,200.00	14.25	358.23	1,190.24	117.47	-3.63	-117.51	1.50	1.50	0.00
1,210.83	14.41	358.23	1,200.73	120.15	-3.71	-120.19	1.50	1.50	0.00
1,300.00	14.41	358.23	1,287.09	142.34	-4.39	-142.38	0.00	0.00	0.00
1,387.67	14.41	358.23	1,372.00	164.15	-5.07	-164.19	0.00	0.00	0.00
Fox Hills Mkr									
1,400.00	14.41	358.23	1,383.95	167.21	-5.16	-167.26	0.00	0.00	0.00
1,500.00	14.41	358.23	1,480.80	192.09	-5.93	-192.15	0.00	0.00	0.00
1,519.83	14.41	358.23	1,500.00	197.03	-6.08	-197.08	0.00	0.00	0.00
9 5/8"									
1,600.00	14.41	358.23	1,577.65	216.97	-6.70	-217.03	0.00	0.00	0.00
1,700.00	14.41	358.23	1,674.50	241.85	-7.46	-241.92	0.00	0.00	0.00
1,800.00	14.41	358.23	1,771.36	266.73	-8.23	-266.81	0.00	0.00	0.00
1,900.00	14.41	358.23	1,868.21	291.61	-9.00	-291.69	0.00	0.00	0.00
2,000.00	14.41	358.23	1,965.06	316.48	-9.77	-316.58	0.00	0.00	0.00
2,100.00	14.41	358.23	2,061.92	341.36	-10.54	-341.46	0.00	0.00	0.00
2,200.00	14.41	358.23	2,158.77	366.24	-11.30	-366.35	0.00	0.00	0.00
2,300.00	14.41	358.23	2,255.62	391.12	-12.07	-391.23	0.00	0.00	0.00
2,400.00	14.41	358.23	2,352.47	416.00	-12.84	-416.12	0.00	0.00	0.00
2,500.00	14.41	358.23	2,449.33	440.88	-13.61	-441.00	0.00	0.00	0.00
2,600.00	14.41	358.23	2,546.18	465.75	-14.38	-465.89	0.00	0.00	0.00
2,700.00	14.41	358.23	2,643.03	490.63	-15.14	-490.78	0.00	0.00	0.00
2,800.00	14.41	358.23	2,739.89	515.51	-15.91	-515.66	0.00	0.00	0.00
2,900.00	14.41	358.23	2,836.74	540.39	-16.68	-540.55	0.00	0.00	0.00
3,000.00	14.41	358.23	2,933.59	565.27	-17.45	-565.43	0.00	0.00	0.00
3,100.00	14.41	358.23	3,030.45	590.15	-18.21	-590.32	0.00	0.00	0.00
3,200.00	14.41	358.23	3,127.30	615.02	-18.98	-615.20	0.00	0.00	0.00
3,300.00	14.41	358.23	3,224.15	639.90	-19.75	-640.09	0.00	0.00	0.00
3,400.00	14.41	358.23	3,321.00	664.78	-20.52	-664.97	0.00	0.00	0.00
3,500.00	14.41	358.23	3,417.86	689.66	-21.29	-689.86	0.00	0.00	0.00
3,600.00	14.41	358.23	3,514.71	714.54	-22.05	-714.75	0.00	0.00	0.00
3,700.00	14.41	358.23	3,611.56	739.41	-22.82	-739.63	0.00	0.00	0.00
3,800.00	14.41	358.23	3,708.42	764.29	-23.59	-764.52	0.00	0.00	0.00
3,900.00	14.41	358.23	3,805.27	789.17	-24.36	-789.40	0.00	0.00	0.00
4,000.00	14.41	358.23	3,902.12	814.05	-25.12	-814.29	0.00	0.00	0.00
4,100.00	14.41	358.23	3,998.97	838.93	-25.89	-839.17	0.00	0.00	0.00
4,151.93	14.41	358.23	4,049.27	851.85	-26.29	-852.10	0.00	0.00	0.00
4,160.94	14.28	358.23	4,058.00	854.08	-26.36	-854.33	1.50	-1.50	0.00
Parkman									
4,200.00	13.69	358.23	4,095.90	863.51	-26.65	-863.77	1.50	-1.50	0.00
4,300.00	12.19	358.23	4,193.36	885.90	-27.34	-886.16	1.50	-1.50	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 1C-25HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Site:</b>	2N-65W-13 Swartz 16-13HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 1C-25HZ	<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)
4,400.00	10.69	358.23	4,291.37	905.72	-27.95	-905.99	1.50	-1.50	0.00
4,500.00	9.19	358.23	4,389.86	922.98	-28.49	-923.25	1.50	-1.50	0.00
4,559.83	8.29	358.23	4,449.00	932.07	-28.77	-932.34	1.50	-1.50	0.00
<b>Sussex</b>									
4,600.00	7.69	358.23	4,488.78	937.65	-28.94	-937.93	1.50	-1.50	0.00
4,700.00	6.19	358.23	4,588.04	949.73	-29.31	-950.01	1.50	-1.50	0.00
4,800.00	4.69	358.23	4,687.59	959.21	-29.61	-959.49	1.50	-1.50	0.00
4,900.00	3.19	358.23	4,787.35	966.08	-29.82	-966.36	1.50	-1.50	0.00
5,000.00	1.69	358.23	4,887.26	970.34	-29.95	-970.62	1.50	-1.50	0.00
5,100.00	0.19	358.23	4,987.24	971.98	-30.00	-972.26	1.50	-1.50	0.00
5,112.76	0.00	0.00	5,000.00	972.00	-30.00	-972.28	1.50	-1.50	0.00
5,200.00	0.00	0.00	5,087.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,300.00	0.00	0.00	5,187.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,400.00	0.00	0.00	5,287.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,500.00	0.00	0.00	5,387.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,600.00	0.00	0.00	5,487.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,700.00	0.00	0.00	5,587.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,800.00	0.00	0.00	5,687.24	972.00	-30.00	-972.28	0.00	0.00	0.00
5,900.00	0.00	0.00	5,787.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,000.00	0.00	0.00	5,887.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,100.00	0.00	0.00	5,987.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,200.00	0.00	0.00	6,087.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,300.00	0.00	0.00	6,187.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,400.00	0.00	0.00	6,287.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,500.00	0.00	0.00	6,387.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,600.00	0.00	0.00	6,487.24	972.00	-30.00	-972.28	0.00	0.00	0.00
6,695.99	0.00	0.00	6,583.23	972.00	-30.00	-972.28	0.00	0.00	0.00
6,700.00	0.36	179.44	6,587.24	971.99	-30.00	-972.27	9.00	9.00	0.00
6,800.00	9.36	179.44	6,686.78	963.52	-29.92	-963.81	9.00	9.00	0.00
6,900.00	18.36	179.44	6,783.77	939.59	-29.68	-939.87	9.00	9.00	0.00
6,980.10	25.57	179.44	6,858.00	909.65	-29.39	-909.93	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,000.00	27.36	179.44	6,875.82	900.78	-29.30	-901.06	9.00	9.00	0.00
7,039.14	30.88	179.44	6,910.00	881.74	-29.12	-882.02	9.00	9.00	0.00
<b>Niobrara</b>									
7,100.00	36.36	179.44	6,960.66	848.05	-28.79	-848.33	9.00	9.00	0.00
7,112.94	37.53	179.44	6,971.00	840.28	-28.71	-840.56	9.00	9.00	0.00
<b>Nio B</b>									
7,200.00	45.36	179.44	7,036.21	782.70	-28.15	-782.98	9.00	9.00	0.00
7,212.63	46.50	179.44	7,045.00	773.62	-28.06	-773.90	9.00	9.00	0.00
<b>Nio C</b>									
7,300.00	54.36	179.44	7,100.61	706.33	-27.41	-706.61	9.00	9.00	0.00
7,400.00	63.36	179.44	7,152.27	620.84	-26.57	-621.10	9.00	9.00	0.00
7,447.60	67.64	179.44	7,172.00	577.54	-26.15	-577.80	9.00	9.00	0.00
<b>Fort Hayes</b>									
7,500.00	72.36	179.44	7,189.92	528.31	-25.67	-528.57	9.00	9.00	0.00
7,517.54	73.94	179.44	7,195.00	511.52	-25.50	-511.78	9.00	9.00	0.00
<b>Codell</b>									
7,600.00	81.36	179.44	7,212.62	431.03	-24.72	-431.29	9.00	9.00	0.00
7,694.10	89.83	179.44	7,219.84	337.30	-23.80	-337.55	9.00	9.00	0.00
<b>Top of Production - SWARTZ 1C-25HZ_PHL</b>									
7,700.00	89.83	179.44	7,219.86	331.40	-23.74	-331.65	0.00	0.00	0.00
7,800.00	89.83	179.44	7,220.16	231.40	-22.77	-231.65	0.00	0.00	0.00

# Corporate Planning Report

Database: PLANNING  
Company: US ROCKIES WATTENBERG PLANNING  
Project: WELD-NAD83-UTMFT13N  
Site: 2N-65W-13 Swartz 16-13HZ Pad  
Well: SWARTZ 1C-25HZ  
Wellbore: Plan B  
Design: Permit Rev-1

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Well SWARTZ 1C-25HZ  
RKB = 17' @ 4973.00usft (D Rig)  
RKB = 17' @ 4973.00usft (D Rig)  
True  
Minimum Curvature

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)
7,900.00	89.83	179.44	7,220.45	131.41	-21.79	-131.65	0.00	0.00	0.00
8,000.00	89.83	179.44	7,220.75	31.41	-20.81	-31.66	0.00	0.00	0.00
8,100.00	89.83	179.44	7,221.05	-68.58	-19.84	68.34	0.00	0.00	0.00
8,200.00	89.83	179.44	7,221.34	-168.58	-18.86	168.34	0.00	0.00	0.00
8,300.00	89.83	179.44	7,221.64	-268.57	-17.88	268.34	0.00	0.00	0.00
8,400.00	89.83	179.44	7,221.94	-368.57	-16.91	368.34	0.00	0.00	0.00
8,500.00	89.83	179.44	7,222.23	-468.56	-15.93	468.34	0.00	0.00	0.00
8,600.00	89.83	179.44	7,222.53	-568.55	-14.95	568.34	0.00	0.00	0.00
8,700.00	89.83	179.44	7,222.83	-668.55	-13.98	668.34	0.00	0.00	0.00
8,800.00	89.83	179.44	7,223.12	-768.54	-13.00	768.34	0.00	0.00	0.00
8,900.00	89.83	179.44	7,223.42	-868.54	-12.02	868.34	0.00	0.00	0.00
9,000.00	89.83	179.44	7,223.72	-968.53	-11.05	968.34	0.00	0.00	0.00
9,100.00	89.83	179.44	7,224.02	-1,068.53	-10.07	1,068.34	0.00	0.00	0.00
9,200.00	89.83	179.44	7,224.31	-1,168.52	-9.09	1,168.34	0.00	0.00	0.00
9,300.00	89.83	179.44	7,224.61	-1,268.52	-8.12	1,268.34	0.00	0.00	0.00
9,400.00	89.83	179.44	7,224.91	-1,368.51	-7.14	1,368.34	0.00	0.00	0.00
9,500.00	89.83	179.44	7,225.20	-1,468.51	-6.17	1,468.34	0.00	0.00	0.00
9,600.00	89.83	179.44	7,225.50	-1,568.50	-5.19	1,568.33	0.00	0.00	0.00
9,700.00	89.83	179.44	7,225.80	-1,668.50	-4.21	1,668.33	0.00	0.00	0.00
9,800.00	89.83	179.44	7,226.09	-1,768.49	-3.24	1,768.33	0.00	0.00	0.00
9,900.00	89.83	179.44	7,226.39	-1,868.49	-2.26	1,868.33	0.00	0.00	0.00
10,000.00	89.83	179.44	7,226.69	-1,968.48	-1.28	1,968.33	0.00	0.00	0.00
10,100.00	89.83	179.44	7,226.98	-2,068.48	-0.31	2,068.33	0.00	0.00	0.00
10,200.00	89.83	179.44	7,227.28	-2,168.47	0.67	2,168.33	0.00	0.00	0.00
10,300.00	89.83	179.44	7,227.58	-2,268.47	1.65	2,268.33	0.00	0.00	0.00
10,400.00	89.83	179.44	7,227.87	-2,368.46	2.62	2,368.33	0.00	0.00	0.00
10,500.00	89.83	179.44	7,228.17	-2,468.46	3.60	2,468.33	0.00	0.00	0.00
10,600.00	89.83	179.44	7,228.47	-2,568.45	4.58	2,568.33	0.00	0.00	0.00
10,700.00	89.83	179.44	7,228.76	-2,668.45	5.55	2,668.33	0.00	0.00	0.00
10,800.00	89.83	179.44	7,229.06	-2,768.44	6.53	2,768.33	0.00	0.00	0.00
10,900.00	89.83	179.44	7,229.36	-2,868.44	7.51	2,868.33	0.00	0.00	0.00
11,000.00	89.83	179.44	7,229.65	-2,968.43	8.48	2,968.33	0.00	0.00	0.00
11,100.00	89.83	179.44	7,229.95	-3,068.42	9.46	3,068.33	0.00	0.00	0.00
11,200.00	89.83	179.44	7,230.25	-3,168.42	10.44	3,168.32	0.00	0.00	0.00
11,300.00	89.83	179.44	7,230.54	-3,268.41	11.41	3,268.32	0.00	0.00	0.00
11,400.00	89.83	179.44	7,230.84	-3,368.41	12.39	3,368.32	0.00	0.00	0.00
11,500.00	89.83	179.44	7,231.14	-3,468.40	13.37	3,468.32	0.00	0.00	0.00
11,600.00	89.83	179.44	7,231.43	-3,568.40	14.34	3,568.32	0.00	0.00	0.00
11,700.00	89.83	179.44	7,231.73	-3,668.39	15.32	3,668.32	0.00	0.00	0.00
11,800.00	89.83	179.44	7,232.03	-3,768.39	16.30	3,768.32	0.00	0.00	0.00
11,900.00	89.83	179.44	7,232.32	-3,868.38	17.27	3,868.32	0.00	0.00	0.00
12,000.00	89.83	179.44	7,232.62	-3,968.38	18.25	3,968.32	0.00	0.00	0.00
12,100.00	89.83	179.44	7,232.92	-4,068.37	19.23	4,068.32	0.00	0.00	0.00
12,200.00	89.83	179.44	7,233.21	-4,168.37	20.20	4,168.32	0.00	0.00	0.00
12,300.00	89.83	179.44	7,233.51	-4,268.36	21.18	4,268.32	0.00	0.00	0.00
12,400.00	89.83	179.44	7,233.81	-4,368.36	22.16	4,368.32	0.00	0.00	0.00
12,500.00	89.83	179.44	7,234.10	-4,468.35	23.13	4,468.32	0.00	0.00	0.00
12,600.00	89.83	179.44	7,234.40	-4,568.35	24.11	4,568.32	0.00	0.00	0.00
12,700.00	89.83	179.44	7,234.70	-4,668.34	25.09	4,668.32	0.00	0.00	0.00
12,800.00	89.83	179.44	7,234.99	-4,768.34	26.06	4,768.31	0.00	0.00	0.00
12,900.00	89.83	179.44	7,235.29	-4,868.33	27.04	4,868.31	0.00	0.00	0.00
13,000.00	89.83	179.44	7,235.59	-4,968.33	28.02	4,968.31	0.00	0.00	0.00
13,100.00	89.83	179.44	7,235.88	-5,068.32	28.99	5,068.31	0.00	0.00	0.00
13,200.00	89.83	179.44	7,236.18	-5,168.32	29.97	5,168.31	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 1C-25HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Site:</b>	2N-65W-13 Swartz 16-13HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 1C-25HZ	<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)
13,300.00	89.83	179.44	7,236.48	-5,268.31	30.95	5,268.31	0.00	0.00	0.00
13,400.00	89.83	179.44	7,236.77	-5,368.30	31.92	5,368.31	0.00	0.00	0.00
13,500.00	89.83	179.44	7,237.07	-5,468.30	32.90	5,468.31	0.00	0.00	0.00
13,600.00	89.83	179.44	7,237.37	-5,568.29	33.88	5,568.31	0.00	0.00	0.00
13,700.00	89.83	179.44	7,237.66	-5,668.29	34.85	5,668.31	0.00	0.00	0.00
13,800.00	89.83	179.44	7,237.96	-5,768.28	35.83	5,768.31	0.00	0.00	0.00
13,900.00	89.83	179.44	7,238.26	-5,868.28	36.80	5,868.31	0.00	0.00	0.00
14,000.00	89.83	179.44	7,238.55	-5,968.27	37.78	5,968.31	0.00	0.00	0.00
14,100.00	89.83	179.44	7,238.85	-6,068.27	38.76	6,068.31	0.00	0.00	0.00
14,200.00	89.83	179.44	7,239.15	-6,168.26	39.73	6,168.31	0.00	0.00	0.00
14,300.00	89.83	179.44	7,239.44	-6,268.26	40.71	6,268.31	0.00	0.00	0.00
14,400.00	89.83	179.44	7,239.74	-6,368.25	41.69	6,368.30	0.00	0.00	0.00
14,500.00	89.83	179.44	7,240.04	-6,468.25	42.66	6,468.30	0.00	0.00	0.00
14,600.00	89.83	179.44	7,240.33	-6,568.24	43.64	6,568.30	0.00	0.00	0.00
14,700.00	89.83	179.44	7,240.63	-6,668.24	44.62	6,668.30	0.00	0.00	0.00
14,800.00	89.83	179.44	7,240.93	-6,768.23	45.59	6,768.30	0.00	0.00	0.00
14,900.00	89.83	179.44	7,241.22	-6,868.23	46.57	6,868.30	0.00	0.00	0.00
15,000.00	89.83	179.44	7,241.52	-6,968.22	47.55	6,968.30	0.00	0.00	0.00
15,100.00	89.83	179.44	7,241.82	-7,068.22	48.52	7,068.30	0.00	0.00	0.00
15,200.00	89.83	179.44	7,242.11	-7,168.21	49.50	7,168.30	0.00	0.00	0.00
15,300.00	89.83	179.44	7,242.41	-7,268.21	50.48	7,268.30	0.00	0.00	0.00
15,400.00	89.83	179.44	7,242.71	-7,368.20	51.45	7,368.30	0.00	0.00	0.00
15,500.00	89.83	179.44	7,243.00	-7,468.20	52.43	7,468.30	0.00	0.00	0.00
15,600.00	89.83	179.44	7,243.30	-7,568.19	53.41	7,568.30	0.00	0.00	0.00
15,700.00	89.83	179.44	7,243.60	-7,668.19	54.38	7,668.30	0.00	0.00	0.00
15,800.00	89.83	179.44	7,243.89	-7,768.18	55.36	7,768.30	0.00	0.00	0.00
15,900.00	89.83	179.44	7,244.19	-7,868.17	56.34	7,868.30	0.00	0.00	0.00
16,000.00	89.83	179.44	7,244.49	-7,968.17	57.31	7,968.29	0.00	0.00	0.00
16,100.00	89.83	179.44	7,244.78	-8,068.16	58.29	8,068.29	0.00	0.00	0.00
16,172.72	89.83	179.44	7,245.00	-8,140.88	59.00	8,141.02	0.00	0.00	0.00
SWARTZ 1C-25HZ_PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SWARTZ 1C-25HZ_P	0.00	0.00	7,219.84	337.30	-23.80	14,575,375.06	1,750,885.59	40.132903	-104.604773
- plan hits target center									
- Point									
SWARTZ 1C-25HZ_P	0.00	0.00	7,245.00	-8,140.88	59.00	14,566,897.33	1,751,006.09	40.109621	-104.604477
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,519.83	1,500.00	9 5/8"	9-5/8	13-1/2	
7,694.10	7,219.84	Top of Production	5-1/2	8-1/2	



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well SWARTZ 1C-25HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4973.00usft (D Rig)
<b>Site:</b>	2N-65W-13 Swartz 16-13HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	SWARTZ 1C-25HZ	<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 (°)	
1,387.67	1,372.00	Fox Hills Mkr				
4,160.94	4,058.00	Parkman				
4,559.83	4,449.00	Sussex				
6,980.10	6,858.00	Sharon Springs				
7,039.14	6,910.00	Niobrara				
7,112.94	6,971.00	Nio B				
7,212.63	7,045.00	Nio C				
7,447.60	7,172.00	Fort Hayes				
7,517.54	7,195.00	Codell				