

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-65W-13 Swartz 15-13HZ Pad
SWARTZ 2C-25HZ**

Plan A

Plan: Permit Rev-4

Standard Planning Report

07 December, 2016



Azimuths to True North
Magnetic North: 8.20°

Magnetic Field
Strength: 52572.3snT
Dip Angle: 66.72°
Date: 7/29/2015
Model: IGRF2010

SITE: 2N-65W-13 Swartz 15-13HZ Pad

Well: SWARTZ 2C-25HZ
Wellbore: Plan A
Design: Permit Rev-4

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1294.00	1307.46	Fox Hills Mkr
3971.00	4093.41	Parkman
4362.00	4486.08	Sussex
6769.00	6904.18	Sharon Springs
6821.00	6964.10	Niobrara
6884.00	7041.99	Nio B
6958.00	7145.17	Nio C
7084.00	7400.92	Fort Hayes
7107.00	7496.63	Codell

WELL DETAILS: SWARTZ 2C-25HZ

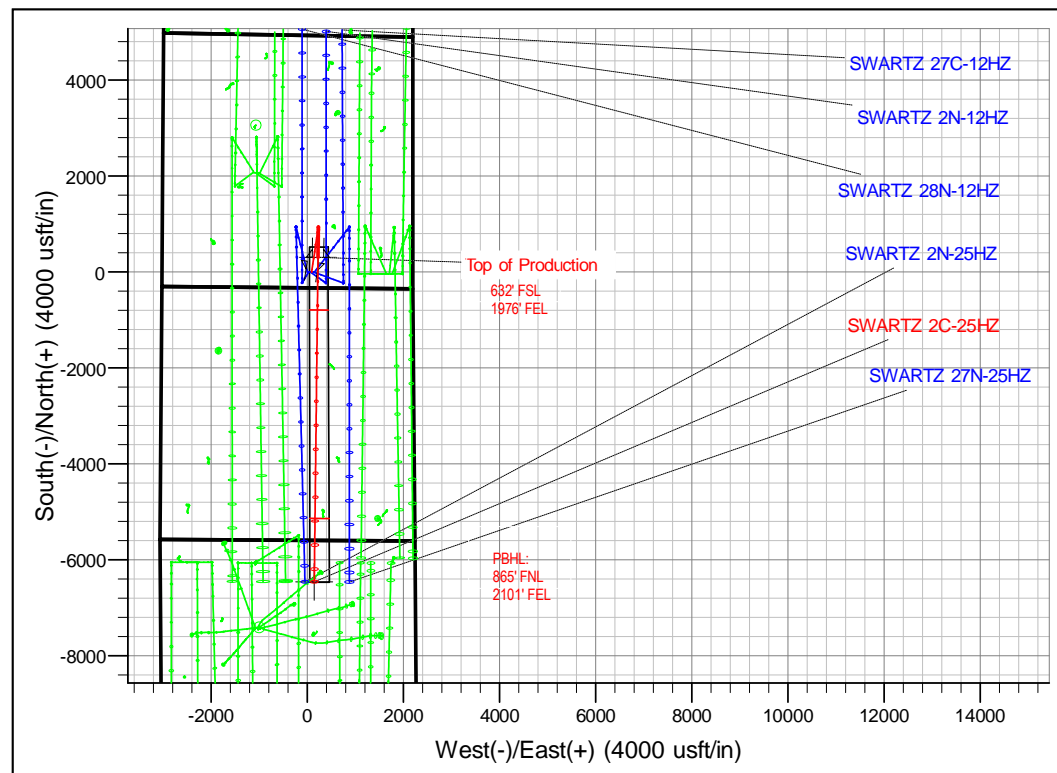
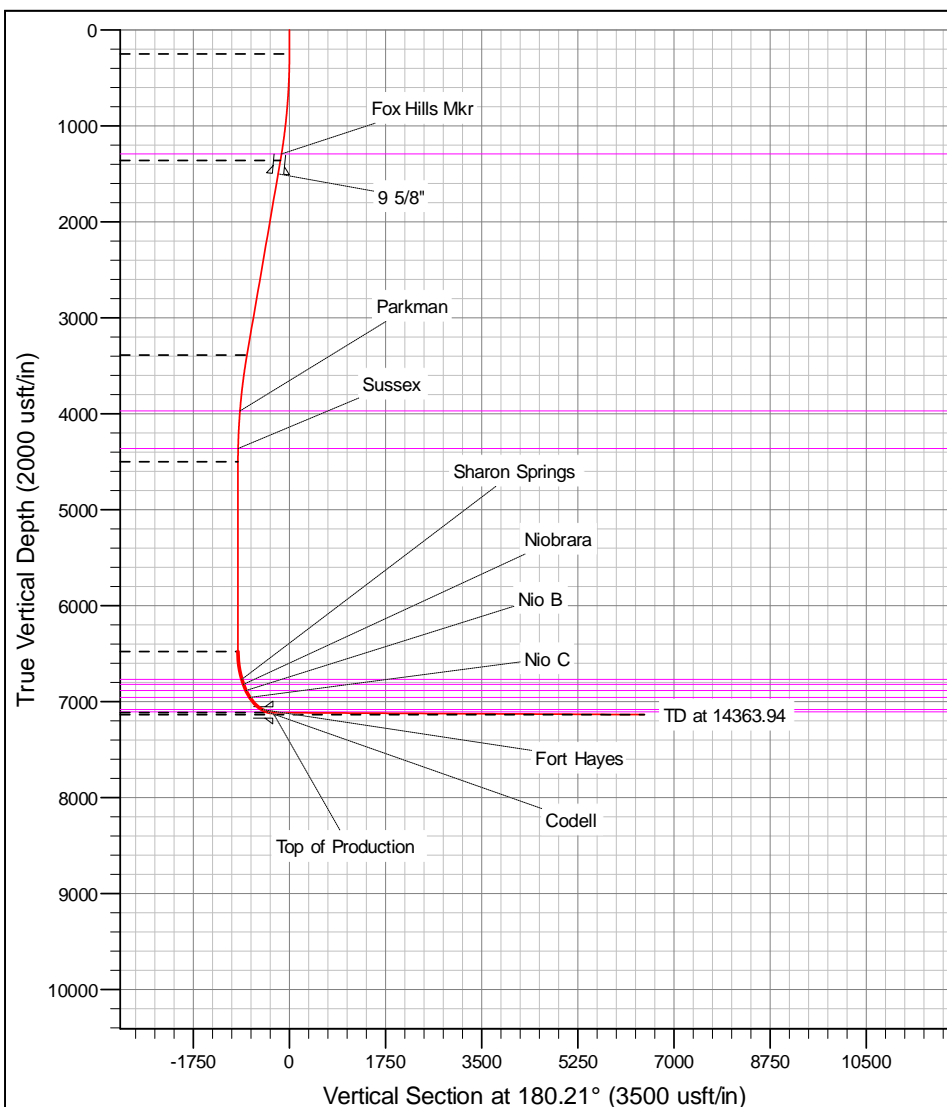
+N/-S	+E/-W	GL: 4878.00	RKB = 17' @ 4895.00usft (D Rig)	Longitude	Slot
-0.36	90.00	Northing 14575070.43	Easting 1749294.02	Latitude 40.132086	-104.610472

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	-0.36	90.00	0.00	0.00
250.00	0.00	0.00	250.00	-0.36	90.00	0.00	0.00
1376.62	16.90	8.51	1360.36	162.77	114.40	1.50	-163.22
3497.49	16.90	8.51	3389.64	772.50	205.60	0.00	-773.29
4624.11	0.00	0.00	4500.00	935.64	230.00	1.50	-936.51
6603.43	0.00	0.00	6479.32	935.64	230.00	0.00	-936.51
7601.54	89.83	180.66	7115.94	300.95	222.71	9.00	-301.80
14363.94	89.83	180.66	7136.00	-6460.97	145.03	0.00	6460.36

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SWARTZ 2C-25HZ_PBHL	7136.00	-6460.97	145.03	14568610.13	1749377.33	40.114345	-104.610275



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Site 2N-65W-13 Swartz 15-13HZ Pad
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Site:	2N-65W-13 Swartz 15-13HZ Pad	North Reference:	True
Well:	SWARTZ 2C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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						2N-65W-13 Swartz 15-13HZ Pad											
Site Position:			Northing:			14,575,070.39 usft			Latitude:			40.132087					
From:			Lat/Long			Easting:			1,749,204.01 usft			Longitude:			-104.610794		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.25		

Well	SWARTZ 2C-25HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,575,070.42 usft	Latitude:	40.132086
	+E/-W	90.00 usft	Easting:	1,749,294.02 usft	Longitude:	-104.610472
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,878.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/29/2015	8.20	66.72	52,572.34132136

Design	Permit Rev-4				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	-0.36	90.00	180.21	

Plan Survey Tool Program	Date	12/7/2016			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	250.00	Permit Rev-4 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:Rockies, crustal dex	
2	7,602.34	14,363.94	Permit Rev-4 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:Rockies, crustal dex	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Site:	2N-65W-13 Swartz 15-13HZ Pad	North Reference:	True
Well:	SWARTZ 2C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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	-0.36	90.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	-0.36	90.00	0.00	0.00	0.00	0.00	
1,376.62	16.90	8.51	1,360.36	162.77	114.40	1.50	1.50	0.00	8.51	
3,497.49	16.90	8.51	3,389.64	772.50	205.60	0.00	0.00	0.00	0.00	
4,624.11	0.00	0.00	4,500.00	935.64	230.00	1.50	-1.50	0.00	180.00	
6,603.43	0.00	0.00	6,479.32	935.64	230.00	0.00	0.00	0.00	0.00	
7,601.54	89.83	180.66	7,115.94	300.95	222.71	9.00	9.00	0.00	180.66	
14,363.94	89.83	180.66	7,136.00	-6,460.97	145.03	0.00	0.00	0.00	0.00	SWARTZ 2C-25HZ

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Site:	2N-65W-13 Swartz 15-13HZ Pad	North Reference:	True
Well:	SWARTZ 2C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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	-0.36	90.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	-0.36	90.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	-0.36	90.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	-0.36	90.00	0.00	0.00	0.00	0.00
300.00	0.75	8.51	300.00	-0.04	90.05	-0.32	1.50	1.50	0.00
400.00	2.25	8.51	399.96	2.55	90.44	-2.91	1.50	1.50	0.00
500.00	3.75	8.51	499.82	7.72	91.21	-8.09	1.50	1.50	0.00
600.00	5.25	8.51	599.51	15.48	92.37	-15.86	1.50	1.50	0.00
700.00	6.75	8.51	698.96	25.82	93.92	-26.20	1.50	1.50	0.00
800.00	8.25	8.51	798.10	38.73	95.85	-39.12	1.50	1.50	0.00
900.00	9.75	8.51	896.87	54.20	98.17	-54.59	1.50	1.50	0.00
1,000.00	11.25	8.51	995.19	72.22	100.86	-72.63	1.50	1.50	0.00
1,100.00	12.75	8.51	1,093.00	92.79	103.94	-93.20	1.50	1.50	0.00
1,200.00	14.25	8.51	1,190.24	115.87	107.39	-116.30	1.50	1.50	0.00
1,300.00	15.75	8.51	1,286.83	141.47	111.22	-141.91	1.50	1.50	0.00
1,307.46	15.86	8.51	1,294.00	143.48	111.52	-143.92	1.50	1.50	0.00
Fox Hills Mkr									
1,376.62	16.90	8.51	1,360.36	162.77	114.40	-163.22	1.50	1.50	0.00
1,400.00	16.90	8.51	1,382.73	169.49	115.41	-169.95	0.00	0.00	0.00
1,500.00	16.90	8.51	1,478.41	198.24	119.71	-198.71	0.00	0.00	0.00
1,522.57	16.90	8.51	1,500.00	204.73	120.68	-205.20	0.00	0.00	0.00
9 5/8"									
1,600.00	16.90	8.51	1,574.09	226.99	124.01	-227.48	0.00	0.00	0.00
1,700.00	16.90	8.51	1,669.77	255.74	128.31	-256.24	0.00	0.00	0.00
1,800.00	16.90	8.51	1,765.45	284.49	132.61	-285.00	0.00	0.00	0.00
1,900.00	16.90	8.51	1,861.13	313.24	136.91	-313.77	0.00	0.00	0.00
2,000.00	16.90	8.51	1,956.82	341.99	141.21	-342.53	0.00	0.00	0.00
2,100.00	16.90	8.51	2,052.50	370.73	145.51	-371.30	0.00	0.00	0.00
2,200.00	16.90	8.51	2,148.18	399.48	149.81	-400.06	0.00	0.00	0.00
2,300.00	16.90	8.51	2,243.86	428.23	154.11	-428.83	0.00	0.00	0.00
2,400.00	16.90	8.51	2,339.54	456.98	158.41	-457.59	0.00	0.00	0.00
2,500.00	16.90	8.51	2,435.22	485.73	162.71	-486.36	0.00	0.00	0.00
2,600.00	16.90	8.51	2,530.91	514.48	167.01	-515.12	0.00	0.00	0.00
2,700.00	16.90	8.51	2,626.59	543.23	171.31	-543.89	0.00	0.00	0.00
2,800.00	16.90	8.51	2,722.27	571.98	175.61	-572.65	0.00	0.00	0.00
2,900.00	16.90	8.51	2,817.95	600.73	179.91	-601.42	0.00	0.00	0.00
3,000.00	16.90	8.51	2,913.63	629.48	184.21	-630.18	0.00	0.00	0.00
3,100.00	16.90	8.51	3,009.32	658.23	188.51	-658.95	0.00	0.00	0.00
3,200.00	16.90	8.51	3,105.00	686.98	192.81	-687.71	0.00	0.00	0.00
3,300.00	16.90	8.51	3,200.68	715.73	197.11	-716.48	0.00	0.00	0.00
3,400.00	16.90	8.51	3,296.36	744.48	201.41	-745.24	0.00	0.00	0.00
3,497.49	16.90	8.51	3,389.64	772.50	205.60	-773.29	0.00	0.00	0.00
3,500.00	16.86	8.51	3,392.04	773.22	205.71	-774.01	1.50	-1.50	0.00
3,600.00	15.36	8.51	3,488.11	800.67	209.82	-801.47	1.50	-1.50	0.00
3,700.00	13.86	8.51	3,584.87	825.62	213.55	-826.43	1.50	-1.50	0.00
3,800.00	12.36	8.51	3,682.26	848.05	216.90	-848.88	1.50	-1.50	0.00
3,900.00	10.86	8.51	3,780.22	867.96	219.88	-868.79	1.50	-1.50	0.00
4,000.00	9.36	8.51	3,878.66	885.32	222.48	-886.16	1.50	-1.50	0.00
4,093.41	7.96	8.51	3,971.00	899.23	224.56	-900.08	1.50	-1.50	0.00
Parkman									
4,100.00	7.86	8.51	3,977.53	900.13	224.69	-900.98	1.50	-1.50	0.00
4,200.00	6.36	8.51	4,076.76	912.37	226.52	-913.23	1.50	-1.50	0.00
4,300.00	4.86	8.51	4,176.27	922.04	227.97	-922.91	1.50	-1.50	0.00

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Site:	2N-65W-13 Swartz 15-13HZ Pad	North Reference:	True
Well:	SWARTZ 2C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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	3.36	8.51	4,276.01	929.14	229.03	-930.00	1.50	-1.50	0.00
4,486.08	2.07	8.51	4,362.00	933.17	229.63	-934.04	1.50	-1.50	0.00
Sussex									
4,500.00	1.86	8.51	4,375.91	933.64	229.71	-934.51	1.50	-1.50	0.00
4,600.00	0.36	8.51	4,475.89	935.56	229.99	-936.43	1.50	-1.50	0.00
4,624.11	0.00	0.00	4,500.00	935.64	230.00	-936.51	1.50	-1.50	0.00
4,700.00	0.00	0.00	4,575.89	935.64	230.00	-936.51	0.00	0.00	0.00
4,800.00	0.00	0.00	4,675.89	935.64	230.00	-936.51	0.00	0.00	0.00
4,900.00	0.00	0.00	4,775.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,000.00	0.00	0.00	4,875.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,100.00	0.00	0.00	4,975.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,200.00	0.00	0.00	5,075.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,300.00	0.00	0.00	5,175.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,400.00	0.00	0.00	5,275.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,500.00	0.00	0.00	5,375.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,600.00	0.00	0.00	5,475.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,700.00	0.00	0.00	5,575.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,800.00	0.00	0.00	5,675.89	935.64	230.00	-936.51	0.00	0.00	0.00
5,900.00	0.00	0.00	5,775.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,000.00	0.00	0.00	5,875.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,100.00	0.00	0.00	5,975.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,200.00	0.00	0.00	6,075.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,300.00	0.00	0.00	6,175.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,400.00	0.00	0.00	6,275.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,500.00	0.00	0.00	6,375.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,600.00	0.00	0.00	6,475.89	935.64	230.00	-936.51	0.00	0.00	0.00
6,603.43	0.00	0.00	6,479.32	935.64	230.00	-936.51	0.00	0.00	0.00
6,700.00	8.69	180.66	6,575.52	928.33	229.92	-929.20	9.00	9.00	0.00
6,800.00	17.69	180.66	6,672.78	905.53	229.66	-906.40	9.00	9.00	0.00
6,900.00	26.69	180.66	6,765.28	867.80	229.22	-868.67	9.00	9.00	0.00
6,904.18	27.07	180.66	6,769.00	865.92	229.20	-866.78	9.00	9.00	0.00
Sharon Springs									
6,964.10	32.46	180.66	6,821.00	836.18	228.86	-837.05	9.00	9.00	0.00
Niobrara									
7,000.00	35.69	180.66	6,850.73	816.07	228.63	-816.94	9.00	9.00	0.00
7,041.99	39.47	180.66	6,884.00	790.47	228.34	-791.34	9.00	9.00	0.00
Nio B									
7,100.00	44.69	180.66	6,927.04	751.61	227.89	-752.47	9.00	9.00	0.00
7,145.17	48.76	180.66	6,958.00	718.73	227.51	-719.59	9.00	9.00	0.00
Nio C									
7,200.00	53.69	180.66	6,992.33	676.00	227.02	-676.86	9.00	9.00	0.00
7,300.00	62.69	180.66	7,044.98	591.11	226.05	-591.97	9.00	9.00	0.00
7,400.00	71.69	180.66	7,083.71	499.03	224.99	-499.89	9.00	9.00	0.00
7,400.92	71.77	180.66	7,084.00	498.16	224.98	-499.01	9.00	9.00	0.00
Fort Hayes									
7,496.63	80.39	180.66	7,107.00	405.36	223.91	-406.21	9.00	9.00	0.00
Codell									
7,500.00	80.69	180.66	7,107.55	402.03	223.87	-402.88	9.00	9.00	0.00
7,600.00	89.69	180.66	7,115.93	302.49	222.73	-303.34	9.00	9.00	0.00
7,601.54	89.83	180.66	7,115.94	300.95	222.71	-301.80	9.00	9.00	0.00
Top of Production - SWARTZ 2C-25HZ_PHL									
7,700.00	89.83	180.66	7,116.23	202.50	221.58	-203.34	0.00	0.00	0.00
7,800.00	89.83	180.66	7,116.52	102.50	220.43	-103.35	0.00	0.00	0.00

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Wellbore:	Plan A		
Design:	Permit Rev-4		

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	180.66	7,116.82	2.51	219.28	-3.35	0.00	0.00	0.00
8,000.00	89.83	180.66	7,117.12	-97.48	218.13	96.65	0.00	0.00	0.00
8,100.00	89.83	180.66	7,117.41	-197.47	216.99	196.64	0.00	0.00	0.00
8,200.00	89.83	180.66	7,117.71	-297.47	215.84	296.64	0.00	0.00	0.00
8,300.00	89.83	180.66	7,118.01	-397.46	214.69	396.64	0.00	0.00	0.00
8,400.00	89.83	180.66	7,118.30	-497.45	213.54	496.63	0.00	0.00	0.00
8,500.00	89.83	180.66	7,118.60	-597.45	212.39	596.63	0.00	0.00	0.00
8,600.00	89.83	180.66	7,118.90	-697.44	211.24	696.63	0.00	0.00	0.00
8,700.00	89.83	180.66	7,119.19	-797.43	210.09	796.62	0.00	0.00	0.00
8,800.00	89.83	180.66	7,119.49	-897.42	208.95	896.62	0.00	0.00	0.00
8,900.00	89.83	180.66	7,119.79	-997.42	207.80	996.62	0.00	0.00	0.00
9,000.00	89.83	180.66	7,120.09	-1,097.41	206.65	1,096.61	0.00	0.00	0.00
9,100.00	89.83	180.66	7,120.38	-1,197.40	205.50	1,196.61	0.00	0.00	0.00
9,200.00	89.83	180.66	7,120.68	-1,297.40	204.35	1,296.60	0.00	0.00	0.00
9,300.00	89.83	180.66	7,120.98	-1,397.39	203.20	1,396.60	0.00	0.00	0.00
9,400.00	89.83	180.66	7,121.27	-1,497.38	202.05	1,496.60	0.00	0.00	0.00
9,500.00	89.83	180.66	7,121.57	-1,597.38	200.90	1,596.59	0.00	0.00	0.00
9,600.00	89.83	180.66	7,121.87	-1,697.37	199.76	1,696.59	0.00	0.00	0.00
9,700.00	89.83	180.66	7,122.16	-1,797.36	198.61	1,796.59	0.00	0.00	0.00
9,800.00	89.83	180.66	7,122.46	-1,897.35	197.46	1,896.58	0.00	0.00	0.00
9,900.00	89.83	180.66	7,122.76	-1,997.35	196.31	1,996.58	0.00	0.00	0.00
10,000.00	89.83	180.66	7,123.05	-2,097.34	195.16	2,096.58	0.00	0.00	0.00
10,100.00	89.83	180.66	7,123.35	-2,197.33	194.01	2,196.57	0.00	0.00	0.00
10,200.00	89.83	180.66	7,123.65	-2,297.33	192.86	2,296.57	0.00	0.00	0.00
10,300.00	89.83	180.66	7,123.94	-2,397.32	191.71	2,396.57	0.00	0.00	0.00
10,400.00	89.83	180.66	7,124.24	-2,497.31	190.57	2,496.56	0.00	0.00	0.00
10,500.00	89.83	180.66	7,124.54	-2,597.31	189.42	2,596.56	0.00	0.00	0.00
10,600.00	89.83	180.66	7,124.83	-2,697.30	188.27	2,696.56	0.00	0.00	0.00
10,700.00	89.83	180.66	7,125.13	-2,797.29	187.12	2,796.55	0.00	0.00	0.00
10,800.00	89.83	180.66	7,125.43	-2,897.28	185.97	2,896.55	0.00	0.00	0.00
10,900.00	89.83	180.66	7,125.72	-2,997.28	184.82	2,996.55	0.00	0.00	0.00
11,000.00	89.83	180.66	7,126.02	-3,097.27	183.67	3,096.54	0.00	0.00	0.00
11,100.00	89.83	180.66	7,126.32	-3,197.26	182.52	3,196.54	0.00	0.00	0.00
11,200.00	89.83	180.66	7,126.61	-3,297.26	181.38	3,296.54	0.00	0.00	0.00
11,300.00	89.83	180.66	7,126.91	-3,397.25	180.23	3,396.53	0.00	0.00	0.00
11,400.00	89.83	180.66	7,127.21	-3,497.24	179.08	3,496.53	0.00	0.00	0.00
11,500.00	89.83	180.66	7,127.50	-3,597.23	177.93	3,596.52	0.00	0.00	0.00
11,600.00	89.83	180.66	7,127.80	-3,697.23	176.78	3,696.52	0.00	0.00	0.00
11,700.00	89.83	180.66	7,128.10	-3,797.22	175.63	3,796.52	0.00	0.00	0.00
11,800.00	89.83	180.66	7,128.39	-3,897.21	174.48	3,896.51	0.00	0.00	0.00
11,900.00	89.83	180.66	7,128.69	-3,997.21	173.33	3,996.51	0.00	0.00	0.00
12,000.00	89.83	180.66	7,128.99	-4,097.20	172.19	4,096.51	0.00	0.00	0.00
12,100.00	89.83	180.66	7,129.28	-4,197.19	171.04	4,196.50	0.00	0.00	0.00
12,200.00	89.83	180.66	7,129.58	-4,297.19	169.89	4,296.50	0.00	0.00	0.00
12,300.00	89.83	180.66	7,129.88	-4,397.18	168.74	4,396.50	0.00	0.00	0.00
12,400.00	89.83	180.66	7,130.17	-4,497.17	167.59	4,496.49	0.00	0.00	0.00
12,500.00	89.83	180.66	7,130.47	-4,597.16	166.44	4,596.49	0.00	0.00	0.00
12,600.00	89.83	180.66	7,130.77	-4,697.16	165.29	4,696.49	0.00	0.00	0.00
12,700.00	89.83	180.66	7,131.06	-4,797.15	164.14	4,796.48	0.00	0.00	0.00
12,800.00	89.83	180.66	7,131.36	-4,897.14	163.00	4,896.48	0.00	0.00	0.00
12,900.00	89.83	180.66	7,131.66	-4,997.14	161.85	4,996.48	0.00	0.00	0.00
13,000.00	89.83	180.66	7,131.95	-5,097.13	160.70	5,096.47	0.00	0.00	0.00
13,100.00	89.83	180.66	7,132.25	-5,197.12	159.55	5,196.47	0.00	0.00	0.00
13,200.00	89.83	180.66	7,132.55	-5,297.12	158.40	5,296.47	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Site 2N-65W-13 Swartz 15-13HZ Pad
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4895.00usft (D Rig)
Site:	2N-65W-13 Swartz 15-13HZ Pad	North Reference:	True
Well:	SWARTZ 2C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-4		

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	180.66	7,132.84	-5,397.11	157.25	5,396.46	0.00	0.00	0.00	
13,400.00	89.83	180.66	7,133.14	-5,497.10	156.10	5,496.46	0.00	0.00	0.00	
13,500.00	89.83	180.66	7,133.44	-5,597.09	154.95	5,596.45	0.00	0.00	0.00	
13,600.00	89.83	180.66	7,133.73	-5,697.09	153.81	5,696.45	0.00	0.00	0.00	
13,700.00	89.83	180.66	7,134.03	-5,797.08	152.66	5,796.45	0.00	0.00	0.00	
13,800.00	89.83	180.66	7,134.33	-5,897.07	151.51	5,896.44	0.00	0.00	0.00	
13,900.00	89.83	180.66	7,134.62	-5,997.07	150.36	5,996.44	0.00	0.00	0.00	
14,000.00	89.83	180.66	7,134.92	-6,097.06	149.21	6,096.44	0.00	0.00	0.00	
14,100.00	89.83	180.66	7,135.22	-6,197.05	148.06	6,196.43	0.00	0.00	0.00	
14,200.00	89.83	180.66	7,135.51	-6,297.04	146.91	6,296.43	0.00	0.00	0.00	
14,300.00	89.83	180.66	7,135.81	-6,397.04	145.76	6,396.43	0.00	0.00	0.00	
14,363.94	89.83	180.66	7,136.00	-6,460.97	145.03	6,460.36	0.00	0.00	0.00	
SWARTZ 2C-25HZ_PBHL										

Design Targets										
Target Name										
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SWARTZ 2C-25HZ_P	0.00	0.00	7,115.94	300.95	222.71	14,575,372.32	1,749,425.40	40.132914	-104.609997	
- plan hits target center										
- Point										
SWARTZ 2C-25HZ_P	0.00	0.00	7,136.00	-6,460.97	145.03	14,568,610.12	1,749,377.33	40.114345	-104.610276	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,522.57	1,500.00	9 5/8"	9-5/8	13-1/2		
7,601.54	7,115.94	Top of Production	5-1/2	8-1/2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,307.46	1,294.00	Fox Hills Mkr				
4,093.41	3,971.00	Parkman				
4,486.08	4,362.00	Sussex				
6,904.18	6,769.00	Sharon Springs				
6,964.10	6,821.00	Niobrara				
7,041.99	6,884.00	Nio B				
7,145.17	6,958.00	Nio C				
7,400.92	7,084.00	Fort Hayes				
7,496.63	7,107.00	Codell				

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 2N-65W-13 Swartz 15-13HZ Pad
Well: SWARTZ 2C-25HZ
Wellbore: Plan A
Design: Permit Rev-4

Local Co-ordinate Reference: Site 2N-65W-13 Swartz 15-13HZ Pad
TVD Reference: RKB = 17' @ 4895.00usft (D Rig)
MD Reference: RKB = 17' @ 4895.00usft (D Rig)
North Reference: True
Survey Calculation Method: Minimum Curvature