

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-65W-13 Swartz No2 Pad
SWARTZ 1N-12HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

30 July, 2015

Project: WELD-NAD83-UTMFT13N

Site: 2N-65W-13 Swartz No2 Pad

Well: SWARTZ 1N-12HZ

Wellbore: Plan A

Design: Permit Rev-1

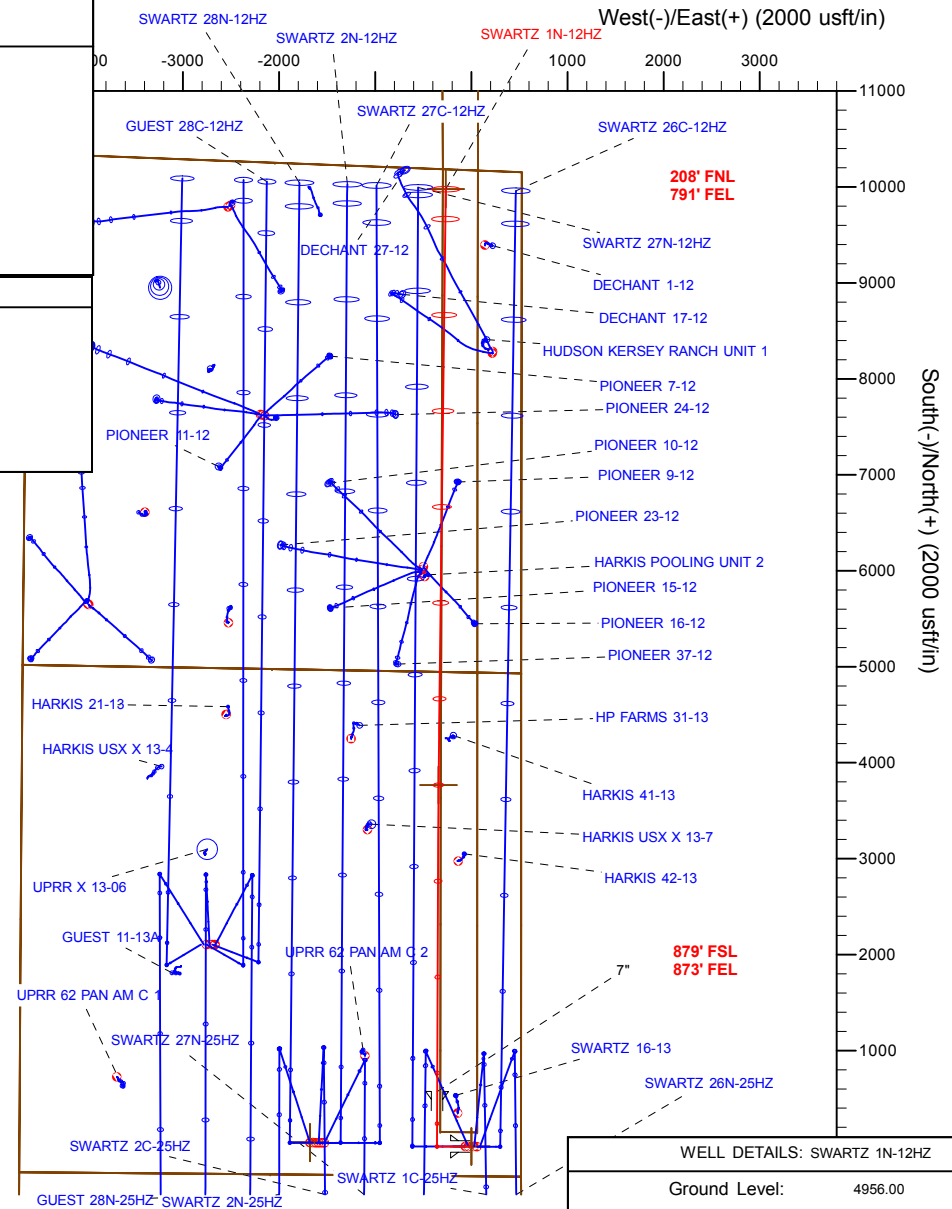
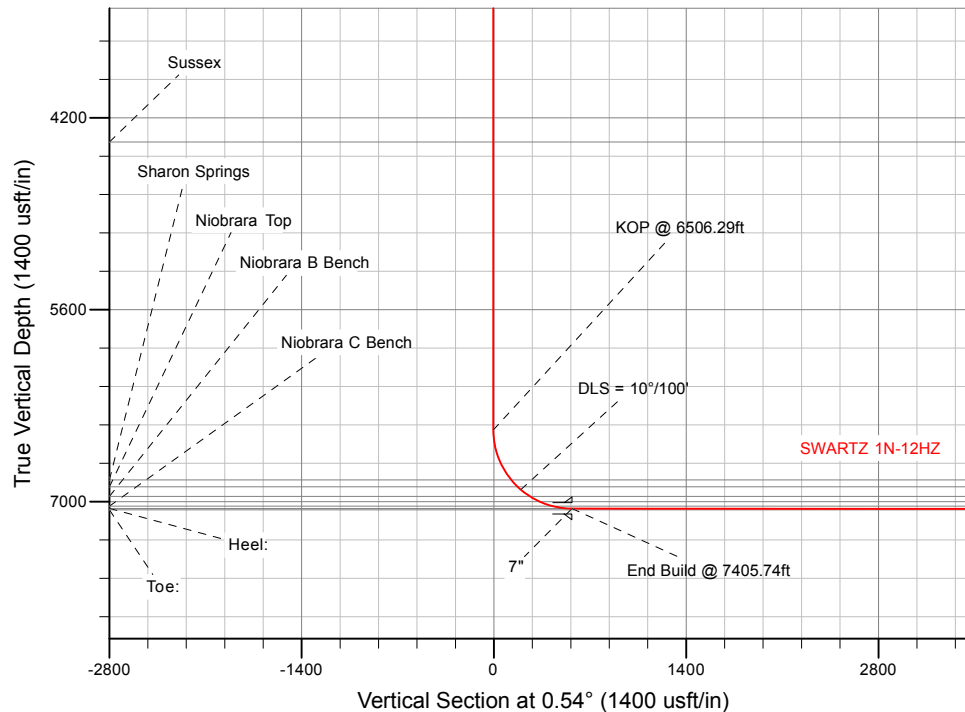
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	916.67	10.00	270.00	913.29	0.00	-58.03	1.50	270.00	-0.55	
4	2386.67	10.00	270.00	2360.95	0.00	-313.29	0.00	0.00	-2.95	
5	2886.67	0.00	0.00	2858.42	0.00	-356.82	2.00	180.00	-3.36	
6	6506.29	0.00	0.00	6478.04	0.00	-356.82	0.00	0.00	-3.36	
7	7405.74	89.95	0.23	7051.00	572.40	-354.47	10.00	0.23	569.04	
8	10601.45	89.95	0.23	7054.06	3768.09	-341.38	0.00	0.00	3764.71	SWARTZ 1N-12HZ_Lat Tgt
9	10624.94	89.95	0.70	7054.08	3791.58	-341.19	2.00	89.99	3788.20	
10	16812.03	89.95	0.70	7060.00	9978.20	-265.11	0.00	0.00	9975.26	SWARTZ 1N-12HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
SWARTZ 1N-12HZ_SHL	0.00	0.00	0.00	40.131977	-104.604795	Point
SWARTZ 1N-12HZ_TOE	7060.00	9978.20	-265.11	40.159378	-104.605744	Point



WELL DETAILS: SWARTZ 1N-12HZ

Ground Level: 4956.00

RKB = 17' @ 4973.00usft (D Rig)

Plan: Permit Rev-1 (SWARTZ 1N-12HZ/Plan A)

Created By: Clint Eshelman

Date: 7/30/2015

Reviewed: _____

Date: _____

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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		2N-65W-13 Swartz No2 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 1N-12HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,575,037.74 usft	Latitude:	40.131977
	+E/-W	60.10 usft	Easting:	1,750,880.98 usft	Longitude:	-104.604795
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,956.00 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

Design	Permit Rev-1			
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	0.00	0.00	0.54

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	
916.67	10.00	270.00	913.29	0.00	-58.03	1.50	1.50	0.00	270.00	
2,386.67	10.00	270.00	2,360.95	0.00	-313.29	0.00	0.00	0.00	0.00	
2,886.67	0.00	0.00	2,858.42	0.00	-356.82	2.00	-2.00	0.00	180.00	
6,506.29	0.00	0.00	6,478.04	0.00	-356.82	0.00	0.00	0.00	0.00	
7,405.74	89.95	0.23	7,051.00	572.40	-354.47	10.00	10.00	0.03	0.23	
10,601.45	89.95	0.23	7,054.06	3,768.09	-341.38	0.00	0.00	0.00	0.00	SWARTZ 1N-12HZ_L
10,624.94	89.95	0.70	7,054.08	3,791.58	-341.19	2.00	0.00	2.00	89.99	
16,812.03	89.95	0.70	7,060.00	9,978.20	-265.11	0.00	0.00	0.00	0.00	SWARTZ 1N-12HZ_T

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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
2N-R65W-Sec. 25_Section lines - SWARTZ 1N-12HZ_SHL - 2N-R65W-Sec. 13_Section lines - 2N-R65W-Sec. 12_Section lines - 2N-R65W-S									
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
Begin Nudge @ 250.00ft									
300.00	0.75	270.00	300.00	0.00	-0.33	0.00	1.50	1.50	0.00
400.00	2.25	270.00	399.96	0.00	-2.94	-0.03	1.50	1.50	0.00
500.00	3.75	270.00	499.82	0.00	-8.18	-0.08	1.50	1.50	0.00
600.00	5.25	270.00	599.51	0.00	-16.02	-0.15	1.50	1.50	0.00
700.00	6.75	270.00	698.96	0.00	-26.48	-0.25	1.50	1.50	0.00
800.00	8.25	270.00	798.10	0.00	-39.53	-0.37	1.50	1.50	0.00
900.00	9.75	270.00	896.87	0.00	-55.17	-0.52	1.50	1.50	0.00
916.67	10.00	270.00	913.29	0.00	-58.03	-0.55	1.50	1.50	0.00
End Nudge @ 916.67ft									
1,000.00	10.00	270.00	995.35	0.00	-72.50	-0.68	0.00	0.00	0.00
1,100.00	10.00	270.00	1,093.84	0.00	-89.87	-0.85	0.00	0.00	0.00
1,200.00	10.00	270.00	1,192.32	0.00	-107.23	-1.01	0.00	0.00	0.00
1,300.00	10.00	270.00	1,290.80	0.00	-124.60	-1.17	0.00	0.00	0.00
1,382.46	10.00	270.00	1,372.00	0.00	-138.91	-1.31	0.00	0.00	0.00
Fox Hills									
1,400.00	10.00	270.00	1,389.28	0.00	-141.96	-1.34	0.00	0.00	0.00
1,500.00	10.00	270.00	1,487.76	0.00	-159.32	-1.50	0.00	0.00	0.00
1,600.00	10.00	270.00	1,586.24	0.00	-176.69	-1.67	0.00	0.00	0.00
1,700.00	10.00	270.00	1,684.72	0.00	-194.05	-1.83	0.00	0.00	0.00
1,800.00	10.00	270.00	1,783.20	0.00	-211.42	-1.99	0.00	0.00	0.00
1,817.06	10.00	270.00	1,800.00	0.00	-214.38	-2.02	0.00	0.00	0.00
9 5/8"									
1,900.00	10.00	270.00	1,881.68	0.00	-228.78	-2.16	0.00	0.00	0.00
2,000.00	10.00	270.00	1,980.16	0.00	-246.15	-2.32	0.00	0.00	0.00
2,100.00	10.00	270.00	2,078.64	0.00	-263.51	-2.48	0.00	0.00	0.00
2,200.00	10.00	270.00	2,177.12	0.00	-280.88	-2.65	0.00	0.00	0.00
2,300.00	10.00	270.00	2,275.60	0.00	-298.24	-2.81	0.00	0.00	0.00
2,386.67	10.00	270.00	2,360.96	0.00	-313.29	-2.95	0.00	0.00	0.00
Begin Drop @ 2386.67ft									
2,400.00	9.73	270.00	2,374.09	0.00	-315.58	-2.97	2.00	-2.00	0.00
2,500.00	7.73	270.00	2,472.93	0.00	-330.76	-3.12	2.00	-2.00	0.00
2,600.00	5.73	270.00	2,572.23	0.00	-342.48	-3.23	2.00	-2.00	0.00
2,700.00	3.73	270.00	2,671.89	0.00	-350.74	-3.31	2.00	-2.00	0.00
2,800.00	1.73	270.00	2,771.77	0.00	-355.50	-3.35	2.00	-2.00	0.00
2,886.67	0.00	0.00	2,858.42	0.00	-356.82	-3.36	2.00	-2.00	0.00
End Drop @ 2886.67ft									
2,900.00	0.00	0.00	2,871.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,000.00	0.00	0.00	2,971.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,100.00	0.00	0.00	3,071.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,200.00	0.00	0.00	3,171.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,300.00	0.00	0.00	3,271.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,400.00	0.00	0.00	3,371.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,500.00	0.00	0.00	3,471.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,600.00	0.00	0.00	3,571.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,700.00	0.00	0.00	3,671.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,800.00	0.00	0.00	3,771.75	0.00	-356.82	-3.36	0.00	0.00	0.00
3,900.00	0.00	0.00	3,871.75	0.00	-356.82	-3.36	0.00	0.00	0.00

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Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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)
4,000.00	0.00	0.00	3,971.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,100.00	0.00	0.00	4,071.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,200.00	0.00	0.00	4,171.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,300.00	0.00	0.00	4,271.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,400.00	0.00	0.00	4,371.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,404.25	0.00	0.00	4,376.00	0.00	-356.82	-3.36	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,471.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,600.00	0.00	0.00	4,571.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,700.00	0.00	0.00	4,671.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,800.00	0.00	0.00	4,771.75	0.00	-356.82	-3.36	0.00	0.00	0.00
4,900.00	0.00	0.00	4,871.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,000.00	0.00	0.00	4,971.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,100.00	0.00	0.00	5,071.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,200.00	0.00	0.00	5,171.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,300.00	0.00	0.00	5,271.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,400.00	0.00	0.00	5,371.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,500.00	0.00	0.00	5,471.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,600.00	0.00	0.00	5,571.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,700.00	0.00	0.00	5,671.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,800.00	0.00	0.00	5,771.75	0.00	-356.82	-3.36	0.00	0.00	0.00
5,900.00	0.00	0.00	5,871.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,000.00	0.00	0.00	5,971.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,100.00	0.00	0.00	6,071.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,200.00	0.00	0.00	6,171.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,300.00	0.00	0.00	6,271.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,400.00	0.00	0.00	6,371.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,500.00	0.00	0.00	6,471.75	0.00	-356.82	-3.36	0.00	0.00	0.00
6,506.29	0.00	0.00	6,478.04	0.00	-356.82	-3.36	0.00	0.00	0.00
KOP @ 6506.29ft									
6,600.00	9.37	0.23	6,571.34	7.65	-356.78	4.28	10.00	10.00	0.00
6,700.00	19.37	0.23	6,668.08	32.44	-356.68	29.07	10.00	10.00	0.00
6,800.00	29.37	0.23	6,759.06	73.65	-356.51	70.28	10.00	10.00	0.00
6,900.00	39.37	0.23	6,841.49	130.03	-356.28	126.67	10.00	10.00	0.00
6,901.26	39.50	0.23	6,842.47	130.83	-356.28	127.47	10.00	10.00	0.00
Sharon Springs									
6,969.57	46.33	0.23	6,892.47	177.32	-356.09	173.95	10.00	10.00	0.00
Niobrara Top									
7,000.00	49.37	0.23	6,912.88	199.87	-356.00	196.51	10.00	10.00	0.00
DLS = 10°/100'									
7,083.45	57.72	0.23	6,962.43	266.94	-355.72	263.57	10.00	10.00	0.00
Niobrara B Bench									
7,100.00	59.37	0.23	6,971.06	281.05	-355.66	277.68	10.00	10.00	0.00
7,200.00	69.37	0.23	7,014.26	371.10	-355.30	367.73	10.00	10.00	0.00
7,267.22	76.09	0.23	7,034.20	435.25	-355.03	431.88	10.00	10.00	0.00
Niobrara C Bench									
7,300.00	79.37	0.23	7,041.17	467.28	-354.90	463.91	10.00	10.00	0.00
7,400.00	89.37	0.23	7,050.96	566.67	-354.49	563.30	10.00	10.00	0.00
7,405.74	89.95	0.23	7,051.00	572.41	-354.47	569.04	10.00	10.00	0.00
End Build @ 7405.74ft - Heel: - 7"									
7,500.00	89.95	0.23	7,051.09	666.67	-354.08	663.30	0.00	0.00	0.00
7,600.00	89.95	0.23	7,051.18	766.66	-353.67	763.30	0.00	0.00	0.00
7,700.00	89.95	0.23	7,051.28	866.66	-353.27	863.30	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,800.00	89.95	0.23	7,051.38	966.66	-352.86	963.29	0.00	0.00	0.00
7,900.00	89.95	0.23	7,051.47	1,066.66	-352.45	1,063.29	0.00	0.00	0.00
8,000.00	89.95	0.23	7,051.57	1,166.66	-352.04	1,163.29	0.00	0.00	0.00
8,100.00	89.95	0.23	7,051.66	1,266.66	-351.63	1,263.29	0.00	0.00	0.00
8,200.00	89.95	0.23	7,051.76	1,366.66	-351.22	1,363.29	0.00	0.00	0.00
8,300.00	89.95	0.23	7,051.85	1,466.66	-350.81	1,463.29	0.00	0.00	0.00
8,400.00	89.95	0.23	7,051.95	1,566.66	-350.40	1,563.29	0.00	0.00	0.00
8,500.00	89.95	0.23	7,052.05	1,666.66	-349.99	1,663.28	0.00	0.00	0.00
8,600.00	89.95	0.23	7,052.14	1,766.66	-349.58	1,763.28	0.00	0.00	0.00
8,700.00	89.95	0.23	7,052.24	1,866.65	-349.17	1,863.28	0.00	0.00	0.00
8,800.00	89.95	0.23	7,052.33	1,966.65	-348.76	1,963.28	0.00	0.00	0.00
8,900.00	89.95	0.23	7,052.43	2,066.65	-348.35	2,063.28	0.00	0.00	0.00
9,000.00	89.95	0.23	7,052.53	2,166.65	-347.94	2,163.28	0.00	0.00	0.00
9,100.00	89.95	0.23	7,052.62	2,266.65	-347.53	2,263.28	0.00	0.00	0.00
9,200.00	89.95	0.23	7,052.72	2,366.65	-347.12	2,363.27	0.00	0.00	0.00
9,300.00	89.95	0.23	7,052.81	2,466.65	-346.71	2,463.27	0.00	0.00	0.00
9,400.00	89.95	0.23	7,052.91	2,566.65	-346.30	2,563.27	0.00	0.00	0.00
9,500.00	89.95	0.23	7,053.00	2,666.65	-345.89	2,663.27	0.00	0.00	0.00
9,600.00	89.95	0.23	7,053.10	2,766.65	-345.48	2,763.27	0.00	0.00	0.00
9,700.00	89.95	0.23	7,053.20	2,866.65	-345.07	2,863.27	0.00	0.00	0.00
9,800.00	89.95	0.23	7,053.29	2,966.65	-344.66	2,963.27	0.00	0.00	0.00
9,900.00	89.95	0.23	7,053.39	3,066.64	-344.25	3,063.26	0.00	0.00	0.00
10,000.00	89.95	0.23	7,053.48	3,166.64	-343.84	3,163.26	0.00	0.00	0.00
10,100.00	89.95	0.23	7,053.58	3,266.64	-343.43	3,263.26	0.00	0.00	0.00
10,200.00	89.95	0.23	7,053.68	3,366.64	-343.02	3,363.26	0.00	0.00	0.00
10,300.00	89.95	0.23	7,053.77	3,466.64	-342.61	3,463.26	0.00	0.00	0.00
10,400.00	89.95	0.23	7,053.87	3,566.64	-342.21	3,563.26	0.00	0.00	0.00
10,500.00	89.95	0.23	7,053.96	3,666.64	-341.80	3,663.25	0.00	0.00	0.00
10,600.00	89.95	0.23	7,054.06	3,766.64	-341.39	3,763.25	0.00	0.00	0.00
10,601.45	89.95	0.23	7,054.06	3,768.09	-341.38	3,764.71	0.00	0.00	0.00
Begin Turn @ 10601.45ft - SWARTZ 1N-12HZ_Lat Tgt									
10,624.94	89.95	0.70	7,054.08	3,791.58	-341.19	3,788.19	2.00	0.00	2.00
End Turn @ 10624.94ft									
10,700.00	89.95	0.70	7,054.15	3,866.63	-340.26	3,863.25	0.00	0.00	0.00
10,800.00	89.95	0.70	7,054.25	3,966.62	-339.03	3,963.25	0.00	0.00	0.00
10,900.00	89.95	0.70	7,054.35	4,066.62	-337.81	4,063.25	0.00	0.00	0.00
11,000.00	89.95	0.70	7,054.44	4,166.61	-336.58	4,163.25	0.00	0.00	0.00
11,100.00	89.95	0.70	7,054.54	4,266.60	-335.35	4,263.25	0.00	0.00	0.00
11,200.00	89.95	0.70	7,054.63	4,366.59	-334.12	4,363.25	0.00	0.00	0.00
11,300.00	89.95	0.70	7,054.73	4,466.59	-332.89	4,463.25	0.00	0.00	0.00
11,400.00	89.95	0.70	7,054.82	4,566.58	-331.66	4,563.25	0.00	0.00	0.00
11,500.00	89.95	0.70	7,054.92	4,666.57	-330.43	4,663.25	0.00	0.00	0.00
11,600.00	89.95	0.70	7,055.02	4,766.56	-329.20	4,763.25	0.00	0.00	0.00
11,700.00	89.95	0.70	7,055.11	4,866.56	-327.97	4,863.25	0.00	0.00	0.00
11,800.00	89.95	0.70	7,055.21	4,966.55	-326.74	4,963.25	0.00	0.00	0.00
11,900.00	89.95	0.70	7,055.30	5,066.54	-325.51	5,063.25	0.00	0.00	0.00
12,000.00	89.95	0.70	7,055.40	5,166.53	-324.28	5,163.25	0.00	0.00	0.00
12,100.00	89.95	0.70	7,055.49	5,266.53	-323.05	5,263.25	0.00	0.00	0.00
12,200.00	89.95	0.70	7,055.59	5,366.52	-321.82	5,363.25	0.00	0.00	0.00
12,300.00	89.95	0.70	7,055.68	5,466.51	-320.59	5,463.25	0.00	0.00	0.00
12,400.00	89.95	0.70	7,055.78	5,566.50	-319.36	5,563.25	0.00	0.00	0.00
12,500.00	89.95	0.70	7,055.88	5,666.49	-318.13	5,663.24	0.00	0.00	0.00
12,600.00	89.95	0.70	7,055.97	5,766.49	-316.90	5,763.24	0.00	0.00	0.00
12,700.00	89.95	0.70	7,056.07	5,866.48	-315.67	5,863.24	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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)
12,800.00	89.95	0.70	7,056.16	5,966.47	-314.44	5,963.24	0.00	0.00	0.00
12,900.00	89.95	0.70	7,056.26	6,066.46	-313.21	6,063.24	0.00	0.00	0.00
13,000.00	89.95	0.70	7,056.35	6,166.46	-311.98	6,163.24	0.00	0.00	0.00
13,100.00	89.95	0.70	7,056.45	6,266.45	-310.75	6,263.24	0.00	0.00	0.00
13,200.00	89.95	0.70	7,056.55	6,366.44	-309.52	6,363.24	0.00	0.00	0.00
13,300.00	89.95	0.70	7,056.64	6,466.43	-308.29	6,463.24	0.00	0.00	0.00
13,400.00	89.95	0.70	7,056.74	6,566.43	-307.06	6,563.24	0.00	0.00	0.00
13,500.00	89.95	0.70	7,056.83	6,666.42	-305.84	6,663.24	0.00	0.00	0.00
13,600.00	89.95	0.70	7,056.93	6,766.41	-304.61	6,763.24	0.00	0.00	0.00
13,700.00	89.95	0.70	7,057.02	6,866.40	-303.38	6,863.24	0.00	0.00	0.00
13,800.00	89.95	0.70	7,057.12	6,966.40	-302.15	6,963.24	0.00	0.00	0.00
13,900.00	89.95	0.70	7,057.22	7,066.39	-300.92	7,063.24	0.00	0.00	0.00
14,000.00	89.95	0.70	7,057.31	7,166.38	-299.69	7,163.24	0.00	0.00	0.00
14,100.00	89.95	0.70	7,057.41	7,266.37	-298.46	7,263.24	0.00	0.00	0.00
14,200.00	89.95	0.70	7,057.50	7,366.37	-297.23	7,363.24	0.00	0.00	0.00
14,300.00	89.95	0.70	7,057.60	7,466.36	-296.00	7,463.24	0.00	0.00	0.00
14,400.00	89.95	0.70	7,057.69	7,566.35	-294.77	7,563.24	0.00	0.00	0.00
14,500.00	89.95	0.70	7,057.79	7,666.34	-293.54	7,663.24	0.00	0.00	0.00
14,600.00	89.95	0.70	7,057.88	7,766.34	-292.31	7,763.24	0.00	0.00	0.00
14,700.00	89.95	0.70	7,057.98	7,866.33	-291.08	7,863.23	0.00	0.00	0.00
14,800.00	89.95	0.70	7,058.08	7,966.32	-289.85	7,963.23	0.00	0.00	0.00
14,900.00	89.95	0.70	7,058.17	8,066.31	-288.62	8,063.23	0.00	0.00	0.00
15,000.00	89.95	0.70	7,058.27	8,166.30	-287.39	8,163.23	0.00	0.00	0.00
15,100.00	89.95	0.70	7,058.36	8,266.30	-286.16	8,263.23	0.00	0.00	0.00
15,200.00	89.95	0.70	7,058.46	8,366.29	-284.93	8,363.23	0.00	0.00	0.00
15,300.00	89.95	0.70	7,058.55	8,466.28	-283.70	8,463.23	0.00	0.00	0.00
15,400.00	89.95	0.70	7,058.65	8,566.27	-282.47	8,563.23	0.00	0.00	0.00
15,500.00	89.95	0.70	7,058.75	8,666.27	-281.24	8,663.23	0.00	0.00	0.00
15,600.00	89.95	0.70	7,058.84	8,766.26	-280.01	8,763.23	0.00	0.00	0.00
15,700.00	89.95	0.70	7,058.94	8,866.25	-278.78	8,863.23	0.00	0.00	0.00
15,800.00	89.95	0.70	7,059.03	8,966.24	-277.55	8,963.23	0.00	0.00	0.00
15,900.00	89.95	0.70	7,059.13	9,066.24	-276.32	9,063.23	0.00	0.00	0.00
16,000.00	89.95	0.70	7,059.22	9,166.23	-275.09	9,163.23	0.00	0.00	0.00
16,100.00	89.95	0.70	7,059.32	9,266.22	-273.87	9,263.23	0.00	0.00	0.00
16,200.00	89.95	0.70	7,059.41	9,366.21	-272.64	9,363.23	0.00	0.00	0.00
16,300.00	89.95	0.70	7,059.51	9,466.21	-271.41	9,463.23	0.00	0.00	0.00
16,400.00	89.95	0.70	7,059.61	9,566.20	-270.18	9,563.23	0.00	0.00	0.00
16,500.00	89.95	0.70	7,059.70	9,666.19	-268.95	9,663.23	0.00	0.00	0.00
16,600.00	89.95	0.70	7,059.80	9,766.18	-267.72	9,763.23	0.00	0.00	0.00
16,700.00	89.95	0.70	7,059.89	9,866.18	-266.49	9,863.23	0.00	0.00	0.00
16,800.00	89.95	0.70	7,059.99	9,966.17	-265.26	9,963.23	0.00	0.00	0.00
16,812.03	89.95	0.70	7,060.00	9,978.20	-265.11	9,975.26	0.00	0.00	0.00
TD Well @ 16812.03ft - Toe: - SWARTZ 1N-12HZ_TOE									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SWARTZ 1N-12HZ_Drill	0.00	0.00	0.00	0.00	0.00	14,575,037.74	1,750,880.98	40.131977	-104.604795
- plan hits target center									
- Polygon									
Point 1			0.00	148.90	60.17	14,575,186.90	1,750,940.49		
Point 2			0.00	152.57	-323.09	14,575,188.87	1,750,557.21		
Point 3			0.00	1,004.83	-321.52	14,576,041.13	1,750,555.00		
Point 4			0.00	2,323.02	-319.05	14,577,359.31	1,750,551.60		
Point 5			0.00	3,637.44	-316.63	14,578,673.73	1,750,548.18		
Point 6			0.00	4,951.03	-314.21	14,579,987.32	1,750,544.76		
Point 7			0.00	6,263.51	-309.41	14,581,299.81	1,750,543.72		
Point 8			0.00	7,575.98	-304.60	14,582,612.29	1,750,542.70		
Point 9			0.00	8,874.94	-299.79	14,583,911.26	1,750,541.73		
Point 10			0.00	10,184.81	-294.95	14,585,221.13	1,750,540.75		
Point 11			0.00	11,041.98	-299.62	14,586,078.27	1,750,532.27		
Point 12			0.00	11,028.88	69.92	14,586,066.82	1,750,901.86		
Point 13			0.00	10,170.94	68.81	14,585,208.88	1,750,904.57		
Point 14			0.00	8,862.92	67.19	14,583,900.87	1,750,908.76		
Point 15			0.00	7,542.85	65.55	14,582,580.80	1,750,912.99		
Point 16			0.00	4,931.21	62.38	14,579,969.17	1,750,921.43		
Point 17			0.00	2,307.02	61.85	14,577,345.01	1,750,932.57		
Point 18			0.00	1,000.45	60.84	14,576,038.45	1,750,937.37		
Point 19			0.00	148.90	60.17	14,575,186.90	1,750,940.49		
2N-R65W-Sec. 25_Secti	0.00	0.00	0.00	40.11	-1,676.81	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 1677.29usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-5,575.96	-3,064.67	14,569,480.86	1,746,164.16		
Point 2			0.00	-5,592.14	-413.46	14,569,476.47	1,748,815.42		
Point 3			0.00	-5,609.35	2,238.63	14,569,471.05	1,751,467.56		
Point 4			0.00	-8,247.40	2,259.94	14,566,833.12	1,751,500.60		
Point 5			0.00	-10,884.05	2,281.32	14,564,196.59	1,751,533.70		
Point 6			0.00	-10,912.19	-413.54	14,564,156.47	1,748,838.99		
Point 7			0.00	-11,002.15	-3,033.15	14,564,054.87	1,746,219.81		
Point 8			0.00	-8,271.55	-3,044.64	14,566,785.39	1,746,196.18		
SWARTZ 1N-12HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,575,037.74	1,750,880.98	40.131977	-104.604795
- plan hits target center									
- Point									
2N-R65W-Sec. 13_Secti	0.00	0.00	0.00	40.11	-1,676.81	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 1677.29usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	4,980.35	-2,990.78	14,580,037.40	1,746,191.12		
Point 2			0.00	4,936.75	-397.15	14,580,005.33	1,748,784.92		
Point 3			0.00	4,893.27	2,196.04	14,579,973.38	1,751,378.27		
Point 4			0.00	2,269.18	2,195.68	14,577,349.31	1,751,389.58		
Point 5			0.00	-354.07	2,193.83	14,574,726.08	1,751,399.39		
Point 6			0.00	-330.09	-414.94	14,574,738.46	1,748,790.54		
Point 7			0.00	-306.12	-3,023.71	14,574,750.83	1,746,181.69		
Point 8			0.00	2,332.94	-3,010.80	14,577,389.92	1,746,182.87		
2N-R65W-Sec. 12_Secti	0.00	0.00	0.00	40.11	-1,676.81	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 1677.29usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	10,311.40	-2,932.44	14,585,368.65	1,746,225.75		
Point 2			0.00	10,213.49	-365.25	14,585,282.16	1,748,793.35		
Point 3			0.00	10,115.80	2,202.09	14,585,195.88	1,751,361.10		
Point 4			0.00	7,504.68	2,199.03	14,582,584.78	1,751,369.65		
Point 5			0.00	4,893.27	2,196.04	14,579,973.38	1,751,378.27		
Point 6			0.00	4,936.75	-397.15	14,580,005.33	1,748,784.92		

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 1N-12HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4973.00usft (D Rig)
Site:	2N-65W-13 Swartz No2 Pad	North Reference:	True
Well:	SWARTZ 1N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Point 7	0.00	4,980.35	-2,990.78	14,580,037.40	1,746,191.12		
Point 8	0.00	7,645.87	-2,961.54	14,582,703.02	1,746,208.51		
2N-R65W-Sec. 24_Secti	0.00	0.00	0.00	40.11	-1,676.81	14,575,070.39	1,749,204.01
- plan misses target center by 1677.29usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)							
- Polygon							
Point 1	0.00	-306.12	-3,023.71	14,574,750.83	1,746,181.69		
Point 2	0.00	-330.09	-414.94	14,574,738.46	1,748,790.54		
Point 3	0.00	-354.07	2,193.83	14,574,726.08	1,751,399.39		
Point 4	0.00	-2,981.13	2,216.36	14,572,099.15	1,751,433.60		
Point 5	0.00	-5,609.35	2,238.63	14,569,471.05	1,751,467.56		
Point 6	0.00	-5,592.14	-413.46	14,569,476.47	1,748,815.42		
Point 7	0.00	-5,575.96	-3,064.67	14,569,480.86	1,746,164.16		
Point 8	0.00	-2,941.37	-3,043.57	14,572,115.52	1,746,173.55		
SWARTZ 1N-12HZ_Lat	0.00	0.00	7,054.06	3,768.09	-341.38	14,578,804.27	1,750,522.85
- plan hits target center							
- Point							
SWARTZ 1N-12HZ_TOE	0.00	0.00	7,060.00	9,978.20	-265.11	14,585,014.66	1,750,571.51
- plan hits target center							
- Point							

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,817.06	1,800.00	9 5/8"	9-5/8	13-1/2	
7,405.74	7,051.00	7"	7	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,382.46	-3,601.00	Fox Hills		0.00	
4,404.25	-597.00	Sussex		0.00	
6,901.26	1,869.47	Sharon Springs		0.00	
6,969.57	1,919.47	Niobrara Top		0.00	
7,083.45	1,989.43	Niobrara B Bench		0.00	
7,267.22	2,061.20	Niobrara C Bench		0.00	
7,405.74	2,078.00	Heel:		0.00	
16,812.03	2,087.00	Toe:		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
916.67	913.29	0.00	-58.03	End Nudge @ 916.67ft	
2,386.67	2,360.96	0.00	-313.29	Begin Drop @ 2386.67ft	
2,886.67	2,858.42	0.00	-356.82	End Drop @ 2886.67ft	
6,506.29	6,478.04	0.00	-356.82	KOP @ 6506.29ft	
7,000.00	6,912.88	199.87	-356.00	DLS = 10°/100'	
7,405.74	7,051.00	572.41	-354.47	End Build @ 7405.74ft	
10,601.45	7,054.06	3,768.09	-341.38	Begin Turn @ 10601.45ft	
10,624.94	7,054.08	3,791.58	-341.19	End Turn @ 10624.94ft	
16,812.03	7,060.00	9,978.20	-265.11	TD Well @ 16812.03ft	