

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-65W-13 Swartz No1 Pad
SWARTZ 2N-12HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

30 July, 2015

Project: WELD-NAD83-UTMFT13N

Site: 2N-65W-13 Swartz No1 Pad

Well: SWARTZ 2N-12HZ

Wellbore: Plan A

Design: Permit Rev-1

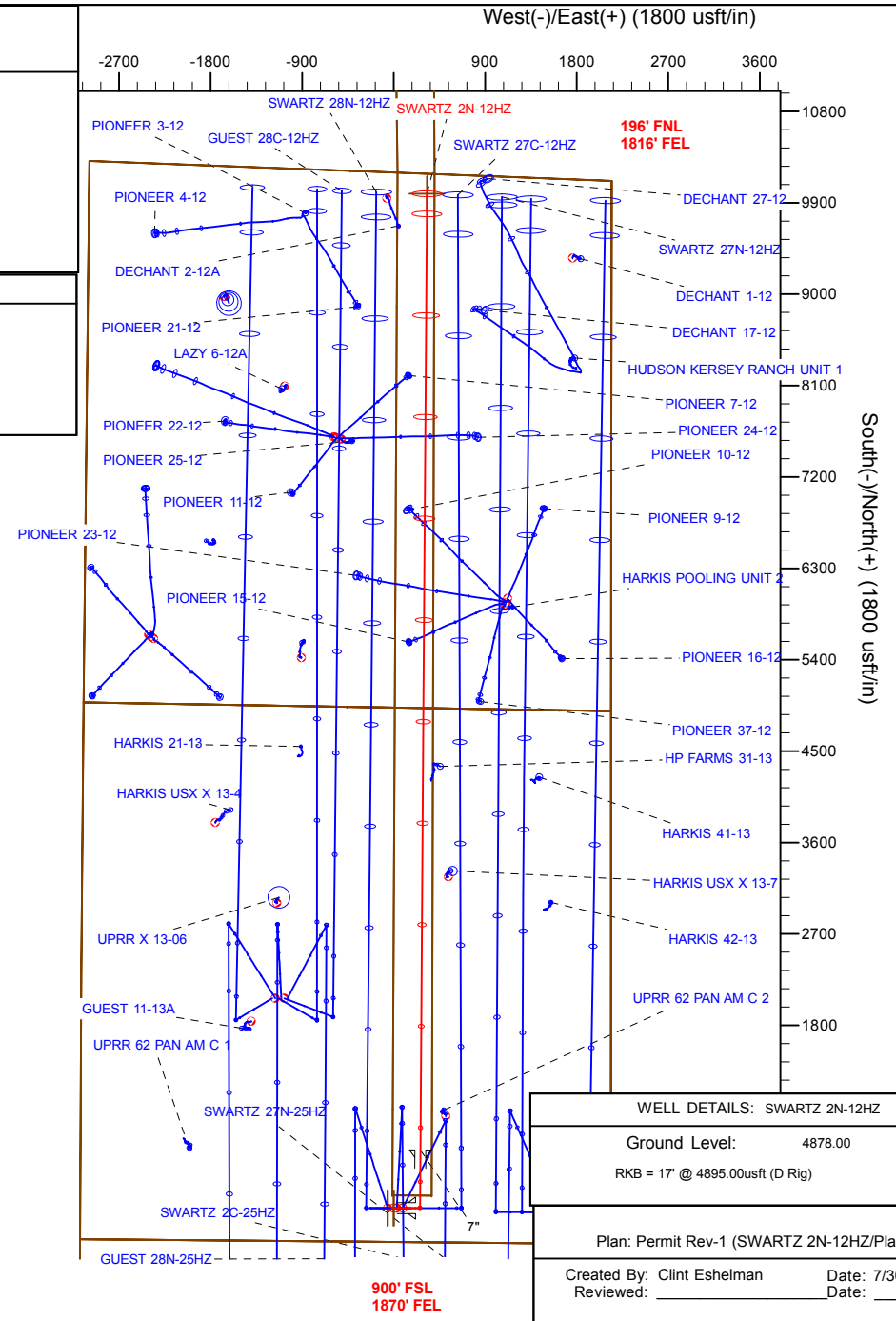
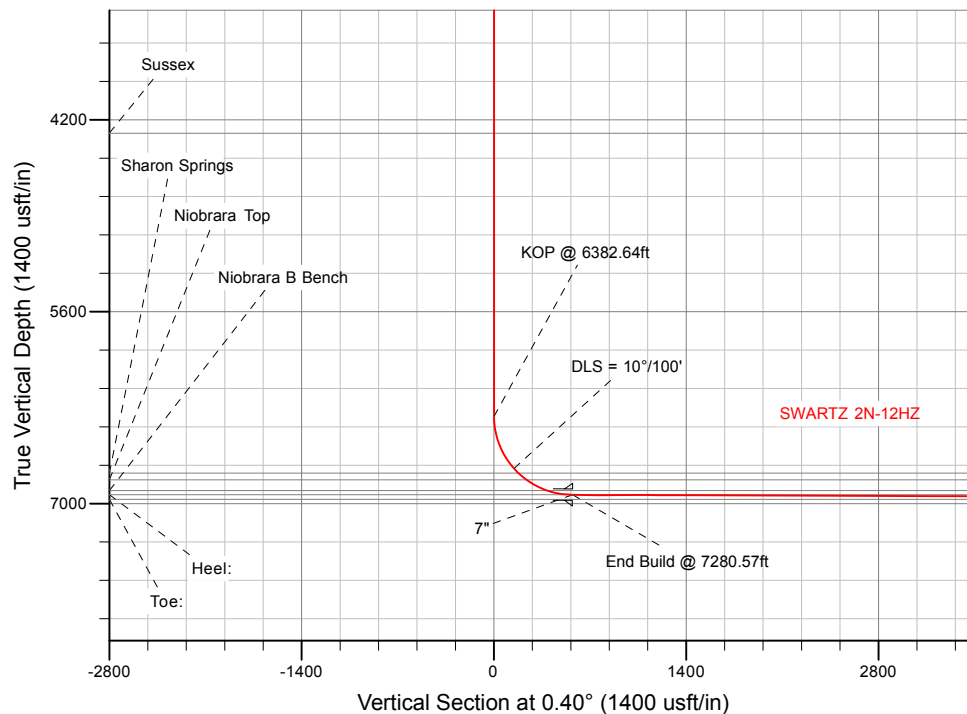
US ROCKIES WATTENBERG PLANNING

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	90.00	913.29	0.00	58.03	1.50	90.00	0.41	
4	1816.67	10.00	90.00	1799.61	0.00	214.31	0.00	0.00	1.50	
5	2316.67	0.00	0.00	2297.08	0.00	257.84	2.00	180.00	1.80	
6	6382.64	0.00	0.00	6363.05	0.00	257.84	0.00	0.00	1.80	
7	7280.57	89.79	0.40	6936.00	570.88	261.78	10.00	0.40	572.69	
8	16698.74	89.79	0.40	6970.00	9988.76	326.89	0.00	0.00	9990.80	SWARTZ 2N-12HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
SWARTZ 2N-12HZ_SHL	0.00	0.00	0.00	40.132086	-104.610580	Point
SWARTZ 2N-12HZ_TOE	6970.00	9988.76	326.89	40.159516	-104.609410	Point



WELL DETAILS: SWARTZ 2N-12HZ

Ground Level: 4878.00

RKB = 17' @ 4895.00usft (D Rig)

Plan: Permit Rev-1 (SWARTZ 2N-12HZ/Plan A)

Created By: Clint Eshelman

Date: 7/30/2015

Reviewed: _____

Date: _____

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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 No1 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 2N-12HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,575,070.29 usft	Latitude:	40.132086
	+E/-W	59.82 usft	Easting:	1,749,263.83 usft	Longitude:	-104.610580
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

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	0.40

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	90.00	913.29	0.00	58.03	1.50	1.50	0.00	90.00	
1,816.67	10.00	90.00	1,799.61	0.00	214.31	0.00	0.00	0.00	0.00	
2,316.67	0.00	0.00	2,297.08	0.00	257.84	2.00	-2.00	0.00	180.00	
6,382.64	0.00	0.00	6,363.05	0.00	257.84	0.00	0.00	0.00	0.00	
7,280.57	89.79	0.40	6,936.00	570.88	261.78	10.00	10.00	0.04	0.40	
16,698.74	89.79	0.40	6,970.00	9,988.76	326.89	0.00	0.00	0.00	0.00	SWARTZ 2N-12HZ_T

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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
SWARTZ 2N-12HZ_SHL - 2N-R65W-Sec. 25_Section lines - 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	90.00	300.00	0.00	0.33	0.00	1.50	1.50	0.00
400.00	2.25	90.00	399.96	0.00	2.94	0.02	1.50	1.50	0.00
500.00	3.75	90.00	499.82	0.00	8.18	0.06	1.50	1.50	0.00
600.00	5.25	90.00	599.51	0.00	16.02	0.11	1.50	1.50	0.00
700.00	6.75	90.00	698.96	0.00	26.48	0.18	1.50	1.50	0.00
800.00	8.25	90.00	798.10	0.00	39.53	0.28	1.50	1.50	0.00
900.00	9.75	90.00	896.87	0.00	55.17	0.39	1.50	1.50	0.00
916.67	10.00	90.00	913.29	0.00	58.03	0.41	1.50	1.50	0.00
End Nudge @ 916.67ft									
1,000.00	10.00	90.00	995.35	0.00	72.50	0.51	0.00	0.00	0.00
1,100.00	10.00	90.00	1,093.84	0.00	89.87	0.63	0.00	0.00	0.00
1,200.00	10.00	90.00	1,192.32	0.00	107.23	0.75	0.00	0.00	0.00
1,300.00	10.00	90.00	1,290.80	0.00	124.60	0.87	0.00	0.00	0.00
1,303.25	10.00	90.00	1,294.00	0.00	125.16	0.87	0.00	0.00	0.00
Fox Hills									
1,400.00	10.00	90.00	1,389.28	0.00	141.96	0.99	0.00	0.00	0.00
1,500.00	10.00	90.00	1,487.76	0.00	159.32	1.11	0.00	0.00	0.00
1,600.00	10.00	90.00	1,586.24	0.00	176.69	1.23	0.00	0.00	0.00
1,700.00	10.00	90.00	1,684.72	0.00	194.05	1.35	0.00	0.00	0.00
1,800.00	10.00	90.00	1,783.20	0.00	211.42	1.48	0.00	0.00	0.00
1,816.67	10.00	90.00	1,799.62	0.00	214.31	1.50	0.00	0.00	0.00
Begin Drop @ 1816.67ft									
1,817.06	9.99	90.00	1,800.00	0.00	214.38	1.50	2.02	-2.02	0.00
9 5/8"									
1,900.00	8.33	90.00	1,881.88	0.00	227.59	1.59	2.00	-2.00	0.00
2,000.00	6.33	90.00	1,981.06	0.00	240.35	1.68	2.00	-2.00	0.00
2,100.00	4.33	90.00	2,080.62	0.00	249.65	1.74	2.00	-2.00	0.00
2,200.00	2.33	90.00	2,180.45	0.00	255.46	1.78	2.00	-2.00	0.00
2,300.00	0.33	90.00	2,280.41	0.00	257.79	1.80	2.00	-2.00	0.00
2,316.67	0.00	0.00	2,297.08	0.00	257.84	1.80	2.00	-2.00	0.00
End Drop @ 2316.67ft									
2,400.00	0.00	0.00	2,380.41	0.00	257.84	1.80	0.00	0.00	0.00
2,500.00	0.00	0.00	2,480.41	0.00	257.84	1.80	0.00	0.00	0.00
2,600.00	0.00	0.00	2,580.41	0.00	257.84	1.80	0.00	0.00	0.00
2,700.00	0.00	0.00	2,680.41	0.00	257.84	1.80	0.00	0.00	0.00
2,800.00	0.00	0.00	2,780.41	0.00	257.84	1.80	0.00	0.00	0.00
2,900.00	0.00	0.00	2,880.41	0.00	257.84	1.80	0.00	0.00	0.00
3,000.00	0.00	0.00	2,980.41	0.00	257.84	1.80	0.00	0.00	0.00
3,100.00	0.00	0.00	3,080.41	0.00	257.84	1.80	0.00	0.00	0.00
3,200.00	0.00	0.00	3,180.41	0.00	257.84	1.80	0.00	0.00	0.00
3,300.00	0.00	0.00	3,280.41	0.00	257.84	1.80	0.00	0.00	0.00
3,400.00	0.00	0.00	3,380.41	0.00	257.84	1.80	0.00	0.00	0.00
3,500.00	0.00	0.00	3,480.41	0.00	257.84	1.80	0.00	0.00	0.00
3,600.00	0.00	0.00	3,580.41	0.00	257.84	1.80	0.00	0.00	0.00
3,700.00	0.00	0.00	3,680.41	0.00	257.84	1.80	0.00	0.00	0.00
3,800.00	0.00	0.00	3,780.41	0.00	257.84	1.80	0.00	0.00	0.00
3,900.00	0.00	0.00	3,880.41	0.00	257.84	1.80	0.00	0.00	0.00

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Planning Report

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Site:	2N-65W-13 Swartz No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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	3,980.41	0.00	257.84	1.80	0.00	0.00	0.00
4,100.00	0.00	0.00	4,080.41	0.00	257.84	1.80	0.00	0.00	0.00
4,200.00	0.00	0.00	4,180.41	0.00	257.84	1.80	0.00	0.00	0.00
4,300.00	0.00	0.00	4,280.41	0.00	257.84	1.80	0.00	0.00	0.00
4,317.59	0.00	0.00	4,298.00	0.00	257.84	1.80	0.00	0.00	0.00
Sussex									
4,400.00	0.00	0.00	4,380.41	0.00	257.84	1.80	0.00	0.00	0.00
4,500.00	0.00	0.00	4,480.41	0.00	257.84	1.80	0.00	0.00	0.00
4,600.00	0.00	0.00	4,580.41	0.00	257.84	1.80	0.00	0.00	0.00
4,700.00	0.00	0.00	4,680.41	0.00	257.84	1.80	0.00	0.00	0.00
4,800.00	0.00	0.00	4,780.41	0.00	257.84	1.80	0.00	0.00	0.00
4,900.00	0.00	0.00	4,880.41	0.00	257.84	1.80	0.00	0.00	0.00
5,000.00	0.00	0.00	4,980.41	0.00	257.84	1.80	0.00	0.00	0.00
5,100.00	0.00	0.00	5,080.41	0.00	257.84	1.80	0.00	0.00	0.00
5,200.00	0.00	0.00	5,180.41	0.00	257.84	1.80	0.00	0.00	0.00
5,300.00	0.00	0.00	5,280.41	0.00	257.84	1.80	0.00	0.00	0.00
5,400.00	0.00	0.00	5,380.41	0.00	257.84	1.80	0.00	0.00	0.00
5,500.00	0.00	0.00	5,480.41	0.00	257.84	1.80	0.00	0.00	0.00
5,600.00	0.00	0.00	5,580.41	0.00	257.84	1.80	0.00	0.00	0.00
5,700.00	0.00	0.00	5,680.41	0.00	257.84	1.80	0.00	0.00	0.00
5,800.00	0.00	0.00	5,780.41	0.00	257.84	1.80	0.00	0.00	0.00
5,900.00	0.00	0.00	5,880.41	0.00	257.84	1.80	0.00	0.00	0.00
6,000.00	0.00	0.00	5,980.41	0.00	257.84	1.80	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.41	0.00	257.84	1.80	0.00	0.00	0.00
6,200.00	0.00	0.00	6,180.41	0.00	257.84	1.80	0.00	0.00	0.00
6,300.00	0.00	0.00	6,280.41	0.00	257.84	1.80	0.00	0.00	0.00
6,382.64	0.00	0.00	6,363.05	0.00	257.84	1.80	0.00	0.00	0.00
KOP @ 6382.64ft									
6,400.00	1.74	0.40	6,380.41	0.26	257.84	2.06	10.00	10.00	0.00
6,500.00	11.74	0.40	6,479.59	11.98	257.92	13.78	10.00	10.00	0.00
6,600.00	21.74	0.40	6,575.24	40.74	258.12	42.54	10.00	10.00	0.00
6,700.00	31.74	0.40	6,664.43	85.67	258.43	87.47	10.00	10.00	0.00
6,800.00	41.74	0.40	6,744.47	145.40	258.84	147.21	10.00	10.00	0.00
DLS = 10°/100'									
6,845.19	46.25	0.40	6,776.97	176.78	259.06	178.59	10.00	10.00	0.00
Sharon Springs									
6,900.00	51.74	0.40	6,812.92	218.13	259.34	219.94	10.00	10.00	0.00
6,923.29	54.07	0.40	6,826.97	236.71	259.47	238.51	10.00	10.00	0.00
Niobrara Top									
7,000.00	61.74	0.40	6,867.70	301.64	259.92	303.45	10.00	10.00	0.00
7,092.26	70.96	0.40	6,904.67	386.05	260.50	387.86	10.00	10.00	0.00
Niobrara B Bench									
7,100.00	71.74	0.40	6,907.14	393.39	260.56	395.20	10.00	10.00	0.00
7,200.00	81.74	0.40	6,930.06	490.60	261.23	492.41	10.00	10.00	0.00
7,280.57	89.79	0.40	6,936.00	570.88	261.78	572.69	10.00	10.00	0.00
End Build @ 7280.57ft - Heel: - 7"									
7,300.00	89.79	0.40	6,936.07	590.31	261.92	592.12	0.00	0.00	0.00
7,400.00	89.79	0.40	6,936.43	690.30	262.61	692.12	0.00	0.00	0.00
7,500.00	89.79	0.40	6,936.80	790.30	263.30	792.12	0.00	0.00	0.00
7,600.00	89.79	0.40	6,937.16	890.30	263.99	892.12	0.00	0.00	0.00
7,700.00	89.79	0.40	6,937.52	990.29	264.68	992.12	0.00	0.00	0.00
7,800.00	89.79	0.40	6,937.88	1,090.29	265.37	1,092.12	0.00	0.00	0.00
7,900.00	89.79	0.40	6,938.24	1,190.29	266.06	1,192.12	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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)	
8,000.00	89.79	0.40	6,938.60	1,290.29	266.76	1,292.12	0.00	0.00	0.00	
8,100.00	89.79	0.40	6,938.96	1,390.28	267.45	1,392.12	0.00	0.00	0.00	
8,200.00	89.79	0.40	6,939.32	1,490.28	268.14	1,492.12	0.00	0.00	0.00	
8,300.00	89.79	0.40	6,939.68	1,590.28	268.83	1,592.11	0.00	0.00	0.00	
8,400.00	89.79	0.40	6,940.04	1,690.27	269.52	1,692.11	0.00	0.00	0.00	
8,500.00	89.79	0.40	6,940.41	1,790.27	270.21	1,792.11	0.00	0.00	0.00	
8,600.00	89.79	0.40	6,940.77	1,890.27	270.90	1,892.11	0.00	0.00	0.00	
8,700.00	89.79	0.40	6,941.13	1,990.26	271.60	1,992.11	0.00	0.00	0.00	
8,800.00	89.79	0.40	6,941.49	2,090.26	272.29	2,092.11	0.00	0.00	0.00	
8,900.00	89.79	0.40	6,941.85	2,190.26	272.98	2,192.11	0.00	0.00	0.00	
9,000.00	89.79	0.40	6,942.21	2,290.26	273.67	2,292.11	0.00	0.00	0.00	
9,100.00	89.79	0.40	6,942.57	2,390.25	274.36	2,392.11	0.00	0.00	0.00	
9,200.00	89.79	0.40	6,942.93	2,490.25	275.05	2,492.11	0.00	0.00	0.00	
9,300.00	89.79	0.40	6,943.29	2,590.25	275.74	2,592.11	0.00	0.00	0.00	
9,400.00	89.79	0.40	6,943.65	2,690.24	276.43	2,692.11	0.00	0.00	0.00	
9,500.00	89.79	0.40	6,944.02	2,790.24	277.13	2,792.11	0.00	0.00	0.00	
9,600.00	89.79	0.40	6,944.38	2,890.24	277.82	2,892.11	0.00	0.00	0.00	
9,700.00	89.79	0.40	6,944.74	2,990.23	278.51	2,992.11	0.00	0.00	0.00	
9,800.00	89.79	0.40	6,945.10	3,090.23	279.20	3,092.10	0.00	0.00	0.00	
9,900.00	89.79	0.40	6,945.46	3,190.23	279.89	3,192.10	0.00	0.00	0.00	
10,000.00	89.79	0.40	6,945.82	3,290.22	280.58	3,292.10	0.00	0.00	0.00	
10,100.00	89.79	0.40	6,946.18	3,390.22	281.27	3,392.10	0.00	0.00	0.00	
10,200.00	89.79	0.40	6,946.54	3,490.22	281.96	3,492.10	0.00	0.00	0.00	
10,300.00	89.79	0.40	6,946.90	3,590.22	282.66	3,592.10	0.00	0.00	0.00	
10,400.00	89.79	0.40	6,947.26	3,690.21	283.35	3,692.10	0.00	0.00	0.00	
10,500.00	89.79	0.40	6,947.62	3,790.21	284.04	3,792.10	0.00	0.00	0.00	
10,600.00	89.79	0.40	6,947.99	3,890.21	284.73	3,892.10	0.00	0.00	0.00	
10,700.00	89.79	0.40	6,948.35	3,990.20	285.42	3,992.10	0.00	0.00	0.00	
10,800.00	89.79	0.40	6,948.71	4,090.20	286.11	4,092.10	0.00	0.00	0.00	
10,900.00	89.79	0.40	6,949.07	4,190.20	286.80	4,192.10	0.00	0.00	0.00	
11,000.00	89.79	0.40	6,949.43	4,290.19	287.49	4,292.10	0.00	0.00	0.00	
11,100.00	89.79	0.40	6,949.79	4,390.19	288.19	4,392.10	0.00	0.00	0.00	
11,200.00	89.79	0.40	6,950.15	4,490.19	288.88	4,492.10	0.00	0.00	0.00	
11,300.00	89.79	0.40	6,950.51	4,590.19	289.57	4,592.10	0.00	0.00	0.00	
11,400.00	89.79	0.40	6,950.87	4,690.18	290.26	4,692.09	0.00	0.00	0.00	
11,500.00	89.79	0.40	6,951.23	4,790.18	290.95	4,792.09	0.00	0.00	0.00	
11,600.00	89.79	0.40	6,951.60	4,890.18	291.64	4,892.09	0.00	0.00	0.00	
11,700.00	89.79	0.40	6,951.96	4,990.17	292.33	4,992.09	0.00	0.00	0.00	
11,800.00	89.79	0.40	6,952.32	5,090.17	293.03	5,092.09	0.00	0.00	0.00	
11,900.00	89.79	0.40	6,952.68	5,190.17	293.72	5,192.09	0.00	0.00	0.00	
12,000.00	89.79	0.40	6,953.04	5,290.16	294.41	5,292.09	0.00	0.00	0.00	
12,100.00	89.79	0.40	6,953.40	5,390.16	295.10	5,392.09	0.00	0.00	0.00	
12,200.00	89.79	0.40	6,953.76	5,490.16	295.79	5,492.09	0.00	0.00	0.00	
12,300.00	89.79	0.40	6,954.12	5,590.15	296.48	5,592.09	0.00	0.00	0.00	
12,400.00	89.79	0.40	6,954.48	5,690.15	297.17	5,692.09	0.00	0.00	0.00	
12,500.00	89.79	0.40	6,954.84	5,790.15	297.86	5,792.09	0.00	0.00	0.00	
12,600.00	89.79	0.40	6,955.21	5,890.15	298.56	5,892.09	0.00	0.00	0.00	
12,700.00	89.79	0.40	6,955.57	5,990.14	299.25	5,992.09	0.00	0.00	0.00	
12,800.00	89.79	0.40	6,955.93	6,090.14	299.94	6,092.09	0.00	0.00	0.00	
12,900.00	89.79	0.40	6,956.29	6,190.14	300.63	6,192.08	0.00	0.00	0.00	
13,000.00	89.79	0.40	6,956.65	6,290.13	301.32	6,292.08	0.00	0.00	0.00	
13,100.00	89.79	0.40	6,957.01	6,390.13	302.01	6,392.08	0.00	0.00	0.00	
13,200.00	89.79	0.40	6,957.37	6,490.13	302.70	6,492.08	0.00	0.00	0.00	
13,300.00	89.79	0.40	6,957.73	6,590.12	303.39	6,592.08	0.00	0.00	0.00	

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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)
13,400.00	89.79	0.40	6,958.09	6,690.12	304.09	6,692.08	0.00	0.00	0.00
13,500.00	89.79	0.40	6,958.45	6,790.12	304.78	6,792.08	0.00	0.00	0.00
13,600.00	89.79	0.40	6,958.81	6,890.12	305.47	6,892.08	0.00	0.00	0.00
13,700.00	89.79	0.40	6,959.18	6,990.11	306.16	6,992.08	0.00	0.00	0.00
13,800.00	89.79	0.40	6,959.54	7,090.11	306.85	7,092.08	0.00	0.00	0.00
13,900.00	89.79	0.40	6,959.90	7,190.11	307.54	7,192.08	0.00	0.00	0.00
14,000.00	89.79	0.40	6,960.26	7,290.10	308.23	7,292.08	0.00	0.00	0.00
14,100.00	89.79	0.40	6,960.62	7,390.10	308.93	7,392.08	0.00	0.00	0.00
14,200.00	89.79	0.40	6,960.98	7,490.10	309.62	7,492.08	0.00	0.00	0.00
14,300.00	89.79	0.40	6,961.34	7,590.09	310.31	7,592.08	0.00	0.00	0.00
14,400.00	89.79	0.40	6,961.70	7,690.09	311.00	7,692.07	0.00	0.00	0.00
14,500.00	89.79	0.40	6,962.06	7,790.09	311.69	7,792.07	0.00	0.00	0.00
14,600.00	89.79	0.40	6,962.42	7,890.09	312.38	7,892.07	0.00	0.00	0.00
14,700.00	89.79	0.40	6,962.79	7,990.08	313.07	7,992.07	0.00	0.00	0.00
14,800.00	89.79	0.40	6,963.15	8,090.08	313.76	8,092.07	0.00	0.00	0.00
14,900.00	89.79	0.40	6,963.51	8,190.08	314.46	8,192.07	0.00	0.00	0.00
15,000.00	89.79	0.40	6,963.87	8,290.07	315.15	8,292.07	0.00	0.00	0.00
15,100.00	89.79	0.40	6,964.23	8,390.07	315.84	8,392.07	0.00	0.00	0.00
15,200.00	89.79	0.40	6,964.59	8,490.07	316.53	8,492.07	0.00	0.00	0.00
15,300.00	89.79	0.40	6,964.95	8,590.06	317.22	8,592.07	0.00	0.00	0.00
15,400.00	89.79	0.40	6,965.31	8,690.06	317.91	8,692.07	0.00	0.00	0.00
15,500.00	89.79	0.40	6,965.67	8,790.06	318.60	8,792.07	0.00	0.00	0.00
15,600.00	89.79	0.40	6,966.03	8,890.05	319.29	8,892.07	0.00	0.00	0.00
15,700.00	89.79	0.40	6,966.40	8,990.05	319.99	8,992.07	0.00	0.00	0.00
15,800.00	89.79	0.40	6,966.76	9,090.05	320.68	9,092.07	0.00	0.00	0.00
15,900.00	89.79	0.40	6,967.12	9,190.05	321.37	9,192.07	0.00	0.00	0.00
16,000.00	89.79	0.40	6,967.48	9,290.04	322.06	9,292.06	0.00	0.00	0.00
16,100.00	89.79	0.40	6,967.84	9,390.04	322.75	9,392.06	0.00	0.00	0.00
16,200.00	89.79	0.40	6,968.20	9,490.04	323.44	9,492.06	0.00	0.00	0.00
16,300.00	89.79	0.40	6,968.56	9,590.03	324.13	9,592.06	0.00	0.00	0.00
16,400.00	89.79	0.40	6,968.92	9,690.03	324.82	9,692.06	0.00	0.00	0.00
16,500.00	89.79	0.40	6,969.28	9,790.03	325.52	9,792.06	0.00	0.00	0.00
16,600.00	89.79	0.40	6,969.64	9,890.02	326.21	9,892.06	0.00	0.00	0.00
16,698.73	89.79	0.40	6,970.00	9,988.75	326.89	9,990.79	0.00	0.00	0.00
Toe:									
16,698.74	89.79	0.40	6,970.00	9,988.76	326.89	9,990.80	0.00	0.00	0.00
TD Well @ 16698.74ft - SWARTZ 2N-12HZ_TOE									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-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 2N-12HZ_SHL	0.00	0.00	0.00	0.00	0.00	14,575,070.29	1,749,263.83	40.132086	-104.610580
- plan hits target center									
- Point									
SWARTZ 2N-12HZ_Drill	0.00	0.00	0.00	0.00	0.00	14,575,070.29	1,749,263.83	40.132086	-104.610580
- plan hits target center									
- Polygon									
Point 1			0.00	121.64	373.89	14,575,193.57	1,749,637.18		
Point 2			0.00	125.30	-12.69	14,575,195.53	1,749,250.59		
Point 3			0.00	980.38	-8.85	14,576,050.62	1,749,250.68		
Point 4			0.00	8,877.36	29.68	14,583,947.70	1,749,254.62		
Point 5			0.00	10,194.01	37.67	14,585,264.37	1,749,256.84		
Point 6			0.00	11,047.97	27.19	14,586,118.27	1,749,242.62		
Point 7			0.00	11,034.90	396.45	14,586,106.82	1,749,611.93		
Point 8			0.00	10,180.16	401.34	14,585,252.11	1,749,620.56		
Point 9			0.00	8,865.36	396.72	14,583,937.30	1,749,621.70		
Point 10			0.00	975.85	375.43	14,576,047.78	1,749,634.98		
Point 11			0.00	121.64	373.89	14,575,193.57	1,749,637.18		
2N-R65W-Sec. 25_Secti	0.00	0.00	-78.00	0.36	-59.82	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 98.30usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-78.00	-5,575.96	-3,064.67	14,569,481.06	1,746,163.80		
Point 2			-78.00	-5,592.14	-413.46	14,569,476.50	1,748,815.05		
Point 3			-78.00	-5,609.35	2,238.63	14,569,470.90	1,751,467.19		
Point 4			-78.00	-8,247.40	2,259.94	14,566,832.97	1,751,500.06		
Point 5			-78.00	-10,884.05	2,281.32	14,564,196.44	1,751,532.99		
Point 6			-78.00	-10,912.19	-413.54	14,564,156.50	1,748,838.28		
Point 7			-78.00	-11,002.15	-3,033.15	14,564,055.06	1,746,219.09		
Point 8			-78.00	-8,271.55	-3,044.64	14,566,785.58	1,746,195.64		
2N-R65W-Sec. 13_Secti	0.00	0.00	-78.00	0.36	-59.82	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 98.30usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-78.00	4,980.35	-2,990.78	14,580,037.59	1,746,191.44		
Point 2			-78.00	4,936.75	-397.15	14,580,005.36	1,748,785.24		
Point 3			-78.00	4,893.27	2,196.04	14,579,973.24	1,751,378.59		
Point 4			-78.00	2,269.18	2,195.68	14,577,349.17	1,751,389.73		
Point 5			-78.00	-354.07	2,193.83	14,574,725.94	1,751,399.37		
Point 6			-78.00	-330.09	-414.94	14,574,738.49	1,748,790.52		
Point 7			-78.00	-306.12	-3,023.71	14,574,751.03	1,746,181.67		
Point 8			-78.00	2,332.94	-3,010.80	14,577,390.12	1,746,183.02		
2N-R65W-Sec. 12_Secti	0.00	0.00	-78.00	0.36	-59.82	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 98.30usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-78.00	10,311.40	-2,932.44	14,585,368.85	1,746,226.42		
Point 2			-78.00	10,213.49	-365.25	14,585,282.19	1,748,794.02		
Point 3			-78.00	10,115.80	2,202.09	14,585,195.74	1,751,361.76		
Point 4			-78.00	7,504.68	2,199.03	14,582,584.64	1,751,370.14		
Point 5			-78.00	4,893.27	2,196.04	14,579,973.24	1,751,378.59		
Point 6			-78.00	4,936.75	-397.15	14,580,005.36	1,748,785.24		
Point 7			-78.00	4,980.35	-2,990.78	14,580,037.59	1,746,191.44		
Point 8			-78.00	7,645.87	-2,961.54	14,582,703.22	1,746,209.00		
2N-R65W-Sec. 24_Secti	0.00	0.00	-78.00	0.36	-59.82	14,575,070.39	1,749,204.01	40.132087	-104.610794
- plan misses target center by 98.30usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			-78.00	-306.12	-3,023.71	14,574,751.03	1,746,181.67		
Point 2			-78.00	-330.09	-414.94	14,574,738.49	1,748,790.52		

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SWARTZ 2N-12HZ
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 No1 Pad	North Reference:	True
Well:	SWARTZ 2N-12HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Point 3	-78.00	-354.07	2,193.83	14,574,725.94	1,751,399.37				
Point 4	-78.00	-2,981.13	2,216.36	14,572,099.00	1,751,433.41				
Point 5	-78.00	-5,609.35	2,238.63	14,569,470.90	1,751,467.19				
Point 6	-78.00	-5,592.14	-413.46	14,569,476.50	1,748,815.05				
Point 7	-78.00	-5,575.96	-3,064.67	14,569,481.06	1,746,163.80				
Point 8	-78.00	-2,941.37	-3,043.57	14,572,115.72	1,746,173.36				
SWARTZ 2N-12HZ_TOE	0.00	0.00	6,970.00	9,988.76	326.89	14,585,060.39	1,749,546.95	40.159516	-104.609410
- 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		
7,280.57	6,936.00	7"				7	8-3/4		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,303.25	1,294.00	Fox Hills		0.00		
4,317.59	4,298.00	Sussex		0.00		
6,845.19	6,776.97	Sharon Springs		0.00		
6,923.29	6,826.97	Niobrara Top		0.00		
7,092.26	6,904.67	Niobrara B Bench		0.00		
7,280.57	6,936.00	Heel:		0.00		
16,698.73	6,970.00	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	
1,816.67	1,799.62	0.00	214.31	Begin Drop @ 1816.67ft	
2,316.67	2,297.08	0.00	257.84	End Drop @ 2316.67ft	
6,382.64	6,363.05	0.00	257.84	KOP @ 6382.64ft	
6,800.00	6,744.47	145.40	258.84	DLS = 10°/100'	
7,280.57	6,936.00	570.88	261.78	End Build @ 7280.57ft	
16,698.74	6,970.00	9,988.76	326.89	TD Well @ 16698.74ft	