

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-67W-14 Norden 15-14HZ Pad**

**NORDEN 27C-14HZ**

**Plan A**

**Plan: Permit Rev-1**

## **Standard Planning Report**

**11 November, 2015**

Project: WELD-NAD83-UTMFT13N  
 Site: 1N-67W-14 Norden 15-14HZ Pad  
 Well: NORDEN 27C-14HZ  
 Wellbore: Plan A  
 Design: Permit Rev-1

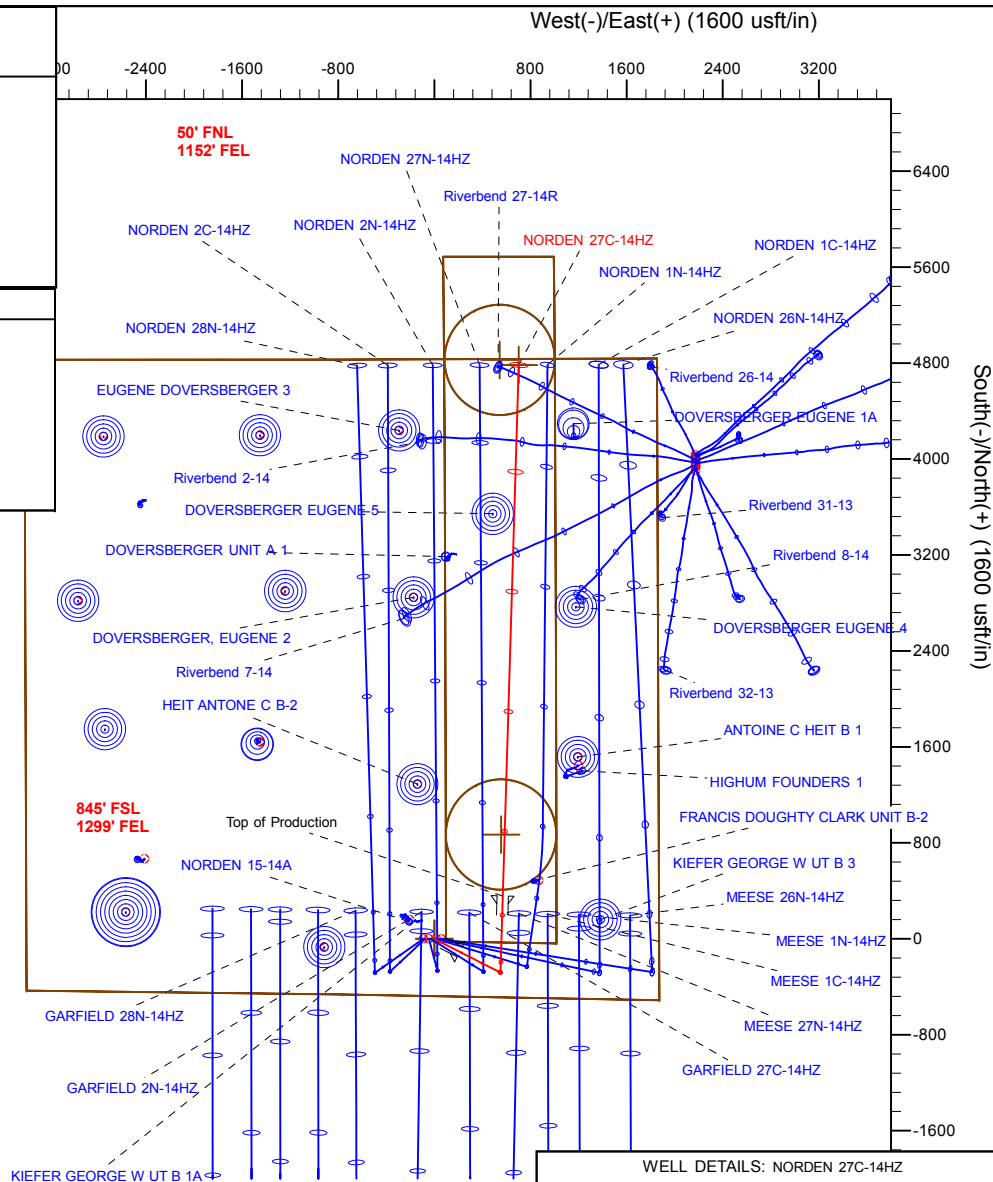
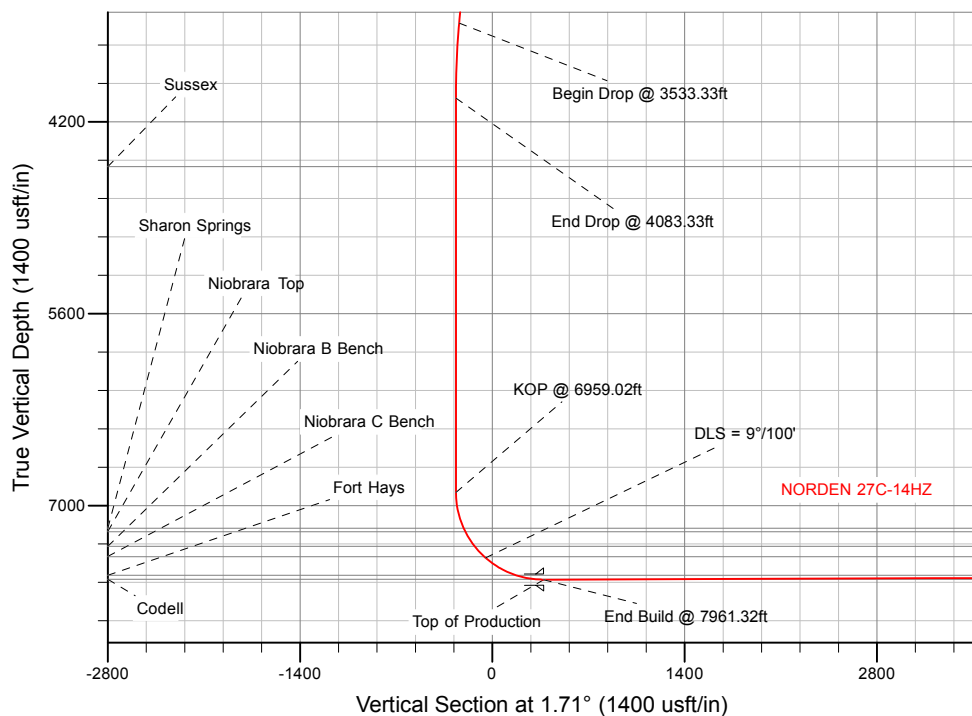
# US ROCKIES WATTENBERG PLANNING

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	933.33	11.00	117.00	928.84	-31.86	62.53	1.50	117.00	-29.98	
4	3533.33	11.00	117.00	3481.07	-257.09	504.56	0.00	0.00	-241.92	
5	4083.33	0.00	0.00	4027.69	-280.98	551.46	2.00	-180.00	-264.40	
6	6959.02	0.00	0.00	6903.38	-280.98	551.46	0.00	0.00	-264.40	
7	7961.32	90.21	1.71	7540.00	357.65	570.52	9.00	1.71	374.52	
8	12389.81	90.21	1.71	7524.00	4784.14	702.66	0.00	0.00	4802.98	NORDEN 27C-14HZ_TOE

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NORDEN 27C-14HZ_SHL	0.00	0.00	0.00	40.045021	-104.855159	Point
NORDEN 27C-14HZ_TOE	7524.00	4784.14	702.66	40.058159	-104.852648	Point



WELL DETAILS: NORDEN 27C-14HZ	
Ground Level:	4951.00
RKB = 17' @ 4968.00usft (Drilling Rig)	
Plan: Permit Rev-1 (NORDEN 27C-14HZ/Plan A)	
Created By: Clint Eshelman	Date: 11/11/2015
Reviewed: _____	Date: _____

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<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)		

<b>Site</b>	1N-67W-14 Norden 15-14HZ Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,543,161.05 usft	<b>Latitude:</b>	40.045023
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,680,863.04 usft	<b>Longitude:</b>	-104.855480
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.09 °

<b>Well</b>	NORDEN 27C-14HZ					
<b>Well Position</b>	<b>+N-S</b>	-0.73 usft	<b>Northing:</b>	14,543,160.46 usft	<b>Latitude:</b>	40.045021
	<b>+E-W</b>	89.84 usft	<b>Easting:</b>	1,680,952.88 usft	<b>Longitude:</b>	-104.855159
<b>Position Uncertainty</b>		3.28 usft	<b>Wellhead Elevation:</b>	0.00 usft	<b>Ground Level:</b>	4,951.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/10/2015	8.29	66.60	52,471

<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	1.71

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
933.33	11.00	117.00	928.84	-31.86	62.53	1.50	1.50	0.00	117.00	
3,533.33	11.00	117.00	3,481.07	-257.09	504.56	0.00	0.00	0.00	0.00	
4,083.33	0.00	0.00	4,027.69	-280.98	551.46	2.00	-2.00	-21.27	-180.00	
6,959.02	0.00	0.00	6,903.39	-280.98	551.46	0.00	0.00	0.00	0.00	
7,961.32	90.21	1.71	7,540.00	357.65	570.52	9.00	9.00	0.17	1.71	
12,389.81	90.21	1.71	7,524.00	4,784.14	702.66	0.00	0.00	0.00	0.00	NORDEN 27C-14HZ_

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 200.00ft</b>										
300.00	1.50	117.00	299.99	-0.59	1.17	-0.56	1.50	1.50	0.00	0.00
400.00	3.00	117.00	399.91	-2.38	4.66	-2.24	1.50	1.50	0.00	0.00
500.00	4.50	117.00	499.69	-5.35	10.49	-5.03	1.50	1.50	0.00	0.00
600.00	6.00	117.00	599.27	-9.50	18.64	-8.94	1.50	1.50	0.00	0.00
700.00	7.50	117.00	698.57	-14.84	29.12	-13.96	1.50	1.50	0.00	0.00
800.00	9.00	117.00	797.54	-21.35	41.90	-20.09	1.50	1.50	0.00	0.00
900.00	10.50	117.00	896.09	-29.04	56.99	-27.32	1.50	1.50	0.00	0.00
933.33	11.00	117.00	928.83	-31.86	62.53	-29.98	1.50	1.50	0.00	0.00
<b>End Nudge @ 933.33ft</b>										
1,000.00	11.00	117.00	994.28	-37.64	73.86	-35.41	0.00	0.00	0.00	0.00
1,100.00	11.00	117.00	1,092.44	-46.30	90.87	-43.57	0.00	0.00	0.00	0.00
1,200.00	11.00	117.00	1,190.60	-54.96	107.87	-51.72	0.00	0.00	0.00	0.00
1,300.00	11.00	117.00	1,288.77	-63.62	124.87	-59.87	0.00	0.00	0.00	0.00
1,337.93	11.00	117.00	1,326.00	-66.91	131.32	-62.96	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
1,400.00	11.00	117.00	1,386.93	-72.29	141.87	-68.02	0.00	0.00	0.00	0.00
1,500.00	11.00	117.00	1,485.09	-80.95	158.87	-76.17	0.00	0.00	0.00	0.00
1,600.00	11.00	117.00	1,583.25	-89.61	175.87	-84.32	0.00	0.00	0.00	0.00
1,700.00	11.00	117.00	1,681.42	-98.27	192.87	-92.47	0.00	0.00	0.00	0.00
1,800.00	11.00	117.00	1,779.58	-106.94	209.87	-100.63	0.00	0.00	0.00	0.00
1,820.80	11.00	117.00	1,800.00	-108.74	213.41	-102.32	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
1,900.00	11.00	117.00	1,877.74	-115.60	226.87	-108.78	0.00	0.00	0.00	0.00
2,000.00	11.00	117.00	1,975.91	-124.26	243.88	-116.93	0.00	0.00	0.00	0.00
2,100.00	11.00	117.00	2,074.07	-132.92	260.88	-125.08	0.00	0.00	0.00	0.00
2,200.00	11.00	117.00	2,172.23	-141.59	277.88	-133.23	0.00	0.00	0.00	0.00
2,300.00	11.00	117.00	2,270.39	-150.25	294.88	-141.38	0.00	0.00	0.00	0.00
2,400.00	11.00	117.00	2,368.56	-158.91	311.88	-149.53	0.00	0.00	0.00	0.00
2,500.00	11.00	117.00	2,466.72	-167.57	328.88	-157.69	0.00	0.00	0.00	0.00
2,600.00	11.00	117.00	2,564.88	-176.24	345.88	-165.84	0.00	0.00	0.00	0.00
2,700.00	11.00	117.00	2,663.04	-184.90	362.88	-173.99	0.00	0.00	0.00	0.00
2,800.00	11.00	117.00	2,761.21	-193.56	379.89	-182.14	0.00	0.00	0.00	0.00
2,900.00	11.00	117.00	2,859.37	-202.22	396.89	-190.29	0.00	0.00	0.00	0.00
3,000.00	11.00	117.00	2,957.53	-210.89	413.89	-198.44	0.00	0.00	0.00	0.00
3,100.00	11.00	117.00	3,055.70	-219.55	430.89	-206.59	0.00	0.00	0.00	0.00
3,200.00	11.00	117.00	3,153.86	-228.21	447.89	-214.74	0.00	0.00	0.00	0.00
3,300.00	11.00	117.00	3,252.02	-236.87	464.89	-222.90	0.00	0.00	0.00	0.00
3,400.00	11.00	117.00	3,350.18	-245.54	481.89	-231.05	0.00	0.00	0.00	0.00
3,500.00	11.00	117.00	3,448.35	-254.20	498.89	-239.20	0.00	0.00	0.00	0.00
3,533.33	11.00	117.00	3,481.06	-257.09	504.56	-241.92	0.00	0.00	0.00	0.00
<b>Begin Drop @ 3533.33ft</b>										
3,600.00	9.67	117.00	3,546.65	-262.52	515.22	-247.02	2.00	-2.00	0.00	0.00
3,700.00	7.67	117.00	3,645.50	-269.36	528.64	-253.46	2.00	-2.00	0.00	0.00
3,800.00	5.67	117.00	3,744.82	-274.63	538.98	-258.42	2.00	-2.00	0.00	0.00
3,900.00	3.67	117.00	3,844.49	-278.32	546.23	-261.90	2.00	-2.00	0.00	0.00
4,000.00	1.67	117.00	3,944.37	-280.43	550.38	-263.88	2.00	-2.00	0.00	0.00
4,083.33	0.00	116.35	4,027.69	-280.98	551.46	-264.40	2.00	-2.00	-0.78	0.00
<b>End Drop @ 4083.33ft</b>										
4,100.00	0.00	0.00	4,044.36	-280.98	551.46	-264.40	0.00	0.00	-697.94	0.00

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## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<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)
4,200.00	0.00	0.00	4,144.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,300.00	0.00	0.00	4,244.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,400.00	0.00	0.00	4,344.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,500.00	0.00	0.00	4,444.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,583.64	0.00	0.00	4,528.00	-280.98	551.46	-264.40	0.00	0.00	0.00
<b>Sussex</b>									
4,600.00	0.00	0.00	4,544.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,700.00	0.00	0.00	4,644.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,800.00	0.00	0.00	4,744.36	-280.98	551.46	-264.40	0.00	0.00	0.00
4,900.00	0.00	0.00	4,844.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,000.00	0.00	0.00	4,944.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,100.00	0.00	0.00	5,044.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,200.00	0.00	0.00	5,144.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,300.00	0.00	0.00	5,244.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,400.00	0.00	0.00	5,344.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,500.00	0.00	0.00	5,444.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,600.00	0.00	0.00	5,544.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,700.00	0.00	0.00	5,644.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,800.00	0.00	0.00	5,744.36	-280.98	551.46	-264.40	0.00	0.00	0.00
5,900.00	0.00	0.00	5,844.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,000.00	0.00	0.00	5,944.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,100.00	0.00	0.00	6,044.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,200.00	0.00	0.00	6,144.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,300.00	0.00	0.00	6,244.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,400.00	0.00	0.00	6,344.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,500.00	0.00	0.00	6,444.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,600.00	0.00	0.00	6,544.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,700.00	0.00	0.00	6,644.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,800.00	0.00	0.00	6,744.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,900.00	0.00	0.00	6,844.36	-280.98	551.46	-264.40	0.00	0.00	0.00
6,959.02	0.00	0.00	6,903.38	-280.98	551.46	-264.40	0.00	0.00	0.00
<b>KOP @ 6959.02ft</b>									
7,000.00	3.69	1.71	6,944.33	-279.66	551.50	-263.08	9.00	9.00	4.17
7,100.00	12.69	1.71	7,043.21	-265.44	551.92	-248.86	9.00	9.00	0.00
7,200.00	21.69	1.71	7,138.65	-235.94	552.80	-219.34	9.00	9.00	0.00
7,229.39	24.33	1.71	7,165.70	-224.45	553.15	-207.85	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,257.11	26.83	1.71	7,190.70	-212.49	553.50	-195.88	9.00	9.00	0.00
<b>Niobrara Top</b>									
7,300.00	30.69	1.71	7,228.29	-191.87	554.12	-175.25	9.00	9.00	0.00
7,383.63	38.21	1.71	7,297.20	-144.62	555.53	-127.98	9.00	9.00	0.00
<b>Niobrara B Bench</b>									
7,400.00	39.69	1.71	7,309.93	-134.33	555.84	-117.68	9.00	9.00	0.00
7,485.40	47.37	1.71	7,371.80	-75.58	557.59	-58.91	9.00	9.00	0.00
<b>Niobrara C Bench</b>									
7,500.00	48.69	1.71	7,381.57	-64.73	557.91	-48.05	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,600.00	57.69	1.71	7,441.42	15.21	560.30	31.93	9.00	9.00	0.00
7,700.00	66.69	1.71	7,488.03	103.53	562.94	120.28	9.00	9.00	0.00
7,755.67	71.70	1.71	7,507.80	155.53	564.49	172.30	9.00	9.00	0.00
<b>Fort Hays</b>									
7,800.00	75.69	1.71	7,520.25	198.05	565.76	214.84	9.00	9.00	0.00
7,900.00	84.69	1.71	7,537.27	296.44	568.70	313.28	9.00	9.00	0.00

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,903.67	85.02	1.71	7,537.60	300.10	568.80	316.94	9.00	9.00	0.00	
<b>Codell</b>										
7,961.32	90.21	1.71	7,540.00	357.65	570.52	374.52	9.00	9.00	0.00	
<b>End Build @ 7961.32ft - Top of Production</b>										
8,000.00	90.21	1.71	7,539.86	396.31	571.68	413.20	0.00	0.00	0.00	
8,100.00	90.21	1.71	7,539.50	496.27	574.66	513.19	0.00	0.00	0.00	
8,200.00	90.21	1.71	7,539.14	596.22	577.64	613.19	0.00	0.00	0.00	
8,300.00	90.21	1.71	7,538.78	696.18	580.63	713.19	0.00	0.00	0.00	
8,400.00	90.21	1.71	7,538.42	796.13	583.61	813.19	0.00	0.00	0.00	
8,500.00	90.21	1.71	7,538.05	896.09	586.60	913.19	0.00	0.00	0.00	
8,600.00	90.21	1.71	7,537.69	996.04	589.58	1,013.19	0.00	0.00	0.00	
8,700.00	90.21	1.71	7,537.33	1,096.00	592.56	1,113.19	0.00	0.00	0.00	
8,800.00	90.21	1.71	7,536.97	1,195.95	595.55	1,213.19	0.00	0.00	0.00	
8,900.00	90.21	1.71	7,536.61	1,295.91	598.53	1,313.19	0.00	0.00	0.00	
9,000.00	90.21	1.71	7,536.25	1,395.86	601.51	1,413.19	0.00	0.00	0.00	
9,100.00	90.21	1.71	7,535.89	1,495.82	604.50	1,513.19	0.00	0.00	0.00	
9,200.00	90.21	1.71	7,535.53	1,595.77	607.48	1,613.19	0.00	0.00	0.00	
9,300.00	90.21	1.71	7,535.16	1,695.72	610.47	1,713.19	0.00	0.00	0.00	
9,400.00	90.21	1.71	7,534.80	1,795.68	613.45	1,813.19	0.00	0.00	0.00	
9,500.00	90.21	1.71	7,534.44	1,895.63	616.43	1,913.19	0.00	0.00	0.00	
9,600.00	90.21	1.71	7,534.08	1,995.59	619.42	2,013.18	0.00	0.00	0.00	
9,700.00	90.21	1.71	7,533.72	2,095.54	622.40	2,113.18	0.00	0.00	0.00	
9,800.00	90.21	1.71	7,533.36	2,195.50	625.39	2,213.18	0.00	0.00	0.00	
9,900.00	90.21	1.71	7,533.00	2,295.45	628.37	2,313.18	0.00	0.00	0.00	
10,000.00	90.21	1.71	7,532.63	2,395.41	631.35	2,413.18	0.00	0.00	0.00	
10,100.00	90.21	1.71	7,532.27	2,495.36	634.34	2,513.18	0.00	0.00	0.00	
10,200.00	90.21	1.71	7,531.91	2,595.32	637.32	2,613.18	0.00	0.00	0.00	
10,300.00	90.21	1.71	7,531.55	2,695.27	640.30	2,713.18	0.00	0.00	0.00	
10,400.00	90.21	1.71	7,531.19	2,795.23	643.29	2,813.18	0.00	0.00	0.00	
10,500.00	90.21	1.71	7,530.83	2,895.18	646.27	2,913.18	0.00	0.00	0.00	
10,600.00	90.21	1.71	7,530.47	2,995.14	649.26	3,013.18	0.00	0.00	0.00	
10,700.00	90.21	1.71	7,530.11	3,095.09	652.24	3,113.18	0.00	0.00	0.00	
10,800.00	90.21	1.71	7,529.74	3,195.05	655.22	3,213.18	0.00	0.00	0.00	
10,900.00	90.21	1.71	7,529.38	3,295.00	658.21	3,313.18	0.00	0.00	0.00	
11,000.00	90.21	1.71	7,529.02	3,394.96	661.19	3,413.18	0.00	0.00	0.00	
11,100.00	90.21	1.71	7,528.66	3,494.91	664.17	3,513.17	0.00	0.00	0.00	
11,200.00	90.21	1.71	7,528.30	3,594.87	667.16	3,613.17	0.00	0.00	0.00	
11,300.00	90.21	1.71	7,527.94	3,694.82	670.14	3,713.17	0.00	0.00	0.00	
11,400.00	90.21	1.71	7,527.58	3,794.78	673.13	3,813.17	0.00	0.00	0.00	
11,500.00	90.21	1.71	7,527.22	3,894.73	676.11	3,913.17	0.00	0.00	0.00	
11,600.00	90.21	1.71	7,526.85	3,994.69	679.09	4,013.17	0.00	0.00	0.00	
11,700.00	90.21	1.71	7,526.49	4,094.64	682.08	4,113.17	0.00	0.00	0.00	
11,800.00	90.21	1.71	7,526.13	4,194.60	685.06	4,213.17	0.00	0.00	0.00	
11,900.00	90.21	1.71	7,525.77	4,294.55	688.05	4,313.17	0.00	0.00	0.00	
12,000.00	90.21	1.71	7,525.41	4,394.51	691.03	4,413.17	0.00	0.00	0.00	
12,100.00	90.21	1.71	7,525.05	4,494.46	694.01	4,513.17	0.00	0.00	0.00	
12,200.00	90.21	1.71	7,524.69	4,594.41	697.00	4,613.17	0.00	0.00	0.00	
12,300.00	90.21	1.71	7,524.32	4,694.37	699.98	4,713.17	0.00	0.00	0.00	
12,389.81	90.21	1.71	7,524.00	4,784.14	702.66	4,802.98	0.00	0.00	0.00	
<b>TD Well @ 12389.81ft</b>										

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
- Shape										
NORDEN 27C-14HZ_Hc	0.00	0.00	0.00	0.00	0.00	14,543,160.46	1,680,952.88	40.045021	-104.855159	
- plan hits target center										
- Polygon										
Point 1			0.00	5,686.82	994.47	14,548,848.89	1,681,938.10			
Point 2			0.00	5,290.31	999.12	14,548,452.39	1,681,943.39			
Point 3			0.00	4,370.30	1,005.83	14,547,532.39	1,681,951.60			
Point 4			0.00	2,658.79	1,011.64	14,545,820.90	1,681,960.19			
Point 5			0.00	1,321.88	1,015.47	14,544,483.99	1,681,966.20			
Point 6			0.00	401.68	1,016.47	14,543,563.80	1,681,968.69			
Point 7			0.00	-37.92	1,016.56	14,543,124.20	1,681,969.50			
Point 8			0.00	-29.67	556.47	14,543,131.70	1,681,509.40			
Point 9			0.00	-21.43	96.48	14,543,139.19	1,681,049.39			
Point 10			0.00	408.37	96.48	14,543,568.99	1,681,048.69			
Point 11			0.00	2,655.39	91.74	14,545,816.00	1,681,040.30			
Point 12			0.00	4,366.90	85.82	14,547,527.50	1,681,031.60			
Point 13			0.00	5,687.92	74.47	14,548,848.50	1,681,018.10			
Point 14			0.00	5,687.77	534.47	14,548,849.10	1,681,478.10			
Point 15			0.00	5,686.82	994.47	14,548,848.89	1,681,938.10			
NORDEN 27C-14HZ_46	0.00	0.00	0.00	4,827.05	544.57	14,547,988.40	1,681,489.60	40.058277	-104.853213	
- plan misses target center by 4857.67usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Circle (radius 460.00)										
NORDEN 27C-14HZ_46	0.00	0.00	0.00	869.93	556.43	14,544,031.30	1,681,507.90	40.047410	-104.853171	
- plan misses target center by 1032.66usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Circle (radius 460.00)										
NORDEN 27C-14HZ_SF	0.00	0.00	0.00	0.00	0.00	14,543,160.46	1,680,952.88	40.045021	-104.855159	
- plan hits target center										
- Point										
1N-R67W-Sec. 14_Secti	0.00	0.00	-39.00	-5,412.49	-2,639.72	14,537,743.70	1,678,321.96	40.030157	-104.864589	
- plan misses target center by 6022.02usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			-39.00	10,240.97	-771.13	14,547,983.39	1,677,534.18			
Point 2			-39.00	10,241.68	1,854.89	14,547,988.37	1,680,160.19			
Point 3			-39.00	10,251.55	4,492.80	14,548,002.54	1,682,798.08			
Point 4			-39.00	4,901.92	4,512.15	14,542,652.94	1,682,826.13			
Point 5			-39.00	4,948.86	1,873.61	14,542,695.59	1,680,187.52			
Point 6			-39.00	4,981.70	-753.18	14,542,724.16	1,677,560.68			
Point 7			-39.00	7,611.26	-762.09	14,545,353.70	1,677,547.49			
NORDEN 27C-14HZ_TC	0.00	0.00	7,524.00	4,784.14	702.66	14,547,945.74	1,681,647.76	40.058159	-104.852648	
- plan hits target center										
- Point										

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
1,820.80	1,800.00	9 5/8"	9-5/8	13-1/2	
7,961.32	7,540.00	Top of Production	5-1/2	7-7/8	

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 27C-14HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4968.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-14 Norden 15-14HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	NORDEN 27C-14HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,337.93	1,326.00	Fox Hills				
4,583.64	4,528.00	Sussex				
7,229.39	7,165.70	Sharon Springs				
7,257.11	7,190.70	Niobrara Top				
7,383.63	7,297.20	Niobrara B Bench				
7,485.40	7,371.80	Niobrara C Bench				
7,755.67	7,507.80	Fort Hays				
7,903.67	7,537.60	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/-S (usft)	+E/-W (usft)		
200.00	200.00	0.00	0.00		Begin Nudge @ 200.00ft
933.33	928.83	-31.86	62.53		End Nudge @ 933.33ft
3,533.33	3,481.06	-257.09	504.56		Begin Drop @ 3533.33ft
4,083.33	4,027.69	-280.98	551.46		End Drop @ 4083.33ft
6,959.02	6,903.38	-280.98	551.46		KOP @ 6959.02ft
7,500.00	7,381.57	-64.73	557.91		DLS = 9°/100'
7,961.32	7,540.00	357.65	570.52		End Build @ 7961.32ft
12,389.81	7,524.00	4,784.14	702.66		TD Well @ 12389.81ft