

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

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

**NORDEN 2C-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 2C-14HZ  
 Wellbore: Plan A  
 Design: Permit Rev-1

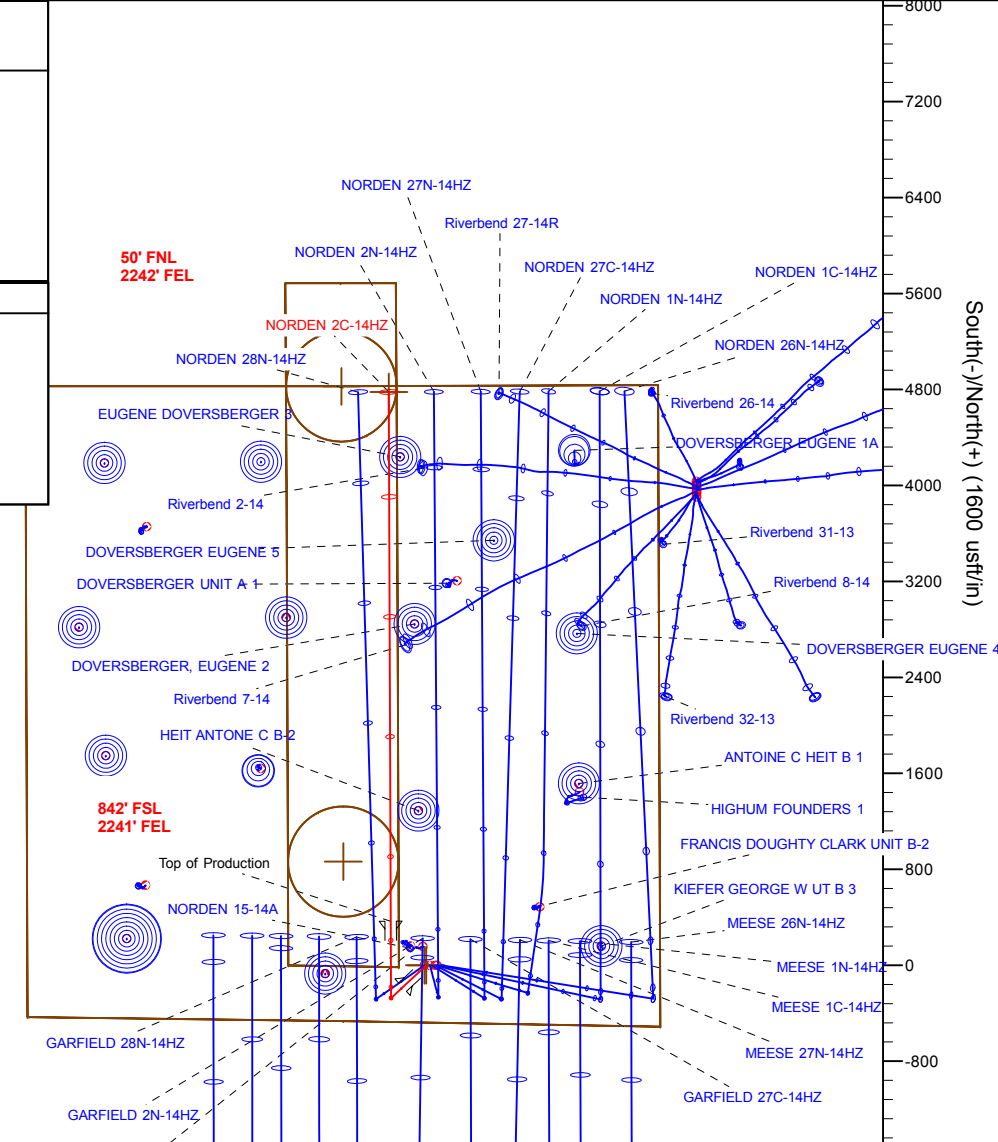
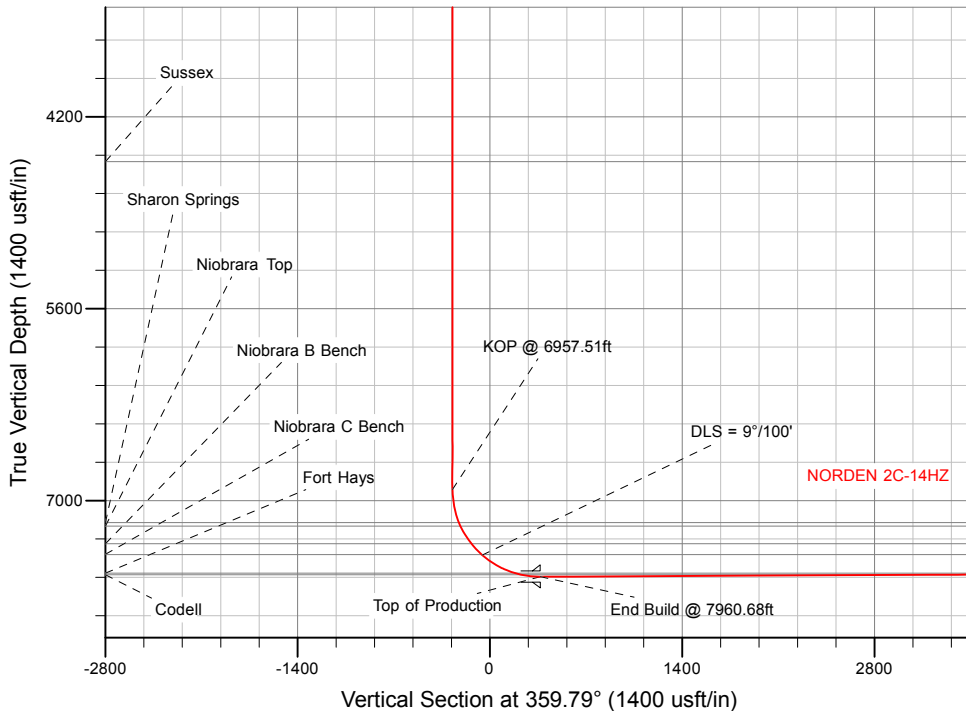
# US ROCKIES WATTENBERG PLANNING

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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	1066.67	13.00	227.00	1059.25	-66.77	-71.60	1.50	227.00	-66.50	
4	2086.67	13.00	227.00	2053.11	-223.25	-239.41	0.00	0.00	-222.37	
5	2736.67	0.00	0.00	2697.54	-273.33	-293.11	2.00	180.00	-272.25	
6	6957.51	0.00	0.00	6918.38	-273.33	-293.11	0.00	0.00	-272.25	
7	7960.68	90.29	359.79	7555.00	366.46	-295.49	9.00	359.79	367.54	
8	12374.42	90.29	359.79	7533.00	4780.12	-311.94	0.00	0.00	4781.23	NORDEN 2C-14HZ_TOE

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
NORDEN 2C-14HZ_SHL	0.00	0.00	0.00	40.045023	-104.855427	Point
NORDEN 2C-14HZ_TOE	7533.00	4780.12	-311.94	40.058150	-104.856542	Point



WELL DETAILS: NORDEN 2C-14HZ	
Ground Level:	4951.00
RKB = 17' @ 4968.00usft (Drilling Rig)	
Plan: Permit Rev-1 (NORDEN 2C-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 2C-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 2C-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 2C-14HZ					
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b>	14,543,161.07 usft	<b>Latitude:</b>	40.045023
	<b>+E-W</b>	14.83 usft	<b>Easting:</b>	1,680,877.87 usft	<b>Longitude:</b>	-104.855427
<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	359.79

<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	
1,066.67	13.00	227.00	1,059.25	-66.77	-71.60	1.50	1.50	0.00	227.00	
2,086.67	13.00	227.00	2,053.11	-223.25	-239.41	0.00	0.00	0.00	0.00	
2,736.67	0.00	0.00	2,697.54	-273.33	-293.11	2.00	-2.00	0.00	180.00	
6,957.51	0.00	0.00	6,918.38	-273.33	-293.11	0.00	0.00	0.00	0.00	
7,960.68	90.29	359.79	7,555.00	366.46	-295.49	9.00	9.00	-0.02	359.79	
12,374.42	90.29	359.79	7,533.00	4,780.12	-311.94	0.00	0.00	0.00	0.00	NORDEN 2C-14HZ_T

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 2C-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 2C-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	227.00	299.99	-0.89	-0.96	-0.89	1.50	1.50	0.00	0.00
400.00	3.00	227.00	399.91	-3.57	-3.83	-3.56	1.50	1.50	0.00	0.00
500.00	4.50	227.00	499.69	-8.03	-8.61	-8.00	1.50	1.50	0.00	0.00
600.00	6.00	227.00	599.27	-14.27	-15.30	-14.21	1.50	1.50	0.00	0.00
700.00	7.50	227.00	698.57	-22.29	-23.90	-22.20	1.50	1.50	0.00	0.00
800.00	9.00	227.00	797.54	-32.07	-34.39	-31.95	1.50	1.50	0.00	0.00
900.00	10.50	227.00	896.09	-43.62	-46.78	-43.45	1.50	1.50	0.00	0.00
1,000.00	12.00	227.00	994.16	-56.93	-61.05	-56.70	1.50	1.50	0.00	0.00
1,066.67	13.00	227.00	1,059.25	-66.77	-71.60	-66.50	1.50	1.50	0.00	0.00
<b>End Nudge @ 1066.67ft</b>										
1,100.00	13.00	227.00	1,091.73	-71.88	-77.08	-71.60	0.00	0.00	0.00	0.00
1,200.00	13.00	227.00	1,189.17	-87.22	-93.53	-86.88	0.00	0.00	0.00	0.00
1,300.00	13.00	227.00	1,286.60	-102.56	-109.99	-102.16	0.00	0.00	0.00	0.00
1,340.43	13.00	227.00	1,326.00	-108.77	-116.64	-108.34	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
1,400.00	13.00	227.00	1,384.04	-117.91	-126.44	-117.44	0.00	0.00	0.00	0.00
1,500.00	13.00	227.00	1,481.48	-133.25	-142.89	-132.72	0.00	0.00	0.00	0.00
1,600.00	13.00	227.00	1,578.91	-148.59	-159.34	-148.00	0.00	0.00	0.00	0.00
1,700.00	13.00	227.00	1,676.35	-163.93	-175.79	-163.29	0.00	0.00	0.00	0.00
1,800.00	13.00	227.00	1,773.79	-179.27	-192.25	-178.57	0.00	0.00	0.00	0.00
1,826.90	13.00	227.00	1,800.00	-183.40	-196.67	-182.68	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
1,900.00	13.00	227.00	1,871.22	-194.61	-208.70	-193.85	0.00	0.00	0.00	0.00
2,000.00	13.00	227.00	1,968.66	-209.96	-225.15	-209.13	0.00	0.00	0.00	0.00
2,086.67	13.00	227.00	2,053.11	-223.25	-239.41	-222.37	0.00	0.00	0.00	0.00
<b>Begin Drop @ 2086.67ft</b>										
2,100.00	12.73	227.00	2,066.11	-225.28	-241.58	-224.39	2.00	-2.00	0.00	0.00
2,200.00	10.73	227.00	2,164.01	-239.14	-256.45	-238.20	2.00	-2.00	0.00	0.00
2,300.00	8.73	227.00	2,262.57	-250.67	-268.82	-249.69	2.00	-2.00	0.00	0.00
2,400.00	6.73	227.00	2,361.65	-259.85	-278.66	-258.83	2.00	-2.00	0.00	0.00
2,500.00	4.73	227.00	2,461.15	-266.66	-285.96	-265.61	2.00	-2.00	0.00	0.00
2,600.00	2.73	227.00	2,560.93	-271.10	-290.72	-270.04	2.00	-2.00	0.00	0.00
2,700.00	0.73	227.00	2,660.88	-273.17	-292.94	-272.09	2.00	-2.00	0.00	0.00
2,736.67	0.00	0.00	2,697.55	-273.33	-293.11	-272.25	2.00	-2.00	0.00	0.00
<b>End Drop @ 2736.67ft</b>										
2,800.00	0.00	0.00	2,760.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,860.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	2,960.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,060.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,160.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,260.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,360.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,460.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,560.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,660.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,760.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,860.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,960.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,060.88	-273.33	-293.11	-272.25	0.00	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 2C-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 2C-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	4,160.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,300.00	0.00	0.00	4,260.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,400.00	0.00	0.00	4,360.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,500.00	0.00	0.00	4,460.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,567.12	0.00	0.00	4,528.00	-273.33	-293.11	-272.25	0.00	0.00	0.00
<b>Sussex</b>									
4,600.00	0.00	0.00	4,560.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,700.00	0.00	0.00	4,660.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,800.00	0.00	0.00	4,760.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
4,900.00	0.00	0.00	4,860.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,000.00	0.00	0.00	4,960.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,100.00	0.00	0.00	5,060.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,200.00	0.00	0.00	5,160.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,300.00	0.00	0.00	5,260.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,400.00	0.00	0.00	5,360.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,500.00	0.00	0.00	5,460.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,600.00	0.00	0.00	5,560.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,700.00	0.00	0.00	5,660.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,800.00	0.00	0.00	5,760.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
5,900.00	0.00	0.00	5,860.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,000.00	0.00	0.00	5,960.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,100.00	0.00	0.00	6,060.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,200.00	0.00	0.00	6,160.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,300.00	0.00	0.00	6,260.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,400.00	0.00	0.00	6,360.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,500.00	0.00	0.00	6,460.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,600.00	0.00	0.00	6,560.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,700.00	0.00	0.00	6,660.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,800.00	0.00	0.00	6,760.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,900.00	0.00	0.00	6,860.88	-273.33	-293.11	-272.25	0.00	0.00	0.00
6,957.51	0.00	0.00	6,918.39	-273.33	-293.11	-272.25	0.00	0.00	0.00
<b>KOP @ 6957.51ft</b>									
7,000.00	3.82	359.79	6,960.85	-271.91	-293.11	-270.83	9.00	9.00	0.00
7,100.00	12.82	359.79	7,059.69	-257.45	-293.17	-256.37	9.00	9.00	0.00
7,200.00	21.82	359.79	7,155.06	-227.70	-293.28	-226.62	9.00	9.00	0.00
7,207.06	22.46	359.79	7,161.60	-225.04	-293.29	-223.96	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,234.37	24.92	359.79	7,186.60	-214.07	-293.33	-212.99	9.00	9.00	0.00
<b>Niobrara Top</b>									
7,300.00	30.82	359.79	7,244.59	-183.40	-293.44	-182.32	9.00	9.00	0.00
7,386.32	38.59	359.79	7,315.50	-134.29	-293.63	-133.21	9.00	9.00	0.00
<b>Niobrara B Bench</b>									
7,400.00	39.82	359.79	7,326.10	-125.64	-293.66	-124.56	9.00	9.00	0.00
7,494.46	48.33	359.79	7,393.90	-59.99	-293.90	-58.92	9.00	9.00	0.00
<b>Niobrara C Bench</b>									
7,500.00	48.82	359.79	7,397.57	-55.84	-293.92	-54.76	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,600.00	57.82	359.79	7,457.23	24.28	-294.22	25.36	9.00	9.00	0.00
7,700.00	66.82	359.79	7,503.63	112.75	-294.55	113.83	9.00	9.00	0.00
7,778.13	73.86	359.79	7,529.90	186.28	-294.82	187.36	9.00	9.00	0.00
<b>Fort Hays</b>									
7,800.00	75.82	359.79	7,535.62	207.38	-294.90	208.46	9.00	9.00	0.00
7,823.73	77.96	359.79	7,541.00	230.49	-294.98	231.57	9.00	9.00	0.00

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 2C-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 2C-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)
<b>Codell</b>									
7,900.00	84.82	359.79	7,552.41	305.86	-295.27	306.94	9.00	9.00	0.00
7,960.68	90.29	359.79	7,555.00	366.46	-295.49	367.54	9.00	9.00	0.00
<b>End Build @ 7960.68ft - Top of Production</b>									
8,000.00	90.29	359.79	7,554.80	405.78	-295.64	406.86	0.00	0.00	0.00
8,100.00	90.29	359.79	7,554.30	505.78	-296.01	506.86	0.00	0.00	0.00
8,200.00	90.29	359.79	7,553.80	605.78	-296.38	606.86	0.00	0.00	0.00
8,300.00	90.29	359.79	7,553.31	705.78	-296.76	706.86	0.00	0.00	0.00
8,400.00	90.29	359.79	7,552.81	805.77	-297.13	806.86	0.00	0.00	0.00
8,500.00	90.29	359.79	7,552.31	905.77	-297.50	906.86	0.00	0.00	0.00
8,600.00	90.29	359.79	7,551.81	1,005.77	-297.87	1,006.85	0.00	0.00	0.00
8,700.00	90.29	359.79	7,551.31	1,105.77	-298.25	1,106.85	0.00	0.00	0.00
8,800.00	90.29	359.79	7,550.81	1,205.77	-298.62	1,206.85	0.00	0.00	0.00
8,900.00	90.29	359.79	7,550.32	1,305.76	-298.99	1,306.85	0.00	0.00	0.00
9,000.00	90.29	359.79	7,549.82	1,405.76	-299.36	1,406.85	0.00	0.00	0.00
9,100.00	90.29	359.79	7,549.32	1,505.76	-299.74	1,506.85	0.00	0.00	0.00
9,200.00	90.29	359.79	7,548.82	1,605.76	-300.11	1,606.85	0.00	0.00	0.00
9,300.00	90.29	359.79	7,548.32	1,705.76	-300.48	1,706.85	0.00	0.00	0.00
9,400.00	90.29	359.79	7,547.82	1,805.75	-300.86	1,806.84	0.00	0.00	0.00
9,500.00	90.29	359.79	7,547.33	1,905.75	-301.23	1,906.84	0.00	0.00	0.00
9,600.00	90.29	359.79	7,546.83	2,005.75	-301.60	2,006.84	0.00	0.00	0.00
9,700.00	90.29	359.79	7,546.33	2,105.75	-301.97	2,106.84	0.00	0.00	0.00
9,800.00	90.29	359.79	7,545.83	2,205.75	-302.35	2,206.84	0.00	0.00	0.00
9,900.00	90.29	359.79	7,545.33	2,305.74	-302.72	2,306.84	0.00	0.00	0.00
10,000.00	90.29	359.79	7,544.83	2,405.74	-303.09	2,406.84	0.00	0.00	0.00
10,100.00	90.29	359.79	7,544.34	2,505.74	-303.46	2,506.84	0.00	0.00	0.00
10,200.00	90.29	359.79	7,543.84	2,605.74	-303.84	2,606.83	0.00	0.00	0.00
10,300.00	90.29	359.79	7,543.34	2,705.74	-304.21	2,706.83	0.00	0.00	0.00
10,400.00	90.29	359.79	7,542.84	2,805.73	-304.58	2,806.83	0.00	0.00	0.00
10,500.00	90.29	359.79	7,542.34	2,905.73	-304.95	2,906.83	0.00	0.00	0.00
10,600.00	90.29	359.79	7,541.84	3,005.73	-305.33	3,006.83	0.00	0.00	0.00
10,700.00	90.29	359.79	7,541.34	3,105.73	-305.70	3,106.83	0.00	0.00	0.00
10,800.00	90.29	359.79	7,540.85	3,205.73	-306.07	3,206.83	0.00	0.00	0.00
10,900.00	90.29	359.79	7,540.35	3,305.72	-306.45	3,306.83	0.00	0.00	0.00
11,000.00	90.29	359.79	7,539.85	3,405.72	-306.82	3,406.82	0.00	0.00	0.00
11,100.00	90.29	359.79	7,539.35	3,505.72	-307.19	3,506.82	0.00	0.00	0.00
11,200.00	90.29	359.79	7,538.85	3,605.72	-307.56	3,606.82	0.00	0.00	0.00
11,300.00	90.29	359.79	7,538.35	3,705.72	-307.94	3,706.82	0.00	0.00	0.00
11,400.00	90.29	359.79	7,537.86	3,805.72	-308.31	3,806.82	0.00	0.00	0.00
11,500.00	90.29	359.79	7,537.36	3,905.71	-308.68	3,906.82	0.00	0.00	0.00
11,600.00	90.29	359.79	7,536.86	4,005.71	-309.05	4,006.82	0.00	0.00	0.00
11,700.00	90.29	359.79	7,536.36	4,105.71	-309.43	4,106.82	0.00	0.00	0.00
11,800.00	90.29	359.79	7,535.86	4,205.71	-309.80	4,206.81	0.00	0.00	0.00
11,900.00	90.29	359.79	7,535.36	4,305.71	-310.17	4,306.81	0.00	0.00	0.00
12,000.00	90.29	359.79	7,534.87	4,405.70	-310.54	4,406.81	0.00	0.00	0.00
12,100.00	90.29	359.79	7,534.37	4,505.70	-310.92	4,506.81	0.00	0.00	0.00
12,200.00	90.29	359.79	7,533.87	4,605.70	-311.29	4,606.81	0.00	0.00	0.00
12,300.00	90.29	359.79	7,533.37	4,705.70	-311.66	4,706.81	0.00	0.00	0.00
12,374.42	90.29	359.79	7,533.00	4,780.12	-311.94	4,781.23	0.00	0.00	0.00
<b>TD Well @ 12374.42ft</b>									

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 2C-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 2C-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 28N-14HZ_46	0.00	0.00	0.00	4,825.98	-706.04	14,547,985.90	1,680,164.00	40.058276	-104.857951	
- plan misses target center by 4877.35usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Circle (radius 460.00)										
NORDEN 28N-14HZ_46	0.00	0.00	0.00	864.65	-690.27	14,544,024.60	1,680,186.20	40.047398	-104.857894	
- plan misses target center by 1106.39usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Circle (radius 460.00)										
NORDEN 28N-14HZ_Hz	0.00	0.00	0.00	0.00	-14.83	14,543,161.05	1,680,863.04	40.045023	-104.855480	
- plan misses target center by 14.83usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			0.00	5,687.34	-239.21	14,548,847.99	1,680,614.60			
Point 2			0.00	3,976.12	-228.19	14,547,136.79	1,680,628.40			
Point 3			0.00	406.30	-214.48	14,543,567.00	1,680,647.90			
Point 4			0.00	-15.00	-213.67	14,543,145.70	1,680,649.40			
Point 5			0.00	-6.86	-673.66	14,543,153.09	1,680,189.39			
Point 6			0.00	-1.01	-1,133.75	14,543,158.20	1,679,729.29			
Point 7			0.00	407.89	-1,134.48	14,543,567.09	1,679,727.90			
Point 8			0.00	3,977.92	-1,148.19	14,547,137.10	1,679,708.39			
Point 9			0.00	5,686.94	-1,159.22	14,548,846.10	1,679,694.59			
Point 10			0.00	5,687.49	-699.21	14,548,847.39	1,680,154.60			
Point 11			0.00	5,687.34	-239.21	14,548,847.99	1,680,614.60			
NORDEN 2C-14HZ_SHI	0.00	0.00	0.00	0.00	0.00	14,543,161.07	1,680,877.87	40.045023	-104.855427	
- plan hits target center										
- Point										
1N-R67W-Sec. 14_Secti	0.00	0.00	-39.00	-5,413.22	-2,564.70	14,537,743.70	1,678,321.96	40.030157	-104.864589	
- plan misses target center by 5990.18usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Polygon										
Point 1			-39.00	10,240.97	-771.13	14,547,983.40	1,677,534.21			
Point 2			-39.00	10,241.68	1,854.89	14,547,988.37	1,680,160.22			
Point 3			-39.00	10,251.55	4,492.80	14,548,002.52	1,682,798.11			
Point 4			-39.00	4,901.92	4,512.15	14,542,652.93	1,682,826.15			
Point 5			-39.00	4,948.86	1,873.61	14,542,695.59	1,680,187.53			
Point 6			-39.00	4,981.70	-753.18	14,542,724.16	1,677,560.69			
Point 7			-39.00	7,611.26	-762.09	14,545,353.70	1,677,547.52			
NORDEN 2C-14HZ_TOI	0.00	0.00	7,533.00	4,780.12	-311.94	14,547,940.68	1,680,558.17	40.058150	-104.856542	
- plan hits target center										
- Point										

Casing Points						
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter		
(usft)	(usft)		(")	(")		
1,826.90	1,800.00	9 5/8"	9-5/8	13-1/2		
7,960.68	7,555.00	Top of Production	5-1/2	7-7/8		

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well NORDEN 2C-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 2C-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 (°)	
1,340.43	1,326.00	Fox Hills				
4,567.12	4,528.00	Sussex				
7,207.06	7,161.60	Sharon Springs				
7,234.37	7,186.60	Niobrara Top				
7,386.32	7,315.50	Niobrara B Bench				
7,494.46	7,393.90	Niobrara C Bench				
7,778.13	7,529.90	Fort Hays				
7,823.73	7,541.00	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	
1,066.67	1,059.25	-66.77	-71.60	End Nudge @ 1066.67ft	
2,086.67	2,053.11	-223.25	-239.41	Begin Drop @ 2086.67ft	
2,736.67	2,697.55	-273.33	-293.11	End Drop @ 2736.67ft	
6,957.51	6,918.39	-273.33	-293.11	KOP @ 6957.51ft	
7,500.00	7,397.57	-55.84	-293.92	DLS = 9°/100'	
7,960.68	7,555.00	366.46	-295.49	End Build @ 7960.68ft	
12,374.42	7,533.00	4,780.12	-311.94	TD Well @ 12374.42ft	