

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

NORDEN 28N-14HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

11 November, 2015

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 28N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 28N-14HZ	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 1N-67W-14 Norden 15-14HZ Pad					
Site Position:		Northing:	14,543,161.05 usft	Latitude:	40.045023
From:	Lat/Long	Easting:	1,680,863.04 usft	Longitude:	-104.855480
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.09 °

Well NORDEN 28N-14HZ						
Well Position	+N-S	0.00 usft	Northing:	14,543,161.05 usft	Latitude:	40.045023
	+E-W	0.00 usft	Easting:	1,680,863.04 usft	Longitude:	-104.855480
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,951.00 usft

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

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	358.32

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
866.67	10.00	235.00	863.29	-33.28	-47.54	1.50	1.50	0.00	235.00	
3,116.67	10.00	235.00	3,079.10	-257.39	-367.59	0.00	0.00	0.00	0.00	
3,616.67	0.00	0.00	3,576.57	-282.35	-403.24	2.00	-2.00	0.00	180.00	
6,833.49	0.00	0.00	6,793.39	-282.35	-403.24	0.00	0.00	0.00	0.00	
7,837.66	90.38	358.32	7,430.00	358.17	-422.07	9.00	9.00	-0.17	358.32	
12,260.17	90.38	358.32	7,401.00	4,778.67	-552.07	0.00	0.00	0.00	0.00	NORDEN 28N-14HZ_

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Well:	NORDEN 28N-14HZ	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	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
Begin Nudge @ 200.00ft										
300.00	1.50	235.00	299.99	-0.75	-1.07	-0.72	1.50	1.50	0.00	0.00
400.00	3.00	235.00	399.91	-3.00	-4.29	-2.88	1.50	1.50	0.00	0.00
500.00	4.50	235.00	499.69	-6.75	-9.65	-6.47	1.50	1.50	0.00	0.00
600.00	6.00	235.00	599.27	-12.00	-17.14	-11.49	1.50	1.50	0.00	0.00
700.00	7.50	235.00	698.57	-18.74	-26.77	-17.95	1.50	1.50	0.00	0.00
800.00	9.00	235.00	797.54	-26.97	-38.52	-25.83	1.50	1.50	0.00	0.00
866.67	10.00	235.00	863.29	-33.29	-47.54	-31.88	1.50	1.50	0.00	0.00
End Nudge @ 866.67ft										
900.00	10.00	235.00	896.11	-36.60	-52.28	-35.06	0.00	0.00	0.00	0.00
1,000.00	10.00	235.00	994.59	-46.56	-66.50	-44.60	0.00	0.00	0.00	0.00
1,100.00	10.00	235.00	1,093.08	-56.52	-80.73	-54.13	0.00	0.00	0.00	0.00
1,200.00	10.00	235.00	1,191.56	-66.48	-94.95	-63.67	0.00	0.00	0.00	0.00
1,300.00	10.00	235.00	1,290.04	-76.44	-109.17	-73.21	0.00	0.00	0.00	0.00
1,336.52	10.00	235.00	1,326.00	-80.08	-114.37	-76.69	0.00	0.00	0.00	0.00
Fox Hills										
1,400.00	10.00	235.00	1,388.52	-86.40	-123.40	-82.75	0.00	0.00	0.00	0.00
1,500.00	10.00	235.00	1,487.00	-96.37	-137.62	-92.29	0.00	0.00	0.00	0.00
1,600.00	10.00	235.00	1,585.48	-106.33	-151.85	-101.83	0.00	0.00	0.00	0.00
1,700.00	10.00	235.00	1,683.96	-116.29	-166.07	-111.37	0.00	0.00	0.00	0.00
1,800.00	10.00	235.00	1,782.44	-126.25	-180.30	-120.91	0.00	0.00	0.00	0.00
1,817.83	10.00	235.00	1,800.00	-128.02	-182.83	-122.61	0.00	0.00	0.00	0.00
9 5/8"										
1,900.00	10.00	235.00	1,880.92	-136.21	-194.52	-130.44	0.00	0.00	0.00	0.00
2,000.00	10.00	235.00	1,979.40	-146.17	-208.75	-139.98	0.00	0.00	0.00	0.00
2,100.00	10.00	235.00	2,077.88	-156.13	-222.97	-149.52	0.00	0.00	0.00	0.00
2,200.00	10.00	235.00	2,176.36	-166.09	-237.19	-159.06	0.00	0.00	0.00	0.00
2,300.00	10.00	235.00	2,274.85	-176.05	-251.42	-168.60	0.00	0.00	0.00	0.00
2,400.00	10.00	235.00	2,373.33	-186.01	-265.64	-178.14	0.00	0.00	0.00	0.00
2,500.00	10.00	235.00	2,471.81	-195.97	-279.87	-187.68	0.00	0.00	0.00	0.00
2,600.00	10.00	235.00	2,570.29	-205.93	-294.09	-197.22	0.00	0.00	0.00	0.00
2,700.00	10.00	235.00	2,668.77	-215.89	-308.32	-206.75	0.00	0.00	0.00	0.00
2,800.00	10.00	235.00	2,767.25	-225.85	-322.54	-216.29	0.00	0.00	0.00	0.00
2,900.00	10.00	235.00	2,865.73	-235.81	-336.77	-225.83	0.00	0.00	0.00	0.00
3,000.00	10.00	235.00	2,964.21	-245.77	-350.99	-235.37	0.00	0.00	0.00	0.00
3,100.00	10.00	235.00	3,062.69	-255.73	-365.21	-244.91	0.00	0.00	0.00	0.00
3,116.67	10.00	235.00	3,079.11	-257.39	-367.59	-246.50	0.00	0.00	0.00	0.00
Begin Drop @ 3116.67ft										
3,200.00	8.33	235.00	3,161.37	-265.00	-378.46	-253.79	2.00	-2.00	0.00	0.00
3,300.00	6.33	235.00	3,260.55	-272.32	-388.91	-260.80	2.00	-2.00	0.00	0.00
3,400.00	4.33	235.00	3,360.11	-277.65	-396.53	-265.91	2.00	-2.00	0.00	0.00
3,500.00	2.33	235.00	3,459.94	-280.99	-401.29	-269.10	2.00	-2.00	0.00	0.00
3,600.00	0.33	235.00	3,559.90	-282.32	-403.20	-270.38	2.00	-2.00	0.00	0.00
3,616.67	0.00	0.00	3,576.57	-282.35	-403.24	-270.41	2.00	-2.00	0.00	0.00
End Drop @ 3616.67ft										
3,700.00	0.00	0.00	3,659.90	-282.35	-403.24	-270.41	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,759.90	-282.35	-403.24	-270.41	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,859.90	-282.35	-403.24	-270.41	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,959.90	-282.35	-403.24	-270.41	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,059.90	-282.35	-403.24	-270.41	0.00	0.00	0.00	0.00

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Wellbore:	Plan A		
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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	4,159.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,300.00	0.00	0.00	4,259.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,400.00	0.00	0.00	4,359.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,500.00	0.00	0.00	4,459.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,568.10	0.00	0.00	4,528.00	-282.35	-403.24	-270.41	0.00	0.00	0.00
Sussex									
4,600.00	0.00	0.00	4,559.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,700.00	0.00	0.00	4,659.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,800.00	0.00	0.00	4,759.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
4,900.00	0.00	0.00	4,859.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,000.00	0.00	0.00	4,959.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,100.00	0.00	0.00	5,059.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,200.00	0.00	0.00	5,159.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,300.00	0.00	0.00	5,259.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,400.00	0.00	0.00	5,359.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,500.00	0.00	0.00	5,459.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,600.00	0.00	0.00	5,559.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,700.00	0.00	0.00	5,659.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,800.00	0.00	0.00	5,759.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
5,900.00	0.00	0.00	5,859.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,000.00	0.00	0.00	5,959.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,100.00	0.00	0.00	6,059.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,200.00	0.00	0.00	6,159.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,300.00	0.00	0.00	6,259.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,400.00	0.00	0.00	6,359.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,500.00	0.00	0.00	6,459.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,600.00	0.00	0.00	6,559.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,700.00	0.00	0.00	6,659.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,800.00	0.00	0.00	6,759.90	-282.35	-403.24	-270.41	0.00	0.00	0.00
6,833.49	0.00	0.00	6,793.39	-282.35	-403.24	-270.41	0.00	0.00	0.00
KOP @ 6833.49ft									
6,900.00	5.99	358.32	6,859.78	-278.88	-403.34	-266.93	9.00	9.00	0.00
7,000.00	14.99	358.32	6,958.01	-260.71	-403.87	-248.75	9.00	9.00	0.00
7,100.00	23.99	358.32	7,052.19	-227.40	-404.85	-215.43	9.00	9.00	0.00
7,200.00	32.99	358.32	7,139.99	-179.77	-406.25	-167.78	9.00	9.00	0.00
7,247.46	37.26	358.32	7,178.80	-152.48	-407.06	-140.49	9.00	9.00	0.00
Sharon Springs									
7,279.50	40.14	358.32	7,203.80	-132.47	-407.64	-120.46	9.00	9.00	0.00
Niobrara Top									
7,300.00	41.99	358.32	7,219.26	-119.00	-408.04	-106.99	9.00	9.00	0.00
7,400.00	50.99	358.32	7,288.04	-46.59	-410.17	-34.54	9.00	9.00	0.00
DLS = 9°/100'									
7,467.18	57.03	358.32	7,327.50	7.72	-411.77	19.79	9.00	9.00	0.00
Niobrara B Bench									
7,500.00	59.99	358.32	7,344.64	35.69	-412.59	47.77	9.00	9.00	0.00
7,600.00	68.99	358.32	7,387.67	125.81	-415.24	137.93	9.00	9.00	0.00
7,635.27	72.16	358.32	7,399.40	159.05	-416.22	171.18	9.00	9.00	0.00
Niobrara C Bench									
7,700.00	77.99	358.32	7,416.07	221.54	-418.06	233.70	9.00	9.00	0.00
7,800.00	86.99	358.32	7,429.13	320.54	-420.97	332.74	9.00	9.00	0.00
7,837.66	90.38	358.32	7,430.00	358.17	-422.07	370.39	9.00	9.00	0.00
End Build @ 7837.66ft - Top of Production									
7,900.00	90.38	358.32	7,429.59	420.48	-423.91	432.73	0.00	0.00	0.00

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Well:	NORDEN 28N-14HZ	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	90.38	358.32	7,428.93	520.43	-426.85	532.72	0.00	0.00	0.00
8,100.00	90.38	358.32	7,428.28	620.39	-429.78	632.72	0.00	0.00	0.00
8,200.00	90.38	358.32	7,427.62	720.34	-432.72	732.72	0.00	0.00	0.00
8,300.00	90.38	358.32	7,426.96	820.30	-435.66	832.72	0.00	0.00	0.00
8,400.00	90.38	358.32	7,426.31	920.25	-438.60	932.71	0.00	0.00	0.00
8,500.00	90.38	358.32	7,425.65	1,020.21	-441.54	1,032.71	0.00	0.00	0.00
8,600.00	90.38	358.32	7,425.00	1,120.16	-444.48	1,132.71	0.00	0.00	0.00
8,700.00	90.38	358.32	7,424.34	1,220.12	-447.42	1,232.71	0.00	0.00	0.00
8,800.00	90.38	358.32	7,423.69	1,320.07	-450.36	1,332.71	0.00	0.00	0.00
8,900.00	90.38	358.32	7,423.03	1,420.02	-453.30	1,432.70	0.00	0.00	0.00
9,000.00	90.38	358.32	7,422.38	1,519.98	-456.24	1,532.70	0.00	0.00	0.00
9,100.00	90.38	358.32	7,421.72	1,619.93	-459.18	1,632.70	0.00	0.00	0.00
9,200.00	90.38	358.32	7,421.06	1,719.89	-462.12	1,732.70	0.00	0.00	0.00
9,300.00	90.38	358.32	7,420.41	1,819.84	-465.06	1,832.70	0.00	0.00	0.00
9,400.00	90.38	358.32	7,419.75	1,919.80	-468.00	1,932.69	0.00	0.00	0.00
9,500.00	90.38	358.32	7,419.10	2,019.75	-470.94	2,032.69	0.00	0.00	0.00
9,600.00	90.38	358.32	7,418.44	2,119.71	-473.88	2,132.69	0.00	0.00	0.00
9,700.00	90.38	358.32	7,417.79	2,219.66	-476.82	2,232.69	0.00	0.00	0.00
9,800.00	90.38	358.32	7,417.13	2,319.62	-479.76	2,332.68	0.00	0.00	0.00
9,900.00	90.38	358.32	7,416.47	2,419.57	-482.70	2,432.68	0.00	0.00	0.00
10,000.00	90.38	358.32	7,415.82	2,519.53	-485.64	2,532.68	0.00	0.00	0.00
10,100.00	90.38	358.32	7,415.16	2,619.48	-488.57	2,632.68	0.00	0.00	0.00
10,200.00	90.38	358.32	7,414.51	2,719.44	-491.51	2,732.68	0.00	0.00	0.00
10,300.00	90.38	358.32	7,413.85	2,819.39	-494.45	2,832.67	0.00	0.00	0.00
10,400.00	90.38	358.32	7,413.20	2,919.34	-497.39	2,932.67	0.00	0.00	0.00
10,500.00	90.38	358.32	7,412.54	3,019.30	-500.33	3,032.67	0.00	0.00	0.00
10,600.00	90.38	358.32	7,411.89	3,119.25	-503.27	3,132.67	0.00	0.00	0.00
10,700.00	90.38	358.32	7,411.23	3,219.21	-506.21	3,232.67	0.00	0.00	0.00
10,800.00	90.38	358.32	7,410.57	3,319.16	-509.15	3,332.66	0.00	0.00	0.00
10,900.00	90.38	358.32	7,409.92	3,419.12	-512.09	3,432.66	0.00	0.00	0.00
11,000.00	90.38	358.32	7,409.26	3,519.07	-515.03	3,532.66	0.00	0.00	0.00
11,100.00	90.38	358.32	7,408.61	3,619.03	-517.97	3,632.66	0.00	0.00	0.00
11,200.00	90.38	358.32	7,407.95	3,718.98	-520.91	3,732.65	0.00	0.00	0.00
11,300.00	90.38	358.32	7,407.30	3,818.94	-523.85	3,832.65	0.00	0.00	0.00
11,400.00	90.38	358.32	7,406.64	3,918.89	-526.79	3,932.65	0.00	0.00	0.00
11,500.00	90.38	358.32	7,405.98	4,018.85	-529.73	4,032.65	0.00	0.00	0.00
11,600.00	90.38	358.32	7,405.33	4,118.80	-532.67	4,132.65	0.00	0.00	0.00
11,700.00	90.38	358.32	7,404.67	4,218.75	-535.61	4,232.64	0.00	0.00	0.00
11,800.00	90.38	358.32	7,404.02	4,318.71	-538.55	4,332.64	0.00	0.00	0.00
11,900.00	90.38	358.32	7,403.36	4,418.66	-541.49	4,432.64	0.00	0.00	0.00
12,000.00	90.38	358.32	7,402.71	4,518.62	-544.43	4,532.64	0.00	0.00	0.00
12,100.00	90.38	358.32	7,402.05	4,618.57	-547.36	4,632.64	0.00	0.00	0.00
12,200.00	90.38	358.32	7,401.39	4,718.53	-550.30	4,732.63	0.00	0.00	0.00
12,260.17	90.38	358.32	7,401.00	4,778.67	-552.07	4,792.80	0.00	0.00	0.00
TD Well @ 12260.17ft									

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well NORDEN 28N-14HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 28N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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 - plan misses target center by 4875.23usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	4,825.98	-691.21	14,547,985.90	1,680,164.00	40.058276	-104.857951	
NORDEN 28N-14HZ_46 - plan misses target center by 1097.19usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	864.65	-675.44	14,544,024.60	1,680,186.20	40.047398	-104.857894	
NORDEN 28N-14HZ_Hz - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,543,161.05	1,680,863.04	40.045023	-104.855480	
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	1,679,708.40			
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 28N-14HZ_Sf - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,543,161.05	1,680,863.04	40.045023	-104.855480	
1N-R67W-Sec. 14_Secti - plan misses target center by 5983.84usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-39.00	-5,413.22	-2,549.87	14,537,743.70	1,678,321.96	40.030157	-104.864589	
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	1,680,160.23			
Point 3			-39.00	10,251.55	4,492.80	14,548,002.52	1,682,798.12			
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	14,542,695.58	1,680,187.54			
Point 6			-39.00	4,981.70	-753.18	14,542,724.16	1,677,560.70			
Point 7			-39.00	7,611.26	-762.09	14,545,353.70	1,677,547.52			
NORDEN 28N-14HZ_Bf - plan hits target center - Point	0.00	0.00	7,401.00	4,778.67	-552.07	14,547,938.82	1,680,303.21	40.058146	-104.857453	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,817.83	1,800.00	9 5/8"	9-5/8	13-1/2		
7,837.66	7,430.00	Top of Production	5-1/2	7-7/8		

Anadarko

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4968.00usft (Drilling Rig)
Site:	1N-67W-14 Norden 15-14HZ Pad	North Reference:	True
Well:	NORDEN 28N-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,336.52	1,326.00	Fox Hills			
4,568.10	4,528.00	Sussex			
7,247.46	7,178.80	Sharon Springs			
7,279.50	7,203.80	Niobrara Top			
7,467.18	7,327.50	Niobrara B Bench			
7,635.27	7,399.40	Niobrara C Bench			

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
866.67	863.29	-33.29	-47.54		End Nudge @ 866.67ft
3,116.67	3,079.11	-257.39	-367.59		Begin Drop @ 3116.67ft
3,616.67	3,576.57	-282.35	-403.24		End Drop @ 3616.67ft
6,833.49	6,793.39	-282.35	-403.24		KOP @ 6833.49ft
7,400.00	7,288.04	-46.59	-410.17		DLS = 9°/100'
7,837.66	7,430.00	358.17	-422.07		End Build @ 7837.66ft
12,260.17	7,401.00	4,778.67	-552.07		TD Well @ 12260.17ft