

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_WARDELL 2 PAD**

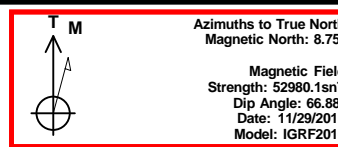
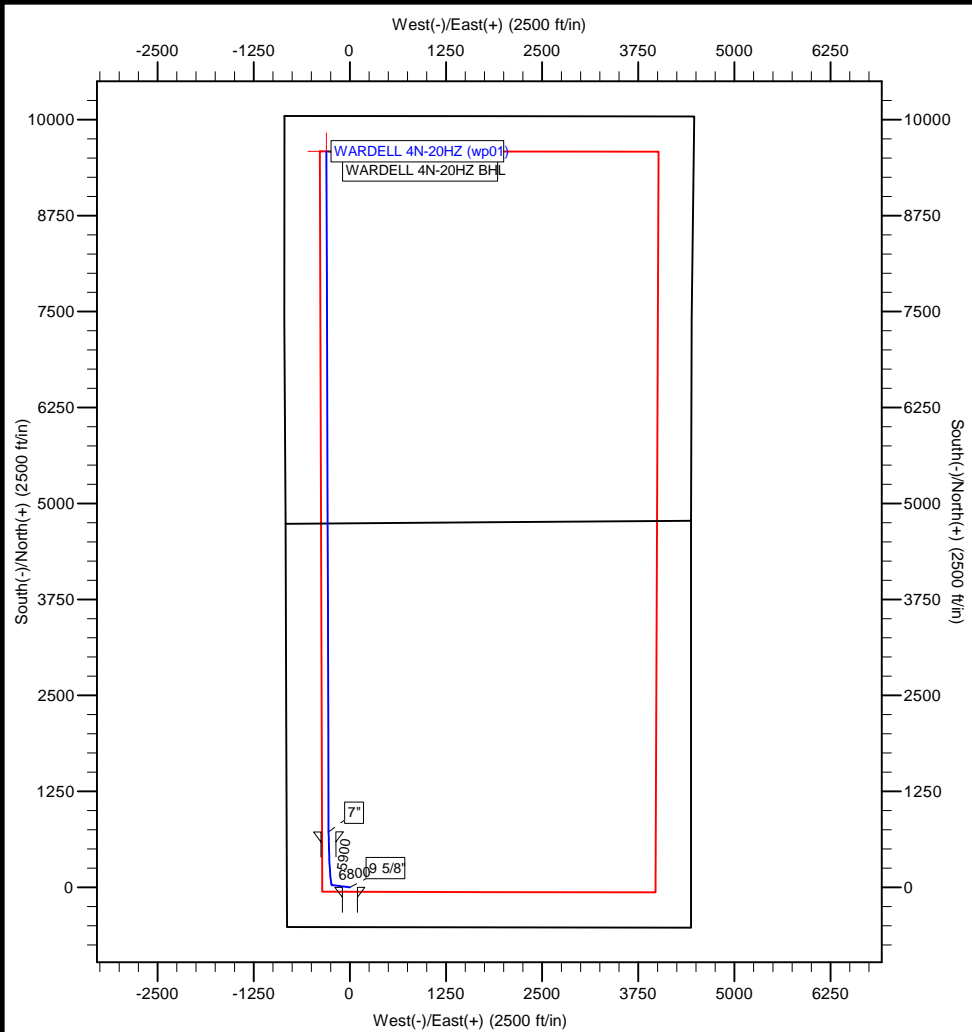
**WARDELL 4N-20HZ**

**WARDELL 4N-20HZ**

**Plan: WARDELL 4N-20HZ (wp01)**

## **Standard Planning Report**

**29 November, 2011**



Project: COLORADO NORTHERN ZONE - 83  
Site: WELD WARDELL 2 PAD  
Well: WARDELL 4N-20HZ  
Wellbore: WARDELL 4N-20HZ  
Section:  
SHL:  
Design: WARDELL 4N-20HZ (wp01)  
Latitude: 40.190606  
Longitude: -104.693789  
GL: 4902.01  
KB: RKB + GL @ 4919.01ft

WELL DETAILS: WARDELL 4N-20HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4902.01 Latitude	Longitude	Slot
0.00	0.00	1313304.25	3225228.53	40.190606	-104.693789	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00
1638.46	2.77	277.32	1638.41	0.43	-3.32	2.00	277.32	0.53
6456.56	2.77	277.32	6450.88	30.08	-234.20	0.00	0.00	37.51
7350.16	89.78	358.62	7019.00	600.00	-275.00	10.00	81.32	608.44
7469.87	89.76	359.82	7019.48	719.69	-276.63	1.00	90.72	728.13
16337.54	89.76	359.82	7056.00	9587.24	-304.96	0.00	0.00	9592.09

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

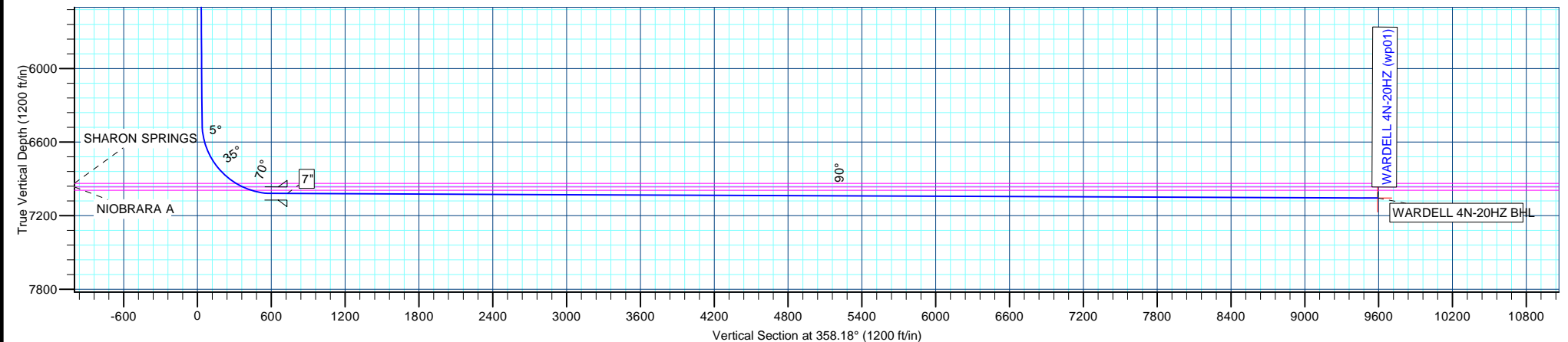
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
WARDELL 4N-20HZ BHL	7056.00	9587.24	-304.96	40.216924	-104.694881	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3849.00	3851.64	PARKMAN
4473.00	4476.37	SUSSEX
6937.00	7041.87	SHARON SPRINGS
6966.00	7103.84	NIOBRARA A
6992.00	7175.67	NIOBRARA B

CASING DETAILS

TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7019.48	7469.87	7"	7



# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	WELD_WARDELL 2 PAD			
<b>Site Position:</b>		<b>Northing:</b>	1,313,304.26 usft	<b>Latitude:</b> 40.190606
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,225,228.53 usft	<b>Longitude:</b> -104.693789
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> 0.52 °

<b>Well</b>	WARDELL 4N-20HZ			
<b>Well Position</b>	<b>+N/-S</b>	-0.01 ft	<b>Northing:</b>	1,313,304.25 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,225,228.53 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 4,902.01 ft

<b>Wellbore</b>	WARDELL 4N-20HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/29/2011	8.75	66.88	52,980

<b>Design</b>	WARDELL 4N-20HZ (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	358.18

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,638.46	2.77	277.32	1,638.41	0.43	-3.32	2.00	2.00	0.00	277.32	
6,456.56	2.77	277.32	6,450.88	30.08	-234.20	0.00	0.00	0.00	0.00	
7,350.16	89.78	358.62	7,019.00	600.00	-275.00	10.00	9.74	9.10	81.32	
7,469.87	89.76	359.82	7,019.48	719.69	-276.63	1.00	-0.01	1.00	90.72	
16,337.54	89.76	359.82	7,056.00	9,587.24	-304.96	0.00	0.00	0.00	0.00	WARDELL 4N-20HZ I

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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
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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	2.00	277.32	1,599.98	0.22	-1.73	0.28	2.00	2.00	0.00
1,638.46	2.77	277.32	1,638.41	0.43	-3.32	0.53	2.00	2.00	0.00
1,700.00	2.77	277.32	1,699.87	0.80	-6.27	1.00	0.00	0.00	0.00
1,800.00	2.77	277.32	1,799.76	1.42	-11.06	1.77	0.00	0.00	0.00
1,900.00	2.77	277.32	1,899.64	2.04	-15.85	2.54	0.00	0.00	0.00
2,000.00	2.77	277.32	1,999.52	2.65	-20.64	3.31	0.00	0.00	0.00
2,100.00	2.77	277.32	2,099.41	3.27	-25.44	4.07	0.00	0.00	0.00
2,200.00	2.77	277.32	2,199.29	3.88	-30.23	4.84	0.00	0.00	0.00
2,300.00	2.77	277.32	2,299.17	4.50	-35.02	5.61	0.00	0.00	0.00
2,400.00	2.77	277.32	2,399.06	5.11	-39.81	6.38	0.00	0.00	0.00
2,500.00	2.77	277.32	2,498.94	5.73	-44.60	7.14	0.00	0.00	0.00
2,600.00	2.77	277.32	2,598.82	6.34	-49.40	7.91	0.00	0.00	0.00
2,700.00	2.77	277.32	2,698.71	6.96	-54.19	8.68	0.00	0.00	0.00
2,800.00	2.77	277.32	2,798.59	7.58	-58.98	9.45	0.00	0.00	0.00
2,900.00	2.77	277.32	2,898.47	8.19	-63.77	10.21	0.00	0.00	0.00
3,000.00	2.77	277.32	2,998.36	8.81	-68.56	10.98	0.00	0.00	0.00
3,100.00	2.77	277.32	3,098.24	9.42	-73.36	11.75	0.00	0.00	0.00
3,200.00	2.77	277.32	3,198.12	10.04	-78.15	12.52	0.00	0.00	0.00
3,300.00	2.77	277.32	3,298.01	10.65	-82.94	13.28	0.00	0.00	0.00
3,400.00	2.77	277.32	3,397.89	11.27	-87.73	14.05	0.00	0.00	0.00
3,500.00	2.77	277.32	3,497.77	11.88	-92.52	14.82	0.00	0.00	0.00
3,600.00	2.77	277.32	3,597.66	12.50	-97.32	15.59	0.00	0.00	0.00
3,700.00	2.77	277.32	3,697.54	13.11	-102.11	16.35	0.00	0.00	0.00
3,800.00	2.77	277.32	3,797.42	13.73	-106.90	17.12	0.00	0.00	0.00
3,851.64	2.77	277.32	3,849.00	14.05	-109.37	17.52	0.00	0.00	0.00
PARKMAN									
3,900.00	2.77	277.32	3,897.31	14.35	-111.69	17.89	0.00	0.00	0.00
4,000.00	2.77	277.32	3,997.19	14.96	-116.48	18.66	0.00	0.00	0.00
4,100.00	2.77	277.32	4,097.07	15.58	-121.28	19.42	0.00	0.00	0.00
4,200.00	2.77	277.32	4,196.95	16.19	-126.07	20.19	0.00	0.00	0.00
4,300.00	2.77	277.32	4,296.84	16.81	-130.86	20.96	0.00	0.00	0.00
4,400.00	2.77	277.32	4,396.72	17.42	-135.65	21.73	0.00	0.00	0.00
4,476.37	2.77	277.32	4,473.00	17.89	-139.31	22.31	0.00	0.00	0.00
SUSSEX									
4,500.00	2.77	277.32	4,496.60	18.04	-140.44	22.49	0.00	0.00	0.00
4,600.00	2.77	277.32	4,596.49	18.65	-145.24	23.26	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.00	2.77	277.32	4,696.37	19.27	-150.03	24.03	0.00	0.00	0.00
4,800.00	2.77	277.32	4,796.25	19.89	-154.82	24.80	0.00	0.00	0.00
4,900.00	2.77	277.32	4,896.14	20.50	-159.61	25.57	0.00	0.00	0.00
5,000.00	2.77	277.32	4,996.02	21.12	-164.40	26.33	0.00	0.00	0.00
5,100.00	2.77	277.32	5,095.90	21.73	-169.20	27.10	0.00	0.00	0.00
5,200.00	2.77	277.32	5,195.79	22.35	-173.99	27.87	0.00	0.00	0.00
5,300.00	2.77	277.32	5,295.67	22.96	-178.78	28.64	0.00	0.00	0.00
5,400.00	2.77	277.32	5,395.55	23.58	-183.57	29.40	0.00	0.00	0.00
5,500.00	2.77	277.32	5,495.44	24.19	-188.36	30.17	0.00	0.00	0.00
5,600.00	2.77	277.32	5,595.32	24.81	-193.16	30.94	0.00	0.00	0.00
5,700.00	2.77	277.32	5,695.20	25.43	-197.95	31.71	0.00	0.00	0.00
5,800.00	2.77	277.32	5,795.09	26.04	-202.74	32.47	0.00	0.00	0.00
5,900.00	2.77	277.32	5,894.97	26.66	-207.53	33.24	0.00	0.00	0.00
6,000.00	2.77	277.32	5,994.85	27.27	-212.32	34.01	0.00	0.00	0.00
6,100.00	2.77	277.32	6,094.74	27.89	-217.12	34.78	0.00	0.00	0.00
6,200.00	2.77	277.32	6,194.62	28.50	-221.91	35.54	0.00	0.00	0.00
6,300.00	2.77	277.32	6,294.50	29.12	-226.70	36.31	0.00	0.00	0.00
6,400.00	2.77	277.32	6,394.39	29.73	-231.49	37.08	0.00	0.00	0.00
6,456.56	2.77	277.32	6,450.88	30.08	-234.20	37.51	0.00	0.00	0.00
6,500.00	5.49	328.81	6,494.22	31.99	-236.32	39.49	10.00	6.27	118.52
6,600.00	15.01	348.36	6,592.53	48.81	-241.43	56.46	10.00	9.52	19.55
6,700.00	24.90	352.72	6,686.41	82.46	-246.72	90.27	10.00	9.90	4.36
6,800.00	34.86	354.69	6,773.01	131.93	-252.05	139.88	10.00	9.95	1.97
6,895.55	44.38	355.83	6,846.53	192.59	-257.01	200.66	10.00	9.97	1.19
<b>WARDELL 4N-20HZ heel</b>									
6,900.00	44.83	355.87	6,849.70	195.70	-257.24	203.78	10.00	9.98	0.97
7,000.00	54.81	356.70	6,914.14	271.85	-262.14	280.04	10.00	9.98	0.82
7,041.87	58.99	356.98	6,937.00	306.86	-264.07	315.10	10.00	9.98	0.68
<b>SHARON SPRINGS</b>									
7,100.00	64.79	357.34	6,964.38	358.05	-266.60	366.35	10.00	9.99	0.61
7,103.84	65.18	357.36	6,966.00	361.53	-266.76	369.82	10.00	9.99	0.58
<b>NIORARA A</b>									
7,175.67	72.35	357.76	6,992.00	428.37	-269.61	436.73	10.00	9.99	0.55
<b>NIORARA B</b>									
7,200.00	74.78	357.89	6,998.88	451.69	-270.49	460.06	10.00	9.99	0.52
7,300.00	84.77	358.38	7,016.61	549.93	-273.69	558.35	10.00	9.99	0.49
7,350.16	89.78	358.62	7,019.00	600.00	-275.00	608.44	10.00	9.99	0.48
7,400.00	89.77	359.12	7,019.20	649.83	-275.98	658.27	1.00	-0.01	1.00
7,469.87	89.76	359.82	7,019.48	719.69	-276.63	728.12	1.00	-0.01	1.00
<b>7"</b>									
7,500.00	89.76	359.82	7,019.60	749.82	-276.73	758.24	0.00	0.00	0.00
7,600.00	89.76	359.82	7,020.01	849.82	-277.05	858.20	0.00	0.00	0.00
7,700.00	89.76	359.82	7,020.43	949.82	-277.37	958.16	0.00	0.00	0.00
7,800.00	89.76	359.82	7,020.84	1,049.82	-277.69	1,058.12	0.00	0.00	0.00
7,900.00	89.76	359.82	7,021.25	1,149.82	-278.01	1,158.07	0.00	0.00	0.00
8,000.00	89.76	359.82	7,021.66	1,249.82	-278.33	1,258.03	0.00	0.00	0.00
8,100.00	89.76	359.82	7,022.07	1,349.81	-278.65	1,357.99	0.00	0.00	0.00
8,200.00	89.76	359.82	7,022.48	1,449.81	-278.96	1,457.95	0.00	0.00	0.00
8,300.00	89.76	359.82	7,022.90	1,549.81	-279.28	1,557.91	0.00	0.00	0.00
8,400.00	89.76	359.82	7,023.31	1,649.81	-279.60	1,657.86	0.00	0.00	0.00
8,500.00	89.76	359.82	7,023.72	1,749.81	-279.92	1,757.82	0.00	0.00	0.00
8,600.00	89.76	359.82	7,024.13	1,849.81	-280.24	1,857.78	0.00	0.00	0.00
8,700.00	89.76	359.82	7,024.54	1,949.81	-280.56	1,957.74	0.00	0.00	0.00
8,800.00	89.76	359.82	7,024.96	2,049.80	-280.88	2,057.70	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,900.00	89.76	359.82	7,025.37	2,149.80	-281.20	2,157.66	0.00	0.00	0.00
9,000.00	89.76	359.82	7,025.78	2,249.80	-281.52	2,257.61	0.00	0.00	0.00
9,100.00	89.76	359.82	7,026.19	2,349.80	-281.84	2,357.57	0.00	0.00	0.00
9,200.00	89.76	359.82	7,026.60	2,449.80	-282.16	2,457.53	0.00	0.00	0.00
9,300.00	89.76	359.82	7,027.02	2,549.80	-282.48	2,557.49	0.00	0.00	0.00
9,400.00	89.76	359.82	7,027.43	2,649.80	-282.80	2,657.45	0.00	0.00	0.00
9,500.00	89.76	359.82	7,027.84	2,749.79	-283.12	2,757.41	0.00	0.00	0.00
9,600.00	89.76	359.82	7,028.25	2,849.79	-283.44	2,857.36	0.00	0.00	0.00
9,700.00	89.76	359.82	7,028.66	2,949.79	-283.76	2,957.32	0.00	0.00	0.00
9,800.00	89.76	359.82	7,029.07	3,049.79	-284.07	3,057.28	0.00	0.00	0.00
9,900.00	89.76	359.82	7,029.49	3,149.79	-284.39	3,157.24	0.00	0.00	0.00
10,000.00	89.76	359.82	7,029.90	3,249.79	-284.71	3,257.20	0.00	0.00	0.00
10,100.00	89.76	359.82	7,030.31	3,349.79	-285.03	3,357.16	0.00	0.00	0.00
10,200.00	89.76	359.82	7,030.72	3,449.79	-285.35	3,457.11	0.00	0.00	0.00
10,300.00	89.76	359.82	7,031.13	3,549.78	-285.67	3,557.07	0.00	0.00	0.00
10,400.00	89.76	359.82	7,031.55	3,649.78	-285.99	3,657.03	0.00	0.00	0.00
10,500.00	89.76	359.82	7,031.96	3,749.78	-286.31	3,756.99	0.00	0.00	0.00
10,600.00	89.76	359.82	7,032.37	3,849.78	-286.63	3,856.95	0.00	0.00	0.00
10,700.00	89.76	359.82	7,032.78	3,949.78	-286.95	3,956.90	0.00	0.00	0.00
10,800.00	89.76	359.82	7,033.19	4,049.78	-287.27	4,056.86	0.00	0.00	0.00
10,900.00	89.76	359.82	7,033.61	4,149.78	-287.59	4,156.82	0.00	0.00	0.00
11,000.00	89.76	359.82	7,034.02	4,249.77	-287.91	4,256.78	0.00	0.00	0.00
11,100.00	89.76	359.82	7,034.43	4,349.77	-288.23	4,356.74	0.00	0.00	0.00
11,200.00	89.76	359.82	7,034.84	4,449.77	-288.55	4,456.70	0.00	0.00	0.00
11,300.00	89.76	359.82	7,035.25	4,549.77	-288.87	4,556.65	0.00	0.00	0.00
11,400.00	89.76	359.82	7,035.66	4,649.77	-289.19	4,656.61	0.00	0.00	0.00
11,500.00	89.76	359.82	7,036.08	4,749.77	-289.50	4,756.57	0.00	0.00	0.00
11,600.00	89.76	359.82	7,036.49	4,849.77	-289.82	4,856.53	0.00	0.00	0.00
11,700.00	89.76	359.82	7,036.90	4,949.76	-290.14	4,956.49	0.00	0.00	0.00
11,800.00	89.76	359.82	7,037.31	5,049.76	-290.46	5,056.45	0.00	0.00	0.00
11,900.00	89.76	359.82	7,037.72	5,149.76	-290.78	5,156.40	0.00	0.00	0.00
12,000.00	89.76	359.82	7,038.14	5,249.76	-291.10	5,256.36	0.00	0.00	0.00
12,100.00	89.76	359.82	7,038.55	5,349.76	-291.42	5,356.32	0.00	0.00	0.00
12,200.00	89.76	359.82	7,038.96	5,449.76	-291.74	5,456.28	0.00	0.00	0.00
12,300.00	89.76	359.82	7,039.37	5,549.76	-292.06	5,556.24	0.00	0.00	0.00
12,400.00	89.76	359.82	7,039.78	5,649.76	-292.38	5,656.19	0.00	0.00	0.00
12,500.00	89.76	359.82	7,040.19	5,749.75	-292.70	5,756.15	0.00	0.00	0.00
12,600.00	89.76	359.82	7,040.61	5,849.75	-293.02	5,856.11	0.00	0.00	0.00
12,700.00	89.76	359.82	7,041.02	5,949.75	-293.34	5,956.07	0.00	0.00	0.00
12,800.00	89.76	359.82	7,041.43	6,049.75	-293.66	6,056.03	0.00	0.00	0.00
12,900.00	89.76	359.82	7,041.84	6,149.75	-293.98	6,155.99	0.00	0.00	0.00
13,000.00	89.76	359.82	7,042.25	6,249.75	-294.30	6,255.94	0.00	0.00	0.00
13,100.00	89.76	359.82	7,042.67	6,349.75	-294.61	6,355.90	0.00	0.00	0.00
13,200.00	89.76	359.82	7,043.08	6,449.74	-294.93	6,455.86	0.00	0.00	0.00
13,300.00	89.76	359.82	7,043.49	6,549.74	-295.25	6,555.82	0.00	0.00	0.00
13,400.00	89.76	359.82	7,043.90	6,649.74	-295.57	6,655.78	0.00	0.00	0.00
13,500.00	89.76	359.82	7,044.31	6,749.74	-295.89	6,755.74	0.00	0.00	0.00
13,600.00	89.76	359.82	7,044.73	6,849.74	-296.21	6,855.69	0.00	0.00	0.00
13,700.00	89.76	359.82	7,045.14	6,949.74	-296.53	6,955.65	0.00	0.00	0.00
13,800.00	89.76	359.82	7,045.55	7,049.74	-296.85	7,055.61	0.00	0.00	0.00
13,900.00	89.76	359.82	7,045.96	7,149.74	-297.17	7,155.57	0.00	0.00	0.00
14,000.00	89.76	359.82	7,046.37	7,249.73	-297.49	7,255.53	0.00	0.00	0.00
14,100.00	89.76	359.82	7,046.78	7,349.73	-297.81	7,355.49	0.00	0.00	0.00
14,200.00	89.76	359.82	7,047.20	7,449.73	-298.13	7,455.44	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
14,300.00	89.76	359.82	7,047.61	7,549.73	-298.45	7,555.40	0.00	0.00	0.00	
14,400.00	89.76	359.82	7,048.02	7,649.73	-298.77	7,655.36	0.00	0.00	0.00	
14,500.00	89.76	359.82	7,048.43	7,749.73	-299.09	7,755.32	0.00	0.00	0.00	
14,600.00	89.76	359.82	7,048.84	7,849.73	-299.41	7,855.28	0.00	0.00	0.00	
14,700.00	89.76	359.82	7,049.26	7,949.72	-299.73	7,955.23	0.00	0.00	0.00	
14,800.00	89.76	359.82	7,049.67	8,049.72	-300.04	8,055.19	0.00	0.00	0.00	
14,900.00	89.76	359.82	7,050.08	8,149.72	-300.36	8,155.15	0.00	0.00	0.00	
15,000.00	89.76	359.82	7,050.49	8,249.72	-300.68	8,255.11	0.00	0.00	0.00	
15,100.00	89.76	359.82	7,050.90	8,349.72	-301.00	8,355.07	0.00	0.00	0.00	
15,200.00	89.76	359.82	7,051.32	8,449.72	-301.32	8,455.03	0.00	0.00	0.00	
15,300.00	89.76	359.82	7,051.73	8,549.72	-301.64	8,554.98	0.00	0.00	0.00	
15,400.00	89.76	359.82	7,052.14	8,649.71	-301.96	8,654.94	0.00	0.00	0.00	
15,500.00	89.76	359.82	7,052.55	8,749.71	-302.28	8,754.90	0.00	0.00	0.00	
15,600.00	89.76	359.82	7,052.96	8,849.71	-302.60	8,854.86	0.00	0.00	0.00	
15,700.00	89.76	359.82	7,053.37	8,949.71	-302.92	8,954.82	0.00	0.00	0.00	
15,800.00	89.76	359.82	7,053.79	9,049.71	-303.24	9,054.78	0.00	0.00	0.00	
15,900.00	89.76	359.82	7,054.20	9,149.71	-303.56	9,154.73	0.00	0.00	0.00	
16,000.00	89.76	359.82	7,054.61	9,249.71	-303.88	9,254.69	0.00	0.00	0.00	
16,100.00	89.76	359.82	7,055.02	9,349.71	-304.20	9,354.65	0.00	0.00	0.00	
16,200.00	89.76	359.82	7,055.43	9,449.70	-304.52	9,454.61	0.00	0.00	0.00	
16,300.00	89.76	359.82	7,055.85	9,549.70	-304.84	9,554.57	0.00	0.00	0.00	
16,337.54	89.76	359.82	7,056.00	9,587.24	-304.96	9,592.09	0.00	0.00	0.00	
WARDELL 4N-20HZ BHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
WARDELL 4N-20HZ BH	0.00	0.00	7,056.00	9,587.24	-304.96	1,322,888.30	3,224,836.43	40.216924	-104.694881	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
900.00	900.00	9 5/8"	9-5/8	12-1/4		
7,469.87	7,019.48	7"	7	8-3/4		

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well WARDELL 4N-20HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 4919.01ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 4919.01ft
<b>Site:</b>	WELD_ WARDELL 2 PAD	<b>North Reference:</b>	True
<b>Well:</b>	WARDELL 4N-20HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	WARDELL 4N-20HZ		
<b>Design:</b>	WARDELL 4N-20HZ (wp01)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,851.64	3,849.00	PARKMAN		0.00		
4,476.37	4,473.00	SUSSEX		0.00		
7,041.87	6,937.00	SHARON SPRINGS		0.00		
7,103.84	6,966.00	NIOBRARA A		0.00		
7,175.67	6,992.00	NIOBRARA B		0.00		