

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_POWERS 13-27HZ PAD**

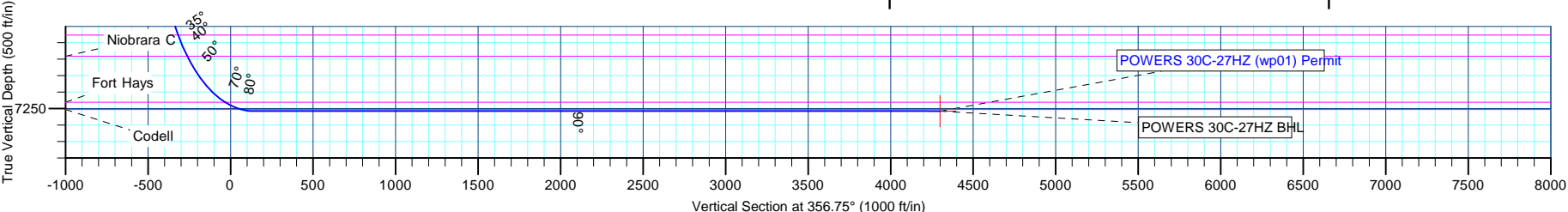
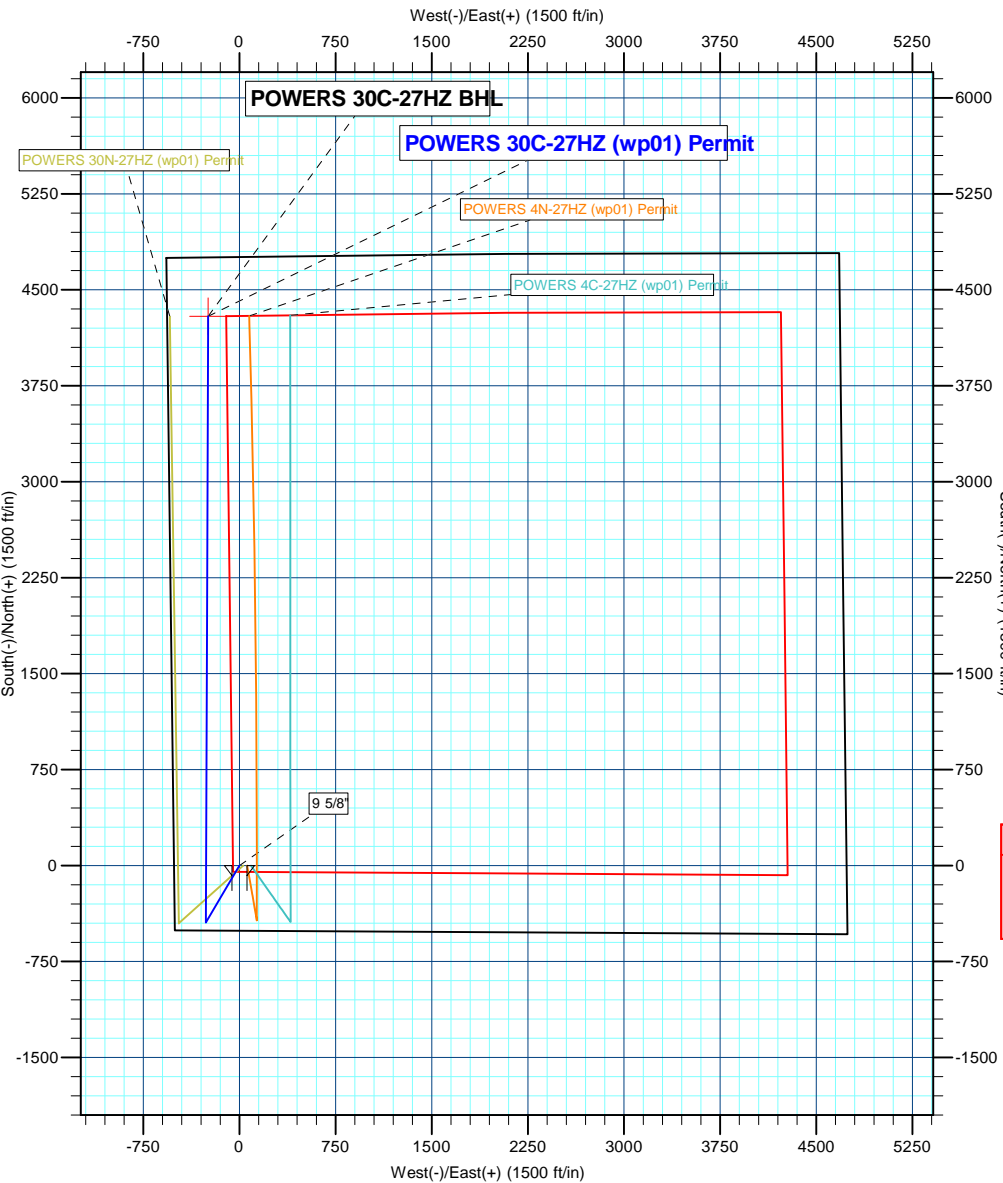
**POWERS 30C-27HZ**

**POWERS 30C-27HZ**

**Plan: POWERS 30C-27HZ (wp01) Permit**

## **Standard Planning Report**

**03 August, 2012**



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Azimuths to True North

Magnetic North: 8.63°

Magnetic Field

Strength: 52866.8snT

Dip Angle: 66.79°

Date: 8/2/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD POWERS 13-27HZ PAD

Well: POWERS 30C-27HZ

Wellbore: POWERS 30C-27HZ

Section:

SHL:

Design: POWERS 30C-27HZ (wp01) Permit

Latitude: 40.103721

Longitude: -104.657452

GL: 4934.00

KB: 17' RKB + 4934' GL @ 4951.00ft

WELL DETAILS: POWERS 30C-27HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4934.00 Latitude	Longitude	Slot
0.00	0.00	1281749.56	3235680.30	40.103721	-104.657452	

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
1767.00	0.00	0.00	1767.00	0.00	0.00	0.00	0.00	0.00
1767.00	0.00	210.40	1767.00	0.00	0.00	1.50	0.00	0.00
2686.54	13.79	210.40	2677.68	-95.01	-55.74	1.50	-149.60	-91.69
4048.12	13.79	210.40	4000.00	-375.00	-220.00	0.00	0.00	-361.93
4737.77	0.00	210.40	4683.01	-446.25	-261.80	2.00	180.00	-430.70
6140.51	0.00	210.40	6085.75	-446.25	-261.80	0.00	210.40	-430.70
6739.80	0.00	360.22	6685.04	-446.25	-261.80	0.00	0.00	-430.70
7639.80	90.00	0.22	7258.00	126.70	-259.60	10.00	0.22	141.21
11805.44	90.00	0.22	7258.00	4292.31	-243.60	0.00	0.00	4299.22

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
POWERS 30C-27HZ BHL	7258.00	4292.31	-243.60	40.115504	-104.658323	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1391.00	1391.00	Fox Hills
5101.00	5155.76	Sussex
6947.00	7011.87	Sharon Springs
6974.00	7042.67	Niobrara A
7027.00	7106.24	Niobrara B
7091.00	7190.96	Niobrara C
7231.00	7463.22	Fort Hays
7253.00	7564.08	Codell

CASING DETAILS			
TVD	MD	Name	Size
1317.00	1317.00	9 5/8"	9-5/8"

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 30C-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Site:</b>	WELD_POWERS 13-27HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	POWERS 30C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 30C-27HZ		
<b>Design:</b>	POWERS 30C-27HZ (wp01) Permit		

<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		

Site		WELD_POWERS 13-27HZ PAD			
Site Position:		Northing:	1,281,749.56 usft	Latitude:	40.103721
From:	Lat/Long	Easting:	3,235,680.31 usft	Longitude:	-104.657452
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	POWERS 30C-27HZ					
Well Position	+N/-S	-0.01 ft	Northing:	1,281,749.55 usft	Latitude:	40.103721
	+E/-W	0.00 ft	Easting:	3,235,680.31 usft	Longitude:	-104.657452
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,934.00 ft

<b>Wellbore</b>	POWERS 30C-27HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	8/2/2012	8.63	66.79	52,867

<b>Design</b>	POWERS 30C-27HZ (wp01) Permit			
<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	356.75

<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	
1,767.00	0.00	0.00	1,767.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,767.00	0.00	210.40	1,767.00	0.00	0.00	1.50	1.50	-10.00	0.00	
2,686.54	13.79	210.40	2,677.68	-95.01	-55.74	1.50	1.50	0.00	-149.60	
4,048.12	13.79	210.40	4,000.00	-375.00	-220.00	0.00	0.00	0.00	0.00	
4,737.77	0.00	210.40	4,683.01	-446.25	-261.80	2.00	-2.00	0.00	180.00	
6,140.51	0.00	210.40	6,085.75	-446.25	-261.80	0.00	0.00	0.00	210.40	
6,739.80	0.00	360.22	6,685.04	-446.25	-261.80	0.00	0.00	25.00	0.00	
7,639.80	90.00	0.22	7,258.00	126.70	-259.60	10.00	10.00	0.00	0.22	
11,805.44	90.00	0.22	7,258.00	4,292.31	-243.60	0.00	0.00	0.00	0.00	POWERS 30C-27HZ

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 30C-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Site:</b>	WELD_POWERS 13-27HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	POWERS 30C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 30C-27HZ		
<b>Design:</b>	POWERS 30C-27HZ (wp01) Permit		

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
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
1,317.00	0.00	0.00	1,317.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
1,391.00	0.00	0.00	1,391.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>									
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	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,767.00	0.00	0.00	1,767.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 1.50</b>									
1,800.00	0.49	210.40	1,800.00	-0.12	-0.07	-0.12	1.50	1.50	0.00
1,900.00	1.99	210.40	1,899.97	-2.00	-1.17	-1.93	1.50	1.50	0.00
2,000.00	3.49	210.40	1,999.85	-6.13	-3.59	-5.91	1.50	1.50	0.00
2,100.00	4.99	210.40	2,099.58	-12.51	-7.34	-12.08	1.50	1.50	0.00
2,200.00	6.49	210.40	2,199.07	-21.15	-12.41	-20.41	1.50	1.50	0.00
2,300.00	7.99	210.40	2,298.27	-32.02	-18.79	-30.91	1.50	1.50	0.00
2,400.00	9.49	210.40	2,397.11	-45.14	-26.48	-43.56	1.50	1.50	0.00
2,500.00	10.99	210.40	2,495.51	-60.48	-35.48	-58.37	1.50	1.50	0.00
2,600.00	12.49	210.40	2,593.41	-78.03	-45.78	-75.31	1.50	1.50	0.00
2,686.54	13.79	210.40	2,677.68	-95.01	-55.74	-91.69	1.50	1.50	0.00
<b>Start 1361.58 hold at 2686.54 MD</b>									
2,700.00	13.79	210.40	2,690.76	-97.77	-57.36	-94.37	0.00	0.00	0.00
2,800.00	13.79	210.40	2,787.87	-118.34	-69.42	-114.21	0.00	0.00	0.00
2,900.00	13.79	210.40	2,884.99	-138.90	-81.49	-134.06	0.00	0.00	0.00
3,000.00	13.79	210.40	2,982.10	-159.47	-93.55	-153.91	0.00	0.00	0.00
3,100.00	13.79	210.40	3,079.22	-180.03	-105.62	-173.76	0.00	0.00	0.00
3,200.00	13.79	210.40	3,176.34	-200.59	-117.68	-193.60	0.00	0.00	0.00
3,300.00	13.79	210.40	3,273.45	-221.16	-129.75	-213.45	0.00	0.00	0.00
3,400.00	13.79	210.40	3,370.57	-241.72	-141.81	-233.30	0.00	0.00	0.00
3,500.00	13.79	210.40	3,467.69	-262.29	-153.87	-253.15	0.00	0.00	0.00
3,600.00	13.79	210.40	3,564.80	-282.85	-165.94	-272.99	0.00	0.00	0.00
3,700.00	13.79	210.40	3,661.92	-303.41	-178.00	-292.84	0.00	0.00	0.00
3,800.00	13.79	210.40	3,759.04	-323.98	-190.07	-312.69	0.00	0.00	0.00
3,900.00	13.79	210.40	3,856.15	-344.54	-202.13	-332.53	0.00	0.00	0.00
4,000.00	13.79	210.40	3,953.27	-365.10	-214.19	-352.38	0.00	0.00	0.00
4,048.12	13.79	210.40	4,000.00	-375.00	-220.00	-361.93	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,100.00	12.76	210.40	4,050.49	-385.27	-226.03	-371.85	2.00	-2.00	0.00
4,200.00	10.76	210.40	4,148.39	-402.85	-236.34	-388.81	2.00	-2.00	0.00
4,300.00	8.76	210.40	4,246.94	-417.46	-244.91	-402.91	2.00	-2.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 30C-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Site:</b>	WELD_POWERS 13-27HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	POWERS 30C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 30C-27HZ		
<b>Design:</b>	POWERS 30C-27HZ (wp01) Permit		

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)
4,400.00	6.76	210.40	4,346.02	-429.10	-251.74	-414.15	2.00	-2.00	0.00
4,500.00	4.76	210.40	4,445.51	-437.75	-256.81	-422.49	2.00	-2.00	0.00
4,600.00	2.76	210.40	4,545.29	-443.40	-260.13	-427.95	2.00	-2.00	0.00
4,700.00	0.76	210.40	4,645.24	-446.04	-261.68	-430.50	2.00	-2.00	0.00
4,737.77	0.00	210.40	4,683.01	-446.25	-261.80	-430.70	2.00	-2.00	0.00
<b>Start 1402.74 hold at 4737.77 MD</b>									
4,800.00	0.00	210.40	4,745.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
4,900.00	0.00	210.40	4,845.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,000.00	0.00	210.40	4,945.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,100.00	0.00	210.40	5,045.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,155.76	0.00	210.40	5,101.00	-446.25	-261.80	-430.70	0.00	0.00	0.00
<b>Sussex</b>									
5,200.00	0.00	210.40	5,145.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,300.00	0.00	210.40	5,245.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,400.00	0.00	210.40	5,345.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,500.00	0.00	210.40	5,445.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,600.00	0.00	210.40	5,545.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,700.00	0.00	210.40	5,645.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,800.00	0.00	210.40	5,745.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
5,900.00	0.00	210.40	5,845.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,000.00	0.00	210.40	5,945.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,100.00	0.00	210.40	6,045.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,140.51	0.00	210.40	6,085.75	-446.25	-261.80	-430.70	0.00	0.00	0.00
<b>Start 599.29 hold at 6140.51 MD</b>									
6,200.00	0.00	360.22	6,145.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,300.00	0.00	360.22	6,245.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,400.00	0.00	360.22	6,345.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,500.00	0.00	360.22	6,445.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,600.00	0.00	360.22	6,545.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,700.00	0.00	360.22	6,645.24	-446.25	-261.80	-430.70	0.00	0.00	0.00
6,739.80	0.00	360.22	6,685.04	-446.25	-261.80	-430.70	0.00	0.00	0.00
<b>Start Build 10.00</b>									
6,750.00	1.02	0.22	6,695.24	-446.16	-261.80	-430.61	10.00	10.00	0.00
6,800.00	6.02	0.22	6,745.13	-443.09	-261.79	-427.55	10.00	10.00	0.00
6,850.00	11.02	0.22	6,794.56	-435.69	-261.76	-420.16	10.00	10.00	0.00
6,900.00	16.02	0.22	6,843.16	-424.00	-261.72	-408.49	10.00	10.00	0.00
6,950.00	21.02	0.22	6,890.56	-408.13	-261.66	-392.64	10.00	10.00	0.00
7,000.00	26.02	0.22	6,936.39	-388.18	-261.58	-372.73	10.00	10.00	0.00
7,011.87	27.21	0.22	6,947.00	-382.86	-261.56	-367.43	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,042.67	30.29	0.22	6,974.00	-368.05	-261.50	-352.64	10.00	10.00	0.00
<b>Niobrara A</b>									
7,050.00	31.02	0.22	6,980.31	-364.31	-261.49	-348.91	10.00	10.00	0.00
7,100.00	36.02	0.22	7,021.98	-336.71	-261.38	-321.36	10.00	10.00	0.00
7,106.24	36.64	0.22	7,027.00	-333.02	-261.37	-317.67	10.00	10.00	0.00
<b>Niobrara B</b>									
7,150.00	41.02	0.22	7,061.08	-305.58	-261.26	-290.29	10.00	10.00	0.00
7,190.96	45.12	0.22	7,091.00	-277.62	-261.15	-262.37	10.00	10.00	0.00
<b>Niobrara C</b>									
7,200.00	46.02	0.22	7,097.33	-271.16	-261.13	-255.93	10.00	10.00	0.00
7,250.00	51.02	0.22	7,130.44	-233.72	-260.99	-218.55	10.00	10.00	0.00
7,300.00	56.02	0.22	7,160.15	-193.52	-260.83	-178.43	10.00	10.00	0.00
7,350.00	61.02	0.22	7,186.26	-150.90	-260.67	-135.89	10.00	10.00	0.00

# Anadarko Petroleum Corp

## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Site:</b>	WELD_POWERS 13-27HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	POWERS 30C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 30C-27HZ		
<b>Design:</b>	POWERS 30C-27HZ (wp01) Permit		

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)
7,400.00	66.02	0.22	7,208.54	-106.16	-260.50	-91.23	10.00	10.00	0.00
7,450.00	71.02	0.22	7,226.85	-59.65	-260.32	-44.80	10.00	10.00	0.00
7,463.22	72.34	0.22	7,231.00	-47.10	-260.27	-32.27	10.00	10.00	0.00
<b>Fort Hays</b>									
7,500.00	76.02	0.22	7,241.02	-11.71	-260.13	3.04	10.00	10.00	0.00
7,550.00	81.02	0.22	7,250.97	37.27	-259.95	51.94	10.00	10.00	0.00
7,564.09	82.43	0.22	7,253.00	51.21	-259.89	65.85	10.00	10.00	0.00
<b>Codell</b>									
7,600.00	86.02	0.22	7,256.61	86.93	-259.76	101.51	10.00	10.00	0.00
7,639.80	90.00	0.22	7,258.00	126.70	-259.60	141.21	10.00	10.00	0.00
<b>Start 4165.64 hold at 7639.80 MD</b>									
7,700.00	90.00	0.22	7,258.00	186.90	-259.37	201.30	0.00	0.00	0.00
7,800.00	90.00	0.22	7,258.00	286.90	-258.99	301.11	0.00	0.00	0.00
7,900.00	90.00	0.22	7,258.00	386.90	-258.60	400.93	0.00	0.00	0.00
8,000.00	90.00	0.22	7,258.00	486.90	-258.22	500.75	0.00	0.00	0.00
8,100.00	90.00	0.22	7,258.00	586.90	-257.84	600.56	0.00	0.00	0.00
8,200.00	90.00	0.22	7,258.00	686.90	-257.45	700.38	0.00	0.00	0.00
8,300.00	90.00	0.22	7,258.00	786.90	-257.07	800.20	0.00	0.00	0.00
8,400.00	90.00	0.22	7,258.00	886.90	-256.68	900.01	0.00	0.00	0.00
8,500.00	90.00	0.22	7,258.00	986.89	-256.30	999.83	0.00	0.00	0.00
8,600.00	90.00	0.22	7,258.00	1,086.89	-255.92	1,099.65	0.00	0.00	0.00
8,700.00	90.00	0.22	7,258.00	1,186.89	-255.53	1,199.47	0.00	0.00	0.00
8,800.00	90.00	0.22	7,258.00	1,286.89	-255.15	1,299.28	0.00	0.00	0.00
8,900.00	90.00	0.22	7,258.00	1,386.89	-254.76	1,399.10	0.00	0.00	0.00
9,000.00	90.00	0.22	7,258.00	1,486.89	-254.38	1,498.92	0.00	0.00	0.00
9,100.00	90.00	0.22	7,258.00	1,586.89	-254.00	1,598.73	0.00	0.00	0.00
9,200.00	90.00	0.22	7,258.00	1,686.89	-253.61	1,698.55	0.00	0.00	0.00
9,300.00	90.00	0.22	7,258.00	1,786.89	-253.23	1,798.37	0.00	0.00	0.00
9,400.00	90.00	0.22	7,258.00	1,886.89	-252.84	1,898.18	0.00	0.00	0.00
9,500.00	90.00	0.22	7,258.00	1,986.89	-252.46	1,998.00	0.00	0.00	0.00
9,600.00	90.00	0.22	7,258.00	2,086.89	-252.08	2,097.82	0.00	0.00	0.00
9,700.00	90.00	0.22	7,258.00	2,186.89	-251.69	2,197.63	0.00	0.00	0.00
9,800.00	90.00	0.22	7,258.00	2,286.89	-251.31	2,297.45	0.00	0.00	0.00
9,900.00	90.00	0.22	7,258.00	2,386.88	-250.92	2,397.27	0.00	0.00	0.00
10,000.00	90.00	0.22	7,258.00	2,486.88	-250.54	2,497.08	0.00	0.00	0.00
10,100.00	90.00	0.22	7,258.00	2,586.88	-250.16	2,596.90	0.00	0.00	0.00
10,200.00	90.00	0.22	7,258.00	2,686.88	-249.77	2,696.72	0.00	0.00	0.00
10,300.00	90.00	0.22	7,258.00	2,786.88	-249.39	2,796.53	0.00	0.00	0.00
10,400.00	90.00	0.22	7,258.00	2,886.88	-249.00	2,896.35	0.00	0.00	0.00
10,500.00	90.00	0.22	7,258.00	2,986.88	-248.62	2,996.17	0.00	0.00	0.00
10,600.00	90.00	0.22	7,258.00	3,086.88	-248.24	3,095.99	0.00	0.00	0.00
10,700.00	90.00	0.22	7,258.00	3,186.88	-247.85	3,195.80	0.00	0.00	0.00
10,800.00	90.00	0.22	7,258.00	3,286.88	-247.47	3,295.62	0.00	0.00	0.00
10,900.00	90.00	0.22	7,258.00	3,386.88	-247.08	3,395.44	0.00	0.00	0.00
11,000.00	90.00	0.22	7,258.00	3,486.88	-246.70	3,495.25	0.00	0.00	0.00
11,100.00	90.00	0.22	7,258.00	3,586.88	-246.32	3,595.07	0.00	0.00	0.00
11,200.00	90.00	0.22	7,258.00	3,686.87	-245.93	3,694.89	0.00	0.00	0.00
11,300.00	90.00	0.22	7,258.00	3,786.87	-245.55	3,794.70	0.00	0.00	0.00
11,400.00	90.00	0.22	7,258.00	3,886.87	-245.16	3,894.52	0.00	0.00	0.00
11,500.00	90.00	0.22	7,258.00	3,986.87	-244.78	3,994.34	0.00	0.00	0.00
11,600.00	90.00	0.22	7,258.00	4,086.87	-244.40	4,094.15	0.00	0.00	0.00
11,700.00	90.00	0.22	7,258.00	4,186.87	-244.01	4,193.97	0.00	0.00	0.00
11,805.44	90.00	0.22	7,258.00	4,292.31	-243.60	4,299.22	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 30C-27HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 4934' GL @ 4951.00ft
<b>Site:</b>	WELD_POWERS 13-27HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	POWERS 30C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 30C-27HZ		
<b>Design:</b>	POWERS 30C-27HZ (wp01) Permit		

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)
TD at 11805.44 - POWERS 30C-27HZ 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									
POWERS 30C-27HZ BHL	0.00	0.00	7,258.00	4,292.31	-243.60	1,286,039.35	3,235,395.93	40.115504	-104.658323
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,317.00	1,317.00	9 5/8"	9-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,391.00	1,391.00	Fox Hills				
5,155.76	5,101.00	Sussex				
7,011.87	6,947.00	Sharon Springs				
7,042.67	6,974.00	Niobrara A				
7,106.24	7,027.00	Niobrara B				
7,190.96	7,091.00	Niobrara C				
7,463.22	7,231.00	Fort Hays				
7,564.09	7,253.00	Codell				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,767.00	1,767.00	0.00	0.00	Start Build 1.50
2,686.54	2,677.68	-95.01	-55.74	Start 1361.58 hold at 2686.54 MD
4,048.12	4,000.00	-375.00	-220.00	Start Drop -2.00
4,737.77	4,683.01	-446.25	-261.80	Start 1402.74 hold at 4737.77 MD
6,140.51	6,085.75	-446.25	-261.80	Start 599.29 hold at 6140.51 MD
6,739.80	6,685.04	-446.25	-261.80	Start Build 10.00
7,639.80	7,258.00	126.70	-259.60	Start 4165.64 hold at 7639.80 MD
11,805.44	7,258.00	4,292.31	-243.60	TD at 11805.44