

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

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

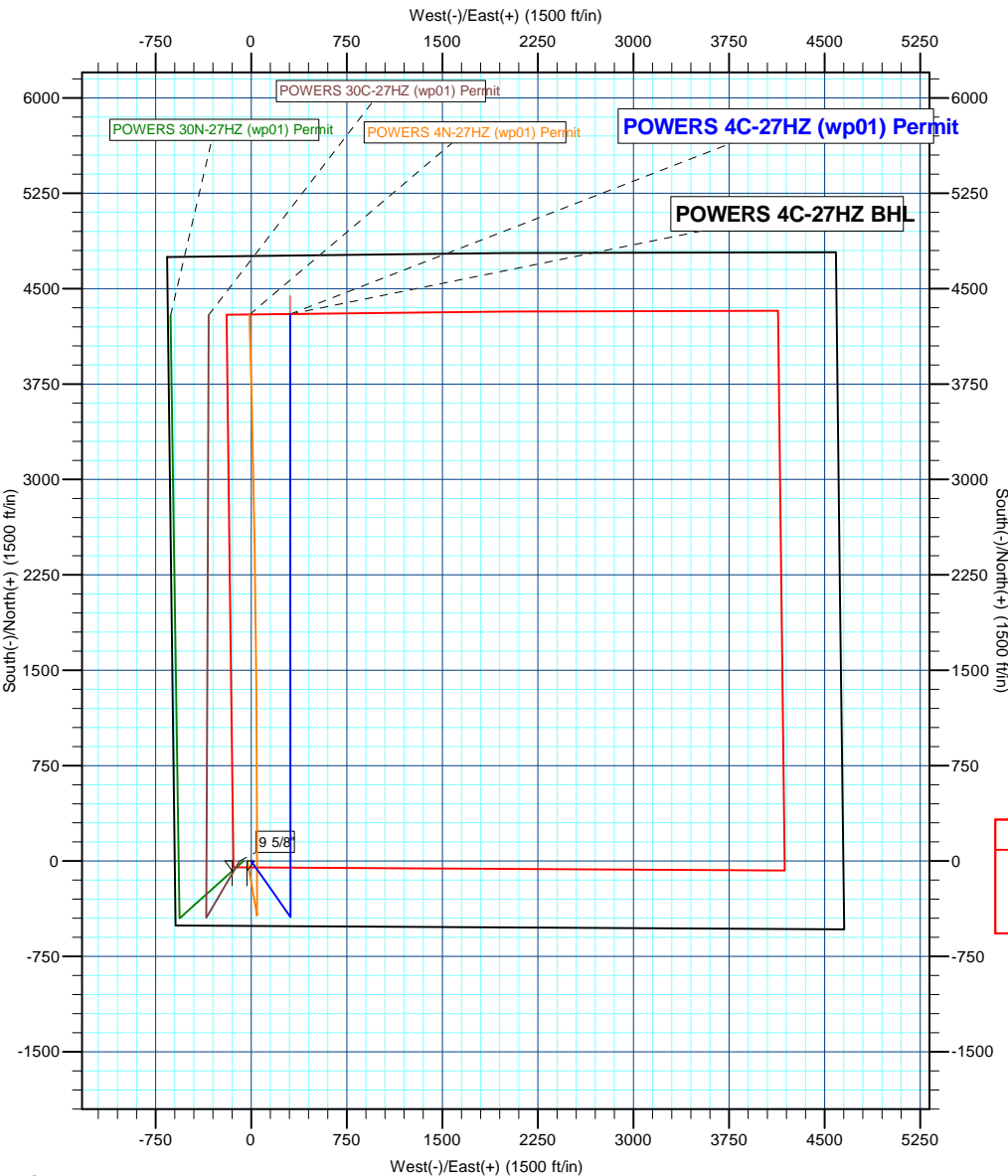
**POWERS 4C-27HZ**

**POWERS 4C-27HZ**

**Plan: POWERS 4C-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 4C-27HZ

Wellbore: POWERS 4C-27HZ

Section:

SHL:

Design: POWERS 4C-27HZ (wp01) Permit

Latitude: 40.103719

Longitude: -104.657131

GL: 4934.00

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

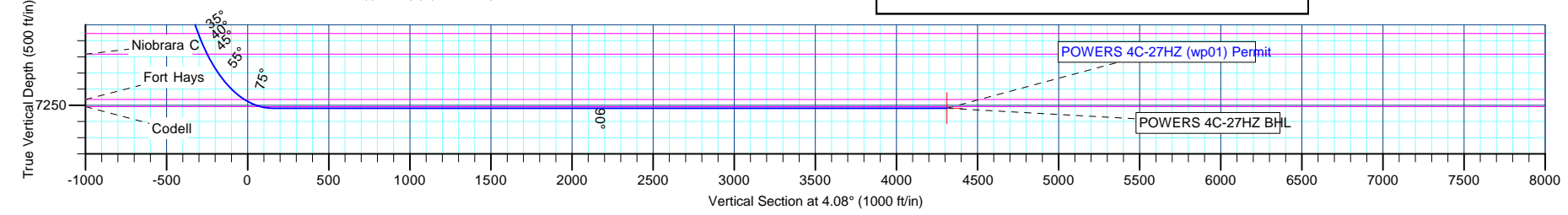
WELL DETAILS: POWERS 4C-27HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4934.00 Latitude	Longitude	Slot
0.00	0.00	1281749.68	3235770.10	40.103719	-104.657131	

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
1467.00	0.00	0.00	1467.00	0.00	0.00	0.00	0.00	0.00
2217.00	15.00	145.00	2208.46	-79.96	55.99	2.00	145.00	-75.78
3417.00	15.00	145.00	3367.57	-334.38	234.13	0.00	0.00	-316.88
4417.00	0.00	0.00	4356.19	-440.99	308.79	1.50	180.00	-417.92
6517.00	0.00	0.00	6456.19	-440.99	308.79	0.00	145.00	-417.92
6746.85	0.00	0.00	6686.04	-440.99	308.79	0.00	0.00	-417.92
7646.85	90.00	359.97	7259.00	131.97	308.51	10.00	359.97	153.57
11815.21	90.00	359.97	7259.00	4300.33	306.53	0.00	0.00	4311.24

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
POWERS 4C-27HZ BHL	7259.00	4300.33	306.53	40.115524	-104.656035	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1392.00	1392.00	Fox Hills
5102.00	5162.81	Sussex
6948.00	7018.92	Sharon Springs
6975.00	7049.72	Niobrara A
7028.00	7113.28	Niobrara B
7092.00	7198.01	Niobrara C
7232.00	7470.26	Fort Hays
7254.00	7571.10	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 4C-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 4C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 4C-27HZ		
<b>Design:</b>	POWERS 4C-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 4C-27HZ					
Well Position	+N/-S	-0.74 ft	Northing:	1,281,749.68 usft	Latitude:	40.103719
	+E/-W	89.79 ft	Easting:	3,235,770.10 usft	Longitude:	-104.657131
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,934.00 ft

<b>Wellbore</b>	POWERS 4C-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 4C-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	4.08

<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	
1,467.00	0.00	0.00	1,467.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,217.00	15.00	145.00	2,208.46	-79.96	55.99	2.00	2.00	0.00	145.00	
3,417.00	15.00	145.00	3,367.57	-334.38	234.13	0.00	0.00	0.00	0.00	
4,417.00	0.00	0.00	4,356.19	-440.99	308.79	1.50	-1.50	0.00	180.00	
6,517.00	0.00	0.00	6,456.19	-440.99	308.79	0.00	0.00	0.00	145.00	
6,746.85	0.00	0.00	6,686.04	-440.99	308.79	0.00	0.00	0.00	0.00	
7,646.85	90.00	359.97	7,259.00	131.97	308.51	10.00	10.00	0.00	359.97	
11,815.21	90.00	359.97	7,259.00	4,300.33	306.53	0.00	0.00	0.00	0.00	POWERS 4C-27HZ B

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 4C-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 4C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 4C-27HZ		
<b>Design:</b>	POWERS 4C-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
9 5/8"									
1,392.00	0.00	0.00	1,392.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,467.00	0.00	0.00	1,467.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,500.00	0.66	145.00	1,500.00	-0.16	0.11	-0.15	2.00	2.00	0.00
1,600.00	2.66	145.00	1,599.95	-2.53	1.77	-2.40	2.00	2.00	0.00
1,700.00	4.66	145.00	1,699.74	-7.76	5.43	-7.35	2.00	2.00	0.00
1,800.00	6.66	145.00	1,799.25	-15.84	11.09	-15.01	2.00	2.00	0.00
1,900.00	8.66	145.00	1,898.35	-26.75	18.73	-25.35	2.00	2.00	0.00
2,000.00	10.66	145.00	1,996.93	-40.50	28.36	-38.38	2.00	2.00	0.00
2,100.00	12.66	145.00	2,094.86	-57.05	39.95	-54.07	2.00	2.00	0.00
2,200.00	14.66	145.00	2,192.03	-76.40	53.49	-72.40	2.00	2.00	0.00
2,217.00	15.00	145.00	2,208.46	-79.96	55.99	-75.78	2.00	2.00	0.00
Start 1200.00 hold at 2217.00 MD									
2,300.00	15.00	145.00	2,288.63	-97.56	68.31	-92.45	0.00	0.00	0.00
2,400.00	15.00	145.00	2,385.23	-118.76	83.16	-112.55	0.00	0.00	0.00
2,500.00	15.00	145.00	2,481.82	-139.96	98.00	-132.64	0.00	0.00	0.00
2,600.00	15.00	145.00	2,578.41	-161.16	112.85	-152.73	0.00	0.00	0.00
2,700.00	15.00	145.00	2,675.00	-182.36	127.69	-172.82	0.00	0.00	0.00
2,800.00	15.00	145.00	2,771.60	-203.56	142.54	-192.92	0.00	0.00	0.00
2,900.00	15.00	145.00	2,868.19	-224.77	157.38	-213.01	0.00	0.00	0.00
3,000.00	15.00	145.00	2,964.78	-245.97	172.23	-233.10	0.00	0.00	0.00
3,100.00	15.00	145.00	3,061.37	-267.17	187.07	-253.19	0.00	0.00	0.00
3,200.00	15.00	145.00	3,157.97	-288.37	201.92	-273.28	0.00	0.00	0.00
3,300.00	15.00	145.00	3,254.56	-309.57	216.76	-293.38	0.00	0.00	0.00
3,400.00	15.00	145.00	3,351.15	-330.77	231.61	-313.47	0.00	0.00	0.00
3,417.00	15.00	145.00	3,367.57	-334.38	234.13	-316.88	0.00	0.00	0.00
Start Drop -1.50									
3,500.00	13.76	145.00	3,447.97	-351.26	245.95	-332.88	1.50	-1.50	0.00
3,600.00	12.26	145.00	3,545.40	-369.69	258.86	-350.35	1.50	-1.50	0.00
3,700.00	10.76	145.00	3,643.39	-386.03	270.30	-365.83	1.50	-1.50	0.00
3,800.00	9.26	145.00	3,741.87	-400.26	280.27	-379.32	1.50	-1.50	0.00
3,900.00	7.76	145.00	3,840.77	-412.38	288.75	-390.80	1.50	-1.50	0.00
4,000.00	6.26	145.00	3,940.02	-422.37	295.74	-400.27	1.50	-1.50	0.00
4,100.00	4.76	145.00	4,039.55	-430.22	301.25	-407.72	1.50	-1.50	0.00
4,200.00	3.26	145.00	4,139.31	-435.94	305.25	-413.14	1.50	-1.50	0.00
4,300.00	1.76	145.00	4,239.21	-439.52	307.76	-416.53	1.50	-1.50	0.00

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## 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 4C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 4C-27HZ		
<b>Design:</b>	POWERS 4C-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	0.26	145.00	4,339.19	-440.96	308.76	-417.89	1.50	-1.50	0.00
4,417.00	0.00	0.00	4,356.19	-440.99	308.79	-417.92	1.50	-1.50	-852.77
<b>Start 2100.00 hold at 4417.00 MD</b>									
4,500.00	0.00	0.00	4,439.19	-440.99	308.79	-417.92	0.00	0.00	0.00
4,600.00	0.00	0.00	4,539.19	-440.99	308.79	-417.92	0.00	0.00	0.00
4,700.00	0.00	0.00	4,639.19	-440.99	308.79	-417.92	0.00	0.00	0.00
4,800.00	0.00	0.00	4,739.19	-440.99	308.79	-417.92	0.00	0.00	0.00
4,900.00	0.00	0.00	4,839.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,000.00	0.00	0.00	4,939.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,100.00	0.00	0.00	5,039.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,162.81	0.00	0.00	5,102.00	-440.99	308.79	-417.92	0.00	0.00	0.00
<b>Sussex</b>									
5,200.00	0.00	0.00	5,139.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,300.00	0.00	0.00	5,239.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,400.00	0.00	0.00	5,339.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,500.00	0.00	0.00	5,439.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,600.00	0.00	0.00	5,539.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,700.00	0.00	0.00	5,639.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,800.00	0.00	0.00	5,739.19	-440.99	308.79	-417.92	0.00	0.00	0.00
5,900.00	0.00	0.00	5,839.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,000.00	0.00	0.00	5,939.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,100.00	0.00	0.00	6,039.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,200.00	0.00	0.00	6,139.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,300.00	0.00	0.00	6,239.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,400.00	0.00	0.00	6,339.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,500.00	0.00	0.00	6,439.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,517.00	0.00	0.00	6,456.19	-440.99	308.79	-417.92	0.00	0.00	0.00
<b>Start 229.85 hold at 6517.00 MD</b>									
6,600.00	0.00	0.00	6,539.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,700.00	0.00	0.00	6,639.19	-440.99	308.79	-417.92	0.00	0.00	0.00
6,746.85	0.00	0.00	6,686.04	-440.99	308.79	-417.92	0.00	0.00	0.00
<b>Start Build 10.00</b>									
6,750.00	0.31	359.97	6,689.19	-440.98	308.79	-417.91	10.00	10.00	-0.87
6,800.00	5.31	359.97	6,739.11	-438.53	308.79	-415.46	10.00	10.00	0.00
6,850.00	10.31	359.97	6,788.63	-431.73	308.78	-408.69	10.00	10.00	0.00
6,900.00	15.31	359.97	6,837.37	-420.65	308.78	-397.63	10.00	10.00	0.00
6,950.00	20.31	359.97	6,884.96	-405.35	308.77	-382.37	10.00	10.00	0.00
7,000.00	25.31	359.97	6,931.03	-385.97	308.76	-363.04	10.00	10.00	0.00
7,018.92	27.21	359.97	6,948.00	-377.60	308.76	-354.69	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,049.72	30.29	359.97	6,975.00	-362.79	308.75	-339.92	10.00	10.00	0.00
<b>Niobrara A</b>									
7,050.00	30.31	359.97	6,975.24	-362.65	308.75	-339.78	10.00	10.00	0.00
7,100.00	35.31	359.97	7,017.25	-335.56	308.74	-312.76	10.00	10.00	0.00
7,113.28	36.64	359.97	7,028.00	-327.76	308.73	-304.98	10.00	10.00	0.00
<b>Niobrara B</b>									
7,150.00	40.31	359.97	7,056.74	-304.92	308.72	-282.19	10.00	10.00	0.00
7,198.01	45.12	359.97	7,092.00	-272.36	308.71	-249.72	10.00	10.00	0.00
<b>Niobrara C</b>									
7,200.00	45.31	359.97	7,093.40	-270.95	308.71	-248.31	10.00	10.00	0.00
7,250.00	50.31	359.97	7,126.97	-233.91	308.69	-211.37	10.00	10.00	0.00
7,300.00	55.31	359.97	7,157.18	-194.09	308.67	-171.65	10.00	10.00	0.00
7,350.00	60.31	359.97	7,183.80	-151.78	308.65	-129.45	10.00	10.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 4C-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 4C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 4C-27HZ		
<b>Design:</b>	POWERS 4C-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	65.31	359.97	7,206.64	-107.32	308.63	-85.11	10.00	10.00	0.00
7,450.00	70.31	359.97	7,225.51	-61.04	308.61	-38.94	10.00	10.00	0.00
7,470.26	72.34	359.97	7,232.00	-41.85	308.60	-19.80	10.00	10.00	0.00
<b>Fort Hays</b>									
7,500.00	75.31	359.97	7,240.28	-13.28	308.58	8.69	10.00	10.00	0.00
7,550.00	80.31	359.97	7,250.83	35.57	308.56	57.42	10.00	10.00	0.00
7,571.10	82.43	359.97	7,254.00	56.44	308.55	78.23	10.00	10.00	0.00
<b>Codell</b>									
7,600.00	85.31	359.97	7,257.09	85.16	308.54	106.89	10.00	10.00	0.00
7,646.85	90.00	359.97	7,259.00	131.97	308.51	153.57	10.00	10.00	0.00
<b>Start 4168.36 hold at 7646.85 MD</b>									
7,700.00	90.00	359.97	7,259.00	185.11	308.49	206.58	0.00	0.00	0.00
7,800.00	90.00	359.97	7,259.00	285.11	308.44	306.32	0.00	0.00	0.00
7,900.00	90.00	359.97	7,259.00	385.11	308.39	406.06	0.00	0.00	0.00
8,000.00	90.00	359.97	7,259.00	485.11	308.35	505.81	0.00	0.00	0.00
8,100.00	90.00	359.97	7,259.00	585.11	308.30	605.55	0.00	0.00	0.00
8,200.00	90.00	359.97	7,259.00	685.11	308.25	705.30	0.00	0.00	0.00
8,300.00	90.00	359.97	7,259.00	785.11	308.20	805.04	0.00	0.00	0.00
8,400.00	90.00	359.97	7,259.00	885.11	308.15	904.78	0.00	0.00	0.00
8,500.00	90.00	359.97	7,259.00	985.11	308.11	1,004.53	0.00	0.00	0.00
8,600.00	90.00	359.97	7,259.00	1,085.11	308.06	1,104.27	0.00	0.00	0.00
8,700.00	90.00	359.97	7,259.00	1,185.11	308.01	1,204.01	0.00	0.00	0.00
8,800.00	90.00	359.97	7,259.00	1,285.11	307.96	1,303.76	0.00	0.00	0.00
8,900.00	90.00	359.97	7,259.00	1,385.11	307.92	1,403.50	0.00	0.00	0.00
9,000.00	90.00	359.97	7,259.00	1,485.11	307.87	1,503.24	0.00	0.00	0.00
9,100.00	90.00	359.97	7,259.00	1,585.11	307.82	1,602.99	0.00	0.00	0.00
9,200.00	90.00	359.97	7,259.00	1,685.11	307.77	1,702.73	0.00	0.00	0.00
9,300.00	90.00	359.97	7,259.00	1,785.11	307.73	1,802.47	0.00	0.00	0.00
9,400.00	90.00	359.97	7,259.00	1,885.11	307.68	1,902.22	0.00	0.00	0.00
9,500.00	90.00	359.97	7,259.00	1,985.11	307.63	2,001.96	0.00	0.00	0.00
9,600.00	90.00	359.97	7,259.00	2,085.11	307.58	2,101.70	0.00	0.00	0.00
9,700.00	90.00	359.97	7,259.00	2,185.11	307.54	2,201.45	0.00	0.00	0.00
9,800.00	90.00	359.97	7,259.00	2,285.11	307.49	2,301.19	0.00	0.00	0.00
9,900.00	90.00	359.97	7,259.00	2,385.11	307.44	2,400.93	0.00	0.00	0.00
10,000.00	90.00	359.97	7,259.00	2,485.11	307.39	2,500.68	0.00	0.00	0.00
10,100.00	90.00	359.97	7,259.00	2,585.11	307.35	2,600.42	0.00	0.00	0.00
10,200.00	90.00	359.97	7,259.00	2,685.11	307.30	2,700.17	0.00	0.00	0.00
10,300.00	90.00	359.97	7,259.00	2,785.11	307.25	2,799.91	0.00	0.00	0.00
10,400.00	90.00	359.97	7,259.00	2,885.11	307.20	2,899.65	0.00	0.00	0.00
10,500.00	90.00	359.97	7,259.00	2,985.11	307.16	2,999.40	0.00	0.00	0.00
10,600.00	90.00	359.97	7,259.00	3,085.11	307.11	3,099.14	0.00	0.00	0.00
10,700.00	90.00	359.97	7,259.00	3,185.11	307.06	3,198.88	0.00	0.00	0.00
10,800.00	90.00	359.97	7,259.00	3,285.11	307.01	3,298.63	0.00	0.00	0.00
10,900.00	90.00	359.97	7,259.00	3,385.11	306.96	3,398.37	0.00	0.00	0.00
11,000.00	90.00	359.97	7,259.00	3,485.11	306.92	3,498.11	0.00	0.00	0.00
11,100.00	90.00	359.97	7,259.00	3,585.11	306.87	3,597.86	0.00	0.00	0.00
11,200.00	90.00	359.97	7,259.00	3,685.11	306.82	3,697.60	0.00	0.00	0.00
11,300.00	90.00	359.97	7,259.00	3,785.11	306.77	3,797.34	0.00	0.00	0.00
11,400.00	90.00	359.97	7,259.00	3,885.11	306.73	3,897.09	0.00	0.00	0.00
11,500.00	90.00	359.97	7,259.00	3,985.11	306.68	3,996.83	0.00	0.00	0.00
11,600.00	90.00	359.97	7,259.00	4,085.11	306.63	4,096.57	0.00	0.00	0.00
11,700.00	90.00	359.97	7,259.00	4,185.11	306.58	4,196.32	0.00	0.00	0.00
11,800.00	90.00	359.97	7,259.00	4,285.11	306.54	4,296.06	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well POWERS 4C-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 4C-27HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	POWERS 4C-27HZ		
<b>Design:</b>	POWERS 4C-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)
11,815.21	90.00	359.97	7,259.00	4,300.33	306.53	4,311.24	0.00	0.00	0.00
TD at 11815.21 - POWERS 4C-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 4C-27HZ BHL	0.00	0.00	7,259.00	4,300.33	306.53	1,286,052.72	3,236,035.74	40.115524	-104.656035
- 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 (°)	
1,392.00	1,392.00	Fox Hills				
5,162.81	5,102.00	Sussex				
7,018.92	6,948.00	Sharon Springs				
7,049.72	6,975.00	Niobrara A				
7,113.28	7,028.00	Niobrara B				
7,198.01	7,092.00	Niobrara C				
7,470.26	7,232.00	Fort Hays				
7,571.10	7,254.00	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,467.00	1,467.00	0.00	0.00	Start Build 2.00	
2,217.00	2,208.46	-79.96	55.99	Start 1200.00 hold at 2217.00 MD	
3,417.00	3,367.57	-334.38	234.13	Start Drop -1.50	
4,417.00	4,356.19	-440.99	308.79	Start 2100.00 hold at 4417.00 MD	
6,517.00	6,456.19	-440.99	308.79	Start 229.85 hold at 6517.00 MD	
6,746.85	6,686.04	-440.99	308.79	Start Build 10.00	
7,646.85	7,259.00	131.97	308.51	Start 4168.36 hold at 7646.85 MD	
11,815.21	7,259.00	4,300.33	306.53	TD at 11815.21	