

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_CANNON 29-3N HZ PAD**

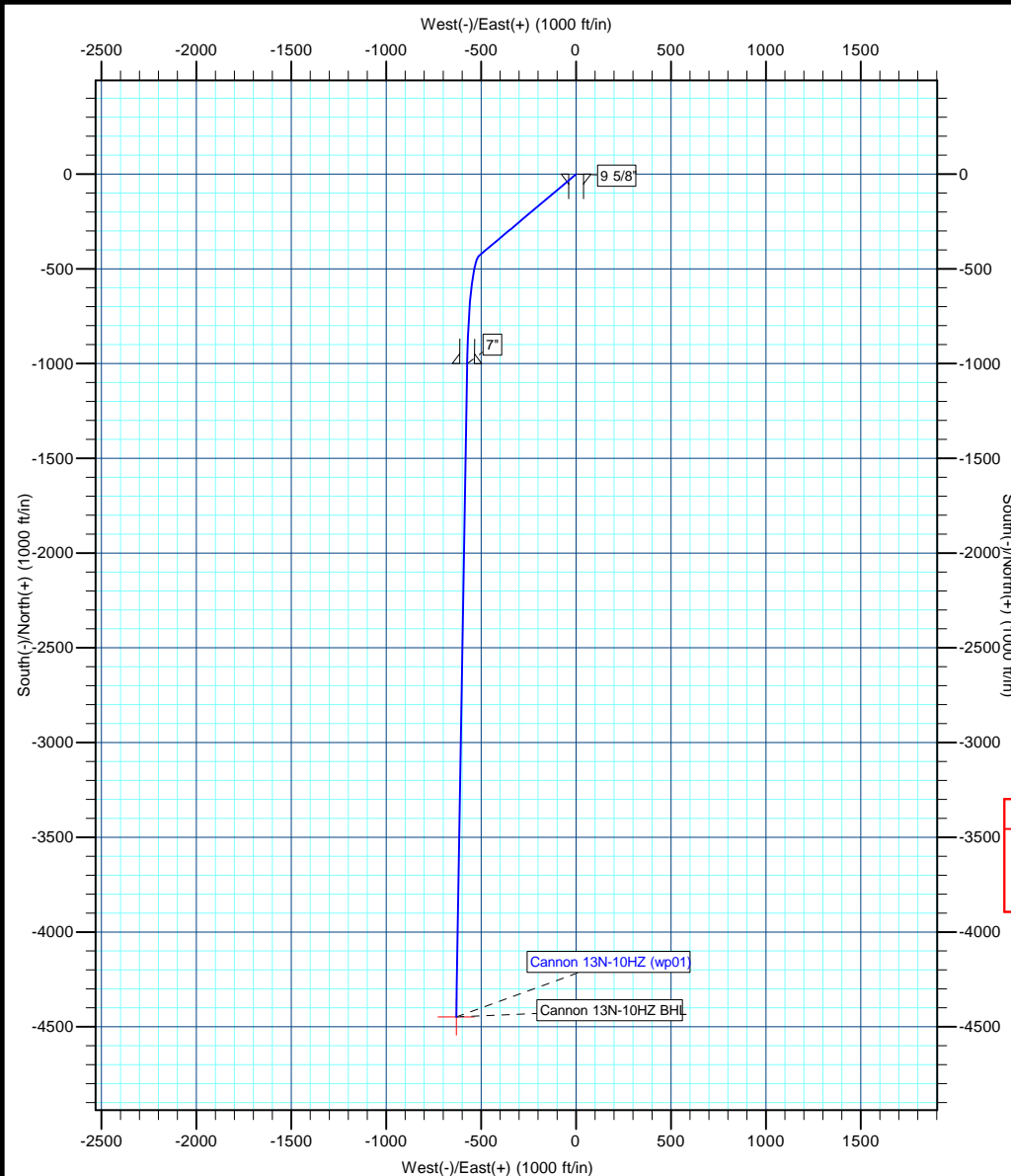
**Cannon 13N-10HZ**

**Cannon 13N-10HZ**

**Plan: Cannon 13N-10HZ (wp01)**

## **Standard Planning Report**

**24 May, 2012**



**Azimuths to True North**  
Magnetic North: 8.66°

**Magnetic Field**  
Strength: 52929.0snT  
Dip Angle: 66.85°  
Date: 5/10/2012  
Model: IGRF2010



**Project:** COLORADO NORTHERN ZONE - 83  
**Site:** WELD\_CANNON 29-3N HZ PAD  
**Well:** Cannon 13N-10HZ  
**Wellbore:** Cannon 13N-10HZ  
**Section:**  
**SHL:**  
**Design:** Cannon 13N-10HZ (wp01)  
**Latitude:** 40.173960  
**Longitude:** -104.655184  
**GL:** 4840.00  
**KB:** GL + RKB @ 4857.00ft

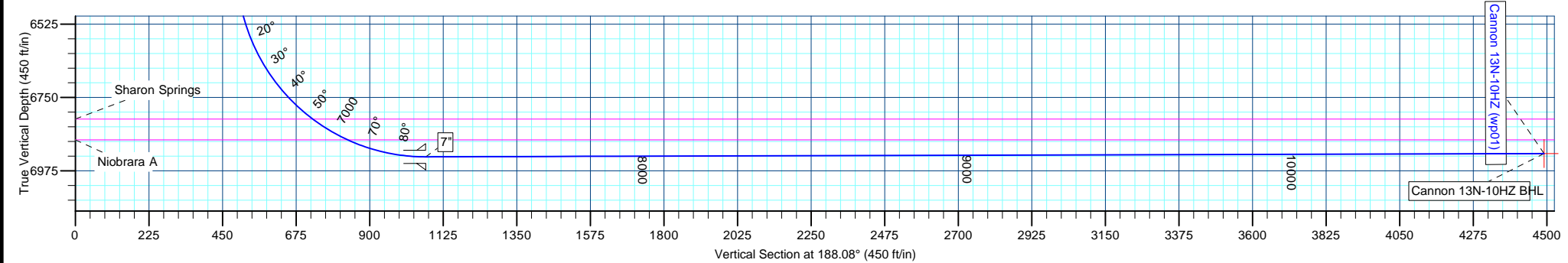
WELL DETAILS: Cannon 13N-10HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4840.00 Latitude	Longitude	Slot
0.00	0.00	1307341.08	3236070.93	40.173960	-104.655184	

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
1903.63	8.07	229.90	1902.29	-18.29	-21.71	2.00	229.90	21.16
6461.11	8.07	229.90	6414.62	-430.55	-511.23	0.00	0.00	498.16
7309.09	90.07	180.72	6932.00	-1001.00	-574.00	10.00	-49.45	1071.77
7335.06	90.17	180.96	6931.95	-1026.97	-574.38	1.00	67.11	1097.53
10755.73	90.17	180.96	6922.00	-4447.14	-631.65	0.00	0.00	4491.77

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Cannon 13N-10HZ BHL	6922.00	-4447.14	-631.65	40.161752	-104.657444	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3954.00	3975.87	Parkman
4451.00	4477.84	Sussex
6816.00	6936.29	Sharon Springs
6880.00	7061.73	Niobrara A

CASING DETAILS			
TVD	MD	Name	Size
775.00	775.00	9 5/8"	9-5/8
6932.00	7309.09	7"	7



# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Cannon 13N-10HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL + RKB @ 4857.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL + RKB @ 4857.00ft
<b>Site:</b>	WELD_CANNON 29-3N HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	Cannon 13N-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Cannon 13N-10HZ		
<b>Design:</b>	Cannon 13N-10HZ (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_CANNON 29-3N HZ PAD			
<b>Site Position:</b>		<b>Northing:</b>	1,307,342.83 usft	<b>Latitude:</b> 40.173964
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,236,100.82 usft	<b>Longitude:</b> -104.655077
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> 0.55 °

<b>Well</b>	Cannon 13N-10HZ			
<b>Well Position</b>	<b>+N/-S</b>	-1.47 ft	<b>Northing:</b>	1,307,341.08 usft
	<b>+E/-W</b>	-29.90 ft	<b>Easting:</b>	3,236,070.94 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40.173960
				<b>Longitude:</b> -104.655184
				<b>Ground Level:</b> 4,840.00 ft

<b>Wellbore</b>	Cannon 13N-10HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/10/2012	8.66	66.85	52,929

<b>Design</b>	Cannon 13N-10HZ (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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	188.08

<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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,903.63	8.07	229.90	1,902.29	-18.29	-21.71	2.00	2.00	0.00	229.90	
6,461.11	8.07	229.90	6,414.62	-430.55	-511.23	0.00	0.00	0.00	0.00	
7,309.09	90.07	180.72	6,932.00	-1,001.00	-574.00	10.00	9.67	-5.80	-49.45	
7,335.06	90.17	180.96	6,931.95	-1,026.97	-574.38	1.00	0.39	0.92	67.11	
10,755.73	90.17	180.96	6,922.00	-4,447.14	-631.65	0.00	0.00	0.00	0.00	Cannon 13N-10HZ Bl

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Cannon 13N-10HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL + RKB @ 4857.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL + RKB @ 4857.00ft
<b>Site:</b>	WELD_CANNON 29-3N HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	Cannon 13N-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Cannon 13N-10HZ		
<b>Design:</b>	Cannon 13N-10HZ (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
775.00	0.00	0.00	775.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
1,400.00	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	229.90	1,599.98	-1.12	-1.33	1.30	2.00	2.00	0.00
1,700.00	4.00	229.90	1,699.84	-4.50	-5.34	5.20	2.00	2.00	0.00
1,800.00	6.00	229.90	1,799.45	-10.11	-12.00	11.70	2.00	2.00	0.00
1,900.00	8.00	229.90	1,898.70	-17.96	-21.32	20.78	2.00	2.00	0.00
1,903.63	8.07	229.90	1,902.29	-18.29	-21.71	21.16	2.00	2.00	0.00
2,000.00	8.07	229.90	1,997.71	-27.00	-32.06	31.24	0.00	0.00	0.00
2,100.00	8.07	229.90	2,096.72	-36.05	-42.81	41.71	0.00	0.00	0.00
2,200.00	8.07	229.90	2,195.73	-45.10	-53.55	52.18	0.00	0.00	0.00
2,300.00	8.07	229.90	2,294.74	-54.14	-64.29	62.64	0.00	0.00	0.00
2,400.00	8.07	229.90	2,393.75	-63.19	-75.03	73.11	0.00	0.00	0.00
2,500.00	8.07	229.90	2,492.76	-72.23	-85.77	83.58	0.00	0.00	0.00
2,600.00	8.07	229.90	2,591.77	-81.28	-96.51	94.04	0.00	0.00	0.00
2,700.00	8.07	229.90	2,690.77	-90.33	-107.25	104.51	0.00	0.00	0.00
2,800.00	8.07	229.90	2,789.78	-99.37	-117.99	114.98	0.00	0.00	0.00
2,900.00	8.07	229.90	2,888.79	-108.42	-128.73	125.44	0.00	0.00	0.00
3,000.00	8.07	229.90	2,987.80	-117.46	-139.47	135.91	0.00	0.00	0.00
3,100.00	8.07	229.90	3,086.81	-126.51	-150.22	146.38	0.00	0.00	0.00
3,200.00	8.07	229.90	3,185.82	-135.55	-160.96	156.84	0.00	0.00	0.00
3,300.00	8.07	229.90	3,284.83	-144.60	-171.70	167.31	0.00	0.00	0.00
3,400.00	8.07	229.90	3,383.84	-153.65	-182.44	177.77	0.00	0.00	0.00
3,500.00	8.07	229.90	3,482.85	-162.69	-193.18	188.24	0.00	0.00	0.00
3,600.00	8.07	229.90	3,581.86	-171.74	-203.92	198.71	0.00	0.00	0.00
3,700.00	8.07	229.90	3,680.87	-180.78	-214.66	209.17	0.00	0.00	0.00
3,800.00	8.07	229.90	3,779.87	-189.83	-225.40	219.64	0.00	0.00	0.00
3,900.00	8.07	229.90	3,878.88	-198.88	-236.14	230.11	0.00	0.00	0.00
3,975.87	8.07	229.90	3,954.00	-205.74	-244.29	238.05	0.00	0.00	0.00
Parkman									
4,000.00	8.07	229.90	3,977.89	-207.92	-246.88	240.57	0.00	0.00	0.00
4,100.00	8.07	229.90	4,076.90	-216.97	-257.63	251.04	0.00	0.00	0.00
4,200.00	8.07	229.90	4,175.91	-226.01	-268.37	261.51	0.00	0.00	0.00
4,300.00	8.07	229.90	4,274.92	-235.06	-279.11	271.97	0.00	0.00	0.00
4,400.00	8.07	229.90	4,373.93	-244.11	-289.85	282.44	0.00	0.00	0.00
4,477.84	8.07	229.90	4,451.00	-251.15	-298.21	290.59	0.00	0.00	0.00
Sussex									
4,500.00	8.07	229.90	4,472.94	-253.15	-300.59	292.91	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Cannon 13N-10HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL + RKB @ 4857.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL + RKB @ 4857.00ft
<b>Site:</b>	WELD_CANNON 29-3N HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	Cannon 13N-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Cannon 13N-10HZ		
<b>Design:</b>	Cannon 13N-10HZ (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)
4,600.00	8.07	229.90	4,571.95	-262.20	-311.33	303.37	0.00	0.00	0.00
4,700.00	8.07	229.90	4,670.96	-271.24	-322.07	313.84	0.00	0.00	0.00
4,800.00	8.07	229.90	4,769.97	-280.29	-332.81	324.31	0.00	0.00	0.00
4,900.00	8.07	229.90	4,868.98	-289.34	-343.55	334.77	0.00	0.00	0.00
5,000.00	8.07	229.90	4,967.98	-298.38	-354.29	345.24	0.00	0.00	0.00
5,100.00	8.07	229.90	5,066.99	-307.43	-365.04	355.70	0.00	0.00	0.00
5,200.00	8.07	229.90	5,166.00	-316.47	-375.78	366.17	0.00	0.00	0.00
5,300.00	8.07	229.90	5,265.01	-325.52	-386.52	376.64	0.00	0.00	0.00
5,400.00	8.07	229.90	5,364.02	-334.56	-397.26	387.10	0.00	0.00	0.00
5,500.00	8.07	229.90	5,463.03	-343.61	-408.00	397.57	0.00	0.00	0.00
5,600.00	8.07	229.90	5,562.04	-352.66	-418.74	408.04	0.00	0.00	0.00
5,700.00	8.07	229.90	5,661.05	-361.70	-429.48	418.50	0.00	0.00	0.00
5,800.00	8.07	229.90	5,760.06	-370.75	-440.22	428.97	0.00	0.00	0.00
5,900.00	8.07	229.90	5,859.07	-379.79	-450.96	439.44	0.00	0.00	0.00
6,000.00	8.07	229.90	5,958.08	-388.84	-461.70	449.90	0.00	0.00	0.00
6,100.00	8.07	229.90	6,057.08	-397.89	-472.45	460.37	0.00	0.00	0.00
6,200.00	8.07	229.90	6,156.09	-406.93	-483.19	470.84	0.00	0.00	0.00
6,300.00	8.07	229.90	6,255.10	-415.98	-493.93	481.30	0.00	0.00	0.00
6,400.00	8.07	229.90	6,354.11	-425.02	-504.67	491.77	0.00	0.00	0.00
6,461.11	8.07	229.90	6,414.62	-430.55	-511.23	498.16	0.00	0.00	0.00
6,500.00	11.00	214.23	6,452.97	-435.38	-515.41	503.53	10.00	7.53	-40.28
6,600.00	20.08	197.80	6,549.26	-459.67	-526.05	529.08	10.00	9.08	-16.43
6,700.00	29.74	191.55	6,639.86	-500.42	-536.29	570.86	10.00	9.66	-6.25
6,800.00	39.56	188.19	6,722.04	-556.38	-545.82	627.60	10.00	9.82	-3.36
6,900.00	49.44	186.00	6,793.28	-625.85	-554.35	697.58	10.00	9.88	-2.19
6,936.29	53.03	185.36	6,816.00	-654.00	-557.15	725.85	10.00	9.91	-1.76
<b>Sharon Springs</b>									
7,000.00	59.35	184.37	6,851.43	-706.72	-561.62	778.68	10.00	9.92	-1.55
7,061.73	65.48	183.53	6,880.00	-761.28	-565.38	833.22	10.00	9.93	-1.36
<b>Niobrara A</b>									
7,100.00	69.28	183.05	6,894.72	-796.54	-567.40	868.42	10.00	9.93	-1.25
7,200.00	79.22	181.90	6,921.83	-892.57	-571.53	964.08	10.00	9.94	-1.16
7,300.00	89.16	180.82	6,931.94	-991.91	-573.88	1,062.75	10.00	9.94	-1.08
7,309.09	90.07	180.72	6,932.00	-1,001.00	-574.00	1,071.77	10.00	9.94	-1.07
<b>7"</b>									
7,335.06	90.17	180.96	6,931.95	-1,026.97	-574.38	1,097.53	1.00	0.39	0.92
7,400.00	90.17	180.96	6,931.76	-1,091.89	-575.47	1,161.97	0.00	0.00	0.00
7,500.00	90.17	180.96	6,931.47	-1,191.88	-577.14	1,261.20	0.00	0.00	0.00
7,600.00	90.17	180.96	6,931.18	-1,291.87	-578.82	1,360.42	0.00	0.00	0.00
7,700.00	90.17	180.96	6,930.89	-1,391.85	-580.49	1,459.65	0.00	0.00	0.00
7,800.00	90.17	180.96	6,930.60	-1,491.84	-582.16	1,558.88	0.00	0.00	0.00
7,900.00	90.17	180.96	6,930.30	-1,591.82	-583.84	1,658.11	0.00	0.00	0.00
8,000.00	90.17	180.96	6,930.01	-1,691.81	-585.51	1,757.33	0.00	0.00	0.00
8,100.00	90.17	180.96	6,929.72	-1,791.79	-587.19	1,856.56	0.00	0.00	0.00
8,200.00	90.17	180.96	6,929.43	-1,891.78	-588.86	1,955.79	0.00	0.00	0.00
8,300.00	90.17	180.96	6,929.14	-1,991.76	-590.53	2,055.02	0.00	0.00	0.00
8,400.00	90.17	180.96	6,928.85	-2,091.75	-592.21	2,154.24	0.00	0.00	0.00
8,500.00	90.17	180.96	6,928.56	-2,191.74	-593.88	2,253.47	0.00	0.00	0.00
8,600.00	90.17	180.96	6,928.27	-2,291.72	-595.56	2,352.70	0.00	0.00	0.00
8,700.00	90.17	180.96	6,927.98	-2,391.71	-597.23	2,451.92	0.00	0.00	0.00
8,800.00	90.17	180.96	6,927.69	-2,491.69	-598.91	2,551.15	0.00	0.00	0.00
8,900.00	90.17	180.96	6,927.40	-2,591.68	-600.58	2,650.38	0.00	0.00	0.00
9,000.00	90.17	180.96	6,927.11	-2,691.66	-602.25	2,749.61	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Cannon 13N-10HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL + RKB @ 4857.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL + RKB @ 4857.00ft
<b>Site:</b>	WELD_CANNON 29-3N HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	Cannon 13N-10HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Cannon 13N-10HZ		
<b>Design:</b>	Cannon 13N-10HZ (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)	
9,100.00	90.17	180.96	6,926.82	-2,791.65	-603.93	2,848.83	0.00	0.00	0.00	
9,200.00	90.17	180.96	6,926.52	-2,891.63	-605.60	2,948.06	0.00	0.00	0.00	
9,300.00	90.17	180.96	6,926.23	-2,991.62	-607.28	3,047.29	0.00	0.00	0.00	
9,400.00	90.17	180.96	6,925.94	-3,091.61	-608.95	3,146.52	0.00	0.00	0.00	
9,500.00	90.17	180.96	6,925.65	-3,191.59	-610.62	3,245.74	0.00	0.00	0.00	
9,600.00	90.17	180.96	6,925.36	-3,291.58	-612.30	3,344.97	0.00	0.00	0.00	
9,700.00	90.17	180.96	6,925.07	-3,391.56	-613.97	3,444.20	0.00	0.00	0.00	
9,800.00	90.17	180.96	6,924.78	-3,491.55	-615.65	3,543.43	0.00	0.00	0.00	
9,900.00	90.17	180.96	6,924.49	-3,591.53	-617.32	3,642.65	0.00	0.00	0.00	
10,000.00	90.17	180.96	6,924.20	-3,691.52	-618.99	3,741.88	0.00	0.00	0.00	
10,100.00	90.17	180.96	6,923.91	-3,791.50	-620.67	3,841.11	0.00	0.00	0.00	
10,200.00	90.17	180.96	6,923.62	-3,891.49	-622.34	3,940.34	0.00	0.00	0.00	
10,300.00	90.17	180.96	6,923.33	-3,991.48	-624.02	4,039.56	0.00	0.00	0.00	
10,400.00	90.17	180.96	6,923.03	-4,091.46	-625.69	4,138.79	0.00	0.00	0.00	
10,500.00	90.17	180.96	6,922.74	-4,191.45	-627.37	4,238.02	0.00	0.00	0.00	
10,600.00	90.17	180.96	6,922.45	-4,291.43	-629.04	4,337.25	0.00	0.00	0.00	
10,700.00	90.17	180.96	6,922.16	-4,391.42	-630.71	4,436.47	0.00	0.00	0.00	
10,755.73	90.17	180.96	6,922.00	-4,447.14	-631.65	4,491.77	0.00	0.00	0.00	
Cannon 13N-10HZ 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									
Cannon 13N-10HZ BHL	0.00	0.00	6,922.00	-4,447.14	-631.65	1,302,888.14	3,235,481.69	40.161752	-104.657444
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
775.00	775.00	9 5/8"	9-5/8	12-1/4	
7,309.09	6,932.00	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,975.87	3,954.00	Parkman				
4,477.84	4,451.00	Sussex				
6,936.29	6,816.00	Sharon Springs				
7,061.73	6,880.00	Niobrara A				