

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Barclay 2-28HZ pad

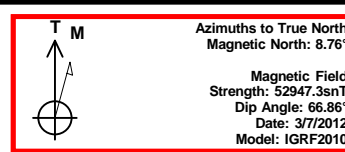
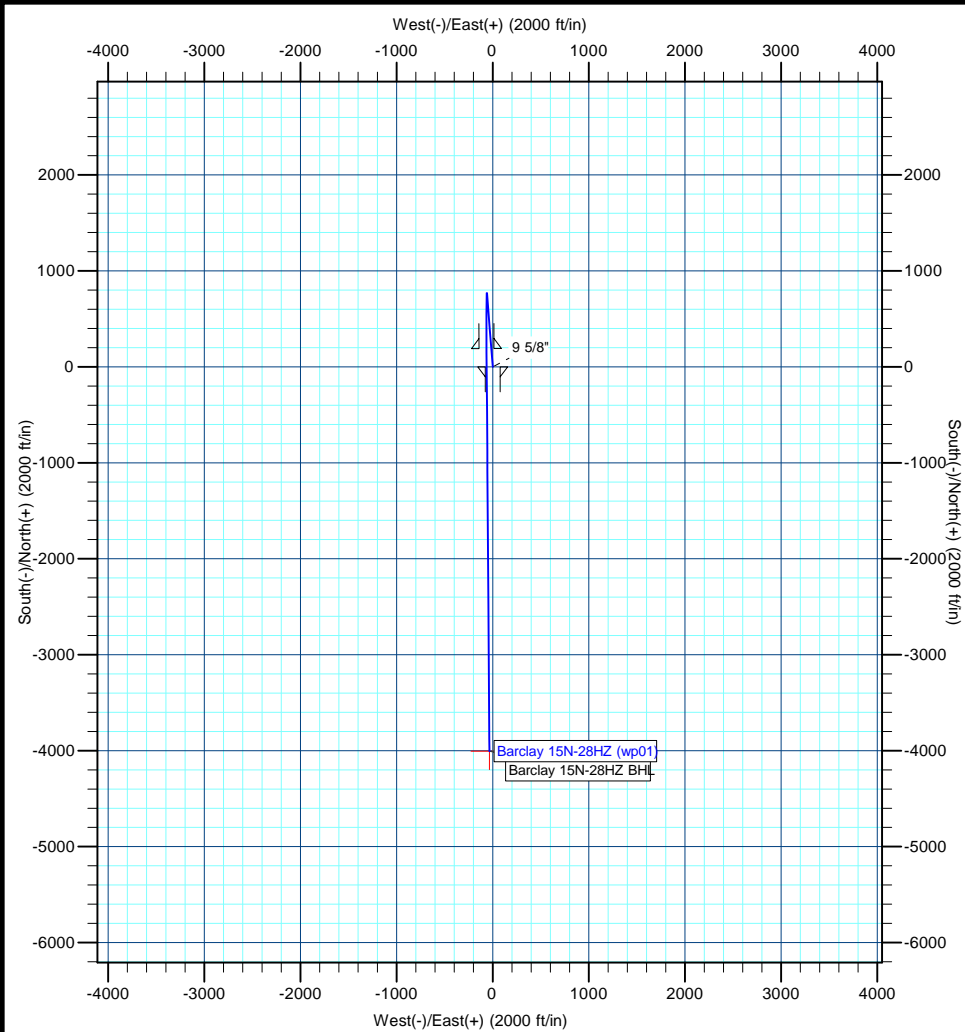
Barclay 15N-28HZ

Barclay 15N-28HZ

Plan: Barclay 15N-28HZ (wp01)

Standard Planning Report

12 March, 2012



Project: COLORADO NORTHERN ZONE - 83
Site: WELD Barclay 2-28HZ pad
Well: Barclay 15N-28HZ
Wellbore: Barclay 15N-28HZ
Section:
SHL:
Design: Barclay 15N-28HZ (wp01)
Latitude: 40.200998
Longitude: -104.779617
GL: 4966.01
KB: RKB + GL @ 4983.01ft

WELL DETAILS: Barclay 15N-28HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4966.01 Latitude	Longitude	Slot
0.00	0.00	1316883.36	3201220.85	40.200998	-104.779617	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00
2501.69	10.03	355.43	2499.13	43.68	-3.49	2.00	355.43	-43.65
6626.20	10.03	355.43	6560.56	760.01	-60.72	0.00	0.00	-759.45
7632.00	90.57	179.56	7233.00	190.00	-65.00	10.00	-175.80	-189.43
7635.92	90.55	179.59	7232.96	186.08	-64.97	1.00	131.32	-185.51
1829.78	90.55	179.59	7193.00	-4007.48	-34.92	0.00	0.00	4007.63

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

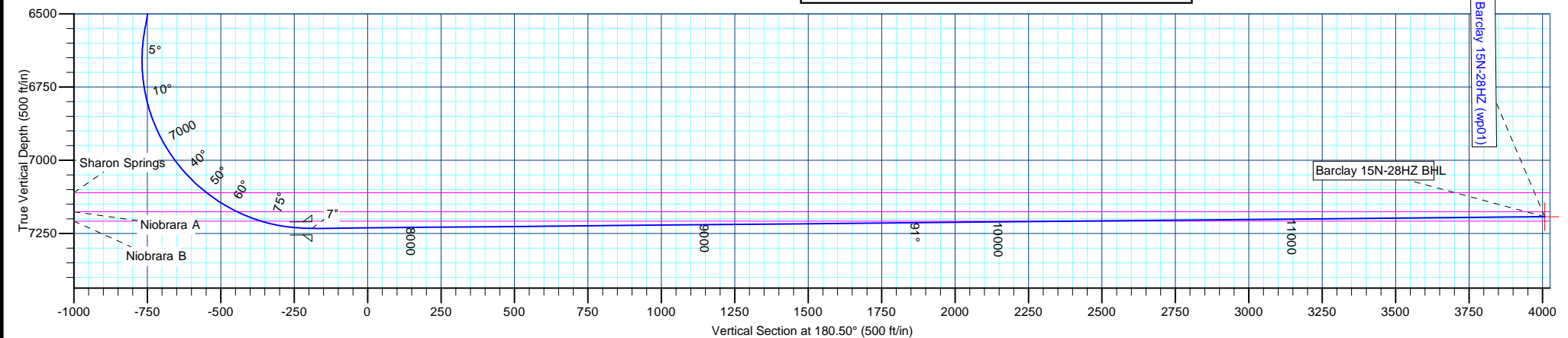
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Barclay 15N-28HZ BHL	7193.00	-4007.48	-34.92	40.189997	-104.779742	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4043.00	4069.54	Parkman
4452.00	4484.89	Sussex
7111.00	7245.34	Sharon Springs
7176.00	7368.46	Niobrara A
7208.00	7456.30	Niobrara B

CASING DETAILS

TVD	MD	Name	Size
700.00	700.00	9 5/8"	9-5/8
7233.00	7632.00	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Barclay 15N-28HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	RKB + GL @ 4983.01ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	RKB + GL @ 4983.01ft
Site:	WELD_Barclay 2-28HZ pad	North Reference:	True
Well:	Barclay 15N-28HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Barclay 15N-28HZ		
Design:	Barclay 15N-28HZ (wp01)		

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

Site	WELD_Barclay 2-28HZ pad			
Site Position:		Northing:	1,316,883.37 usft	Latitude: 40.200998
From:	Lat/Long	Easting:	3,201,220.85 usft	Longitude: -104.779617
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.47 °

Well	Barclay 15N-28HZ			
Well Position	+N/-S	0.00 ft	Northing:	1,316,883.36 usft
	+E/-W	0.00 ft	Easting:	3,201,220.85 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 4,966.01 ft

Wellbore	Barclay 15N-28HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/7/2012	8.76	66.86	52,947

Design	Barclay 15N-28HZ (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.50

Plan Sections										
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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,501.69	10.03	355.43	2,499.13	43.68	-3.49	2.00	2.00	0.00	355.43	
6,626.20	10.03	355.43	6,560.56	760.01	-60.72	0.00	0.00	0.00	0.00	
7,632.00	90.57	179.56	7,233.00	190.00	-65.00	10.00	8.01	-17.49	-175.80	
7,635.92	90.55	179.59	7,232.96	186.08	-64.97	1.00	-0.66	0.75	131.32	
11,829.78	90.55	179.59	7,193.00	-4,007.48	-34.92	0.00	0.00	0.00	0.00	Barclay 15N-28HZ Bt

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Barclay 15N-28HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	RKB + GL @ 4983.01ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	RKB + GL @ 4983.01ft
Site:	WELD_Barclay 2-28HZ pad	North Reference:	True
Well:	Barclay 15N-28HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Barclay 15N-28HZ		
Design:	Barclay 15N-28HZ (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
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	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
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	2.00	355.43	2,099.98	1.74	-0.14	-1.74	2.00	2.00	0.00
2,200.00	4.00	355.43	2,199.84	6.96	-0.56	-6.95	2.00	2.00	0.00
2,300.00	6.00	355.43	2,299.45	15.64	-1.25	-15.63	2.00	2.00	0.00
2,400.00	8.00	355.43	2,398.70	27.79	-2.22	-27.77	2.00	2.00	0.00
2,500.00	10.00	355.43	2,497.47	43.38	-3.47	-43.35	2.00	2.00	0.00
2,501.69	10.03	355.43	2,499.13	43.68	-3.49	-43.65	2.00	2.00	0.00
2,600.00	10.03	355.43	2,595.94	60.75	-4.85	-60.71	0.00	0.00	0.00
2,700.00	10.03	355.43	2,694.41	78.12	-6.24	-78.06	0.00	0.00	0.00
2,800.00	10.03	355.43	2,792.88	95.49	-7.63	-95.42	0.00	0.00	0.00
2,900.00	10.03	355.43	2,891.35	112.85	-9.02	-112.77	0.00	0.00	0.00
3,000.00	10.03	355.43	2,989.82	130.22	-10.40	-130.13	0.00	0.00	0.00
3,100.00	10.03	355.43	3,088.29	147.59	-11.79	-147.48	0.00	0.00	0.00
3,200.00	10.03	355.43	3,186.76	164.96	-13.18	-164.84	0.00	0.00	0.00
3,300.00	10.03	355.43	3,285.23	182.33	-14.57	-182.19	0.00	0.00	0.00
3,400.00	10.03	355.43	3,383.70	199.69	-15.96	-199.55	0.00	0.00	0.00
3,500.00	10.03	355.43	3,482.17	217.06	-17.34	-216.90	0.00	0.00	0.00
3,600.00	10.03	355.43	3,580.64	234.43	-18.73	-234.26	0.00	0.00	0.00
3,700.00	10.03	355.43	3,679.11	251.80	-20.12	-251.61	0.00	0.00	0.00
3,800.00	10.03	355.43	3,777.58	269.16	-21.51	-268.97	0.00	0.00	0.00
3,900.00	10.03	355.43	3,876.05	286.53	-22.89	-286.32	0.00	0.00	0.00
4,000.00	10.03	355.43	3,974.52	303.90	-24.28	-303.68	0.00	0.00	0.00
4,069.54	10.03	355.43	4,043.00	315.98	-25.25	-315.74	0.00	0.00	0.00
Parkman									
4,100.00	10.03	355.43	4,072.99	321.27	-25.67	-321.03	0.00	0.00	0.00
4,200.00	10.03	355.43	4,171.46	338.63	-27.06	-338.39	0.00	0.00	0.00
4,300.00	10.03	355.43	4,269.93	356.00	-28.44	-355.74	0.00	0.00	0.00
4,400.00	10.03	355.43	4,368.40	373.37	-29.83	-373.10	0.00	0.00	0.00
4,484.89	10.03	355.43	4,452.00	388.11	-31.01	-387.83	0.00	0.00	0.00
Sussex									
4,500.00	10.03	355.43	4,466.88	390.74	-31.22	-390.45	0.00	0.00	0.00
4,600.00	10.03	355.43	4,565.35	408.10	-32.61	-407.81	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Barclay 15N-28HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	RKB + GL @ 4983.01ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	RKB + GL @ 4983.01ft
Site:	WELD_Barclay 2-28HZ pad	North Reference:	True
Well:	Barclay 15N-28HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Barclay 15N-28HZ		
Design:	Barclay 15N-28HZ (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	10.03	355.43	4,663.82	425.47	-34.00	-425.16	0.00	0.00	0.00
4,800.00	10.03	355.43	4,762.29	442.84	-35.38	-442.51	0.00	0.00	0.00
4,900.00	10.03	355.43	4,860.76	460.21	-36.77	-459.87	0.00	0.00	0.00
5,000.00	10.03	355.43	4,959.23	477.58	-38.16	-477.22	0.00	0.00	0.00
5,100.00	10.03	355.43	5,057.70	494.94	-39.55	-494.58	0.00	0.00	0.00
5,200.00	10.03	355.43	5,156.17	512.31	-40.93	-511.93	0.00	0.00	0.00
5,300.00	10.03	355.43	5,254.64	529.68	-42.32	-529.29	0.00	0.00	0.00
5,400.00	10.03	355.43	5,353.11	547.05	-43.71	-546.64	0.00	0.00	0.00
5,500.00	10.03	355.43	5,451.58	564.41	-45.10	-564.00	0.00	0.00	0.00
5,600.00	10.03	355.43	5,550.05	581.78	-46.48	-581.35	0.00	0.00	0.00
5,700.00	10.03	355.43	5,648.52	599.15	-47.87	-598.71	0.00	0.00	0.00
5,800.00	10.03	355.43	5,746.99	616.52	-49.26	-616.06	0.00	0.00	0.00
5,900.00	10.03	355.43	5,845.46	633.88	-50.65	-633.42	0.00	0.00	0.00
6,000.00	10.03	355.43	5,943.93	651.25	-52.03	-650.77	0.00	0.00	0.00
6,100.00	10.03	355.43	6,042.40	668.62	-53.42	-668.13	0.00	0.00	0.00
6,200.00	10.03	355.43	6,140.87	685.99	-54.81	-685.48	0.00	0.00	0.00
6,300.00	10.03	355.43	6,239.34	703.36	-56.20	-702.84	0.00	0.00	0.00
6,400.00	10.03	355.43	6,337.81	720.72	-57.59	-720.19	0.00	0.00	0.00
6,500.00	10.03	355.43	6,436.29	738.09	-58.97	-737.55	0.00	0.00	0.00
6,600.00	10.03	355.43	6,534.76	755.46	-60.36	-754.90	0.00	0.00	0.00
6,626.20	10.03	355.43	6,560.56	760.01	-60.72	-759.45	0.00	0.00	0.00
6,700.00	2.73	344.03	6,633.85	768.12	-61.72	-767.55	10.00	-9.90	-15.45
6,800.00	7.41	185.20	6,733.63	763.97	-62.96	-763.40	10.00	4.68	-158.83
6,900.00	17.39	181.90	6,831.18	742.57	-64.05	-741.98	10.00	9.98	-3.30
7,000.00	27.38	180.98	6,923.52	704.54	-64.94	-703.95	10.00	9.99	-0.92
7,100.00	37.38	180.52	7,007.87	651.06	-65.61	-650.47	10.00	10.00	-0.45
7,200.00	47.38	180.24	7,081.65	583.75	-66.04	-583.15	10.00	10.00	-0.28
7,245.34	51.91	180.14	7,111.00	549.21	-66.16	-548.61	10.00	10.00	-0.22
Sharon Springs									
7,300.00	57.38	180.04	7,142.62	504.65	-66.22	-504.05	10.00	10.00	-0.19
7,368.46	64.22	179.92	7,176.00	444.92	-66.20	-444.33	10.00	10.00	-0.17
Niobrara A									
7,400.00	67.37	179.87	7,188.93	416.16	-66.15	-415.57	10.00	10.00	-0.15
7,456.30	73.00	179.79	7,208.00	363.22	-65.99	-362.63	10.00	10.00	-0.14
Niobrara B									
7,500.00	77.37	179.73	7,219.17	320.98	-65.81	-320.39	10.00	10.00	-0.14
7,600.00	87.37	179.60	7,232.43	221.99	-65.23	-221.41	10.00	10.00	-0.13
7,632.00	90.57	179.56	7,233.00	190.00	-65.00	-189.42	10.00	10.00	-0.13
7"									
7,635.92	90.55	179.59	7,232.96	186.08	-64.97	-185.51	1.00	-0.66	0.75
7,700.00	90.55	179.59	7,232.35	122.00	-64.51	-121.44	0.00	0.00	0.00
7,800.00	90.55	179.59	7,231.40	22.01	-63.80	-21.45	0.00	0.00	0.00
7,900.00	90.55	179.59	7,230.45	-77.98	-63.08	78.53	0.00	0.00	0.00
8,000.00	90.55	179.59	7,229.49	-177.98	-62.36	178.51	0.00	0.00	0.00
8,100.00	90.55	179.59	7,228.54	-277.97	-61.65	278.50	0.00	0.00	0.00
8,200.00	90.55	179.59	7,227.59	-377.96	-60.93	378.48	0.00	0.00	0.00
8,300.00	90.55	179.59	7,226.63	-477.95	-60.21	478.46	0.00	0.00	0.00
8,400.00	90.55	179.59	7,225.68	-577.95	-59.50	578.44	0.00	0.00	0.00
8,500.00	90.55	179.59	7,224.73	-677.94	-58.78	678.43	0.00	0.00	0.00
8,600.00	90.55	179.59	7,223.78	-777.93	-58.06	778.41	0.00	0.00	0.00
8,700.00	90.55	179.59	7,222.82	-877.93	-57.35	878.39	0.00	0.00	0.00
8,800.00	90.55	179.59	7,221.87	-977.92	-56.63	978.38	0.00	0.00	0.00
8,900.00	90.55	179.59	7,220.92	-1,077.91	-55.91	1,078.36	0.00	0.00	0.00
9,000.00	90.55	179.59	7,219.96	-1,177.90	-55.20	1,178.34	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Barclay 15N-28HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	RKB + GL @ 4983.01ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	RKB + GL @ 4983.01ft
Site:	WELD_Barclay 2-28HZ pad	North Reference:	True
Well:	Barclay 15N-28HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Barclay 15N-28HZ		
Design:	Barclay 15N-28HZ (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	90.55	179.59	7,219.01	-1,277.90	-54.48	1,278.32	0.00	0.00	0.00
9,200.00	90.55	179.59	7,218.06	-1,377.89	-53.76	1,378.31	0.00	0.00	0.00
9,300.00	90.55	179.59	7,217.11	-1,477.88	-53.05	1,478.29	0.00	0.00	0.00
9,400.00	90.55	179.59	7,216.15	-1,577.88	-52.33	1,578.27	0.00	0.00	0.00
9,500.00	90.55	179.59	7,215.20	-1,677.87	-51.61	1,678.26	0.00	0.00	0.00
9,600.00	90.55	179.59	7,214.25	-1,777.86	-50.90	1,778.24	0.00	0.00	0.00
9,700.00	90.55	179.59	7,213.29	-1,877.85	-50.18	1,878.22	0.00	0.00	0.00
9,800.00	90.55	179.59	7,212.34	-1,977.85	-49.47	1,978.20	0.00	0.00	0.00
9,900.00	90.55	179.59	7,211.39	-2,077.84	-48.75	2,078.19	0.00	0.00	0.00
10,000.00	90.55	179.59	7,210.44	-2,177.83	-48.03	2,178.17	0.00	0.00	0.00
10,100.00	90.55	179.59	7,209.48	-2,277.83	-47.32	2,278.15	0.00	0.00	0.00
10,200.00	90.55	179.59	7,208.53	-2,377.82	-46.60	2,378.14	0.00	0.00	0.00
10,300.00	90.55	179.59	7,207.58	-2,477.81	-45.88	2,478.12	0.00	0.00	0.00
10,400.00	90.55	179.59	7,206.62	-2,577.81	-45.17	2,578.10	0.00	0.00	0.00
10,500.00	90.55	179.59	7,205.67	-2,677.80	-44.45	2,678.08	0.00	0.00	0.00
10,600.00	90.55	179.59	7,204.72	-2,777.79	-43.73	2,778.07	0.00	0.00	0.00
10,700.00	90.55	179.59	7,203.77	-2,877.78	-43.02	2,878.05	0.00	0.00	0.00
10,800.00	90.55	179.59	7,202.81	-2,977.78	-42.30	2,978.03	0.00	0.00	0.00
10,900.00	90.55	179.59	7,201.86	-3,077.77	-41.58	3,078.02	0.00	0.00	0.00
11,000.00	90.55	179.59	7,200.91	-3,177.76	-40.87	3,178.00	0.00	0.00	0.00
11,100.00	90.55	179.59	7,199.95	-3,277.76	-40.15	3,277.98	0.00	0.00	0.00
11,200.00	90.55	179.59	7,199.00	-3,377.75	-39.43	3,377.96	0.00	0.00	0.00
11,300.00	90.55	179.59	7,198.05	-3,477.74	-38.72	3,477.95	0.00	0.00	0.00
11,400.00	90.55	179.59	7,197.10	-3,577.73	-38.00	3,577.93	0.00	0.00	0.00
11,500.00	90.55	179.59	7,196.14	-3,677.73	-37.28	3,677.91	0.00	0.00	0.00
11,600.00	90.55	179.59	7,195.19	-3,777.72	-36.57	3,777.90	0.00	0.00	0.00
11,700.00	90.55	179.59	7,194.24	-3,877.71	-35.85	3,877.88	0.00	0.00	0.00
11,800.00	90.55	179.59	7,193.28	-3,977.71	-35.14	3,977.86	0.00	0.00	0.00
11,829.78	90.55	179.59	7,193.00	-4,007.48	-34.92	4,007.63	0.00	0.00	0.00
Barclay 15N-28HZ 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									
Barclay 15N-28HZ BHL	0.00	0.00	7,193.00	-4,007.48	-34.92	1,312,875.74	3,201,218.48	40.189997	-104.779742
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
700.00	700.00	9 5/8"		9-5/8	12-1/4
7,632.00	7,233.00	7"		7	8-3/4

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Barclay 15N-28HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	RKB + GL @ 4983.01ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	RKB + GL @ 4983.01ft
Site:	WELD_Barclay 2-28HZ pad	North Reference:	True
Well:	Barclay 15N-28HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Barclay 15N-28HZ		
Design:	Barclay 15N-28HZ (wp01)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,069.54	4,043.00	Parkman				
4,484.89	4,452.00	Sussex				
7,245.34	7,111.00	Sharon Springs				
7,368.46	7,176.00	Niobrara A				
7,456.30	7,208.00	Niobrara B				