

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Raymond 37-29HZ

Raymond 38N-29HZ

Raymond 38N-29HZ

Plan: Raymond 38N-29HZ (wp01)

Standard Planning Report

24 January, 2012

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Raymond 38N-29HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4942.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4942.00ft
Site:	WELD_Raymond 37-29HZ	North Reference:	True
Well:	Raymond 38N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 38N-29HZ		
Design:	Raymond 38N-29HZ (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_Raymond 37-29HZ			
Site Position:		Northing:	1,317,360.45 usft	Latitude:	40.202409
From:	Lat/Long	Easting:	3,196,621.41 usft	Longitude:	-104.796069
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well		Raymond 38N-29HZ				
Well Position	+N/-S	-0.38 ft	Northing:	1,317,360.19 usft	Latitude:	40.202408
	+E/-W	14.80 ft	Easting:	3,196,636.22 usft	Longitude:	-104.796016
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,925.00 ft

Wellbore	Raymond 38N-29HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/23/2012	8.78	66.86	52,959

Design	Raymond 38N-29HZ (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	166.48

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	5.00	43.97	449.68	10.90	0.00	2.00	2.00	0.00	0.00	
900.00	5.00	43.97	897.97	39.13	27.23	0.00	0.00	0.00	0.00	
1,230.18	9.90	80.68	1,225.43	54.10	65.28	2.00	1.49	11.12	63.38	
6,716.07	9.90	80.68	6,629.55	207.00	996.46	0.00	0.00	0.00	0.00	
7,631.31	89.92	180.03	7,210.00	-365.00	1,096.00	10.00	8.74	10.86	99.23	
7,633.01	89.90	180.04	7,210.00	-366.70	1,096.00	1.00	-0.93	0.37	158.13	
11,812.54	89.90	180.04	7,217.00	-4,546.22	1,093.19	0.00	0.00	0.00	0.00	Raymond 38N-29HZ I

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Site:	WELD_Raymond 37-29HZ	North Reference:	True
Well:	Raymond 38N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 38N-29HZ		
Design:	Raymond 38N-29HZ (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
Start Build 2.00									
300.00	2.00	0.00	299.98	1.75	0.00	-1.70	2.00	2.00	0.00
400.00	4.00	0.00	399.84	6.98	0.00	-6.79	2.00	2.00	0.00
450.00	5.00	43.97	449.68	10.90	0.00	-10.60	6.98	2.00	87.94
Start 450.00 hold at 450.00 MD									
500.00	5.00	43.97	499.49	14.04	3.03	-12.94	0.00	0.00	0.00
600.00	5.00	43.97	599.11	20.31	9.08	-17.63	0.00	0.00	0.00
700.00	5.00	43.97	698.73	26.58	15.13	-22.31	0.00	0.00	0.00
800.00	5.00	43.97	798.35	32.86	21.18	-26.99	0.00	0.00	0.00
900.00	5.00	43.97	897.97	39.13	27.23	-31.68	0.00	0.00	0.00
Start DLS 2.00 TFO 63.38									
902.04	5.02	44.39	900.00	39.26	27.35	-31.77	2.00	0.90	20.44
9 5/8"									
1,000.00	6.16	60.87	997.50	44.88	34.94	-35.46	2.00	1.17	16.83
1,100.00	7.67	71.81	1,096.77	49.57	45.97	-37.45	2.00	1.51	10.94
1,200.00	9.37	79.00	1,195.67	53.21	60.31	-37.64	2.00	1.70	7.18
1,230.18	9.90	80.68	1,225.43	54.10	65.28	-37.34	2.00	1.77	5.56
Start 5485.89 hold at 1230.18 MD									
1,300.00	9.90	80.68	1,294.20	56.05	77.13	-36.46	0.00	0.00	0.00
1,400.00	9.90	80.68	1,392.71	58.83	94.11	-35.20	0.00	0.00	0.00
1,500.00	9.90	80.68	1,491.22	61.62	111.08	-33.94	0.00	0.00	0.00
1,600.00	9.90	80.68	1,589.73	64.41	128.06	-32.68	0.00	0.00	0.00
1,700.00	9.90	80.68	1,688.24	67.20	145.03	-31.43	0.00	0.00	0.00
1,800.00	9.90	80.68	1,786.75	69.98	162.00	-30.17	0.00	0.00	0.00
1,900.00	9.90	80.68	1,885.26	72.77	178.98	-28.91	0.00	0.00	0.00
2,000.00	9.90	80.68	1,983.77	75.56	195.95	-27.65	0.00	0.00	0.00
2,100.00	9.90	80.68	2,082.28	78.34	212.93	-26.39	0.00	0.00	0.00
2,200.00	9.90	80.68	2,180.79	81.13	229.90	-25.13	0.00	0.00	0.00
2,300.00	9.90	80.68	2,279.30	83.92	246.87	-23.87	0.00	0.00	0.00
2,400.00	9.90	80.68	2,377.81	86.71	263.85	-22.62	0.00	0.00	0.00
2,500.00	9.90	80.68	2,476.32	89.49	280.82	-21.36	0.00	0.00	0.00
2,600.00	9.90	80.68	2,574.83	92.28	297.80	-20.10	0.00	0.00	0.00
2,700.00	9.90	80.68	2,673.34	95.07	314.77	-18.84	0.00	0.00	0.00
2,800.00	9.90	80.68	2,771.85	97.85	331.74	-17.58	0.00	0.00	0.00
2,900.00	9.90	80.68	2,870.35	100.64	348.72	-16.32	0.00	0.00	0.00
3,000.00	9.90	80.68	2,968.86	103.43	365.69	-15.06	0.00	0.00	0.00
3,100.00	9.90	80.68	3,067.37	106.22	382.67	-13.81	0.00	0.00	0.00
3,196.06	9.90	80.68	3,162.00	108.89	398.97	-12.60	0.00	0.00	0.00
Parkman									
3,200.00	9.90	80.68	3,165.88	109.00	399.64	-12.55	0.00	0.00	0.00
3,300.00	9.90	80.68	3,264.39	111.79	416.61	-11.29	0.00	0.00	0.00
3,400.00	9.90	80.68	3,362.90	114.58	433.59	-10.03	0.00	0.00	0.00
3,500.00	9.90	80.68	3,461.41	117.36	450.56	-8.77	0.00	0.00	0.00
3,600.00	9.90	80.68	3,559.92	120.15	467.54	-7.51	0.00	0.00	0.00
3,700.00	9.90	80.68	3,658.43	122.94	484.51	-6.26	0.00	0.00	0.00
3,800.00	9.90	80.68	3,756.94	125.73	501.48	-5.00	0.00	0.00	0.00
3,900.00	9.90	80.68	3,855.45	128.51	518.46	-3.74	0.00	0.00	0.00
4,000.00	9.90	80.68	3,953.96	131.30	535.43	-2.48	0.00	0.00	0.00
4,100.00	9.90	80.68	4,052.47	134.09	552.41	-1.22	0.00	0.00	0.00
4,200.00	9.90	80.68	4,150.98	136.87	569.38	0.04	0.00	0.00	0.00

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Well:	Raymond 38N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 38N-29HZ		
Design:	Raymond 38N-29HZ (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)
4,300.00	9.90	80.68	4,249.49	139.66	586.35	1.30	0.00	0.00	0.00
4,400.00	9.90	80.68	4,348.00	142.45	603.33	2.55	0.00	0.00	0.00
4,407.11	9.90	80.68	4,355.00	142.65	604.53	2.64	0.00	0.00	0.00
Sussex									
4,500.00	9.90	80.68	4,446.51	145.24	620.30	3.81	0.00	0.00	0.00
4,600.00	9.90	80.68	4,545.02	148.02	637.27	5.07	0.00	0.00	0.00
4,700.00	9.90	80.68	4,643.53	150.81	654.25	6.33	0.00	0.00	0.00
4,800.00	9.90	80.68	4,742.03	153.60	671.22	7.59	0.00	0.00	0.00
4,900.00	9.90	80.68	4,840.54	156.38	688.20	8.85	0.00	0.00	0.00
5,000.00	9.90	80.68	4,939.05	159.17	705.17	10.11	0.00	0.00	0.00
5,100.00	9.90	80.68	5,037.56	161.96	722.14	11.36	0.00	0.00	0.00
5,200.00	9.90	80.68	5,136.07	164.75	739.12	12.62	0.00	0.00	0.00
5,300.00	9.90	80.68	5,234.58	167.53	756.09	13.88	0.00	0.00	0.00
5,400.00	9.90	80.68	5,333.09	170.32	773.07	15.14	0.00	0.00	0.00
5,500.00	9.90	80.68	5,431.60	173.11	790.04	16.40	0.00	0.00	0.00
5,600.00	9.90	80.68	5,530.11	175.89	807.01	17.66	0.00	0.00	0.00
5,700.00	9.90	80.68	5,628.62	178.68	823.99	18.92	0.00	0.00	0.00
5,800.00	9.90	80.68	5,727.13	181.47	840.96	20.17	0.00	0.00	0.00
5,900.00	9.90	80.68	5,825.64	184.26	857.94	21.43	0.00	0.00	0.00
6,000.00	9.90	80.68	5,924.15	187.04	874.91	22.69	0.00	0.00	0.00
6,100.00	9.90	80.68	6,022.66	189.83	891.88	23.95	0.00	0.00	0.00
6,200.00	9.90	80.68	6,121.17	192.62	908.86	25.21	0.00	0.00	0.00
6,300.00	9.90	80.68	6,219.68	195.40	925.83	26.47	0.00	0.00	0.00
6,400.00	9.90	80.68	6,318.19	198.19	942.81	27.73	0.00	0.00	0.00
6,500.00	9.90	80.68	6,416.70	200.98	959.78	28.98	0.00	0.00	0.00
6,600.00	9.90	80.68	6,515.21	203.77	976.75	30.24	0.00	0.00	0.00
6,700.00	9.90	80.68	6,613.71	206.55	993.73	31.50	0.00	0.00	0.00
6,716.07	9.90	80.68	6,629.55	207.00	996.46	31.70	0.00	0.00	0.00
Start DLS 10.00 TFO 99.23									
6,800.00	11.88	125.08	6,712.10	203.20	1,010.67	38.73	10.00	2.36	52.91
6,900.00	19.36	150.68	6,808.45	182.78	1,027.26	62.45	10.00	7.47	25.60
7,000.00	28.39	161.46	6,899.84	145.70	1,042.97	102.18	10.00	9.04	10.78
7,100.00	37.89	167.25	6,983.50	93.08	1,057.34	156.71	10.00	9.50	5.79
Raymond 38N-29HZ heel									
7,200.00	47.56	170.98	7,056.88	26.51	1,069.93	224.37	10.00	9.68	3.73
7,245.08	51.96	172.30	7,086.00	-7.53	1,074.92	258.63	10.00	9.75	2.92
Sharon Springs									
7,300.00	57.33	173.70	7,117.77	-51.97	1,080.36	303.11	10.00	9.78	2.56
7,365.59	63.76	175.18	7,150.00	-108.78	1,085.87	359.64	10.00	9.81	2.24
Niobrara A									
7,400.00	67.14	175.88	7,164.29	-139.98	1,088.31	390.55	10.00	9.82	2.05
7,500.00	76.98	177.76	7,195.05	-234.86	1,093.53	484.01	10.00	9.84	1.88
7,518.84	78.84	178.10	7,199.00	-253.26	1,094.19	502.06	10.00	9.85	1.78
Niobrara B									
7,600.00	86.83	179.50	7,209.11	-333.71	1,095.87	580.67	10.00	9.85	1.73
7,631.31	89.92	180.03	7,210.00	-365.00	1,096.00	611.13	10.00	9.85	1.70
Start DLS 1.00 TFO 158.13 - 7"									
7,633.01	89.90	180.04	7,210.00	-366.70	1,096.00	612.78	1.00	-0.93	0.37
Start 4179.53 hold at 7633.01 MD									
7,700.00	89.90	180.04	7,210.11	-433.69	1,095.95	677.90	0.00	0.00	0.00
7,800.00	89.90	180.04	7,210.28	-533.69	1,095.89	775.11	0.00	0.00	0.00
7,900.00	89.90	180.04	7,210.45	-633.69	1,095.82	872.33	0.00	0.00	0.00
8,000.00	89.90	180.04	7,210.62	-733.69	1,095.75	969.54	0.00	0.00	0.00

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Planning Report

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4942.00ft
Site:	WELD_Raymond 37-29HZ	North Reference:	True
Well:	Raymond 38N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 38N-29HZ		
Design:	Raymond 38N-29HZ (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)	
8,100.00	89.90	180.04	7,210.78	-833.69	1,095.69	1,066.75	0.00	0.00	0.00	
8,200.00	89.90	180.04	7,210.95	-933.69	1,095.62	1,163.97	0.00	0.00	0.00	
8,300.00	89.90	180.04	7,211.12	-1,033.69	1,095.55	1,261.18	0.00	0.00	0.00	
8,400.00	89.90	180.04	7,211.29	-1,133.69	1,095.48	1,358.39	0.00	0.00	0.00	
8,500.00	89.90	180.04	7,211.45	-1,233.69	1,095.42	1,455.60	0.00	0.00	0.00	
8,600.00	89.90	180.04	7,211.62	-1,333.69	1,095.35	1,552.82	0.00	0.00	0.00	
8,700.00	89.90	180.04	7,211.79	-1,433.69	1,095.28	1,650.03	0.00	0.00	0.00	
8,800.00	89.90	180.04	7,211.96	-1,533.69	1,095.21	1,747.24	0.00	0.00	0.00	
8,900.00	89.90	180.04	7,212.12	-1,633.69	1,095.15	1,844.45	0.00	0.00	0.00	
9,000.00	89.90	180.04	7,212.29	-1,733.69	1,095.08	1,941.67	0.00	0.00	0.00	
9,100.00	89.90	180.04	7,212.46	-1,833.69	1,095.01	2,038.88	0.00	0.00	0.00	
9,200.00	89.90	180.04	7,212.63	-1,933.69	1,094.95	2,136.09	0.00	0.00	0.00	
9,300.00	89.90	180.04	7,212.79	-2,033.69	1,094.88	2,233.30	0.00	0.00	0.00	
9,400.00	89.90	180.04	7,212.96	-2,133.69	1,094.81	2,330.52	0.00	0.00	0.00	
9,500.00	89.90	180.04	7,213.13	-2,233.69	1,094.74	2,427.73	0.00	0.00	0.00	
9,600.00	89.90	180.04	7,213.30	-2,333.69	1,094.68	2,524.94	0.00	0.00	0.00	
9,700.00	89.90	180.04	7,213.46	-2,433.69	1,094.61	2,622.16	0.00	0.00	0.00	
9,800.00	89.90	180.04	7,213.63	-2,533.69	1,094.54	2,719.37	0.00	0.00	0.00	
9,900.00	89.90	180.04	7,213.80	-2,633.69	1,094.48	2,816.58	0.00	0.00	0.00	
10,000.00	89.90	180.04	7,213.97	-2,733.69	1,094.41	2,913.79	0.00	0.00	0.00	
10,100.00	89.90	180.04	7,214.13	-2,833.69	1,094.34	3,011.01	0.00	0.00	0.00	
10,200.00	89.90	180.04	7,214.30	-2,933.69	1,094.27	3,108.22	0.00	0.00	0.00	
10,300.00	89.90	180.04	7,214.47	-3,033.69	1,094.21	3,205.43	0.00	0.00	0.00	
10,400.00	89.90	180.04	7,214.64	-3,133.69	1,094.14	3,302.64	0.00	0.00	0.00	
10,500.00	89.90	180.04	7,214.80	-3,233.69	1,094.07	3,399.86	0.00	0.00	0.00	
10,600.00	89.90	180.04	7,214.97	-3,333.69	1,094.01	3,497.07	0.00	0.00	0.00	
10,700.00	89.90	180.04	7,215.14	-3,433.69	1,093.94	3,594.28	0.00	0.00	0.00	
10,800.00	89.90	180.04	7,215.30	-3,533.69	1,093.87	3,691.50	0.00	0.00	0.00	
10,900.00	89.90	180.04	7,215.47	-3,633.69	1,093.80	3,788.71	0.00	0.00	0.00	
11,000.00	89.90	180.04	7,215.64	-3,733.69	1,093.74	3,885.92	0.00	0.00	0.00	
11,100.00	89.90	180.04	7,215.81	-3,833.69	1,093.67	3,983.13	0.00	0.00	0.00	
11,200.00	89.90	180.04	7,215.97	-3,933.69	1,093.60	4,080.35	0.00	0.00	0.00	
11,300.00	89.90	180.04	7,216.14	-4,033.69	1,093.53	4,177.56	0.00	0.00	0.00	
11,400.00	89.90	180.04	7,216.31	-4,133.69	1,093.47	4,274.77	0.00	0.00	0.00	
11,500.00	89.90	180.04	7,216.48	-4,233.68	1,093.40	4,371.98	0.00	0.00	0.00	
11,600.00	89.90	180.04	7,216.64	-4,333.68	1,093.33	4,469.20	0.00	0.00	0.00	
11,700.00	89.90	180.04	7,216.81	-4,433.68	1,093.27	4,566.41	0.00	0.00	0.00	
11,800.00	89.90	180.04	7,216.98	-4,533.68	1,093.20	4,663.62	0.00	0.00	0.00	
11,812.54	89.90	180.04	7,217.00	-4,546.22	1,093.19	4,675.81	0.00	0.00	0.00	
TD at 11812.54 - Raymond 38N-29HZ BHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude		Longitude
Raymond 38N-29HZ BH	0.00	0.00	7,217.00	-4,546.22	1,093.19	1,312,822.79	3,197,765.47	40.189928		-104.792103
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Raymond 38N-29HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4942.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4942.00ft
Site:	WELD_Raymond 37-29HZ	North Reference:	True
Well:	Raymond 38N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 38N-29HZ		
Design:	Raymond 38N-29HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
902.04	900.00	9 5/8"	9-5/8	12-1/4	
7,631.31	7,210.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,196.06	3,162.00	Parkman			
4,407.11	4,355.00	Sussex			
7,245.08	7,086.00	Sharon Springs			
7,365.59	7,150.00	Niobrara A			
7,518.84	7,199.00	Niobrara B			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	Start Build 2.00	
450.00	449.68	10.90	0.00	Start 450.00 hold at 450.00 MD	
900.00	897.97	39.13	27.23	Start DLS 2.00 TFO 63.38	
1,230.18	1,225.43	54.10	65.28	Start 5485.89 hold at 1230.18 MD	
6,716.07	6,629.55	207.00	996.46	Start DLS 10.00 TFO 99.23	
7,631.31	7,210.00	-365.00	1,096.00	Start DLS 1.00 TFO 158.13	
7,633.01	7,210.00	-366.70	1,096.00	Start 4179.53 hold at 7633.01 MD	
11,812.54	7,217.00	-4,546.22	1,093.19	TD at 11812.54	