

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Raymond 2-29HZ Pad

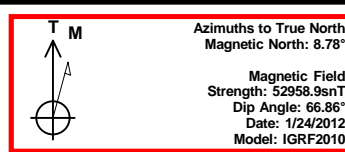
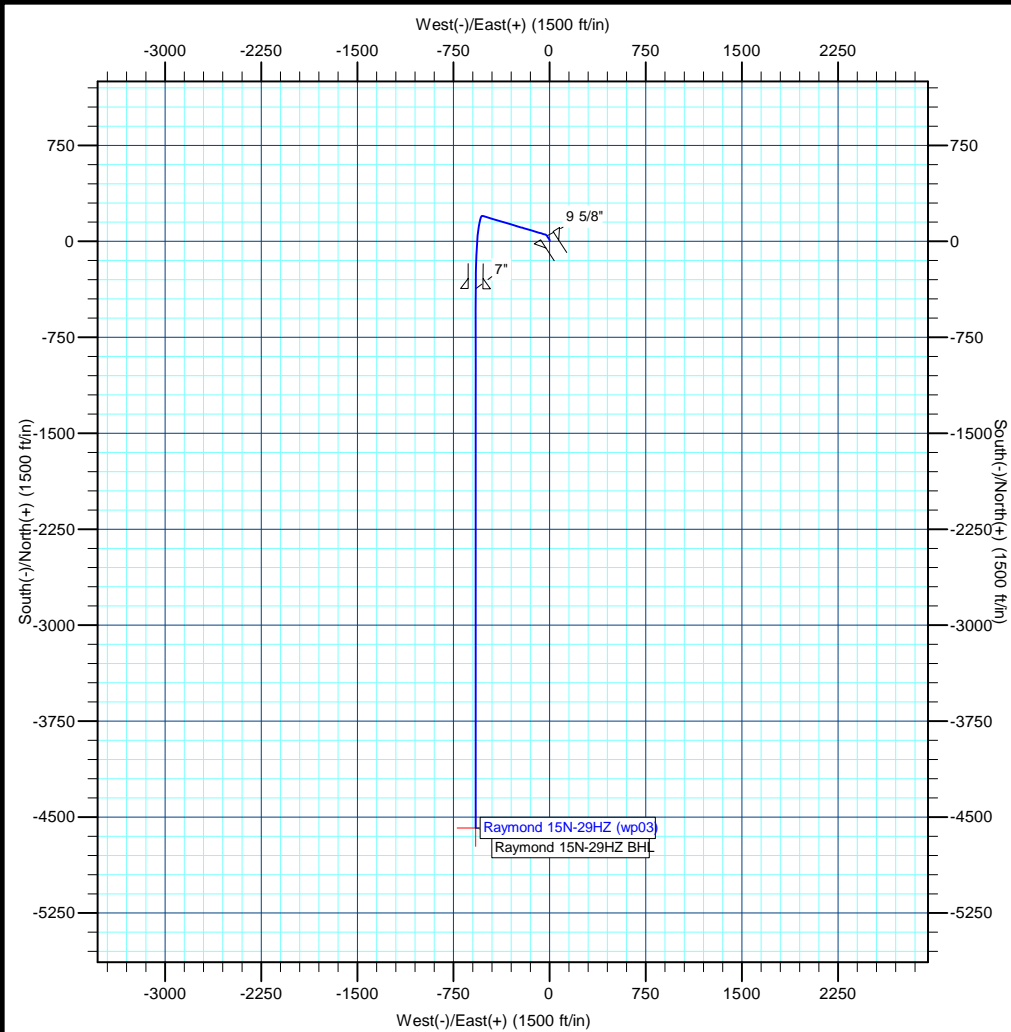
Raymond 15N-29HZ

Raymond 15N-29HZ

Plan: Raymond 15N-29HZ (wp03)

Standard Planning Report

19 March, 2012



Project: COLORADO NORTHERN ZONE - 83
Site: WELD Raymond 2-29HZ Pad
Well: Raymond 15N-29HZ
Wellbore: Raymond 15N-29HZ
Section:
SHL:
Design: Raymond 15N-29HZ (wp03)
Latitude: 40.202414
Longitude: -104.796982
GL: 4922.00
KB: gl + rkb @ 4939.00ft

WELL DETAILS: Raymond 15N-29HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4922.00 Latitude	Longitude	Slot
0.00	0.00	1317360.23	3196366.39	40.202414	-104.796982	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
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
450.00	5.00	327.00	449.68	10.90	0.00	2.00	0.00	-10.82
900.00	5.00	327.00	897.97	43.79	-21.36	0.00	0.00	-40.78
1078.60	5.31	286.57	1075.90	52.68	-33.53	2.00	-105.42	-48.08
6612.72	5.31	286.57	6586.24	198.80	-524.73	0.00	0.00	-131.74
7524.88	89.70	180.02	7172.00	-371.00	-576.91	10.00	-106.50	440.12
7531.13	89.65	180.00	7172.04	-377.24	-576.91	1.00	-158.65	446.31
1738.82	89.65	180.00	7198.00	-4584.85	-576.91	0.00	0.00	4621.00

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

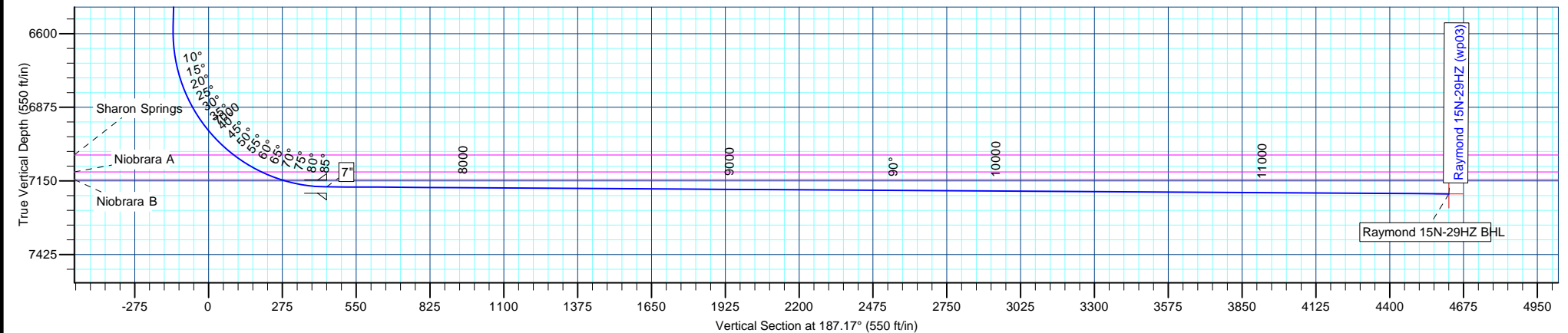
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Raymond 15N-29HZ BHL	7198.00	-4584.85	-576.91	40.189828	-104.799047	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3128.00	3139.55	Parkman
4355.00	4371.85	Sussex
7053.00	7151.08	Sharon Springs
7116.00	7271.89	Niobrara A
7145.00	7350.88	Niobrara B

CASING DETAILS

TVD	MD	Name	Size
897.00	899.03	9 5/8"	9-5/8
7172.00	7524.88	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Raymond 15N-29HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4939.00ft
Site:	WELD_Raymond 2-29HZ Pad	North Reference:	True
Well:	Raymond 15N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 15N-29HZ		
Design:	Raymond 15N-29HZ (wp03)		

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 2-29HZ Pad			
Site Position:		Northing:	1,317,360.37 usft	Latitude: 40.202415
From:	Lat/Long	Easting:	3,196,336.22 usft	Longitude: -104.797090
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.45 °

Well	Raymond 15N-29HZ			
Well Position	+N/-S	-0.38 ft	Northing:	1,317,360.23 usft
	+E/-W	30.17 ft	Easting:	3,196,366.39 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 40.202414
				Longitude: -104.796982
				Ground Level: 4,922.00 ft

Wellbore	Raymond 15N-29HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/24/2012	8.78	66.86	52,959

Design	Raymond 15N-29HZ (wp03)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	187.17

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	327.00	449.68	10.90	0.00	2.00	2.00	0.00	0.00	
900.00	5.00	327.00	897.97	43.79	-21.36	0.00	0.00	0.00	0.00	
1,078.60	5.31	286.57	1,075.90	52.68	-33.53	2.00	0.18	-22.64	-105.42	
6,612.72	5.31	286.57	6,586.24	198.80	-524.73	0.00	0.00	0.00	0.00	
7,524.88	89.70	180.02	7,172.00	-371.00	-576.91	10.00	9.25	-11.68	-106.50	
7,531.13	89.65	180.00	7,172.04	-377.24	-576.91	1.00	-0.93	-0.36	-158.65	
11,738.82	89.65	180.00	7,198.00	-4,584.85	-576.91	0.00	0.00	0.00	0.00	Raymond 15N-29HZ I

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4939.00ft
Site:	WELD_Raymond 2-29HZ Pad	North Reference:	True
Well:	Raymond 15N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 15N-29HZ		
Design:	Raymond 15N-29HZ (wp03)		

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	-1.73	2.00	2.00	0.00
400.00	4.00	0.00	399.84	6.98	0.00	-6.92	2.00	2.00	0.00
450.00	5.00	327.00	449.68	10.90	0.00	-10.82	5.46	2.00	-66.00
Start 450.00 hold at 450.00 MD									
500.00	5.00	327.00	499.49	14.56	-2.37	-14.15	0.00	0.00	0.00
600.00	5.00	327.00	599.11	21.87	-7.12	-20.81	0.00	0.00	0.00
700.00	5.00	327.00	698.73	29.18	-11.87	-27.47	0.00	0.00	0.00
800.00	5.00	327.00	798.35	36.48	-16.61	-34.12	0.00	0.00	0.00
899.03	5.00	327.00	897.00	43.72	-21.31	-40.72	0.00	0.00	0.00
9 5/8"									
900.00	5.00	327.00	897.97	43.79	-21.36	-40.78	0.00	0.00	0.00
Start DLS 2.00 TFO -105.42									
1,000.00	4.87	303.63	997.61	49.80	-27.27	-46.00	2.00	-0.13	-23.37
1,078.60	5.31	286.57	1,075.90	52.68	-33.53	-48.08	2.00	0.57	-21.71
Start 5534.12 hold at 1078.60 MD									
1,100.00	5.31	286.57	1,097.21	53.25	-35.43	-48.41	0.00	0.00	0.00
1,200.00	5.31	286.57	1,196.78	55.89	-44.31	-49.92	0.00	0.00	0.00
1,300.00	5.31	286.57	1,296.35	58.53	-53.18	-51.43	0.00	0.00	0.00
1,400.00	5.31	286.57	1,395.92	61.17	-62.06	-52.94	0.00	0.00	0.00
1,500.00	5.31	286.57	1,495.49	63.81	-70.93	-54.45	0.00	0.00	0.00
1,600.00	5.31	286.57	1,595.06	66.45	-79.81	-55.97	0.00	0.00	0.00
1,700.00	5.31	286.57	1,694.63	69.09	-88.68	-57.48	0.00	0.00	0.00
1,800.00	5.31	286.57	1,794.20	71.73	-97.56	-58.99	0.00	0.00	0.00
1,900.00	5.31	286.57	1,893.77	74.37	-106.44	-60.50	0.00	0.00	0.00
2,000.00	5.31	286.57	1,993.34	77.01	-115.31	-62.01	0.00	0.00	0.00
2,100.00	5.31	286.57	2,092.92	79.65	-124.19	-63.52	0.00	0.00	0.00
2,200.00	5.31	286.57	2,192.49	82.29	-133.06	-65.03	0.00	0.00	0.00
2,300.00	5.31	286.57	2,292.06	84.93	-141.94	-66.55	0.00	0.00	0.00
2,400.00	5.31	286.57	2,391.63	87.57	-150.82	-68.06	0.00	0.00	0.00
2,500.00	5.31	286.57	2,491.20	90.21	-159.69	-69.57	0.00	0.00	0.00
2,600.00	5.31	286.57	2,590.77	92.85	-168.57	-71.08	0.00	0.00	0.00
2,700.00	5.31	286.57	2,690.34	95.49	-177.44	-72.59	0.00	0.00	0.00
2,800.00	5.31	286.57	2,789.91	98.13	-186.32	-74.10	0.00	0.00	0.00
2,900.00	5.31	286.57	2,889.48	100.77	-195.20	-75.62	0.00	0.00	0.00
3,000.00	5.31	286.57	2,989.05	103.41	-204.07	-77.13	0.00	0.00	0.00
3,100.00	5.31	286.57	3,088.62	106.05	-212.95	-78.64	0.00	0.00	0.00
3,139.55	5.31	286.57	3,128.00	107.10	-216.46	-79.24	0.00	0.00	0.00
Parkman									
3,200.00	5.31	286.57	3,188.19	108.69	-221.82	-80.15	0.00	0.00	0.00
3,300.00	5.31	286.57	3,287.76	111.33	-230.70	-81.66	0.00	0.00	0.00
3,400.00	5.31	286.57	3,387.33	113.97	-239.57	-83.17	0.00	0.00	0.00
3,500.00	5.31	286.57	3,486.90	116.61	-248.45	-84.68	0.00	0.00	0.00
3,600.00	5.31	286.57	3,586.47	119.26	-257.33	-86.20	0.00	0.00	0.00
3,700.00	5.31	286.57	3,686.04	121.90	-266.20	-87.71	0.00	0.00	0.00
3,800.00	5.31	286.57	3,785.61	124.54	-275.08	-89.22	0.00	0.00	0.00
3,900.00	5.31	286.57	3,885.18	127.18	-283.95	-90.73	0.00	0.00	0.00
4,000.00	5.31	286.57	3,984.75	129.82	-292.83	-92.24	0.00	0.00	0.00
4,100.00	5.31	286.57	4,084.32	132.46	-301.71	-93.75	0.00	0.00	0.00
4,200.00	5.31	286.57	4,183.89	135.10	-310.58	-95.27	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Raymond 15N-29HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4939.00ft
Site:	WELD_Raymond 2-29HZ Pad	North Reference:	True
Well:	Raymond 15N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 15N-29HZ		
Design:	Raymond 15N-29HZ (wp03)		

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	5.31	286.57	4,283.46	137.74	-319.46	-96.78	0.00	0.00	0.00
4,371.85	5.31	286.57	4,355.00	139.63	-325.83	-97.86	0.00	0.00	0.00
Sussex									
4,400.00	5.31	286.57	4,383.03	140.38	-328.33	-98.29	0.00	0.00	0.00
4,500.00	5.31	286.57	4,482.60	143.02	-337.21	-99.80	0.00	0.00	0.00
4,600.00	5.31	286.57	4,582.17	145.66	-346.09	-101.31	0.00	0.00	0.00
4,700.00	5.31	286.57	4,681.74	148.30	-354.96	-102.82	0.00	0.00	0.00
4,800.00	5.31	286.57	4,781.31	150.94	-363.84	-104.34	0.00	0.00	0.00
4,900.00	5.31	286.57	4,880.88	153.58	-372.71	-105.85	0.00	0.00	0.00
5,000.00	5.31	286.57	4,980.45	156.22	-381.59	-107.36	0.00	0.00	0.00
5,100.00	5.31	286.57	5,080.02	158.86	-390.46	-108.87	0.00	0.00	0.00
5,200.00	5.31	286.57	5,179.60	161.50	-399.34	-110.38	0.00	0.00	0.00
5,300.00	5.31	286.57	5,279.17	164.14	-408.22	-111.89	0.00	0.00	0.00
5,400.00	5.31	286.57	5,378.74	166.78	-417.09	-113.40	0.00	0.00	0.00
5,500.00	5.31	286.57	5,478.31	169.42	-425.97	-114.92	0.00	0.00	0.00
5,600.00	5.31	286.57	5,577.88	172.06	-434.84	-116.43	0.00	0.00	0.00
5,700.00	5.31	286.57	5,677.45	174.70	-443.72	-117.94	0.00	0.00	0.00
5,800.00	5.31	286.57	5,777.02	177.34	-452.60	-119.45	0.00	0.00	0.00
5,900.00	5.31	286.57	5,876.59	179.98	-461.47	-120.96	0.00	0.00	0.00
6,000.00	5.31	286.57	5,976.16	182.62	-470.35	-122.47	0.00	0.00	0.00
6,100.00	5.31	286.57	6,075.73	185.26	-479.22	-123.99	0.00	0.00	0.00
6,200.00	5.31	286.57	6,175.30	187.90	-488.10	-125.50	0.00	0.00	0.00
6,300.00	5.31	286.57	6,274.87	190.54	-496.98	-127.01	0.00	0.00	0.00
6,400.00	5.31	286.57	6,374.44	193.18	-505.85	-128.52	0.00	0.00	0.00
6,500.00	5.31	286.57	6,474.01	195.82	-514.73	-130.03	0.00	0.00	0.00
6,600.00	5.31	286.57	6,573.58	198.47	-523.60	-131.54	0.00	0.00	0.00
6,612.72	5.31	286.57	6,586.24	198.80	-524.73	-131.74	0.00	0.00	0.00
Start DLS 10.00 TFO -106.50									
6,700.00	8.82	215.04	6,672.99	194.46	-532.46	-126.47	10.00	4.02	-81.95
6,800.00	17.93	195.99	6,770.22	173.33	-541.13	-104.42	10.00	9.11	-19.05
6,900.00	27.65	189.79	6,862.31	135.57	-549.34	-65.93	10.00	9.72	-6.19
7,000.00	37.51	186.66	6,946.47	82.33	-556.84	-12.17	10.00	9.86	-3.13
7,100.00	47.42	184.69	7,020.15	15.22	-563.40	55.24	10.00	9.91	-1.97
7,151.08	52.50	183.92	7,053.00	-23.76	-566.32	94.28	10.00	9.93	-1.52
Sharon Springs									
7,200.00	57.36	183.27	7,081.10	-63.71	-568.83	134.23	10.00	9.94	-1.33
7,271.89	64.51	182.43	7,116.00	-126.43	-571.93	196.84	10.00	9.95	-1.17
Niobrara A									
7,300.00	67.31	182.13	7,127.47	-152.07	-572.95	222.41	10.00	9.95	-1.07
7,350.88	72.37	181.62	7,145.00	-199.79	-574.51	269.95	10.00	9.96	-1.01
Niobrara B									
7,400.00	77.27	181.15	7,157.86	-247.17	-575.66	317.10	10.00	9.96	-0.95
7,500.00	87.23	180.24	7,171.33	-346.12	-576.85	415.43	10.00	9.96	-0.91
7,524.88	89.70	180.02	7,172.00	-370.99	-576.91	440.11	10.00	9.96	-0.89
Start DLS 1.00 TFO -158.65 - 7"									
7,531.13	89.65	180.00	7,172.04	-377.24	-576.91	446.31	0.99	-0.92	-0.36
Start 4207.69 hold at 7531.13 MD									
7,600.00	89.65	180.00	7,172.46	-446.11	-576.91	514.64	0.00	0.00	0.00
7,700.00	89.65	180.00	7,173.08	-546.11	-576.91	613.86	0.00	0.00	0.00
7,800.00	89.65	180.00	7,173.69	-646.11	-576.91	713.08	0.00	0.00	0.00
7,900.00	89.65	180.00	7,174.31	-746.10	-576.91	812.29	0.00	0.00	0.00
8,000.00	89.65	180.00	7,174.93	-846.10	-576.91	911.51	0.00	0.00	0.00
8,100.00	89.65	180.00	7,175.55	-946.10	-576.91	1,010.72	0.00	0.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4939.00ft
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Well:	Raymond 15N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 15N-29HZ		
Design:	Raymond 15N-29HZ (wp03)		

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)	
8,200.00	89.65	180.00	7,176.16	-1,046.10	-576.91	1,109.94	0.00	0.00	0.00	
8,300.00	89.65	180.00	7,176.78	-1,146.10	-576.91	1,209.15	0.00	0.00	0.00	
8,400.00	89.65	180.00	7,177.40	-1,246.09	-576.91	1,308.37	0.00	0.00	0.00	
8,500.00	89.65	180.00	7,178.01	-1,346.09	-576.91	1,407.59	0.00	0.00	0.00	
8,600.00	89.65	180.00	7,178.63	-1,446.09	-576.91	1,506.80	0.00	0.00	0.00	
8,700.00	89.65	180.00	7,179.25	-1,546.09	-576.91	1,606.02	0.00	0.00	0.00	
8,800.00	89.65	180.00	7,179.87	-1,646.09	-576.91	1,705.23	0.00	0.00	0.00	
8,900.00	89.65	180.00	7,180.48	-1,746.09	-576.91	1,804.45	0.00	0.00	0.00	
9,000.00	89.65	180.00	7,181.10	-1,846.08	-576.91	1,903.66	0.00	0.00	0.00	
9,100.00	89.65	180.00	7,181.72	-1,946.08	-576.91	2,002.88	0.00	0.00	0.00	
9,200.00	89.65	180.00	7,182.33	-2,046.08	-576.91	2,102.10	0.00	0.00	0.00	
9,300.00	89.65	180.00	7,182.95	-2,146.08	-576.91	2,201.31	0.00	0.00	0.00	
9,400.00	89.65	180.00	7,183.57	-2,246.08	-576.91	2,300.53	0.00	0.00	0.00	
9,500.00	89.65	180.00	7,184.18	-2,346.07	-576.91	2,399.74	0.00	0.00	0.00	
9,600.00	89.65	180.00	7,184.80	-2,446.07	-576.91	2,498.96	0.00	0.00	0.00	
9,700.00	89.65	180.00	7,185.42	-2,546.07	-576.91	2,598.17	0.00	0.00	0.00	
9,800.00	89.65	180.00	7,186.04	-2,646.07	-576.91	2,697.39	0.00	0.00	0.00	
9,900.00	89.65	180.00	7,186.65	-2,746.07	-576.91	2,796.61	0.00	0.00	0.00	
10,000.00	89.65	180.00	7,187.27	-2,846.06	-576.91	2,895.82	0.00	0.00	0.00	
10,100.00	89.65	180.00	7,187.89	-2,946.06	-576.91	2,995.04	0.00	0.00	0.00	
10,200.00	89.65	180.00	7,188.50	-3,046.06	-576.91	3,094.25	0.00	0.00	0.00	
10,300.00	89.65	180.00	7,189.12	-3,146.06	-576.91	3,193.47	0.00	0.00	0.00	
10,400.00	89.65	180.00	7,189.74	-3,246.06	-576.91	3,292.68	0.00	0.00	0.00	
10,500.00	89.65	180.00	7,190.36	-3,346.05	-576.91	3,391.90	0.00	0.00	0.00	
10,600.00	89.65	180.00	7,190.97	-3,446.05	-576.91	3,491.12	0.00	0.00	0.00	
10,700.00	89.65	180.00	7,191.59	-3,546.05	-576.91	3,590.33	0.00	0.00	0.00	
10,800.00	89.65	180.00	7,192.21	-3,646.05	-576.91	3,689.55	0.00	0.00	0.00	
10,900.00	89.65	180.00	7,192.82	-3,746.05	-576.91	3,788.76	0.00	0.00	0.00	
11,000.00	89.65	180.00	7,193.44	-3,846.05	-576.91	3,887.98	0.00	0.00	0.00	
11,100.00	89.65	180.00	7,194.06	-3,946.04	-576.91	3,987.19	0.00	0.00	0.00	
11,200.00	89.65	180.00	7,194.68	-4,046.04	-576.91	4,086.41	0.00	0.00	0.00	
11,300.00	89.65	180.00	7,195.29	-4,146.04	-576.91	4,185.63	0.00	0.00	0.00	
11,400.00	89.65	180.00	7,195.91	-4,246.04	-576.91	4,284.84	0.00	0.00	0.00	
11,500.00	89.65	180.00	7,196.53	-4,346.04	-576.91	4,384.06	0.00	0.00	0.00	
11,600.00	89.65	180.00	7,197.14	-4,446.03	-576.91	4,483.27	0.00	0.00	0.00	
11,700.00	89.65	180.00	7,197.76	-4,546.03	-576.91	4,582.49	0.00	0.00	0.00	
11,738.82	89.65	180.00	7,198.00	-4,584.85	-576.91	4,621.00	0.00	0.00	0.00	
TD at 11738.82 - Raymond 15N-29HZ 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									
Raymond 15N-29HZ BH	0.00	0.00	7,198.00	-4,584.85	-576.91	1,312,770.96	3,195,825.85	40.189828	-104.799047
- plan hits target center									
- Point									

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Raymond 15N-29HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4939.00ft
Site:	WELD_Raymond 2-29HZ Pad	North Reference:	True
Well:	Raymond 15N-29HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Raymond 15N-29HZ		
Design:	Raymond 15N-29HZ (wp03)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
899.03	897.00	9 5/8"	9-5/8	12-1/4	
7,524.88	7,172.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction
3,139.55	3,128.00	Parkman			
4,371.85	4,355.00	Sussex			
7,151.08	7,053.00	Sharon Springs			
7,271.89	7,116.00	Niobrara A			
7,350.88	7,145.00	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	43.79	-21.36	Start DLS 2.00 TFO -105.42	
1,078.60	1,075.90	52.68	-33.53	Start 5534.12 hold at 1078.60 MD	
6,612.72	6,586.24	198.80	-524.73	Start DLS 10.00 TFO -106.50	
7,524.88	7,172.00	-371.00	-576.91	Start DLS 1.00 TFO -158.65	
7,531.13	7,172.04	-377.24	-576.91	Start 4207.69 hold at 7531.13 MD	
11,738.82	7,198.00	-4,584.85	-576.91	TD at 11738.82	