

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RAYMOND 1-30HZ PAD

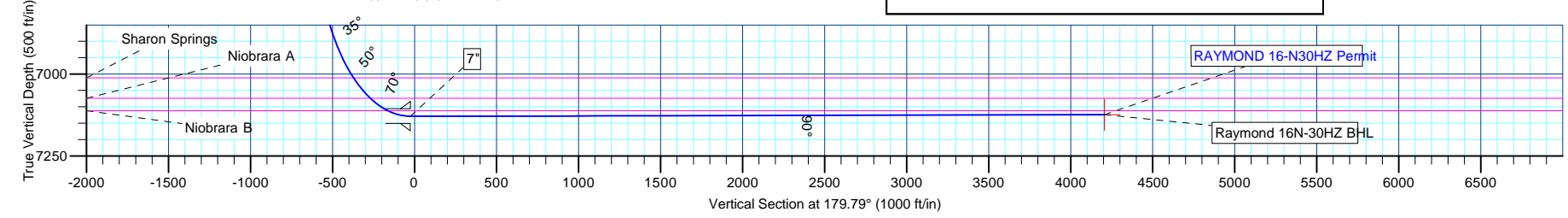
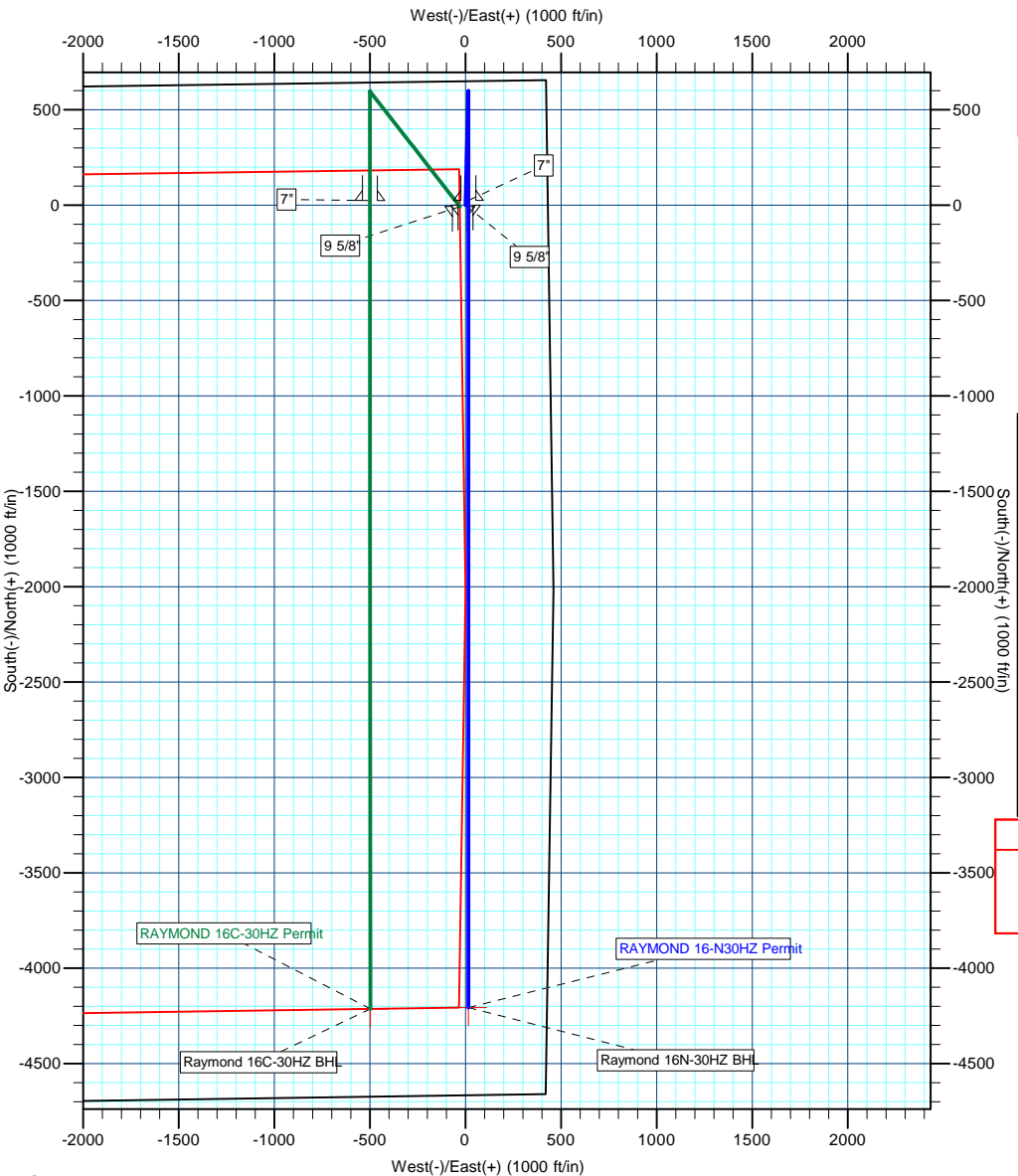
RAYMOND 16N-30HZ

RAYMOND 16N-30HZ

Plan: RAYMOND 16-N30HZ Permit

Standard Planning Report

22 August, 2012



T

M

Azimuths to True North

Magnetic North: 8.73°

Magnetic Field

Strength: 52911.1snT

Dip Angle: 66.85°

Date: 7/2/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD_RAYMOND 1-30HZ PAD

Well: RAYMOND 16N-30HZ

Wellbore: RAYMOND 16N-30HZ

Section:

SHL:

Design: RAYMOND 16-N30HZ Permit

Latitude: 40.201187

Longitude: -104.812158

GL: 4858.00

KB: 16' RKB + 4858' GL @ 4874.00ft

WELL DETAILS: RAYMOND 16N-30HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00 Latitude	40.201187 Longitude	Slot
0.00	0.00	1316880.04	3192130.99			

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
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00
1416.81	11.34	1.49	1413.12	55.87	1.45	2.00	1.49	-55.87
3290.24	11.34	1.49	3250.00	424.00	11.00	0.00	0.00	-423.96
5051.71	0.00	0.00	5000.00	597.63	15.50	0.64	180.00	-597.57
6607.75	0.00	0.00	6556.04	597.63	15.50	0.00	0.00	-597.57
7507.75	90.00	180.00	7129.00	24.67	15.50	10.00	180.00	-24.62
8250.29	90.07	180.00	7128.52	-717.87	15.49	0.01	1.59	717.92
11738.08	90.07	180.00	7124.00	-4205.65	15.37	0.00	0.00	4205.68

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Raymond 16N-30HZ BHL	7124.00	-4205.65	15.37	40.189642	-104.812103	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
706.00	706.00	Fox Hills
3389.01	3431.79	Parkman
4293.01	4343.97	Sussex
7012.01	7135.08	Sharon Springs
7074.01	7254.69	Niobrara A
7112.01	7367.90	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
700.00	700.00	9 5/8"	9-5/8
7129.00	7507.75	7"	7

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well RAYMOND 16N-30HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + 4858' GL @ 4874.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + 4858' GL @ 4874.00ft
Site:	WELD_RAYMOND 1-30HZ PAD	North Reference:	True
Well:	RAYMOND 16N-30HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	RAYMOND 16N-30HZ		
Design:	RAYMOND 16-N30HZ Permit		

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 1-30HZ PAD			
Site Position:		Northing:	1,316,880.04 usft	Latitude: 40.201187
From:	Lat/Long	Easting:	3,192,130.99 usft	Longitude: -104.812158
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.44 °

Well	RAYMOND 16N-30HZ			
Well Position	+N/-S	0.00 ft	Northing:	1,316,880.03 usft
	+E/-W	0.00 ft	Easting:	3,192,130.99 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Latitude: 40.201187
				Longitude: -104.812158
				Ground Level: 4,858.00 ft

Wellbore	RAYMOND 16N-30HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/2/2012	8.73	66.85	52,911

Design	RAYMOND 16-N30HZ Permit			
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	179.79

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	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,416.81	11.34	1.49	1,413.12	55.87	1.45	2.00	2.00	0.26	1.49	
3,290.24	11.34	1.49	3,250.00	424.00	11.00	0.00	0.00	0.00	0.00	
5,051.71	0.00	0.00	5,000.00	597.63	15.50	0.64	-0.64	0.00	180.00	
6,607.75	0.00	0.00	6,556.04	597.63	15.50	0.00	0.00	0.00	0.00	
7,507.75	90.00	180.00	7,129.00	24.67	15.50	10.00	10.00	0.00	180.00	
8,250.29	90.07	180.00	7,128.52	-717.87	15.49	0.01	0.01	0.00	1.59	
11,738.08	90.07	180.00	7,124.00	-4,205.65	15.37	0.00	0.00	0.00	0.00	Raymond 16N-30HZ I

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well RAYMOND 16N-30HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + 4858' GL @ 4874.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + 4858' GL @ 4874.00ft
Site:	WELD_RAYMOND 1-30HZ PAD	North Reference:	True
Well:	RAYMOND 16N-30HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	RAYMOND 16N-30HZ		
Design:	RAYMOND 16-N30HZ 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
9 5/8"									
706.00	0.00	0.00	706.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00
Start DLS 2.00 TFO 1.49									
900.00	1.00	1.49	900.00	0.44	0.01	-0.44	2.00	2.00	0.00
1,000.00	3.00	1.49	999.93	3.92	0.10	-3.92	2.00	2.00	0.00
1,100.00	5.00	1.49	1,099.69	10.90	0.28	-10.90	2.00	2.00	0.00
1,200.00	7.00	1.49	1,199.13	21.35	0.55	-21.34	2.00	2.00	0.00
1,300.00	9.00	1.49	1,298.15	35.26	0.91	-35.26	2.00	2.00	0.00
1,400.00	11.00	1.49	1,396.63	52.62	1.37	-52.61	2.00	2.00	0.00
1,416.81	11.34	1.49	1,413.12	55.87	1.45	-55.87	2.00	2.00	0.00
Start 1873.43 hold at 1416.81 MD									
1,500.00	11.34	1.49	1,494.69	72.22	1.87	-72.21	0.00	0.00	0.00
1,600.00	11.34	1.49	1,592.74	91.87	2.38	-91.86	0.00	0.00	0.00
1,700.00	11.34	1.49	1,690.79	111.52	2.89	-111.51	0.00	0.00	0.00
1,800.00	11.34	1.49	1,788.84	131.17	3.40	-131.16	0.00	0.00	0.00
1,900.00	11.34	1.49	1,886.89	150.82	3.91	-150.80	0.00	0.00	0.00
2,000.00	11.34	1.49	1,984.94	170.47	4.42	-170.45	0.00	0.00	0.00
2,100.00	11.34	1.49	2,082.98	190.12	4.93	-190.10	0.00	0.00	0.00
2,200.00	11.34	1.49	2,181.03	209.77	5.44	-209.75	0.00	0.00	0.00
2,300.00	11.34	1.49	2,279.08	229.42	5.95	-229.40	0.00	0.00	0.00
2,400.00	11.34	1.49	2,377.13	249.07	6.46	-249.04	0.00	0.00	0.00
2,500.01	11.34	1.49	2,475.18	268.72	6.97	-268.69	0.00	0.00	0.00
2,600.01	11.34	1.49	2,573.23	288.37	7.48	-288.34	0.00	0.00	0.00
2,700.01	11.34	1.49	2,671.28	308.02	7.99	-307.99	0.00	0.00	0.00
2,800.01	11.34	1.49	2,769.33	327.67	8.50	-327.64	0.00	0.00	0.00
2,900.01	11.34	1.49	2,867.38	347.32	9.01	-347.28	0.00	0.00	0.00
3,000.01	11.34	1.49	2,965.43	366.97	9.52	-366.93	0.00	0.00	0.00
3,100.01	11.34	1.49	3,063.48	386.62	10.03	-386.58	0.00	0.00	0.00
3,200.01	11.34	1.49	3,161.53	406.27	10.54	-406.23	0.00	0.00	0.00
3,290.24	11.34	1.49	3,250.00	424.00	11.00	-423.96	0.00	0.00	0.00
Start Drop -0.64									
3,300.01	11.27	1.49	3,259.58	425.91	11.05	-425.87	0.64	-0.64	0.00
3,400.01	10.63	1.49	3,357.76	444.91	11.54	-444.86	0.64	-0.64	0.00
3,431.79	10.43	1.49	3,389.01	450.71	11.69	-450.67	0.64	-0.64	0.00
Parkman									
3,500.01	9.99	1.49	3,456.14	462.79	12.01	-462.75	0.64	-0.64	0.00
3,600.01	9.34	1.49	3,554.72	479.58	12.44	-479.53	0.64	-0.64	0.00
3,700.01	8.70	1.49	3,653.48	495.25	12.85	-495.20	0.64	-0.64	0.00
3,800.01	8.06	1.49	3,752.42	509.81	13.23	-509.76	0.64	-0.64	0.00
3,900.01	7.41	1.49	3,851.51	523.27	13.58	-523.21	0.64	-0.64	0.00
4,000.01	6.77	1.49	3,950.74	535.60	13.90	-535.55	0.64	-0.64	0.00
4,100.01	6.12	1.49	4,050.11	546.83	14.19	-546.77	0.64	-0.64	0.00

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well RAYMOND 16N-30HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + 4858' GL @ 4874.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + 4858' GL @ 4874.00ft
Site:	WELD_RAYMOND 1-30HZ PAD	North Reference:	True
Well:	RAYMOND 16N-30HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	RAYMOND 16N-30HZ		
Design:	RAYMOND 16-N30HZ 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)
4,200.01	5.48	1.49	4,149.60	556.94	14.45	-556.88	0.64	-0.64	0.00
4,300.01	4.84	1.49	4,249.19	565.93	14.68	-565.87	0.64	-0.64	0.00
4,343.97	4.55	1.49	4,293.01	569.52	14.78	-569.47	0.64	-0.64	0.00
Sussex									
4,400.01	4.19	1.49	4,348.88	573.80	14.89	-573.74	0.64	-0.64	0.00
4,500.01	3.55	1.49	4,448.65	580.55	15.06	-580.49	0.64	-0.64	0.00
4,600.01	2.91	1.49	4,548.49	586.18	15.21	-586.12	0.64	-0.64	0.00
4,700.01	2.26	1.49	4,648.39	590.69	15.32	-590.63	0.64	-0.64	0.00
4,800.01	1.62	1.49	4,748.33	594.07	15.41	-594.01	0.64	-0.64	0.00
4,900.01	0.98	1.49	4,848.31	596.34	15.47	-596.28	0.64	-0.64	0.00
5,000.01	0.33	1.49	4,948.30	597.48	15.50	-597.42	0.64	-0.64	0.00
5,051.71	0.00	0.00	5,000.00	597.63	15.50	-597.57	0.64	-0.64	0.00
Start 1556.04 hold at 5051.71 MD									
5,100.01	0.00	0.00	5,048.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,200.01	0.00	0.00	5,148.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,300.01	0.00	0.00	5,248.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,400.01	0.00	0.00	5,348.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,500.01	0.00	0.00	5,448.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,600.01	0.00	0.00	5,548.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,700.01	0.00	0.00	5,648.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,800.01	0.00	0.00	5,748.30	597.63	15.50	-597.57	0.00	0.00	0.00
5,900.01	0.00	0.00	5,848.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,000.01	0.00	0.00	5,948.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,100.01	0.00	0.00	6,048.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,200.01	0.00	0.00	6,148.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,300.01	0.00	0.00	6,248.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,400.01	0.00	0.00	6,348.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,500.01	0.00	0.00	6,448.30	597.63	15.50	-597.57	0.00	0.00	0.00
6,607.75	0.00	0.00	6,556.04	597.63	15.50	-597.57	0.00	0.00	0.00
Start Build 10.00									
6,650.01	4.23	180.00	6,598.26	596.07	15.50	-596.01	10.00	10.00	0.00
6,700.01	9.23	180.00	6,647.90	590.22	15.50	-590.16	10.00	10.00	0.00
6,750.01	14.23	180.00	6,696.85	580.06	15.50	-580.00	10.00	10.00	0.00
6,800.01	19.23	180.00	6,744.72	565.67	15.50	-565.61	10.00	10.00	0.00
6,850.01	24.23	180.00	6,791.15	547.17	15.50	-547.11	10.00	10.00	0.00
6,900.01	29.23	180.00	6,835.79	524.69	15.50	-524.63	10.00	10.00	0.00
6,950.01	34.23	180.00	6,878.31	498.41	15.50	-498.35	10.00	10.00	0.00
7,000.01	39.23	180.00	6,918.37	468.52	15.50	-468.46	10.00	10.00	0.00
7,050.01	44.23	180.00	6,955.68	435.25	15.50	-435.19	10.00	10.00	0.00
7,100.01	49.23	180.00	6,989.94	398.86	15.50	-398.80	10.00	10.00	0.00
7,135.08	52.73	180.00	7,012.01	371.62	15.50	-371.56	10.00	10.00	0.00
Sharon Springs									
7,150.01	54.23	180.00	7,020.90	359.62	15.50	-359.56	10.00	10.00	0.00
7,200.01	59.23	180.00	7,048.32	317.83	15.50	-317.77	10.00	10.00	0.00
7,250.01	64.23	180.00	7,072.00	273.81	15.50	-273.75	10.00	10.00	0.00
7,254.69	64.69	180.00	7,074.01	269.59	15.50	-269.53	10.00	10.00	0.00
Niobrara A									
7,300.01	69.23	180.00	7,091.75	227.89	15.50	-227.83	10.00	10.00	0.00
7,350.01	74.23	180.00	7,107.42	180.42	15.50	-180.37	10.00	10.00	0.00
7,367.90	76.01	180.00	7,112.01	163.14	15.50	-163.09	10.00	10.00	0.00
Niobrara B									
7,400.01	79.23	180.00	7,118.90	131.78	15.50	-131.72	10.00	10.00	0.00
7,450.02	84.23	180.00	7,126.09	82.31	15.50	-82.25	10.00	10.00	0.00

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well RAYMOND 16N-30HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + 4858' GL @ 4874.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + 4858' GL @ 4874.00ft
Site:	WELD_RAYMOND 1-30HZ PAD	North Reference:	True
Well:	RAYMOND 16N-30HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	RAYMOND 16N-30HZ		
Design:	RAYMOND 16-N30HZ 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)
7,500.02	89.23	180.00	7,128.95	32.41	15.50	-32.35	10.00	10.00	0.00
7,507.75	90.00	180.00	7,129.00	24.67	15.50	-24.62	10.00	10.00	0.00
Start DLS 0.01 TFO 1.59 - 7"									
7,600.02	90.01	180.00	7,128.99	-67.59	15.50	67.65	0.01	0.01	0.00
7,700.02	90.02	180.00	7,128.97	-167.59	15.50	167.65	0.01	0.01	0.00
7,800.02	90.03	180.00	7,128.92	-267.59	15.50	267.65	0.01	0.01	0.00
7,900.02	90.04	180.00	7,128.86	-367.59	15.50	367.65	0.01	0.01	0.00
8,000.02	90.05	180.00	7,128.79	-467.59	15.50	467.65	0.01	0.01	0.00
8,100.02	90.06	180.00	7,128.69	-567.59	15.50	567.64	0.01	0.01	0.00
8,200.02	90.07	180.00	7,128.58	-667.59	15.49	667.64	0.01	0.01	0.00
8,250.29	90.07	180.00	7,128.52	-717.87	15.49	717.92	0.01	0.01	0.00
Start 3487.79 hold at 8250.29 MD									
8,300.02	90.07	180.00	7,128.45	-767.59	15.49	767.64	0.00	0.00	0.00
8,400.02	90.07	180.00	7,128.32	-867.59	15.49	867.64	0.00	0.00	0.00
8,500.02	90.07	180.00	7,128.19	-967.59	15.48	967.64	0.00	0.00	0.00
8,600.02	90.07	180.00	7,128.07	-1,067.59	15.48	1,067.64	0.00	0.00	0.00
8,700.02	90.07	180.00	7,127.94	-1,167.59	15.48	1,167.64	0.00	0.00	0.00
8,800.02	90.07	180.00	7,127.81	-1,267.59	15.47	1,267.64	0.00	0.00	0.00
8,900.02	90.07	180.00	7,127.68	-1,367.59	15.47	1,367.64	0.00	0.00	0.00
9,000.02	90.07	180.00	7,127.55	-1,467.59	15.46	1,467.64	0.00	0.00	0.00
9,100.02	90.07	180.00	7,127.42	-1,567.59	15.46	1,567.64	0.00	0.00	0.00
9,200.02	90.07	180.00	7,127.29	-1,667.59	15.46	1,667.64	0.00	0.00	0.00
9,300.02	90.07	180.00	7,127.16	-1,767.59	15.45	1,767.64	0.00	0.00	0.00
9,400.02	90.07	180.00	7,127.03	-1,867.59	15.45	1,867.64	0.00	0.00	0.00
9,500.02	90.07	180.00	7,126.90	-1,967.59	15.45	1,967.64	0.00	0.00	0.00
9,600.02	90.07	180.00	7,126.77	-2,067.59	15.44	2,067.64	0.00	0.00	0.00
9,700.02	90.07	180.00	7,126.64	-2,167.59	15.44	2,167.64	0.00	0.00	0.00
9,800.02	90.07	180.00	7,126.51	-2,267.59	15.44	2,267.64	0.00	0.00	0.00
9,900.02	90.07	180.00	7,126.38	-2,367.59	15.43	2,367.63	0.00	0.00	0.00
10,000.02	90.07	180.00	7,126.25	-2,467.59	15.43	2,467.63	0.00	0.00	0.00
10,100.02	90.07	180.00	7,126.12	-2,567.59	15.42	2,567.63	0.00	0.00	0.00
10,200.02	90.07	180.00	7,125.99	-2,667.59	15.42	2,667.63	0.00	0.00	0.00
10,300.02	90.07	180.00	7,125.86	-2,767.59	15.42	2,767.63	0.00	0.00	0.00
10,400.02	90.07	180.00	7,125.73	-2,867.59	15.41	2,867.63	0.00	0.00	0.00
10,500.02	90.07	180.00	7,125.60	-2,967.59	15.41	2,967.63	0.00	0.00	0.00
10,600.02	90.07	180.00	7,125.47	-3,067.59	15.41	3,067.63	0.00	0.00	0.00
10,700.02	90.07	180.00	7,125.34	-3,167.59	15.40	3,167.63	0.00	0.00	0.00
10,800.02	90.07	180.00	7,125.22	-3,267.60	15.40	3,267.63	0.00	0.00	0.00
10,900.02	90.07	180.00	7,125.09	-3,367.60	15.40	3,367.63	0.00	0.00	0.00
11,000.02	90.07	180.00	7,124.96	-3,467.60	15.39	3,467.63	0.00	0.00	0.00
11,100.02	90.07	180.00	7,124.83	-3,567.60	15.39	3,567.63	0.00	0.00	0.00
11,200.02	90.07	180.00	7,124.70	-3,667.60	15.39	3,667.63	0.00	0.00	0.00
11,300.02	90.07	180.00	7,124.57	-3,767.60	15.38	3,767.63	0.00	0.00	0.00
11,400.02	90.07	180.00	7,124.44	-3,867.60	15.38	3,867.63	0.00	0.00	0.00
11,500.02	90.07	180.00	7,124.31	-3,967.60	15.37	3,967.63	0.00	0.00	0.00
11,600.02	90.07	180.00	7,124.18	-4,067.60	15.37	4,067.62	0.00	0.00	0.00
11,700.02	90.07	180.00	7,124.05	-4,167.60	15.37	4,167.62	0.00	0.00	0.00
11,738.08	90.07	180.00	7,124.00	-4,205.65	15.37	4,205.68	0.00	0.00	0.00
TD at 11738.08 - Raymond 16N-30HZ BHL									

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well RAYMOND 16N-30HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	16' RKB + 4858' GL @ 4874.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	16' RKB + 4858' GL @ 4874.00ft
Site:	WELD_RAYMOND 1-30HZ PAD	North Reference:	True
Well:	RAYMOND 16N-30HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	RAYMOND 16N-30HZ		
Design:	RAYMOND 16-N30HZ Permit		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Raymond 16N-30HZ BH	0.00	0.00	7,124.00	-4,205.65	15.37	1,312,674.64	3,192,178.98	40.189642	-104.812103
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
700.00	700.00	9 5/8"		9-5/8	12-1/4
7,507.75	7,129.00	7"		7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
706.00	706.00	Fox Hills				
3,431.79	3,389.01	Parkman				
4,343.97	4,293.01	Sussex				
7,135.08	7,012.01	Sharon Springs				
7,254.69	7,074.01	Niobrara A				
7,367.90	7,112.01	Niobrara B				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
850.00	850.00	0.00	0.00	Start DLS 2.00 TFO 1.49	
1,416.81	1,413.12	55.87	1.45	Start 1873.43 hold at 1416.81 MD	
3,290.24	3,250.00	424.00	11.00	Start Drop -0.64	
5,051.71	5,000.00	597.63	15.50	Start 1556.04 hold at 5051.71 MD	
6,607.75	6,556.04	597.63	15.50	Start Build 10.00	
7,507.75	7,129.00	24.67	15.50	Start DLS 0.01 TFO 1.59	
8,250.29	7,128.52	-717.87	15.49	Start 3487.79 hold at 8250.29 MD	
11,738.08	7,124.00	-4,205.65	15.37	TD at 11738.08	