

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_PERKINS 3-21HZ PAD

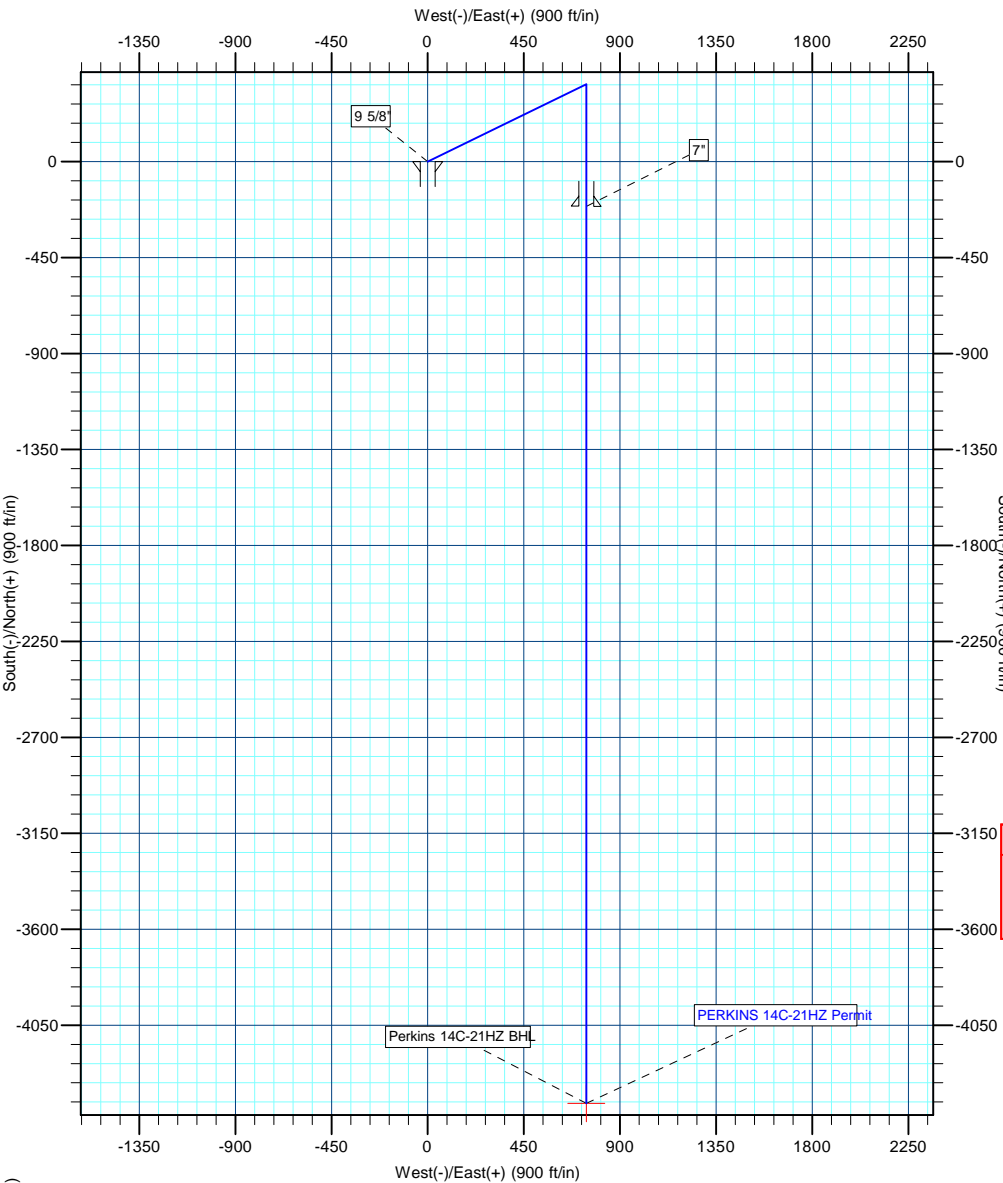
PERKINS 14C-21HZ

PERKINS 14C-21HZ

Plan: PERKINS 14C-21HZ Permit

Standard Planning Report

31 July, 2012



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Azimuths to True North

Magnetic North: 8.59°

Magnetic Field

Strength: 52900.1snT

Dip Angle: 66.83°

Date: 7/2/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD PERKINS 3-21HZ PAD

Well: PERKINS 14C-21HZ

Wellbore: PERKINS 14C-21HZ

Section:

SHL:

Design: PERKINS 14C-21HZ Permit

Latitude: 40.130103

Longitude: -104.559960

GL: 4920.00

KB: 17' RKB + 4921' GL @ 4938.00ft

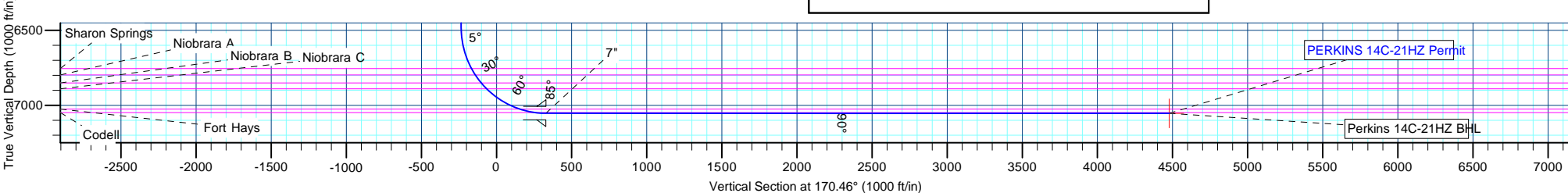
WELL DETAILS: PERKINS 14C-21HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4920.00 Latitude	Longitude	Slot
0.00	0.00	1291633.52	3262848.24	40.130103	-104.559960	

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
2097.96	11.96	63.93	2093.63	27.32	55.85	2.00	63.93	-17.69
5484.20	11.96	63.93	5406.37	335.68	686.15	0.00	0.00	-217.35
6082.16	0.00	0.00	6000.00	363.00	742.00	2.00	180.00	-235.04
6563.20	0.00	0.00	6481.04	363.00	742.00	0.00	0.00	-235.04
7463.20	90.00	180.00	7054.00	-209.96	742.00	10.00	180.00	330.00
11669.39	90.00	180.00	7054.00	-4416.14	741.96	0.00	0.00	4478.04

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Perkins 14C-21HZ BHL	7054.00	-4416.14	741.96	40.117980	-104.557307	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1383.00	1383.00	Fox Hills
4900.00	4966.59	Sussex
6755.00	6848.85	Sharon Springs
6798.00	6899.07	Niobrara A
6851.00	6965.38	Niobrara B
6890.00	7018.63	Niobrara C
7025.00	7280.13	Fort Hays
7049.00	7387.45	Codell

CASING DETAILS			
TVD	MD	Name	Size
1300.00	1300.00	9 5/8"	9-5/8
7054.00	7463.20	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PERKINS 14C-21HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4921' GL @ 4938.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4921' GL @ 4938.00ft
Site:	WELD_PERKINS 3-21HZ PAD	North Reference:	True
Well:	PERKINS 14C-21HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PERKINS 14C-21HZ		
Design:	PERKINS 14C-21HZ 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_PERKINS 3-21HZ PAD			
Site Position:		Northing:	1,291,632.94 usft	Latitude:	40.130104
From:	Lat/Long	Easting:	3,262,758.21 usft	Longitude:	-104.560282
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.61 °

Well	PERKINS 14C-21HZ					
Well Position	+N/-S	-0.38 ft	Northing:	1,291,633.52 usft	Latitude:	40.130103
	+E/-W	90.04 ft	Easting:	3,262,848.24 usft	Longitude:	-104.559960
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,920.00 ft

Wellbore	PERKINS 14C-21HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/2/2012	8.59	66.83	52,900

Design	PERKINS 14C-21HZ 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	170.46

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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,097.96	11.96	63.93	2,093.63	27.32	55.85	2.00	2.00	0.00	63.93	
5,484.20	11.96	63.93	5,406.37	335.68	686.15	0.00	0.00	0.00	0.00	
6,082.16	0.00	0.00	6,000.00	363.00	742.00	2.00	-2.00	0.00	180.00	
6,563.20	0.00	0.00	6,481.04	363.00	742.00	0.00	0.00	0.00	0.00	
7,463.20	90.00	180.00	7,054.00	-209.96	742.00	10.00	10.00	0.00	180.00	
11,669.39	90.00	180.00	7,054.00	-4,416.14	741.96	0.00	0.00	0.00	0.00	Perkins 14C-21HZ Bt

Anadarko Petroleum Corp

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4921' GL @ 4938.00ft
Site:	WELD_PERKINS 3-21HZ PAD	North Reference:	True
Well:	PERKINS 14C-21HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PERKINS 14C-21HZ		
Design:	PERKINS 14C-21HZ 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
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
9 5/8"									
1,383.00	0.00	0.00	1,383.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
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
Start Build 2.00									
1,600.00	2.00	63.93	1,599.98	0.77	1.57	-0.50	2.00	2.00	0.00
1,700.00	4.00	63.93	1,699.84	3.07	6.27	-1.99	2.00	2.00	0.00
1,800.00	6.00	63.93	1,799.45	6.90	14.10	-4.47	2.00	2.00	0.00
1,900.00	8.00	63.93	1,898.70	12.25	25.04	-7.93	2.00	2.00	0.00
2,000.00	10.00	63.93	1,997.47	19.13	39.09	-12.38	2.00	2.00	0.00
2,097.96	11.96	63.93	2,093.63	27.32	55.85	-17.69	2.00	2.00	0.00
Start 3386.25 hold at 2097.96 MD									
2,100.00	11.96	63.93	2,095.62	27.51	56.23	-17.81	0.00	0.00	0.00
2,200.00	11.96	63.93	2,193.45	36.62	74.85	-23.71	0.00	0.00	0.00
2,300.00	11.96	63.93	2,291.28	45.72	93.46	-29.60	0.00	0.00	0.00
2,400.00	11.96	63.93	2,389.11	54.83	112.07	-35.50	0.00	0.00	0.00
2,500.00	11.96	63.93	2,486.94	63.93	130.69	-41.40	0.00	0.00	0.00
2,600.00	11.96	63.93	2,584.77	73.04	149.30	-47.29	0.00	0.00	0.00
2,700.00	11.96	63.93	2,682.60	82.15	167.91	-53.19	0.00	0.00	0.00
2,800.00	11.96	63.93	2,780.43	91.25	186.53	-59.09	0.00	0.00	0.00
2,900.00	11.96	63.93	2,878.26	100.36	205.14	-64.98	0.00	0.00	0.00
3,000.00	11.96	63.93	2,976.09	109.46	223.75	-70.88	0.00	0.00	0.00
3,100.00	11.96	63.93	3,073.92	118.57	242.37	-76.77	0.00	0.00	0.00
3,200.00	11.96	63.93	3,171.75	127.68	260.98	-82.67	0.00	0.00	0.00
3,300.00	11.96	63.93	3,269.58	136.78	279.59	-88.57	0.00	0.00	0.00
3,400.00	11.96	63.93	3,367.41	145.89	298.21	-94.46	0.00	0.00	0.00
3,500.00	11.96	63.93	3,465.24	154.99	316.82	-100.36	0.00	0.00	0.00
3,600.00	11.96	63.93	3,563.07	164.10	335.43	-106.25	0.00	0.00	0.00
3,700.00	11.96	63.93	3,660.90	173.21	354.05	-112.15	0.00	0.00	0.00
3,800.00	11.96	63.93	3,758.73	182.31	372.66	-118.05	0.00	0.00	0.00
3,900.00	11.96	63.93	3,856.56	191.42	391.27	-123.94	0.00	0.00	0.00
4,000.00	11.96	63.93	3,954.39	200.52	409.89	-129.84	0.00	0.00	0.00
4,100.00	11.96	63.93	4,052.21	209.63	428.50	-135.73	0.00	0.00	0.00
4,200.00	11.96	63.93	4,150.04	218.74	447.11	-141.63	0.00	0.00	0.00
4,300.00	11.96	63.93	4,247.87	227.84	465.73	-147.53	0.00	0.00	0.00
4,400.00	11.96	63.93	4,345.70	236.95	484.34	-153.42	0.00	0.00	0.00
4,500.00	11.96	63.93	4,443.53	246.05	502.95	-159.32	0.00	0.00	0.00
4,600.00	11.96	63.93	4,541.36	255.16	521.57	-165.22	0.00	0.00	0.00
4,700.00	11.96	63.93	4,639.19	264.27	540.18	-171.11	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PERKINS 14C-21HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4921' GL @ 4938.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4921' GL @ 4938.00ft
Site:	WELD_PERKINS 3-21HZ PAD	North Reference:	True
Well:	PERKINS 14C-21HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PERKINS 14C-21HZ		
Design:	PERKINS 14C-21HZ 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)
4,800.00	11.96	63.93	4,737.02	273.37	558.79	-177.01	0.00	0.00	0.00
4,900.00	11.96	63.93	4,834.85	282.48	577.41	-182.90	0.00	0.00	0.00
4,966.59	11.96	63.93	4,900.00	288.54	589.80	-186.83	0.00	0.00	0.00
Sussex									
5,000.00	11.96	63.93	4,932.68	291.58	596.02	-188.80	0.00	0.00	0.00
5,100.00	11.96	63.93	5,030.51	300.69	614.63	-194.70	0.00	0.00	0.00
5,200.00	11.96	63.93	5,128.34	309.80	633.25	-200.59	0.00	0.00	0.00
5,300.00	11.96	63.93	5,226.17	318.90	651.86	-206.49	0.00	0.00	0.00
5,400.00	11.96	63.93	5,324.00	328.01	670.47	-212.38	0.00	0.00	0.00
5,484.20	11.96	63.93	5,406.37	335.68	686.15	-217.35	0.00	0.00	0.00
Start Drop -2.00									
5,500.00	11.64	63.93	5,421.84	337.10	689.05	-218.27	2.00	-2.00	0.00
5,600.00	9.64	63.93	5,520.11	345.21	705.64	-223.52	2.00	-2.00	0.00
5,700.00	7.64	63.93	5,618.97	351.82	719.14	-227.80	2.00	-2.00	0.00
5,800.00	5.64	63.93	5,718.30	356.90	729.53	-231.09	2.00	-2.00	0.00
5,900.00	3.64	63.93	5,817.96	360.46	736.80	-233.39	2.00	-2.00	0.00
6,000.00	1.64	63.93	5,917.85	362.48	740.94	-234.71	2.00	-2.00	0.00
6,082.16	0.00	0.00	6,000.00	363.00	742.00	-235.04	2.00	-2.00	0.00
Start 481.04 hold at 6082.16 MD									
6,100.00	0.00	0.00	6,017.84	363.00	742.00	-235.04	0.00	0.00	0.00
6,200.00	0.00	0.00	6,117.84	363.00	742.00	-235.04	0.00	0.00	0.00
6,300.00	0.00	0.00	6,217.84	363.00	742.00	-235.04	0.00	0.00	0.00
6,400.00	0.00	0.00	6,317.84	363.00	742.00	-235.04	0.00	0.00	0.00
6,500.00	0.00	0.00	6,417.84	363.00	742.00	-235.04	0.00	0.00	0.00
6,563.20	0.00	0.00	6,481.04	363.00	742.00	-235.04	0.00	0.00	0.00
Start Build 10.00									
6,600.00	3.68	180.00	6,517.81	361.82	742.00	-233.88	10.00	10.00	0.00
6,650.00	8.68	180.00	6,567.51	356.44	742.00	-228.57	10.00	10.00	0.00
6,700.00	13.68	180.00	6,616.54	346.75	742.00	-219.01	10.00	10.00	0.00
6,750.00	18.68	180.00	6,664.55	332.82	742.00	-205.28	10.00	10.00	0.00
6,800.00	23.68	180.00	6,711.16	314.76	742.00	-187.47	10.00	10.00	0.00
6,848.85	28.56	180.00	6,755.00	293.26	742.00	-166.26	10.00	10.00	0.00
Sharon Springs									
6,850.00	28.68	180.00	6,756.01	292.71	742.00	-165.72	10.00	10.00	0.00
6,899.07	33.59	180.00	6,798.00	267.34	742.00	-140.71	10.00	10.00	0.00
Niobrara A									
6,900.00	33.68	180.00	6,798.78	266.83	742.00	-140.20	10.00	10.00	0.00
6,950.00	38.68	180.00	6,839.12	237.32	742.00	-111.10	10.00	10.00	0.00
6,965.38	40.22	180.00	6,851.00	227.55	742.00	-101.46	10.00	10.00	0.00
Niobrara B									
7,000.00	43.68	180.00	6,876.74	204.41	742.00	-78.65	10.00	10.00	0.00
7,018.63	45.54	180.00	6,890.00	191.33	742.00	-65.75	10.00	10.00	0.00
Niobrara C									
7,050.00	48.68	180.00	6,911.35	168.35	742.00	-43.08	10.00	10.00	0.00
7,100.00	53.68	180.00	6,942.68	129.40	742.00	-4.67	10.00	10.00	0.00
7,150.00	58.68	180.00	6,970.51	87.88	742.00	36.28	10.00	10.00	0.00
7,200.00	63.68	180.00	6,994.60	44.09	742.00	79.47	10.00	10.00	0.00
7,250.00	68.68	180.00	7,014.79	-1.64	742.00	124.56	10.00	10.00	0.00
7,280.13	71.69	180.00	7,025.00	-29.99	742.00	152.51	10.00	10.00	0.00
Fort Hays									
7,300.00	73.68	180.00	7,030.91	-48.95	742.00	171.22	10.00	10.00	0.00
7,350.00	78.68	180.00	7,042.85	-97.49	742.00	219.08	10.00	10.00	0.00
7,387.45	82.43	180.00	7,049.00	-134.43	742.00	255.51	10.00	10.00	0.00

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Wellbore:	PERKINS 14C-21HZ		
Design:	PERKINS 14C-21HZ 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)
Codell									
7,400.00	83.68	180.00	7,050.52	-146.88	742.00	267.79	10.00	10.00	0.00
7,450.00	88.68	180.00	7,053.85	-196.76	742.00	316.98	10.00	10.00	0.00
7,463.20	90.00	180.00	7,054.00	-209.95	742.00	329.99	10.00	10.00	0.00
Start 4206.18 hold at 7463.20 MD - 7"									
7,500.00	90.00	180.00	7,054.00	-246.75	742.00	366.29	0.00	0.00	0.00
7,600.00	90.00	180.00	7,054.00	-346.76	741.99	464.90	0.00	0.00	0.00
7,700.00	90.00	180.00	7,054.00	-446.76	741.99	563.52	0.00	0.00	0.00
7,800.00	90.00	180.00	7,054.00	-546.76	741.99	662.14	0.00	0.00	0.00
7,900.00	90.00	180.00	7,054.00	-646.76	741.99	760.76	0.00	0.00	0.00
8,000.00	90.00	180.00	7,054.00	-746.76	741.99	859.37	0.00	0.00	0.00
8,100.00	90.00	180.00	7,054.00	-846.76	741.99	957.99	0.00	0.00	0.00
8,200.00	90.00	180.00	7,054.00	-946.76	741.99	1,056.61	0.00	0.00	0.00
8,300.00	90.00	180.00	7,054.00	-1,046.76	741.99	1,155.23	0.00	0.00	0.00
8,400.00	90.00	180.00	7,054.00	-1,146.76	741.99	1,253.84	0.00	0.00	0.00
8,500.00	90.00	180.00	7,054.00	-1,246.76	741.99	1,352.46	0.00	0.00	0.00
8,600.00	90.00	180.00	7,054.00	-1,346.76	741.99	1,451.08	0.00	0.00	0.00
8,700.00	90.00	180.00	7,054.00	-1,446.76	741.99	1,549.70	0.00	0.00	0.00
8,800.00	90.00	180.00	7,054.00	-1,546.76	741.99	1,648.31	0.00	0.00	0.00
8,900.00	90.00	180.00	7,054.00	-1,646.76	741.98	1,746.93	0.00	0.00	0.00
9,000.00	90.00	180.00	7,054.00	-1,746.76	741.98	1,845.55	0.00	0.00	0.00
9,100.00	90.00	180.00	7,054.00	-1,846.76	741.98	1,944.17	0.00	0.00	0.00
9,200.00	90.00	180.00	7,054.00	-1,946.76	741.98	2,042.79	0.00	0.00	0.00
9,300.00	90.00	180.00	7,054.00	-2,046.76	741.98	2,141.40	0.00	0.00	0.00
9,400.00	90.00	180.00	7,054.00	-2,146.76	741.98	2,240.02	0.00	0.00	0.00
9,500.00	90.00	180.00	7,054.00	-2,246.76	741.98	2,338.64	0.00	0.00	0.00
9,600.00	90.00	180.00	7,054.00	-2,346.76	741.98	2,437.26	0.00	0.00	0.00
9,700.00	90.00	180.00	7,054.00	-2,446.76	741.98	2,535.87	0.00	0.00	0.00
9,800.00	90.00	180.00	7,054.00	-2,546.76	741.98	2,634.49	0.00	0.00	0.00
9,900.00	90.00	180.00	7,054.00	-2,646.76	741.98	2,733.11	0.00	0.00	0.00
10,000.00	90.00	180.00	7,054.00	-2,746.76	741.98	2,831.73	0.00	0.00	0.00
10,100.00	90.00	180.00	7,054.00	-2,846.76	741.98	2,930.34	0.00	0.00	0.00
10,200.00	90.00	180.00	7,054.00	-2,946.76	741.97	3,028.96	0.00	0.00	0.00
10,300.00	90.00	180.00	7,054.00	-3,046.76	741.97	3,127.58	0.00	0.00	0.00
10,400.00	90.00	180.00	7,054.00	-3,146.76	741.97	3,226.20	0.00	0.00	0.00
10,500.00	90.00	180.00	7,054.00	-3,246.76	741.97	3,324.82	0.00	0.00	0.00
10,600.00	90.00	180.00	7,054.00	-3,346.76	741.97	3,423.43	0.00	0.00	0.00
10,700.00	90.00	180.00	7,054.00	-3,446.76	741.97	3,522.05	0.00	0.00	0.00
10,800.00	90.00	180.00	7,054.00	-3,546.76	741.97	3,620.67	0.00	0.00	0.00
10,900.00	90.00	180.00	7,054.00	-3,646.76	741.97	3,719.29	0.00	0.00	0.00
11,000.00	90.00	180.00	7,054.00	-3,746.76	741.97	3,817.90	0.00	0.00	0.00
11,100.00	90.00	180.00	7,054.00	-3,846.76	741.97	3,916.52	0.00	0.00	0.00
11,200.00	90.00	180.00	7,054.00	-3,946.76	741.97	4,015.14	0.00	0.00	0.00
11,300.00	90.00	180.00	7,054.00	-4,046.76	741.97	4,113.76	0.00	0.00	0.00
11,400.00	90.00	180.00	7,054.00	-4,146.76	741.97	4,212.37	0.00	0.00	0.00
11,500.00	90.00	180.00	7,054.00	-4,246.76	741.96	4,310.99	0.00	0.00	0.00
11,600.00	90.00	180.00	7,054.00	-4,346.76	741.96	4,409.61	0.00	0.00	0.00
11,669.39	90.00	180.00	7,054.00	-4,416.14	741.96	4,478.04	0.00	0.00	0.00
TD at 11669.39 - Perkins 14C-21HZ BHL									

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PERKINS 14C-21HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4921' GL @ 4938.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4921' GL @ 4938.00ft
Site:	WELD_PERKINS 3-21HZ PAD	North Reference:	True
Well:	PERKINS 14C-21HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PERKINS 14C-21HZ		
Design:	PERKINS 14C-21HZ 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									
Perkins 14C-21HZ BHL	0.00	0.00	7,054.00	-4,416.14	741.96	1,287,225.50	3,263,636.98	40.117980	-104.557307
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
1,300.00	1,300.00	9 5/8"		9-5/8	12-1/4
7,463.20	7,054.00	7"		7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
1,383.00	1,383.00	Fox Hills				
4,966.59	4,900.00	Sussex				
6,848.85	6,755.00	Sharon Springs				
6,899.07	6,798.00	Niobrara A				
6,965.38	6,851.00	Niobrara B				
7,018.63	6,890.00	Niobrara C				
7,280.13	7,025.00	Fort Hays				
7,387.45	7,049.00	Codell				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
1,500.00	1,500.00	0.00	0.00	Start Build 2.00	
2,097.96	2,093.63	27.32	55.85	Start 3386.25 hold at 2097.96 MD	
5,484.20	5,406.37	335.68	686.15	Start Drop -2.00	
6,082.16	6,000.00	363.00	742.00	Start 481.04 hold at 6082.16 MD	
6,563.20	6,481.04	363.00	742.00	Start Build 10.00	
7,463.20	7,054.00	-209.96	742.00	Start 4206.18 hold at 7463.20 MD	
11,669.39	7,054.00	-4,416.14	741.96	TD at 11669.39	