

US ROCKIES REGION PLANNING

COLORADO CENTRAL ZONE - 83

ARAPAHOE_WATKINS 6 PAD

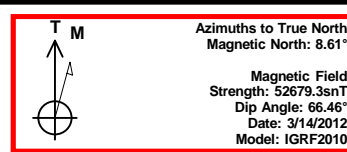
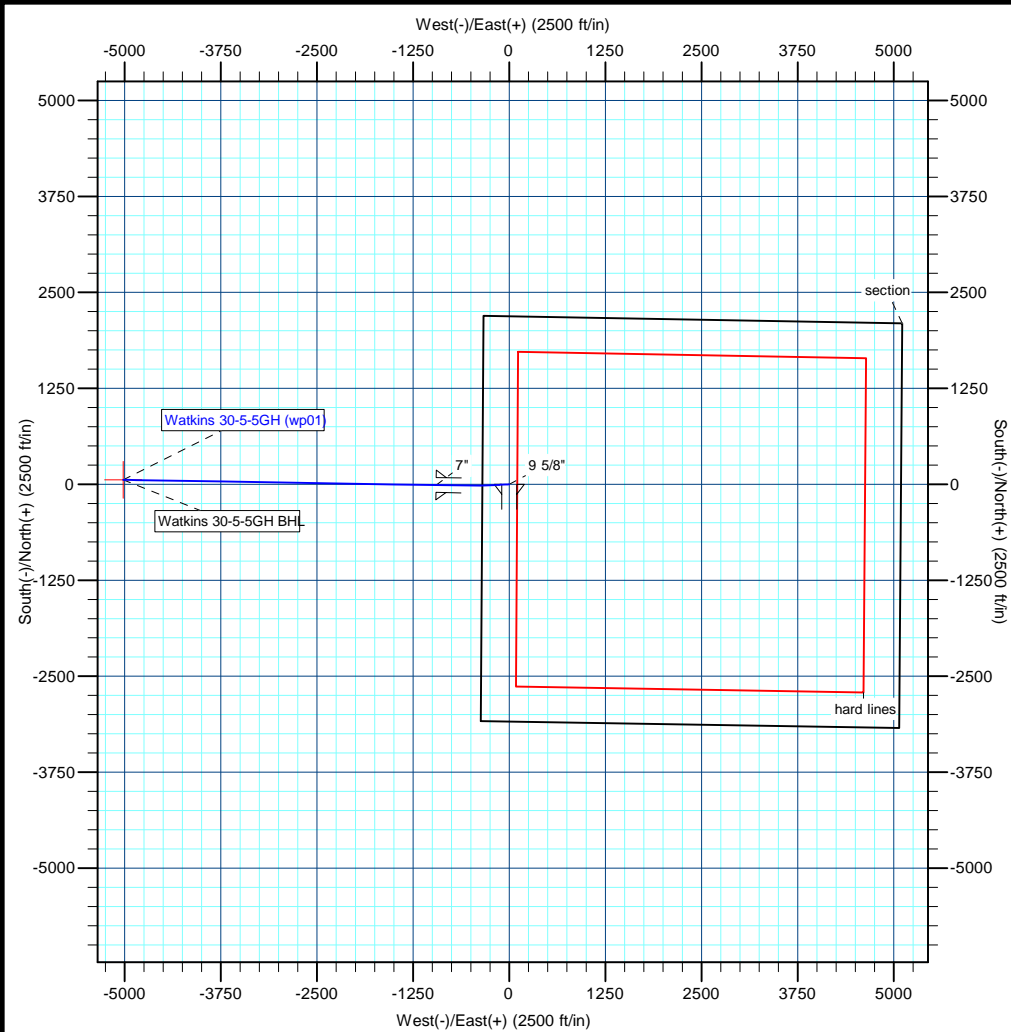
Watkins 30-5-5GH

Watkins 30-5-5GH

Plan: Watkins 30-5-5GH (wp01)

Standard Planning Report

15 March, 2012



Project: COLORADO CENTRAL ZONE - 83
 Site: ARAPAHOE_WATKINS 6 PAD
 Well: Watkins 30-5-5GH
 Wellbore: Watkins 30-5-5GH
 Section:
 SHL:
 Design: Watkins 30-5-5GH (wp01)
 Latitude: 39.675715
 Longitude: -104.602251
 GL: 5772.00
 KB: rkb + gl @ 5797.00ft

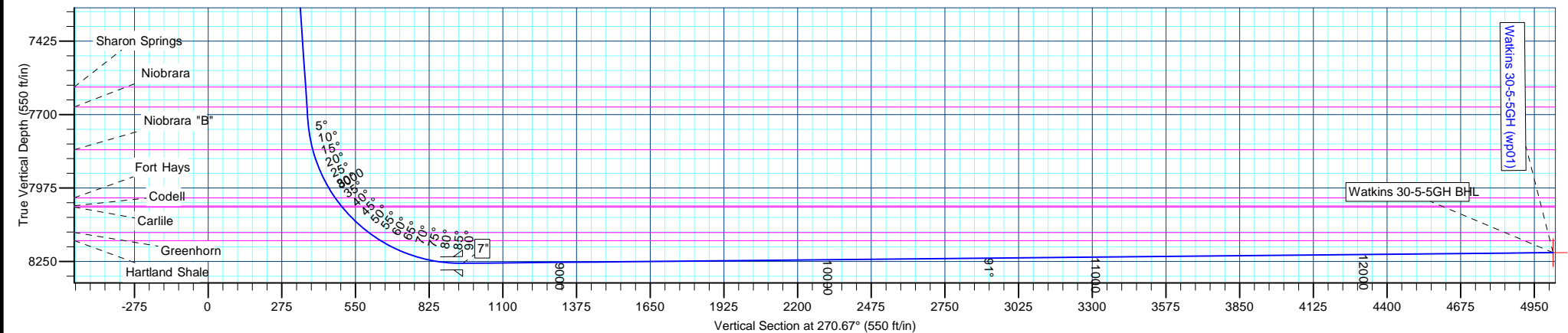
WELL DETAILS: Watkins 30-5-5GH						
+N/-S	+E/-W	Northing	Ground Level: Easting	5772.00 Latitude	39.675715 Longitude	Slot
0.00	0.00	1672256.57	3252694.19			

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
2150.00	0.00	0.00	2150.00	0.00	0.00	0.00	0.00	0.00
2345.06	3.90	267.31	2344.91	-0.31	-6.63	2.00	267.31	6.63
7735.62	3.90	267.31	7722.97	-17.52	-372.98	0.00	0.00	372.75
8602.11	90.54	270.98	8257.00	-10.00	-950.00	10.00	3.68	949.82
8604.73	90.56	270.96	8256.97	-9.96	-952.62	1.00	-39.80	952.44
12672.52	90.56	270.96	8217.00	58.42	-5019.63	0.00	0.00	5019.97

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Watkins 30-5-5GH BHL	8217.00	58.42	-5019.63	39.675874	-104.620084	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1864.00	1864.00	Fox Hills
5133.00	5139.63	Sussex
6203.00	6212.11	Shannon
7597.00	7609.35	Sharon Springs
7672.00	7684.52	Niobrara
7832.00	7846.31	Niobrara "B"
8012.00	8045.82	Fort Hays
8042.00	8083.29	Codell
8047.00	8089.72	Carlile
8142.00	8227.26	Greenhorn
8172.00	8280.55	Hartland Shale

CASING DETAILS			
TVD	MD	Name	Size
2010.00	2010.00	9 5/8"	9-5/8
8257.00	8602.11	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Watkins 30-5-5GH
Company:	US ROCKIES REGION PLANNING	TVD Reference:	rkb + gl @ 5797.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	rkb + gl @ 5797.00ft
Site:	ARAPAHOE_WATKINS 6 PAD	North Reference:	True
Well:	Watkins 30-5-5GH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Watkins 30-5-5GH		
Design:	Watkins 30-5-5GH (wp01)		

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

Site		ARAPAHOE_WATKINS 6 PAD			
Site Position:		Northing:	1,672,196.84 usft	Latitude:	39.675551
From:	Lat/Long	Easting:	3,252,694.22 usft	Longitude:	-104.602253
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.57 °

Well	Watkins 30-5-5GH					
Well Position	+N/-S	59.73 ft	Northing:	1,672,256.57 usft	Latitude:	39.675715
	+E/-W	0.56 ft	Easting:	3,252,694.19 usft	Longitude:	-104.602251
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,772.00 ft

Wellbore	Watkins 30-5-5GH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/14/2012	8.61	66.46	52,679

Design	Watkins 30-5-5GH (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	270.67

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	
2,150.00	0.00	0.00	2,150.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,345.06	3.90	267.31	2,344.91	-0.31	-6.63	2.00	2.00	0.00	267.31	
7,735.62	3.90	267.31	7,722.97	-17.52	-372.98	0.00	0.00	0.00	0.00	
8,602.11	90.54	270.98	8,257.00	-10.00	-950.00	10.00	10.00	0.42	3.68	
8,604.74	90.56	270.96	8,256.97	-9.96	-952.62	1.00	0.77	-0.64	-39.80	
12,672.52	90.56	270.96	8,217.00	58.42	-5,019.63	0.00	0.00	0.00	0.00	Watkins 30-5-5GH Bt

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Watkins 30-5-5GH
Company:	US ROCKIES REGION PLANNING	TVD Reference:	rkb + gl @ 5797.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	rkb + gl @ 5797.00ft
Site:	ARAPAHOE_WATKINS 6 PAD	North Reference:	True
Well:	Watkins 30-5-5GH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Watkins 30-5-5GH		
Design:	Watkins 30-5-5GH (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
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
1,864.00	0.00	0.00	1,864.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
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
2,010.00	0.00	0.00	2,010.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,150.00	0.00	0.00	2,150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
2,200.00	1.00	267.31	2,200.00	-0.02	-0.44	0.44	2.00	2.00	0.00
2,300.00	3.00	267.31	2,299.93	-0.18	-3.92	3.92	2.00	2.00	0.00
2,345.06	3.90	267.31	2,344.91	-0.31	-6.63	6.63	2.00	2.00	0.00
Start 5390.56 hold at 2345.06 MD									
2,400.00	3.90	267.31	2,399.72	-0.49	-10.36	10.36	0.00	0.00	0.00
2,500.00	3.90	267.31	2,499.49	-0.81	-17.16	17.15	0.00	0.00	0.00
2,600.00	3.90	267.31	2,599.26	-1.13	-23.96	23.94	0.00	0.00	0.00
2,700.00	3.90	267.31	2,699.03	-1.44	-30.75	30.73	0.00	0.00	0.00
2,800.00	3.90	267.31	2,798.80	-1.76	-37.55	37.53	0.00	0.00	0.00
2,900.00	3.90	267.31	2,898.56	-2.08	-44.35	44.32	0.00	0.00	0.00
3,000.00	3.90	267.31	2,998.33	-2.40	-51.14	51.11	0.00	0.00	0.00
3,100.00	3.90	267.31	3,098.10	-2.72	-57.94	57.90	0.00	0.00	0.00
3,200.00	3.90	267.31	3,197.87	-3.04	-64.73	64.69	0.00	0.00	0.00
3,300.00	3.90	267.31	3,297.64	-3.36	-71.53	71.49	0.00	0.00	0.00
3,400.00	3.90	267.31	3,397.40	-3.68	-78.33	78.28	0.00	0.00	0.00
3,500.00	3.90	267.31	3,497.17	-4.00	-85.12	85.07	0.00	0.00	0.00
3,600.00	3.90	267.31	3,596.94	-4.32	-91.92	91.86	0.00	0.00	0.00
3,700.00	3.90	267.31	3,696.71	-4.64	-98.71	98.65	0.00	0.00	0.00
3,800.00	3.90	267.31	3,796.48	-4.96	-105.51	105.45	0.00	0.00	0.00
3,900.00	3.90	267.31	3,896.25	-5.27	-112.31	112.24	0.00	0.00	0.00
4,000.00	3.90	267.31	3,996.01	-5.59	-119.10	119.03	0.00	0.00	0.00
4,100.00	3.90	267.31	4,095.78	-5.91	-125.90	125.82	0.00	0.00	0.00
4,200.00	3.90	267.31	4,195.55	-6.23	-132.69	132.61	0.00	0.00	0.00
4,300.00	3.90	267.31	4,295.32	-6.55	-139.49	139.40	0.00	0.00	0.00
4,400.00	3.90	267.31	4,395.09	-6.87	-146.29	146.20	0.00	0.00	0.00
4,500.00	3.90	267.31	4,494.86	-7.19	-153.08	152.99	0.00	0.00	0.00

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Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	rkb + gl @ 5797.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	rkb + gl @ 5797.00ft
Site:	ARAPAHOE_WATKINS 6 PAD	North Reference:	True
Well:	Watkins 30-5-5GH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Watkins 30-5-5GH		
Design:	Watkins 30-5-5GH (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)
4,600.00	3.90	267.31	4,594.62	-7.51	-159.88	159.78	0.00	0.00	0.00
4,700.00	3.90	267.31	4,694.39	-7.83	-166.67	166.57	0.00	0.00	0.00
4,800.00	3.90	267.31	4,794.16	-8.15	-173.47	173.36	0.00	0.00	0.00
4,900.00	3.90	267.31	4,893.93	-8.47	-180.27	180.16	0.00	0.00	0.00
5,000.00	3.90	267.31	4,993.70	-8.79	-187.06	186.95	0.00	0.00	0.00
5,100.00	3.90	267.31	5,093.47	-9.10	-193.86	193.74	0.00	0.00	0.00
5,139.63	3.90	267.31	5,133.00	-9.23	-196.55	196.43	0.00	0.00	0.00
Sussex									
5,200.00	3.90	267.31	5,193.23	-9.42	-200.66	200.53	0.00	0.00	0.00
5,300.00	3.90	267.31	5,293.00	-9.74	-207.45	207.32	0.00	0.00	0.00
5,400.00	3.90	267.31	5,392.77	-10.06	-214.25	214.12	0.00	0.00	0.00
5,500.00	3.90	267.31	5,492.54	-10.38	-221.04	220.91	0.00	0.00	0.00
5,600.00	3.90	267.31	5,592.31	-10.70	-227.84	227.70	0.00	0.00	0.00
5,700.00	3.90	267.31	5,692.08	-11.02	-234.64	234.49	0.00	0.00	0.00
5,800.00	3.90	267.31	5,791.84	-11.34	-241.43	241.28	0.00	0.00	0.00
5,900.00	3.90	267.31	5,891.61	-11.66	-248.23	248.08	0.00	0.00	0.00
6,000.00	3.90	267.31	5,991.38	-11.98	-255.02	254.87	0.00	0.00	0.00
6,100.00	3.90	267.31	6,091.15	-12.30	-261.82	261.66	0.00	0.00	0.00
6,200.00	3.90	267.31	6,190.92	-12.62	-268.62	268.45	0.00	0.00	0.00
6,212.11	3.90	267.31	6,203.00	-12.65	-269.44	269.27	0.00	0.00	0.00
Shannon									
6,300.00	3.90	267.31	6,290.69	-12.94	-275.41	275.24	0.00	0.00	0.00
6,400.00	3.90	267.31	6,390.45	-13.25	-282.21	282.04	0.00	0.00	0.00
6,500.00	3.90	267.31	6,490.22	-13.57	-289.00	288.83	0.00	0.00	0.00
6,600.00	3.90	267.31	6,589.99	-13.89	-295.80	295.62	0.00	0.00	0.00
6,700.00	3.90	267.31	6,689.76	-14.21	-302.60	302.41	0.00	0.00	0.00
6,800.00	3.90	267.31	6,789.53	-14.53	-309.39	309.20	0.00	0.00	0.00
6,900.00	3.90	267.31	6,889.30	-14.85	-316.19	315.99	0.00	0.00	0.00
7,000.00	3.90	267.31	6,989.06	-15.17	-322.99	322.79	0.00	0.00	0.00
7,100.00	3.90	267.31	7,088.83	-15.49	-329.78	329.58	0.00	0.00	0.00
7,200.00	3.90	267.31	7,188.60	-15.81	-336.58	336.37	0.00	0.00	0.00
7,300.00	3.90	267.31	7,288.37	-16.13	-343.37	343.16	0.00	0.00	0.00
7,400.00	3.90	267.31	7,388.14	-16.45	-350.17	349.95	0.00	0.00	0.00
7,500.00	3.90	267.31	7,487.90	-16.77	-356.97	356.75	0.00	0.00	0.00
7,600.00	3.90	267.31	7,587.67	-17.08	-363.76	363.54	0.00	0.00	0.00
7,609.35	3.90	267.31	7,597.00	-17.11	-364.40	364.17	0.00	0.00	0.00
Sharon Springs									
7,684.52	3.90	267.31	7,672.00	-17.35	-369.51	369.28	0.00	0.00	0.00
Niobrara									
7,700.00	3.90	267.31	7,687.44	-17.40	-370.56	370.33	0.00	0.00	0.00
7,735.62	3.90	267.31	7,722.97	-17.52	-372.98	372.75	0.00	0.00	0.00
Start DLS 10.00 TFO 3.68									
7,800.00	10.33	269.61	7,786.83	-17.66	-380.95	380.72	10.00	9.99	3.57
7,846.31	14.96	270.04	7,832.00	-17.68	-391.09	390.86	10.00	10.00	0.94
Niobrara "B"									
7,900.00	20.33	270.30	7,883.15	-17.63	-407.36	407.13	10.00	10.00	0.49
8,000.00	30.33	270.55	7,973.42	-17.29	-450.09	449.86	10.00	10.00	0.25
8,045.82	34.91	270.62	8,012.00	-17.04	-474.79	474.56	10.00	10.00	0.15
Fort Hays									
8,083.29	38.66	270.67	8,042.00	-16.79	-497.22	496.99	10.00	10.00	0.12
Codell									
8,089.72	39.30	270.67	8,047.00	-16.74	-501.27	501.04	10.00	10.00	0.11
Carlile									

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Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	rkb + gl @ 5797.00ft
Site:	ARAPAHOE_WATKINS 6 PAD	North Reference:	True
Well:	Watkins 30-5-5GH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Watkins 30-5-5GH		
Design:	Watkins 30-5-5GH (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	40.33	270.68	8,054.89	-16.66	-507.85	507.62	10.00	10.00	0.11	
8,200.00	50.33	270.77	8,125.10	-15.76	-578.87	578.65	10.00	10.00	0.09	
8,227.26	53.06	270.79	8,142.00	-15.47	-600.26	600.04	10.00	10.00	0.07	
Greenhorn										
8,280.55	58.39	270.82	8,172.00	-14.85	-644.27	644.05	10.00	10.00	0.06	
Hartland Shale										
8,300.00	60.33	270.84	8,181.91	-14.60	-661.00	660.79	10.00	10.00	0.06	
8,400.00	70.33	270.89	8,223.60	-13.24	-751.75	751.55	10.00	10.00	0.05	
8,500.00	80.33	270.94	8,248.89	-11.70	-848.36	848.16	10.00	10.00	0.05	
8,600.00	90.33	270.98	8,257.02	-10.04	-947.89	947.71	10.00	10.00	0.04	
8,602.11	90.54	270.98	8,257.00	-10.00	-950.00	949.81	10.00	10.00	0.04	
Start DLS 1.00 TFO -39.80 - 7"										
8,604.74	90.56	270.96	8,256.97	-9.96	-952.62	952.44	1.01	0.78	-0.64	
Start 4067.78 hold at 8604.73 MD										
8,700.00	90.56	270.96	8,256.04	-8.35	-1,047.87	1,047.70	0.00	0.00	0.00	
8,800.00	90.56	270.96	8,255.06	-6.67	-1,147.85	1,147.69	0.00	0.00	0.00	
8,900.00	90.56	270.96	8,254.07	-4.99	-1,247.83	1,247.69	0.00	0.00	0.00	
9,000.00	90.56	270.96	8,253.09	-3.31	-1,347.81	1,347.68	0.00	0.00	0.00	
9,100.00	90.56	270.96	8,252.11	-1.63	-1,447.79	1,447.67	0.00	0.00	0.00	
9,200.00	90.56	270.96	8,251.13	0.05	-1,547.77	1,547.67	0.00	0.00	0.00	
9,300.00	90.56	270.96	8,250.14	1.73	-1,647.75	1,647.66	0.00	0.00	0.00	
9,400.00	90.56	270.96	8,249.16	3.41	-1,747.73	1,747.66	0.00	0.00	0.00	
9,500.00	90.56	270.96	8,248.18	5.09	-1,847.72	1,847.65	0.00	0.00	0.00	
9,600.00	90.56	270.96	8,247.19	6.77	-1,947.70	1,947.64	0.00	0.00	0.00	
9,700.00	90.56	270.96	8,246.21	8.46	-2,047.68	2,047.64	0.00	0.00	0.00	
9,800.00	90.56	270.96	8,245.23	10.14	-2,147.66	2,147.63	0.00	0.00	0.00	
9,900.00	90.56	270.96	8,244.25	11.82	-2,247.64	2,247.62	0.00	0.00	0.00	
10,000.00	90.56	270.96	8,243.26	13.50	-2,347.62	2,347.62	0.00	0.00	0.00	
10,100.00	90.56	270.96	8,242.28	15.18	-2,447.60	2,447.61	0.00	0.00	0.00	
10,200.00	90.56	270.96	8,241.30	16.86	-2,547.58	2,547.61	0.00	0.00	0.00	
10,300.00	90.56	270.96	8,240.32	18.54	-2,647.56	2,647.60	0.00	0.00	0.00	
10,400.00	90.56	270.96	8,239.33	20.22	-2,747.54	2,747.59	0.00	0.00	0.00	
10,500.00	90.56	270.96	8,238.35	21.90	-2,847.53	2,847.59	0.00	0.00	0.00	
10,600.00	90.56	270.96	8,237.37	23.58	-2,947.51	2,947.58	0.00	0.00	0.00	
10,700.00	90.56	270.96	8,236.38	25.27	-3,047.49	3,047.58	0.00	0.00	0.00	
10,800.00	90.56	270.96	8,235.40	26.95	-3,147.47	3,147.57	0.00	0.00	0.00	
10,900.00	90.56	270.96	8,234.42	28.63	-3,247.45	3,247.56	0.00	0.00	0.00	
11,000.00	90.56	270.96	8,233.44	30.31	-3,347.43	3,347.56	0.00	0.00	0.00	
11,100.00	90.56	270.96	8,232.45	31.99	-3,447.41	3,447.55	0.00	0.00	0.00	
11,200.00	90.56	270.96	8,231.47	33.67	-3,547.39	3,547.54	0.00	0.00	0.00	
11,300.00	90.56	270.96	8,230.49	35.35	-3,647.37	3,647.54	0.00	0.00	0.00	
11,400.00	90.56	270.96	8,229.51	37.03	-3,747.36	3,747.53	0.00	0.00	0.00	
11,500.00	90.56	270.96	8,228.52	38.71	-3,847.34	3,847.53	0.00	0.00	0.00	
11,600.00	90.56	270.96	8,227.54	40.39	-3,947.32	3,947.52	0.00	0.00	0.00	
11,700.00	90.56	270.96	8,226.56	42.08	-4,047.30	4,047.51	0.00	0.00	0.00	
11,800.00	90.56	270.96	8,225.57	43.76	-4,147.28	4,147.51	0.00	0.00	0.00	
11,900.00	90.56	270.96	8,224.59	45.44	-4,247.26	4,247.50	0.00	0.00	0.00	
12,000.00	90.56	270.96	8,223.61	47.12	-4,347.24	4,347.50	0.00	0.00	0.00	
12,100.00	90.56	270.96	8,222.63	48.80	-4,447.22	4,447.49	0.00	0.00	0.00	
12,200.00	90.56	270.96	8,221.64	50.48	-4,547.20	4,547.48	0.00	0.00	0.00	
12,300.00	90.56	270.96	8,220.66	52.16	-4,647.18	4,647.48	0.00	0.00	0.00	
12,400.00	90.56	270.96	8,219.68	53.84	-4,747.17	4,747.47	0.00	0.00	0.00	
12,500.00	90.56	270.96	8,218.70	55.52	-4,847.15	4,847.46	0.00	0.00	0.00	

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Watkins 30-5-5GH
Company:	US ROCKIES REGION PLANNING	TVD Reference:	rkb + gl @ 5797.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	rkb + gl @ 5797.00ft
Site:	ARAPAHOE_WATKINS 6 PAD	North Reference:	True
Well:	Watkins 30-5-5GH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Watkins 30-5-5GH		
Design:	Watkins 30-5-5GH (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)
12,600.00	90.56	270.96	8,217.71	57.20	-4,947.13	4,947.46	0.00	0.00	0.00
12,672.52	90.56	270.96	8,217.00	58.42	-5,019.63	5,019.97	0.00	0.00	0.00
TD at 12672.52 - Watkins 30-5-5GH 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									
Watkins 30-5-5GH BHL	0.00	0.00	8,217.00	58.42	-5,019.63	1,672,265.38	3,247,674.24	39.675874	-104.620084
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,010.00	2,010.00	9 5/8"	9-5/8	12-1/4	
8,602.11	8,257.00	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,864.00	1,864.00	Fox Hills				
5,139.63	5,133.00	Sussex				
6,212.11	6,203.00	Shannon				
7,609.35	7,597.00	Sharon Springs				
7,684.52	7,672.00	Niobrara				
7,846.31	7,832.00	Niobrara "B"				
8,045.82	8,012.00	Fort Hays				
8,083.29	8,042.00	Codell				
8,089.72	8,047.00	Carlile				
8,227.26	8,142.00	Greenhorn				
8,280.55	8,172.00	Hartland Shale				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,150.00	2,150.00	0.00	0.00	Start Build 2.00	
2,345.06	2,344.91	-0.31	-6.63	Start 5390.56 hold at 2345.06 MD	
7,735.62	7,722.97	-17.52	-372.98	Start DLS 10.00 TFO 3.68	
8,602.11	8,257.00	-10.00	-950.00	Start DLS 1.00 TFO -39.80	
8,604.74	8,256.97	-9.96	-952.62	Start 4067.78 hold at 8604.73 MD	
12,672.52	8,217.00	58.42	-5,019.63	TD at 12672.52	