

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_CANNON 26-3HZ PAD

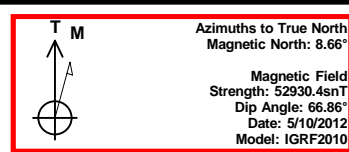
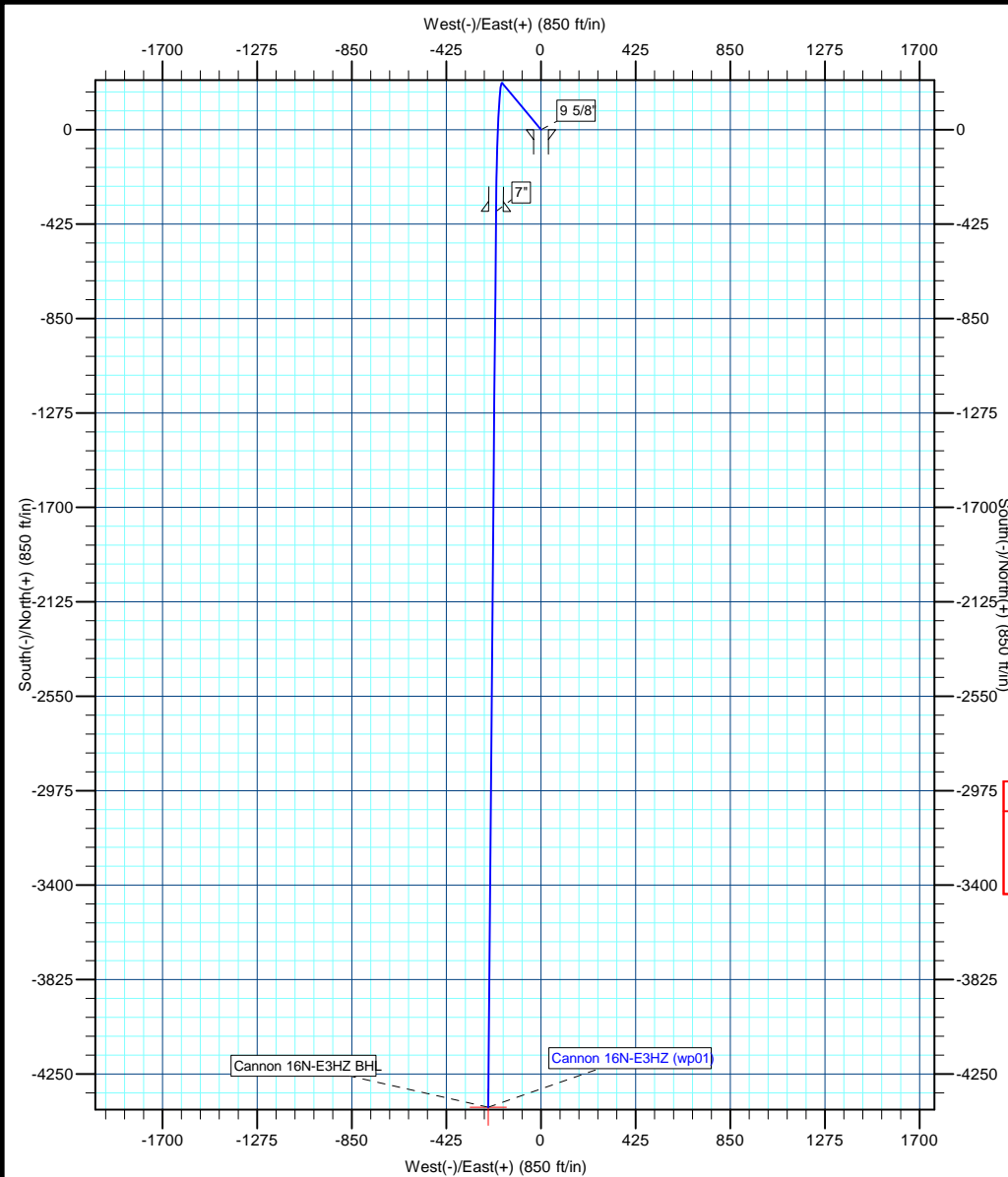
Cannon 16N-E3HZ

Cannon 16N-E3HZ

Plan: Cannon 16N-E3HZ (wp01)

Standard Planning Report

10 May, 2012



Project: COLORADO NORTHERN ZONE - 83
Site: WELD_CANNON 26-3HZ PAD
Well: Cannon 16N-E3HZ
Wellbore: Cannon 16N-E3HZ
Section:
SHL:
Design: Cannon 16N-E3HZ (wp01)
Latitude: 40.173837
Longitude: -104.641641
GL: 4840.00
KB: GL + RKB @ 4857.00ft

WELL DETAILS: Cannon 16N-E3HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4840.00 Latitude	Longitude	Slot
0.00	0.00	1307332.63	3239855.64	40.173837	-104.641641	

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
1665.27	3.31	320.26	1665.18	3.66	-3.05	2.00	320.26	-3.50
6319.10	3.31	320.26	6311.27	210.00	-174.59	0.00	0.00	-200.31
7250.15	90.58	180.48	6909.00	-368.00	-202.00	10.00	-139.71	378.33
7252.16	90.60	180.50	6908.98	-370.01	-202.02	1.00	39.81	380.34
11282.31	90.60	180.50	6867.00	-4399.79	-237.01	0.00	0.00	4406.17

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

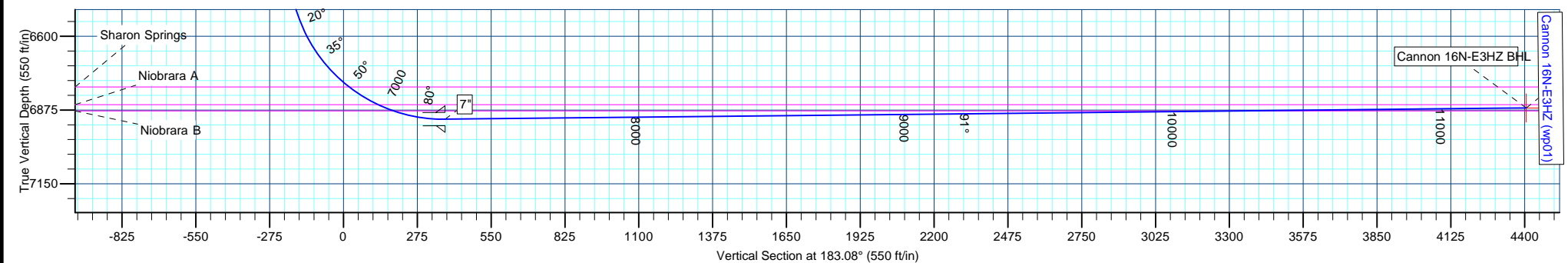
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Cannon 16N-E3HZ BHL	6867.00	-4399.79	-237.01	40.161759	-104.642489	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3823.00	3826.69	Parkman
4218.00	4222.35	Sussex
6789.00	6866.52	Sharon Springs
6855.00	6993.42	Niobrara A
6878.00	7054.84	Niobrara B

CASING DETAILS

TVD	MD	Name	Size
775.00	775.00	9 5/8"	9-5/8
6909.00	7250.15	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 16N-E3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL + RKB @ 4857.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL + RKB @ 4857.00ft
Site:	WELD_CANNON 26-3HZ PAD	North Reference:	True
Well:	Cannon 16N-E3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 16N-E3HZ		
Design:	Cannon 16N-E3HZ (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_CANNON 26-3HZ PAD			
Site Position:		Northing:	1,307,332.63 usft	Latitude: 40.173837
From:	Lat/Long	Easting:	3,239,855.64 usft	Longitude: -104.641641
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.55 °

Well	Cannon 16N-E3HZ			
Well Position	+N/-S	0.00 ft	Northing:	1,307,332.63 usft
	+E/-W	0.00 ft	Easting:	3,239,855.64 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 4,840.00 ft

Wellbore	Cannon 16N-E3HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/10/2012	8.66	66.86	52,930

Design	Cannon 16N-E3HZ (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	183.08

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	
1,665.27	3.31	320.26	1,665.18	3.66	-3.05	2.00	2.00	0.00	320.26	
6,319.10	3.31	320.26	6,311.27	210.00	-174.59	0.00	0.00	0.00	0.00	
7,250.15	90.58	180.48	6,909.00	-368.00	-202.00	10.00	9.37	-15.01	-139.71	
7,252.16	90.60	180.50	6,908.98	-370.01	-202.02	1.00	0.77	0.64	39.81	
11,282.31	90.60	180.50	6,867.00	-4,399.79	-237.01	0.00	0.00	0.00	0.00	Cannon 16N-E3HZ BI

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 16N-E3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL + RKB @ 4857.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL + RKB @ 4857.00ft
Site:	WELD_CANNON 26-3HZ PAD	North Reference:	True
Well:	Cannon 16N-E3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 16N-E3HZ		
Design:	Cannon 16N-E3HZ (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
775.00	0.00	0.00	775.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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	2.00	320.26	1,599.98	1.34	-1.12	-1.28	2.00	2.00	0.00
1,665.27	3.31	320.26	1,665.18	3.66	-3.05	-3.50	2.00	2.00	0.00
1,700.00	3.31	320.26	1,699.85	5.20	-4.33	-4.96	0.00	0.00	0.00
1,800.00	3.31	320.26	1,799.68	9.64	-8.01	-9.19	0.00	0.00	0.00
1,900.00	3.31	320.26	1,899.52	14.07	-11.70	-13.42	0.00	0.00	0.00
2,000.00	3.31	320.26	1,999.35	18.51	-15.39	-17.65	0.00	0.00	0.00
2,100.00	3.31	320.26	2,099.19	22.94	-19.07	-21.88	0.00	0.00	0.00
2,200.00	3.31	320.26	2,199.02	27.37	-22.76	-26.11	0.00	0.00	0.00
2,300.00	3.31	320.26	2,298.85	31.81	-26.44	-30.34	0.00	0.00	0.00
2,400.00	3.31	320.26	2,398.69	36.24	-30.13	-34.57	0.00	0.00	0.00
2,500.00	3.31	320.26	2,498.52	40.67	-33.82	-38.80	0.00	0.00	0.00
2,600.00	3.31	320.26	2,598.35	45.11	-37.50	-43.03	0.00	0.00	0.00
2,700.00	3.31	320.26	2,698.19	49.54	-41.19	-47.25	0.00	0.00	0.00
2,800.00	3.31	320.26	2,798.02	53.98	-44.87	-51.48	0.00	0.00	0.00
2,900.00	3.31	320.26	2,897.85	58.41	-48.56	-55.71	0.00	0.00	0.00
3,000.00	3.31	320.26	2,997.69	62.84	-52.25	-59.94	0.00	0.00	0.00
3,100.00	3.31	320.26	3,097.52	67.28	-55.93	-64.17	0.00	0.00	0.00
3,200.00	3.31	320.26	3,197.36	71.71	-59.62	-68.40	0.00	0.00	0.00
3,300.00	3.31	320.26	3,297.19	76.14	-63.30	-72.63	0.00	0.00	0.00
3,400.00	3.31	320.26	3,397.02	80.58	-66.99	-76.86	0.00	0.00	0.00
3,500.00	3.31	320.26	3,496.86	85.01	-70.68	-81.09	0.00	0.00	0.00
3,600.00	3.31	320.26	3,596.69	89.44	-74.36	-85.32	0.00	0.00	0.00
3,700.00	3.31	320.26	3,696.52	93.88	-78.05	-89.54	0.00	0.00	0.00
3,800.00	3.31	320.26	3,796.36	98.31	-81.73	-93.77	0.00	0.00	0.00
3,826.69	3.31	320.26	3,823.00	99.50	-82.72	-94.90	0.00	0.00	0.00
Parkman									
3,900.00	3.31	320.26	3,896.19	102.75	-85.42	-98.00	0.00	0.00	0.00
4,000.00	3.31	320.26	3,996.02	107.18	-89.11	-102.23	0.00	0.00	0.00
4,100.00	3.31	320.26	4,095.86	111.61	-92.79	-106.46	0.00	0.00	0.00
4,200.00	3.31	320.26	4,195.69	116.05	-96.48	-110.69	0.00	0.00	0.00
4,222.35	3.31	320.26	4,218.00	117.04	-97.30	-111.63	0.00	0.00	0.00
Sussex									
4,300.00	3.31	320.26	4,295.53	120.48	-100.16	-114.92	0.00	0.00	0.00
4,400.00	3.31	320.26	4,395.36	124.91	-103.85	-119.15	0.00	0.00	0.00
4,500.00	3.31	320.26	4,495.19	129.35	-107.54	-123.38	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 16N-E3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL + RKB @ 4857.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL + RKB @ 4857.00ft
Site:	WELD_CANNON 26-3HZ PAD	North Reference:	True
Well:	Cannon 16N-E3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 16N-E3HZ		
Design:	Cannon 16N-E3HZ (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	3.31	320.26	4,595.03	133.78	-111.22	-127.61	0.00	0.00	0.00
4,700.00	3.31	320.26	4,694.86	138.22	-114.91	-131.83	0.00	0.00	0.00
4,800.00	3.31	320.26	4,794.69	142.65	-118.59	-136.06	0.00	0.00	0.00
4,900.00	3.31	320.26	4,894.53	147.08	-122.28	-140.29	0.00	0.00	0.00
5,000.00	3.31	320.26	4,994.36	151.52	-125.97	-144.52	0.00	0.00	0.00
5,100.00	3.31	320.26	5,094.19	155.95	-129.65	-148.75	0.00	0.00	0.00
5,200.00	3.31	320.26	5,194.03	160.38	-133.34	-152.98	0.00	0.00	0.00
5,300.00	3.31	320.26	5,293.86	164.82	-137.02	-157.21	0.00	0.00	0.00
5,400.00	3.31	320.26	5,393.70	169.25	-140.71	-161.44	0.00	0.00	0.00
5,500.00	3.31	320.26	5,493.53	173.69	-144.40	-165.67	0.00	0.00	0.00
5,600.00	3.31	320.26	5,593.36	178.12	-148.08	-169.90	0.00	0.00	0.00
5,700.00	3.31	320.26	5,693.20	182.55	-151.77	-174.12	0.00	0.00	0.00
5,800.00	3.31	320.26	5,793.03	186.99	-155.45	-178.35	0.00	0.00	0.00
5,900.00	3.31	320.26	5,892.86	191.42	-159.14	-182.58	0.00	0.00	0.00
6,000.00	3.31	320.26	5,992.70	195.85	-162.83	-186.81	0.00	0.00	0.00
6,100.00	3.31	320.26	6,092.53	200.29	-166.51	-191.04	0.00	0.00	0.00
6,200.00	3.31	320.26	6,192.36	204.72	-170.20	-195.27	0.00	0.00	0.00
6,300.00	3.31	320.26	6,292.20	209.15	-173.88	-199.50	0.00	0.00	0.00
6,319.10	3.31	320.26	6,311.27	210.00	-174.59	-200.31	0.00	0.00	0.00
6,400.00	5.96	201.44	6,392.01	207.88	-177.62	-198.03	10.00	3.28	-146.88
6,500.00	15.71	188.13	6,490.13	189.60	-181.44	-179.56	10.00	9.75	-13.31
6,600.00	25.65	184.96	6,583.57	154.55	-185.24	-144.36	10.00	9.94	-3.17
6,700.00	35.62	183.49	6,669.50	103.79	-188.89	-93.47	10.00	9.97	-1.47
6,800.00	45.61	182.60	6,745.32	38.86	-192.30	-28.46	10.00	9.98	-0.89
6,866.52	52.25	182.16	6,789.00	-11.22	-194.37	21.66	10.00	9.99	-0.66
Sharon Springs									
6,900.00	55.59	181.97	6,808.71	-38.25	-195.34	48.71	10.00	9.99	-0.57
6,993.42	64.93	181.51	6,855.00	-119.24	-197.79	129.71	10.00	9.99	-0.50
Niobrara A									
7,000.00	65.59	181.48	6,857.75	-125.22	-197.94	135.68	10.00	9.99	-0.45
7,054.84	71.06	181.24	6,878.00	-176.14	-199.15	186.60	10.00	9.99	-0.43
Niobrara B									
7,100.00	75.58	181.06	6,890.96	-219.39	-200.01	229.83	10.00	9.99	-0.41
7,200.00	85.57	180.67	6,907.32	-317.90	-201.49	328.28	10.00	9.99	-0.38
7,250.15	90.58	180.48	6,909.00	-368.00	-202.00	378.33	10.00	9.99	-0.37
7"									
7,252.16	90.60	180.50	6,908.98	-370.01	-202.02	380.34	1.00	0.77	0.64
7,300.00	90.60	180.50	6,908.48	-417.85	-202.43	428.13	0.00	0.00	0.00
7,400.00	90.60	180.50	6,907.44	-517.84	-203.30	528.02	0.00	0.00	0.00
7,500.00	90.60	180.50	6,906.40	-617.83	-204.17	627.92	0.00	0.00	0.00
7,600.00	90.60	180.50	6,905.36	-717.82	-205.04	727.81	0.00	0.00	0.00
7,700.00	90.60	180.50	6,904.31	-817.81	-205.91	827.70	0.00	0.00	0.00
7,800.00	90.60	180.50	6,903.27	-917.80	-206.77	927.59	0.00	0.00	0.00
7,900.00	90.60	180.50	6,902.23	-1,017.79	-207.64	1,027.49	0.00	0.00	0.00
8,000.00	90.60	180.50	6,901.19	-1,117.78	-208.51	1,127.38	0.00	0.00	0.00
8,100.00	90.60	180.50	6,900.15	-1,217.77	-209.38	1,227.27	0.00	0.00	0.00
8,200.00	90.60	180.50	6,899.11	-1,317.76	-210.25	1,327.17	0.00	0.00	0.00
8,300.00	90.60	180.50	6,898.06	-1,417.76	-211.11	1,427.06	0.00	0.00	0.00
8,400.00	90.60	180.50	6,897.02	-1,517.75	-211.98	1,526.95	0.00	0.00	0.00
8,500.00	90.60	180.50	6,895.98	-1,617.74	-212.85	1,626.84	0.00	0.00	0.00
8,600.00	90.60	180.50	6,894.94	-1,717.73	-213.72	1,726.74	0.00	0.00	0.00
8,700.00	90.60	180.50	6,893.90	-1,817.72	-214.59	1,826.63	0.00	0.00	0.00
8,800.00	90.60	180.50	6,892.86	-1,917.71	-215.46	1,926.52	0.00	0.00	0.00
8,900.00	90.60	180.50	6,891.82	-2,017.70	-216.32	2,026.42	0.00	0.00	0.00

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Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 16N-E3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL + RKB @ 4857.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL + RKB @ 4857.00ft
Site:	WELD_CANNON 26-3HZ PAD	North Reference:	True
Well:	Cannon 16N-E3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 16N-E3HZ		
Design:	Cannon 16N-E3HZ (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)
9,000.00	90.60	180.50	6,890.77	-2,117.69	-217.19	2,126.31	0.00	0.00	0.00
9,100.00	90.60	180.50	6,889.73	-2,217.68	-218.06	2,226.20	0.00	0.00	0.00
9,200.00	90.60	180.50	6,888.69	-2,317.67	-218.93	2,326.09	0.00	0.00	0.00
9,300.00	90.60	180.50	6,887.65	-2,417.66	-219.80	2,425.99	0.00	0.00	0.00
9,400.00	90.60	180.50	6,886.61	-2,517.65	-220.66	2,525.88	0.00	0.00	0.00
9,500.00	90.60	180.50	6,885.57	-2,617.64	-221.53	2,625.77	0.00	0.00	0.00
9,600.00	90.60	180.50	6,884.52	-2,717.64	-222.40	2,725.66	0.00	0.00	0.00
9,700.00	90.60	180.50	6,883.48	-2,817.63	-223.27	2,825.56	0.00	0.00	0.00
9,800.00	90.60	180.50	6,882.44	-2,917.62	-224.14	2,925.45	0.00	0.00	0.00
9,900.00	90.60	180.50	6,881.40	-3,017.61	-225.01	3,025.34	0.00	0.00	0.00
10,000.00	90.60	180.50	6,880.36	-3,117.60	-225.87	3,125.24	0.00	0.00	0.00
10,100.00	90.60	180.50	6,879.32	-3,217.59	-226.74	3,225.13	0.00	0.00	0.00
10,200.00	90.60	180.50	6,878.27	-3,317.58	-227.61	3,325.02	0.00	0.00	0.00
10,300.00	90.60	180.50	6,877.23	-3,417.57	-228.48	3,424.91	0.00	0.00	0.00
10,400.00	90.60	180.50	6,876.19	-3,517.56	-229.35	3,524.81	0.00	0.00	0.00
10,500.00	90.60	180.50	6,875.15	-3,617.55	-230.22	3,624.70	0.00	0.00	0.00
10,600.00	90.60	180.50	6,874.11	-3,717.54	-231.08	3,724.59	0.00	0.00	0.00
10,700.00	90.60	180.50	6,873.07	-3,817.53	-231.95	3,824.48	0.00	0.00	0.00
10,800.00	90.60	180.50	6,872.02	-3,917.53	-232.82	3,924.38	0.00	0.00	0.00
10,900.00	90.60	180.50	6,870.98	-4,017.52	-233.69	4,024.27	0.00	0.00	0.00
11,000.00	90.60	180.50	6,869.94	-4,117.51	-234.56	4,124.16	0.00	0.00	0.00
11,100.00	90.60	180.50	6,868.90	-4,217.50	-235.42	4,224.06	0.00	0.00	0.00
11,200.00	90.60	180.50	6,867.86	-4,317.49	-236.29	4,323.95	0.00	0.00	0.00
11,282.31	90.60	180.50	6,867.00	-4,399.79	-237.01	4,406.17	0.00	0.00	0.00
Cannon 16N-E3HZ 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									
Cannon 16N-E3HZ BHL	0.00	0.00	6,867.00	-4,399.79	-237.01	1,302,930.75	3,239,661.23	40.161759	-104.642489
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
775.00	775.00	9 5/8"	9-5/8	12-1/4	
7,250.15	6,909.00	7"	7	8-3/4	

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 16N-E3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL + RKB @ 4857.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL + RKB @ 4857.00ft
Site:	WELD_CANNON 26-3HZ PAD	North Reference:	True
Well:	Cannon 16N-E3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 16N-E3HZ		
Design:	Cannon 16N-E3HZ (wp01)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,826.69	3,823.00	Parkman				
4,222.35	4,218.00	Sussex				
6,866.52	6,789.00	Sharon Springs				
6,993.42	6,855.00	Niobrara A				
7,054.84	6,878.00	Niobrara B		0.00		