

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_CANNON 28-3HZ PAD

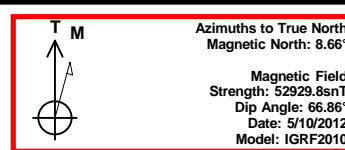
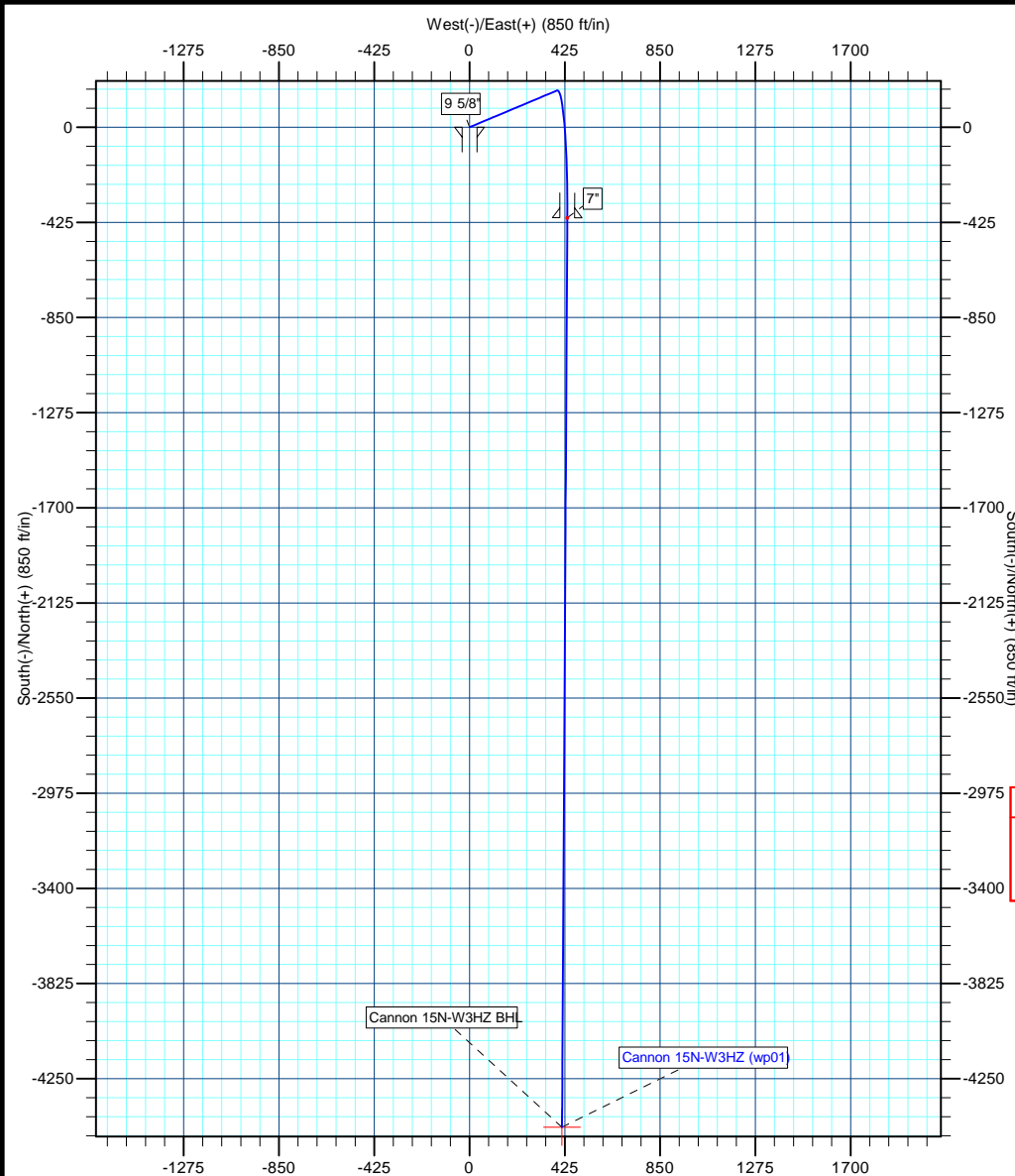
Cannon 15N-W3HZ

Cannon 15N-W3HZ

Plan: Cannon 15N-W3HZ (wp01)

Standard Planning Report

10 May, 2012



Project: COLORADO NORTHERN ZONE - 83
Site: WELD_CANNON 28-3HZ PAD
Well: Cannon 15N-W3HZ
Wellbore: Cannon 15N-W3HZ
Section:
SHL:
Design: Cannon 15N-W3HZ (wp01)
Latitude: 40.174019
Longitude: -104.648276
GL: 4839.00
KB: gl + rkb @ 4856.00ft

WELL DETAILS: Cannon 15N-W3HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	4839.00 Latitude	Longitude	Slot
0.00	0.00	1307381.03	3238001.00	40.174019	-104.648276	

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
1759.44	5.19	67.24	1759.08	4.54	10.83	2.00	67.24	-3.53
6308.77	5.19	67.24	6289.77	163.69	390.23	0.00	0.00	-127.11
7224.91	89.58	180.33	6881.00	-405.00	436.00	10.00	113.04	443.38
7225.37	89.58	180.33	6881.00	-405.46	436.00	1.00	141.96	443.84
11286.89	89.58	180.33	6911.00	-4466.81	412.53	0.00	0.00	4485.82

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

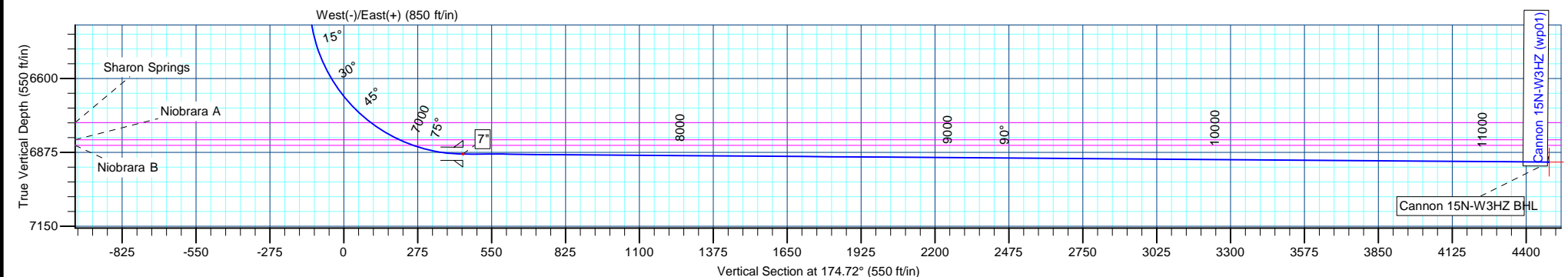
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Cannon 15N-W3HZ BHL	6911.00	-4466.81	412.53	40.161757	-104.646800	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3835.00	3843.90	Parkman
4408.00	4419.25	Sussex
6764.00	6855.73	Sharon Springs
6828.00	6980.26	Niobrara A
6849.00	7036.34	Niobrara B

CASING DETAILS

TVD	MD	Name	Size
775.00	775.00	9 5/8"	9-5/8
6881.00	7224.91	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 15N-W3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4856.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4856.00ft
Site:	WELD_CANNON 28-3HZ PAD	North Reference:	True
Well:	Cannon 15N-W3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 15N-W3HZ		
Design:	Cannon 15N-W3HZ (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 28-3HZ PAD			
Site Position:		Northing:	1,307,379.45 usft	Latitude: 40.174017
From:	Lat/Long	Easting:	3,237,910.76 usft	Longitude: -104.648599
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.55 °

Well	Cannon 15N-W3HZ			
Well Position	+N/-S	0.71 ft	Northing:	1,307,381.03 usft
	+E/-W	90.26 ft	Easting:	3,238,001.01 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 40.174019
				Longitude: -104.648276
				Ground Level: 4,839.00 ft

Wellbore	Cannon 15N-W3HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/10/2012	8.66	66.86	52,930

Design	Cannon 15N-W3HZ (wp01)			
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	174.72

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	
1,759.44	5.19	67.24	1,759.08	4.54	10.83	2.00	2.00	0.00	67.24	
6,308.77	5.19	67.24	6,289.77	163.69	390.23	0.00	0.00	0.00	0.00	
7,224.91	89.58	180.33	6,881.00	-405.00	436.00	10.00	9.21	12.34	113.04	
7,225.37	89.58	180.33	6,881.00	-405.46	436.00	1.00	-0.79	0.62	141.96	
11,286.89	89.58	180.33	6,911.00	-4,466.81	412.53	0.00	0.00	0.00	0.00	Cannon 15N-W3HZ B

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 15N-W3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4856.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4856.00ft
Site:	WELD_CANNON 28-3HZ PAD	North Reference:	True
Well:	Cannon 15N-W3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 15N-W3HZ		
Design:	Cannon 15N-W3HZ (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	67.24	1,599.98	0.68	1.61	-0.52	2.00	2.00	0.00
1,700.00	4.00	67.24	1,699.84	2.70	6.44	-2.10	2.00	2.00	0.00
1,759.44	5.19	67.24	1,759.08	4.54	10.83	-3.53	2.00	2.00	0.00
1,800.00	5.19	67.24	1,799.48	5.96	14.21	-4.63	0.00	0.00	0.00
1,900.00	5.19	67.24	1,899.07	9.46	22.55	-7.34	0.00	0.00	0.00
2,000.00	5.19	67.24	1,998.66	12.96	30.89	-10.06	0.00	0.00	0.00
2,100.00	5.19	67.24	2,098.25	16.45	39.23	-12.78	0.00	0.00	0.00
2,200.00	5.19	67.24	2,197.84	19.95	47.57	-15.49	0.00	0.00	0.00
2,300.00	5.19	67.24	2,297.43	23.45	55.91	-18.21	0.00	0.00	0.00
2,400.00	5.19	67.24	2,397.02	26.95	64.25	-20.93	0.00	0.00	0.00
2,500.00	5.19	67.24	2,496.61	30.45	72.59	-23.64	0.00	0.00	0.00
2,600.00	5.19	67.24	2,596.20	33.95	80.93	-26.36	0.00	0.00	0.00
2,700.00	5.19	67.24	2,695.79	37.44	89.27	-29.08	0.00	0.00	0.00
2,800.00	5.19	67.24	2,795.38	40.94	97.61	-31.79	0.00	0.00	0.00
2,900.00	5.19	67.24	2,894.97	44.44	105.95	-34.51	0.00	0.00	0.00
3,000.00	5.19	67.24	2,994.56	47.94	114.29	-37.23	0.00	0.00	0.00
3,100.00	5.19	67.24	3,094.15	51.44	122.63	-39.94	0.00	0.00	0.00
3,200.00	5.19	67.24	3,193.74	54.94	130.96	-42.66	0.00	0.00	0.00
3,300.00	5.19	67.24	3,293.33	58.43	139.30	-45.38	0.00	0.00	0.00
3,400.00	5.19	67.24	3,392.92	61.93	147.64	-48.09	0.00	0.00	0.00
3,500.00	5.19	67.24	3,492.51	65.43	155.98	-50.81	0.00	0.00	0.00
3,600.00	5.19	67.24	3,592.10	68.93	164.32	-53.53	0.00	0.00	0.00
3,700.00	5.19	67.24	3,691.69	72.43	172.66	-56.24	0.00	0.00	0.00
3,800.00	5.19	67.24	3,791.28	75.93	181.00	-58.96	0.00	0.00	0.00
3,843.90	5.19	67.24	3,835.00	77.46	184.66	-60.15	0.00	0.00	0.00
Parkman									
3,900.00	5.19	67.24	3,890.87	79.42	189.34	-61.67	0.00	0.00	0.00
4,000.00	5.19	67.24	3,990.46	82.92	197.68	-64.39	0.00	0.00	0.00
4,100.00	5.19	67.24	4,090.05	86.42	206.02	-67.11	0.00	0.00	0.00
4,200.00	5.19	67.24	4,189.64	89.92	214.36	-69.82	0.00	0.00	0.00
4,300.00	5.19	67.24	4,289.23	93.42	222.70	-72.54	0.00	0.00	0.00
4,400.00	5.19	67.24	4,388.82	96.92	231.04	-75.26	0.00	0.00	0.00
4,419.25	5.19	67.24	4,408.00	97.59	232.65	-75.78	0.00	0.00	0.00
Sussex									
4,500.00	5.19	67.24	4,488.42	100.41	239.38	-77.97	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 15N-W3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4856.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4856.00ft
Site:	WELD_CANNON 28-3HZ PAD	North Reference:	True
Well:	Cannon 15N-W3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 15N-W3HZ		
Design:	Cannon 15N-W3HZ (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	5.19	67.24	4,588.01	103.91	247.72	-80.69	0.00	0.00	0.00
4,700.00	5.19	67.24	4,687.60	107.41	256.06	-83.41	0.00	0.00	0.00
4,800.00	5.19	67.24	4,787.19	110.91	264.40	-86.12	0.00	0.00	0.00
4,900.00	5.19	67.24	4,886.78	114.41	272.74	-88.84	0.00	0.00	0.00
5,000.00	5.19	67.24	4,986.37	117.90	281.08	-91.56	0.00	0.00	0.00
5,100.00	5.19	67.24	5,085.96	121.40	289.42	-94.27	0.00	0.00	0.00
5,200.00	5.19	67.24	5,185.55	124.90	297.76	-96.99	0.00	0.00	0.00
5,300.00	5.19	67.24	5,285.14	128.40	306.10	-99.71	0.00	0.00	0.00
5,400.00	5.19	67.24	5,384.73	131.90	314.44	-102.42	0.00	0.00	0.00
5,500.00	5.19	67.24	5,484.32	135.40	322.78	-105.14	0.00	0.00	0.00
5,600.00	5.19	67.24	5,583.91	138.89	331.12	-107.86	0.00	0.00	0.00
5,700.00	5.19	67.24	5,683.50	142.39	339.46	-110.57	0.00	0.00	0.00
5,800.00	5.19	67.24	5,783.09	145.89	347.80	-113.29	0.00	0.00	0.00
5,900.00	5.19	67.24	5,882.68	149.39	356.14	-116.01	0.00	0.00	0.00
6,000.00	5.19	67.24	5,982.27	152.89	364.48	-118.72	0.00	0.00	0.00
6,100.00	5.19	67.24	6,081.86	156.39	372.82	-121.44	0.00	0.00	0.00
6,200.00	5.19	67.24	6,181.45	159.88	381.16	-124.15	0.00	0.00	0.00
6,300.00	5.19	67.24	6,281.04	163.38	389.50	-126.87	0.00	0.00	0.00
6,308.77	5.19	67.24	6,289.77	163.69	390.23	-127.11	0.00	0.00	0.00
6,400.00	8.54	146.57	6,380.50	159.62	397.78	-122.37	10.00	3.67	86.95
6,500.00	17.72	165.21	6,477.82	138.66	405.77	-100.75	10.00	9.18	18.65
6,600.00	27.47	171.12	6,570.04	101.05	413.24	-62.62	10.00	9.75	5.91
6,700.00	37.35	174.08	6,654.37	47.95	419.94	-9.13	10.00	9.88	2.96
6,800.00	47.27	175.94	6,728.23	-19.03	425.69	58.09	10.00	9.92	1.86
6,855.73	52.81	176.73	6,764.00	-61.64	428.41	100.77	10.00	9.94	1.42
Sharon Springs									
6,900.00	57.22	177.28	6,789.38	-97.85	430.30	137.01	10.00	9.95	1.24
6,980.26	65.21	178.15	6,828.00	-168.08	433.08	207.19	10.00	9.95	1.09
Niobrara A									
7,000.00	67.17	178.35	6,835.97	-186.13	433.63	225.22	10.00	9.96	0.99
7,036.34	70.79	178.70	6,849.00	-220.03	434.50	259.06	10.00	9.96	0.96
Niobrara B									
7,100.00	77.13	179.27	6,866.58	-281.18	435.58	320.04	10.00	9.96	0.90
7,200.00	87.10	180.12	6,880.28	-380.10	436.10	418.60	10.00	9.96	0.85
7,224.91	89.58	180.33	6,881.00	-405.00	436.00	443.38	10.00	9.96	0.83
7"									
7,225.37	89.58	180.33	6,881.00	-405.46	436.00	443.84	1.00	-0.79	0.62
7,300.00	89.58	180.33	6,881.55	-480.09	435.57	518.11	0.00	0.00	0.00
7,400.00	89.58	180.33	6,882.29	-580.08	434.99	617.63	0.00	0.00	0.00
7,500.00	89.58	180.33	6,883.03	-680.08	434.41	717.15	0.00	0.00	0.00
7,600.00	89.58	180.33	6,883.77	-780.08	433.83	816.67	0.00	0.00	0.00
7,700.00	89.58	180.33	6,884.51	-880.07	433.25	916.19	0.00	0.00	0.00
7,800.00	89.58	180.33	6,885.25	-980.07	432.68	1,015.70	0.00	0.00	0.00
7,900.00	89.58	180.33	6,885.99	-1,080.06	432.10	1,115.22	0.00	0.00	0.00
8,000.00	89.58	180.33	6,886.72	-1,180.06	431.52	1,214.74	0.00	0.00	0.00
8,100.00	89.58	180.33	6,887.46	-1,280.05	430.94	1,314.26	0.00	0.00	0.00
8,200.00	89.58	180.33	6,888.20	-1,380.05	430.37	1,413.78	0.00	0.00	0.00
8,300.00	89.58	180.33	6,888.94	-1,480.04	429.79	1,513.30	0.00	0.00	0.00
8,400.00	89.58	180.33	6,889.68	-1,580.04	429.21	1,612.82	0.00	0.00	0.00
8,500.00	89.58	180.33	6,890.42	-1,680.04	428.63	1,712.33	0.00	0.00	0.00
8,600.00	89.58	180.33	6,891.16	-1,780.03	428.05	1,811.85	0.00	0.00	0.00
8,700.00	89.58	180.33	6,891.89	-1,880.03	427.48	1,911.37	0.00	0.00	0.00
8,800.00	89.58	180.33	6,892.63	-1,980.02	426.90	2,010.89	0.00	0.00	0.00
8,900.00	89.58	180.33	6,893.37	-2,080.02	426.32	2,110.41	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 15N-W3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4856.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4856.00ft
Site:	WELD_CANNON 28-3HZ PAD	North Reference:	True
Well:	Cannon 15N-W3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 15N-W3HZ		
Design:	Cannon 15N-W3HZ (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	89.58	180.33	6,894.11	-2,180.01	425.74	2,209.93	0.00	0.00	0.00
9,100.00	89.58	180.33	6,894.85	-2,280.01	425.16	2,309.45	0.00	0.00	0.00
9,200.00	89.58	180.33	6,895.59	-2,380.01	424.59	2,408.97	0.00	0.00	0.00
9,300.00	89.58	180.33	6,896.33	-2,480.00	424.01	2,508.48	0.00	0.00	0.00
9,400.00	89.58	180.33	6,897.06	-2,580.00	423.43	2,608.00	0.00	0.00	0.00
9,500.00	89.58	180.33	6,897.80	-2,679.99	422.85	2,707.52	0.00	0.00	0.00
9,600.00	89.58	180.33	6,898.54	-2,779.99	422.27	2,807.04	0.00	0.00	0.00
9,700.00	89.58	180.33	6,899.28	-2,879.98	421.70	2,906.56	0.00	0.00	0.00
9,800.00	89.58	180.33	6,900.02	-2,979.98	421.12	3,006.08	0.00	0.00	0.00
9,900.00	89.58	180.33	6,900.76	-3,079.97	420.54	3,105.60	0.00	0.00	0.00
10,000.00	89.58	180.33	6,901.50	-3,179.97	419.96	3,205.12	0.00	0.00	0.00
10,100.00	89.58	180.33	6,902.23	-3,279.97	419.39	3,304.63	0.00	0.00	0.00
10,200.00	89.58	180.33	6,902.97	-3,379.96	418.81	3,404.15	0.00	0.00	0.00
10,300.00	89.58	180.33	6,903.71	-3,479.96	418.23	3,503.67	0.00	0.00	0.00
10,400.00	89.58	180.33	6,904.45	-3,579.95	417.65	3,603.19	0.00	0.00	0.00
10,500.00	89.58	180.33	6,905.19	-3,679.95	417.07	3,702.71	0.00	0.00	0.00
10,600.00	89.58	180.33	6,905.93	-3,779.94	416.50	3,802.23	0.00	0.00	0.00
10,700.00	89.58	180.33	6,906.67	-3,879.94	415.92	3,901.75	0.00	0.00	0.00
10,800.00	89.58	180.33	6,907.40	-3,979.94	415.34	4,001.27	0.00	0.00	0.00
10,900.00	89.58	180.33	6,908.14	-4,079.93	414.76	4,100.78	0.00	0.00	0.00
11,000.00	89.58	180.33	6,908.88	-4,179.93	414.18	4,200.30	0.00	0.00	0.00
11,100.00	89.58	180.33	6,909.62	-4,279.92	413.61	4,299.82	0.00	0.00	0.00
11,200.00	89.58	180.33	6,910.36	-4,379.92	413.03	4,399.34	0.00	0.00	0.00
11,286.89	89.58	180.33	6,911.00	-4,466.81	412.53	4,485.82	0.00	0.00	0.00
Cannon 15N-W3HZ 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 15N-W3HZ BHL	0.00	0.00	6,911.00	-4,466.81	412.53	1,302,918.40	3,238,456.42	40.161757	-104.646800
- 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	
7,224.91	6,881.00	7"	7	8-3/4	

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Cannon 15N-W3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4856.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4856.00ft
Site:	WELD_CANNON 28-3HZ PAD	North Reference:	True
Well:	Cannon 15N-W3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Cannon 15N-W3HZ		
Design:	Cannon 15N-W3HZ (wp01)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,843.90	3,835.00	Parkman				
4,419.25	4,408.00	Sussex				
6,855.73	6,764.00	Sharon Springs				
6,980.26	6,828.00	Niobrara A				
7,036.34	6,849.00	Niobrara B				