

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Buffalo & Badger 4C-15HZ Pad

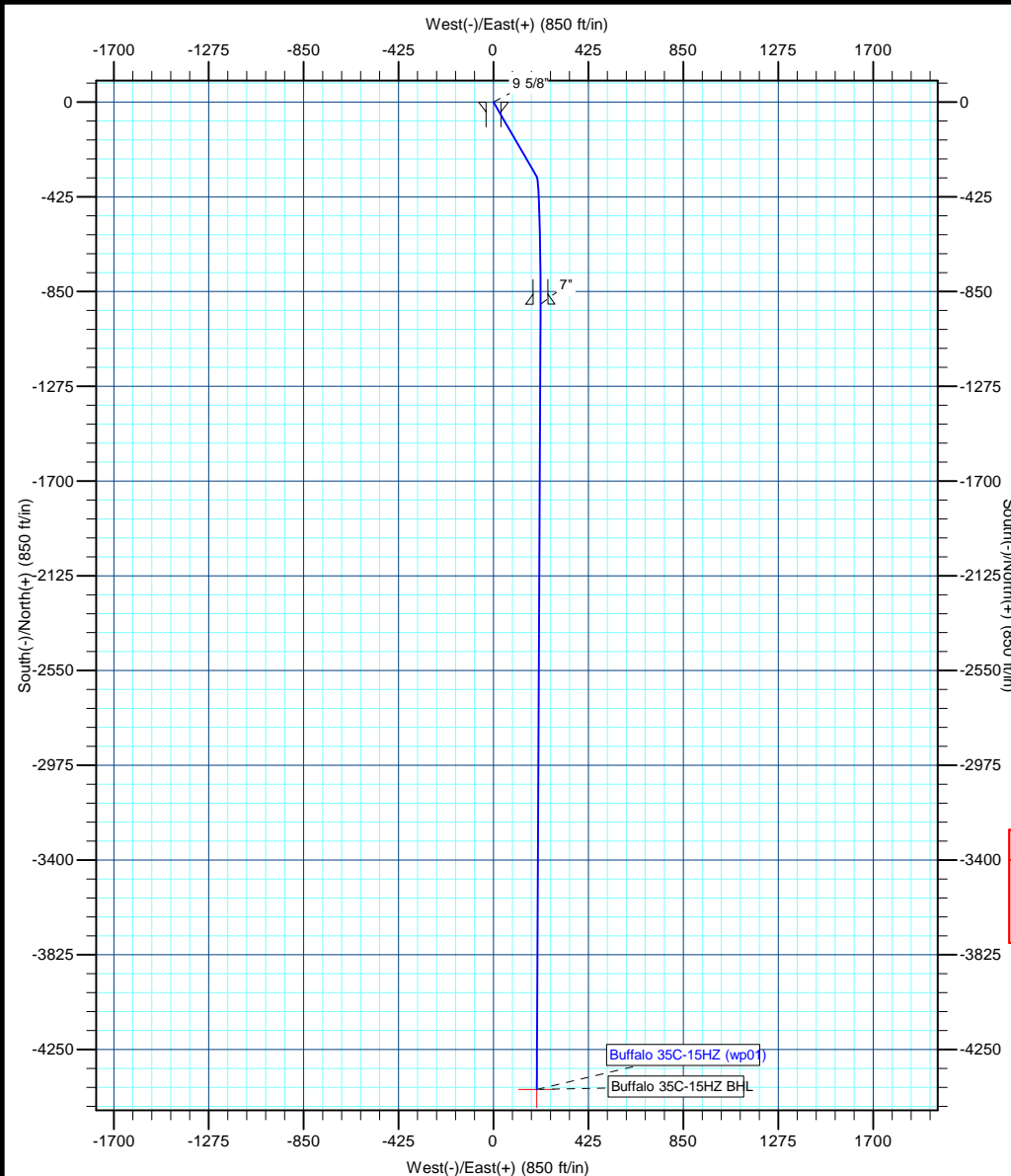
Buffalo 35C-15HZ

Buffalo 35C-15HZ

Plan: Buffalo 35C-15HZ (wp01)

Standard Planning Report

12 July, 2012



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Azimuths to True North

Magnetic North: 8.81°

Magnetic Field

Strength: 52810.0snT

Dip Angle: 66.70°

Date: 7/12/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD_Buffalo & Badger 4C-15HZ Pad

Well: Buffalo 35C-15HZ

Wellbore: Buffalo 35C-15HZ

Section:

SHL:

Design: Buffalo 35C-15HZ (wp01)

Latitude: 40.057341

Longitude: -104.995704

GL: 5138.00

KB: gl + rkb @ 5155.00ft

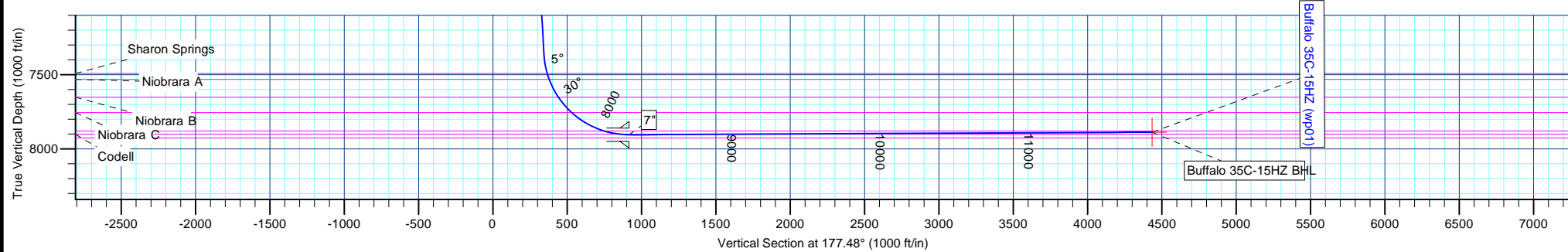
WELL DETAILS: Buffalo 35C-15HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5138.00 Latitude	Longitude	Slot
0.00	0.00	1264136.10	3141160.78	40.057341	-104.995704	

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
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00
1176.52	3.53	149.89	1176.41	-4.70	2.73	2.00	149.89	4.82
7374.69	3.53	149.89	7362.82	-334.85	194.22	0.00	0.00	343.06
8244.16	90.00	180.00	7905.00	-907.00	211.00	10.00	30.16	915.39
8282.82	90.28	180.27	7904.91	-945.66	210.91	1.00	44.01	954.01
11766.47	90.28	180.27	7888.00	-4429.23	194.58	0.00	0.00	4433.50

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Buffalo 35C-15HZ BHL	7888.00	-4429.23	194.58	40.045182	-104.995009	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4317.00	4323.08	Parkman
4775.00	4781.95	Sussex
5263.00	5270.88	Shannon
7492.00	7506.07	Sharon Springs
7532.00	7548.23	Niobrara A
7652.00	7683.49	Niobrara B
7755.00	7819.84	Niobrara C
7879.00	8070.85	Fort Hays
7901.00	8176.40	Codell

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7905.00	8244.16	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Buffalo 35C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 5155.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 5155.00ft
Site:	WELD_Buffalo & Badger 4C-15HZ Pad	North Reference:	True
Well:	Buffalo 35C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buffalo 35C-15HZ		
Design:	Buffalo 35C-15HZ (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_Buffalo & Badger 4C-15HZ Pad			
Site Position:		Northing:	1,264,133.85 usft	Latitude:	40.057339
From:	Lat/Long	Easting:	3,140,890.95 usft	Longitude:	-104.996668
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.33 °

Well		Buffalo 35C-15HZ				
Well Position	+N/-S	0.72 ft	Northing:	1,264,136.10 usft	Latitude:	40.057341
	+E/-W	269.84 ft	Easting:	3,141,160.79 usft	Longitude:	-104.995704
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,138.00 ft

Wellbore	Buffalo 35C-15HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/12/2012	8.81	66.70	52,810

Design	Buffalo 35C-15HZ (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	177.48

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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,176.52	3.53	149.89	1,176.41	-4.70	2.73	2.00	2.00	0.00	149.89	
7,374.69	3.53	149.89	7,362.82	-334.85	194.22	0.00	0.00	0.00	0.00	
8,244.16	90.00	180.00	7,905.00	-907.00	211.00	10.00	9.95	3.46	30.16	
8,282.82	90.28	180.27	7,904.91	-945.66	210.91	1.00	0.72	0.69	44.01	
11,766.47	90.28	180.27	7,888.00	-4,429.23	194.58	0.00	0.00	0.00	0.00	Buffalo 35C-15HZ BH

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 5155.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 5155.00ft
Site:	WELD_Buffalo & Badger 4C-15HZ Pad	North Reference:	True
Well:	Buffalo 35C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buffalo 35C-15HZ		
Design:	Buffalo 35C-15HZ (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
9 5/8"									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	2.00	149.89	1,099.98	-1.51	0.88	1.55	2.00	2.00	0.00
1,176.52	3.53	149.89	1,176.41	-4.70	2.73	4.82	2.00	2.00	0.00
Start 6198.18 hold at 1176.52 MD									
1,200.00	3.53	149.89	1,199.84	-5.95	3.45	6.10	0.00	0.00	0.00
1,300.00	3.53	149.89	1,299.65	-11.28	6.54	11.56	0.00	0.00	0.00
1,400.00	3.53	149.89	1,399.46	-16.61	9.63	17.01	0.00	0.00	0.00
1,500.00	3.53	149.89	1,499.27	-21.93	12.72	22.47	0.00	0.00	0.00
1,600.00	3.53	149.89	1,599.08	-27.26	15.81	27.93	0.00	0.00	0.00
1,700.00	3.53	149.89	1,698.89	-32.59	18.90	33.38	0.00	0.00	0.00
1,800.00	3.53	149.89	1,798.71	-37.91	21.99	38.84	0.00	0.00	0.00
1,900.00	3.53	149.89	1,898.52	-43.24	25.08	44.30	0.00	0.00	0.00
2,000.00	3.53	149.89	1,998.33	-48.57	28.17	49.76	0.00	0.00	0.00
2,100.00	3.53	149.89	2,098.14	-53.89	31.26	55.21	0.00	0.00	0.00
2,200.00	3.53	149.89	2,197.95	-59.22	34.35	60.67	0.00	0.00	0.00
2,300.00	3.53	149.89	2,297.76	-64.55	37.44	66.13	0.00	0.00	0.00
2,400.00	3.53	149.89	2,397.57	-69.87	40.53	71.58	0.00	0.00	0.00
2,500.00	3.53	149.89	2,497.38	-75.20	43.62	77.04	0.00	0.00	0.00
2,600.00	3.53	149.89	2,597.19	-80.53	46.71	82.50	0.00	0.00	0.00
2,700.00	3.53	149.89	2,697.00	-85.85	49.79	87.96	0.00	0.00	0.00
2,800.00	3.53	149.89	2,796.81	-91.18	52.88	93.41	0.00	0.00	0.00
2,900.00	3.53	149.89	2,896.62	-96.51	55.97	98.87	0.00	0.00	0.00
3,000.00	3.53	149.89	2,996.43	-101.83	59.06	104.33	0.00	0.00	0.00
3,100.00	3.53	149.89	3,096.24	-107.16	62.15	109.78	0.00	0.00	0.00
3,200.00	3.53	149.89	3,196.05	-112.49	65.24	115.24	0.00	0.00	0.00
3,300.00	3.53	149.89	3,295.86	-117.81	68.33	120.70	0.00	0.00	0.00
3,400.00	3.53	149.89	3,395.67	-123.14	71.42	126.15	0.00	0.00	0.00
3,500.00	3.53	149.89	3,495.48	-128.47	74.51	131.61	0.00	0.00	0.00
3,600.00	3.53	149.89	3,595.29	-133.79	77.60	137.07	0.00	0.00	0.00
3,700.00	3.53	149.89	3,695.10	-139.12	80.69	142.53	0.00	0.00	0.00
3,800.00	3.53	149.89	3,794.91	-144.44	83.78	147.98	0.00	0.00	0.00
3,900.00	3.53	149.89	3,894.72	-149.77	86.87	153.44	0.00	0.00	0.00
4,000.00	3.53	149.89	3,994.53	-155.10	89.96	158.90	0.00	0.00	0.00
4,100.00	3.53	149.89	4,094.34	-160.42	93.05	164.35	0.00	0.00	0.00
4,200.00	3.53	149.89	4,194.15	-165.75	96.14	169.81	0.00	0.00	0.00
4,300.00	3.53	149.89	4,293.96	-171.08	99.23	175.27	0.00	0.00	0.00
4,323.08	3.53	149.89	4,317.00	-172.31	99.94	176.53	0.00	0.00	0.00
Parkman									
4,400.00	3.53	149.89	4,393.77	-176.40	102.32	180.73	0.00	0.00	0.00
4,500.00	3.53	149.89	4,493.58	-181.73	105.41	186.18	0.00	0.00	0.00
4,600.00	3.53	149.89	4,593.39	-187.06	108.49	191.64	0.00	0.00	0.00
4,700.00	3.53	149.89	4,693.20	-192.38	111.58	197.10	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Buffalo 35C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 5155.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 5155.00ft
Site:	WELD_Buffalo & Badger 4C-15HZ Pad	North Reference:	True
Well:	Buffalo 35C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buffalo 35C-15HZ		
Design:	Buffalo 35C-15HZ (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)
4,781.95	3.53	149.89	4,775.00	-196.75	114.12	201.57	0.00	0.00	0.00
Sussex									
4,800.00	3.53	149.89	4,793.01	-197.71	114.67	202.55	0.00	0.00	0.00
4,900.00	3.53	149.89	4,892.82	-203.04	117.76	208.01	0.00	0.00	0.00
5,000.00	3.53	149.89	4,992.63	-208.36	120.85	213.47	0.00	0.00	0.00
5,100.00	3.53	149.89	5,092.44	-213.69	123.94	218.92	0.00	0.00	0.00
5,200.00	3.53	149.89	5,192.25	-219.02	127.03	224.38	0.00	0.00	0.00
5,270.88	3.53	149.89	5,263.00	-222.79	129.22	228.25	0.00	0.00	0.00
Shannon									
5,300.00	3.53	149.89	5,292.06	-224.34	130.12	229.84	0.00	0.00	0.00
5,400.00	3.53	149.89	5,391.87	-229.67	133.21	235.30	0.00	0.00	0.00
5,500.00	3.53	149.89	5,491.68	-235.00	136.30	240.75	0.00	0.00	0.00
5,600.00	3.53	149.89	5,591.49	-240.32	139.39	246.21	0.00	0.00	0.00
5,700.00	3.53	149.89	5,691.30	-245.65	142.48	251.67	0.00	0.00	0.00
5,800.00	3.53	149.89	5,791.11	-250.98	145.57	257.12	0.00	0.00	0.00
5,900.00	3.53	149.89	5,890.92	-256.30	148.66	262.58	0.00	0.00	0.00
6,000.00	3.53	149.89	5,990.74	-261.63	151.75	268.04	0.00	0.00	0.00
6,100.00	3.53	149.89	6,090.55	-266.96	154.84	273.49	0.00	0.00	0.00
6,200.00	3.53	149.89	6,190.36	-272.28	157.93	278.95	0.00	0.00	0.00
6,300.00	3.53	149.89	6,290.17	-277.61	161.02	284.41	0.00	0.00	0.00
6,400.00	3.53	149.89	6,389.98	-282.94	164.10	289.87	0.00	0.00	0.00
6,500.00	3.53	149.89	6,489.79	-288.26	167.19	295.32	0.00	0.00	0.00
6,600.00	3.53	149.89	6,589.60	-293.59	170.28	300.78	0.00	0.00	0.00
6,700.00	3.53	149.89	6,689.41	-298.92	173.37	306.24	0.00	0.00	0.00
6,800.00	3.53	149.89	6,789.22	-304.24	176.46	311.69	0.00	0.00	0.00
6,900.00	3.53	149.89	6,889.03	-309.57	179.55	317.15	0.00	0.00	0.00
7,000.00	3.53	149.89	6,988.84	-314.90	182.64	322.61	0.00	0.00	0.00
7,100.00	3.53	149.89	7,088.65	-320.22	185.73	328.07	0.00	0.00	0.00
7,200.00	3.53	149.89	7,188.46	-325.55	188.82	333.52	0.00	0.00	0.00
7,300.00	3.53	149.89	7,288.27	-330.88	191.91	338.98	0.00	0.00	0.00
7,374.69	3.53	149.89	7,362.82	-334.85	194.22	343.06	0.00	0.00	0.00
Start DLS 10.00 TFO 30.16									
7,400.00	5.86	162.44	7,388.04	-336.76	195.00	344.99	10.00	9.20	49.61
7,500.00	15.68	173.67	7,486.17	-355.10	198.04	363.45	10.00	9.82	11.23
7,506.07	16.28	173.92	7,492.00	-356.77	198.22	365.12	10.00	9.94	4.08
Sharon Springs									
7,548.23	20.48	175.25	7,532.00	-370.00	199.45	378.40	10.00	9.95	3.15
Niobrara A									
7,600.00	25.64	176.30	7,579.62	-390.22	200.93	398.66	10.00	9.97	2.04
7,683.49	33.97	177.37	7,652.00	-431.62	203.17	440.12	10.00	9.98	1.27
Niobrara B									
7,700.00	35.62	177.52	7,665.56	-441.03	203.59	449.54	10.00	9.99	0.95
7,800.00	45.61	178.26	7,741.37	-506.01	205.94	514.56	10.00	9.99	0.74
7,819.84	47.59	178.38	7,755.00	-520.41	206.36	528.97	10.00	9.99	0.59
Niobrara C									
7,900.00	55.60	178.79	7,804.75	-583.16	207.90	591.73	10.00	9.99	0.51
8,000.00	65.60	179.20	7,853.78	-670.16	209.41	678.71	10.00	9.99	0.41
8,070.85	72.68	179.45	7,879.00	-736.32	210.20	744.84	10.00	9.99	0.35
Fort Hays									
8,100.00	75.59	179.54	7,886.97	-764.35	210.44	772.85	10.00	9.99	0.33
8,176.40	83.23	179.79	7,901.00	-839.40	210.88	847.85	10.00	10.00	0.32
Codell									
8,200.00	85.59	179.86	7,903.30	-862.88	210.95	871.31	10.00	10.00	0.31

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Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 5155.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 5155.00ft
Site:	WELD_Buffalo & Badger 4C-15HZ Pad	North Reference:	True
Well:	Buffalo 35C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buffalo 35C-15HZ		
Design:	Buffalo 35C-15HZ (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)
8,244.16	90.00	180.00	7,905.00	-907.00	211.00	915.38	10.00	10.00	0.31
Start DLS 1.00 TFO 44.01 - 7"									
8,282.82	90.28	180.27	7,904.91	-945.66	210.91	954.01	1.00	0.72	0.69
Start 3483.64 hold at 8282.82 MD									
8,300.00	90.28	180.27	7,904.82	-962.84	210.83	971.16	0.00	0.00	0.00
8,400.00	90.28	180.27	7,904.34	-1,062.84	210.36	1,071.04	0.00	0.00	0.00
8,500.00	90.28	180.27	7,903.85	-1,162.83	209.89	1,170.92	0.00	0.00	0.00
8,600.00	90.28	180.27	7,903.37	-1,262.83	209.42	1,270.81	0.00	0.00	0.00
8,700.00	90.28	180.27	7,902.88	-1,362.83	208.95	1,370.69	0.00	0.00	0.00
8,800.00	90.28	180.27	7,902.40	-1,462.83	208.48	1,470.57	0.00	0.00	0.00
8,900.00	90.28	180.27	7,901.91	-1,562.82	208.02	1,570.45	0.00	0.00	0.00
9,000.00	90.28	180.27	7,901.43	-1,662.82	207.55	1,670.33	0.00	0.00	0.00
9,100.00	90.28	180.27	7,900.94	-1,762.82	207.08	1,770.21	0.00	0.00	0.00
9,200.00	90.28	180.27	7,900.46	-1,862.82	206.61	1,870.09	0.00	0.00	0.00
9,300.00	90.28	180.27	7,899.97	-1,962.81	206.14	1,969.97	0.00	0.00	0.00
9,400.00	90.28	180.27	7,899.48	-2,062.81	205.67	2,069.85	0.00	0.00	0.00
9,500.00	90.28	180.27	7,899.00	-2,162.81	205.20	2,169.73	0.00	0.00	0.00
9,600.00	90.28	180.27	7,898.51	-2,262.81	204.73	2,269.61	0.00	0.00	0.00
9,700.00	90.28	180.27	7,898.03	-2,362.81	204.27	2,369.49	0.00	0.00	0.00
9,800.00	90.28	180.27	7,897.54	-2,462.80	203.80	2,469.37	0.00	0.00	0.00
9,900.00	90.28	180.27	7,897.06	-2,562.80	203.33	2,569.26	0.00	0.00	0.00
10,000.00	90.28	180.27	7,896.57	-2,662.80	202.86	2,669.14	0.00	0.00	0.00
10,100.00	90.28	180.27	7,896.09	-2,762.80	202.39	2,769.02	0.00	0.00	0.00
10,200.00	90.28	180.27	7,895.60	-2,862.79	201.92	2,868.90	0.00	0.00	0.00
10,300.00	90.28	180.27	7,895.12	-2,962.79	201.45	2,968.78	0.00	0.00	0.00
10,400.00	90.28	180.27	7,894.63	-3,062.79	200.98	3,068.66	0.00	0.00	0.00
10,500.00	90.28	180.27	7,894.15	-3,162.79	200.52	3,168.54	0.00	0.00	0.00
10,600.00	90.28	180.27	7,893.66	-3,262.79	200.05	3,268.42	0.00	0.00	0.00
10,700.00	90.28	180.27	7,893.18	-3,362.78	199.58	3,368.30	0.00	0.00	0.00
10,800.00	90.28	180.27	7,892.69	-3,462.78	199.11	3,468.18	0.00	0.00	0.00
10,900.00	90.28	180.27	7,892.21	-3,562.78	198.64	3,568.06	0.00	0.00	0.00
11,000.00	90.28	180.27	7,891.72	-3,662.78	198.17	3,667.94	0.00	0.00	0.00
11,100.00	90.28	180.27	7,891.23	-3,762.77	197.70	3,767.83	0.00	0.00	0.00
11,200.00	90.28	180.27	7,890.75	-3,862.77	197.23	3,867.71	0.00	0.00	0.00
11,300.00	90.28	180.27	7,890.26	-3,962.77	196.76	3,967.59	0.00	0.00	0.00
11,400.00	90.28	180.27	7,889.78	-4,062.77	196.30	4,067.47	0.00	0.00	0.00
11,500.00	90.28	180.27	7,889.29	-4,162.76	195.83	4,167.35	0.00	0.00	0.00
11,600.00	90.28	180.27	7,888.81	-4,262.76	195.36	4,267.23	0.00	0.00	0.00
11,700.00	90.28	180.27	7,888.32	-4,362.76	194.89	4,367.11	0.00	0.00	0.00
11,766.47	90.28	180.27	7,888.00	-4,429.23	194.58	4,433.50	0.00	0.00	0.00
TD at 11766.47 - Buffalo 35C-15HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Buffalo 35C-15HZ BHL	0.00	0.00	7,888.00	-4,429.23	194.58	1,259,708.06	3,141,380.55	40.045182	-104.995009
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well Buffalo 35C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 5155.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 5155.00ft
Site:	WELD_Buffalo & Badger 4C-15HZ Pad	North Reference:	True
Well:	Buffalo 35C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buffalo 35C-15HZ		
Design:	Buffalo 35C-15HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
900.00	900.00	9 5/8"	9-5/8	12-1/4	
8,244.16	7,905.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,323.08	4,317.00	Parkman			
4,781.95	4,775.00	Sussex			
5,270.88	5,263.00	Shannon			
7,506.07	7,492.00	Sharon Springs			
7,548.23	7,532.00	Niobrara A			
7,683.49	7,652.00	Niobrara B			
7,819.84	7,755.00	Niobrara C			
8,070.85	7,879.00	Fort Hays			
8,176.40	7,901.00	Codell			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,176.52	1,176.41	-4.70	2.73	Start 6198.18 hold at 1176.52 MD	
7,374.69	7,362.82	-334.85	194.22	Start DLS 10.00 TFO 30.16	
8,244.16	7,905.00	-907.00	211.00	Start DLS 1.00 TFO 44.01	
8,282.82	7,904.91	-945.66	210.91	Start 3483.64 hold at 8282.82 MD	
11,766.47	7,888.00	-4,429.23	194.58	TD at 11766.47	