

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_BUFFALO & BADGER 29-15HZ PAD

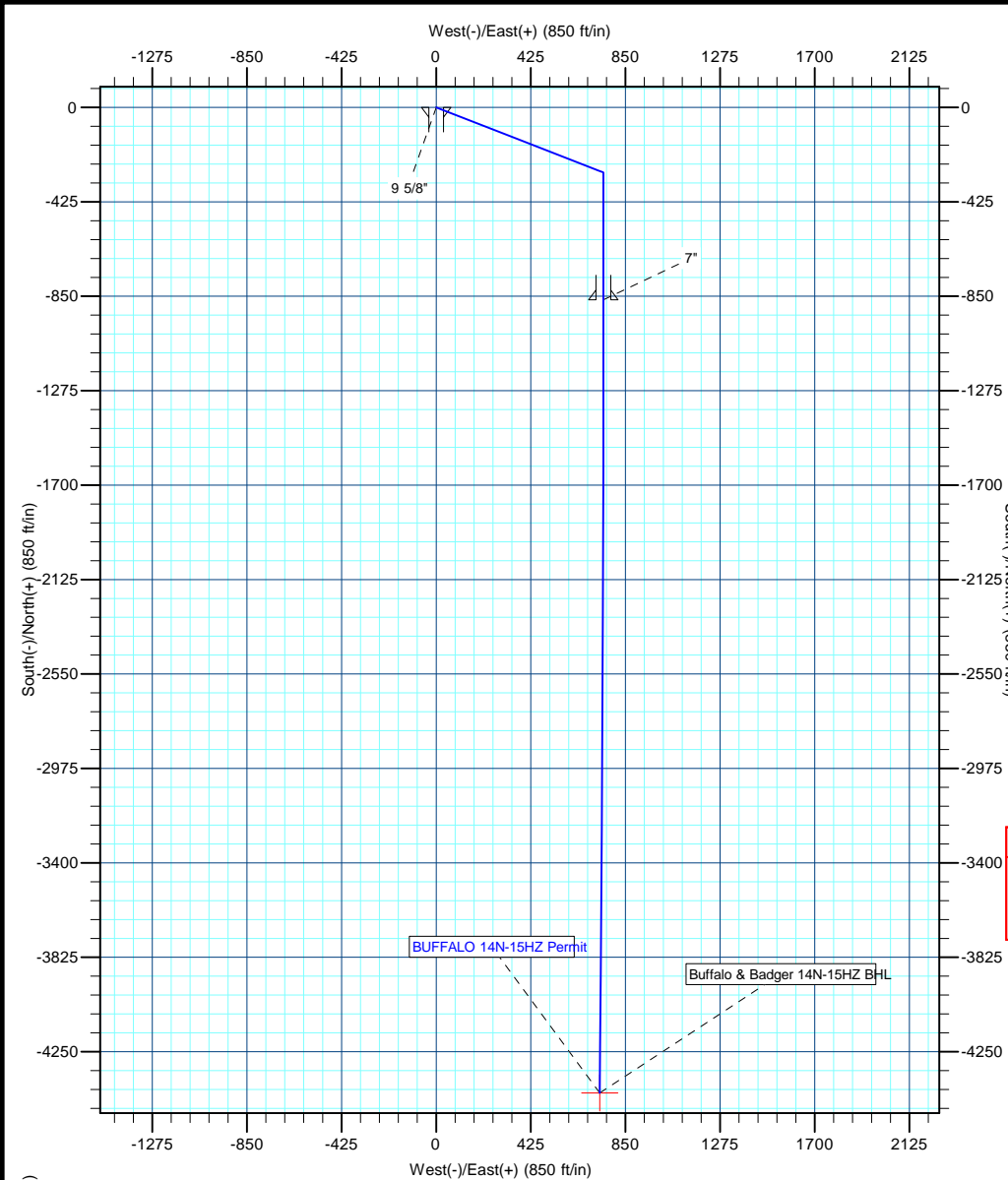
BUFFALO 14N-15HZ

BUFFALO 14N-15HZ

Plan: BUFFALO 14N-15HZ Permit

Standard Planning Report

16 July, 2012



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Azimuths to True North

Magnetic North: 8.81°

Magnetic Field

Strength: 52810.0snT

Dip Angle: 66.70°

Date: 7/13/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD_BUFFALO & BADGER 29-15HZ PAD

Well: BUFFALO 14N-15HZ

Wellbore: BUFFALO 14N-15HZ

Section:

SHL:

Design: BUFFALO 14N-15HZ Permit

Latitude: 40.057363

Longitude: -104.994097

GL: 5125.00

KB: 17' RKB + 5125' GL @ 5142.00ft

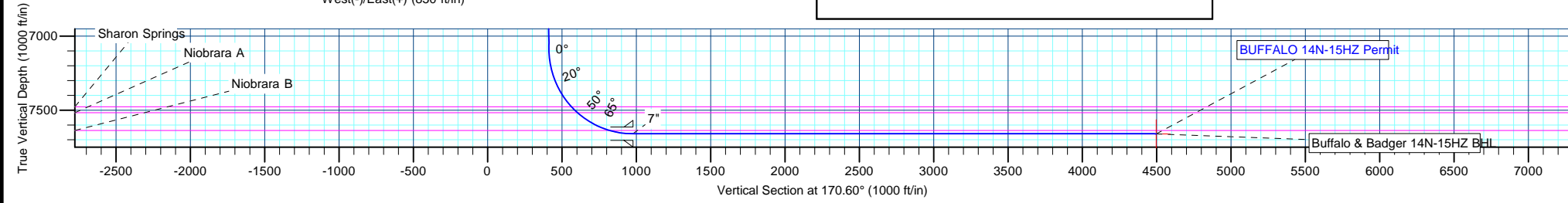
WELL DETAILS: BUFFALO 14N-15HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5125.00 Latitude	Longitude	Slot
0.00	0.00	1264146.69	3141610.56	40.057363	-104.994097	

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
1403.71	8.07	111.32	1402.37	-10.32	26.46	2.00	111.32	14.51
6738.89	8.07	111.32	6684.67	-282.72	724.54	0.00	0.00	397.31
7142.60	0.00	0.00	7087.04	-293.04	751.00	2.00	180.00	411.82
8042.60	90.00	180.00	7660.00	-866.00	751.00	10.00	180.00	977.08
11612.07	90.00	180.53	7660.00	-4435.42	734.64	0.01	90.00	4495.84

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Buffalo & Badger 14N-15HZ BHL	7660.00	-4435.42	734.64	40.045187	-104.991473	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4304.00	4334.39	Parkman
4762.00	4796.97	Sussex
5250.00	5289.86	Shannon
7477.00	7571.51	Sharon Springs
7517.00	7628.87	Niobrara A
7637.00	7879.71	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7660.00	8042.60	7"	7



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BUFFALO 14N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5125' GL @ 5142.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5125' GL @ 5142.00ft
Site:	WELD_BUFFALO & BADGER 29-15HZ PAD	North Reference:	True
Well:	BUFFALO 14N-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BUFFALO 14N-15HZ		
Design:	BUFFALO 14N-15HZ 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_BUFFALO & BADGER 29-15HZ PAD			
Site Position:		Northing:	1,264,146.69 usft	Latitude: 40.057363
From:	Lat/Long	Easting:	3,141,610.56 usft	Longitude: -104.994097
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.33 °

Well	BUFFALO 14N-15HZ			
Well Position	+N/-S	0.00 ft	Northing:	1,264,146.68 usft
	+E/-W	0.00 ft	Easting:	3,141,610.56 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 5,125.00 ft

Wellbore	BUFFALO 14N-15HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/13/2012	8.81	66.70	52,810

Design	BUFFALO 14N-15HZ Permit			
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	170.60

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	
1,403.71	8.07	111.32	1,402.37	-10.32	26.46	2.00	2.00	0.00	111.32	
6,738.89	8.07	111.32	6,684.67	-282.72	724.54	0.00	0.00	0.00	0.00	
7,142.60	0.00	0.00	7,087.04	-293.04	751.00	2.00	-2.00	0.00	180.00	
8,042.60	90.00	180.00	7,660.00	-866.00	751.00	10.00	10.00	0.00	180.00	
11,612.07	90.00	180.53	7,660.00	-4,435.42	734.64	0.01	0.00	0.01	90.00	Buffalo & Badger 14N

Anadarko Petroleum Corp

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5125' GL @ 5142.00ft
Site:	WELD_BUFFALO & BADGER 29-15HZ PAD	North Reference:	True
Well:	BUFFALO 14N-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BUFFALO 14N-15HZ		
Design:	BUFFALO 14N-15HZ 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
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	111.32	1,099.98	-0.63	1.63	0.89	2.00	2.00	0.00
1,200.00	4.00	111.32	1,199.84	-2.54	6.50	3.56	2.00	2.00	0.00
1,300.00	6.00	111.32	1,299.45	-5.70	14.62	8.02	2.00	2.00	0.00
1,403.71	8.07	111.32	1,402.37	-10.32	26.46	14.51	2.00	2.00	0.00
Start 5335.18 hold at 1403.71 MD									
1,500.00	8.07	111.32	1,497.71	-15.24	39.06	21.42	0.00	0.00	0.00
1,600.00	8.07	111.32	1,596.72	-20.34	52.14	28.59	0.00	0.00	0.00
1,700.00	8.07	111.32	1,695.73	-25.45	65.22	35.77	0.00	0.00	0.00
1,800.00	8.07	111.32	1,794.74	-30.56	78.31	42.94	0.00	0.00	0.00
1,900.00	8.07	111.32	1,893.75	-35.66	91.39	50.12	0.00	0.00	0.00
2,000.00	8.07	111.32	1,992.75	-40.77	104.48	57.29	0.00	0.00	0.00
2,100.00	8.07	111.32	2,091.76	-45.87	117.56	64.47	0.00	0.00	0.00
2,200.00	8.07	111.32	2,190.77	-50.98	130.65	71.64	0.00	0.00	0.00
2,300.00	8.07	111.32	2,289.78	-56.08	143.73	78.82	0.00	0.00	0.00
2,400.00	8.07	111.32	2,388.79	-61.19	156.82	85.99	0.00	0.00	0.00
2,500.00	8.07	111.32	2,487.80	-66.30	169.90	93.17	0.00	0.00	0.00
2,600.00	8.07	111.32	2,586.81	-71.40	182.99	100.34	0.00	0.00	0.00
2,700.00	8.07	111.32	2,685.82	-76.51	196.07	107.52	0.00	0.00	0.00
2,800.00	8.07	111.32	2,784.82	-81.61	209.16	114.69	0.00	0.00	0.00
2,900.00	8.07	111.32	2,883.83	-86.72	222.24	121.87	0.00	0.00	0.00
3,000.00	8.07	111.32	2,982.84	-91.82	235.32	129.04	0.00	0.00	0.00
3,100.00	8.07	111.32	3,081.85	-96.93	248.41	136.22	0.00	0.00	0.00
3,200.00	8.07	111.32	3,180.86	-102.03	261.49	143.39	0.00	0.00	0.00
3,300.00	8.07	111.32	3,279.87	-107.14	274.58	150.57	0.00	0.00	0.00
3,400.00	8.07	111.32	3,378.88	-112.25	287.66	157.74	0.00	0.00	0.00
3,500.00	8.07	111.32	3,477.88	-117.35	300.75	164.92	0.00	0.00	0.00
3,600.00	8.07	111.32	3,576.89	-122.46	313.83	172.09	0.00	0.00	0.00
3,700.00	8.07	111.32	3,675.90	-127.56	326.92	179.27	0.00	0.00	0.00
3,800.00	8.07	111.32	3,774.91	-132.67	340.00	186.44	0.00	0.00	0.00
3,900.00	8.07	111.32	3,873.92	-137.77	353.09	193.62	0.00	0.00	0.00
4,000.00	8.07	111.32	3,972.93	-142.88	366.17	200.79	0.00	0.00	0.00
4,100.00	8.07	111.32	4,071.94	-147.99	379.26	207.97	0.00	0.00	0.00
4,200.00	8.07	111.32	4,170.95	-153.09	392.34	215.14	0.00	0.00	0.00
4,300.00	8.07	111.32	4,269.95	-158.20	405.42	222.32	0.00	0.00	0.00
4,334.39	8.07	111.32	4,304.00	-159.95	409.92	224.79	0.00	0.00	0.00
Parkman									
4,400.00	8.07	111.32	4,368.96	-163.30	418.51	229.49	0.00	0.00	0.00
4,500.00	8.07	111.32	4,467.97	-168.41	431.59	236.67	0.00	0.00	0.00
4,600.00	8.07	111.32	4,566.98	-173.51	444.68	243.84	0.00	0.00	0.00
4,700.00	8.07	111.32	4,665.99	-178.62	457.76	251.02	0.00	0.00	0.00
4,796.97	8.07	111.32	4,762.00	-183.57	470.45	257.98	0.00	0.00	0.00

Anadarko Petroleum Corp

Planning Report

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5125' GL @ 5142.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5125' GL @ 5142.00ft
Site:	WELD_BUFFALO & BADGER 29-15HZ PAD	North Reference:	True
Well:	BUFFALO 14N-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BUFFALO 14N-15HZ		
Design:	BUFFALO 14N-15HZ 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)
Sussex									
4,800.00	8.07	111.32	4,765.00	-183.72	470.85	258.19	0.00	0.00	0.00
4,900.00	8.07	111.32	4,864.01	-188.83	483.93	265.37	0.00	0.00	0.00
5,000.00	8.07	111.32	4,963.02	-193.94	497.02	272.54	0.00	0.00	0.00
5,100.00	8.07	111.32	5,062.02	-199.04	510.10	279.72	0.00	0.00	0.00
5,200.00	8.07	111.32	5,161.03	-204.15	523.19	286.89	0.00	0.00	0.00
5,289.86	8.07	111.32	5,250.00	-208.74	534.94	293.34	0.00	0.00	0.00
Shannon									
5,300.00	8.07	111.32	5,260.04	-209.25	536.27	294.07	0.00	0.00	0.00
5,400.00	8.07	111.32	5,359.05	-214.36	549.36	301.24	0.00	0.00	0.00
5,500.00	8.07	111.32	5,458.06	-219.46	562.44	308.42	0.00	0.00	0.00
5,600.00	8.07	111.32	5,557.07	-224.57	575.52	315.59	0.00	0.00	0.00
5,700.00	8.07	111.32	5,656.08	-229.68	588.61	322.77	0.00	0.00	0.00
5,800.00	8.07	111.32	5,755.09	-234.78	601.69	329.94	0.00	0.00	0.00
5,900.00	8.07	111.32	5,854.09	-239.89	614.78	337.12	0.00	0.00	0.00
6,000.00	8.07	111.32	5,953.10	-244.99	627.86	344.29	0.00	0.00	0.00
6,100.00	8.07	111.32	6,052.11	-250.10	640.95	351.47	0.00	0.00	0.00
6,200.00	8.07	111.32	6,151.12	-255.20	654.03	358.64	0.00	0.00	0.00
6,300.00	8.07	111.32	6,250.13	-260.31	667.12	365.82	0.00	0.00	0.00
6,400.00	8.07	111.32	6,349.14	-265.41	680.20	372.99	0.00	0.00	0.00
6,500.00	8.07	111.32	6,448.15	-270.52	693.29	380.17	0.00	0.00	0.00
6,600.00	8.07	111.32	6,547.16	-275.63	706.37	387.34	0.00	0.00	0.00
6,700.00	8.07	111.32	6,646.16	-280.73	719.46	394.52	0.00	0.00	0.00
6,738.89	8.07	111.32	6,684.67	-282.72	724.54	397.31	0.00	0.00	0.00
Start Drop -2.00									
6,800.00	6.85	111.32	6,745.26	-285.60	731.94	401.37	2.00	-2.00	0.00
6,900.00	4.85	111.32	6,844.73	-289.31	741.44	406.57	2.00	-2.00	0.00
7,000.00	2.85	111.32	6,944.50	-291.75	747.69	410.00	2.00	-2.00	0.00
7,100.00	0.85	111.32	7,044.44	-292.92	750.70	411.66	2.00	-2.00	0.00
7,142.60	0.00	0.00	7,087.04	-293.04	751.00	411.82	2.00	-2.00	0.00
Start Build 10.00									
7,150.00	0.74	180.00	7,094.44	-293.09	751.00	411.86	10.00	10.00	0.00
7,200.00	5.74	180.00	7,144.35	-295.91	751.00	414.65	10.00	10.00	0.00
7,250.00	10.74	180.00	7,193.82	-303.08	751.00	421.72	10.00	10.00	0.00
7,300.00	15.74	180.00	7,242.47	-314.53	751.00	433.01	10.00	10.00	0.00
7,350.00	20.74	180.00	7,289.94	-330.17	751.00	448.45	10.00	10.00	0.00
7,400.00	25.74	180.00	7,335.87	-349.89	751.00	467.91	10.00	10.00	0.00
7,450.00	30.74	180.00	7,379.91	-373.54	751.00	491.24	10.00	10.00	0.00
7,500.00	35.74	180.00	7,421.71	-400.94	751.00	518.27	10.00	10.00	0.00
7,550.00	40.74	180.00	7,460.97	-431.88	751.00	548.79	10.00	10.00	0.00
7,571.51	42.89	180.00	7,477.00	-446.22	751.00	562.94	10.00	10.00	0.00
Sharon Springs									
7,600.00	45.74	180.00	7,497.38	-466.12	751.00	582.57	10.00	10.00	0.00
7,628.87	48.63	180.00	7,517.00	-487.30	751.00	603.46	10.00	10.00	0.00
Niobrara A									
7,650.00	50.74	180.00	7,530.67	-503.41	751.00	619.36	10.00	10.00	0.00
7,700.00	55.74	180.00	7,560.59	-543.45	751.00	658.87	10.00	10.00	0.00
7,750.00	60.74	180.00	7,586.90	-585.95	751.00	700.79	10.00	10.00	0.00
7,800.00	65.74	180.00	7,609.40	-630.58	751.00	744.83	10.00	10.00	0.00
7,850.00	70.74	180.00	7,627.93	-677.01	751.00	790.62	10.00	10.00	0.00
7,879.71	73.71	180.00	7,637.00	-705.29	751.00	818.53	10.00	10.00	0.00
Niobrara B									
7,900.00	75.74	180.00	7,642.35	-724.87	751.00	837.84	10.00	10.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5125' GL @ 5142.00ft
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Wellbore:	BUFFALO 14N-15HZ		
Design:	BUFFALO 14N-15HZ 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)
7,950.00	80.74	180.00	7,652.53	-773.80	751.00	886.12	10.00	10.00	0.00
8,000.00	85.74	180.00	7,658.42	-823.44	751.00	935.09	10.00	10.00	0.00
8,042.60	90.00	180.00	7,660.00	-866.00	751.00	977.08	10.00	10.00	0.00
Start DLS 0.01 TFO 90.00 - 7"									
8,100.00	90.00	180.01	7,660.00	-923.40	751.00	1,033.70	0.01	0.00	0.01
8,200.00	90.00	180.02	7,660.00	-1,023.40	750.97	1,132.36	0.01	0.00	0.01
8,300.00	90.00	180.04	7,660.00	-1,123.40	750.91	1,231.00	0.01	0.00	0.01
8,400.00	90.00	180.05	7,660.00	-1,223.40	750.84	1,329.65	0.01	0.00	0.01
8,500.00	90.00	180.07	7,660.00	-1,323.40	750.73	1,428.29	0.01	0.00	0.01
8,600.00	90.00	180.08	7,660.00	-1,423.40	750.60	1,526.92	0.01	0.00	0.01
8,700.00	90.00	180.10	7,660.00	-1,523.40	750.44	1,625.55	0.01	0.00	0.01
8,800.00	90.00	180.11	7,660.00	-1,623.40	750.26	1,724.18	0.01	0.00	0.01
8,900.00	90.00	180.13	7,660.00	-1,723.40	750.06	1,822.80	0.01	0.00	0.01
9,000.00	90.00	180.14	7,660.00	-1,823.40	749.82	1,921.42	0.01	0.00	0.01
9,100.00	90.00	180.16	7,660.00	-1,923.40	749.56	2,020.03	0.01	0.00	0.01
9,200.00	90.00	180.17	7,660.00	-2,023.40	749.28	2,118.64	0.01	0.00	0.01
9,300.00	90.00	180.19	7,660.00	-2,123.40	748.97	2,217.24	0.01	0.00	0.01
9,400.00	90.00	180.20	7,660.00	-2,223.40	748.63	2,315.84	0.01	0.00	0.01
9,500.00	90.00	180.21	7,660.00	-2,323.40	748.27	2,414.44	0.01	0.00	0.01
9,600.00	90.00	180.23	7,660.00	-2,423.40	747.89	2,513.03	0.01	0.00	0.01
9,700.00	90.00	180.24	7,660.00	-2,523.40	747.47	2,611.62	0.01	0.00	0.01
9,800.00	90.00	180.26	7,660.00	-2,623.39	747.03	2,710.20	0.01	0.00	0.01
9,900.00	90.00	180.27	7,660.00	-2,723.39	746.57	2,808.78	0.01	0.00	0.01
10,000.00	90.00	180.29	7,660.00	-2,823.39	746.08	2,907.36	0.01	0.00	0.01
10,100.00	90.00	180.30	7,660.00	-2,923.39	745.56	3,005.93	0.01	0.00	0.01
10,200.00	90.00	180.32	7,660.00	-3,023.39	745.02	3,104.49	0.01	0.00	0.01
10,300.00	90.00	180.33	7,660.00	-3,123.39	744.46	3,203.05	0.01	0.00	0.01
10,400.00	90.00	180.35	7,660.00	-3,223.39	743.86	3,301.61	0.01	0.00	0.01
10,500.00	90.00	180.36	7,660.00	-3,323.38	743.24	3,400.16	0.01	0.00	0.01
10,600.00	90.00	180.38	7,660.00	-3,423.38	742.60	3,498.71	0.01	0.00	0.01
10,700.00	90.00	180.39	7,660.00	-3,523.38	741.93	3,597.26	0.01	0.00	0.01
10,800.00	90.00	180.41	7,660.00	-3,623.38	741.24	3,695.80	0.01	0.00	0.01
10,900.00	90.00	180.42	7,660.00	-3,723.37	740.51	3,794.33	0.01	0.00	0.01
11,000.00	90.00	180.44	7,660.00	-3,823.37	739.77	3,892.86	0.01	0.00	0.01
11,100.00	90.00	180.45	7,660.00	-3,923.37	739.00	3,991.39	0.01	0.00	0.01
11,200.00	90.00	180.46	7,660.00	-4,023.37	738.20	4,089.91	0.01	0.00	0.01
11,300.00	90.00	180.48	7,660.00	-4,123.36	737.37	4,188.43	0.01	0.00	0.01
11,400.00	90.00	180.49	7,660.00	-4,223.36	736.52	4,286.94	0.01	0.00	0.01
11,500.00	90.00	180.51	7,660.00	-4,323.36	735.65	4,385.45	0.01	0.00	0.01
11,600.00	90.00	180.52	7,660.00	-4,423.35	734.75	4,483.96	0.01	0.00	0.01
11,612.07	90.00	180.53	7,660.00	-4,435.42	734.64	4,495.84	0.01	0.00	0.01
TD at 11612.07 - Buffalo & Badger 14N-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 & Badger 14N-15HZ - hit/miss target - Shape - Point	0.00	0.00	7,660.00	-4,435.42	734.64	1,259,715.54	3,142,370.49	40.045187	-104.991473

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BUFFALO 14N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5125' GL @ 5142.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5125' GL @ 5142.00ft
Site:	WELD_BUFFALO & BADGER 29-15HZ PAD	North Reference:	True
Well:	BUFFALO 14N-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BUFFALO 14N-15HZ		
Design:	BUFFALO 14N-15HZ Permit		

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	
8,042.60	7,660.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,334.39	4,304.00	Parkman			
4,796.97	4,762.00	Sussex			
5,289.86	5,250.00	Shannon			
7,571.51	7,477.00	Sharon Springs			
7,628.87	7,517.00	Niobrara A			
7,879.71	7,637.00	Niobrara B			

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	
1,403.71	1,402.37	-10.32	26.46	Start 5335.18 hold at 1403.71 MD	
6,738.89	6,684.67	-282.72	724.54	Start Drop -2.00	
7,142.60	7,087.04	-293.04	751.00	Start Build 10.00	
8,042.60	7,660.00	-866.00	751.00	Start DLS 0.01 TFO 90.00	
11,612.07	7,660.00	-4,435.42	734.64	TD at 11612.07	