

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Buffalo & Badger 4C-15HZ Pad**

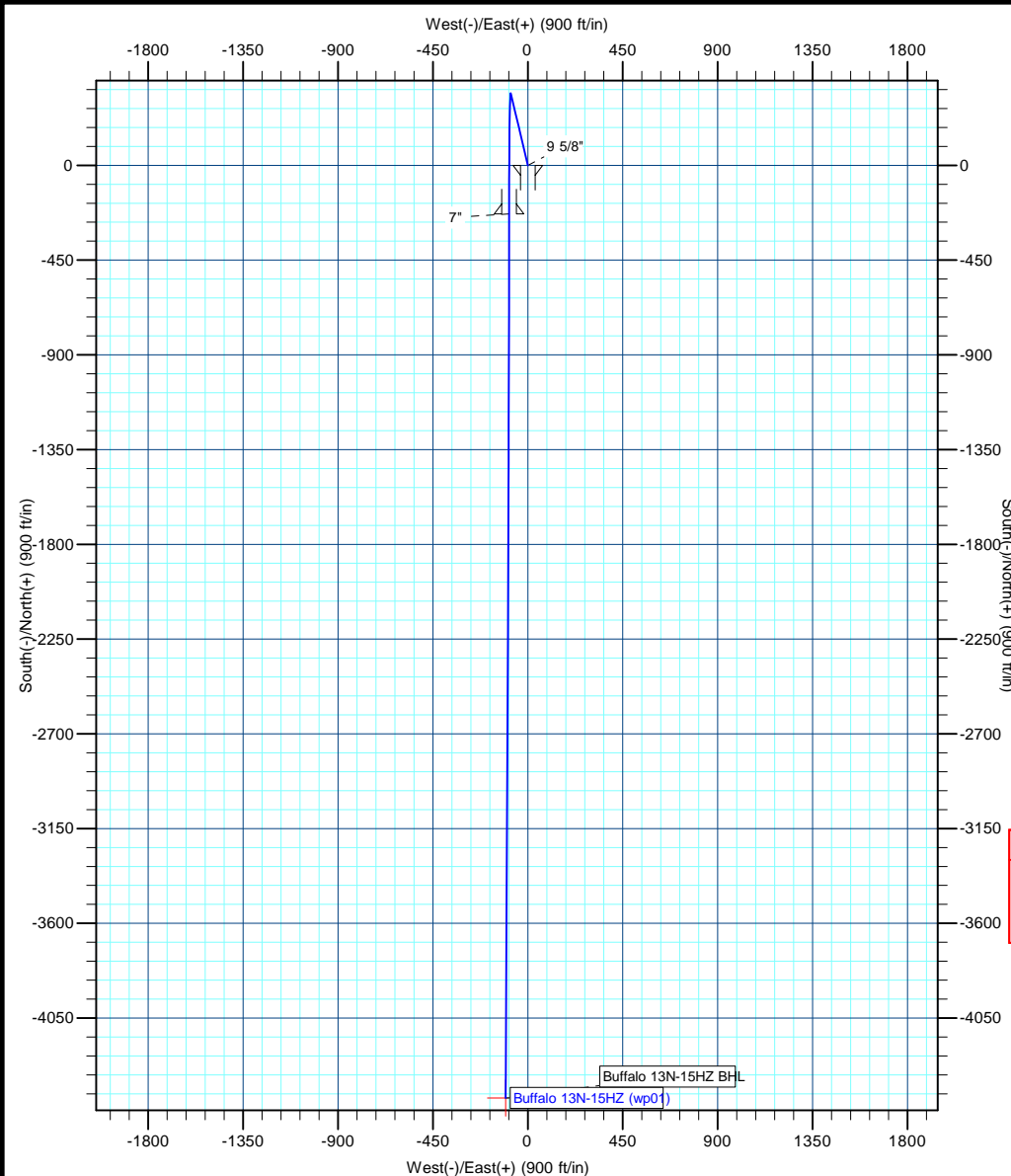
**Buffalo 13N-15HZ**

**Buffalo 13N-15HZ**

**Plan: Buffalo 13N-15HZ (wp01)**

## **Standard Planning Report**

**12 July, 2012**



**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 13N-15HZ  
**Wellbore:** Buffalo 13N-15HZ  
**Section:**  
**SHL:**  
**Design:** Buffalo 13N-15HZ (wp01)  
**Latitude:** 40.057339  
**Longitude:** -104.995811  
**GL:** 5138.00  
**KB:** RKB + GL @ 5155.00ft

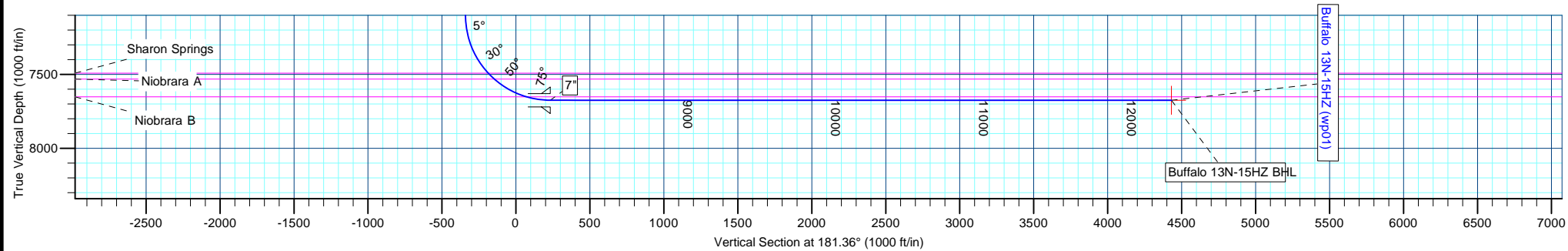
WELL DETAILS: Buffalo 13N-15HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5138.00 Latitude	Longitude	Slot
0.00	0.00	1264135.20	3141130.84	40.057339	-104.995811	

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
1168.02	3.36	346.70	1167.92	4.79	-1.13	2.00	346.70	-4.77
7079.67	3.36	346.70	7069.41	342.03	-80.82	0.00	0.00	-340.01
8012.38	90.00	180.00	7675.00	-230.00	-89.00	10.00	-166.68	232.05
9779.27	90.00	180.28	7675.00	-1996.88	-93.33	0.02	90.00	1998.54
12211.64	90.00	180.28	7675.00	-4429.23	-105.27	0.00	0.00	4430.48

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Buffalo 13N-15HZ BHL	7675.00	-4429.23	-105.27	40.045180	-104.996187	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4317.00	4322.52	Parkman
4775.00	4781.31	Sussex
5263.00	5270.15	Shannon
7492.00	7541.26	Sharon Springs
7532.00	7598.62	Niobrara A
7652.00	7849.48	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7675.00	8012.38	7"	7



# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 5155.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 5155.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4C-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 13N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 13N-15HZ		
<b>Design:</b>	Buffalo 13N-15HZ (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 13N-15HZ					
Well Position	+N/-S	-0.01 ft	Northing:	1,264,135.20 usft	Latitude:	40.057339
	+E/-W	239.89 ft	Easting:	3,141,130.84 usft	Longitude:	-104.995811
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,138.00 ft

<b>Wellbore</b>	Buffalo 13N-15HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/12/2012	8.81	66.70	52,810

<b>Design</b>	Buffalo 13N-15HZ (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	181.36

<b>Plan Sections</b>										
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	
1,168.02	3.36	346.70	1,167.92	4.79	-1.13	2.00	2.00	0.00	346.70	
7,079.67	3.36	346.70	7,069.41	342.03	-80.82	0.00	0.00	0.00	0.00	
8,012.38	90.00	180.00	7,675.00	-230.00	-89.00	10.00	9.29	-17.87	-166.68	
9,779.27	90.00	180.28	7,675.00	-1,996.88	-93.33	0.02	0.00	0.02	90.00	
12,211.64	90.00	180.28	7,675.00	-4,429.23	-105.27	0.00	0.00	0.00	0.00	Buffalo 13N-15HZ BH

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## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 5155.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 5155.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4C-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 13N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 13N-15HZ		
<b>Design:</b>	Buffalo 13N-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	346.70	1,099.98	1.70	-0.40	-1.69	2.00	2.00	0.00
1,168.02	3.36	346.70	1,167.92	4.79	-1.13	-4.77	2.00	2.00	0.00
Start 5911.65 hold at 1168.02 MD									
1,200.00	3.36	346.70	1,199.85	6.62	-1.56	-6.58	0.00	0.00	0.00
1,300.00	3.36	346.70	1,299.68	12.32	-2.91	-12.25	0.00	0.00	0.00
1,400.00	3.36	346.70	1,399.50	18.03	-4.26	-17.92	0.00	0.00	0.00
1,500.00	3.36	346.70	1,499.33	23.73	-5.61	-23.59	0.00	0.00	0.00
1,600.00	3.36	346.70	1,599.16	29.44	-6.96	-29.26	0.00	0.00	0.00
1,700.00	3.36	346.70	1,698.99	35.14	-8.30	-34.93	0.00	0.00	0.00
1,800.00	3.36	346.70	1,798.82	40.85	-9.65	-40.60	0.00	0.00	0.00
1,900.00	3.36	346.70	1,898.65	46.55	-11.00	-46.28	0.00	0.00	0.00
2,000.00	3.36	346.70	1,998.47	52.25	-12.35	-51.95	0.00	0.00	0.00
2,100.00	3.36	346.70	2,098.30	57.96	-13.70	-57.62	0.00	0.00	0.00
2,200.00	3.36	346.70	2,198.13	63.66	-15.04	-63.29	0.00	0.00	0.00
2,300.00	3.36	346.70	2,297.96	69.37	-16.39	-68.96	0.00	0.00	0.00
2,400.00	3.36	346.70	2,397.79	75.07	-17.74	-74.63	0.00	0.00	0.00
2,500.00	3.36	346.70	2,497.61	80.78	-19.09	-80.30	0.00	0.00	0.00
2,600.00	3.36	346.70	2,597.44	86.48	-20.44	-85.97	0.00	0.00	0.00
2,700.00	3.36	346.70	2,697.27	92.19	-21.78	-91.64	0.00	0.00	0.00
2,800.00	3.36	346.70	2,797.10	97.89	-23.13	-97.31	0.00	0.00	0.00
2,900.00	3.36	346.70	2,896.93	103.60	-24.48	-102.98	0.00	0.00	0.00
3,000.00	3.36	346.70	2,996.75	109.30	-25.83	-108.66	0.00	0.00	0.00
3,100.00	3.36	346.70	3,096.58	115.00	-27.18	-114.33	0.00	0.00	0.00
3,200.00	3.36	346.70	3,196.41	120.71	-28.52	-120.00	0.00	0.00	0.00
3,300.00	3.36	346.70	3,296.24	126.41	-29.87	-125.67	0.00	0.00	0.00
3,400.00	3.36	346.70	3,396.07	132.12	-31.22	-131.34	0.00	0.00	0.00
3,500.00	3.36	346.70	3,495.89	137.82	-32.57	-137.01	0.00	0.00	0.00
3,600.00	3.36	346.70	3,595.72	143.53	-33.92	-142.68	0.00	0.00	0.00
3,700.00	3.36	346.70	3,695.55	149.23	-35.26	-148.35	0.00	0.00	0.00
3,800.00	3.36	346.70	3,795.38	154.94	-36.61	-154.02	0.00	0.00	0.00
3,900.00	3.36	346.70	3,895.21	160.64	-37.96	-159.69	0.00	0.00	0.00
4,000.00	3.36	346.70	3,995.03	166.34	-39.31	-165.36	0.00	0.00	0.00
4,100.00	3.36	346.70	4,094.86	172.05	-40.66	-171.03	0.00	0.00	0.00
4,200.00	3.36	346.70	4,194.69	177.75	-42.00	-176.71	0.00	0.00	0.00
4,300.00	3.36	346.70	4,294.52	183.46	-43.35	-182.38	0.00	0.00	0.00
4,322.52	3.36	346.70	4,317.00	184.74	-43.66	-183.65	0.00	0.00	0.00
Parkman									
4,400.00	3.36	346.70	4,394.35	189.16	-44.70	-188.05	0.00	0.00	0.00
4,500.00	3.36	346.70	4,494.17	194.87	-46.05	-193.72	0.00	0.00	0.00
4,600.00	3.36	346.70	4,594.00	200.57	-47.40	-199.39	0.00	0.00	0.00
4,700.00	3.36	346.70	4,693.83	206.28	-48.74	-205.06	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 5155.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 5155.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4C-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 13N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 13N-15HZ		
<b>Design:</b>	Buffalo 13N-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)
4,781.31	3.36	346.70	4,775.00	210.92	-49.84	-209.67	0.00	0.00	0.00
<b>Sussex</b>									
4,800.00	3.36	346.70	4,793.66	211.98	-50.09	-210.73	0.00	0.00	0.00
4,900.00	3.36	346.70	4,893.49	217.69	-51.44	-216.40	0.00	0.00	0.00
5,000.00	3.36	346.70	4,993.32	223.39	-52.79	-222.07	0.00	0.00	0.00
5,100.00	3.36	346.70	5,093.14	229.09	-54.14	-227.74	0.00	0.00	0.00
5,200.00	3.36	346.70	5,192.97	234.80	-55.48	-233.41	0.00	0.00	0.00
5,270.15	3.36	346.70	5,263.00	238.80	-56.43	-237.39	0.00	0.00	0.00
<b>Shannon</b>									
5,300.00	3.36	346.70	5,292.80	240.50	-56.83	-239.09	0.00	0.00	0.00
5,400.00	3.36	346.70	5,392.63	246.21	-58.18	-244.76	0.00	0.00	0.00
5,500.00	3.36	346.70	5,492.46	251.91	-59.53	-250.43	0.00	0.00	0.00
5,600.00	3.36	346.70	5,592.28	257.62	-60.88	-256.10	0.00	0.00	0.00
5,700.00	3.36	346.70	5,692.11	263.32	-62.22	-261.77	0.00	0.00	0.00
5,800.00	3.36	346.70	5,791.94	269.03	-63.57	-267.44	0.00	0.00	0.00
5,900.00	3.36	346.70	5,891.77	274.73	-64.92	-273.11	0.00	0.00	0.00
6,000.00	3.36	346.70	5,991.60	280.44	-66.27	-278.78	0.00	0.00	0.00
6,100.00	3.36	346.70	6,091.42	286.14	-67.62	-284.45	0.00	0.00	0.00
6,200.00	3.36	346.70	6,191.25	291.84	-68.96	-290.12	0.00	0.00	0.00
6,300.00	3.36	346.70	6,291.08	297.55	-70.31	-295.79	0.00	0.00	0.00
6,400.00	3.36	346.70	6,390.91	303.25	-71.66	-301.47	0.00	0.00	0.00
6,500.00	3.36	346.70	6,490.74	308.96	-73.01	-307.14	0.00	0.00	0.00
6,600.00	3.36	346.70	6,590.56	314.66	-74.36	-312.81	0.00	0.00	0.00
6,700.00	3.36	346.70	6,690.39	320.37	-75.70	-318.48	0.00	0.00	0.00
6,800.00	3.36	346.70	6,790.22	326.07	-77.05	-324.15	0.00	0.00	0.00
6,900.00	3.36	346.70	6,890.05	331.78	-78.40	-329.82	0.00	0.00	0.00
7,000.00	3.36	346.70	6,989.88	337.48	-79.75	-335.49	0.00	0.00	0.00
7,079.67	3.36	346.70	7,069.41	342.03	-80.82	-340.01	0.00	0.00	0.00
<b>Start DLS 10.00 TFO -166.68</b>									
7,100.00	1.46	327.99	7,089.72	342.83	-81.10	-340.80	10.00	-9.35	-92.05
7,200.00	8.80	185.01	7,189.37	336.27	-82.44	-334.22	10.00	7.34	-142.99
7,300.00	18.78	182.28	7,286.37	312.51	-83.75	-310.43	10.00	9.98	-2.73
7,400.00	28.77	181.41	7,377.76	272.27	-84.99	-270.17	10.00	9.99	-0.87
7,500.00	38.77	180.96	7,460.79	216.76	-86.11	-214.66	10.00	10.00	-0.45
7,541.26	42.89	180.83	7,492.00	189.79	-86.53	-187.68	10.00	10.00	-0.32
<b>Sharon Springs</b>									
7,598.62	48.63	180.68	7,532.00	148.72	-87.07	-146.61	10.00	10.00	-0.26
<b>Niobrara A</b>									
7,600.00	48.77	180.68	7,532.91	147.68	-87.08	-145.57	10.00	10.00	-0.24
7,700.00	58.77	180.47	7,591.94	67.13	-87.88	-65.02	10.00	10.00	-0.21
7,800.00	68.76	180.30	7,636.09	-22.45	-88.47	24.55	10.00	10.00	-0.17
7,849.48	73.71	180.23	7,652.00	-69.28	-88.69	71.37	10.00	10.00	-0.15
<b>Niobrara B</b>									
7,900.00	78.76	180.15	7,664.02	-118.34	-88.85	120.42	10.00	10.00	-0.14
8,000.00	88.76	180.02	7,674.87	-217.62	-89.00	219.68	10.00	10.00	-0.14
8,012.38	90.00	180.00	7,675.00	-230.00	-89.00	232.05	10.00	10.00	-0.14
<b>Start DLS 0.02 TFO 90.00 - 7"</b>									
8,100.00	90.00	180.01	7,675.00	-317.62	-89.01	319.65	0.02	0.00	0.02
8,200.00	90.00	180.03	7,675.00	-417.62	-89.05	419.62	0.02	0.00	0.02
8,300.00	90.00	180.05	7,675.00	-517.62	-89.11	519.59	0.02	0.00	0.02
8,400.00	90.00	180.06	7,675.00	-617.62	-89.21	619.57	0.02	0.00	0.02
8,500.00	90.00	180.08	7,675.00	-717.62	-89.33	719.54	0.02	0.00	0.02
8,600.00	90.00	180.09	7,675.00	-817.62	-89.48	819.52	0.02	0.00	0.02

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## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 5155.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 5155.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4C-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 13N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 13N-15HZ		
<b>Design:</b>	Buffalo 13N-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)	
8,700.00	90.00	180.11	7,675.00	-917.62	-89.66	919.49	0.02	0.00	0.02	
8,800.00	90.00	180.13	7,675.00	-1,017.62	-89.86	1,019.47	0.02	0.00	0.02	
8,900.00	90.00	180.14	7,675.00	-1,117.62	-90.09	1,119.45	0.02	0.00	0.02	
9,000.00	90.00	180.16	7,675.00	-1,217.62	-90.35	1,219.43	0.02	0.00	0.02	
9,100.00	90.00	180.17	7,675.00	-1,317.62	-90.64	1,319.40	0.02	0.00	0.02	
9,200.00	90.00	180.19	7,675.00	-1,417.62	-90.96	1,419.38	0.02	0.00	0.02	
9,300.00	90.00	180.20	7,675.00	-1,517.62	-91.30	1,519.36	0.02	0.00	0.02	
9,400.00	90.00	180.22	7,675.00	-1,617.62	-91.67	1,619.34	0.02	0.00	0.02	
9,500.00	90.00	180.24	7,675.00	-1,717.62	-92.07	1,719.32	0.02	0.00	0.02	
9,600.00	90.00	180.25	7,675.00	-1,817.62	-92.50	1,819.30	0.02	0.00	0.02	
9,700.00	90.00	180.27	7,675.00	-1,917.62	-92.95	1,919.28	0.02	0.00	0.02	
9,779.27	90.00	180.28	7,675.00	-1,996.88	-93.33	1,998.54	0.02	0.00	0.02	
Start 2432.37 hold at 9779.27 MD										
9,800.00	90.00	180.28	7,675.00	-2,017.62	-93.44	2,019.27	0.00	0.00	0.00	
9,900.00	90.00	180.28	7,675.00	-2,117.61	-93.93	2,119.25	0.00	0.00	0.00	
10,000.00	90.00	180.28	7,675.00	-2,217.61	-94.42	2,219.23	0.00	0.00	0.00	
10,100.00	90.00	180.28	7,675.00	-2,317.61	-94.91	2,319.21	0.00	0.00	0.00	
10,200.00	90.00	180.28	7,675.00	-2,417.61	-95.40	2,419.20	0.00	0.00	0.00	
10,300.00	90.00	180.28	7,675.00	-2,517.61	-95.89	2,519.18	0.00	0.00	0.00	
10,400.00	90.00	180.28	7,675.00	-2,617.61	-96.38	2,619.16	0.00	0.00	0.00	
10,500.00	90.00	180.28	7,675.00	-2,717.61	-96.87	2,719.14	0.00	0.00	0.00	
10,600.00	90.00	180.28	7,675.00	-2,817.61	-97.36	2,819.12	0.00	0.00	0.00	
10,700.00	90.00	180.28	7,675.00	-2,917.61	-97.85	2,919.11	0.00	0.00	0.00	
10,800.00	90.00	180.28	7,675.00	-3,017.60	-98.34	3,019.09	0.00	0.00	0.00	
10,900.00	90.00	180.28	7,675.00	-3,117.60	-98.83	3,119.07	0.00	0.00	0.00	
11,000.00	90.00	180.28	7,675.00	-3,217.60	-99.32	3,219.05	0.00	0.00	0.00	
11,100.00	90.00	180.28	7,675.00	-3,317.60	-99.81	3,319.04	0.00	0.00	0.00	
11,200.00	90.00	180.28	7,675.00	-3,417.60	-100.30	3,419.02	0.00	0.00	0.00	
11,300.00	90.00	180.28	7,675.00	-3,517.60	-100.80	3,519.00	0.00	0.00	0.00	
11,400.00	90.00	180.28	7,675.00	-3,617.60	-101.29	3,618.98	0.00	0.00	0.00	
11,500.00	90.00	180.28	7,675.00	-3,717.60	-101.78	3,718.96	0.00	0.00	0.00	
11,600.00	90.00	180.28	7,675.00	-3,817.59	-102.27	3,818.95	0.00	0.00	0.00	
11,700.00	90.00	180.28	7,675.00	-3,917.59	-102.76	3,918.93	0.00	0.00	0.00	
11,800.00	90.00	180.28	7,675.00	-4,017.59	-103.25	4,018.91	0.00	0.00	0.00	
11,900.00	90.00	180.28	7,675.00	-4,117.59	-103.74	4,118.89	0.00	0.00	0.00	
12,000.00	90.00	180.28	7,675.00	-4,217.59	-104.23	4,218.88	0.00	0.00	0.00	
12,100.00	90.00	180.28	7,675.00	-4,317.59	-104.72	4,318.86	0.00	0.00	0.00	
12,200.00	90.00	180.28	7,675.00	-4,417.59	-105.21	4,418.84	0.00	0.00	0.00	
12,211.64	90.00	180.28	7,675.00	-4,429.23	-105.27	4,430.48	0.00	0.00	0.00	
TD at 12211.64 - Buffalo 13N-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 13N-15HZ BHL	0.00	0.00	7,675.00	-4,429.23	-105.27	1,259,705.46	3,141,050.76	40.045180	-104.996187	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	RKB + GL @ 5155.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	RKB + GL @ 5155.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4C-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 13N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 13N-15HZ		
<b>Design:</b>	Buffalo 13N-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	
8,012.38	7,675.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,322.52	4,317.00	Parkman			
4,781.31	4,775.00	Sussex			
5,270.15	5,263.00	Shannon			
7,541.26	7,492.00	Sharon Springs			
7,598.62	7,532.00	Niobrara A			
7,849.48	7,652.00	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	
1,168.02	1,167.92	4.79	-1.13	Start 5911.65 hold at 1168.02 MD	
7,079.67	7,069.41	342.03	-80.82	Start DLS 10.00 TFO -166.68	
8,012.38	7,675.00	-230.00	-89.00	Start DLS 0.02 TFO 90.00	
9,779.27	7,675.00	-1,996.88	-93.33	Start 2432.37 hold at 9779.27 MD	
12,211.64	7,675.00	-4,429.23	-105.27	TD at 12211.64	