

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

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

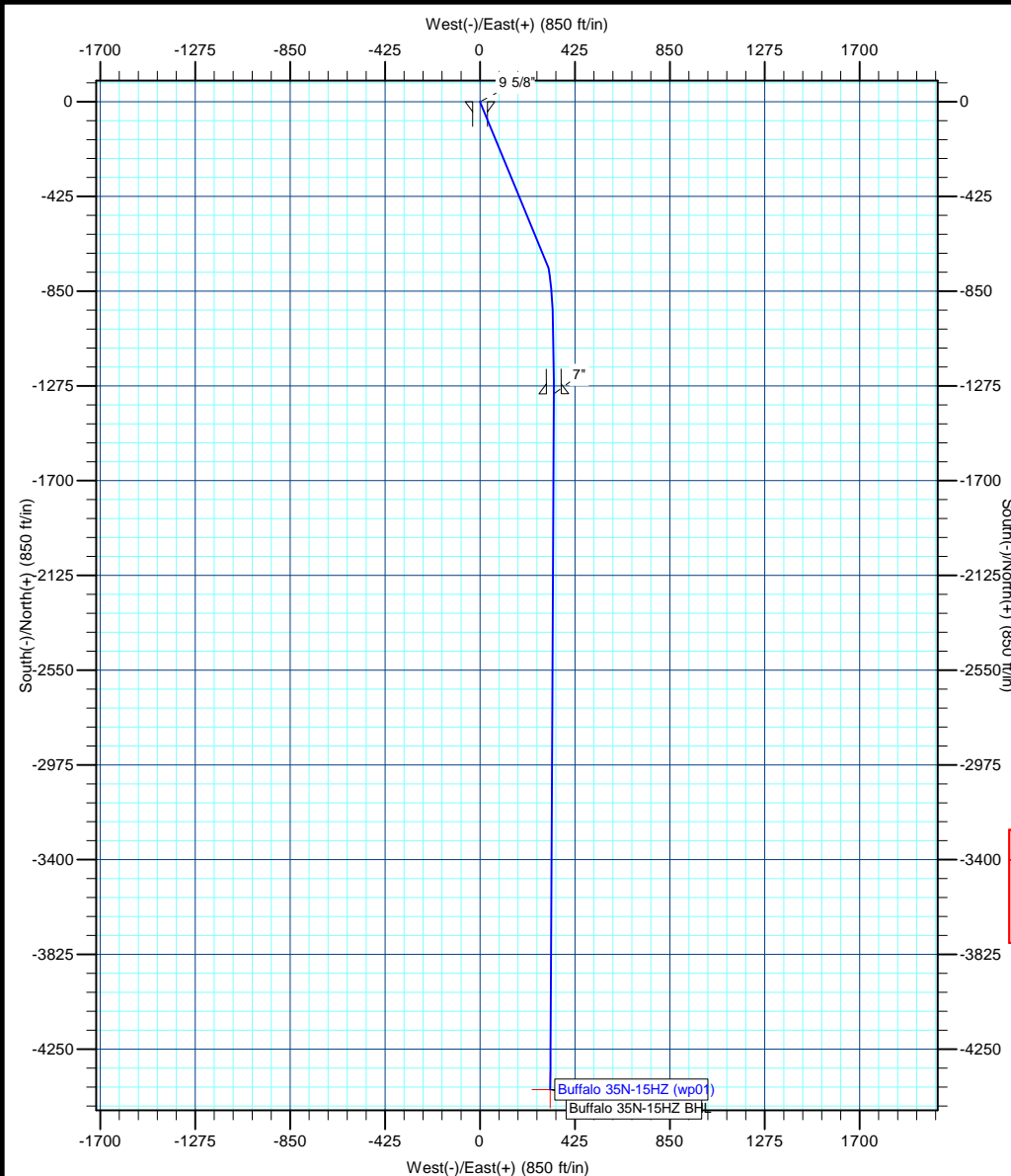
**Buffalo 35N-15HZ**

**Buffalo 35N-15HZ**

**Plan: Buffalo 35N-15HZ (wp01)**

## **Standard Planning Report**

**16 July, 2012**



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Azimuths to True North

Magnetic North: 8.81°

Magnetic Field Strength: 52809.0snT

Dip Angle: 66.70°

Date: 7/16/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD\_Buffalo & Badger 4E-15HZ Pad

Well: Buffalo 35N-15HZ

Wellbore: Buffalo 35N-15HZ

Section:

SHL:

Design: Buffalo 35N-15HZ (wp01)

Latitude: 40.057351

Longitude: -104.994954

GL: 5132.00

KB: gl + rkb @ 5149.00ft

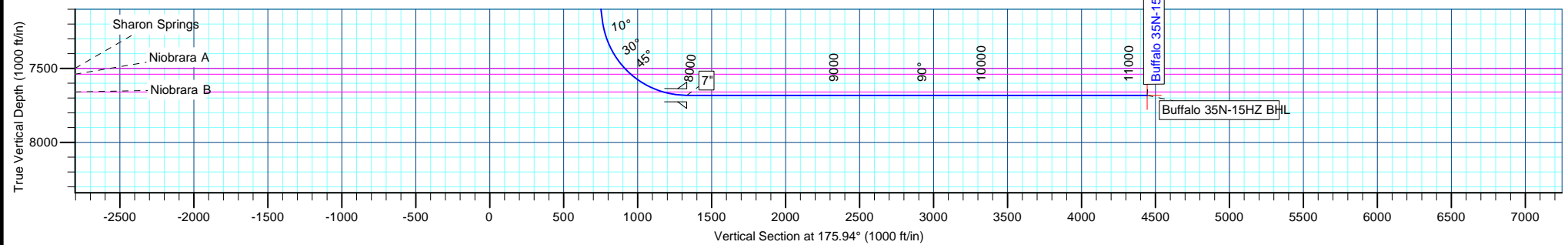
WELL DETAILS: Buffalo 35N-15HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5132.00 Latitude	Longitude	Slot
0.00	0.00	1264140.94	3141370.70	40.057351	-104.994954	

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
1381.72	7.63	157.64	1380.59	-23.48	9.66	2.00	157.64	24.11
7233.08	7.63	157.64	7180.09	-742.38	305.41	0.00	0.00	762.15
8062.51	90.00	180.00	7682.00	-1311.00	331.00	10.00	22.54	1331.15
8092.61	90.00	180.30	7682.00	-1341.10	330.92	1.00	90.00	1361.16
11183.69	90.00	180.30	7682.00	-4432.14	314.68	0.00	0.00	4443.30

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
Buffalo 35N-15HZ BHL	7682.00	-4432.14	314.68	40.045184	-104.993830	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4311.00	4338.34	Parkman
4769.00	4800.43	Sussex
5257.00	5292.80	Shannon
7499.00	7591.10	Sharon Springs
7539.00	7648.50	Niobrara A
7659.00	7899.51	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7682.00	8062.51	7"	7



# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 35N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 5149.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 5149.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4E-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 35N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 35N-15HZ		
<b>Design:</b>	Buffalo 35N-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 4E-15HZ Pad			
Site Position:		Northing:	1,264,141.85 usft	Latitude:	40.057353
From:	Lat/Long	Easting:	3,141,400.65 usft	Longitude:	-104.994847
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.33 °

Well	Buffalo 35N-15HZ					
Well Position	+N/-S	-0.74 ft	Northing:	1,264,140.94 usft	Latitude:	40.057351
	+E/-W	-29.95 ft	Easting:	3,141,370.70 usft	Longitude:	-104.994954
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,132.00 ft

<b>Wellbore</b>	Buffalo 35N-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	7/16/2012	8.81	66.70	52,809

<b>Design</b>	Buffalo 35N-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	175.94

<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	
1,381.72	7.63	157.64	1,380.59	-23.48	9.66	2.00	2.00	0.00	157.64	
7,233.08	7.63	157.64	7,180.09	-742.38	305.41	0.00	0.00	0.00	0.00	
8,062.51	90.00	180.00	7,682.00	-1,311.00	331.00	10.00	9.93	2.70	22.54	
8,092.61	90.00	180.30	7,682.00	-1,341.10	330.92	1.00	0.00	1.00	90.00	
11,183.69	90.00	180.30	7,682.00	-4,432.14	314.68	0.00	0.00	0.00	0.00	Buffalo 35N-15HZ BH

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## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 5149.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 5149.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4E-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 35N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 35N-15HZ		
<b>Design:</b>	Buffalo 35N-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	157.64	1,099.98	-1.61	0.66	1.66	2.00	2.00	0.00
1,200.00	4.00	157.64	1,199.84	-6.45	2.65	6.63	2.00	2.00	0.00
1,300.00	6.00	157.64	1,299.45	-14.51	5.97	14.90	2.00	2.00	0.00
1,381.72	7.63	157.64	1,380.59	-23.48	9.66	24.11	2.00	2.00	0.00
Start 5851.36 hold at 1381.72 MD									
1,400.00	7.63	157.64	1,398.71	-25.73	10.58	26.41	0.00	0.00	0.00
1,500.00	7.63	157.64	1,497.82	-38.02	15.64	39.03	0.00	0.00	0.00
1,600.00	7.63	157.64	1,596.94	-50.30	20.69	51.64	0.00	0.00	0.00
1,700.00	7.63	157.64	1,696.05	-62.59	25.75	64.25	0.00	0.00	0.00
1,800.00	7.63	157.64	1,795.16	-74.87	30.80	76.87	0.00	0.00	0.00
1,900.00	7.63	157.64	1,894.28	-87.16	35.86	89.48	0.00	0.00	0.00
2,000.00	7.63	157.64	1,993.39	-99.45	40.91	102.09	0.00	0.00	0.00
2,100.00	7.63	157.64	2,092.50	-111.73	45.96	114.71	0.00	0.00	0.00
2,200.00	7.63	157.64	2,191.62	-124.02	51.02	127.32	0.00	0.00	0.00
2,300.00	7.63	157.64	2,290.73	-136.30	56.07	139.93	0.00	0.00	0.00
2,400.00	7.63	157.64	2,389.85	-148.59	61.13	152.55	0.00	0.00	0.00
2,500.00	7.63	157.64	2,488.96	-160.88	66.18	165.16	0.00	0.00	0.00
2,600.00	7.63	157.64	2,588.07	-173.16	71.24	177.77	0.00	0.00	0.00
2,700.00	7.63	157.64	2,687.19	-185.45	76.29	190.39	0.00	0.00	0.00
2,800.00	7.63	157.64	2,786.30	-197.73	81.34	203.00	0.00	0.00	0.00
2,900.00	7.63	157.64	2,885.41	-210.02	86.40	215.61	0.00	0.00	0.00
3,000.00	7.63	157.64	2,984.53	-222.31	91.45	228.22	0.00	0.00	0.00
3,100.00	7.63	157.64	3,083.64	-234.59	96.51	240.84	0.00	0.00	0.00
3,200.00	7.63	157.64	3,182.75	-246.88	101.56	253.45	0.00	0.00	0.00
3,300.00	7.63	157.64	3,281.87	-259.16	106.62	266.06	0.00	0.00	0.00
3,400.00	7.63	157.64	3,380.98	-271.45	111.67	278.68	0.00	0.00	0.00
3,500.00	7.63	157.64	3,480.10	-283.74	116.72	291.29	0.00	0.00	0.00
3,600.00	7.63	157.64	3,579.21	-296.02	121.78	303.90	0.00	0.00	0.00
3,700.00	7.63	157.64	3,678.32	-308.31	126.83	316.52	0.00	0.00	0.00
3,800.00	7.63	157.64	3,777.44	-320.59	131.89	329.13	0.00	0.00	0.00
3,900.00	7.63	157.64	3,876.55	-332.88	136.94	341.74	0.00	0.00	0.00
4,000.00	7.63	157.64	3,975.66	-345.17	142.00	354.36	0.00	0.00	0.00
4,100.00	7.63	157.64	4,074.78	-357.45	147.05	366.97	0.00	0.00	0.00
4,200.00	7.63	157.64	4,173.89	-369.74	152.10	379.58	0.00	0.00	0.00
4,300.00	7.63	157.64	4,273.00	-382.02	157.16	392.19	0.00	0.00	0.00
4,338.34	7.63	157.64	4,311.00	-386.73	159.10	397.03	0.00	0.00	0.00
Parkman									
4,400.00	7.63	157.64	4,372.12	-394.31	162.21	404.81	0.00	0.00	0.00
4,500.00	7.63	157.64	4,471.23	-406.60	167.27	417.42	0.00	0.00	0.00
4,600.00	7.63	157.64	4,570.35	-418.88	172.32	430.03	0.00	0.00	0.00
4,700.00	7.63	157.64	4,669.46	-431.17	177.38	442.65	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 35N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 5149.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 5149.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4E-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 35N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 35N-15HZ		
<b>Design:</b>	Buffalo 35N-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)
4,800.00	7.63	157.64	4,768.57	-443.45	182.43	455.26	0.00	0.00	0.00
4,800.43	7.63	157.64	4,769.00	-443.51	182.45	455.31	0.00	0.00	0.00
<b>Sussex</b>									
4,900.00	7.63	157.64	4,867.69	-455.74	187.48	467.87	0.00	0.00	0.00
5,000.00	7.63	157.64	4,966.80	-468.03	192.54	480.49	0.00	0.00	0.00
5,100.00	7.63	157.64	5,065.91	-480.31	197.59	493.10	0.00	0.00	0.00
5,200.00	7.63	157.64	5,165.03	-492.60	202.65	505.71	0.00	0.00	0.00
5,292.80	7.63	157.64	5,257.00	-504.00	207.34	517.42	0.00	0.00	0.00
<b>Shannon</b>									
5,300.00	7.63	157.64	5,264.14	-504.88	207.70	518.33	0.00	0.00	0.00
5,400.00	7.63	157.64	5,363.25	-517.17	212.76	530.94	0.00	0.00	0.00
5,500.00	7.63	157.64	5,462.37	-529.46	217.81	543.55	0.00	0.00	0.00
5,600.00	7.63	157.64	5,561.48	-541.74	222.86	556.17	0.00	0.00	0.00
5,700.00	7.63	157.64	5,660.60	-554.03	227.92	568.78	0.00	0.00	0.00
5,800.00	7.63	157.64	5,759.71	-566.31	232.97	581.39	0.00	0.00	0.00
5,900.00	7.63	157.64	5,858.82	-578.60	238.03	594.00	0.00	0.00	0.00
6,000.00	7.63	157.64	5,957.94	-590.89	243.08	606.62	0.00	0.00	0.00
6,100.00	7.63	157.64	6,057.05	-603.17	248.14	619.23	0.00	0.00	0.00
6,200.00	7.63	157.64	6,156.16	-615.46	253.19	631.84	0.00	0.00	0.00
6,300.00	7.63	157.64	6,255.28	-627.74	258.24	644.46	0.00	0.00	0.00
6,400.00	7.63	157.64	6,354.39	-640.03	263.30	657.07	0.00	0.00	0.00
6,500.00	7.63	157.64	6,453.50	-652.32	268.35	669.68	0.00	0.00	0.00
6,600.00	7.63	157.64	6,552.62	-664.60	273.41	682.30	0.00	0.00	0.00
6,700.00	7.63	157.64	6,651.73	-676.89	278.46	694.91	0.00	0.00	0.00
6,800.00	7.63	157.64	6,750.84	-689.17	283.52	707.52	0.00	0.00	0.00
6,900.00	7.63	157.64	6,849.96	-701.46	288.57	720.14	0.00	0.00	0.00
7,000.00	7.63	157.64	6,949.07	-713.75	293.62	732.75	0.00	0.00	0.00
7,100.00	7.63	157.64	7,048.19	-726.03	298.68	745.36	0.00	0.00	0.00
7,200.00	7.63	157.64	7,147.30	-738.32	303.73	757.97	0.00	0.00	0.00
7,233.08	7.63	157.64	7,180.09	-742.38	305.41	762.15	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 22.54</b>									
7,300.00	14.05	168.24	7,245.78	-754.46	308.76	774.43	10.00	9.59	15.85
7,400.00	23.92	173.40	7,340.23	-786.56	313.57	806.79	10.00	9.87	5.16
7,500.00	33.86	175.64	7,427.68	-834.60	318.03	855.02	10.00	9.94	2.24
7,591.10	42.94	176.86	7,499.00	-891.00	321.67	911.54	10.00	9.97	1.34
<b>Sharon Springs</b>									
7,600.00	43.83	176.95	7,505.47	-897.11	322.00	917.66	10.00	9.97	1.08
7,648.50	48.66	177.43	7,539.00	-932.08	323.71	952.67	10.00	9.98	0.98
<b>Niobrara A</b>									
7,700.00	53.80	177.86	7,571.24	-972.20	325.35	992.80	10.00	9.98	0.84
7,800.00	63.79	178.56	7,622.98	-1,057.58	327.99	1,078.15	10.00	9.98	0.70
7,899.51	73.72	179.15	7,659.00	-1,150.19	329.83	1,170.66	10.00	9.99	0.59
<b>Niobrara B</b>									
7,900.00	73.77	179.15	7,659.14	-1,150.66	329.83	1,171.13	10.00	9.99	0.55
8,000.00	83.76	179.68	7,678.60	-1,248.61	330.83	1,268.91	10.00	9.99	0.53
8,062.51	90.00	180.00	7,682.00	-1,311.00	331.00	1,331.15	10.00	9.99	0.51
<b>Start DLS 1.00 TFO 90.00 - 7"</b>									
8,092.61	90.00	180.30	7,682.00	-1,341.10	330.92	1,361.16	1.00	0.00	1.00
<b>Start 3091.09 hold at 8092.61 MD</b>									
8,100.00	90.00	180.30	7,682.00	-1,348.49	330.88	1,368.54	0.00	0.00	0.00
8,200.00	90.00	180.30	7,682.00	-1,448.49	330.36	1,468.25	0.00	0.00	0.00
8,300.00	90.00	180.30	7,682.00	-1,548.49	329.83	1,567.96	0.00	0.00	0.00
8,400.00	90.00	180.30	7,682.00	-1,648.48	329.31	1,667.67	0.00	0.00	0.00

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 35N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 5149.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 5149.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4E-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 35N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 35N-15HZ		
<b>Design:</b>	Buffalo 35N-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)
8,500.00	90.00	180.30	7,682.00	-1,748.48	328.78	1,767.38	0.00	0.00	0.00
8,600.00	90.00	180.30	7,682.00	-1,848.48	328.26	1,867.09	0.00	0.00	0.00
8,700.00	90.00	180.30	7,682.00	-1,948.48	327.73	1,966.80	0.00	0.00	0.00
8,800.00	90.00	180.30	7,682.00	-2,048.48	327.21	2,066.51	0.00	0.00	0.00
8,900.00	90.00	180.30	7,682.00	-2,148.48	326.68	2,166.22	0.00	0.00	0.00
9,000.00	90.00	180.30	7,682.00	-2,248.48	326.15	2,265.93	0.00	0.00	0.00
9,100.00	90.00	180.30	7,682.00	-2,348.48	325.63	2,365.64	0.00	0.00	0.00
9,200.00	90.00	180.30	7,682.00	-2,448.47	325.10	2,465.35	0.00	0.00	0.00
9,300.00	90.00	180.30	7,682.00	-2,548.47	324.58	2,565.06	0.00	0.00	0.00
9,400.00	90.00	180.30	7,682.00	-2,648.47	324.05	2,664.77	0.00	0.00	0.00
9,500.00	90.00	180.30	7,682.00	-2,748.47	323.53	2,764.48	0.00	0.00	0.00
9,600.00	90.00	180.30	7,682.00	-2,848.47	323.00	2,864.19	0.00	0.00	0.00
9,700.00	90.00	180.30	7,682.00	-2,948.47	322.48	2,963.90	0.00	0.00	0.00
9,800.00	90.00	180.30	7,682.00	-3,048.47	321.95	3,063.61	0.00	0.00	0.00
9,900.00	90.00	180.30	7,682.00	-3,148.46	321.43	3,163.32	0.00	0.00	0.00
10,000.00	90.00	180.30	7,682.00	-3,248.46	320.90	3,263.03	0.00	0.00	0.00
10,100.00	90.00	180.30	7,682.00	-3,348.46	320.38	3,362.74	0.00	0.00	0.00
10,200.00	90.00	180.30	7,682.00	-3,448.46	319.85	3,462.45	0.00	0.00	0.00
10,300.00	90.00	180.30	7,682.00	-3,548.46	319.33	3,562.16	0.00	0.00	0.00
10,400.00	90.00	180.30	7,682.00	-3,648.46	318.80	3,661.87	0.00	0.00	0.00
10,500.00	90.00	180.30	7,682.00	-3,748.46	318.28	3,761.58	0.00	0.00	0.00
10,600.00	90.00	180.30	7,682.00	-3,848.45	317.75	3,861.29	0.00	0.00	0.00
10,700.00	90.00	180.30	7,682.00	-3,948.45	317.23	3,961.01	0.00	0.00	0.00
10,800.00	90.00	180.30	7,682.00	-4,048.45	316.70	4,060.72	0.00	0.00	0.00
10,900.00	90.00	180.30	7,682.00	-4,148.45	316.17	4,160.43	0.00	0.00	0.00
11,000.00	90.00	180.30	7,682.00	-4,248.45	315.65	4,260.14	0.00	0.00	0.00
11,100.00	90.00	180.30	7,682.00	-4,348.45	315.12	4,359.85	0.00	0.00	0.00
11,183.69	90.00	180.30	7,682.00	-4,432.14	314.68	4,443.30	0.00	0.00	0.00
TD at 11183.69 - Buffalo 35N-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 35N-15HZ BHL	0.00	0.00	7,682.00	-4,432.14	314.68	1,259,710.67	3,141,710.62	40.045184	-104.993830
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

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	
8,062.51	7,682.00	7"	7	8-3/4	

# Anadarko Petroleum Corp

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well Buffalo 35N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	gl + rkb @ 5149.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	gl + rkb @ 5149.00ft
<b>Site:</b>	WELD_Buffalo & Badger 4E-15HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	Buffalo 35N-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Buffalo 35N-15HZ		
<b>Design:</b>	Buffalo 35N-15HZ (wp01)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,338.34	4,311.00	Parkman				
4,800.43	4,769.00	Sussex				
5,292.80	5,257.00	Shannon				
7,591.10	7,499.00	Sharon Springs				
7,648.50	7,539.00	Niobrara A				
7,899.51	7,659.00	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	
1,381.72	1,380.59	-23.48	9.66	Start 5851.36 hold at 1381.72 MD	
7,233.08	7,180.09	-742.38	305.41	Start DLS 10.00 TFO 22.54	
8,062.51	7,682.00	-1,311.00	331.00	Start DLS 1.00 TFO 90.00	
8,092.61	7,682.00	-1,341.10	330.92	Start 3091.09 hold at 8092.61 MD	
11,183.69	7,682.00	-4,432.14	314.68	TD at 11183.69	