



**Weatherford®**

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_BUFFALO & BADGER 29-15HZ PAD**

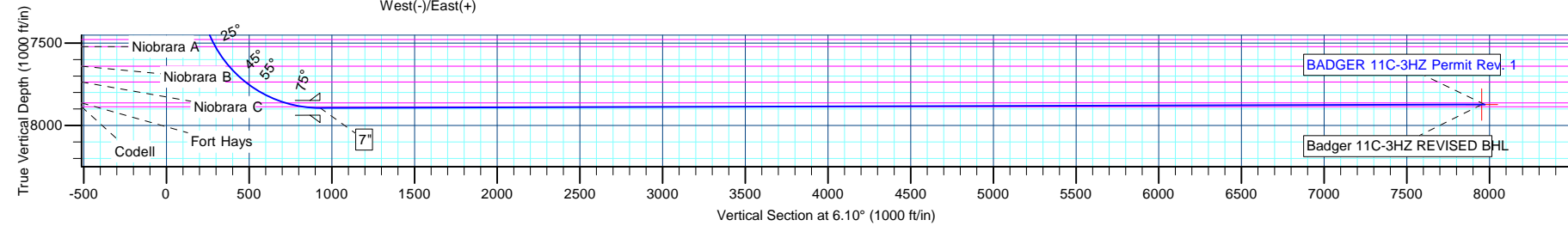
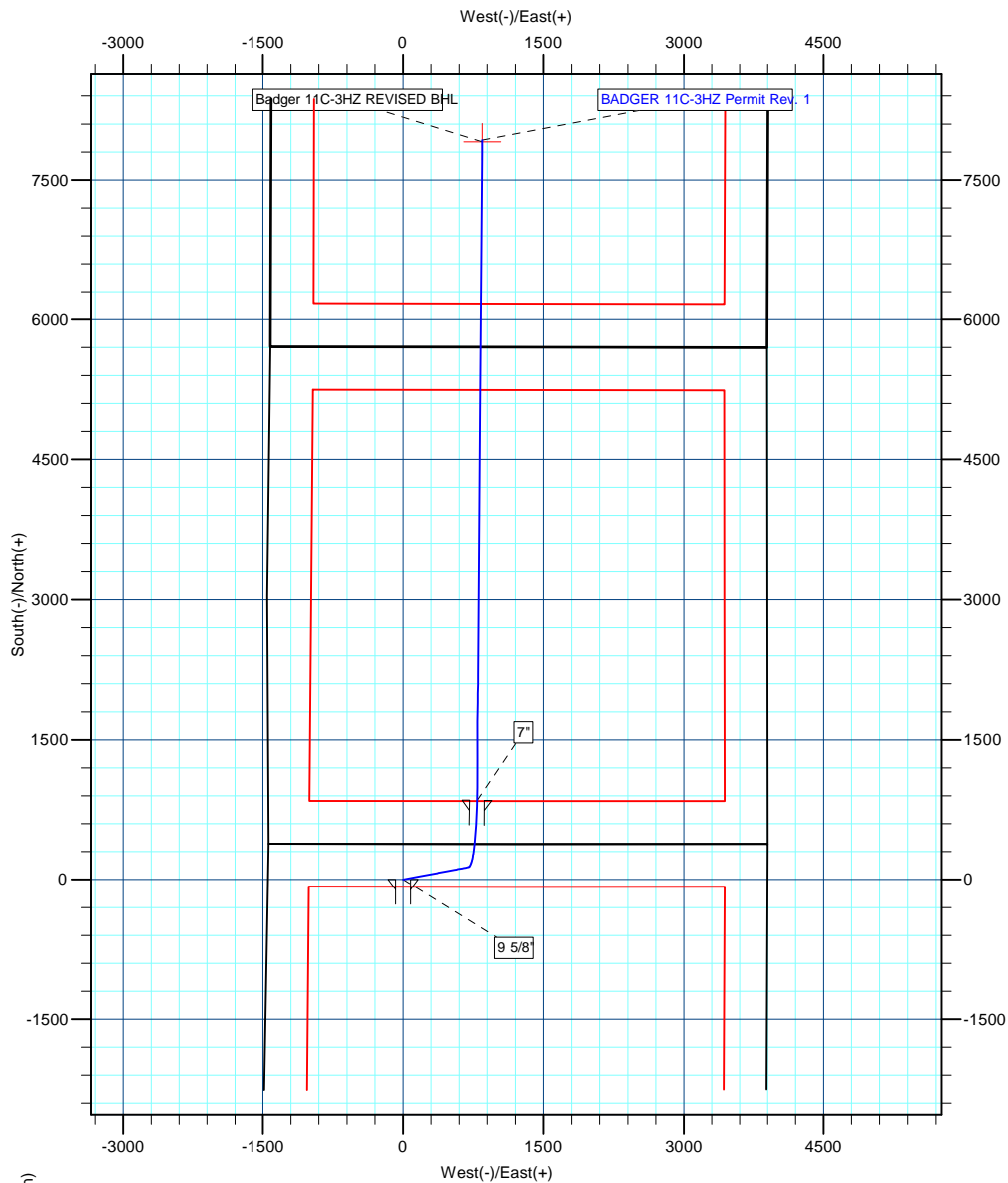
**BADGER 11C-3HZ**

**BADGER 11C-3HZ**

**Plan: BADGER 11C-3HZ Permit Rev. 1**

## **Standard Planning Report**

**15 November, 2012**



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Azimuths to True North

Magnetic North: 8.81°

Magnetic Field

Strength: 52809.2snT

Dip Angle: 66.70°

Date: 7/16/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD, BUFFALO & BADGER 29-15HZ PAD

Well: BADGER 11C-3HZ

Wellbore: BADGER 11C-3HZ

Section:

SHL:

Design: BADGER 11C-3HZ Permit Rev. 1

Latitude: 40.057366

Longitude: -104.993882

GL: 5125.00

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

WELL DETAILS: BADGER 11C-3HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5125.00 Latitude	Longitude	Slot
0.00	0.00	1264148.12	3141670.74	40.057366	-104.993882	

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
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00
1655.00	7.10	79.28	1654.09	4.09	21.58	2.00	79.28	6.36
7243.91	7.10	79.28	7200.15	132.59	700.32	0.00	0.00	206.20
8353.87	90.17	0.45	7894.00	850.00	791.00	8.00	-78.89	929.19
5431.59	90.17	0.45	7873.00	7927.47	846.59	0.00	0.00	7972.55

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Badger 11C-3HZ REVISED BHL	7873.00	7907.75	846.48	40.079074	-104.990857	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4304.00	4325.38	Parkman
4750.00	4774.83	Sussex
5220.00	5248.46	Shannon
7479.00	7534.19	Sharon Springs
7522.00	7582.62	Niobrara A
7640.00	7726.65	Niobrara B
7736.00	7864.91	Niobrara C
7863.00	8139.44	Fort Hays
7886.00	8244.16	Codell

CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	9 5/8"	9-5/8
7894.00	8353.87	7"	7

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well BADGER 11C-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

<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 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	BADGER 11C-3HZ					
Well Position	+N/-S	1.08 ft	Northing:	1,264,148.12 usft	Latitude:	40.057366
	+E/-W	60.18 ft	Easting:	3,141,670.74 usft	Longitude:	-104.993882
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,125.00 ft

<b>Wellbore</b>	BADGER 11C-3HZ				
<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>	BADGER 11C-3HZ Permit Rev. 1			
<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	6.10

<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	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,655.00	7.10	79.28	1,654.09	4.09	21.58	2.00	2.00	0.00	79.28	
7,243.91	7.10	79.28	7,200.15	132.59	700.32	0.00	0.00	0.00	0.00	
8,353.87	90.17	0.45	7,894.00	850.00	791.00	8.00	7.48	-7.10	-78.89	
15,431.59	90.17	0.45	7,873.00	7,927.48	846.59	0.00	0.00	0.00	0.00	Badger 11C-3HZ REV



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**Andarko Petroleum Corporation**

Planning Report



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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

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
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
Start Build 2.00									
1,400.00	2.00	79.28	1,399.98	0.32	1.71	0.50	2.00	2.00	0.00
1,500.00	4.00	79.28	1,499.84	1.30	6.86	2.02	2.00	2.00	0.00
1,600.00	6.00	79.28	1,599.45	2.92	15.42	4.54	2.00	2.00	0.00
1,655.00	7.10	79.28	1,654.09	4.09	21.58	6.36	2.00	2.00	0.00
Start 5588.91 hold at 1655.00 MD									
1,700.00	7.10	79.28	1,698.75	5.12	27.05	7.96	0.00	0.00	0.00
1,800.00	7.10	79.28	1,797.98	7.42	39.19	11.54	0.00	0.00	0.00
1,900.00	7.10	79.28	1,897.21	9.72	51.34	15.12	0.00	0.00	0.00
2,000.00	7.10	79.28	1,996.45	12.02	63.48	18.69	0.00	0.00	0.00
2,100.00	7.10	79.28	2,095.68	14.32	75.63	22.27	0.00	0.00	0.00
2,200.00	7.10	79.28	2,194.91	16.62	87.77	25.84	0.00	0.00	0.00
2,300.00	7.10	79.28	2,294.15	18.92	99.92	29.42	0.00	0.00	0.00
2,400.00	7.10	79.28	2,393.38	21.22	112.06	32.99	0.00	0.00	0.00
2,500.00	7.10	79.28	2,492.61	23.51	124.20	36.57	0.00	0.00	0.00
2,600.00	7.10	79.28	2,591.85	25.81	136.35	40.15	0.00	0.00	0.00
2,700.00	7.10	79.28	2,691.08	28.11	148.49	43.72	0.00	0.00	0.00
2,800.00	7.10	79.28	2,790.31	30.41	160.64	47.30	0.00	0.00	0.00
2,900.00	7.10	79.28	2,889.55	32.71	172.78	50.87	0.00	0.00	0.00
3,000.00	7.10	79.28	2,988.78	35.01	184.93	54.45	0.00	0.00	0.00
3,100.00	7.10	79.28	3,088.01	37.31	197.07	58.03	0.00	0.00	0.00
3,200.00	7.10	79.28	3,187.25	39.61	209.21	61.60	0.00	0.00	0.00
3,300.00	7.10	79.28	3,286.48	41.91	221.36	65.18	0.00	0.00	0.00
3,400.00	7.10	79.28	3,385.71	44.21	233.50	68.75	0.00	0.00	0.00
3,500.00	7.10	79.28	3,484.94	46.51	245.65	72.33	0.00	0.00	0.00
3,600.00	7.10	79.28	3,584.18	48.81	257.79	75.90	0.00	0.00	0.00
3,700.00	7.10	79.28	3,683.41	51.11	269.94	79.48	0.00	0.00	0.00
3,800.00	7.10	79.28	3,782.64	53.40	282.08	83.06	0.00	0.00	0.00
3,900.00	7.10	79.28	3,881.88	55.70	294.23	86.63	0.00	0.00	0.00
4,000.00	7.10	79.28	3,981.11	58.00	306.37	90.21	0.00	0.00	0.00
4,100.00	7.10	79.28	4,080.34	60.30	318.51	93.78	0.00	0.00	0.00
4,200.00	7.10	79.28	4,179.58	62.60	330.66	97.36	0.00	0.00	0.00
4,300.00	7.10	79.28	4,278.81	64.90	342.80	100.94	0.00	0.00	0.00
4,325.38	7.10	79.28	4,304.00	65.48	345.89	101.84	0.00	0.00	0.00
Parkman									
4,400.00	7.10	79.28	4,378.04	67.20	354.95	104.51	0.00	0.00	0.00
4,500.00	7.10	79.28	4,477.28	69.50	367.09	108.09	0.00	0.00	0.00
4,600.00	7.10	79.28	4,576.51	71.80	379.24	111.66	0.00	0.00	0.00
4,700.00	7.10	79.28	4,675.74	74.10	391.38	115.24	0.00	0.00	0.00

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well BADGER 11C-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

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)
4,774.83	7.10	79.28	4,750.00	75.82	400.47	117.91	0.00	0.00	0.00
<b>Sussex</b>									
4,800.00	7.10	79.28	4,774.98	76.40	403.52	118.81	0.00	0.00	0.00
4,900.00	7.10	79.28	4,874.21	78.70	415.67	122.39	0.00	0.00	0.00
5,000.00	7.10	79.28	4,973.44	81.00	427.81	125.97	0.00	0.00	0.00
5,100.00	7.10	79.28	5,072.68	83.29	439.96	129.54	0.00	0.00	0.00
5,200.00	7.10	79.28	5,171.91	85.59	452.10	133.12	0.00	0.00	0.00
5,248.46	7.10	79.28	5,220.00	86.71	457.99	134.85	0.00	0.00	0.00
<b>Shannon</b>									
5,300.00	7.10	79.28	5,271.14	87.89	464.25	136.69	0.00	0.00	0.00
5,400.00	7.10	79.28	5,370.38	90.19	476.39	140.27	0.00	0.00	0.00
5,500.00	7.10	79.28	5,469.61	92.49	488.54	143.84	0.00	0.00	0.00
5,600.00	7.10	79.28	5,568.84	94.79	500.68	147.42	0.00	0.00	0.00
5,700.00	7.10	79.28	5,668.08	97.09	512.82	151.00	0.00	0.00	0.00
5,800.00	7.10	79.28	5,767.31	99.39	524.97	154.57	0.00	0.00	0.00
5,900.00	7.10	79.28	5,866.54	101.69	537.11	158.15	0.00	0.00	0.00
6,000.00	7.10	79.28	5,965.77	103.99	549.26	161.72	0.00	0.00	0.00
6,100.00	7.10	79.28	6,065.01	106.29	561.40	165.30	0.00	0.00	0.00
6,200.00	7.10	79.28	6,164.24	108.59	573.55	168.88	0.00	0.00	0.00
6,300.00	7.10	79.28	6,263.47	110.88	585.69	172.45	0.00	0.00	0.00
6,400.00	7.10	79.28	6,362.71	113.18	597.83	176.03	0.00	0.00	0.00
6,500.00	7.10	79.28	6,461.94	115.48	609.98	179.60	0.00	0.00	0.00
6,600.00	7.10	79.28	6,561.17	117.78	622.12	183.18	0.00	0.00	0.00
6,700.00	7.10	79.28	6,660.41	120.08	634.27	186.75	0.00	0.00	0.00
6,800.00	7.10	79.28	6,759.64	122.38	646.41	190.33	0.00	0.00	0.00
6,900.00	7.10	79.28	6,858.87	124.68	658.56	193.91	0.00	0.00	0.00
7,000.00	7.10	79.28	6,958.11	126.98	670.70	197.48	0.00	0.00	0.00
7,100.00	7.10	79.28	7,057.34	129.28	682.85	201.06	0.00	0.00	0.00
7,200.00	7.10	79.28	7,156.57	131.58	694.99	204.63	0.00	0.00	0.00
7,243.91	7.10	79.28	7,200.15	132.59	700.32	206.20	0.00	0.00	0.00
<b>Start DLS 8.00 TFO -78.89</b>									
7,250.00	7.21	75.47	7,206.19	132.75	701.06	206.45	8.00	1.80	-62.60
7,300.00	9.10	50.22	7,255.70	136.07	707.14	210.39	8.00	3.77	-50.49
7,350.00	12.05	35.37	7,304.85	142.86	713.20	217.78	8.00	5.92	-29.70
7,400.00	15.48	26.64	7,353.41	153.09	719.22	228.59	8.00	6.86	-17.46
7,450.00	19.13	21.10	7,401.14	166.70	725.16	242.76	8.00	7.30	-11.10
7,500.00	22.89	17.29	7,447.81	183.64	731.00	260.22	8.00	7.52	-7.61
7,534.19	25.51	15.31	7,479.00	197.09	734.93	274.02	8.00	7.64	-5.79
<b>Sharon Springs</b>									
7,550.00	26.72	14.52	7,493.19	203.81	736.72	280.89	8.00	7.69	-5.01
7,582.62	29.24	13.08	7,522.00	218.68	740.36	296.06	8.00	7.73	-4.42
<b>Niobrara A</b>									
7,600.00	30.59	12.40	7,537.06	227.13	742.27	304.67	8.00	7.76	-3.90
7,650.00	34.49	10.72	7,579.21	253.48	747.63	331.43	8.00	7.79	-3.37
7,700.00	38.40	9.34	7,619.42	282.72	752.79	361.06	8.00	7.83	-2.76
7,726.65	40.50	8.70	7,640.00	299.44	755.44	377.97	8.00	7.85	-2.40
<b>Niobrara B</b>									
7,750.00	42.33	8.18	7,657.51	314.72	757.70	393.40	8.00	7.86	-2.22
7,800.00	46.27	7.18	7,693.29	349.32	762.36	428.30	8.00	7.88	-1.99
7,850.00	50.22	6.31	7,726.58	386.36	766.73	465.59	8.00	7.89	-1.75
7,864.91	51.40	6.07	7,736.00	397.85	767.98	477.15	8.00	7.90	-1.62
<b>Niobrara C</b>									
7,900.00	54.17	5.53	7,757.22	425.64	770.80	505.09	8.00	7.91	-1.53



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Planning Report



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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

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	58.13	4.83	7,785.07	466.99	774.54	546.60	8.00	7.91	-1.41
8,000.00	62.09	4.18	7,809.98	510.20	777.94	589.92	8.00	7.92	-1.29
8,050.00	66.05	3.58	7,831.84	555.05	780.98	634.84	8.00	7.93	-1.20
8,100.00	70.02	3.02	7,850.54	601.33	783.65	681.15	8.00	7.93	-1.13
8,139.44	73.15	2.59	7,863.00	638.70	785.48	718.50	8.00	7.93	-1.08
<b>Fort Hays</b>									
8,150.00	73.98	2.48	7,865.99	648.82	785.92	728.61	8.00	7.94	-1.05
8,200.00	77.95	1.97	7,878.11	697.28	787.80	777.00	8.00	7.94	-1.03
8,244.16	81.46	1.52	7,886.00	740.71	789.12	820.32	8.00	7.94	-1.00
<b>Codell</b>									
8,250.00	81.92	1.46	7,886.84	746.48	789.28	826.07	8.00	7.94	-0.99
8,300.00	85.89	0.97	7,892.15	796.18	790.33	875.60	8.00	7.94	-0.98
8,353.87	90.17	0.45	7,894.00	850.00	791.00	929.19	8.00	7.94	-0.97
<b>Start 7077.72 hold at 8353.87 MD - 7"</b>									
8,400.00	90.17	0.45	7,893.86	896.13	791.36	975.09	0.00	0.00	0.00
8,500.00	90.17	0.45	7,893.57	996.12	792.15	1,074.61	0.00	0.00	0.00
8,600.00	90.17	0.45	7,893.27	1,096.12	792.93	1,174.12	0.00	0.00	0.00
8,700.00	90.17	0.45	7,892.97	1,196.12	793.72	1,273.64	0.00	0.00	0.00
8,800.00	90.17	0.45	7,892.68	1,296.11	794.50	1,373.15	0.00	0.00	0.00
8,900.00	90.17	0.45	7,892.38	1,396.11	795.29	1,472.67	0.00	0.00	0.00
9,000.00	90.17	0.45	7,892.08	1,496.11	796.07	1,572.18	0.00	0.00	0.00
9,100.00	90.17	0.45	7,891.79	1,596.10	796.86	1,671.70	0.00	0.00	0.00
9,200.00	90.17	0.45	7,891.49	1,696.10	797.65	1,771.21	0.00	0.00	0.00
9,300.00	90.17	0.45	7,891.19	1,796.10	798.43	1,870.73	0.00	0.00	0.00
9,400.00	90.17	0.45	7,890.90	1,896.09	799.22	1,970.24	0.00	0.00	0.00
9,500.00	90.17	0.45	7,890.60	1,996.09	800.00	2,069.75	0.00	0.00	0.00
9,600.00	90.17	0.45	7,890.30	2,096.09	800.79	2,169.27	0.00	0.00	0.00
9,700.00	90.17	0.45	7,890.01	2,196.08	801.57	2,268.78	0.00	0.00	0.00
9,800.00	90.17	0.45	7,889.71	2,296.08	802.36	2,368.30	0.00	0.00	0.00
9,900.00	90.17	0.45	7,889.41	2,396.08	803.14	2,467.81	0.00	0.00	0.00
10,000.00	90.17	0.45	7,889.12	2,496.07	803.93	2,567.33	0.00	0.00	0.00
10,100.00	90.17	0.45	7,888.82	2,596.07	804.71	2,666.84	0.00	0.00	0.00
10,200.00	90.17	0.45	7,888.52	2,696.07	805.50	2,766.36	0.00	0.00	0.00
10,300.00	90.17	0.45	7,888.23	2,796.06	806.28	2,865.87	0.00	0.00	0.00
10,400.00	90.17	0.45	7,887.93	2,896.06	807.07	2,965.38	0.00	0.00	0.00
10,500.00	90.17	0.45	7,887.63	2,996.05	807.86	3,064.90	0.00	0.00	0.00
10,600.00	90.17	0.45	7,887.34	3,096.05	808.64	3,164.41	0.00	0.00	0.00
10,700.00	90.17	0.45	7,887.04	3,196.05	809.43	3,263.93	0.00	0.00	0.00
10,800.00	90.17	0.45	7,886.74	3,296.04	810.21	3,363.44	0.00	0.00	0.00
10,900.00	90.17	0.45	7,886.45	3,396.04	811.00	3,462.96	0.00	0.00	0.00
11,000.00	90.17	0.45	7,886.15	3,496.04	811.78	3,562.47	0.00	0.00	0.00
11,100.00	90.17	0.45	7,885.85	3,596.03	812.57	3,661.99	0.00	0.00	0.00
11,200.00	90.17	0.45	7,885.56	3,696.03	813.35	3,761.50	0.00	0.00	0.00
11,300.00	90.17	0.45	7,885.26	3,796.03	814.14	3,861.02	0.00	0.00	0.00
11,400.00	90.17	0.45	7,884.96	3,896.02	814.92	3,960.53	0.00	0.00	0.00
11,500.00	90.17	0.45	7,884.67	3,996.02	815.71	4,060.04	0.00	0.00	0.00
11,600.00	90.17	0.45	7,884.37	4,096.02	816.49	4,159.56	0.00	0.00	0.00
11,700.00	90.17	0.45	7,884.07	4,196.01	817.28	4,259.07	0.00	0.00	0.00
11,800.00	90.17	0.45	7,883.78	4,296.01	818.07	4,358.59	0.00	0.00	0.00
11,900.00	90.17	0.45	7,883.48	4,396.01	818.85	4,458.10	0.00	0.00	0.00
12,000.00	90.17	0.45	7,883.18	4,496.00	819.64	4,557.62	0.00	0.00	0.00
12,100.00	90.17	0.45	7,882.89	4,596.00	820.42	4,657.13	0.00	0.00	0.00
12,200.00	90.17	0.45	7,882.59	4,695.99	821.21	4,756.65	0.00	0.00	0.00

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well BADGER 11C-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

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)
12,300.00	90.17	0.45	7,882.29	4,795.99	821.99	4,856.16	0.00	0.00	0.00
12,400.00	90.17	0.45	7,882.00	4,895.99	822.78	4,955.68	0.00	0.00	0.00
12,500.00	90.17	0.45	7,881.70	4,995.98	823.56	5,055.19	0.00	0.00	0.00
12,600.00	90.17	0.45	7,881.40	5,095.98	824.35	5,154.70	0.00	0.00	0.00
12,700.00	90.17	0.45	7,881.10	5,195.98	825.13	5,254.22	0.00	0.00	0.00
12,800.00	90.17	0.45	7,880.81	5,295.97	825.92	5,353.73	0.00	0.00	0.00
12,900.00	90.17	0.45	7,880.51	5,395.97	826.70	5,453.25	0.00	0.00	0.00
13,000.00	90.17	0.45	7,880.21	5,495.97	827.49	5,552.76	0.00	0.00	0.00
13,100.00	90.17	0.45	7,879.92	5,595.96	828.28	5,652.28	0.00	0.00	0.00
13,200.00	90.17	0.45	7,879.62	5,695.96	829.06	5,751.79	0.00	0.00	0.00
13,300.00	90.17	0.45	7,879.32	5,795.96	829.85	5,851.31	0.00	0.00	0.00
13,400.00	90.17	0.45	7,879.03	5,895.95	830.63	5,950.82	0.00	0.00	0.00
13,500.00	90.17	0.45	7,878.73	5,995.95	831.42	6,050.33	0.00	0.00	0.00
13,600.00	90.17	0.45	7,878.43	6,095.95	832.20	6,149.85	0.00	0.00	0.00
13,700.00	90.17	0.45	7,878.14	6,195.94	832.99	6,249.36	0.00	0.00	0.00
13,800.00	90.17	0.45	7,877.84	6,295.94	833.77	6,348.88	0.00	0.00	0.00
13,900.00	90.17	0.45	7,877.54	6,395.93	834.56	6,448.39	0.00	0.00	0.00
14,000.00	90.17	0.45	7,877.25	6,495.93	835.34	6,547.91	0.00	0.00	0.00
14,100.00	90.17	0.45	7,876.95	6,595.93	836.13	6,647.42	0.00	0.00	0.00
14,200.00	90.17	0.45	7,876.65	6,695.92	836.91	6,746.94	0.00	0.00	0.00
14,300.00	90.17	0.45	7,876.36	6,795.92	837.70	6,846.45	0.00	0.00	0.00
14,400.00	90.17	0.45	7,876.06	6,895.92	838.49	6,945.97	0.00	0.00	0.00
14,500.00	90.17	0.45	7,875.76	6,995.91	839.27	7,045.48	0.00	0.00	0.00
14,600.00	90.17	0.45	7,875.47	7,095.91	840.06	7,144.99	0.00	0.00	0.00
14,700.00	90.17	0.45	7,875.17	7,195.91	840.84	7,244.51	0.00	0.00	0.00
14,800.00	90.17	0.45	7,874.87	7,295.90	841.63	7,344.02	0.00	0.00	0.00
14,900.00	90.17	0.45	7,874.58	7,395.90	842.41	7,443.54	0.00	0.00	0.00
15,000.00	90.17	0.45	7,874.28	7,495.90	843.20	7,543.05	0.00	0.00	0.00
15,100.00	90.17	0.45	7,873.98	7,595.89	843.98	7,642.57	0.00	0.00	0.00
15,200.00	90.17	0.45	7,873.69	7,695.89	844.77	7,742.08	0.00	0.00	0.00
15,300.00	90.17	0.45	7,873.39	7,795.89	845.55	7,841.60	0.00	0.00	0.00
15,400.00	90.17	0.45	7,873.09	7,895.88	846.34	7,941.11	0.00	0.00	0.00
<b>Badger 11C-3HZ REVISED BHL - Badger 11C-3HZ BHL</b>									
15,431.59	90.17	0.45	7,873.00	7,927.48	846.59	7,972.55	0.00	0.00	0.00
<b>TD at 15431.59</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Badger 11C-3HZ REVIS	0.00	0.00	7,873.00	7,907.75	846.48	1,272,060.55	3,142,472.07	40.079074	-104.990857
- hit/miss target									
- Shape									
Badger 11C-3HZ REVIS									
- plan misses target center by 11.87ft at 15400.00ft MD (7873.09 TVD, 7895.88 N, 846.34 E)									
- Point									

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well BADGER 11C-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5125' GL @ 5142.00ft
<b>Site:</b>	WELD_BUFFALO & BADGER 29-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11C-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BADGER 11C-3HZ		
<b>Design:</b>	BADGER 11C-3HZ Permit Rev. 1		

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	
8,353.87	7,894.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,325.38	4,304.00	Parkman			
4,774.83	4,750.00	Sussex			
5,248.46	5,220.00	Shannon			
7,534.19	7,479.00	Sharon Springs			
7,582.62	7,522.00	Niobrara A			
7,726.65	7,640.00	Niobrara B			
7,864.91	7,736.00	Niobrara C			
8,139.44	7,863.00	Fort Hays			
8,244.16	7,886.00	Codell			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,300.00	1,300.00	0.00	0.00	Start Build 2.00	
1,655.00	1,654.09	4.09	21.58	Start 5588.91 hold at 1655.00 MD	
7,243.91	7,200.15	132.59	700.32	Start DLS 8.00 TFO -78.89	
8,353.87	7,894.00	850.00	791.00	Start 7077.72 hold at 8353.87 MD	
15,431.59	7,873.00	7,927.48	846.59	TD at 15431.59	