

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-67W-10 Butterball 1-10HZ Pad
BUTTERBALL 40C-34HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

13 October, 2016



Azimuths to True North
Magnetic North: 8.18°

Magnetic Field
Strength: 52432.0snT
Dip Angle: 66.65°
Date: 10/13/2016
Model: IGRF2010

SITE: 2N-67W-10 Butterball 1-10HZ Pad

Well: BUTTERBALL 40C-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1014.00	1019.06	Fox Hills
3960.00	4034.40	Parkman
4384.00	4428.40	Sussex
7097.00	7152.15	Sharon Springs
7180.00	7249.26	Niobrara
7235.00	7319.79	Nio B
7286.00	7392.14	Nio C
7415.00	7653.16	Fort Hayes
7437.00	7744.11	Codell

WELL DETAILS: BUTTERBALL 40C-34HZ

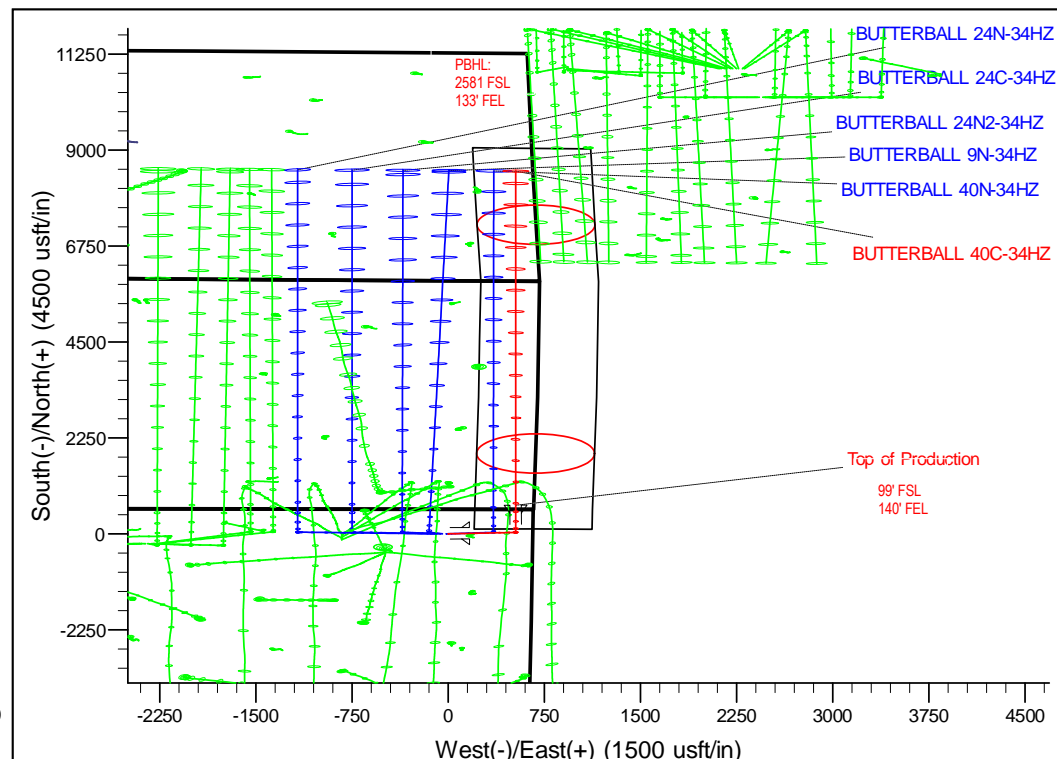
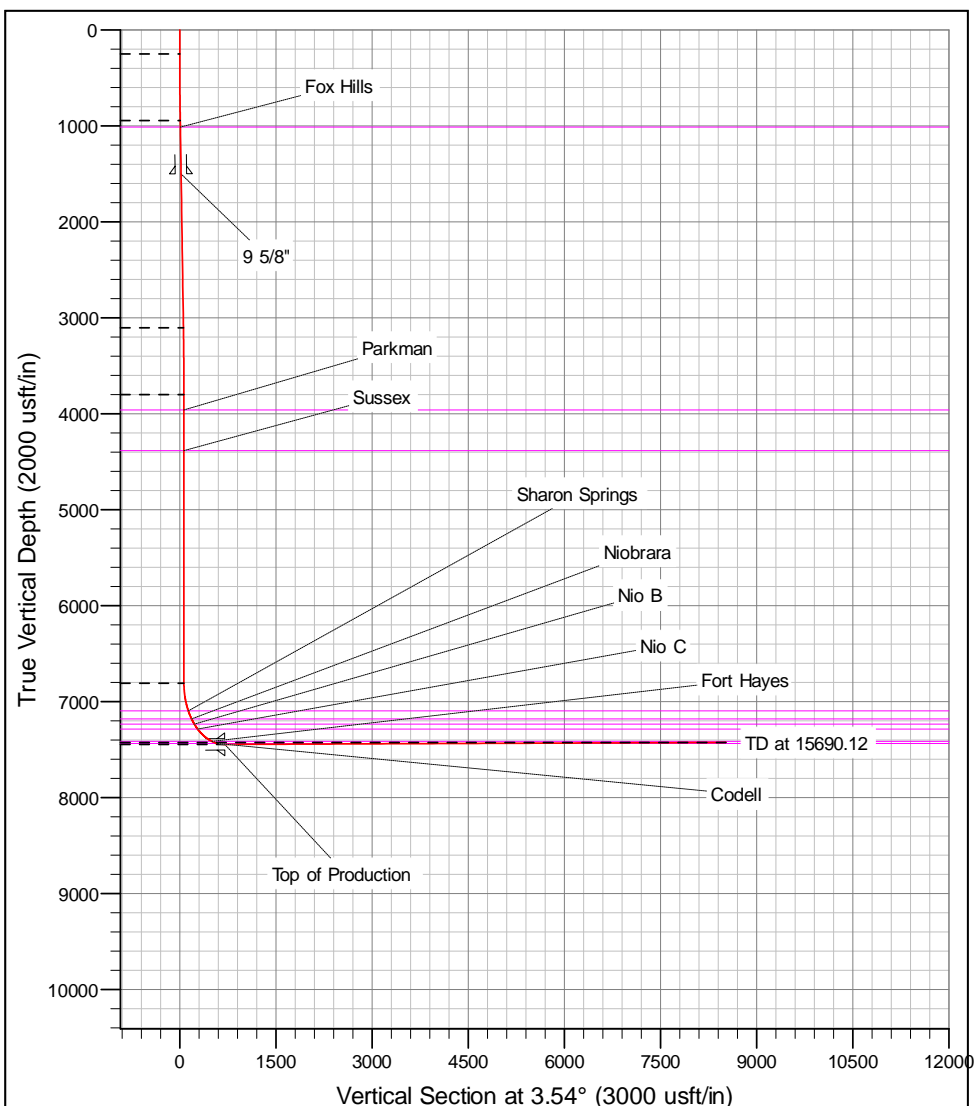
+N/-S	+E/-W	GL: 4916.00 Northing	RKB @ 4933.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584392.82	1676881.60	40.158268	-104.869490	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00
948.43	10.48	86.41	944.55	3.99	63.55	1.50	7.90
3145.97	10.48	86.41	3105.45	29.01	462.35	0.00	57.49
3844.40	0.00	0.00	3800.00	33.00	525.90	1.50	65.39
6854.30	0.00	0.00	6809.89	33.00	525.90	0.00	65.39
7855.96	90.15	360.00	7446.51	671.29	525.90	9.00	702.46
15690.12	90.15	360.00	7426.00	8505.41	525.90	0.00	8521.66

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 40C-34HZ, PBHL	7426.00	8505.41	525.90	14592899.00	1677395.00	40.181625	-104.867607



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site						2N-67W-10 Butterball 1-10HZ Pad											
Site Position:						Northing:			14,584,393.39 usft			Latitude:			40.158270		
From:			Lat/Long			Easting:			1,676,776.82 usft			Longitude:			-104.869865		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.08		

Well	BUTTERBALL 40C-34HZ					
Well Position	+N/-S	-0.73 usft	Northing:	14,584,392.82 usft	Latitude:	40.158268
	+E/-W	104.78 usft	Easting:	1,676,881.60 usft	Longitude:	-104.869490
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,916.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/13/2016	8.18	66.65	52,432

Design	Permit Rev-1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	3.54

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
948.43	10.48	86.41	944.55	3.99	63.55	1.50	1.50	0.00	86.41	
3,145.97	10.48	86.41	3,105.45	29.01	462.35	0.00	0.00	0.00	0.00	
3,844.40	0.00	0.00	3,800.00	33.00	525.90	1.50	-1.50	0.00	180.00	
6,854.30	0.00	0.00	6,809.89	33.00	525.90	0.00	0.00	0.00	0.00	
7,855.96	90.15	360.00	7,446.51	671.29	525.90	9.00	9.00	0.00	360.00	
15,690.12	90.15	360.00	7,426.00	8,505.42	525.90	0.00	0.00	0.00	0.00	BUTTERBALL 40C-

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.75	86.41	300.00	0.02	0.33	0.04	1.50	1.50	0.00
400.00	2.25	86.41	399.96	0.18	2.94	0.37	1.50	1.50	0.00
500.00	3.75	86.41	499.82	0.51	8.16	1.01	1.50	1.50	0.00
600.00	5.25	86.41	599.51	1.00	15.99	1.99	1.50	1.50	0.00
700.00	6.75	86.41	698.96	1.66	26.42	3.29	1.50	1.50	0.00
800.00	8.25	86.41	798.10	2.48	39.45	4.91	1.50	1.50	0.00
900.00	9.75	86.41	896.87	3.46	55.06	6.85	1.50	1.50	0.00
948.43	10.48	86.41	944.55	3.99	63.55	7.90	1.50	1.50	0.00
1,000.00	10.48	86.41	995.25	4.58	72.91	9.07	0.00	0.00	0.00
1,019.06	10.48	86.41	1,014.00	4.79	76.37	9.50	0.00	0.00	0.00
Fox Hills									
1,100.00	10.48	86.41	1,093.59	5.71	91.06	11.32	0.00	0.00	0.00
1,200.00	10.48	86.41	1,191.92	6.85	109.20	13.58	0.00	0.00	0.00
1,300.00	10.48	86.41	1,290.25	7.99	127.35	15.84	0.00	0.00	0.00
1,400.00	10.48	86.41	1,388.59	9.13	145.50	18.09	0.00	0.00	0.00
1,500.00	10.48	86.41	1,486.92	10.27	163.65	20.35	0.00	0.00	0.00
1,513.30	10.48	86.41	1,500.00	10.42	166.06	20.65	0.00	0.00	0.00
9 5/8"									
1,600.00	10.48	86.41	1,585.25	11.41	181.79	22.60	0.00	0.00	0.00
1,700.00	10.48	86.41	1,683.59	12.55	199.94	24.86	0.00	0.00	0.00
1,800.00	10.48	86.41	1,781.92	13.68	218.09	27.12	0.00	0.00	0.00
1,900.00	10.48	86.41	1,880.25	14.82	236.24	29.37	0.00	0.00	0.00
2,000.00	10.48	86.41	1,978.58	15.96	254.38	31.63	0.00	0.00	0.00
2,100.00	10.48	86.41	2,076.92	17.10	272.53	33.89	0.00	0.00	0.00
2,200.00	10.48	86.41	2,175.25	18.24	290.68	36.14	0.00	0.00	0.00
2,300.00	10.48	86.41	2,273.58	19.38	308.83	38.40	0.00	0.00	0.00
2,400.00	10.48	86.41	2,371.92	20.52	326.97	40.66	0.00	0.00	0.00
2,500.00	10.48	86.41	2,470.25	21.66	345.12	42.91	0.00	0.00	0.00
2,600.00	10.48	86.41	2,568.58	22.79	363.27	45.17	0.00	0.00	0.00
2,700.00	10.48	86.41	2,666.92	23.93	381.42	47.43	0.00	0.00	0.00
2,800.00	10.48	86.41	2,765.25	25.07	399.56	49.68	0.00	0.00	0.00
2,900.00	10.48	86.41	2,863.58	26.21	417.71	51.94	0.00	0.00	0.00
3,000.00	10.48	86.41	2,961.91	27.35	435.86	54.20	0.00	0.00	0.00
3,100.00	10.48	86.41	3,060.25	28.49	454.01	56.45	0.00	0.00	0.00
3,145.97	10.48	86.41	3,105.45	29.01	462.35	57.49	0.00	0.00	0.00
3,200.00	9.67	86.41	3,158.65	29.60	471.78	58.66	1.50	-1.50	0.00
3,300.00	8.17	86.41	3,257.44	30.57	487.25	60.59	1.50	-1.50	0.00
3,400.00	6.67	86.41	3,356.60	31.38	500.13	62.19	1.50	-1.50	0.00
3,500.00	5.17	86.41	3,456.06	32.03	510.41	63.47	1.50	-1.50	0.00
3,600.00	3.67	86.41	3,555.76	32.51	518.10	64.42	1.50	-1.50	0.00
3,700.00	2.17	86.41	3,655.63	32.83	523.18	65.05	1.50	-1.50	0.00
3,800.00	0.67	86.41	3,755.60	32.98	525.64	65.36	1.50	-1.50	0.00
3,844.40	0.00	0.00	3,800.00	33.00	525.90	65.39	1.50	-1.50	0.00
3,900.00	0.00	0.00	3,855.60	33.00	525.90	65.39	0.00	0.00	0.00
4,000.00	0.00	0.00	3,955.60	33.00	525.90	65.39	0.00	0.00	0.00
4,004.40	0.00	0.00	3,960.00	33.00	525.90	65.39	0.00	0.00	0.00
Parkman									
4,100.00	0.00	0.00	4,055.60	33.00	525.90	65.39	0.00	0.00	0.00
4,200.00	0.00	0.00	4,155.60	33.00	525.90	65.39	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,300.00	0.00	0.00	4,255.60	33.00	525.90	65.39	0.00	0.00	0.00
4,400.00	0.00	0.00	4,355.60	33.00	525.90	65.39	0.00	0.00	0.00
4,428.40	0.00	0.00	4,384.00	33.00	525.90	65.39	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,455.60	33.00	525.90	65.39	0.00	0.00	0.00
4,600.00	0.00	0.00	4,555.60	33.00	525.90	65.39	0.00	0.00	0.00
4,700.00	0.00	0.00	4,655.60	33.00	525.90	65.39	0.00	0.00	0.00
4,800.00	0.00	0.00	4,755.60	33.00	525.90	65.39	0.00	0.00	0.00
4,900.00	0.00	0.00	4,855.60	33.00	525.90	65.39	0.00	0.00	0.00
5,000.00	0.00	0.00	4,955.60	33.00	525.90	65.39	0.00	0.00	0.00
5,100.00	0.00	0.00	5,055.60	33.00	525.90	65.39	0.00	0.00	0.00
5,200.00	0.00	0.00	5,155.60	33.00	525.90	65.39	0.00	0.00	0.00
5,300.00	0.00	0.00	5,255.60	33.00	525.90	65.39	0.00	0.00	0.00
5,400.00	0.00	0.00	5,355.60	33.00	525.90	65.39	0.00	0.00	0.00
5,500.00	0.00	0.00	5,455.60	33.00	525.90	65.39	0.00	0.00	0.00
5,600.00	0.00	0.00	5,555.60	33.00	525.90	65.39	0.00	0.00	0.00
5,700.00	0.00	0.00	5,655.60	33.00	525.90	65.39	0.00	0.00	0.00
5,800.00	0.00	0.00	5,755.60	33.00	525.90	65.39	0.00	0.00	0.00
5,900.00	0.00	0.00	5,855.60	33.00	525.90	65.39	0.00	0.00	0.00
6,000.00	0.00	0.00	5,955.60	33.00	525.90	65.39	0.00	0.00	0.00
6,100.00	0.00	0.00	6,055.60	33.00	525.90	65.39	0.00	0.00	0.00
6,200.00	0.00	0.00	6,155.60	33.00	525.90	65.39	0.00	0.00	0.00
6,300.00	0.00	0.00	6,255.60	33.00	525.90	65.39	0.00	0.00	0.00
6,400.00	0.00	0.00	6,355.60	33.00	525.90	65.39	0.00	0.00	0.00
6,500.00	0.00	0.00	6,455.60	33.00	525.90	65.39	0.00	0.00	0.00
6,600.00	0.00	0.00	6,555.60	33.00	525.90	65.39	0.00	0.00	0.00
6,700.00	0.00	0.00	6,655.60	33.00	525.90	65.39	0.00	0.00	0.00
6,800.00	0.00	0.00	6,755.60	33.00	525.90	65.39	0.00	0.00	0.00
6,854.30	0.00	0.00	6,809.89	33.00	525.90	65.39	0.00	0.00	0.00
6,900.00	4.11	360.00	6,855.56	34.64	525.90	67.03	9.00	9.00	0.00
7,000.00	13.11	360.00	6,954.33	49.60	525.90	81.96	9.00	9.00	0.00
7,100.00	22.11	360.00	7,049.54	79.83	525.90	112.13	9.00	9.00	0.00
7,152.15	26.81	360.00	7,097.00	101.42	525.90	133.68	9.00	9.00	0.00
Sharon Springs									
7,200.00	31.11	360.00	7,138.85	124.58	525.90	156.80	9.00	9.00	0.00
7,249.26	35.55	360.00	7,180.00	151.64	525.90	183.80	9.00	9.00	0.00
Niobrara									
7,300.00	40.11	360.00	7,220.07	182.75	525.90	214.86	9.00	9.00	0.00
7,319.79	41.89	360.00	7,235.00	195.73	525.90	227.82	9.00	9.00	0.00
Nio B									
7,392.14	48.41	360.00	7,286.00	247.00	525.90	278.99	9.00	9.00	0.00
Nio C									
7,400.00	49.11	360.00	7,291.18	252.91	525.90	284.88	9.00	9.00	0.00
7,500.00	58.11	360.00	7,350.44	333.33	525.90	365.15	9.00	9.00	0.00
7,600.00	67.11	360.00	7,396.39	422.03	525.90	453.68	9.00	9.00	0.00
7,653.16	71.90	360.00	7,415.00	471.81	525.90	503.36	9.00	9.00	0.00
Fort Hayes									
7,700.00	76.11	360.00	7,427.91	516.83	525.90	548.30	9.00	9.00	0.00
7,744.11	80.08	360.00	7,437.00	559.98	525.90	591.37	9.00	9.00	0.00
Codell									
7,800.00	85.11	360.00	7,444.20	615.39	525.90	646.67	9.00	9.00	0.00
7,855.96	90.15	360.00	7,446.51	671.28	525.90	702.46	9.00	9.00	0.00
Top of Production - BUTTERBALL 40C-34HZ_PHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,900.00	90.15	360.00	7,446.39	715.32	525.90	746.41	0.00	0.00	0.00
8,000.00	90.15	360.00	7,446.13	815.32	525.90	846.22	0.00	0.00	0.00
8,100.00	90.15	360.00	7,445.87	915.32	525.90	946.03	0.00	0.00	0.00
8,200.00	90.15	360.00	7,445.61	1,015.32	525.90	1,045.84	0.00	0.00	0.00
8,300.00	90.15	360.00	7,445.35	1,115.32	525.90	1,145.65	0.00	0.00	0.00
8,400.00	90.15	360.00	7,445.09	1,215.32	525.90	1,245.46	0.00	0.00	0.00
8,500.00	90.15	360.00	7,444.82	1,315.32	525.90	1,345.27	0.00	0.00	0.00
8,600.00	90.15	360.00	7,444.56	1,415.32	525.90	1,445.08	0.00	0.00	0.00
8,700.00	90.15	360.00	7,444.30	1,515.32	525.90	1,544.89	0.00	0.00	0.00
8,800.00	90.15	360.00	7,444.04	1,615.32	525.90	1,644.70	0.00	0.00	0.00
8,900.00	90.15	360.00	7,443.78	1,715.32	525.90	1,744.50	0.00	0.00	0.00
9,000.00	90.15	360.00	7,443.51	1,815.32	525.90	1,844.31	0.00	0.00	0.00
9,100.00	90.15	360.00	7,443.25	1,915.32	525.90	1,944.12	0.00	0.00	0.00
9,200.00	90.15	360.00	7,442.99	2,015.32	525.90	2,043.93	0.00	0.00	0.00
9,300.00	90.15	360.00	7,442.73	2,115.32	525.90	2,143.74	0.00	0.00	0.00
9,400.00	90.15	360.00	7,442.47	2,215.32	525.90	2,243.55	0.00	0.00	0.00
9,500.00	90.15	360.00	7,442.21	2,315.32	525.90	2,343.36	0.00	0.00	0.00
9,600.00	90.15	360.00	7,441.94	2,415.32	525.90	2,443.17	0.00	0.00	0.00
9,700.00	90.15	360.00	7,441.68	2,515.32	525.90	2,542.98	0.00	0.00	0.00
9,800.00	90.15	360.00	7,441.42	2,615.32	525.90	2,642.79	0.00	0.00	0.00
9,900.00	90.15	360.00	7,441.16	2,715.32	525.90	2,742.60	0.00	0.00	0.00
10,000.00	90.15	360.00	7,440.90	2,815.32	525.90	2,842.40	0.00	0.00	0.00
10,100.00	90.15	360.00	7,440.64	2,915.32	525.90	2,942.21	0.00	0.00	0.00
10,200.00	90.15	360.00	7,440.37	3,015.32	525.90	3,042.02	0.00	0.00	0.00
10,300.00	90.15	360.00	7,440.11	3,115.31	525.90	3,141.83	0.00	0.00	0.00
10,400.00	90.15	360.00	7,439.85	3,215.31	525.90	3,241.64	0.00	0.00	0.00
10,500.00	90.15	360.00	7,439.59	3,315.31	525.90	3,341.45	0.00	0.00	0.00
10,600.00	90.15	360.00	7,439.33	3,415.31	525.90	3,441.26	0.00	0.00	0.00
10,700.00	90.15	360.00	7,439.06	3,515.31	525.90	3,541.07	0.00	0.00	0.00
10,800.00	90.15	360.00	7,438.80	3,615.31	525.90	3,640.88	0.00	0.00	0.00
10,900.00	90.15	360.00	7,438.54	3,715.31	525.90	3,740.69	0.00	0.00	0.00
11,000.00	90.15	360.00	7,438.28	3,815.31	525.90	3,840.50	0.00	0.00	0.00
11,100.00	90.15	360.00	7,438.02	3,915.31	525.90	3,940.30	0.00	0.00	0.00
11,200.00	90.15	360.00	7,437.76	4,015.31	525.90	4,040.11	0.00	0.00	0.00
11,300.00	90.15	360.00	7,437.49	4,115.31	525.90	4,139.92	0.00	0.00	0.00
11,400.00	90.15	360.00	7,437.23	4,215.31	525.90	4,239.73	0.00	0.00	0.00
11,500.00	90.15	360.00	7,436.97	4,315.31	525.90	4,339.54	0.00	0.00	0.00
11,600.00	90.15	360.00	7,436.71	4,415.31	525.90	4,439.35	0.00	0.00	0.00
11,700.00	90.15	360.00	7,436.45	4,515.31	525.90	4,539.16	0.00	0.00	0.00
11,800.00	90.15	360.00	7,436.18	4,615.31	525.90	4,638.97	0.00	0.00	0.00
11,900.00	90.15	360.00	7,435.92	4,715.31	525.90	4,738.78	0.00	0.00	0.00
12,000.00	90.15	360.00	7,435.66	4,815.31	525.90	4,838.59	0.00	0.00	0.00
12,100.00	90.15	360.00	7,435.40	4,915.31	525.90	4,938.39	0.00	0.00	0.00
12,200.00	90.15	360.00	7,435.14	5,015.31	525.90	5,038.20	0.00	0.00	0.00
12,300.00	90.15	360.00	7,434.88	5,115.31	525.90	5,138.01	0.00	0.00	0.00
12,400.00	90.15	360.00	7,434.61	5,215.31	525.90	5,237.82	0.00	0.00	0.00
12,500.00	90.15	360.00	7,434.35	5,315.31	525.90	5,337.63	0.00	0.00	0.00
12,600.00	90.15	360.00	7,434.09	5,415.31	525.90	5,437.44	0.00	0.00	0.00
12,700.00	90.15	360.00	7,433.83	5,515.31	525.90	5,537.25	0.00	0.00	0.00
12,800.00	90.15	360.00	7,433.57	5,615.31	525.90	5,637.06	0.00	0.00	0.00
12,900.00	90.15	360.00	7,433.30	5,715.31	525.90	5,736.87	0.00	0.00	0.00
13,000.00	90.15	360.00	7,433.04	5,815.31	525.90	5,836.68	0.00	0.00	0.00
13,100.00	90.15	360.00	7,432.78	5,915.31	525.90	5,936.49	0.00	0.00	0.00
13,200.00	90.15	360.00	7,432.52	6,015.31	525.90	6,036.29	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,300.00	90.15	360.00	7,432.26	6,115.30	525.90	6,136.10	0.00	0.00	0.00	
13,400.00	90.15	360.00	7,432.00	6,215.30	525.90	6,235.91	0.00	0.00	0.00	
13,500.00	90.15	360.00	7,431.73	6,315.30	525.90	6,335.72	0.00	0.00	0.00	
13,600.00	90.15	360.00	7,431.47	6,415.30	525.90	6,435.53	0.00	0.00	0.00	
13,700.00	90.15	360.00	7,431.21	6,515.30	525.90	6,535.34	0.00	0.00	0.00	
13,800.00	90.15	360.00	7,430.95	6,615.30	525.90	6,635.15	0.00	0.00	0.00	
13,900.00	90.15	360.00	7,430.69	6,715.30	525.90	6,734.96	0.00	0.00	0.00	
14,000.00	90.15	360.00	7,430.42	6,815.30	525.90	6,834.77	0.00	0.00	0.00	
14,100.00	90.15	360.00	7,430.16	6,915.30	525.90	6,934.58	0.00	0.00	0.00	
14,200.00	90.15	360.00	7,429.90	7,015.30	525.90	7,034.38	0.00	0.00	0.00	
14,300.00	90.15	360.00	7,429.64	7,115.30	525.90	7,134.19	0.00	0.00	0.00	
14,400.00	90.15	360.00	7,429.38	7,215.30	525.90	7,234.00	0.00	0.00	0.00	
14,500.00	90.15	360.00	7,429.12	7,315.30	525.90	7,333.81	0.00	0.00	0.00	
14,600.00	90.15	360.00	7,428.85	7,415.30	525.90	7,433.62	0.00	0.00	0.00	
14,700.00	90.15	360.00	7,428.59	7,515.30	525.90	7,533.43	0.00	0.00	0.00	
14,800.00	90.15	360.00	7,428.33	7,615.30	525.90	7,633.24	0.00	0.00	0.00	
14,900.00	90.15	360.00	7,428.07	7,715.30	525.90	7,733.05	0.00	0.00	0.00	
15,000.00	90.15	360.00	7,427.81	7,815.30	525.90	7,832.86	0.00	0.00	0.00	
15,100.00	90.15	360.00	7,427.55	7,915.30	525.90	7,932.67	0.00	0.00	0.00	
15,200.00	90.15	360.00	7,427.28	8,015.30	525.90	8,032.48	0.00	0.00	0.00	
15,300.00	90.15	360.00	7,427.02	8,115.30	525.90	8,132.28	0.00	0.00	0.00	
15,400.00	90.15	360.00	7,426.76	8,215.30	525.90	8,232.09	0.00	0.00	0.00	
15,500.00	90.15	360.00	7,426.50	8,315.30	525.90	8,331.90	0.00	0.00	0.00	
15,600.00	90.15	360.00	7,426.24	8,415.30	525.90	8,431.71	0.00	0.00	0.00	
15,690.12	90.15	360.00	7,426.00	8,505.42	525.90	8,521.66	0.00	0.00	0.00	
BUTTERBALL 40C-34HZ_PBHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BUTTERBALL 40C-34	0.00	0.00	7,426.00	8,505.42	525.90	14,592,899.00	1,677,395.00	40.181625	-104.867607
- plan hits target center									
- Point									
BUTTERBALL 40C-34	0.00	0.00	7,446.51	671.28	525.90	14,585,064.87	1,677,406.51	40.160112	-104.867608
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,513.30	1,500.00	9 5/8"	9-5/8	13-1/2	
7,855.96	7,446.51	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 40C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4933.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4933.00usft (D Rig)
Site:	2N-67W-10 Butterball 1-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 40C-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,019.06	1,014.00	Fox Hills			
	4,004.40	3,960.00	Parkman			
	4,428.40	4,384.00	Sussex			
	7,152.15	7,097.00	Sharon Springs			
	7,249.26	7,180.00	Niobrara			
	7,319.79	7,235.00	Nio B			
	7,392.14	7,286.00	Nio C			
	7,653.16	7,415.00	Fort Hayes			
	7,744.11	7,437.00	Codell			