

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-67W-10 Butterball 21-10HZ Pad

BUTTERBALL 10N-34HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

13 October, 2016



Azimuths to True North
Magnetic North: 8.19°

Magnetic Field
Strength: 52431.0snT
Dip Angle: 66.65°
Date: 10/12/2016
Model: IGRF2010

SITE: 2N-67W-10 Butterball 21-10HZ Pad

Well: BUTTERBALL 10N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1032.00	1037.57	Fox Hills
3973.00	4042.20	Parkman
4397.00	4475.38	Sussex
7138.00	7291.61	Sharon Springs
7221.00	7437.47	Niobrara
7277.00	7592.51	Nio B

WELL DETAILS: BUTTERBALL 10N-34HZ

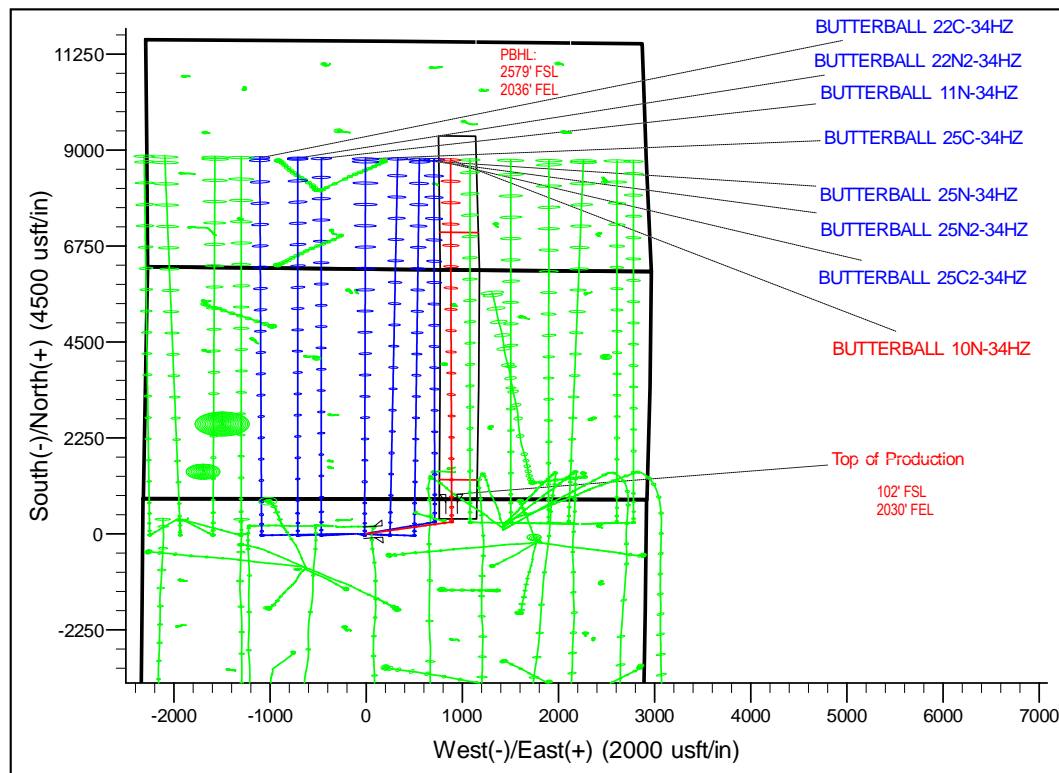
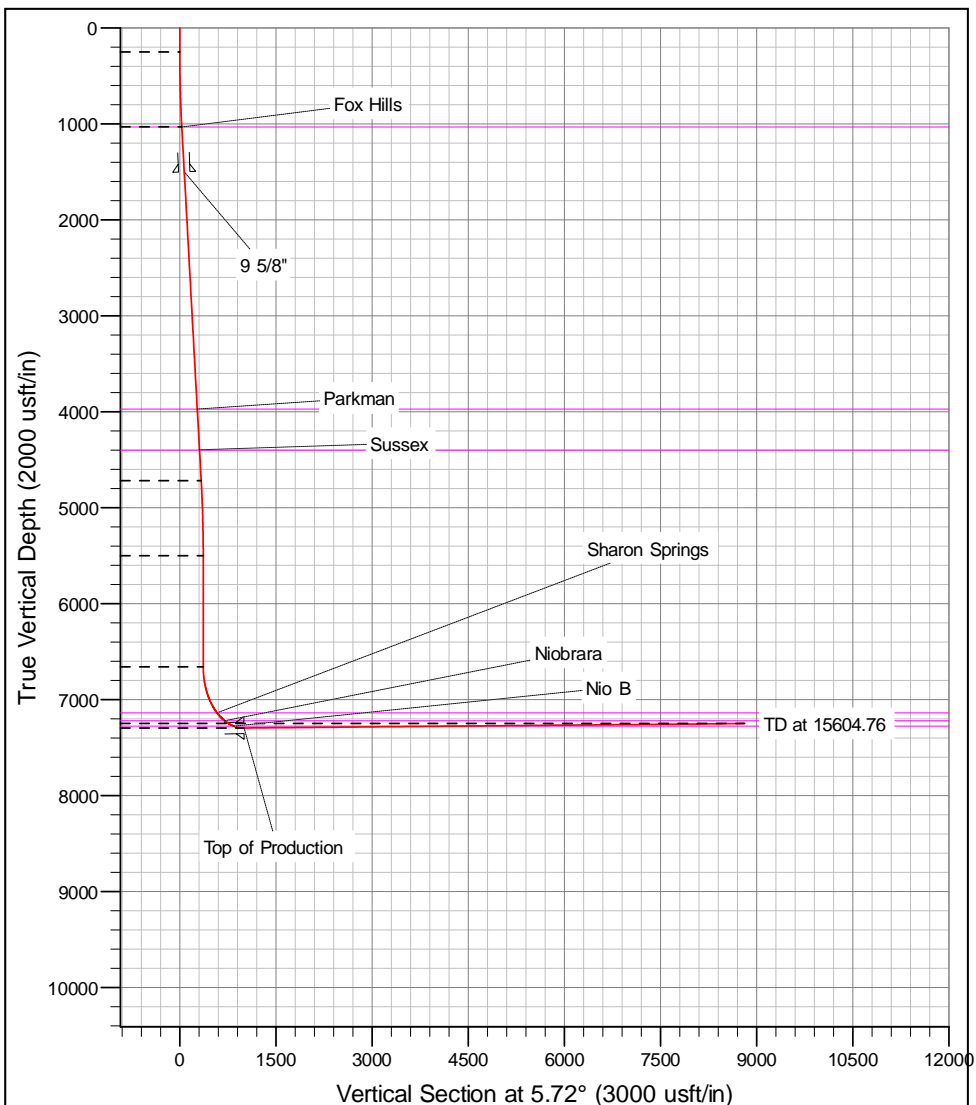
+N/-S	+E/-W	GL: 4934.00 Northing	RKB @ 4951.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584160.20	1674626.01	40.157638	-104.877564	

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
1037.54	11.81	72.59	1031.97	24.21	77.19	1.50	31.78
4803.35	11.81	72.59	4718.03	254.88	812.81	0.00	334.59
5590.89	0.00	0.00	5500.00	279.09	890.00	1.50	366.37
6750.87	0.00	0.00	6659.97	279.09	890.00	0.00	366.37
7754.65	90.34	359.92	7296.58	919.49	889.09	9.00	1003.49
15604.76	90.34	359.92	7250.00	8769.45	878.00	0.00	8813.30

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 10N-34HZ, PBHL	7250.00	8769.45	878.00	14592930.85	1675491.93	40.181720	-104.874421



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 10N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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 21-10HZ Pad				
Site Position:		Northing:	14,584,161.08 usft	Latitude:	40.157641	
From:	Lat/Long	Easting:	1,674,475.97 usft	Longitude:	-104.878101	
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.08 °

Well		BUTTERBALL 10N-34HZ				
Well Position	+N-S	-1.09 usft	Northing:	14,584,160.19 usft	Latitude:	40.157638
	+E-W	150.04 usft	Easting:	1,674,626.01 usft	Longitude:	-104.877564
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,934.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/12/2016	8.19	66.65	52,431

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	5.72

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	
1,037.54	11.81	72.59	1,031.97	24.21	77.19	1.50	1.50	0.00	72.59	
4,803.35	11.81	72.59	4,718.03	254.88	812.81	0.00	0.00	0.00	0.00	
5,590.89	0.00	0.00	5,500.00	279.09	890.00	1.50	-1.50	0.00	180.00	
6,750.87	0.00	0.00	6,659.97	279.09	890.00	0.00	0.00	0.00	0.00	
7,754.65	90.34	359.92	7,296.58	919.49	889.09	9.00	9.00	0.00	359.92	
15,604.76	90.34	359.92	7,250.00	8,769.45	878.00	0.00	0.00	0.00	0.00	BUTTERBALL 10N-

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 10N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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	72.59	300.00	0.10	0.31	0.13	1.50	1.50	0.00
400.00	2.25	72.59	399.96	0.88	2.81	1.16	1.50	1.50	0.00
500.00	3.75	72.59	499.82	2.45	7.80	3.21	1.50	1.50	0.00
600.00	5.25	72.59	599.51	4.79	15.29	6.29	1.50	1.50	0.00
700.00	6.75	72.59	698.96	7.92	25.26	10.40	1.50	1.50	0.00
800.00	8.25	72.59	798.10	11.83	37.72	15.53	1.50	1.50	0.00
900.00	9.75	72.59	896.87	16.51	52.64	21.67	1.50	1.50	0.00
1,000.00	11.25	72.59	995.19	21.96	70.03	28.83	1.50	1.50	0.00
1,037.54	11.81	72.59	1,031.97	24.21	77.19	31.78	1.50	1.50	0.00
1,037.57	11.81	72.59	1,032.00	24.21	77.20	31.78	0.00	0.00	0.00
Fox Hills									
1,100.00	11.81	72.59	1,093.11	28.03	89.39	36.80	0.00	0.00	0.00
1,200.00	11.81	72.59	1,190.99	34.16	108.93	44.84	0.00	0.00	0.00
1,300.00	11.81	72.59	1,288.87	40.28	128.46	52.88	0.00	0.00	0.00
1,400.00	11.81	72.59	1,386.76	46.41	148.00	60.92	0.00	0.00	0.00
1,500.00	11.81	72.59	1,484.64	52.53	167.53	68.96	0.00	0.00	0.00
1,515.69	11.81	72.59	1,500.00	53.50	170.60	70.23	0.00	0.00	0.00
9 5/8"									
1,600.00	11.81	72.59	1,582.52	58.66	187.06	77.00	0.00	0.00	0.00
1,700.00	11.81	72.59	1,680.40	64.79	206.60	85.05	0.00	0.00	0.00
1,800.00	11.81	72.59	1,778.28	70.91	226.13	93.09	0.00	0.00	0.00
1,900.00	11.81	72.59	1,876.17	77.04	245.67	101.13	0.00	0.00	0.00
2,000.00	11.81	72.59	1,974.05	83.16	265.20	109.17	0.00	0.00	0.00
2,100.00	11.81	72.59	2,071.93	89.29	284.73	117.21	0.00	0.00	0.00
2,200.00	11.81	72.59	2,169.81	95.41	304.27	125.25	0.00	0.00	0.00
2,300.00	11.81	72.59	2,267.69	101.54	323.80	133.29	0.00	0.00	0.00
2,400.00	11.81	72.59	2,365.58	107.66	343.34	141.33	0.00	0.00	0.00
2,500.00	11.81	72.59	2,463.46	113.79	362.87	149.37	0.00	0.00	0.00
2,600.00	11.81	72.59	2,561.34	119.92	382.40	157.42	0.00	0.00	0.00
2,700.00	11.81	72.59	2,659.22	126.04	401.94	165.46	0.00	0.00	0.00
2,800.00	11.81	72.59	2,757.10	132.17	421.47	173.50	0.00	0.00	0.00
2,900.00	11.81	72.59	2,854.99	138.29	441.01	181.54	0.00	0.00	0.00
3,000.00	11.81	72.59	2,952.87	144.42	460.54	189.58	0.00	0.00	0.00
3,100.00	11.81	72.59	3,050.75	150.54	480.07	197.62	0.00	0.00	0.00
3,200.00	11.81	72.59	3,148.63	156.67	499.61	205.66	0.00	0.00	0.00
3,300.00	11.81	72.59	3,246.52	162.79	519.14	213.70	0.00	0.00	0.00
3,400.00	11.81	72.59	3,344.40	168.92	538.68	221.74	0.00	0.00	0.00
3,500.00	11.81	72.59	3,442.28	175.05	558.21	229.79	0.00	0.00	0.00
3,600.00	11.81	72.59	3,540.16	181.17	577.74	237.83	0.00	0.00	0.00
3,700.00	11.81	72.59	3,638.04	187.30	597.28	245.87	0.00	0.00	0.00
3,800.00	11.81	72.59	3,735.93	193.42	616.81	253.91	0.00	0.00	0.00
3,900.00	11.81	72.59	3,833.81	199.55	636.35	261.95	0.00	0.00	0.00
4,000.00	11.81	72.59	3,931.69	205.67	655.88	269.99	0.00	0.00	0.00
4,042.20	11.81	72.59	3,973.00	208.26	664.12	273.38	0.00	0.00	0.00
Parkman									
4,100.00	11.81	72.59	4,029.57	211.80	675.41	278.03	0.00	0.00	0.00
4,200.00	11.81	72.59	4,127.45	217.92	694.95	286.07	0.00	0.00	0.00
4,300.00	11.81	72.59	4,225.34	224.05	714.48	294.11	0.00	0.00	0.00
4,400.00	11.81	72.59	4,323.22	230.18	734.02	302.16	0.00	0.00	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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)	
4,475.38	11.81	72.59	4,397.00	234.79	748.74	308.22	0.00	0.00	0.00	
Sussex										
4,500.00	11.81	72.59	4,421.10	236.30	753.55	310.20	0.00	0.00	0.00	
4,600.00	11.81	72.59	4,518.98	242.43	773.08	318.24	0.00	0.00	0.00	
4,700.00	11.81	72.59	4,616.86	248.55	792.62	326.28	0.00	0.00	0.00	
4,800.00	11.81	72.59	4,714.75	254.68	812.15	334.32	0.00	0.00	0.00	
4,803.35	11.81	72.59	4,718.03	254.88	812.81	334.59	0.00	0.00	0.00	
4,900.00	10.36	72.59	4,812.87	260.45	830.54	341.89	1.50	-1.50	0.00	
5,000.00	8.86	72.59	4,911.46	265.44	846.48	348.45	1.50	-1.50	0.00	
5,100.00	7.36	72.59	5,010.46	269.66	859.94	353.99	1.50	-1.50	0.00	
5,200.00	5.86	72.59	5,109.79	273.11	870.93	358.52	1.50	-1.50	0.00	
5,300.00	4.36	72.59	5,209.39	275.78	879.44	362.02	1.50	-1.50	0.00	
5,400.00	2.86	72.59	5,309.19	277.66	885.45	364.49	1.50	-1.50	0.00	
5,500.00	1.36	72.59	5,409.12	278.77	888.97	365.94	1.50	-1.50	0.00	
5,590.89	0.00	0.00	5,500.00	279.09	890.00	366.37	1.50	-1.50	0.00	
5,600.00	0.00	0.00	5,509.11	279.09	890.00	366.37	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,609.11	279.09	890.00	366.37	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,709.11	279.09	890.00	366.37	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,809.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,909.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,009.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,109.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,209.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,309.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,409.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,509.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,609.11	279.09	890.00	366.37	0.00	0.00	0.00	
6,750.87	0.00	0.00	6,659.97	279.09	890.00	366.37	0.00	0.00	0.00	
6,800.00	4.42	359.92	6,709.06	280.99	890.00	368.25	9.00	9.00	0.00	
6,900.00	13.42	359.92	6,807.75	296.48	889.98	383.66	9.00	9.00	0.00	
7,000.00	22.42	359.92	6,902.80	327.22	889.93	414.25	9.00	9.00	0.00	
7,100.00	31.42	359.92	6,991.87	372.45	889.87	459.25	9.00	9.00	0.00	
7,200.00	40.42	359.92	7,072.77	431.06	889.79	517.56	9.00	9.00	0.00	
7,291.61	48.67	359.92	7,138.00	495.26	889.69	581.43	9.00	9.00	0.00	
Sharon Springs										
7,300.00	49.42	359.92	7,143.50	501.60	889.69	587.74	9.00	9.00	0.00	
7,400.00	58.42	359.92	7,202.33	582.34	889.57	668.06	9.00	9.00	0.00	
7,437.47	61.79	359.92	7,221.00	614.82	889.53	700.38	9.00	9.00	0.00	
Niobrara										
7,500.00	67.42	359.92	7,247.80	671.28	889.45	756.55	9.00	9.00	0.00	
7,592.51	75.75	359.92	7,277.00	758.98	889.32	843.80	9.00	9.00	0.00	
Nio B										
7,600.00	76.42	359.92	7,278.80	766.25	889.31	851.03	9.00	9.00	0.00	
7,700.00	85.42	359.92	7,294.56	864.90	889.17	949.17	9.00	9.00	0.00	
7,754.65	90.34	359.92	7,296.58	919.49	889.09	1,003.49	9.00	9.00	0.00	
Top of Production - BUTTERBALL 10N-34HZ_PHL										
7,800.00	90.34	359.92	7,296.31	964.84	889.03	1,048.61	0.00	0.00	0.00	
7,900.00	90.34	359.92	7,295.72	1,064.84	888.89	1,148.09	0.00	0.00	0.00	
8,000.00	90.34	359.92	7,295.13	1,164.84	888.75	1,247.58	0.00	0.00	0.00	
8,100.00	90.34	359.92	7,294.53	1,264.84	888.61	1,347.07	0.00	0.00	0.00	
8,200.00	90.34	359.92	7,293.94	1,364.83	888.47	1,446.55	0.00	0.00	0.00	
8,300.00	90.34	359.92	7,293.35	1,464.83	888.32	1,546.04	0.00	0.00	0.00	
8,400.00	90.34	359.92	7,292.75	1,564.83	888.18	1,645.53	0.00	0.00	0.00	
8,500.00	90.34	359.92	7,292.16	1,664.83	888.04	1,745.01	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 10N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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)
8,600.00	90.34	359.92	7,291.57	1,764.83	887.90	1,844.50	0.00	0.00	0.00
8,700.00	90.34	359.92	7,290.97	1,864.82	887.76	1,943.99	0.00	0.00	0.00
8,800.00	90.34	359.92	7,290.38	1,964.82	887.62	2,043.47	0.00	0.00	0.00
8,900.00	90.34	359.92	7,289.79	2,064.82	887.48	2,142.96	0.00	0.00	0.00
9,000.00	90.34	359.92	7,289.19	2,164.82	887.33	2,242.45	0.00	0.00	0.00
9,100.00	90.34	359.92	7,288.60	2,264.82	887.19	2,341.93	0.00	0.00	0.00
9,200.00	90.34	359.92	7,288.01	2,364.81	887.05	2,441.42	0.00	0.00	0.00
9,300.00	90.34	359.92	7,287.41	2,464.81	886.91	2,540.91	0.00	0.00	0.00
9,400.00	90.34	359.92	7,286.82	2,564.81	886.77	2,640.39	0.00	0.00	0.00
9,500.00	90.34	359.92	7,286.23	2,664.81	886.63	2,739.88	0.00	0.00	0.00
9,600.00	90.34	359.92	7,285.63	2,764.81	886.49	2,839.37	0.00	0.00	0.00
9,700.00	90.34	359.92	7,285.04	2,864.81	886.35	2,938.85	0.00	0.00	0.00
9,800.00	90.34	359.92	7,284.45	2,964.80	886.20	3,038.34	0.00	0.00	0.00
9,900.00	90.34	359.92	7,283.85	3,064.80	886.06	3,137.83	0.00	0.00	0.00
10,000.00	90.34	359.92	7,283.26	3,164.80	885.92	3,237.31	0.00	0.00	0.00
10,100.00	90.34	359.92	7,282.67	3,264.80	885.78	3,336.80	0.00	0.00	0.00
10,200.00	90.34	359.92	7,282.07	3,364.80	885.64	3,436.29	0.00	0.00	0.00
10,300.00	90.34	359.92	7,281.48	3,464.79	885.50	3,535.77	0.00	0.00	0.00
10,400.00	90.34	359.92	7,280.89	3,564.79	885.36	3,635.26	0.00	0.00	0.00
10,500.00	90.34	359.92	7,280.29	3,664.79	885.21	3,734.75	0.00	0.00	0.00
10,600.00	90.34	359.92	7,279.70	3,764.79	885.07	3,834.23	0.00	0.00	0.00
10,700.00	90.34	359.92	7,279.11	3,864.79	884.93	3,933.72	0.00	0.00	0.00
10,800.00	90.34	359.92	7,278.51	3,964.79	884.79	4,033.21	0.00	0.00	0.00
10,900.00	90.34	359.92	7,277.92	4,064.78	884.65	4,132.69	0.00	0.00	0.00
11,000.00	90.34	359.92	7,277.33	4,164.78	884.51	4,232.18	0.00	0.00	0.00
11,100.00	90.34	359.92	7,276.73	4,264.78	884.37	4,331.67	0.00	0.00	0.00
11,200.00	90.34	359.92	7,276.14	4,364.78	884.23	4,431.15	0.00	0.00	0.00
11,300.00	90.34	359.92	7,275.54	4,464.78	884.08	4,530.64	0.00	0.00	0.00
11,400.00	90.34	359.92	7,274.95	4,564.77	883.94	4,630.13	0.00	0.00	0.00
11,500.00	90.34	359.92	7,274.36	4,664.77	883.80	4,729.61	0.00	0.00	0.00
11,600.00	90.34	359.92	7,273.76	4,764.77	883.66	4,829.10	0.00	0.00	0.00
11,700.00	90.34	359.92	7,273.17	4,864.77	883.52	4,928.59	0.00	0.00	0.00
11,800.00	90.34	359.92	7,272.58	4,964.77	883.38	5,028.07	0.00	0.00	0.00
11,900.00	90.34	359.92	7,271.98	5,064.76	883.24	5,127.56	0.00	0.00	0.00
12,000.00	90.34	359.92	7,271.39	5,164.76	883.09	5,227.05	0.00	0.00	0.00
12,100.00	90.34	359.92	7,270.80	5,264.76	882.95	5,326.53	0.00	0.00	0.00
12,200.00	90.34	359.92	7,270.20	5,364.76	882.81	5,426.02	0.00	0.00	0.00
12,300.00	90.34	359.92	7,269.61	5,464.76	882.67	5,525.51	0.00	0.00	0.00
12,400.00	90.34	359.92	7,269.02	5,564.76	882.53	5,624.99	0.00	0.00	0.00
12,500.00	90.34	359.92	7,268.42	5,664.75	882.39	5,724.48	0.00	0.00	0.00
12,600.00	90.34	359.92	7,267.83	5,764.75	882.25	5,823.97	0.00	0.00	0.00
12,700.00	90.34	359.92	7,267.24	5,864.75	882.11	5,923.45	0.00	0.00	0.00
12,800.00	90.34	359.92	7,266.64	5,964.75	881.96	6,022.94	0.00	0.00	0.00
12,900.00	90.34	359.92	7,266.05	6,064.75	881.82	6,122.43	0.00	0.00	0.00
13,000.00	90.34	359.92	7,265.46	6,164.74	881.68	6,221.91	0.00	0.00	0.00
13,100.00	90.34	359.92	7,264.86	6,264.74	881.54	6,321.40	0.00	0.00	0.00
13,200.00	90.34	359.92	7,264.27	6,364.74	881.40	6,420.88	0.00	0.00	0.00
13,300.00	90.34	359.92	7,263.68	6,464.74	881.26	6,520.37	0.00	0.00	0.00
13,400.00	90.34	359.92	7,263.08	6,564.74	881.12	6,619.86	0.00	0.00	0.00
13,500.00	90.34	359.92	7,262.49	6,664.73	880.97	6,719.34	0.00	0.00	0.00
13,600.00	90.34	359.92	7,261.90	6,764.73	880.83	6,818.83	0.00	0.00	0.00
13,700.00	90.34	359.92	7,261.30	6,864.73	880.69	6,918.32	0.00	0.00	0.00
13,800.00	90.34	359.92	7,260.71	6,964.73	880.55	7,017.80	0.00	0.00	0.00
13,900.00	90.34	359.92	7,260.12	7,064.73	880.41	7,117.29	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 10N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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)	
14,000.00	90.34	359.92	7,259.52	7,164.73	880.27	7,216.78	0.00	0.00	0.00	
14,100.00	90.34	359.92	7,258.93	7,264.72	880.13	7,316.26	0.00	0.00	0.00	
14,200.00	90.34	359.92	7,258.34	7,364.72	879.99	7,415.75	0.00	0.00	0.00	
14,300.00	90.34	359.92	7,257.74	7,464.72	879.84	7,515.24	0.00	0.00	0.00	
14,400.00	90.34	359.92	7,257.15	7,564.72	879.70	7,614.72	0.00	0.00	0.00	
14,500.00	90.34	359.92	7,256.56	7,664.72	879.56	7,714.21	0.00	0.00	0.00	
14,600.00	90.34	359.92	7,255.96	7,764.71	879.42	7,813.70	0.00	0.00	0.00	
14,700.00	90.34	359.92	7,255.37	7,864.71	879.28	7,913.18	0.00	0.00	0.00	
14,800.00	90.34	359.92	7,254.78	7,964.71	879.14	8,012.67	0.00	0.00	0.00	
14,900.00	90.34	359.92	7,254.18	8,064.71	879.00	8,112.16	0.00	0.00	0.00	
15,000.00	90.34	359.92	7,253.59	8,164.71	878.85	8,211.64	0.00	0.00	0.00	
15,100.00	90.34	359.92	7,253.00	8,264.71	878.71	8,311.13	0.00	0.00	0.00	
15,200.00	90.34	359.92	7,252.40	8,364.70	878.57	8,410.62	0.00	0.00	0.00	
15,300.00	90.34	359.92	7,251.81	8,464.70	878.43	8,510.10	0.00	0.00	0.00	
15,400.00	90.34	359.92	7,251.22	8,564.70	878.29	8,609.59	0.00	0.00	0.00	
15,500.00	90.34	359.92	7,250.62	8,664.70	878.15	8,709.08	0.00	0.00	0.00	
15,600.00	90.34	359.92	7,250.03	8,764.70	878.01	8,808.56	0.00	0.00	0.00	
15,604.76	90.34	359.92	7,250.00	8,769.45	878.00	8,813.30	0.00	0.00	0.00	
BUTTERBALL 10N-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 10N-34	0.00	0.00	7,250.00	8,769.45	878.00	14,592,930.85	1,675,491.92	40.181720	-104.874421	
- plan hits target center										
- Point										
BUTTERBALL 10N-34	0.00	0.00	7,296.58	919.49	889.09	14,585,080.91	1,675,513.84	40.160163	-104.874382	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,515.69	1,500.00	9 5/8"	9-5/8	13-1/2	
7,754.65	7,296.58	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 10N-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4951.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4951.00usft (D Rig)
Site:	2N-67W-10 Butterball 21-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 10N-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 (°)	
1,037.57	1,032.00	Fox Hills				
4,042.20	3,973.00	Parkman				
4,475.38	4,397.00	Sussex				
7,291.61	7,138.00	Sharon Springs				
7,437.47	7,221.00	Niobrara				
7,592.51	7,277.00	Nio B				