

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-67W-10 Butterball 1-10HZ Pad
BUTTERBALL 24N-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 24N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1014.00	1019.19	Fox Hills
3960.00	4085.49	Parkman
4384.00	4520.08	Sussex
7119.00	7297.58	Sharon Springs
7202.00	7419.90	Niobrara
7262.00	7532.52	Nio B
7312.00	7673.41	Nio C

WELL DETAILS: BUTTERBALL 24N-34HZ

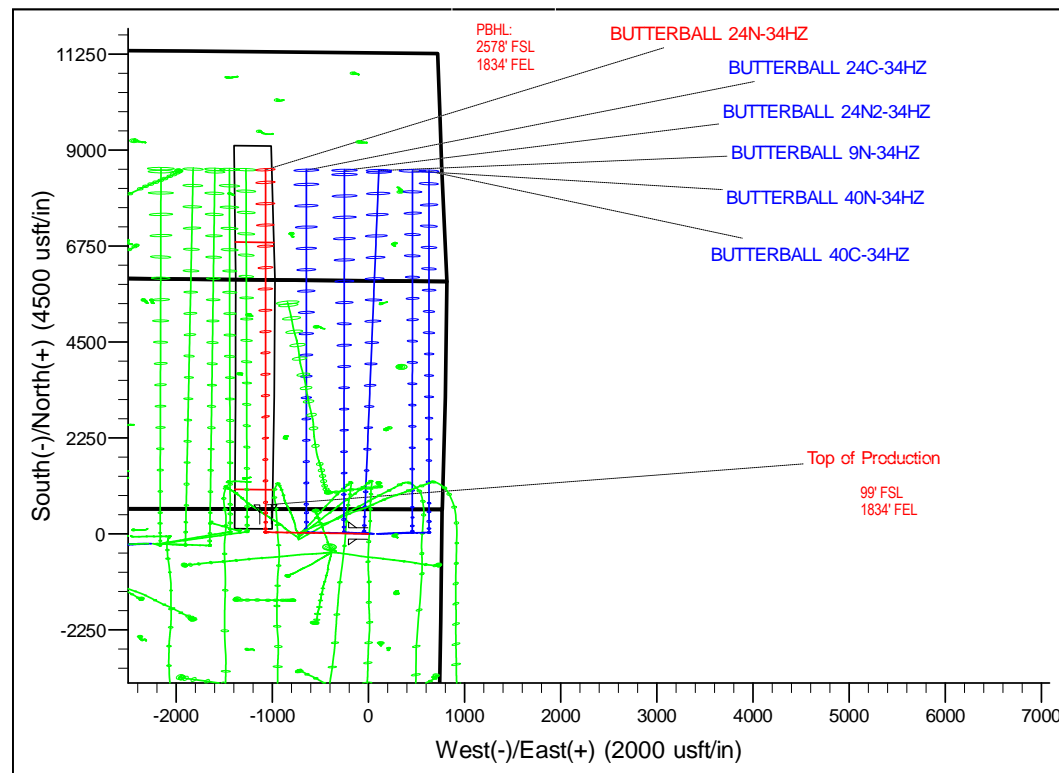
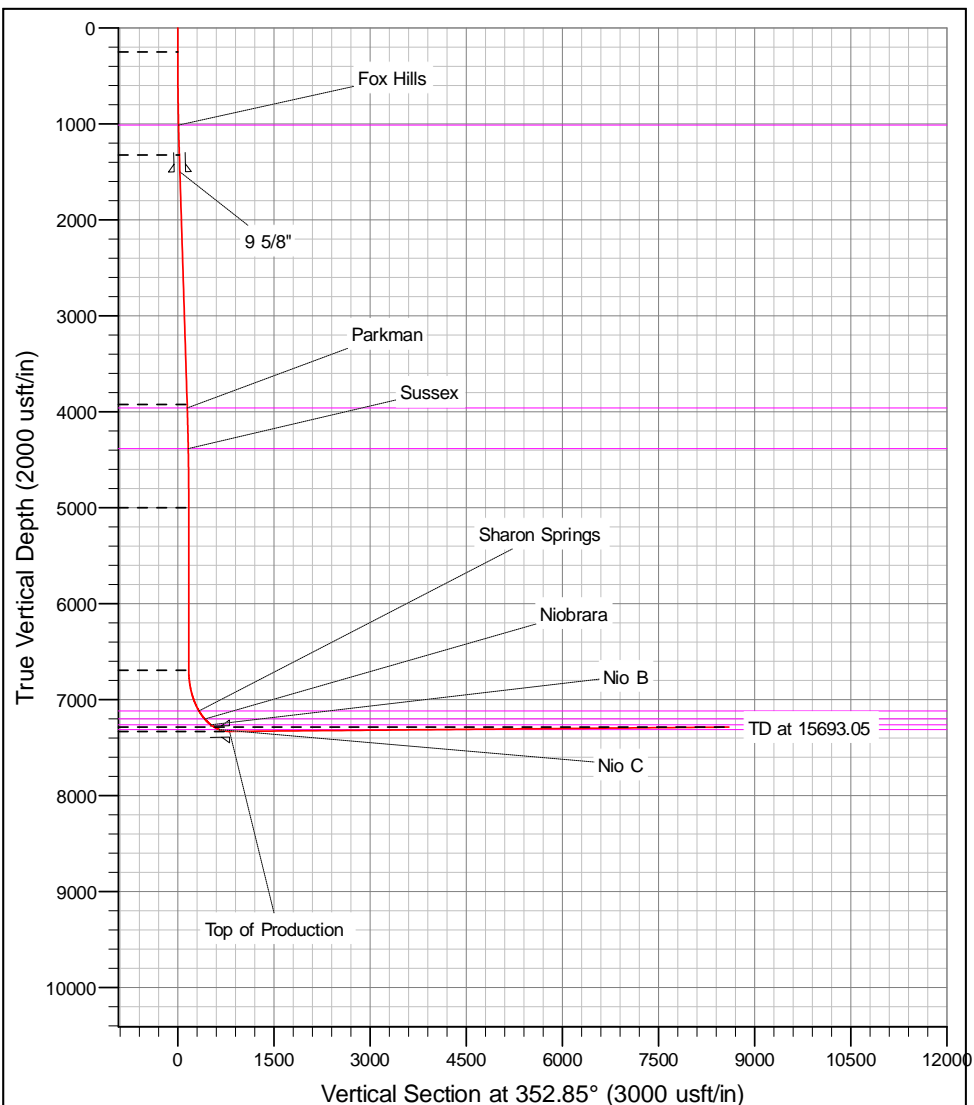
+N/-S	+E/-W	GL: 4916.00 Northing	RKB @ 4933.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584393.40	1676776.82	40.158270	-104.869865	

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
1338.88	16.33	272.09	1324.19	5.61	-154.05	1.50	24.74
4049.91	16.33	272.09	3925.81	33.39	-915.95	0.00	147.07
5138.79	0.00	0.00	5000.00	39.00	-1070.00	1.50	171.81
6834.42	0.00	0.00	6695.63	39.00	-1070.00	0.00	171.81
7838.08	90.33	360.00	7332.24	679.29	-1070.00	9.00	807.12
15693.05	90.33	360.00	7287.00	8534.13	-1070.00	0.00	8600.94

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 24N-34HZ, PBHL	7287.00	8534.13	-1070.00	14592925.95	1675694.32	40.181706	-104.873696



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24N-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 24N-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 24N-34HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,584,393.39 usft	Latitude:	40.158270
	+E/-W	0.00 usft	Easting:	1,676,776.82 usft	Longitude:	-104.869865
Position Uncertainty		0.00 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	352.85

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	
1,338.88	16.33	272.09	1,324.19	5.61	-154.05	1.50	1.50	0.00	272.09	
4,049.91	16.33	272.09	3,925.81	33.39	-915.95	0.00	0.00	0.00	0.00	
5,138.79	0.00	0.00	5,000.00	39.00	-1,070.00	1.50	-1.50	0.00	180.00	
6,834.42	0.00	0.00	6,695.63	39.00	-1,070.00	0.00	0.00	0.00	0.00	
7,838.08	90.33	360.00	7,332.24	679.29	-1,070.00	9.00	9.00	0.00	360.00	
15,693.06	90.33	360.00	7,287.00	8,534.13	-1,070.00	0.00	0.00	0.00	0.00	BUTTERBALL 24N-

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24N-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 24N-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	272.09	300.00	0.01	-0.33	0.05	1.50	1.50	0.00
400.00	2.25	272.09	399.96	0.11	-2.94	0.47	1.50	1.50	0.00
500.00	3.75	272.09	499.82	0.30	-8.17	1.31	1.50	1.50	0.00
600.00	5.25	272.09	599.51	0.58	-16.01	2.57	1.50	1.50	0.00
700.00	6.75	272.09	698.96	0.96	-26.46	4.25	1.50	1.50	0.00
800.00	8.25	272.09	798.10	1.44	-39.50	6.34	1.50	1.50	0.00
900.00	9.75	272.09	896.87	2.01	-55.14	8.85	1.50	1.50	0.00
1,000.00	11.25	272.09	995.19	2.67	-73.35	11.78	1.50	1.50	0.00
1,019.19	11.54	272.09	1,014.00	2.81	-77.13	12.39	1.50	1.50	0.00
Fox Hills									
1,100.00	12.75	272.09	1,093.00	3.43	-94.12	15.11	1.50	1.50	0.00
1,200.00	14.25	272.09	1,190.24	4.28	-117.45	18.86	1.50	1.50	0.00
1,300.00	15.75	272.09	1,286.83	5.22	-143.32	23.01	1.50	1.50	0.00
1,338.88	16.33	272.09	1,324.19	5.61	-154.05	24.74	1.50	1.50	0.00
1,400.00	16.33	272.09	1,382.85	6.24	-171.23	27.49	0.00	0.00	0.00
1,500.00	16.33	272.09	1,478.81	7.27	-199.33	32.01	0.00	0.00	0.00
1,522.08	16.33	272.09	1,500.00	7.49	-205.54	33.00	0.00	0.00	0.00
9 5/8"									
1,600.00	16.33	272.09	1,574.77	8.29	-227.44	36.52	0.00	0.00	0.00
1,700.00	16.33	272.09	1,670.74	9.31	-255.54	41.03	0.00	0.00	0.00
1,800.00	16.33	272.09	1,766.70	10.34	-283.64	45.54	0.00	0.00	0.00
1,900.00	16.33	272.09	1,862.67	11.36	-311.75	50.06	0.00	0.00	0.00
2,000.00	16.33	272.09	1,958.63	12.39	-339.85	54.57	0.00	0.00	0.00
2,100.00	16.33	272.09	2,054.60	13.41	-367.95	59.08	0.00	0.00	0.00
2,200.00	16.33	272.09	2,150.56	14.44	-396.06	63.60	0.00	0.00	0.00
2,300.00	16.33	272.09	2,246.52	15.46	-424.16	68.11	0.00	0.00	0.00
2,400.00	16.33	272.09	2,342.49	16.48	-452.26	72.62	0.00	0.00	0.00
2,500.00	16.33	272.09	2,438.45	17.51	-480.37	77.13	0.00	0.00	0.00
2,600.00	16.33	272.09	2,534.42	18.53	-508.47	81.65	0.00	0.00	0.00
2,700.00	16.33	272.09	2,630.38	19.56	-536.58	86.16	0.00	0.00	0.00
2,800.00	16.33	272.09	2,726.35	20.58	-564.68	90.67	0.00	0.00	0.00
2,900.00	16.33	272.09	2,822.31	21.61	-592.78	95.18	0.00	0.00	0.00
3,000.00	16.33	272.09	2,918.27	22.63	-620.89	99.70	0.00	0.00	0.00
3,100.00	16.33	272.09	3,014.24	23.65	-648.99	104.21	0.00	0.00	0.00
3,200.00	16.33	272.09	3,110.20	24.68	-677.09	108.72	0.00	0.00	0.00
3,300.00	16.33	272.09	3,206.17	25.70	-705.20	113.23	0.00	0.00	0.00
3,400.00	16.33	272.09	3,302.13	26.73	-733.30	117.75	0.00	0.00	0.00
3,500.00	16.33	272.09	3,398.09	27.75	-761.40	122.26	0.00	0.00	0.00
3,600.00	16.33	272.09	3,494.06	28.78	-789.51	126.77	0.00	0.00	0.00
3,700.00	16.33	272.09	3,590.02	29.80	-817.61	131.28	0.00	0.00	0.00
3,800.00	16.33	272.09	3,685.99	30.83	-845.72	135.80	0.00	0.00	0.00
3,900.00	16.33	272.09	3,781.95	31.85	-873.82	140.31	0.00	0.00	0.00
4,000.00	16.33	272.09	3,877.92	32.87	-901.92	144.82	0.00	0.00	0.00
4,049.91	16.33	272.09	3,925.81	33.39	-915.95	147.07	0.00	0.00	0.00
4,085.49	15.80	272.09	3,960.00	33.74	-925.79	148.65	1.50	-1.50	0.00
Parkman									
4,100.00	15.58	272.09	3,973.97	33.89	-929.71	149.28	1.50	-1.50	0.00
4,200.00	14.08	272.09	4,070.64	34.82	-955.29	153.39	1.50	-1.50	0.00
4,300.00	12.58	272.09	4,167.94	35.66	-978.33	157.09	1.50	-1.50	0.00

Corporate Planning Report

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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 24N-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)
4,400.00	11.08	272.09	4,265.81	36.41	-998.82	160.38	1.50	-1.50	0.00
4,500.00	9.58	272.09	4,364.19	37.06	-1,016.75	163.26	1.50	-1.50	0.00
4,520.08	9.28	272.09	4,384.00	37.18	-1,020.04	163.79	1.50	-1.50	0.00
Sussex									
4,600.00	8.08	272.09	4,463.00	37.62	-1,032.09	165.72	1.50	-1.50	0.00
4,700.00	6.58	272.09	4,562.18	38.08	-1,044.84	167.77	1.50	-1.50	0.00
4,800.00	5.08	272.09	4,661.66	38.45	-1,055.00	169.40	1.50	-1.50	0.00
4,900.00	3.58	272.09	4,761.37	38.73	-1,062.54	170.61	1.50	-1.50	0.00
5,000.00	2.08	272.09	4,861.24	38.91	-1,067.48	171.41	1.50	-1.50	0.00
5,100.00	0.58	272.09	4,961.21	38.99	-1,069.80	171.78	1.50	-1.50	0.00
5,138.79	0.00	0.00	5,000.00	39.00	-1,070.00	171.81	1.50	-1.50	0.00
5,200.00	0.00	0.00	5,061.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,300.00	0.00	0.00	5,161.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,400.00	0.00	0.00	5,261.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,500.00	0.00	0.00	5,361.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,600.00	0.00	0.00	5,461.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,700.00	0.00	0.00	5,561.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,800.00	0.00	0.00	5,661.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
5,900.00	0.00	0.00	5,761.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,000.00	0.00	0.00	5,861.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,100.00	0.00	0.00	5,961.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,200.00	0.00	0.00	6,061.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,300.00	0.00	0.00	6,161.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,400.00	0.00	0.00	6,261.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,500.00	0.00	0.00	6,361.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,600.00	0.00	0.00	6,461.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,700.00	0.00	0.00	6,561.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,800.00	0.00	0.00	6,661.21	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,834.42	0.00	0.00	6,695.63	39.00	-1,070.00	171.81	0.00	0.00	0.00
6,900.00	5.90	360.00	6,761.10	42.38	-1,070.00	175.16	9.00	9.00	0.00
7,000.00	14.90	360.00	6,859.35	60.41	-1,070.00	193.06	9.00	9.00	0.00
7,100.00	23.90	360.00	6,953.58	93.60	-1,070.00	225.98	9.00	9.00	0.00
7,200.00	32.90	360.00	7,041.45	141.12	-1,070.00	273.13	9.00	9.00	0.00
7,297.58	41.68	360.00	7,119.00	200.18	-1,070.00	331.74	9.00	9.00	0.00
Sharon Springs									
7,300.00	41.90	360.00	7,120.81	201.79	-1,070.00	333.34	9.00	9.00	0.00
7,400.00	50.90	360.00	7,189.70	274.14	-1,070.00	405.12	9.00	9.00	0.00
7,419.90	52.69	360.00	7,202.00	289.78	-1,070.00	420.64	9.00	9.00	0.00
Niobrara									
7,500.00	59.90	360.00	7,246.42	356.37	-1,070.00	486.72	9.00	9.00	0.00
7,532.52	62.83	360.00	7,262.00	384.91	-1,070.00	515.03	9.00	9.00	0.00
Nio B									
7,600.00	68.90	360.00	7,289.58	446.46	-1,070.00	576.11	9.00	9.00	0.00
7,673.41	75.51	360.00	7,312.00	516.32	-1,070.00	645.43	9.00	9.00	0.00
Nio C									
7,700.00	77.90	360.00	7,318.11	542.20	-1,070.00	671.10	9.00	9.00	0.00
7,800.00	86.90	360.00	7,331.32	641.22	-1,070.00	769.35	9.00	9.00	0.00
7,838.08	90.33	360.00	7,332.24	679.28	-1,070.00	807.12	9.00	9.00	0.00
Top of Production - BUTTERBALL 24N-34HZ_PHL									
7,900.00	90.33	360.00	7,331.88	741.20	-1,070.00	868.56	0.00	0.00	0.00
8,000.00	90.33	360.00	7,331.31	841.20	-1,070.00	967.78	0.00	0.00	0.00
8,100.00	90.33	360.00	7,330.73	941.20	-1,070.00	1,067.00	0.00	0.00	0.00
8,200.00	90.33	360.00	7,330.16	1,041.20	-1,070.00	1,166.22	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24N-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 24N-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)
8,300.00	90.33	360.00	7,329.58	1,141.19	-1,070.00	1,265.44	0.00	0.00	0.00
8,400.00	90.33	360.00	7,329.00	1,241.19	-1,070.00	1,364.66	0.00	0.00	0.00
8,500.00	90.33	360.00	7,328.43	1,341.19	-1,070.00	1,463.89	0.00	0.00	0.00
8,600.00	90.33	360.00	7,327.85	1,441.19	-1,070.00	1,563.11	0.00	0.00	0.00
8,700.00	90.33	360.00	7,327.28	1,541.19	-1,070.00	1,662.33	0.00	0.00	0.00
8,800.00	90.33	360.00	7,326.70	1,641.19	-1,070.00	1,761.55	0.00	0.00	0.00
8,900.00	90.33	360.00	7,326.13	1,741.18	-1,070.00	1,860.77	0.00	0.00	0.00
9,000.00	90.33	360.00	7,325.55	1,841.18	-1,070.00	1,959.99	0.00	0.00	0.00
9,100.00	90.33	360.00	7,324.97	1,941.18	-1,070.00	2,059.21	0.00	0.00	0.00
9,200.00	90.33	360.00	7,324.40	2,041.18	-1,070.00	2,158.44	0.00	0.00	0.00
9,300.00	90.33	360.00	7,323.82	2,141.18	-1,070.00	2,257.66	0.00	0.00	0.00
9,400.00	90.33	360.00	7,323.25	2,241.18	-1,070.00	2,356.88	0.00	0.00	0.00
9,500.00	90.33	360.00	7,322.67	2,341.17	-1,070.00	2,456.10	0.00	0.00	0.00
9,600.00	90.33	360.00	7,322.09	2,441.17	-1,070.00	2,555.32	0.00	0.00	0.00
9,700.00	90.33	360.00	7,321.52	2,541.17	-1,070.00	2,654.54	0.00	0.00	0.00
9,800.00	90.33	360.00	7,320.94	2,641.17	-1,070.00	2,753.76	0.00	0.00	0.00
9,900.00	90.33	360.00	7,320.37	2,741.17	-1,070.00	2,852.99	0.00	0.00	0.00
10,000.00	90.33	360.00	7,319.79	2,841.17	-1,070.00	2,952.21	0.00	0.00	0.00
10,100.00	90.33	360.00	7,319.21	2,941.16	-1,070.00	3,051.43	0.00	0.00	0.00
10,200.00	90.33	360.00	7,318.64	3,041.16	-1,070.00	3,150.65	0.00	0.00	0.00
10,300.00	90.33	360.00	7,318.06	3,141.16	-1,070.00	3,249.87	0.00	0.00	0.00
10,400.00	90.33	360.00	7,317.49	3,241.16	-1,070.00	3,349.09	0.00	0.00	0.00
10,500.00	90.33	360.00	7,316.91	3,341.16	-1,070.00	3,448.32	0.00	0.00	0.00
10,600.00	90.33	360.00	7,316.33	3,441.16	-1,070.00	3,547.54	0.00	0.00	0.00
10,700.00	90.33	360.00	7,315.76	3,541.15	-1,070.00	3,646.76	0.00	0.00	0.00
10,800.00	90.33	360.00	7,315.18	3,641.15	-1,070.00	3,745.98	0.00	0.00	0.00
10,900.00	90.33	360.00	7,314.61	3,741.15	-1,070.00	3,845.20	0.00	0.00	0.00
11,000.00	90.33	360.00	7,314.03	3,841.15	-1,070.00	3,944.42	0.00	0.00	0.00
11,100.00	90.33	360.00	7,313.45	3,941.15	-1,070.00	4,043.64	0.00	0.00	0.00
11,200.00	90.33	360.00	7,312.88	4,041.15	-1,070.00	4,142.87	0.00	0.00	0.00
11,300.00	90.33	360.00	7,312.30	4,141.14	-1,070.00	4,242.09	0.00	0.00	0.00
11,400.00	90.33	360.00	7,311.73	4,241.14	-1,070.00	4,341.31	0.00	0.00	0.00
11,500.00	90.33	360.00	7,311.15	4,341.14	-1,070.00	4,440.53	0.00	0.00	0.00
11,600.00	90.33	360.00	7,310.57	4,441.14	-1,070.00	4,539.75	0.00	0.00	0.00
11,700.00	90.33	360.00	7,310.00	4,541.14	-1,070.00	4,638.97	0.00	0.00	0.00
11,800.00	90.33	360.00	7,309.42	4,641.14	-1,070.00	4,738.19	0.00	0.00	0.00
11,900.00	90.33	360.00	7,308.85	4,741.13	-1,070.00	4,837.42	0.00	0.00	0.00
12,000.00	90.33	360.00	7,308.27	4,841.13	-1,070.00	4,936.64	0.00	0.00	0.00
12,100.00	90.33	360.00	7,307.69	4,941.13	-1,070.00	5,035.86	0.00	0.00	0.00
12,200.00	90.33	360.00	7,307.12	5,041.13	-1,070.00	5,135.08	0.00	0.00	0.00
12,300.00	90.33	360.00	7,306.54	5,141.13	-1,070.00	5,234.30	0.00	0.00	0.00
12,400.00	90.33	360.00	7,305.97	5,241.13	-1,070.00	5,333.52	0.00	0.00	0.00
12,500.00	90.33	360.00	7,305.39	5,341.12	-1,070.00	5,432.75	0.00	0.00	0.00
12,600.00	90.33	360.00	7,304.81	5,441.12	-1,070.00	5,531.97	0.00	0.00	0.00
12,700.00	90.33	360.00	7,304.24	5,541.12	-1,070.00	5,631.19	0.00	0.00	0.00
12,800.00	90.33	360.00	7,303.66	5,641.12	-1,070.00	5,730.41	0.00	0.00	0.00
12,900.00	90.33	360.00	7,303.09	5,741.12	-1,070.00	5,829.63	0.00	0.00	0.00
13,000.00	90.33	360.00	7,302.51	5,841.12	-1,070.00	5,928.85	0.00	0.00	0.00
13,100.00	90.33	360.00	7,301.94	5,941.11	-1,070.00	6,028.07	0.00	0.00	0.00
13,200.00	90.33	360.00	7,301.36	6,041.11	-1,070.00	6,127.30	0.00	0.00	0.00
13,300.00	90.33	360.00	7,300.78	6,141.11	-1,070.00	6,226.52	0.00	0.00	0.00
13,400.00	90.33	360.00	7,300.21	6,241.11	-1,070.00	6,325.74	0.00	0.00	0.00
13,500.00	90.33	360.00	7,299.63	6,341.11	-1,070.00	6,424.96	0.00	0.00	0.00
13,600.00	90.33	360.00	7,299.06	6,441.11	-1,070.00	6,524.18	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24N-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 24N-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)
13,700.00	90.33	360.00	7,298.48	6,541.10	-1,070.00	6,623.40	0.00	0.00	0.00
13,800.00	90.33	360.00	7,297.90	6,641.10	-1,070.00	6,722.63	0.00	0.00	0.00
13,900.00	90.33	360.00	7,297.33	6,741.10	-1,070.00	6,821.85	0.00	0.00	0.00
14,000.00	90.33	360.00	7,296.75	6,841.10	-1,070.00	6,921.07	0.00	0.00	0.00
14,100.00	90.33	360.00	7,296.18	6,941.10	-1,070.00	7,020.29	0.00	0.00	0.00
14,200.00	90.33	360.00	7,295.60	7,041.10	-1,070.00	7,119.51	0.00	0.00	0.00
14,300.00	90.33	360.00	7,295.02	7,141.09	-1,070.00	7,218.73	0.00	0.00	0.00
14,400.00	90.33	360.00	7,294.45	7,241.09	-1,070.00	7,317.95	0.00	0.00	0.00
14,500.00	90.33	360.00	7,293.87	7,341.09	-1,070.00	7,417.18	0.00	0.00	0.00
14,600.00	90.33	360.00	7,293.30	7,441.09	-1,070.00	7,516.40	0.00	0.00	0.00
14,700.00	90.33	360.00	7,292.72	7,541.09	-1,070.00	7,615.62	0.00	0.00	0.00
14,800.00	90.33	360.00	7,292.14	7,641.09	-1,070.00	7,714.84	0.00	0.00	0.00
14,900.00	90.33	360.00	7,291.57	7,741.08	-1,070.00	7,814.06	0.00	0.00	0.00
15,000.00	90.33	360.00	7,290.99	7,841.08	-1,070.00	7,913.28	0.00	0.00	0.00
15,100.00	90.33	360.00	7,290.42	7,941.08	-1,070.00	8,012.50	0.00	0.00	0.00
15,200.00	90.33	360.00	7,289.84	8,041.08	-1,070.00	8,111.73	0.00	0.00	0.00
15,300.00	90.33	360.00	7,289.26	8,141.08	-1,070.00	8,210.95	0.00	0.00	0.00
15,400.00	90.33	360.00	7,288.69	8,241.08	-1,070.00	8,310.17	0.00	0.00	0.00
15,500.00	90.33	360.00	7,288.11	8,341.07	-1,070.00	8,409.39	0.00	0.00	0.00
15,600.00	90.33	360.00	7,287.54	8,441.07	-1,070.00	8,508.61	0.00	0.00	0.00
15,693.06	90.33	360.00	7,287.00	8,534.13	-1,070.00	8,600.94	0.00	0.00	0.00
BUTTERBALL 24N-34-HZ_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 24N-34	0.00	0.00	7,287.00	8,534.13	-1,070.00	14,592,925.94	1,675,694.32	40.181706	-104.873696
- plan hits target center									
- Point									
BUTTERBALL 24N-34	0.00	0.00	7,332.24	679.28	-1,070.00	14,585,071.11	1,675,705.83	40.160135	-104.873695
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,522.08	1,500.00	9 5/8"	9-5/8	13-1/2	
7,838.08	7,332.24	Top of Production	5-1/2	8-1/2	

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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 24N-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 (°)	
1,019.19	1,014.00	Fox Hills				
4,085.49	3,960.00	Parkman				
4,520.08	4,384.00	Sussex				
7,297.58	7,119.00	Sharon Springs				
7,419.90	7,202.00	Niobrara				
7,532.52	7,262.00	Nio B				
7,673.41	7,312.00	Nio C				