

US ROCKIES WATTENBERG PLANNING

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

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1014.00	1018.57	Fox Hills
3960.00	4001.82	Parkman
4384.00	4431.19	Sussex
7116.00	7176.32	Sharon Springs
7200.00	7274.37	Niobrara
7260.00	7351.45	Nio B
7312.00	7425.89	Nio C
7437.00	7661.53	Fort Hayes
7459.00	7773.54	Codell

WELL DETAILS: BUTTERBALL 24C-34HZ

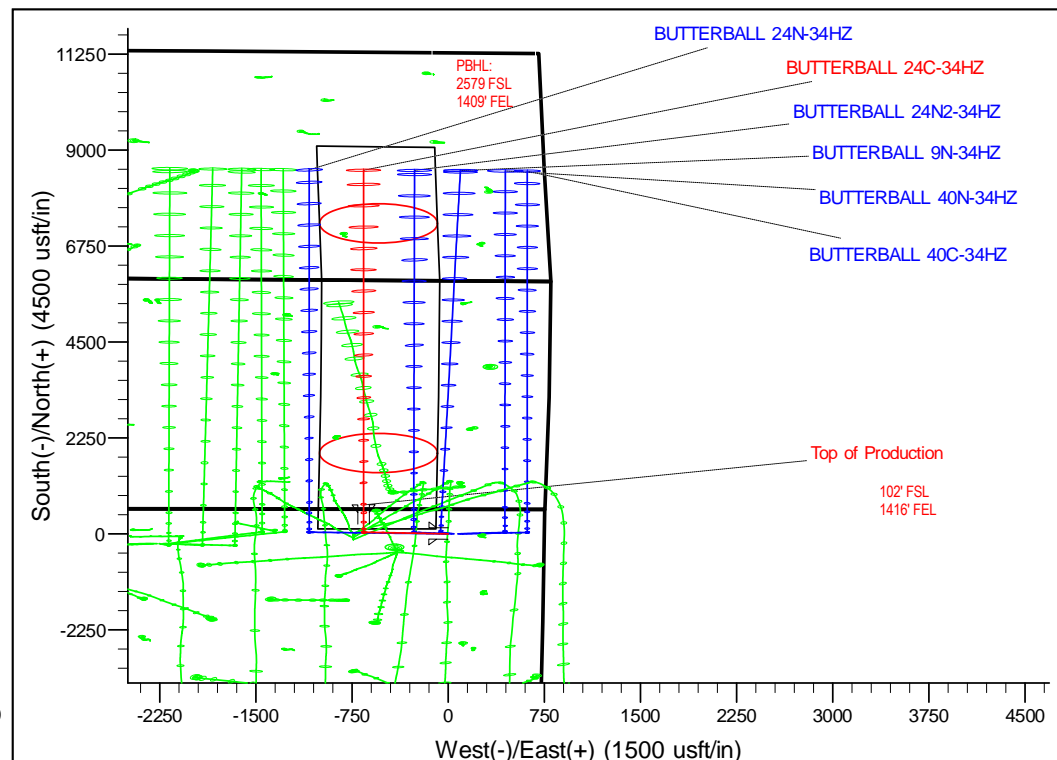
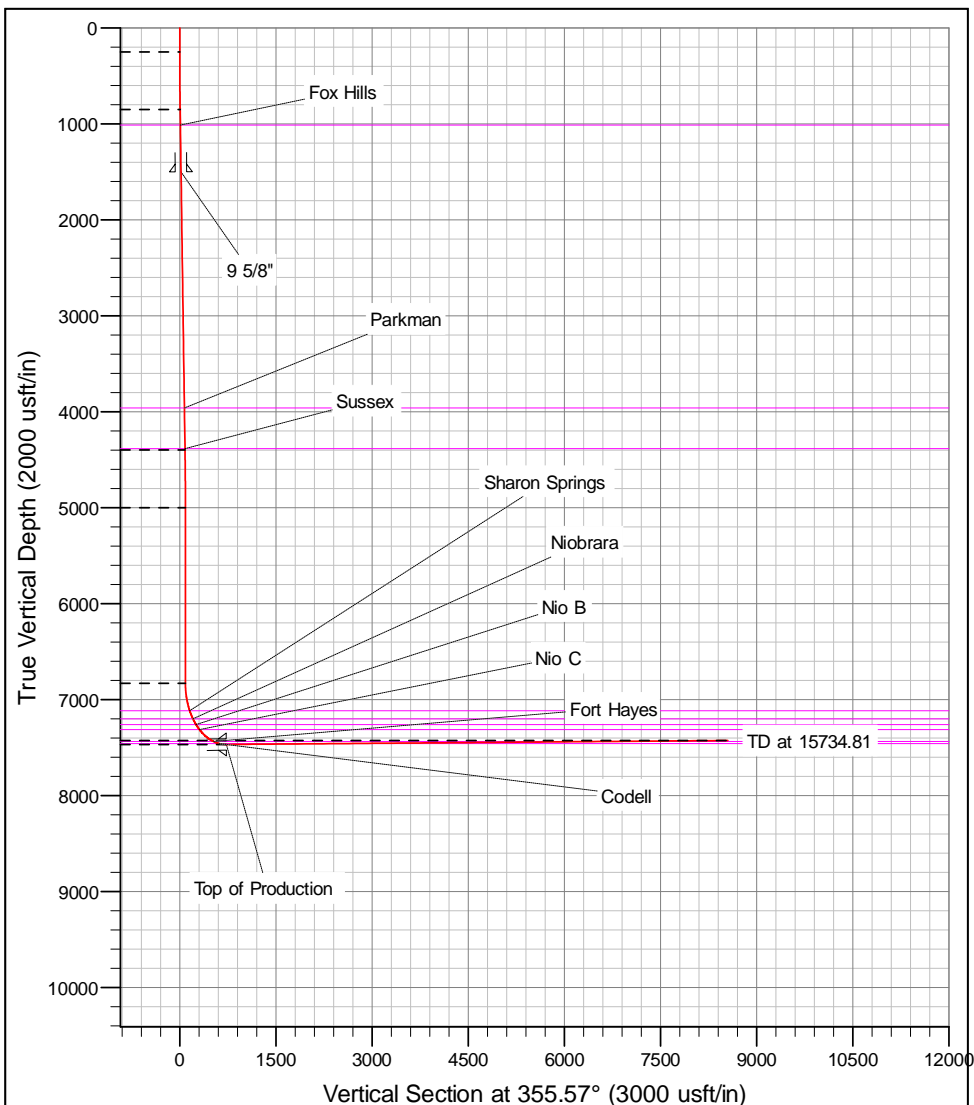
+N/-S	+E/-W	GL: 4916.00 Northing	RKB @ 4933.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584393.42	1676791.63	40.158270	-104.869812	

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
854.30	9.06	273.25	851.78	2.71	-47.62	1.50	6.37
4445.59	9.06	273.25	4398.22	34.79	-612.51	0.00	81.96
5049.88	0.00	0.00	5000.00	37.50	-660.13	1.50	88.34
6881.38	0.00	0.00	6831.49	37.50	-660.13	0.00	88.34
7884.71	90.30	360.00	7468.10	677.45	-660.13	9.00	726.38
15734.81	90.30	360.00	7427.00	8527.45	-660.13	0.00	8552.96

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 24C-34HZ_PBHL	7427.00	8527.45	-660.13	14592919.89	1676119.00	40.181687	-104.872175



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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 24C-34HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,584,393.41 usft	Latitude:	40.158270
	+E/-W	14.81 usft	Easting:	1,676,791.63 usft	Longitude:	-104.869812
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	355.57

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	
854.30	9.06	273.25	851.78	2.71	-47.62	1.50	1.50	0.00	273.25	
4,445.59	9.06	273.25	4,398.22	34.79	-612.51	0.00	0.00	0.00	0.00	
5,049.88	0.00	0.00	5,000.00	37.50	-660.13	1.50	-1.50	0.00	180.00	
6,881.38	0.00	0.00	6,831.49	37.50	-660.13	0.00	0.00	0.00	0.00	
7,884.71	90.30	360.00	7,468.10	677.45	-660.13	9.00	9.00	0.00	360.00	
15,734.81	90.30	360.00	7,427.00	8,527.45	-660.13	0.00	0.00	0.00	0.00	BUTTERBALL 24C

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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	273.25	300.00	0.02	-0.33	0.04	1.50	1.50	0.00
400.00	2.25	273.25	399.96	0.17	-2.94	0.39	1.50	1.50	0.00
500.00	3.75	273.25	499.82	0.46	-8.17	1.09	1.50	1.50	0.00
600.00	5.25	273.25	599.51	0.91	-16.00	2.14	1.50	1.50	0.00
700.00	6.75	273.25	698.96	1.50	-26.43	3.54	1.50	1.50	0.00
800.00	8.25	273.25	798.10	2.24	-39.47	5.28	1.50	1.50	0.00
854.30	9.06	273.25	851.78	2.71	-47.62	6.37	1.50	1.50	0.00
900.00	9.06	273.25	896.91	3.11	-54.81	7.34	0.00	0.00	0.00
1,000.00	9.06	273.25	995.66	4.01	-70.54	9.44	0.00	0.00	0.00
1,018.57	9.06	273.25	1,014.00	4.17	-73.46	9.83	0.00	0.00	0.00
Fox Hills									
1,100.00	9.06	273.25	1,094.41	4.90	-86.27	11.54	0.00	0.00	0.00
1,200.00	9.06	273.25	1,193.17	5.79	-102.00	13.65	0.00	0.00	0.00
1,300.00	9.06	273.25	1,291.92	6.69	-117.73	15.75	0.00	0.00	0.00
1,400.00	9.06	273.25	1,390.67	7.58	-133.46	17.86	0.00	0.00	0.00
1,500.00	9.06	273.25	1,489.42	8.47	-149.19	19.96	0.00	0.00	0.00
1,510.72	9.06	273.25	1,500.00	8.57	-150.87	20.19	0.00	0.00	0.00
9 5/8"									
1,600.00	9.06	273.25	1,588.17	9.37	-164.92	22.07	0.00	0.00	0.00
1,700.00	9.06	273.25	1,686.92	10.26	-180.65	24.17	0.00	0.00	0.00
1,800.00	9.06	273.25	1,785.67	11.16	-196.38	26.28	0.00	0.00	0.00
1,900.00	9.06	273.25	1,884.42	12.05	-212.11	28.38	0.00	0.00	0.00
2,000.00	9.06	273.25	1,983.17	12.94	-227.83	30.49	0.00	0.00	0.00
2,100.00	9.06	273.25	2,081.93	13.84	-243.56	32.59	0.00	0.00	0.00
2,200.00	9.06	273.25	2,180.68	14.73	-259.29	34.70	0.00	0.00	0.00
2,300.00	9.06	273.25	2,279.43	15.62	-275.02	36.80	0.00	0.00	0.00
2,400.00	9.06	273.25	2,378.18	16.52	-290.75	38.91	0.00	0.00	0.00
2,500.00	9.06	273.25	2,476.93	17.41	-306.48	41.01	0.00	0.00	0.00
2,600.00	9.06	273.25	2,575.68	18.30	-322.21	43.12	0.00	0.00	0.00
2,700.00	9.06	273.25	2,674.43	19.20	-337.94	45.22	0.00	0.00	0.00
2,800.00	9.06	273.25	2,773.18	20.09	-353.67	47.33	0.00	0.00	0.00
2,900.00	9.06	273.25	2,871.94	20.98	-369.40	49.43	0.00	0.00	0.00
3,000.00	9.06	273.25	2,970.69	21.88	-385.13	51.54	0.00	0.00	0.00
3,100.00	9.06	273.25	3,069.44	22.77	-400.86	53.64	0.00	0.00	0.00
3,200.00	9.06	273.25	3,168.19	23.66	-416.58	55.75	0.00	0.00	0.00
3,300.00	9.06	273.25	3,266.94	24.56	-432.31	57.85	0.00	0.00	0.00
3,400.00	9.06	273.25	3,365.69	25.45	-448.04	59.96	0.00	0.00	0.00
3,500.00	9.06	273.25	3,464.44	26.35	-463.77	62.06	0.00	0.00	0.00
3,600.00	9.06	273.25	3,563.19	27.24	-479.50	64.17	0.00	0.00	0.00
3,700.00	9.06	273.25	3,661.94	28.13	-495.23	66.27	0.00	0.00	0.00
3,800.00	9.06	273.25	3,760.70	29.03	-510.96	68.38	0.00	0.00	0.00
3,900.00	9.06	273.25	3,859.45	29.92	-526.69	70.48	0.00	0.00	0.00
4,000.00	9.06	273.25	3,958.20	30.81	-542.42	72.59	0.00	0.00	0.00
4,001.82	9.06	273.25	3,960.00	30.83	-542.70	72.62	0.00	0.00	0.00
Parkman									
4,100.00	9.06	273.25	4,056.95	31.71	-558.15	74.69	0.00	0.00	0.00
4,200.00	9.06	273.25	4,155.70	32.60	-573.88	76.80	0.00	0.00	0.00
4,300.00	9.06	273.25	4,254.45	33.49	-589.61	78.90	0.00	0.00	0.00
4,400.00	9.06	273.25	4,353.20	34.39	-605.33	81.01	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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)
4,431.19	9.06	273.25	4,384.00	34.67	-610.24	81.66	0.00	0.00	0.00
Sussex									
4,445.59	9.06	273.25	4,398.22	34.79	-612.51	81.96	0.00	0.00	0.00
4,500.00	8.25	273.25	4,452.01	35.26	-620.68	83.06	1.50	-1.50	0.00
4,600.00	6.75	273.25	4,551.16	36.00	-633.71	84.80	1.50	-1.50	0.00
4,700.00	5.25	273.25	4,650.60	36.59	-644.14	86.20	1.50	-1.50	0.00
4,800.00	3.75	273.25	4,750.29	37.04	-651.97	87.25	1.50	-1.50	0.00
4,900.00	2.25	273.25	4,850.15	37.33	-657.19	87.95	1.50	-1.50	0.00
5,000.00	0.75	273.25	4,950.12	37.48	-659.80	88.29	1.50	-1.50	0.00
5,049.88	0.00	0.00	5,000.00	37.50	-660.13	88.34	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,050.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,200.00	0.00	0.00	5,150.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,300.00	0.00	0.00	5,250.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,400.00	0.00	0.00	5,350.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,500.00	0.00	0.00	5,450.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,600.00	0.00	0.00	5,550.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,700.00	0.00	0.00	5,650.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,800.00	0.00	0.00	5,750.12	37.50	-660.13	88.34	0.00	0.00	0.00
5,900.00	0.00	0.00	5,850.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,000.00	0.00	0.00	5,950.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,100.00	0.00	0.00	6,050.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,200.00	0.00	0.00	6,150.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,300.00	0.00	0.00	6,250.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,400.00	0.00	0.00	6,350.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,500.00	0.00	0.00	6,450.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,600.00	0.00	0.00	6,550.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,700.00	0.00	0.00	6,650.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,800.00	0.00	0.00	6,750.12	37.50	-660.13	88.34	0.00	0.00	0.00
6,881.38	0.00	0.00	6,831.49	37.50	-660.13	88.34	0.00	0.00	0.00
6,900.00	1.68	360.00	6,850.11	37.77	-660.13	88.61	9.00	9.00	0.00
7,000.00	10.68	360.00	6,949.43	48.52	-660.13	99.32	9.00	9.00	0.00
7,100.00	19.68	360.00	7,045.84	74.67	-660.13	125.40	9.00	9.00	0.00
7,176.32	26.55	360.00	7,116.00	104.61	-660.13	155.25	9.00	9.00	0.00
Sharon Springs									
7,200.00	28.68	360.00	7,136.98	115.58	-660.13	166.19	9.00	9.00	0.00
7,274.37	35.37	360.00	7,200.00	155.00	-660.13	205.49	9.00	9.00	0.00
Niobrara									
7,300.00	37.68	360.00	7,220.59	170.25	-660.13	220.69	9.00	9.00	0.00
7,351.45	42.31	360.00	7,260.00	203.31	-660.13	253.65	9.00	9.00	0.00
Nio B									
7,400.00	46.68	360.00	7,294.62	237.32	-660.13	287.56	9.00	9.00	0.00
7,425.89	49.01	360.00	7,312.00	256.51	-660.13	306.70	9.00	9.00	0.00
Nio C									
7,500.00	55.68	360.00	7,357.25	315.15	-660.13	365.16	9.00	9.00	0.00
7,600.00	64.68	360.00	7,406.94	401.82	-660.13	451.57	9.00	9.00	0.00
7,681.53	72.01	360.00	7,437.00	477.54	-660.13	527.06	9.00	9.00	0.00
Fort Hayes									
7,700.00	73.68	360.00	7,442.45	495.19	-660.13	544.66	9.00	9.00	0.00
7,773.54	80.29	360.00	7,459.00	566.80	-660.13	616.06	9.00	9.00	0.00
Codell									
7,800.00	82.68	360.00	7,462.92	592.97	-660.13	642.15	9.00	9.00	0.00
7,884.71	90.30	360.00	7,468.10	677.45	-660.13	726.38	9.00	9.00	0.00
Top of Production - BUTTERBALL 24C-34HZ_PHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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	90.30	360.00	7,468.02	692.74	-660.13	741.63	0.00	0.00	0.00
8,000.00	90.30	360.00	7,467.50	792.74	-660.13	841.33	0.00	0.00	0.00
8,100.00	90.30	360.00	7,466.98	892.74	-660.13	941.03	0.00	0.00	0.00
8,200.00	90.30	360.00	7,466.45	992.74	-660.13	1,040.73	0.00	0.00	0.00
8,300.00	90.30	360.00	7,465.93	1,092.74	-660.13	1,140.43	0.00	0.00	0.00
8,400.00	90.30	360.00	7,465.40	1,192.74	-660.13	1,240.13	0.00	0.00	0.00
8,500.00	90.30	360.00	7,464.88	1,292.74	-660.13	1,339.83	0.00	0.00	0.00
8,600.00	90.30	360.00	7,464.36	1,392.73	-660.13	1,439.53	0.00	0.00	0.00
8,700.00	90.30	360.00	7,463.83	1,492.73	-660.13	1,539.23	0.00	0.00	0.00
8,800.00	90.30	360.00	7,463.31	1,592.73	-660.13	1,638.93	0.00	0.00	0.00
8,900.00	90.30	360.00	7,462.79	1,692.73	-660.13	1,738.63	0.00	0.00	0.00
9,000.00	90.30	360.00	7,462.26	1,792.73	-660.13	1,838.33	0.00	0.00	0.00
9,100.00	90.30	360.00	7,461.74	1,892.73	-660.13	1,938.03	0.00	0.00	0.00
9,200.00	90.30	360.00	7,461.22	1,992.73	-660.13	2,037.73	0.00	0.00	0.00
9,300.00	90.30	360.00	7,460.69	2,092.72	-660.13	2,137.43	0.00	0.00	0.00
9,400.00	90.30	360.00	7,460.17	2,192.72	-660.13	2,237.13	0.00	0.00	0.00
9,500.00	90.30	360.00	7,459.65	2,292.72	-660.13	2,336.83	0.00	0.00	0.00
9,600.00	90.30	360.00	7,459.12	2,392.72	-660.13	2,436.53	0.00	0.00	0.00
9,700.00	90.30	360.00	7,458.60	2,492.72	-660.13	2,536.23	0.00	0.00	0.00
9,800.00	90.30	360.00	7,458.07	2,592.72	-660.13	2,635.93	0.00	0.00	0.00
9,900.00	90.30	360.00	7,457.55	2,692.72	-660.13	2,735.63	0.00	0.00	0.00
10,000.00	90.30	360.00	7,457.03	2,792.71	-660.13	2,835.33	0.00	0.00	0.00
10,100.00	90.30	360.00	7,456.50	2,892.71	-660.13	2,935.03	0.00	0.00	0.00
10,200.00	90.30	360.00	7,455.98	2,992.71	-660.13	3,034.73	0.00	0.00	0.00
10,300.00	90.30	360.00	7,455.46	3,092.71	-660.13	3,134.44	0.00	0.00	0.00
10,400.00	90.30	360.00	7,454.93	3,192.71	-660.13	3,234.14	0.00	0.00	0.00
10,500.00	90.30	360.00	7,454.41	3,292.71	-660.13	3,333.84	0.00	0.00	0.00
10,600.00	90.30	360.00	7,453.89	3,392.71	-660.13	3,433.54	0.00	0.00	0.00
10,700.00	90.30	360.00	7,453.36	3,492.71	-660.13	3,533.24	0.00	0.00	0.00
10,800.00	90.30	360.00	7,452.84	3,592.70	-660.13	3,632.94	0.00	0.00	0.00
10,900.00	90.30	360.00	7,452.32	3,692.70	-660.13	3,732.64	0.00	0.00	0.00
11,000.00	90.30	360.00	7,451.79	3,792.70	-660.13	3,832.34	0.00	0.00	0.00
11,100.00	90.30	360.00	7,451.27	3,892.70	-660.13	3,932.04	0.00	0.00	0.00
11,200.00	90.30	360.00	7,450.74	3,992.70	-660.13	4,031.74	0.00	0.00	0.00
11,300.00	90.30	360.00	7,450.22	4,092.70	-660.13	4,131.44	0.00	0.00	0.00
11,400.00	90.30	360.00	7,449.70	4,192.70	-660.13	4,231.14	0.00	0.00	0.00
11,500.00	90.30	360.00	7,449.17	4,292.69	-660.13	4,330.84	0.00	0.00	0.00
11,600.00	90.30	360.00	7,448.65	4,392.69	-660.13	4,430.54	0.00	0.00	0.00
11,700.00	90.30	360.00	7,448.13	4,492.69	-660.13	4,530.24	0.00	0.00	0.00
11,800.00	90.30	360.00	7,447.60	4,592.69	-660.13	4,629.94	0.00	0.00	0.00
11,900.00	90.30	360.00	7,447.08	4,692.69	-660.13	4,729.64	0.00	0.00	0.00
12,000.00	90.30	360.00	7,446.56	4,792.69	-660.13	4,829.34	0.00	0.00	0.00
12,100.00	90.30	360.00	7,446.03	4,892.69	-660.13	4,929.04	0.00	0.00	0.00
12,200.00	90.30	360.00	7,445.51	4,992.68	-660.13	5,028.74	0.00	0.00	0.00
12,300.00	90.30	360.00	7,444.98	5,092.68	-660.13	5,128.44	0.00	0.00	0.00
12,400.00	90.30	360.00	7,444.46	5,192.68	-660.13	5,228.14	0.00	0.00	0.00
12,500.00	90.30	360.00	7,443.94	5,292.68	-660.13	5,327.84	0.00	0.00	0.00
12,600.00	90.30	360.00	7,443.41	5,392.68	-660.13	5,427.54	0.00	0.00	0.00
12,700.00	90.30	360.00	7,442.89	5,492.68	-660.13	5,527.24	0.00	0.00	0.00
12,800.00	90.30	360.00	7,442.37	5,592.68	-660.13	5,626.94	0.00	0.00	0.00
12,900.00	90.30	360.00	7,441.84	5,692.68	-660.13	5,726.64	0.00	0.00	0.00
13,000.00	90.30	360.00	7,441.32	5,792.67	-660.13	5,826.34	0.00	0.00	0.00
13,100.00	90.30	360.00	7,440.80	5,892.67	-660.13	5,926.04	0.00	0.00	0.00
13,200.00	90.30	360.00	7,440.27	5,992.67	-660.13	6,025.75	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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	90.30	360.00	7,439.75	6,092.67	-660.13	6,125.45	0.00	0.00	0.00	
13,400.00	90.30	360.00	7,439.23	6,192.67	-660.13	6,225.15	0.00	0.00	0.00	
13,500.00	90.30	360.00	7,438.70	6,292.67	-660.13	6,324.85	0.00	0.00	0.00	
13,600.00	90.30	360.00	7,438.18	6,392.67	-660.13	6,424.55	0.00	0.00	0.00	
13,700.00	90.30	360.00	7,437.65	6,492.66	-660.13	6,524.25	0.00	0.00	0.00	
13,800.00	90.30	360.00	7,437.13	6,592.66	-660.13	6,623.95	0.00	0.00	0.00	
13,900.00	90.30	360.00	7,436.61	6,692.66	-660.13	6,723.65	0.00	0.00	0.00	
14,000.00	90.30	360.00	7,436.08	6,792.66	-660.13	6,823.35	0.00	0.00	0.00	
14,100.00	90.30	360.00	7,435.56	6,892.66	-660.13	6,923.05	0.00	0.00	0.00	
14,200.00	90.30	360.00	7,435.04	6,992.66	-660.13	7,022.75	0.00	0.00	0.00	
14,300.00	90.30	360.00	7,434.51	7,092.66	-660.13	7,122.45	0.00	0.00	0.00	
14,400.00	90.30	360.00	7,433.99	7,192.65	-660.13	7,222.15	0.00	0.00	0.00	
14,500.00	90.30	360.00	7,433.47	7,292.65	-660.13	7,321.85	0.00	0.00	0.00	
14,600.00	90.30	360.00	7,432.94	7,392.65	-660.13	7,421.55	0.00	0.00	0.00	
14,700.00	90.30	360.00	7,432.42	7,492.65	-660.13	7,521.25	0.00	0.00	0.00	
14,800.00	90.30	360.00	7,431.89	7,592.65	-660.13	7,620.95	0.00	0.00	0.00	
14,900.00	90.30	360.00	7,431.37	7,692.65	-660.13	7,720.65	0.00	0.00	0.00	
15,000.00	90.30	360.00	7,430.85	7,792.65	-660.13	7,820.35	0.00	0.00	0.00	
15,100.00	90.30	360.00	7,430.32	7,892.65	-660.13	7,920.05	0.00	0.00	0.00	
15,200.00	90.30	360.00	7,429.80	7,992.64	-660.13	8,019.75	0.00	0.00	0.00	
15,300.00	90.30	360.00	7,429.28	8,092.64	-660.13	8,119.45	0.00	0.00	0.00	
15,400.00	90.30	360.00	7,428.75	8,192.64	-660.13	8,219.15	0.00	0.00	0.00	
15,500.00	90.30	360.00	7,428.23	8,292.64	-660.13	8,318.85	0.00	0.00	0.00	
15,600.00	90.30	360.00	7,427.71	8,392.64	-660.13	8,418.55	0.00	0.00	0.00	
15,700.00	90.30	360.00	7,427.18	8,492.64	-660.13	8,518.25	0.00	0.00	0.00	
15,734.81	90.30	360.00	7,427.00	8,527.45	-660.13	8,552.96	0.00	0.00	0.00	
BUTTERBALL 24C-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 24C-34	0.00	0.00	7,427.00	8,527.45	-660.13	14,592,919.89	1,676,119.00	40.181687	-104.872176
- plan hits target center									
- Point									
BUTTERBALL 24C-34	0.00	0.00	7,468.10	677.45	-660.13	14,585,069.90	1,676,130.51	40.160130	-104.872175
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,510.72	1,500.00	9 5/8"	9-5/8	13-1/2	
7,884.71	7,468.10	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 24C-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 24C-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 (°)	
1,018.57	1,014.00	Fox Hills				
4,001.82	3,960.00	Parkman				
4,431.19	4,384.00	Sussex				
7,176.32	7,116.00	Sharon Springs				
7,274.37	7,200.00	Niobrara				
7,351.45	7,260.00	Nio B				
7,425.89	7,312.00	Nio C				
7,681.53	7,437.00	Fort Hayes				
7,773.54	7,459.00	Codell				