

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

BUTTERBALL 11N-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 11N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1032.00	1033.93	Fox Hills
3973.00	3984.81	Parkman
4397.00	4410.24	Sussex
7151.00	7206.42	Sharon Springs
7234.00	7329.73	Niobrara
7290.00	7435.26	Nio B
7341.00	7578.57	Nio C

WELL DETAILS: BUTTERBALL 11N-34HZ

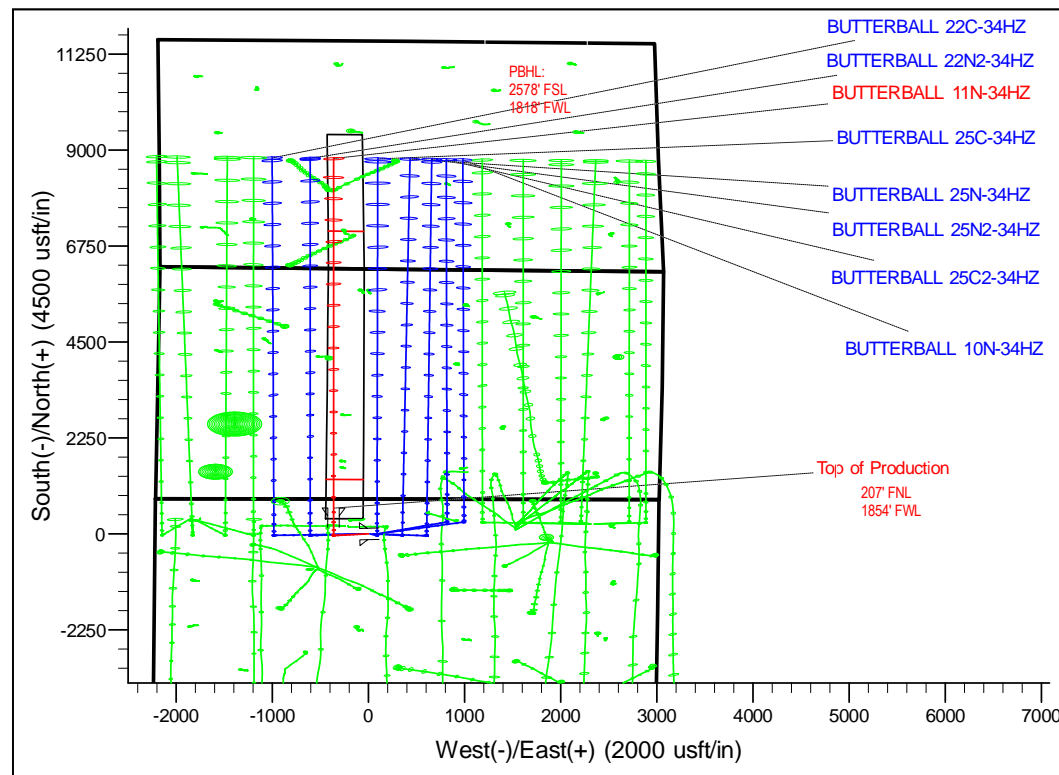
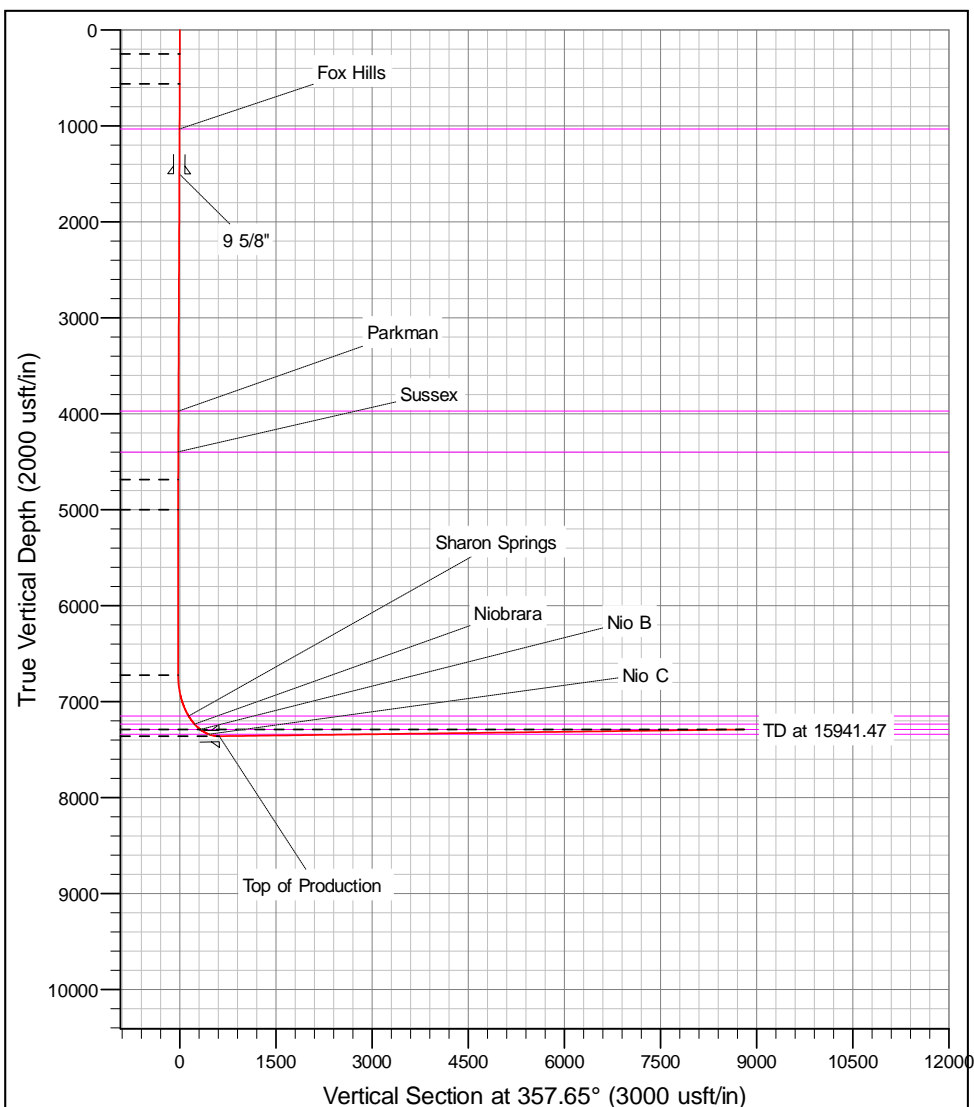
+N/-S	+E/-W	GL: 4934.00 Northing	RKB @ 4951.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584160.78	1674520.95	40.157640	-104.877940	

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
562.72	4.69	263.69	562.37	-1.41	-12.72	1.50	-0.88
4701.85	4.69	263.69	4687.63	-38.59	-349.15	0.00	-24.25
5014.56	0.00	0.00	5000.00	-40.00	-361.87	1.50	-25.14
6739.07	0.00	0.00	6724.50	-40.00	-361.87	0.00	-25.14
7744.51	90.49	0.01	7361.10	602.06	-361.80	9.00	616.38
15941.47	90.49	0.01	7291.00	8798.72	-360.87	0.00	8806.12

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 11N-34HZ_PBHL	7291.00	8798.72	-360.87	14592959.00	1674148.00	40.181802	-104.879232



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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 11N-34HZ					
Well Position	+N-S	-0.36 usft	Northing:	14,584,160.78 usft	Latitude:	40.157640
	+E-W	44.98 usft	Easting:	1,674,520.95 usft	Longitude:	-104.877940
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	357.65	

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	
562.72	4.69	263.69	562.37	-1.41	-12.72	1.50	1.50	0.00	263.69	
4,701.85	4.69	263.69	4,687.63	-38.59	-349.15	0.00	0.00	0.00	0.00	
5,014.56	0.00	0.00	5,000.00	-40.00	-361.87	1.50	-1.50	0.00	180.00	
6,739.07	0.00	0.00	6,724.50	-40.00	-361.87	0.00	0.00	0.00	0.00	
7,744.51	90.49	0.01	7,361.10	602.06	-361.80	9.00	9.00	0.00	0.01	
15,941.47	90.49	0.01	7,291.00	8,798.73	-360.87	0.00	0.00	0.00	0.00	BUTTERBALL 11N-

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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	263.69	300.00	-0.04	-0.33	-0.02	1.50	1.50	0.00
400.00	2.25	263.69	399.96	-0.32	-2.93	-0.20	1.50	1.50	0.00
500.00	3.75	263.69	499.82	-0.90	-8.13	-0.56	1.50	1.50	0.00
562.72	4.69	263.69	562.37	-1.41	-12.72	-0.88	1.50	1.50	0.00
600.00	4.69	263.69	599.53	-1.74	-15.75	-1.09	0.00	0.00	0.00
700.00	4.69	263.69	699.19	-2.64	-23.87	-1.66	0.00	0.00	0.00
800.00	4.69	263.69	798.86	-3.54	-32.00	-2.22	0.00	0.00	0.00
900.00	4.69	263.69	898.52	-4.44	-40.13	-2.79	0.00	0.00	0.00
1,000.00	4.69	263.69	998.19	-5.33	-48.26	-3.35	0.00	0.00	0.00
1,033.93	4.69	263.69	1,032.00	-5.64	-51.02	-3.54	0.00	0.00	0.00
Fox Hills									
1,100.00	4.69	263.69	1,097.85	-6.23	-56.39	-3.92	0.00	0.00	0.00
1,200.00	4.69	263.69	1,197.52	-7.13	-64.52	-4.48	0.00	0.00	0.00
1,300.00	4.69	263.69	1,297.18	-8.03	-72.64	-5.05	0.00	0.00	0.00
1,400.00	4.69	263.69	1,396.85	-8.93	-80.77	-5.61	0.00	0.00	0.00
1,500.00	4.69	263.69	1,496.51	-9.83	-88.90	-6.18	0.00	0.00	0.00
1,503.50	4.69	263.69	1,500.00	-9.86	-89.19	-6.20	0.00	0.00	0.00
9 5/8"									
1,600.00	4.69	263.69	1,596.18	-10.73	-97.03	-6.74	0.00	0.00	0.00
1,700.00	4.69	263.69	1,695.84	-11.62	-105.16	-7.30	0.00	0.00	0.00
1,800.00	4.69	263.69	1,795.51	-12.52	-113.29	-7.87	0.00	0.00	0.00
1,900.00	4.69	263.69	1,895.17	-13.42	-121.41	-8.43	0.00	0.00	0.00
2,000.00	4.69	263.69	1,994.84	-14.32	-129.54	-9.00	0.00	0.00	0.00
2,100.00	4.69	263.69	2,094.50	-15.22	-137.67	-9.56	0.00	0.00	0.00
2,200.00	4.69	263.69	2,194.17	-16.12	-145.80	-10.13	0.00	0.00	0.00
2,300.00	4.69	263.69	2,293.83	-17.01	-153.93	-10.69	0.00	0.00	0.00
2,400.00	4.69	263.69	2,393.50	-17.91	-162.05	-11.26	0.00	0.00	0.00
2,500.00	4.69	263.69	2,493.16	-18.81	-170.18	-11.82	0.00	0.00	0.00
2,600.00	4.69	263.69	2,592.83	-19.71	-178.31	-12.39	0.00	0.00	0.00
2,700.00	4.69	263.69	2,692.49	-20.61	-186.44	-12.95	0.00	0.00	0.00
2,800.00	4.69	263.69	2,792.16	-21.51	-194.57	-13.52	0.00	0.00	0.00
2,900.00	4.69	263.69	2,891.82	-22.41	-202.70	-14.08	0.00	0.00	0.00
3,000.00	4.69	263.69	2,991.49	-23.30	-210.82	-14.64	0.00	0.00	0.00
3,100.00	4.69	263.69	3,091.15	-24.20	-218.95	-15.21	0.00	0.00	0.00
3,200.00	4.69	263.69	3,190.82	-25.10	-227.08	-15.77	0.00	0.00	0.00
3,300.00	4.69	263.69	3,290.48	-26.00	-235.21	-16.34	0.00	0.00	0.00
3,400.00	4.69	263.69	3,390.15	-26.90	-243.34	-16.90	0.00	0.00	0.00
3,500.00	4.69	263.69	3,489.81	-27.80	-251.47	-17.47	0.00	0.00	0.00
3,600.00	4.69	263.69	3,589.48	-28.69	-259.59	-18.03	0.00	0.00	0.00
3,700.00	4.69	263.69	3,689.14	-29.59	-267.72	-18.60	0.00	0.00	0.00
3,800.00	4.69	263.69	3,788.81	-30.49	-275.85	-19.16	0.00	0.00	0.00
3,900.00	4.69	263.69	3,888.47	-31.39	-283.98	-19.73	0.00	0.00	0.00
3,984.81	4.69	263.69	3,973.00	-32.15	-290.87	-20.21	0.00	0.00	0.00
Parkman									
4,000.00	4.69	263.69	3,988.14	-32.29	-292.11	-20.29	0.00	0.00	0.00
4,100.00	4.69	263.69	4,087.80	-33.19	-300.23	-20.86	0.00	0.00	0.00
4,200.00	4.69	263.69	4,187.47	-34.09	-308.36	-21.42	0.00	0.00	0.00
4,300.00	4.69	263.69	4,287.13	-34.98	-316.49	-21.99	0.00	0.00	0.00
4,400.00	4.69	263.69	4,386.80	-35.88	-324.62	-22.55	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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)
4,410.24	4.69	263.69	4,397.00	-35.97	-325.45	-22.61	0.00	0.00	0.00
Sussex									
4,500.00	4.69	263.69	4,486.46	-36.78	-332.75	-23.11	0.00	0.00	0.00
4,600.00	4.69	263.69	4,586.13	-37.68	-340.88	-23.68	0.00	0.00	0.00
4,700.00	4.69	263.69	4,685.79	-38.58	-349.00	-24.24	0.00	0.00	0.00
4,701.85	4.69	263.69	4,687.63	-38.59	-349.15	-24.25	0.00	0.00	0.00
4,800.00	3.22	263.69	4,785.55	-39.34	-355.88	-24.72	1.50	-1.50	0.00
4,900.00	1.72	263.69	4,885.46	-39.81	-360.16	-25.02	1.50	-1.50	0.00
5,000.00	0.22	263.69	4,985.44	-40.00	-361.84	-25.14	1.50	-1.50	0.00
5,014.56	0.00	0.00	5,000.00	-40.00	-361.87	-25.14	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,085.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,200.00	0.00	0.00	5,185.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,300.00	0.00	0.00	5,285.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,400.00	0.00	0.00	5,385.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,500.00	0.00	0.00	5,485.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,600.00	0.00	0.00	5,585.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,700.00	0.00	0.00	5,685.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,800.00	0.00	0.00	5,785.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
5,900.00	0.00	0.00	5,885.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,000.00	0.00	0.00	5,985.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,100.00	0.00	0.00	6,085.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,200.00	0.00	0.00	6,185.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,300.00	0.00	0.00	6,285.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,400.00	0.00	0.00	6,385.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,500.00	0.00	0.00	6,485.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,600.00	0.00	0.00	6,585.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,700.00	0.00	0.00	6,685.44	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,739.07	0.00	0.00	6,724.50	-40.00	-361.87	-25.14	0.00	0.00	0.00
6,800.00	5.48	0.01	6,785.35	-37.09	-361.87	-22.23	9.00	9.00	0.00
6,900.00	14.48	0.01	6,883.73	-19.77	-361.87	-4.92	9.00	9.00	0.00
7,000.00	23.48	0.01	6,978.19	12.73	-361.86	27.55	9.00	9.00	0.00
7,100.00	32.48	0.01	7,066.41	59.61	-361.86	74.38	9.00	9.00	0.00
7,200.00	41.48	0.01	7,146.21	119.70	-361.85	134.43	9.00	9.00	0.00
7,206.43	42.06	0.01	7,151.00	123.98	-361.85	138.71	9.00	9.00	0.00
Sharon Springs									
7,300.00	50.48	0.01	7,215.62	191.54	-361.84	206.21	9.00	9.00	0.00
7,329.73	53.16	0.01	7,234.00	214.91	-361.84	229.56	9.00	9.00	0.00
Niobrara									
7,400.00	59.48	0.01	7,272.94	273.36	-361.83	287.96	9.00	9.00	0.00
7,435.26	62.66	0.01	7,290.00	304.22	-361.83	318.79	9.00	9.00	0.00
Nio B									
7,500.00	68.48	0.01	7,316.76	363.13	-361.82	377.66	9.00	9.00	0.00
7,578.57	75.56	0.01	7,341.00	437.82	-361.82	452.28	9.00	9.00	0.00
Nio C									
7,600.00	77.48	0.01	7,346.00	458.66	-361.81	473.10	9.00	9.00	0.00
7,700.00	86.48	0.01	7,359.93	557.58	-361.80	571.94	9.00	9.00	0.00
7,744.51	90.49	0.01	7,361.10	602.06	-361.80	616.38	9.00	9.00	0.00
Top of Production - BUTTERBALL 11N-34HZ_PHL									
7,800.00	90.49	0.01	7,360.63	657.55	-361.79	671.83	0.00	0.00	0.00
7,900.00	90.49	0.01	7,359.77	757.55	-361.78	771.74	0.00	0.00	0.00
8,000.00	90.49	0.01	7,358.92	857.54	-361.77	871.65	0.00	0.00	0.00
8,100.00	90.49	0.01	7,358.06	957.54	-361.76	971.56	0.00	0.00	0.00
8,200.00	90.49	0.01	7,357.21	1,057.54	-361.75	1,071.47	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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	90.49	0.01	7,356.35	1,157.53	-361.73	1,171.38	0.00	0.00	0.00
8,400.00	90.49	0.01	7,355.49	1,257.53	-361.72	1,271.30	0.00	0.00	0.00
8,500.00	90.49	0.01	7,354.64	1,357.53	-361.71	1,371.21	0.00	0.00	0.00
8,600.00	90.49	0.01	7,353.78	1,457.52	-361.70	1,471.12	0.00	0.00	0.00
8,700.00	90.49	0.01	7,352.93	1,557.52	-361.69	1,571.03	0.00	0.00	0.00
8,800.00	90.49	0.01	7,352.07	1,657.52	-361.68	1,670.94	0.00	0.00	0.00
8,900.00	90.49	0.01	7,351.22	1,757.51	-361.67	1,770.86	0.00	0.00	0.00
9,000.00	90.49	0.01	7,350.36	1,857.51	-361.65	1,870.77	0.00	0.00	0.00
9,100.00	90.49	0.01	7,349.51	1,957.50	-361.64	1,970.68	0.00	0.00	0.00
9,200.00	90.49	0.01	7,348.65	2,057.50	-361.63	2,070.59	0.00	0.00	0.00
9,300.00	90.49	0.01	7,347.80	2,157.50	-361.62	2,170.50	0.00	0.00	0.00
9,400.00	90.49	0.01	7,346.94	2,257.49	-361.61	2,270.42	0.00	0.00	0.00
9,500.00	90.49	0.01	7,346.09	2,357.49	-361.60	2,370.33	0.00	0.00	0.00
9,600.00	90.49	0.01	7,345.23	2,457.49	-361.59	2,470.24	0.00	0.00	0.00
9,700.00	90.49	0.01	7,344.38	2,557.48	-361.57	2,570.15	0.00	0.00	0.00
9,800.00	90.49	0.01	7,343.52	2,657.48	-361.56	2,670.06	0.00	0.00	0.00
9,900.00	90.49	0.01	7,342.67	2,757.48	-361.55	2,769.97	0.00	0.00	0.00
10,000.00	90.49	0.01	7,341.81	2,857.47	-361.54	2,869.89	0.00	0.00	0.00
10,100.00	90.49	0.01	7,340.96	2,957.47	-361.53	2,969.80	0.00	0.00	0.00
10,200.00	90.49	0.01	7,340.10	3,057.46	-361.52	3,069.71	0.00	0.00	0.00
10,300.00	90.49	0.01	7,339.25	3,157.46	-361.51	3,169.62	0.00	0.00	0.00
10,400.00	90.49	0.01	7,338.39	3,257.46	-361.50	3,269.53	0.00	0.00	0.00
10,500.00	90.49	0.01	7,337.54	3,357.45	-361.48	3,369.45	0.00	0.00	0.00
10,600.00	90.49	0.01	7,336.68	3,457.45	-361.47	3,469.36	0.00	0.00	0.00
10,700.00	90.49	0.01	7,335.83	3,557.45	-361.46	3,569.27	0.00	0.00	0.00
10,800.00	90.49	0.01	7,334.97	3,657.44	-361.45	3,669.18	0.00	0.00	0.00
10,900.00	90.49	0.01	7,334.11	3,757.44	-361.44	3,769.09	0.00	0.00	0.00
11,000.00	90.49	0.01	7,333.26	3,857.43	-361.43	3,869.01	0.00	0.00	0.00
11,100.00	90.49	0.01	7,332.40	3,957.43	-361.42	3,968.92	0.00	0.00	0.00
11,200.00	90.49	0.01	7,331.55	4,057.43	-361.40	4,068.83	0.00	0.00	0.00
11,300.00	90.49	0.01	7,330.69	4,157.42	-361.39	4,168.74	0.00	0.00	0.00
11,400.00	90.49	0.01	7,329.84	4,257.42	-361.38	4,268.65	0.00	0.00	0.00
11,500.00	90.49	0.01	7,328.98	4,357.42	-361.37	4,368.56	0.00	0.00	0.00
11,600.00	90.49	0.01	7,328.13	4,457.41	-361.36	4,468.48	0.00	0.00	0.00
11,700.00	90.49	0.01	7,327.27	4,557.41	-361.35	4,568.39	0.00	0.00	0.00
11,800.00	90.49	0.01	7,326.42	4,657.41	-361.34	4,668.30	0.00	0.00	0.00
11,900.00	90.49	0.01	7,325.56	4,757.40	-361.32	4,768.21	0.00	0.00	0.00
12,000.00	90.49	0.01	7,324.71	4,857.40	-361.31	4,868.12	0.00	0.00	0.00
12,100.00	90.49	0.01	7,323.85	4,957.39	-361.30	4,968.04	0.00	0.00	0.00
12,200.00	90.49	0.01	7,323.00	5,057.39	-361.29	5,067.95	0.00	0.00	0.00
12,300.00	90.49	0.01	7,322.14	5,157.39	-361.28	5,167.86	0.00	0.00	0.00
12,400.00	90.49	0.01	7,321.29	5,257.38	-361.27	5,267.77	0.00	0.00	0.00
12,500.00	90.49	0.01	7,320.43	5,357.38	-361.26	5,367.68	0.00	0.00	0.00
12,600.00	90.49	0.01	7,319.58	5,457.38	-361.25	5,467.60	0.00	0.00	0.00
12,700.00	90.49	0.01	7,318.72	5,557.37	-361.23	5,567.51	0.00	0.00	0.00
12,800.00	90.49	0.01	7,317.87	5,657.37	-361.22	5,667.42	0.00	0.00	0.00
12,900.00	90.49	0.01	7,317.01	5,757.37	-361.21	5,767.33	0.00	0.00	0.00
13,000.00	90.49	0.01	7,316.16	5,857.36	-361.20	5,867.24	0.00	0.00	0.00
13,100.00	90.49	0.01	7,315.30	5,957.36	-361.19	5,967.16	0.00	0.00	0.00
13,200.00	90.49	0.01	7,314.45	6,057.35	-361.18	6,067.07	0.00	0.00	0.00
13,300.00	90.49	0.01	7,313.59	6,157.35	-361.17	6,166.98	0.00	0.00	0.00
13,400.00	90.49	0.01	7,312.73	6,257.35	-361.15	6,266.89	0.00	0.00	0.00
13,500.00	90.49	0.01	7,311.88	6,357.34	-361.14	6,366.80	0.00	0.00	0.00
13,600.00	90.49	0.01	7,311.02	6,457.34	-361.13	6,466.71	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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	90.49	0.01	7,310.17	6,557.34	-361.12	6,566.63	0.00	0.00	0.00
13,800.00	90.49	0.01	7,309.31	6,657.33	-361.11	6,666.54	0.00	0.00	0.00
13,900.00	90.49	0.01	7,308.46	6,757.33	-361.10	6,766.45	0.00	0.00	0.00
14,000.00	90.49	0.01	7,307.60	6,857.33	-361.09	6,866.36	0.00	0.00	0.00
14,100.00	90.49	0.01	7,306.75	6,957.32	-361.07	6,966.27	0.00	0.00	0.00
14,200.00	90.49	0.01	7,305.89	7,057.32	-361.06	7,066.19	0.00	0.00	0.00
14,300.00	90.49	0.01	7,305.04	7,157.31	-361.05	7,166.10	0.00	0.00	0.00
14,400.00	90.49	0.01	7,304.18	7,257.31	-361.04	7,266.01	0.00	0.00	0.00
14,500.00	90.49	0.01	7,303.33	7,357.31	-361.03	7,365.92	0.00	0.00	0.00
14,600.00	90.49	0.01	7,302.47	7,457.30	-361.02	7,465.83	0.00	0.00	0.00
14,700.00	90.49	0.01	7,301.62	7,557.30	-361.01	7,565.75	0.00	0.00	0.00
14,800.00	90.49	0.01	7,300.76	7,657.30	-361.00	7,665.66	0.00	0.00	0.00
14,900.00	90.49	0.01	7,299.91	7,757.29	-360.98	7,765.57	0.00	0.00	0.00
15,000.00	90.49	0.01	7,299.05	7,857.29	-360.97	7,865.48	0.00	0.00	0.00
15,100.00	90.49	0.01	7,298.20	7,957.28	-360.96	7,965.39	0.00	0.00	0.00
15,200.00	90.49	0.01	7,297.34	8,057.28	-360.95	8,065.30	0.00	0.00	0.00
15,300.00	90.49	0.01	7,296.49	8,157.28	-360.94	8,165.22	0.00	0.00	0.00
15,400.00	90.49	0.01	7,295.63	8,257.27	-360.93	8,265.13	0.00	0.00	0.00
15,500.00	90.49	0.01	7,294.78	8,357.27	-360.92	8,365.04	0.00	0.00	0.00
15,600.00	90.49	0.01	7,293.92	8,457.27	-360.90	8,464.95	0.00	0.00	0.00
15,700.00	90.49	0.01	7,293.07	8,557.26	-360.89	8,564.86	0.00	0.00	0.00
15,800.00	90.49	0.01	7,292.21	8,657.26	-360.88	8,664.78	0.00	0.00	0.00
15,900.00	90.49	0.01	7,291.35	8,757.26	-360.87	8,764.69	0.00	0.00	0.00
15,941.47	90.49	0.01	7,291.00	8,798.73	-360.87	8,806.12	0.00	0.00	0.00
BUTTERBALL 11N-34HZ_PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BUTTERBALL 11N-34 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,291.00	8,798.73	-360.87	14,592,959.00	1,674,148.00	40.181802	-104.879232
BUTTERBALL 11N-34 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,361.10	602.06	-361.80	14,584,762.34	1,674,158.33	40.159293	-104.879235

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,503.50	1,500.00	9 5/8"	9-5/8	13-1/2	
7,744.51	7,361.10	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 11N-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 11N-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 (°)	
1,033.93	1,032.00	Fox Hills				
3,984.81	3,973.00	Parkman				
4,410.24	4,397.00	Sussex				
7,206.43	7,151.00	Sharon Springs				
7,329.73	7,234.00	Niobrara				
7,435.26	7,290.00	Nio B				
7,578.57	7,341.00	Nio C				