

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-67W-10 Butterball 4-10HZ Pad
BUTTERBALL 32C-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: 10/11/2016
Model: IGRF2010

SITE: 2N-67W-10 Butterball 4-10HZ Pad

Well: BUTTERBALL 32C-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1043.00	1046.41	Fox Hills
3972.00	3983.69	Parkman
4387.00	4418.69	Sussex
7159.00	7191.11	Sharon Springs
7242.00	7287.91	Niobrara
7300.00	7362.14	Nio B
7354.00	7439.06	Nio C
7480.00	7695.84	Fort Hayes
7502.00	7787.26	Codell

WELL DETAILS: BUTTERBALL 32C-34HZ

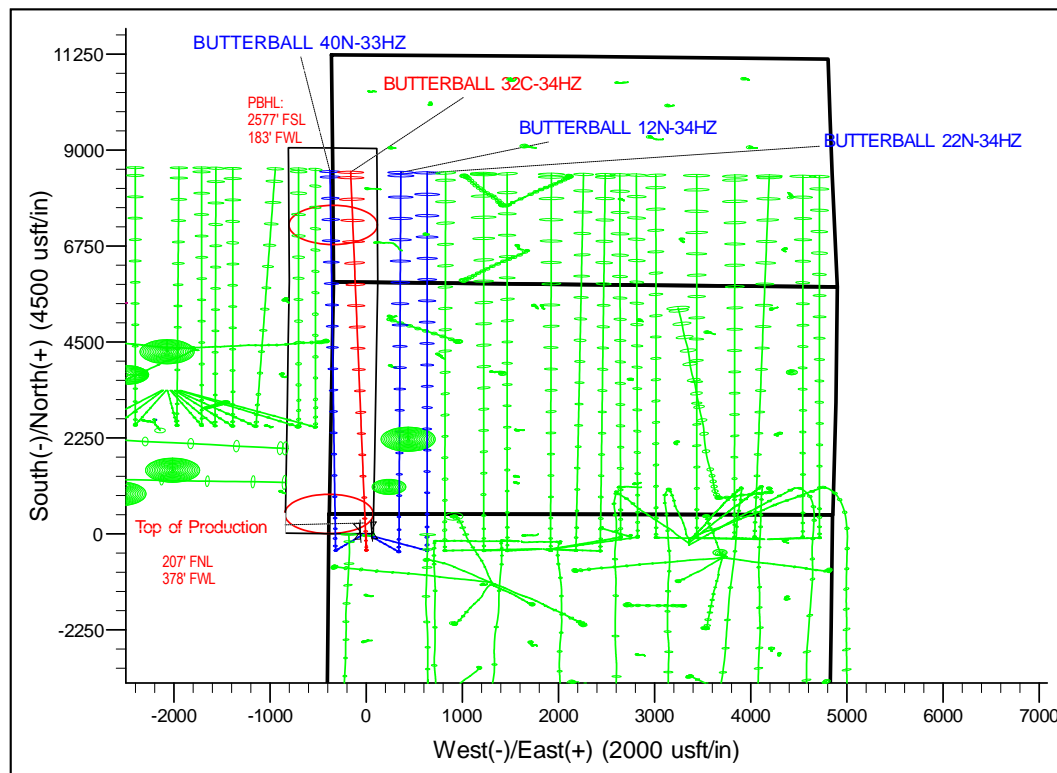
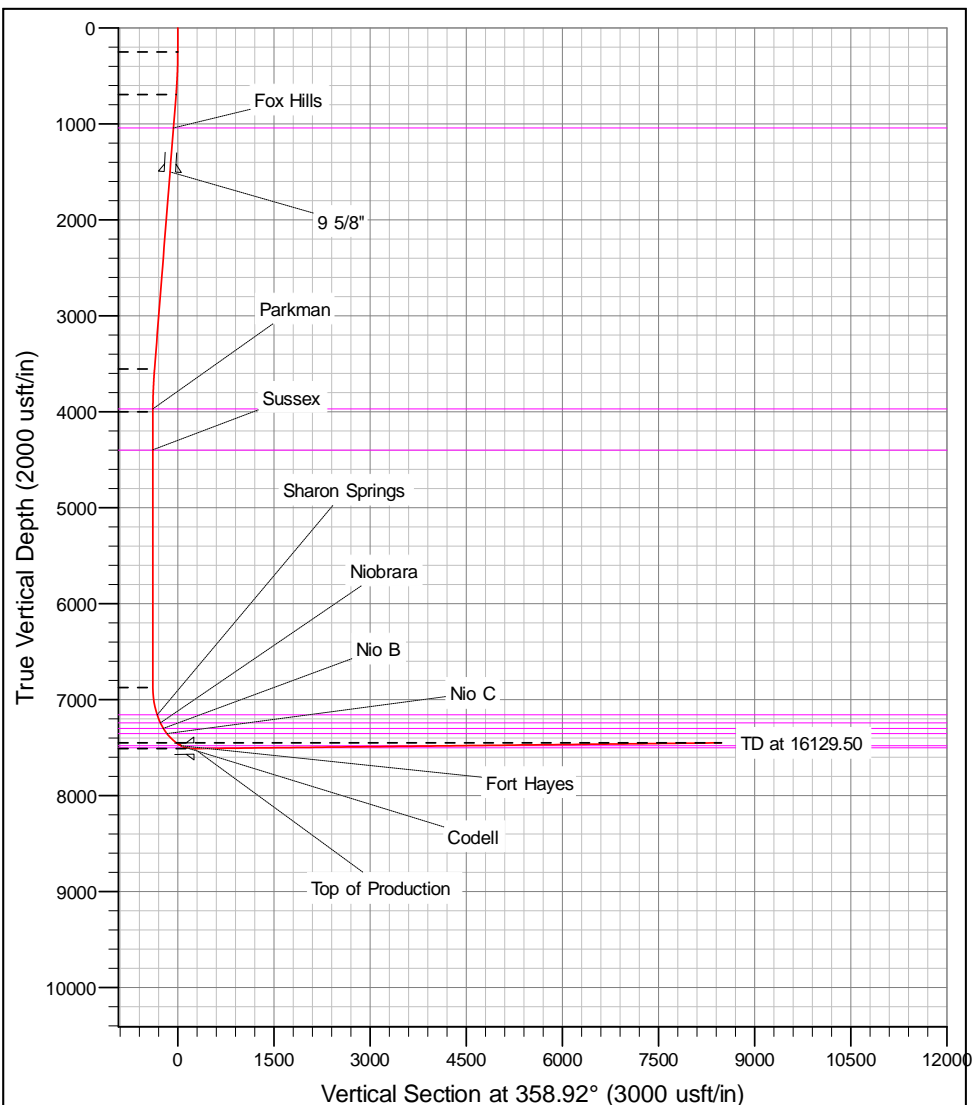
+N/-S	+E/-W	GL: 4945.00	RKB @ 4962.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northing 14584515.20	Easting 1672691.50	Latitude 40.158620	-104.884486

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
696.68	6.70	179.77	695.66	-26.09	0.10	1.50	-26.08
3575.01	6.70	179.77	3554.34	-361.91	1.43	0.00	-361.87
4021.69	0.00	0.00	4000.00	-388.00	1.53	1.50	-387.96
6896.41	0.00	0.00	6874.71	-388.00	1.53	0.00	-387.96
7901.07	90.42	358.95	7511.32	253.18	-10.18	9.00	253.33
16129.50	90.42	358.95	7451.00	8480.01	-160.47	0.00	8481.53

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 32C-34HZ_PBHL	7451.00	8480.01	-160.47	14592995.00	1672520.00	40.181907	-104.885061



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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 4-10HZ Pad											
Site Position:						Northing:			14,584,525.74 usft			Latitude:			40.158649		
From:			Lat/Long			Easting:			1,672,681.14 usft			Longitude:			-104.884523		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.07		

Well	BUTTERBALL 32C-34HZ					
Well Position	+N/-S	-10.56 usft	Northing:	14,584,515.20 usft	Latitude:	40.158620
	+E/-W	10.34 usft	Easting:	1,672,691.50 usft	Longitude:	-104.884486
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,945.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/11/2016	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	358.92

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	
696.68	6.70	179.77	695.66	-26.09	0.10	1.50	1.50	0.00	179.77	
3,575.01	6.70	179.77	3,554.34	-361.91	1.43	0.00	0.00	0.00	0.00	
4,021.69	0.00	0.00	4,000.00	-388.00	1.53	1.50	-1.50	0.00	180.00	
6,896.41	0.00	0.00	6,874.71	-388.00	1.53	0.00	0.00	0.00	0.00	
7,901.07	90.42	358.95	7,511.32	253.18	-10.18	9.00	9.00	0.00	358.95	
16,129.50	90.42	358.95	7,451.00	8,480.01	-160.47	0.00	0.00	0.00	0.00	BUTTERBALL 32C

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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	179.77	300.00	-0.33	0.00	-0.33	1.50	1.50	0.00
400.00	2.25	179.77	399.96	-2.94	0.01	-2.94	1.50	1.50	0.00
500.00	3.75	179.77	499.82	-8.18	0.03	-8.18	1.50	1.50	0.00
600.00	5.25	179.77	599.51	-16.02	0.06	-16.02	1.50	1.50	0.00
696.68	6.70	179.77	695.66	-26.09	0.10	-26.08	1.50	1.50	0.00
700.00	6.70	179.77	698.96	-26.47	0.10	-26.47	0.00	0.00	0.00
800.00	6.70	179.77	798.28	-38.14	0.15	-38.14	0.00	0.00	0.00
900.00	6.70	179.77	897.59	-49.81	0.20	-49.80	0.00	0.00	0.00
1,000.00	6.70	179.77	996.91	-61.48	0.24	-61.47	0.00	0.00	0.00
1,046.41	6.70	179.77	1,043.00	-66.89	0.26	-66.88	0.00	0.00	0.00
Fox Hills									
1,100.00	6.70	179.77	1,096.23	-73.14	0.29	-73.14	0.00	0.00	0.00
1,200.00	6.70	179.77	1,195.55	-84.81	0.33	-84.80	0.00	0.00	0.00
1,300.00	6.70	179.77	1,294.86	-96.48	0.38	-96.47	0.00	0.00	0.00
1,400.00	6.70	179.77	1,394.18	-108.15	0.43	-108.13	0.00	0.00	0.00
1,500.00	6.70	179.77	1,493.50	-119.81	0.47	-119.80	0.00	0.00	0.00
1,506.55	6.70	179.77	1,500.00	-120.58	0.48	-120.57	0.00	0.00	0.00
9 5/8"									
1,600.00	6.70	179.77	1,592.81	-131.48	0.52	-131.47	0.00	0.00	0.00
1,700.00	6.70	179.77	1,692.13	-143.15	0.56	-143.13	0.00	0.00	0.00
1,800.00	6.70	179.77	1,791.45	-154.82	0.61	-154.80	0.00	0.00	0.00
1,900.00	6.70	179.77	1,890.76	-166.48	0.66	-166.47	0.00	0.00	0.00
2,000.00	6.70	179.77	1,990.08	-178.15	0.70	-178.13	0.00	0.00	0.00
2,100.00	6.70	179.77	2,089.40	-189.82	0.75	-189.80	0.00	0.00	0.00
2,200.00	6.70	179.77	2,188.72	-201.49	0.79	-201.46	0.00	0.00	0.00
2,300.00	6.70	179.77	2,288.03	-213.15	0.84	-213.13	0.00	0.00	0.00
2,400.00	6.70	179.77	2,387.35	-224.82	0.89	-224.80	0.00	0.00	0.00
2,500.00	6.70	179.77	2,486.67	-236.49	0.93	-236.46	0.00	0.00	0.00
2,600.00	6.70	179.77	2,585.98	-248.15	0.98	-248.13	0.00	0.00	0.00
2,700.00	6.70	179.77	2,685.30	-259.82	1.02	-259.79	0.00	0.00	0.00
2,800.00	6.70	179.77	2,784.62	-271.49	1.07	-271.46	0.00	0.00	0.00
2,900.00	6.70	179.77	2,883.93	-283.16	1.12	-283.13	0.00	0.00	0.00
3,000.00	6.70	179.77	2,983.25	-294.82	1.16	-294.79	0.00	0.00	0.00
3,100.00	6.70	179.77	3,082.57	-306.49	1.21	-306.46	0.00	0.00	0.00
3,200.00	6.70	179.77	3,181.89	-318.16	1.25	-318.13	0.00	0.00	0.00
3,300.00	6.70	179.77	3,281.20	-329.83	1.30	-329.79	0.00	0.00	0.00
3,400.00	6.70	179.77	3,380.52	-341.49	1.35	-341.46	0.00	0.00	0.00
3,500.00	6.70	179.77	3,479.84	-353.16	1.39	-353.12	0.00	0.00	0.00
3,575.01	6.70	179.77	3,554.34	-361.91	1.43	-361.87	0.00	0.00	0.00
3,600.00	6.33	179.77	3,579.16	-364.75	1.44	-364.71	1.50	-1.50	0.00
3,700.00	4.83	179.77	3,678.69	-374.46	1.48	-374.42	1.50	-1.50	0.00
3,800.00	3.33	179.77	3,778.43	-381.57	1.50	-381.53	1.50	-1.50	0.00
3,900.00	1.83	179.77	3,878.33	-386.06	1.52	-386.02	1.50	-1.50	0.00
3,993.69	0.42	179.77	3,972.00	-387.90	1.53	-387.86	1.50	-1.50	0.00
Parkman									
4,000.00	0.33	179.77	3,978.31	-387.94	1.53	-387.90	1.50	-1.50	0.00
4,021.69	0.00	0.00	4,000.00	-388.00	1.53	-387.96	1.50	-1.50	0.00
4,100.00	0.00	0.00	4,078.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,200.00	0.00	0.00	4,178.31	-388.00	1.53	-387.96	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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	4,278.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,400.00	0.00	0.00	4,378.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,418.69	0.00	0.00	4,397.00	-388.00	1.53	-387.96	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,478.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,600.00	0.00	0.00	4,578.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,700.00	0.00	0.00	4,678.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,800.00	0.00	0.00	4,778.31	-388.00	1.53	-387.96	0.00	0.00	0.00
4,900.00	0.00	0.00	4,878.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,000.00	0.00	0.00	4,978.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,100.00	0.00	0.00	5,078.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,200.00	0.00	0.00	5,178.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,300.00	0.00	0.00	5,278.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,400.00	0.00	0.00	5,378.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,500.00	0.00	0.00	5,478.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,600.00	0.00	0.00	5,578.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,700.00	0.00	0.00	5,678.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,800.00	0.00	0.00	5,778.31	-388.00	1.53	-387.96	0.00	0.00	0.00
5,900.00	0.00	0.00	5,878.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,000.00	0.00	0.00	5,978.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,100.00	0.00	0.00	6,078.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,200.00	0.00	0.00	6,178.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,300.00	0.00	0.00	6,278.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,400.00	0.00	0.00	6,378.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,500.00	0.00	0.00	6,478.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,600.00	0.00	0.00	6,578.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,700.00	0.00	0.00	6,678.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,800.00	0.00	0.00	6,778.31	-388.00	1.53	-387.96	0.00	0.00	0.00
6,896.41	0.00	0.00	6,874.71	-388.00	1.53	-387.96	0.00	0.00	0.00
6,900.00	0.32	358.95	6,878.31	-387.99	1.53	-387.95	9.00	9.00	0.00
7,000.00	9.32	358.95	6,977.85	-379.59	1.38	-379.55	9.00	9.00	0.00
7,100.00	18.32	358.95	7,074.85	-355.73	0.94	-355.68	9.00	9.00	0.00
7,191.11	26.52	358.95	7,159.00	-321.01	0.31	-320.96	9.00	9.00	0.00
Sharon Springs									
7,200.00	27.32	358.95	7,166.93	-316.98	0.23	-316.93	9.00	9.00	0.00
7,287.91	35.23	358.95	7,242.00	-271.39	-0.60	-271.33	9.00	9.00	0.00
Niobrara									
7,300.00	36.32	358.95	7,251.81	-264.32	-0.73	-264.26	9.00	9.00	0.00
7,362.14	41.92	358.95	7,300.00	-225.13	-1.45	-225.07	9.00	9.00	0.00
Nio B									
7,400.00	45.32	358.95	7,327.41	-199.02	-1.92	-198.95	9.00	9.00	0.00
7,439.06	48.84	358.95	7,354.00	-170.43	-2.44	-170.35	9.00	9.00	0.00
Nio C									
7,500.00	54.32	358.95	7,391.85	-122.71	-3.32	-122.62	9.00	9.00	0.00
7,600.00	63.32	358.95	7,443.57	-37.25	-4.88	-37.15	9.00	9.00	0.00
7,695.84	71.95	358.95	7,480.00	51.28	-6.49	51.39	9.00	9.00	0.00
Fort Hayes									
7,700.00	72.32	358.95	7,481.28	55.24	-6.57	55.35	9.00	9.00	0.00
7,787.26	80.18	358.95	7,502.00	139.92	-8.11	140.04	9.00	9.00	0.00
Codell									
7,800.00	81.32	358.95	7,504.05	152.49	-8.34	152.62	9.00	9.00	0.00
7,900.00	90.32	358.95	7,511.32	252.11	-10.16	252.25	9.00	9.00	0.00
7,901.07	90.42	358.95	7,511.32	253.18	-10.18	253.32	9.00	9.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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)
Top of Production - BUTTERBALL 32C-34HZ_PHL									
8,000.00	90.42	358.95	7,510.59	352.09	-11.99	352.25	0.00	0.00	0.00
8,100.00	90.42	358.95	7,509.86	452.07	-13.82	452.25	0.00	0.00	0.00
8,200.00	90.42	358.95	7,509.13	552.05	-15.64	552.24	0.00	0.00	0.00
8,300.00	90.42	358.95	7,508.39	652.03	-17.47	652.24	0.00	0.00	0.00
8,400.00	90.42	358.95	7,507.66	752.01	-19.30	752.24	0.00	0.00	0.00
8,500.00	90.42	358.95	7,506.93	851.99	-21.12	852.24	0.00	0.00	0.00
8,600.00	90.42	358.95	7,506.19	951.97	-22.95	952.23	0.00	0.00	0.00
8,700.00	90.42	358.95	7,505.46	1,051.95	-24.78	1,052.23	0.00	0.00	0.00
8,800.00	90.42	358.95	7,504.73	1,151.93	-26.60	1,152.23	0.00	0.00	0.00
8,900.00	90.42	358.95	7,503.99	1,251.91	-28.43	1,252.23	0.00	0.00	0.00
9,000.00	90.42	358.95	7,503.26	1,351.89	-30.25	1,352.22	0.00	0.00	0.00
9,100.00	90.42	358.95	7,502.53	1,451.87	-32.08	1,452.22	0.00	0.00	0.00
9,200.00	90.42	358.95	7,501.80	1,551.85	-33.91	1,552.22	0.00	0.00	0.00
9,300.00	90.42	358.95	7,501.06	1,651.83	-35.73	1,652.21	0.00	0.00	0.00
9,400.00	90.42	358.95	7,500.33	1,751.82	-37.56	1,752.21	0.00	0.00	0.00
9,500.00	90.42	358.95	7,499.60	1,851.80	-39.39	1,852.21	0.00	0.00	0.00
9,600.00	90.42	358.95	7,498.86	1,951.78	-41.21	1,952.21	0.00	0.00	0.00
9,700.00	90.42	358.95	7,498.13	2,051.76	-43.04	2,052.20	0.00	0.00	0.00
9,800.00	90.42	358.95	7,497.40	2,151.74	-44.87	2,152.20	0.00	0.00	0.00
9,900.00	90.42	358.95	7,496.66	2,251.72	-46.69	2,252.20	0.00	0.00	0.00
10,000.00	90.42	358.95	7,495.93	2,351.70	-48.52	2,352.20	0.00	0.00	0.00
10,100.00	90.42	358.95	7,495.20	2,451.68	-50.35	2,452.19	0.00	0.00	0.00
10,200.00	90.42	358.95	7,494.47	2,551.66	-52.17	2,552.19	0.00	0.00	0.00
10,300.00	90.42	358.95	7,493.73	2,651.64	-54.00	2,652.19	0.00	0.00	0.00
10,400.00	90.42	358.95	7,493.00	2,751.62	-55.83	2,752.19	0.00	0.00	0.00
10,500.00	90.42	358.95	7,492.27	2,851.60	-57.65	2,852.18	0.00	0.00	0.00
10,600.00	90.42	358.95	7,491.53	2,951.58	-59.48	2,952.18	0.00	0.00	0.00
10,700.00	90.42	358.95	7,490.80	3,051.56	-61.30	3,052.18	0.00	0.00	0.00
10,800.00	90.42	358.95	7,490.07	3,151.54	-63.13	3,152.17	0.00	0.00	0.00
10,900.00	90.42	358.95	7,489.33	3,251.52	-64.96	3,252.17	0.00	0.00	0.00
11,000.00	90.42	358.95	7,488.60	3,351.51	-66.78	3,352.17	0.00	0.00	0.00
11,100.00	90.42	358.95	7,487.87	3,451.49	-68.61	3,452.17	0.00	0.00	0.00
11,200.00	90.42	358.95	7,487.13	3,551.47	-70.44	3,552.16	0.00	0.00	0.00
11,300.00	90.42	358.95	7,486.40	3,651.45	-72.26	3,652.16	0.00	0.00	0.00
11,400.00	90.42	358.95	7,485.67	3,751.43	-74.09	3,752.16	0.00	0.00	0.00
11,500.00	90.42	358.95	7,484.94	3,851.41	-75.92	3,852.16	0.00	0.00	0.00
11,600.00	90.42	358.95	7,484.20	3,951.39	-77.74	3,952.15	0.00	0.00	0.00
11,700.00	90.42	358.95	7,483.47	4,051.37	-79.57	4,052.15	0.00	0.00	0.00
11,800.00	90.42	358.95	7,482.74	4,151.35	-81.40	4,152.15	0.00	0.00	0.00
11,900.00	90.42	358.95	7,482.00	4,251.33	-83.22	4,252.14	0.00	0.00	0.00
12,000.00	90.42	358.95	7,481.27	4,351.31	-85.05	4,352.14	0.00	0.00	0.00
12,100.00	90.42	358.95	7,480.54	4,451.29	-86.87	4,452.14	0.00	0.00	0.00
12,200.00	90.42	358.95	7,479.80	4,551.27	-88.70	4,552.14	0.00	0.00	0.00
12,300.00	90.42	358.95	7,479.07	4,651.25	-90.53	4,652.13	0.00	0.00	0.00
12,400.00	90.42	358.95	7,478.34	4,751.23	-92.35	4,752.13	0.00	0.00	0.00
12,500.00	90.42	358.95	7,477.61	4,851.21	-94.18	4,852.13	0.00	0.00	0.00
12,600.00	90.42	358.95	7,476.87	4,951.20	-96.01	4,952.13	0.00	0.00	0.00
12,700.00	90.42	358.95	7,476.14	5,051.18	-97.83	5,052.12	0.00	0.00	0.00
12,800.00	90.42	358.95	7,475.41	5,151.16	-99.66	5,152.12	0.00	0.00	0.00
12,900.00	90.42	358.95	7,474.67	5,251.14	-101.49	5,252.12	0.00	0.00	0.00
13,000.00	90.42	358.95	7,473.94	5,351.12	-103.31	5,352.11	0.00	0.00	0.00
13,100.00	90.42	358.95	7,473.21	5,451.10	-105.14	5,452.11	0.00	0.00	0.00
13,200.00	90.42	358.95	7,472.47	5,551.08	-106.97	5,552.11	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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	90.42	358.95	7,471.74	5,651.06	-108.79	5,652.11	0.00	0.00	0.00	
13,400.00	90.42	358.95	7,471.01	5,751.04	-110.62	5,752.10	0.00	0.00	0.00	
13,500.00	90.42	358.95	7,470.28	5,851.02	-112.45	5,852.10	0.00	0.00	0.00	
13,600.00	90.42	358.95	7,469.54	5,951.00	-114.27	5,952.10	0.00	0.00	0.00	
13,700.00	90.42	358.95	7,468.81	6,050.98	-116.10	6,052.10	0.00	0.00	0.00	
13,800.00	90.42	358.95	7,468.08	6,150.96	-117.92	6,152.09	0.00	0.00	0.00	
13,900.00	90.42	358.95	7,467.34	6,250.94	-119.75	6,252.09	0.00	0.00	0.00	
14,000.00	90.42	358.95	7,466.61	6,350.92	-121.58	6,352.09	0.00	0.00	0.00	
14,100.00	90.42	358.95	7,465.88	6,450.90	-123.40	6,452.08	0.00	0.00	0.00	
14,200.00	90.42	358.95	7,465.14	6,550.89	-125.23	6,552.08	0.00	0.00	0.00	
14,300.00	90.42	358.95	7,464.41	6,650.87	-127.06	6,652.08	0.00	0.00	0.00	
14,400.00	90.42	358.95	7,463.68	6,750.85	-128.88	6,752.08	0.00	0.00	0.00	
14,500.00	90.42	358.95	7,462.94	6,850.83	-130.71	6,852.07	0.00	0.00	0.00	
14,600.00	90.42	358.95	7,462.21	6,950.81	-132.54	6,952.07	0.00	0.00	0.00	
14,700.00	90.42	358.95	7,461.48	7,050.79	-134.36	7,052.07	0.00	0.00	0.00	
14,800.00	90.42	358.95	7,460.75	7,150.77	-136.19	7,152.07	0.00	0.00	0.00	
14,900.00	90.42	358.95	7,460.01	7,250.75	-138.02	7,252.06	0.00	0.00	0.00	
15,000.00	90.42	358.95	7,459.28	7,350.73	-139.84	7,352.06	0.00	0.00	0.00	
15,100.00	90.42	358.95	7,458.55	7,450.71	-141.67	7,452.06	0.00	0.00	0.00	
15,200.00	90.42	358.95	7,457.81	7,550.69	-143.50	7,552.06	0.00	0.00	0.00	
15,300.00	90.42	358.95	7,457.08	7,650.67	-145.32	7,652.05	0.00	0.00	0.00	
15,400.00	90.42	358.95	7,456.35	7,750.65	-147.15	7,752.05	0.00	0.00	0.00	
15,500.00	90.42	358.95	7,455.61	7,850.63	-148.97	7,852.05	0.00	0.00	0.00	
15,600.00	90.42	358.95	7,454.88	7,950.61	-150.80	7,952.04	0.00	0.00	0.00	
15,700.00	90.42	358.95	7,454.15	8,050.59	-152.63	8,052.04	0.00	0.00	0.00	
15,800.00	90.42	358.95	7,453.42	8,150.58	-154.45	8,152.04	0.00	0.00	0.00	
15,900.00	90.42	358.95	7,452.68	8,250.56	-156.28	8,252.04	0.00	0.00	0.00	
16,000.00	90.42	358.95	7,451.95	8,350.54	-158.11	8,352.03	0.00	0.00	0.00	
16,100.00	90.42	358.95	7,451.22	8,450.52	-159.93	8,452.03	0.00	0.00	0.00	
16,129.50	90.42	358.95	7,451.00	8,480.01	-160.47	8,481.53	0.00	0.00	0.00	
BUTTERBALL 32C-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 32C-34	0.00	0.00	7,451.00	8,480.01	-160.47	14,592,995.00	1,672,520.00	40.181907	-104.885061
- plan hits target center									
- Point									
BUTTERBALL 32C-34	0.00	0.00	7,511.32	253.18	-10.18	14,584,768.36	1,672,680.98	40.159315	-104.884523
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,506.55	1,500.00	9 5/8"	9-5/8	13-1/2	
7,901.07	7,511.32	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 32C-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4962.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4962.00usft (D Rig)
Site:	2N-67W-10 Butterball 4-10HZ Pad	North Reference:	True
Well:	BUTTERBALL 32C-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 (°)
	1,046.41	1,043.00	Fox Hills		0.00	
	3,993.69	3,972.00	Parkman			
	4,418.69	4,397.00	Sussex			
	7,191.11	7,159.00	Sharon Springs			
	7,287.91	7,242.00	Niobrara			
	7,362.14	7,300.00	Nio B			
	7,439.06	7,354.00	Nio C			
	7,695.84	7,480.00	Fort Hayes			
	7,787.26	7,502.00	Codell			