

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-67W-10 Butterball 4-10HZ Pad
BUTTERBALL 22N-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 22N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1043.00	1048.27	Fox Hills
3972.00	4020.02	Parkman
4387.00	4451.18	Sussex
7159.00	7259.18	Sharon Springs
7242.00	7384.92	Niobrara
7293.00	7483.16	Nio B
7341.00	7618.64	Nio C

WELL DETAILS: BUTTERBALL 22N-34HZ

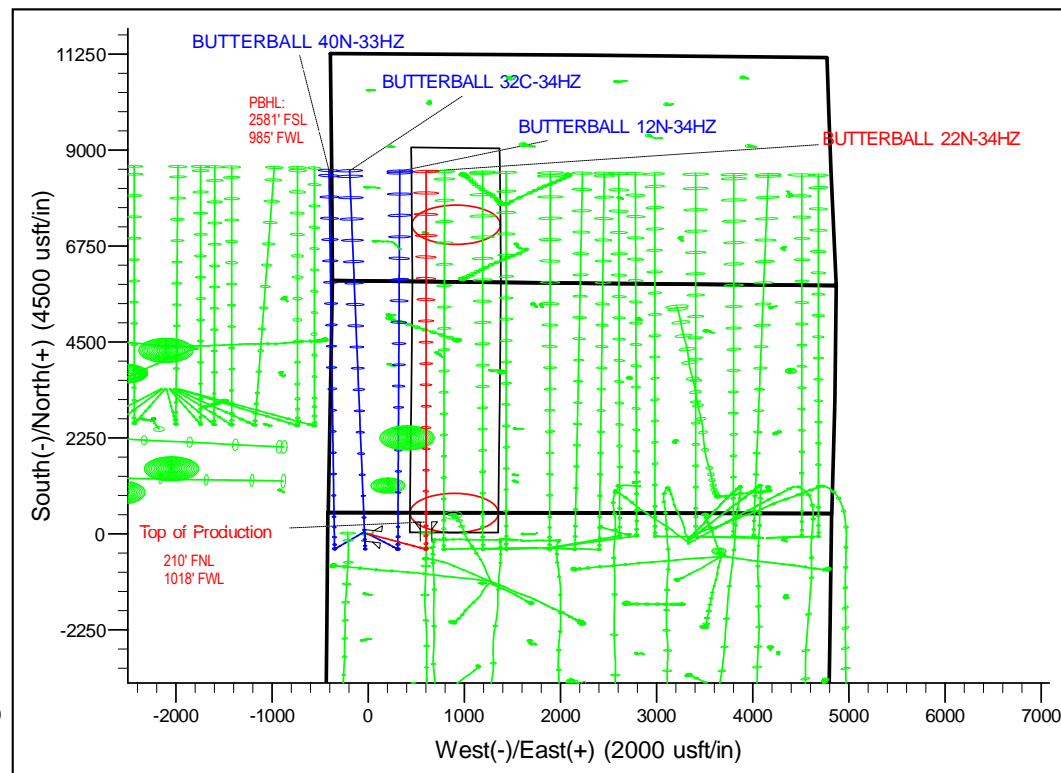
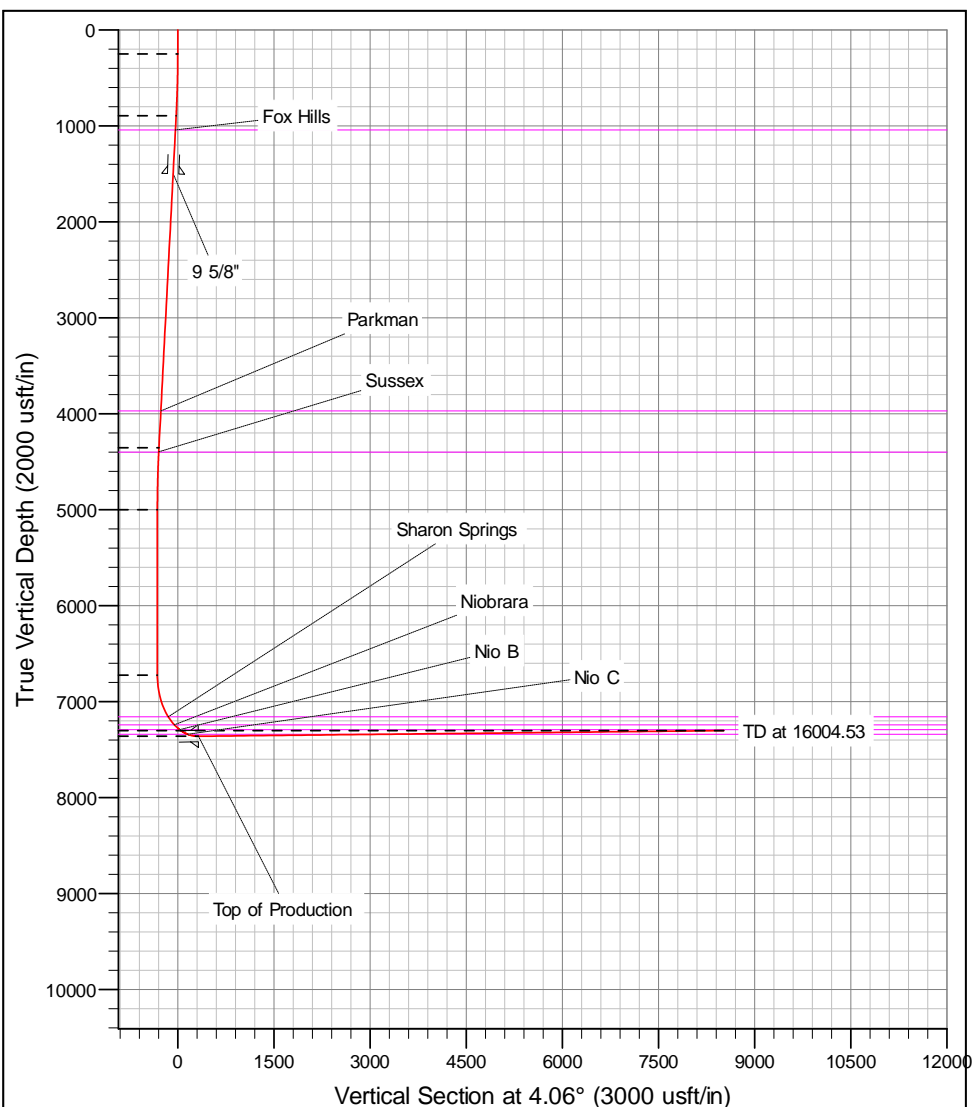
+N/-S	+E/-W	GL: 4945.00 Northing	RKB @ 4962.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14584483.20	1672723.39	40.158532	-104.884372	

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
898.71	9.73	120.99	895.59	-28.30	47.11	1.50	-24.89
4408.01	9.73	120.99	4354.41	-333.70	555.56	0.00	-293.56
5056.71	0.00	0.00	5000.00	-362.00	602.67	1.50	-318.45
6781.92	0.00	0.00	6725.20	-362.00	602.67	0.00	-318.45
7786.47	90.41	360.00	7361.81	279.18	602.67	9.00	321.11
16004.53	90.41	360.00	7303.00	8497.03	602.67	0.00	8518.37

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BUTTERBALL 22N-34HZ_PBHL	7303.00	8497.03	602.67	14592981.00	1673315.00	40.181866	-104.882214



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 22N-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 22N-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 22N-34HZ					
Well Position	+N/-S	-42.61 usft	Northing:	14,584,483.19 usft	Latitude:	40.158532
	+E/-W	42.19 usft	Easting:	1,672,723.39 usft	Longitude:	-104.884372
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	4.06

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	
898.71	9.73	120.99	895.59	-28.30	47.11	1.50	1.50	0.00	120.99	
4,408.01	9.73	120.99	4,354.41	-333.70	555.56	0.00	0.00	0.00	0.00	
5,056.71	0.00	0.00	5,000.00	-362.00	602.67	1.50	-1.50	0.00	180.00	
6,781.92	0.00	0.00	6,725.20	-362.00	602.67	0.00	0.00	0.00	0.00	
7,786.47	90.41	360.00	7,361.81	279.18	602.67	9.00	9.00	0.00	360.00	
16,004.53	90.41	360.00	7,303.00	8,497.03	602.67	0.00	0.00	0.00	0.00	BUTTERBALL 22N-

Corporate Planning Report

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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 22N-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	120.99	300.00	-0.17	0.28	-0.15	1.50	1.50	0.00
400.00	2.25	120.99	399.96	-1.52	2.52	-1.33	1.50	1.50	0.00
500.00	3.75	120.99	499.82	-4.21	7.01	-3.70	1.50	1.50	0.00
600.00	5.25	120.99	599.51	-8.25	13.74	-7.26	1.50	1.50	0.00
700.00	6.75	120.99	698.96	-13.63	22.70	-11.99	1.50	1.50	0.00
800.00	8.25	120.99	798.10	-20.35	33.89	-17.91	1.50	1.50	0.00
898.71	9.73	120.99	895.59	-28.30	47.11	-24.89	1.50	1.50	0.00
900.00	9.73	120.99	896.87	-28.41	47.30	-24.99	0.00	0.00	0.00
1,000.00	9.73	120.99	995.43	-37.11	61.78	-32.65	0.00	0.00	0.00
1,048.27	9.73	120.99	1,043.00	-41.31	68.78	-36.34	0.00	0.00	0.00
Fox Hills									
1,100.00	9.73	120.99	1,093.99	-45.81	76.27	-40.30	0.00	0.00	0.00
1,200.00	9.73	120.99	1,192.55	-54.52	90.76	-47.96	0.00	0.00	0.00
1,300.00	9.73	120.99	1,291.11	-63.22	105.25	-55.61	0.00	0.00	0.00
1,400.00	9.73	120.99	1,389.67	-71.92	119.74	-63.27	0.00	0.00	0.00
1,500.00	9.73	120.99	1,488.24	-80.63	134.23	-70.93	0.00	0.00	0.00
1,511.94	9.73	120.99	1,500.00	-81.66	135.96	-71.84	0.00	0.00	0.00
9 5/8"									
1,600.00	9.73	120.99	1,586.80	-89.33	148.72	-78.58	0.00	0.00	0.00
1,700.00	9.73	120.99	1,685.36	-98.03	163.21	-86.24	0.00	0.00	0.00
1,800.00	9.73	120.99	1,783.92	-106.73	177.69	-93.89	0.00	0.00	0.00
1,900.00	9.73	120.99	1,882.48	-115.44	192.18	-101.55	0.00	0.00	0.00
2,000.00	9.73	120.99	1,981.04	-124.14	206.67	-109.21	0.00	0.00	0.00
2,100.00	9.73	120.99	2,079.60	-132.84	221.16	-116.86	0.00	0.00	0.00
2,200.00	9.73	120.99	2,178.16	-141.55	235.65	-124.52	0.00	0.00	0.00
2,300.00	9.73	120.99	2,276.73	-150.25	250.14	-132.17	0.00	0.00	0.00
2,400.00	9.73	120.99	2,375.29	-158.95	264.63	-139.83	0.00	0.00	0.00
2,500.00	9.73	120.99	2,473.85	-167.65	279.12	-147.49	0.00	0.00	0.00
2,600.00	9.73	120.99	2,572.41	-176.36	293.60	-155.14	0.00	0.00	0.00
2,700.00	9.73	120.99	2,670.97	-185.06	308.09	-162.80	0.00	0.00	0.00
2,800.00	9.73	120.99	2,769.53	-193.76	322.58	-170.45	0.00	0.00	0.00
2,900.00	9.73	120.99	2,868.09	-202.46	337.07	-178.11	0.00	0.00	0.00
3,000.00	9.73	120.99	2,966.66	-211.17	351.56	-185.77	0.00	0.00	0.00
3,100.00	9.73	120.99	3,065.22	-219.87	366.05	-193.42	0.00	0.00	0.00
3,200.00	9.73	120.99	3,163.78	-228.57	380.54	-201.08	0.00	0.00	0.00
3,300.00	9.73	120.99	3,262.34	-237.28	395.03	-208.73	0.00	0.00	0.00
3,400.00	9.73	120.99	3,360.90	-245.98	409.51	-216.39	0.00	0.00	0.00
3,500.00	9.73	120.99	3,459.46	-254.68	424.00	-224.05	0.00	0.00	0.00
3,600.00	9.73	120.99	3,558.02	-263.38	438.49	-231.70	0.00	0.00	0.00
3,700.00	9.73	120.99	3,656.59	-272.09	452.98	-239.36	0.00	0.00	0.00
3,800.00	9.73	120.99	3,755.15	-280.79	467.47	-247.01	0.00	0.00	0.00
3,900.00	9.73	120.99	3,853.71	-289.49	481.96	-254.67	0.00	0.00	0.00
4,000.00	9.73	120.99	3,952.27	-298.20	496.45	-262.33	0.00	0.00	0.00
4,020.02	9.73	120.99	3,972.00	-299.94	499.35	-263.86	0.00	0.00	0.00
Parkman									
4,100.00	9.73	120.99	4,050.83	-306.90	510.94	-269.98	0.00	0.00	0.00
4,200.00	9.73	120.99	4,149.39	-315.60	525.42	-277.64	0.00	0.00	0.00
4,300.00	9.73	120.99	4,247.95	-324.30	539.91	-285.29	0.00	0.00	0.00
4,400.00	9.73	120.99	4,346.51	-333.01	554.40	-292.95	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 22N-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 22N-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)
4,408.01	9.73	120.99	4,354.41	-333.70	555.56	-293.56	0.00	0.00	0.00
4,451.18	9.08	120.99	4,397.00	-337.34	561.61	-296.76	1.50	-1.50	0.00
Sussex									
4,500.00	8.35	120.99	4,445.25	-341.15	567.95	-300.11	1.50	-1.50	0.00
4,600.00	6.85	120.99	4,544.37	-347.96	579.29	-306.10	1.50	-1.50	0.00
4,700.00	5.35	120.99	4,643.80	-353.43	588.40	-310.92	1.50	-1.50	0.00
4,800.00	3.85	120.99	4,743.48	-357.56	595.28	-314.55	1.50	-1.50	0.00
4,900.00	2.35	120.99	4,843.33	-360.34	599.91	-317.00	1.50	-1.50	0.00
5,000.00	0.85	120.99	4,943.29	-361.78	602.31	-318.26	1.50	-1.50	0.00
5,056.71	0.00	0.00	5,000.00	-362.00	602.67	-318.45	1.50	-1.50	0.00
5,100.00	0.00	0.00	5,043.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,200.00	0.00	0.00	5,143.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,300.00	0.00	0.00	5,243.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,400.00	0.00	0.00	5,343.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,500.00	0.00	0.00	5,443.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,600.00	0.00	0.00	5,543.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,700.00	0.00	0.00	5,643.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,800.00	0.00	0.00	5,743.29	-362.00	602.67	-318.45	0.00	0.00	0.00
5,900.00	0.00	0.00	5,843.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,000.00	0.00	0.00	5,943.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,100.00	0.00	0.00	6,043.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,200.00	0.00	0.00	6,143.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,300.00	0.00	0.00	6,243.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,400.00	0.00	0.00	6,343.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,500.00	0.00	0.00	6,443.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,600.00	0.00	0.00	6,543.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,700.00	0.00	0.00	6,643.29	-362.00	602.67	-318.45	0.00	0.00	0.00
6,781.92	0.00	0.00	6,725.20	-362.00	602.67	-318.45	0.00	0.00	0.00
6,800.00	1.63	360.00	6,743.28	-361.74	602.67	-318.20	9.00	9.00	0.00
6,900.00	10.63	360.00	6,842.61	-351.08	602.67	-307.56	9.00	9.00	0.00
7,000.00	19.63	360.00	6,939.05	-325.01	602.67	-281.56	9.00	9.00	0.00
7,100.00	28.63	360.00	7,030.22	-284.18	602.67	-240.83	9.00	9.00	0.00
7,200.00	37.63	360.00	7,113.87	-229.58	602.67	-186.37	9.00	9.00	0.00
7,259.18	42.95	360.00	7,159.00	-191.33	602.67	-148.21	9.00	9.00	0.00
Sharon Springs									
7,300.00	46.63	360.00	7,187.96	-162.57	602.67	-119.53	9.00	9.00	0.00
7,384.92	54.27	360.00	7,242.00	-97.14	602.67	-54.26	9.00	9.00	0.00
Niobrara									
7,400.00	55.63	360.00	7,250.66	-84.80	602.67	-41.95	9.00	9.00	0.00
7,483.16	63.11	360.00	7,293.00	-13.29	602.67	29.38	9.00	9.00	0.00
Nio B									
7,500.00	64.63	360.00	7,300.41	1.83	602.67	44.46	9.00	9.00	0.00
7,600.00	73.63	360.00	7,336.01	95.17	602.67	137.57	9.00	9.00	0.00
7,618.64	75.31	360.00	7,341.00	113.13	602.67	155.48	9.00	9.00	0.00
Nio C									
7,700.00	82.63	360.00	7,356.56	192.93	602.67	235.08	9.00	9.00	0.00
7,786.47	90.41	360.00	7,361.81	279.17	602.67	321.11	9.00	9.00	0.00
Top of Production - BUTTERBALL 22N-34HZ_PHL									
7,800.00	90.41	360.00	7,361.71	292.70	602.67	334.61	0.00	0.00	0.00
7,900.00	90.41	360.00	7,360.99	392.70	602.67	434.35	0.00	0.00	0.00
8,000.00	90.41	360.00	7,360.28	492.70	602.67	534.10	0.00	0.00	0.00
8,100.00	90.41	360.00	7,359.56	592.69	602.67	633.85	0.00	0.00	0.00
8,200.00	90.41	360.00	7,358.85	692.69	602.67	733.59	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 22N-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 22N-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	90.41	360.00	7,358.13	792.69	602.67	833.34	0.00	0.00	0.00	
8,400.00	90.41	360.00	7,357.42	892.69	602.67	933.09	0.00	0.00	0.00	
8,500.00	90.41	360.00	7,356.70	992.68	602.67	1,032.83	0.00	0.00	0.00	
8,600.00	90.41	360.00	7,355.99	1,092.68	602.67	1,132.58	0.00	0.00	0.00	
8,700.00	90.41	360.00	7,355.27	1,192.68	602.67	1,232.33	0.00	0.00	0.00	
8,800.00	90.41	360.00	7,354.55	1,292.68	602.67	1,332.07	0.00	0.00	0.00	
8,900.00	90.41	360.00	7,353.84	1,392.67	602.67	1,431.82	0.00	0.00	0.00	
9,000.00	90.41	360.00	7,353.12	1,492.67	602.67	1,531.57	0.00	0.00	0.00	
9,100.00	90.41	360.00	7,352.41	1,592.67	602.67	1,631.32	0.00	0.00	0.00	
9,200.00	90.41	360.00	7,351.69	1,692.67	602.67	1,731.06	0.00	0.00	0.00	
9,300.00	90.41	360.00	7,350.98	1,792.66	602.67	1,830.81	0.00	0.00	0.00	
9,400.00	90.41	360.00	7,350.26	1,892.66	602.67	1,930.56	0.00	0.00	0.00	
9,500.00	90.41	360.00	7,349.55	1,992.66	602.67	2,030.30	0.00	0.00	0.00	
9,600.00	90.41	360.00	7,348.83	2,092.66	602.67	2,130.05	0.00	0.00	0.00	
9,700.00	90.41	360.00	7,348.11	2,192.65	602.67	2,229.80	0.00	0.00	0.00	
9,800.00	90.41	360.00	7,347.40	2,292.65	602.67	2,329.54	0.00	0.00	0.00	
9,900.00	90.41	360.00	7,346.68	2,392.65	602.67	2,429.29	0.00	0.00	0.00	
10,000.00	90.41	360.00	7,345.97	2,492.65	602.67	2,529.04	0.00	0.00	0.00	
10,100.00	90.41	360.00	7,345.25	2,592.64	602.67	2,628.78	0.00	0.00	0.00	
10,200.00	90.41	360.00	7,344.54	2,692.64	602.67	2,728.53	0.00	0.00	0.00	
10,300.00	90.41	360.00	7,343.82	2,792.64	602.67	2,828.28	0.00	0.00	0.00	
10,400.00	90.41	360.00	7,343.11	2,892.63	602.67	2,928.02	0.00	0.00	0.00	
10,500.00	90.41	360.00	7,342.39	2,992.63	602.67	3,027.77	0.00	0.00	0.00	
10,600.00	90.41	360.00	7,341.67	3,092.63	602.67	3,127.52	0.00	0.00	0.00	
10,700.00	90.41	360.00	7,340.96	3,192.63	602.67	3,227.27	0.00	0.00	0.00	
10,800.00	90.41	360.00	7,340.24	3,292.62	602.67	3,327.01	0.00	0.00	0.00	
10,900.00	90.41	360.00	7,339.53	3,392.62	602.67	3,426.76	0.00	0.00	0.00	
11,000.00	90.41	360.00	7,338.81	3,492.62	602.67	3,526.51	0.00	0.00	0.00	
11,100.00	90.41	360.00	7,338.10	3,592.62	602.67	3,626.25	0.00	0.00	0.00	
11,200.00	90.41	360.00	7,337.38	3,692.61	602.67	3,726.00	0.00	0.00	0.00	
11,300.00	90.41	360.00	7,336.66	3,792.61	602.67	3,825.75	0.00	0.00	0.00	
11,400.00	90.41	360.00	7,335.95	3,892.61	602.67	3,925.49	0.00	0.00	0.00	
11,500.00	90.41	360.00	7,335.23	3,992.61	602.67	4,025.24	0.00	0.00	0.00	
11,600.00	90.41	360.00	7,334.52	4,092.60	602.67	4,124.99	0.00	0.00	0.00	
11,700.00	90.41	360.00	7,333.80	4,192.60	602.67	4,224.73	0.00	0.00	0.00	
11,800.00	90.41	360.00	7,333.09	4,292.60	602.67	4,324.48	0.00	0.00	0.00	
11,900.00	90.41	360.00	7,332.37	4,392.60	602.67	4,424.23	0.00	0.00	0.00	
12,000.00	90.41	360.00	7,331.66	4,492.59	602.67	4,523.97	0.00	0.00	0.00	
12,100.00	90.41	360.00	7,330.94	4,592.59	602.67	4,623.72	0.00	0.00	0.00	
12,200.00	90.41	360.00	7,330.22	4,692.59	602.67	4,723.47	0.00	0.00	0.00	
12,300.00	90.41	360.00	7,329.51	4,792.59	602.67	4,823.21	0.00	0.00	0.00	
12,400.00	90.41	360.00	7,328.79	4,892.58	602.67	4,922.96	0.00	0.00	0.00	
12,500.00	90.41	360.00	7,328.08	4,992.58	602.67	5,022.71	0.00	0.00	0.00	
12,600.00	90.41	360.00	7,327.36	5,092.58	602.67	5,122.46	0.00	0.00	0.00	
12,700.00	90.41	360.00	7,326.65	5,192.58	602.67	5,222.20	0.00	0.00	0.00	
12,800.00	90.41	360.00	7,325.93	5,292.57	602.67	5,321.95	0.00	0.00	0.00	
12,900.00	90.41	360.00	7,325.22	5,392.57	602.67	5,421.70	0.00	0.00	0.00	
13,000.00	90.41	360.00	7,324.50	5,492.57	602.67	5,521.44	0.00	0.00	0.00	
13,100.00	90.41	360.00	7,323.78	5,592.57	602.67	5,621.19	0.00	0.00	0.00	
13,200.00	90.41	360.00	7,323.07	5,692.56	602.67	5,720.94	0.00	0.00	0.00	
13,300.00	90.41	360.00	7,322.35	5,792.56	602.67	5,820.68	0.00	0.00	0.00	
13,400.00	90.41	360.00	7,321.64	5,892.56	602.67	5,920.43	0.00	0.00	0.00	
13,500.00	90.41	360.00	7,320.92	5,992.56	602.67	6,020.18	0.00	0.00	0.00	
13,600.00	90.41	360.00	7,320.21	6,092.55	602.67	6,119.92	0.00	0.00	0.00	

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 2N-67W-10 Butterball 4-10HZ Pad
Well: BUTTERBALL 22N-34HZ
Wellbore: Plan A
Design: Permit Rev-1

Local Co-ordinate Reference: Well BUTTERBALL 22N-34HZ
TVD Reference: RKB @ 4962.00usft (D Rig)
MD Reference: RKB @ 4962.00usft (D Rig)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	90.41	360.00	7,319.49	6,192.55	602.67	6,219.67	0.00	0.00	0.00
13,800.00	90.41	360.00	7,318.78	6,292.55	602.67	6,319.42	0.00	0.00	0.00
13,900.00	90.41	360.00	7,318.06	6,392.55	602.67	6,419.16	0.00	0.00	0.00
14,000.00	90.41	360.00	7,317.34	6,492.54	602.67	6,518.91	0.00	0.00	0.00
14,100.00	90.41	360.00	7,316.63	6,592.54	602.67	6,618.66	0.00	0.00	0.00
14,200.00	90.41	360.00	7,315.91	6,692.54	602.67	6,718.41	0.00	0.00	0.00
14,300.00	90.41	360.00	7,315.20	6,792.54	602.67	6,818.15	0.00	0.00	0.00
14,400.00	90.41	360.00	7,314.48	6,892.53	602.67	6,917.90	0.00	0.00	0.00
14,500.00	90.41	360.00	7,313.77	6,992.53	602.67	7,017.65	0.00	0.00	0.00
14,600.00	90.41	360.00	7,313.05	7,092.53	602.67	7,117.39	0.00	0.00	0.00
14,700.00	90.41	360.00	7,312.34	7,192.52	602.67	7,217.14	0.00	0.00	0.00
14,800.00	90.41	360.00	7,311.62	7,292.52	602.67	7,316.89	0.00	0.00	0.00
14,900.00	90.41	360.00	7,310.90	7,392.52	602.67	7,416.63	0.00	0.00	0.00
15,000.00	90.41	360.00	7,310.19	7,492.52	602.67	7,516.38	0.00	0.00	0.00
15,100.00	90.41	360.00	7,309.47	7,592.51	602.67	7,616.13	0.00	0.00	0.00
15,200.00	90.41	360.00	7,308.76	7,692.51	602.67	7,715.87	0.00	0.00	0.00
15,300.00	90.41	360.00	7,308.04	7,792.51	602.67	7,815.62	0.00	0.00	0.00
15,400.00	90.41	360.00	7,307.33	7,892.51	602.67	7,915.37	0.00	0.00	0.00
15,500.00	90.41	360.00	7,306.61	7,992.50	602.67	8,015.11	0.00	0.00	0.00
15,600.00	90.41	360.00	7,305.89	8,092.50	602.67	8,114.86	0.00	0.00	0.00
15,700.00	90.41	360.00	7,305.18	8,192.50	602.67	8,214.61	0.00	0.00	0.00
15,800.00	90.41	360.00	7,304.46	8,292.50	602.67	8,314.36	0.00	0.00	0.00
15,900.00	90.41	360.00	7,303.75	8,392.49	602.67	8,414.10	0.00	0.00	0.00
16,000.00	90.41	360.00	7,303.03	8,492.49	602.67	8,513.85	0.00	0.00	0.00
16,004.53	90.41	360.00	7,303.00	8,497.03	602.67	8,518.37	0.00	0.00	0.00
BUTTERBALL 22N-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 22N-34	0.00	0.00	7,303.00	8,497.03	602.67	14,592,981.00	1,673,315.00	40.181866	-104.882215
- plan hits target center									
- Point									
BUTTERBALL 22N-34	0.00	0.00	7,361.81	279.17	602.67	14,584,763.15	1,673,325.70	40.159299	-104.882215
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,511.94	1,500.00	9 5/8"	9-5/8	13-1/2	
7,786.47	7,361.81	Top of Production	5-1/2	8-1/2	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BUTTERBALL 22N-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 22N-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 (°)
	1,048.27	1,043.00	Fox Hills			
	4,020.02	3,972.00	Parkman			
	4,451.18	4,397.00	Sussex			
	7,259.18	7,159.00	Sharon Springs			
	7,384.92	7,242.00	Niobrara			
	7,483.16	7,293.00	Nio B			
	7,618.64	7,341.00	Nio C			