

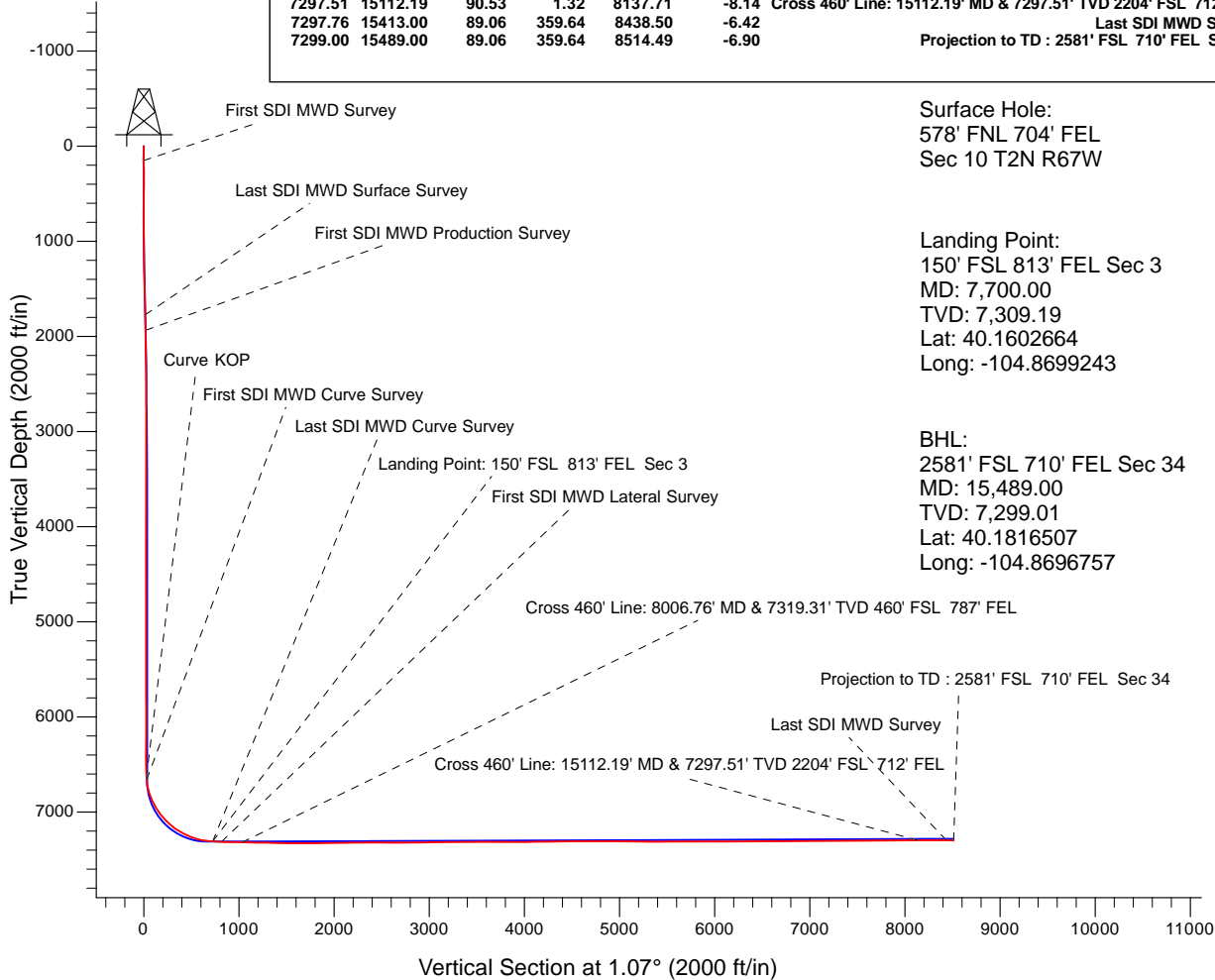
**WELL DETAILS: Butterball 9N-34HZ**

**PROJECT DETAILS: US Rockies Wattenberg Planning UTM83**

GL 4916' & KB 20' @ 4936.00ft (Precision 461)				4916.00
Northing	Easting	Latitude	Longitude	
14584393.12	1676836.61	40.1582690	-104.8696510	
Design: OH (Butterball 9N-34HZ/OH)				
Created By: Seth Burstad Date: 5-25-2017				

Geodetic System:	Universal Transverse Mercator (US Survey Feet)
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	Zone 13N (108 W to 102 W)
System Datum:	Mean Sea Level
Local North:	True

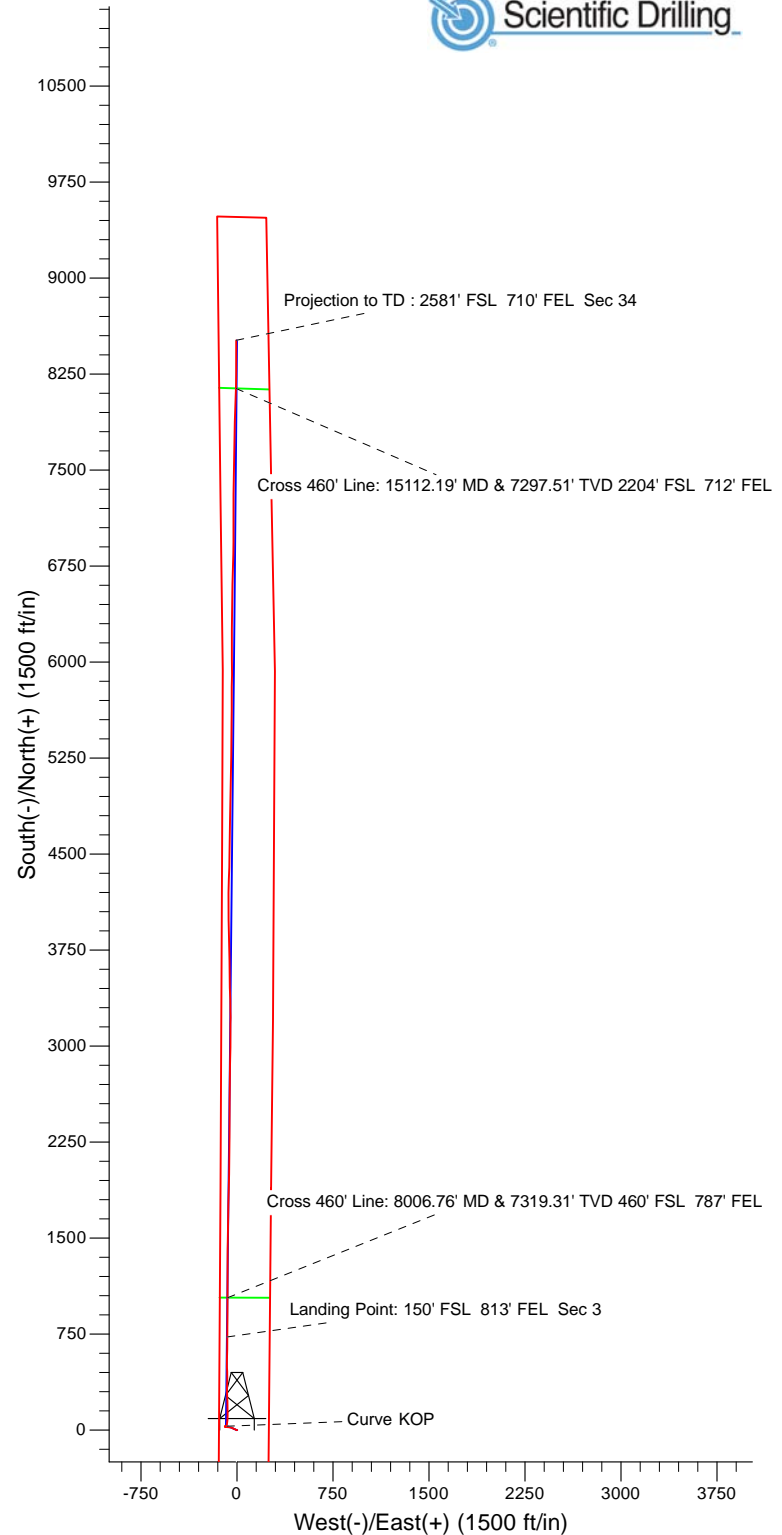
ANNOTATIONS							Annotation
TVD	MD	Inc	Azi	+N/-S	+E/-W		
153.00	153.00	0.26	100.08	-0.06	0.34		First SDI MWD Survey
1773.57	1775.00	4.05	286.58	18.78	-44.47		Last SDI MWD Surface Survey
1935.15	1937.00	4.14	278.63	21.29	-55.74		First SDI MWD Production Survey
6636.98	6640.00	3.02	3.49	30.22	-79.49		Curve KOP
6658.94	6662.00	3.78	2.74	31.53	-79.42		First SDI MWD Curve Survey
7309.19	7700.00	87.72	0.52	727.34	-76.38		Last SDI MWD Curve Survey
7309.19	7700.00	87.72	0.52	727.34	-76.38		Landing Point: 150' FSL 813' FEL Sec 3
7312.76	7793.00	87.88	359.98	820.27	-75.97		First SDI MWD Lateral Survey
7319.31	8006.76	88.44	0.34	1033.92	-74.40		Cross 460' Line: 8006.76' MD & 7319.31' TVD 460' FSL 787' FEL
7297.51	15112.19	90.53	1.32	8137.71	-8.14		Cross 460' Line: 15112.19' MD & 7297.51' TVD 2204' FSL 712' FEL
7297.76	15413.00	89.06	359.64	8438.50	-6.42		Last SDI MWD Survey
7299.00	15489.00	89.06	359.64	8514.49	-6.90		Projection to TD : 2581' FSL 710' FEL Sec 34



**Surface Hole:**  
 578' FNL 704' FEL  
 Sec 10 T2N R67W

**Landing Point:**  
 150' FSL 813' FEL Sec 3  
 MD: 7,700.00  
 TVD: 7,309.19  
 Lat: 40.1602664  
 Long: -104.8699243

**BHL:**  
 2581' FSL 710' FEL Sec 34  
 MD: 15,489.00  
 TVD: 7,299.01  
 Lat: 40.1816507  
 Long: -104.8696757





# US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

Butterball 1-10HZ Pad 2N-67W-10

Butterball 9N-34HZ

OH

Design: OH

## Standard Survey Report

25 May, 2017



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

<b>Project</b>	US Rockies Wattenberg Planning UTM83		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	Butterball 1-10HZ Pad 2N-67W-10, Site Center : Butterball 9N-34HZ				
<b>Site Position:</b>		<b>Northing:</b>	14,584,393.12 usft	<b>Latitude:</b>	40.1582690
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,676,836.61 usft	<b>Longitude:</b>	-104.8696510
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.08 °

<b>Well</b>	Butterball 9N-34HZ, 578' FNL 704' FEL Sec 10 T2N R67W					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,584,393.12 usft	<b>Latitude:</b>	40.1582690
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,676,836.61 usft	<b>Longitude:</b>	-104.8696510
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b>	4,916.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	4/6/2017	8.44	66.67	52,273

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	1.07	

<b>Survey Program</b>	<b>Date</b>	5/25/2017			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
153.00	1,775.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,937.00	15,489.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
153.00	0.26	100.08	153.00	-0.06	0.34	-0.05	0.17	0.17	0.00	
<b>First SDI MWD Survey</b>										
239.00	0.17	346.91	239.00	0.03	0.51	0.04	0.42	-0.10	-131.59	
328.00	0.24	58.76	328.00	0.25	0.63	0.27	0.28	0.08	80.73	
415.00	0.37	4.09	415.00	0.63	0.81	0.64	0.35	0.15	-62.84	
503.00	0.21	38.83	503.00	1.04	0.93	1.06	0.26	-0.18	39.48	
637.00	0.74	238.61	636.99	0.78	0.35	0.79	0.70	0.40	-119.57	
723.00	0.77	238.41	722.99	0.19	-0.62	0.18	0.04	0.03	-0.23	
810.00	0.44	231.79	809.98	-0.33	-1.38	-0.35	0.39	-0.38	-7.61	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
899.00	0.62	251.98	898.98	-0.69	-2.11	-0.73	0.29	0.20	22.69	
987.00	1.38	282.90	986.96	-0.60	-3.59	-0.66	1.03	0.86	35.14	
1,076.00	2.06	294.57	1,075.92	0.31	-6.09	0.19	0.86	0.76	13.11	
1,165.00	2.92	298.31	1,164.84	2.05	-9.54	1.87	0.98	0.97	4.20	
1,253.00	2.79	310.29	1,252.73	4.50	-13.15	4.25	0.69	-0.15	13.61	
1,340.00	3.11	292.46	1,339.62	6.77	-16.95	6.45	1.11	0.37	-20.49	
1,425.00	3.60	292.95	1,424.47	8.69	-21.53	8.28	0.58	0.58	0.58	
1,511.00	3.99	290.05	1,510.28	10.77	-26.83	10.26	0.51	0.45	-3.37	
1,598.00	4.08	294.84	1,597.07	13.10	-32.48	12.50	0.40	0.10	5.51	
1,685.00	4.57	299.50	1,683.82	16.11	-38.31	15.39	0.69	0.56	5.36	
1,775.00	4.05	286.58	1,773.57	18.78	-44.47	17.95	1.22	-0.58	-14.36	
<b>Last SDI MWD Surface Survey</b>										
1,937.00	4.14	278.63	1,935.15	21.29	-55.74	20.25	0.35	0.06	-4.91	
<b>First SDI MWD Production Survey</b>										
2,031.00	3.96	282.44	2,028.92	22.50	-62.26	21.34	0.34	-0.19	4.05	
2,126.00	3.93	265.72	2,123.70	22.97	-68.71	21.68	1.21	-0.03	-17.60	
2,221.00	1.88	290.06	2,218.57	23.26	-73.42	21.88	2.47	-2.16	25.62	
2,314.00	1.94	300.40	2,311.52	24.58	-76.22	23.15	0.38	0.06	11.12	
2,407.00	1.83	301.38	2,404.47	26.15	-78.84	24.67	0.12	-0.12	1.05	
2,502.00	1.81	298.54	2,499.42	27.65	-81.45	26.13	0.10	-0.02	-2.99	
2,596.00	1.92	292.60	2,593.37	28.97	-84.21	27.39	0.24	0.12	-6.32	
2,690.00	1.32	263.35	2,687.34	29.45	-86.74	27.82	1.07	-0.64	-31.12	
2,784.00	1.48	268.01	2,781.31	29.28	-89.03	27.61	0.21	0.17	4.96	
2,878.00	0.45	338.62	2,875.30	29.58	-90.38	27.89	1.49	-1.10	75.12	
2,972.00	0.24	344.36	2,969.30	30.12	-90.56	28.42	0.23	-0.22	6.11	
3,068.00	0.20	227.51	3,065.29	30.20	-90.74	28.50	0.39	-0.04	-121.72	
3,160.00	0.39	240.94	3,157.29	29.94	-91.13	28.23	0.22	0.21	14.60	
3,254.00	0.42	264.65	3,251.29	29.75	-91.76	28.03	0.18	0.03	25.22	
3,348.00	0.77	126.90	3,345.29	29.34	-91.60	27.62	1.19	0.37	-146.54	
3,440.00	0.74	111.18	3,437.28	28.75	-90.55	27.05	0.23	-0.03	-17.09	
3,534.00	0.62	155.27	3,531.27	28.07	-89.77	26.39	0.56	-0.13	46.90	
3,628.00	0.84	167.11	3,625.27	26.94	-89.40	25.26	0.28	0.23	12.60	
3,723.00	0.90	168.24	3,720.26	25.53	-89.09	23.86	0.07	0.06	1.19	
3,816.00	0.18	179.42	3,813.25	24.67	-88.94	23.00	0.78	-0.77	12.02	
3,909.00	0.26	344.04	3,906.25	24.72	-89.00	23.06	0.47	0.09	177.01	
4,004.00	0.17	324.78	4,001.25	25.04	-89.14	23.38	0.12	-0.09	-20.27	
4,099.00	0.50	97.23	4,096.25	25.11	-88.81	23.44	0.66	0.35	139.42	
4,193.00	0.17	83.26	4,190.25	25.07	-88.27	23.42	0.36	-0.35	-14.86	
4,287.00	0.26	239.00	4,284.25	24.98	-88.31	23.33	0.45	0.10	165.68	
4,382.00	0.56	287.62	4,379.25	25.01	-88.94	23.34	0.46	0.32	51.18	
4,476.00	0.62	307.56	4,473.24	25.46	-89.78	23.78	0.23	0.06	21.21	
4,571.00	0.93	311.65	4,568.23	26.28	-90.76	24.58	0.33	0.33	4.31	
4,664.00	0.85	309.56	4,661.22	27.22	-91.86	25.50	0.09	-0.09	-2.25	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,758.00	0.75	322.41	4,755.21	28.16	-92.77	26.42	0.22	-0.11	13.67	
4,852.00	0.62	283.70	4,849.21	28.76	-93.64	27.01	0.50	-0.14	-41.18	
4,947.00	0.49	300.89	4,944.20	29.09	-94.49	27.32	0.22	-0.14	18.09	
5,042.00	0.43	303.46	5,039.20	29.50	-95.13	27.72	0.07	-0.06	2.71	
5,135.00	0.33	151.65	5,132.20	29.46	-95.30	27.67	0.79	-0.11	-163.24	
5,256.00	0.83	131.57	5,253.19	28.57	-94.48	26.80	0.44	0.41	-16.60	
5,350.00	0.78	136.86	5,347.18	27.65	-93.53	25.90	0.10	-0.05	5.63	
5,445.00	0.36	118.95	5,442.18	27.03	-92.83	25.29	0.47	-0.44	-18.85	
5,540.00	0.35	93.27	5,537.17	26.87	-92.28	25.14	0.17	-0.01	-27.03	
5,633.00	0.39	76.98	5,630.17	26.93	-91.68	25.21	0.12	0.04	-17.52	
5,725.00	0.47	65.20	5,722.17	27.16	-91.04	25.45	0.13	0.09	-12.80	
5,818.00	0.83	59.44	5,815.16	27.66	-90.11	25.97	0.39	0.39	-6.19	
5,913.00	1.47	65.46	5,910.14	28.51	-88.41	26.86	0.68	0.67	6.34	
6,005.00	1.93	103.69	6,002.11	28.64	-85.83	27.03	1.30	0.50	41.55	
6,099.00	1.41	112.23	6,096.07	27.83	-83.22	26.27	0.61	-0.55	9.09	
6,192.00	1.28	101.24	6,189.04	27.19	-81.14	25.67	0.31	-0.14	-11.82	
6,286.00	0.50	98.29	6,283.03	26.93	-79.71	25.43	0.83	-0.83	-3.14	
6,381.00	0.28	267.80	6,378.03	26.86	-79.53	25.37	0.82	-0.23	178.43	
6,475.00	0.44	350.05	6,472.03	27.20	-79.82	25.71	0.52	0.17	87.50	
6,568.00	0.57	20.06	6,565.02	27.99	-79.72	26.50	0.31	0.14	32.27	
6,640.00	3.02	3.49	6,636.98	30.22	-79.49	28.73	3.45	3.41	-23.01	
<b>Curve KOP</b>										
6,662.00	3.78	2.74	6,658.94	31.53	-79.42	30.04	3.45	3.44	-3.42	
<b>First SDI MWD Curve Survey</b>										
6,756.00	14.32	5.79	6,751.64	46.23	-78.09	44.76	11.22	11.21	3.24	
6,850.00	21.27	3.08	6,841.09	74.85	-76.00	73.42	7.44	7.39	-2.88	
6,944.00	28.13	1.51	6,926.44	114.08	-74.50	112.67	7.33	7.30	-1.67	
7,038.00	35.80	0.03	7,006.13	163.80	-73.90	162.39	8.20	8.16	-1.57	
7,132.00	43.35	357.03	7,078.54	223.60	-75.56	222.15	8.28	8.03	-3.19	
7,227.00	50.99	359.40	7,143.08	293.18	-77.64	291.68	8.25	8.04	2.49	
7,321.00	58.18	1.25	7,197.52	369.73	-77.15	368.23	7.81	7.65	1.97	
7,416.00	64.68	358.81	7,242.93	453.11	-77.16	451.59	7.20	6.84	-2.57	
7,510.00	72.84	0.21	7,276.96	540.64	-77.88	539.10	8.79	8.68	1.49	
7,604.00	80.05	0.55	7,298.98	631.96	-77.27	630.41	7.68	7.67	0.36	
7,700.00	87.72	0.52	7,309.19	727.34	-76.38	725.79	7.99	7.99	-0.03	
<b>Last SDI MWD Curve Survey - Landing Point: 150' FSL 813' FEL Sec 3</b>										
7,793.00	87.88	359.98	7,312.76	820.27	-75.97	818.71	0.61	0.17	-0.58	
<b>First SDI MWD Lateral Survey</b>										
7,887.00	88.42	0.73	7,315.80	914.22	-75.39	912.65	0.98	0.57	0.80	
7,982.00	88.22	0.30	7,318.58	1,009.18	-74.54	1,007.61	0.50	-0.21	-0.45	
8,006.76	88.44	0.34	7,319.31	1,033.92	-74.40	1,032.35	0.91	0.89	0.17	
<b>Cross 460' Line: 8006.76' MD &amp; 7319.31' TVD 460' FSL 787' FEL</b>										
8,076.00	89.06	0.46	7,320.82	1,103.15	-73.91	1,101.57	0.91	0.89	0.17	
8,170.00	89.16	0.55	7,322.28	1,197.13	-73.09	1,195.56	0.14	0.11	0.10	
8,264.00	89.56	359.84	7,323.33	1,291.12	-72.77	1,289.54	0.87	0.43	-0.76	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
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<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,358.00	88.99	359.85	7,324.52	1,385.12	-73.02	1,383.51	0.61	-0.61	0.01
8,452.00	89.09	0.90	7,326.09	1,479.10	-72.40	1,477.49	1.12	0.11	1.12
8,546.00	89.53	0.94	7,327.22	1,573.08	-70.90	1,571.48	0.47	0.47	0.04
8,640.00	89.43	1.07	7,328.08	1,667.06	-69.25	1,665.48	0.17	-0.11	0.14
8,735.00	90.23	1.44	7,328.36	1,762.04	-67.17	1,760.48	0.93	0.84	0.39
8,829.00	90.40	1.31	7,327.84	1,856.01	-64.91	1,854.47	0.23	0.18	-0.14
8,924.00	91.18	1.59	7,326.53	1,950.97	-62.51	1,949.46	0.87	0.82	0.29
9,018.00	90.71	1.13	7,324.98	2,044.93	-60.28	2,043.45	0.70	-0.50	-0.49
9,113.00	90.91	0.71	7,323.64	2,139.91	-58.75	2,138.44	0.49	0.21	-0.44
9,207.00	90.40	359.44	7,322.56	2,233.90	-58.63	2,232.41	1.46	-0.54	-1.35
9,302.00	91.41	359.70	7,321.06	2,328.88	-59.34	2,327.37	1.10	1.06	0.27
9,396.00	89.66	0.53	7,320.18	2,422.87	-59.15	2,421.35	2.06	-1.86	0.88
9,491.00	88.99	0.31	7,321.30	2,517.86	-58.46	2,516.33	0.74	-0.71	-0.23
9,585.00	89.46	0.98	7,322.58	2,611.85	-57.40	2,610.32	0.87	0.50	0.71
9,680.00	90.64	1.32	7,322.49	2,706.83	-55.49	2,705.32	1.29	1.24	0.36
9,773.00	90.67	0.99	7,321.43	2,799.80	-53.62	2,798.31	0.36	0.03	-0.35
9,867.00	90.47	0.24	7,320.49	2,893.79	-52.61	2,892.30	0.83	-0.21	-0.80
9,962.00	90.64	0.60	7,319.57	2,988.78	-51.91	2,987.29	0.42	0.18	0.38
10,055.00	91.41	0.31	7,317.91	3,081.77	-51.17	3,080.27	0.88	0.83	-0.31
10,149.00	91.45	0.45	7,315.56	3,175.73	-50.55	3,174.24	0.15	0.04	0.15
10,244.00	90.03	359.10	7,314.34	3,270.72	-50.92	3,269.20	2.06	-1.49	-1.42
10,337.00	89.40	358.20	7,314.80	3,363.69	-53.11	3,362.11	1.18	-0.68	-0.97
10,431.00	89.50	359.18	7,315.70	3,457.66	-55.26	3,456.03	1.05	0.11	1.04
10,524.00	90.44	359.38	7,315.75	3,550.65	-56.43	3,548.98	1.03	1.01	0.22
10,619.00	90.87	359.33	7,314.66	3,645.64	-57.50	3,643.93	0.46	0.45	-0.05
10,714.00	90.34	358.23	7,313.66	3,740.61	-59.52	3,738.85	1.29	-0.56	-1.16
10,807.00	89.09	357.78	7,314.12	3,833.55	-62.76	3,831.71	1.43	-1.34	-0.48
10,901.00	89.66	359.21	7,315.15	3,927.51	-65.23	3,925.61	1.64	0.61	1.52
10,996.00	90.77	0.43	7,314.79	4,022.51	-65.53	4,020.58	1.74	1.17	1.28
11,091.00	91.04	0.14	7,313.29	4,117.50	-65.06	4,115.56	0.42	0.28	-0.31
11,183.00	90.44	0.14	7,312.10	4,209.49	-64.83	4,207.54	0.65	-0.65	0.00
11,277.00	90.34	1.52	7,311.46	4,303.47	-63.47	4,301.54	1.47	-0.11	1.47
11,371.00	90.37	1.58	7,310.88	4,397.44	-60.93	4,395.53	0.07	0.03	0.06
11,464.00	90.74	0.89	7,309.98	4,490.41	-58.92	4,488.53	0.84	0.40	-0.74
11,558.00	91.14	1.00	7,308.44	4,584.38	-57.37	4,582.51	0.44	0.43	0.12
11,651.00	90.71	0.60	7,306.94	4,677.36	-56.07	4,675.50	0.63	-0.46	-0.43
11,744.00	88.99	0.84	7,307.18	4,770.35	-54.91	4,768.49	1.87	-1.85	0.26
11,839.00	89.46	1.38	7,308.47	4,865.32	-53.06	4,863.48	0.75	0.49	0.57
11,932.00	89.83	1.34	7,309.04	4,958.30	-50.86	4,956.48	0.40	0.40	-0.04
12,027.00	89.60	1.60	7,309.52	5,053.26	-48.42	5,051.48	0.37	-0.24	0.27
12,122.00	89.46	0.86	7,310.29	5,148.24	-46.38	5,146.47	0.79	-0.15	-0.78
12,215.00	89.16	0.63	7,311.41	5,241.22	-45.17	5,239.47	0.41	-0.32	-0.25
12,310.00	89.36	359.93	7,312.64	5,336.21	-44.71	5,334.45	0.77	0.21	-0.74

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
12,403.00	90.30	1.20	7,312.92	5,429.21	-43.79	5,427.44	1.70	1.01	1.37	
12,498.00	91.11	1.14	7,311.75	5,524.18	-41.85	5,522.43	0.85	0.85	-0.06	
12,592.00	89.93	0.87	7,310.90	5,618.16	-40.20	5,616.43	1.29	-1.26	-0.29	
12,687.00	89.93	359.23	7,311.01	5,713.15	-40.12	5,711.41	1.73	0.00	-1.73	
12,781.00	89.63	0.45	7,311.37	5,807.15	-40.38	5,805.38	1.34	-0.32	1.30	
12,874.00	90.27	0.66	7,311.45	5,900.15	-39.48	5,898.38	0.72	0.69	0.23	
12,969.00	89.93	359.67	7,311.29	5,995.14	-39.21	5,993.37	1.10	-0.36	-1.04	
13,064.00	89.87	0.11	7,311.45	6,090.14	-39.39	6,088.35	0.47	-0.06	0.46	
13,157.00	90.13	359.00	7,311.45	6,183.14	-40.11	6,181.31	1.23	0.28	-1.19	
13,252.00	89.63	359.60	7,311.65	6,278.13	-41.27	6,276.27	0.82	-0.53	0.63	
13,347.00	91.21	1.67	7,310.96	6,373.11	-40.22	6,371.25	2.74	1.66	2.18	
13,441.00	91.31	1.92	7,308.89	6,467.05	-37.28	6,465.22	0.29	0.11	0.27	
13,534.00	91.51	1.20	7,306.60	6,559.98	-34.75	6,558.19	0.80	0.22	-0.77	
13,629.00	90.17	1.30	7,305.21	6,654.95	-32.67	6,653.18	1.41	-1.41	0.11	
13,723.00	90.54	0.95	7,304.63	6,748.93	-30.83	6,747.17	0.54	0.39	-0.37	
13,817.00	90.03	1.08	7,304.16	6,842.91	-29.16	6,841.17	0.56	-0.54	0.14	
13,910.00	89.80	0.72	7,304.30	6,935.90	-27.70	6,934.17	0.46	-0.25	-0.39	
14,005.00	89.93	0.44	7,304.52	7,030.89	-26.74	7,029.17	0.32	0.14	-0.29	
14,100.00	90.07	359.83	7,304.52	7,125.89	-26.52	7,124.16	0.66	0.15	-0.64	
14,195.00	90.13	358.89	7,304.35	7,220.89	-27.58	7,219.11	0.99	0.06	-0.99	
14,288.00	90.40	1.84	7,303.92	7,313.87	-26.99	7,312.09	3.19	0.29	3.17	
14,383.00	90.47	0.71	7,303.20	7,408.85	-24.87	7,407.09	1.19	0.07	-1.19	
14,477.00	90.34	359.26	7,302.54	7,502.84	-24.90	7,501.07	1.55	-0.14	-1.54	
14,572.00	89.93	1.14	7,302.31	7,597.84	-24.56	7,596.05	2.03	-0.43	1.98	
14,666.00	90.81	1.07	7,301.71	7,691.81	-22.75	7,690.05	0.94	0.94	-0.07	
14,759.00	90.64	1.35	7,300.53	7,784.79	-20.79	7,783.04	0.35	-0.18	0.30	
14,851.00	90.81	3.49	7,299.37	7,876.69	-16.90	7,875.00	2.33	0.18	2.33	
14,946.00	90.40	1.82	7,298.36	7,971.58	-12.50	7,969.96	1.81	-0.43	-1.76	
15,039.00	90.13	1.41	7,297.93	8,064.54	-9.88	8,062.95	0.53	-0.29	-0.44	
15,112.19	90.53	1.32	7,297.51	8,137.71	-8.14	8,136.14	0.56	0.54	-0.12	
<b>Cross 460' Line: 15112.19' MD &amp; 7297.51' TVD 2204' FSL 712' FEL</b>										
15,133.00	90.64	1.30	7,297.30	8,158.51	-7.66	8,156.95	0.56	0.54	-0.12	
15,227.00	89.87	359.67	7,296.88	8,252.51	-6.86	8,250.94	1.92	-0.82	-1.73	
15,319.00	90.00	0.62	7,296.99	8,344.50	-6.63	8,342.93	1.04	0.14	1.03	
15,413.00	89.06	359.64	7,297.76	8,438.50	-6.42	8,436.91	1.44	-1.00	-1.04	
<b>Last SDI MWD Survey</b>										
15,489.00	89.06	359.64	7,299.01	8,514.49	-6.90	8,512.87	0.00	0.00	0.00	
<b>Projection to TD : 2581' FSL 710' FEL Sec 34</b>										

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well Butterball 9N-34HZ
<b>Project:</b>	US Rockies Wattenberg Planning UTM83	<b>TVD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Site:</b>	Butterball 1-10HZ Pad 2N-67W-10	<b>MD Reference:</b>	GL 4916' & KB 20' @ 4936.00ft (Precision 461)
<b>Well:</b>	Butterball 9N-34HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales Office

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
153.00	153.00	-0.06	0.34	First SDI MWD Survey
1,775.00	1,773.57	18.78	-44.47	Last SDI MWD Surface Survey
1,937.00	1,935.15	21.29	-55.74	First SDI MWD Production Survey
6,640.00	6,636.98	30.22	-79.49	Curve KOP
6,662.00	6,658.94	31.53	-79.42	First SDI MWD Curve Survey
7,700.00	7,309.19	727.34	-76.38	Last SDI MWD Curve Survey
7,700.00	7,309.19	727.34	-76.38	Landing Point: 150' FSL 813' FEL Sec 3
7,793.00	7,312.76	820.27	-75.97	First SDI MWD Lateral Survey
8,006.76	7,319.31	1,033.92	-74.40	Cross 460' Line: 8006.76' MD & 7319.31' TVD 460' FSL 787' FEL
15,112.19	7,297.51	8,137.71	-8.14	Cross 460' Line: 15112.19' MD & 7297.51' TVD 2204' FSL 712' FEL
15,413.00	7,297.76	8,438.50	-6.42	Last SDI MWD Survey
15,489.00	7,299.01	8,514.49	-6.90	Projection to TD : 2581' FSL 710' FEL Sec 34

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_