

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 10-T2N-R67W

Butterball 30C-10HZ

Plan A 0

Plan: Plan A 0 - PERMIT

Sperry Drilling Services

Proposal Report

24 June, 2013

Well Coordinates: 1,296,895.73 N, 3,172,160.27 E (40° 08' 48.24" N, 104° 53' 02.94" W)

Ground Level: 4,996.00 ft

Local Coordinate Origin:

Centered on Well Butterball 30C-10HZ

Viewing Datum:

RKB = 17ft @ 5013.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Weld County, CO (NAD 83)
 Site: Sec. 10-T2N-R67W
 Well: Butterball 30C-10HZ
 Wellbore: Plan A 0
 Design: Plan A 0 - PERMIT



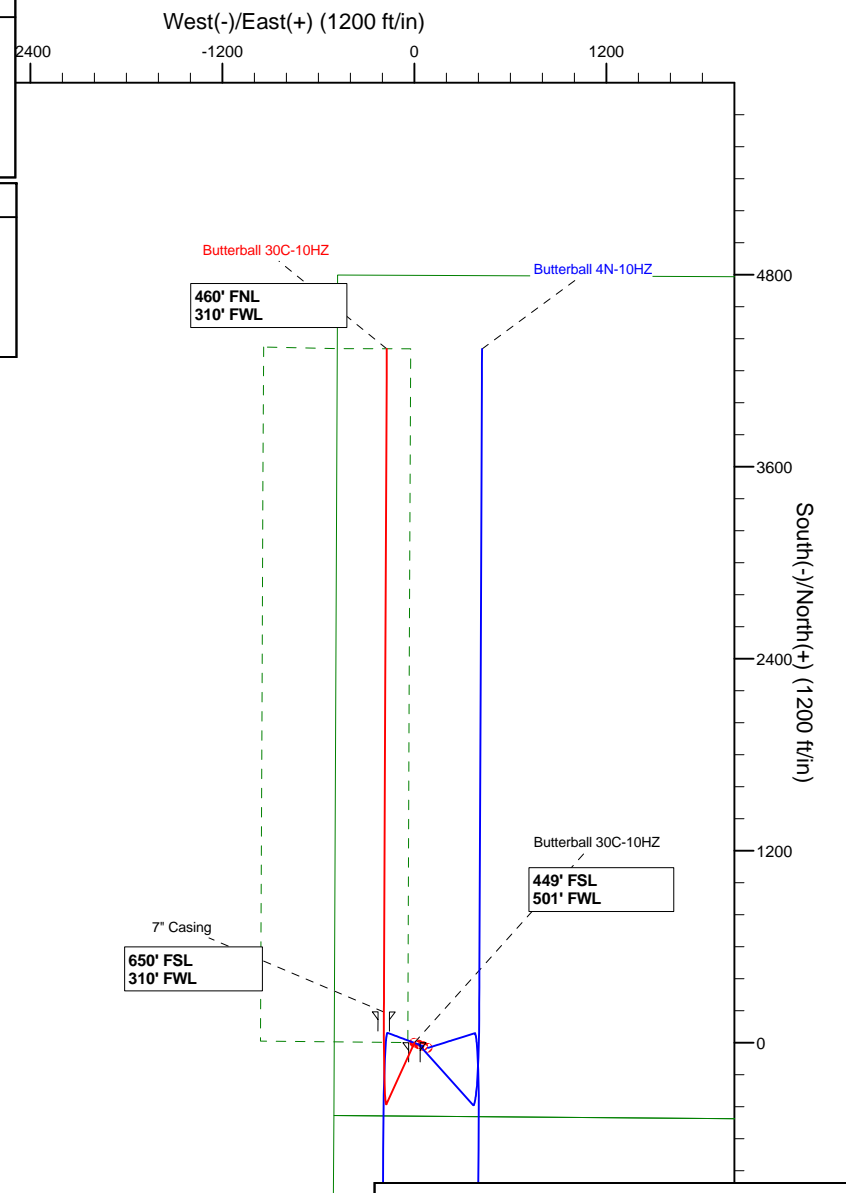
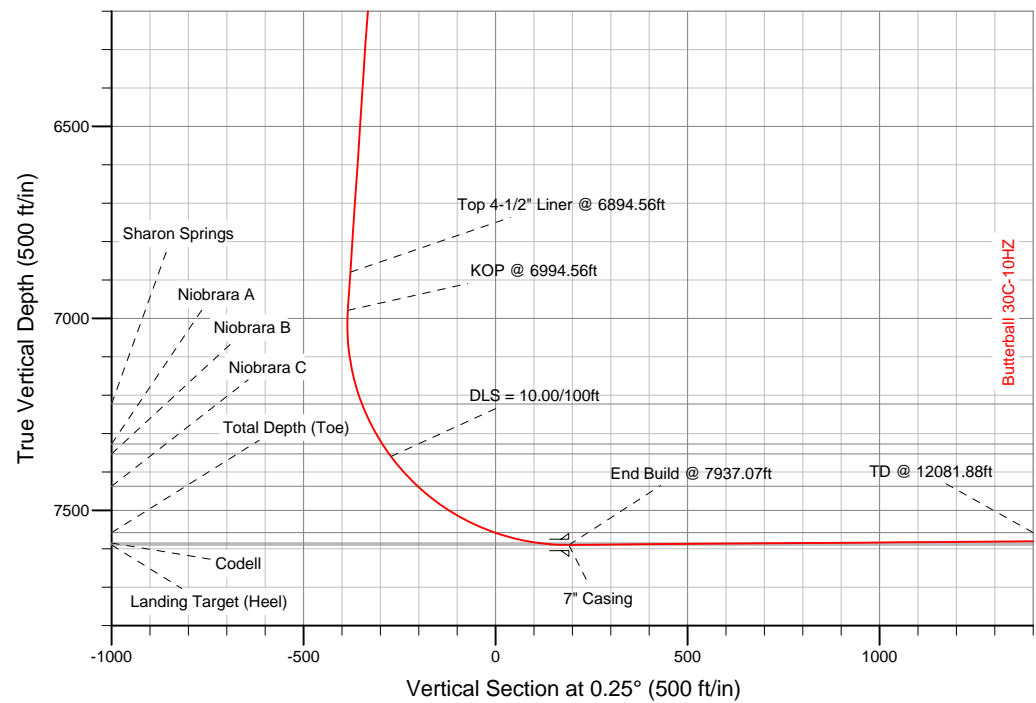
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1308.85	4.18	204.46	1308.67	-6.93	-3.15	2.00	204.46	-6.94	
4	6994.56	4.18	204.46	6979.28	-383.89	-174.65	0.00	0.00	-384.65	
5	7937.07	90.44	0.25	7590.00	192.30	-190.60	10.00	155.71	191.47	Butterball 30C-10HZ_CP
6	12081.88	90.44	0.25	7558.00	4336.94	-172.74	0.00	0.00	4336.15	Butterball 30C-10HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Butterball 30C-10HZ_LD	0.00	0.00	0.00	40.146732	-104.884149	Polygon
Butterball 30C-10HZ_SHL	0.00	0.00	0.00	40.146732	-104.884149	Point
Butterball Sec10	0.00	0.00	0.00	40.146732	-104.884149	Polygon
Butterball 30C-10HZ_BHL	7558.00	4336.94	-172.74	40.158637	-104.884767	Point
Butterball 30C-10HZ_CP	7590.00	192.30	-190.60	40.147260	-104.884831	Point

MD	TVD	
6894.56	6879.54	Top 4-1/2" Liner @ 6894.56ft
6994.56	6979.27	KOP @ 6994.56ft

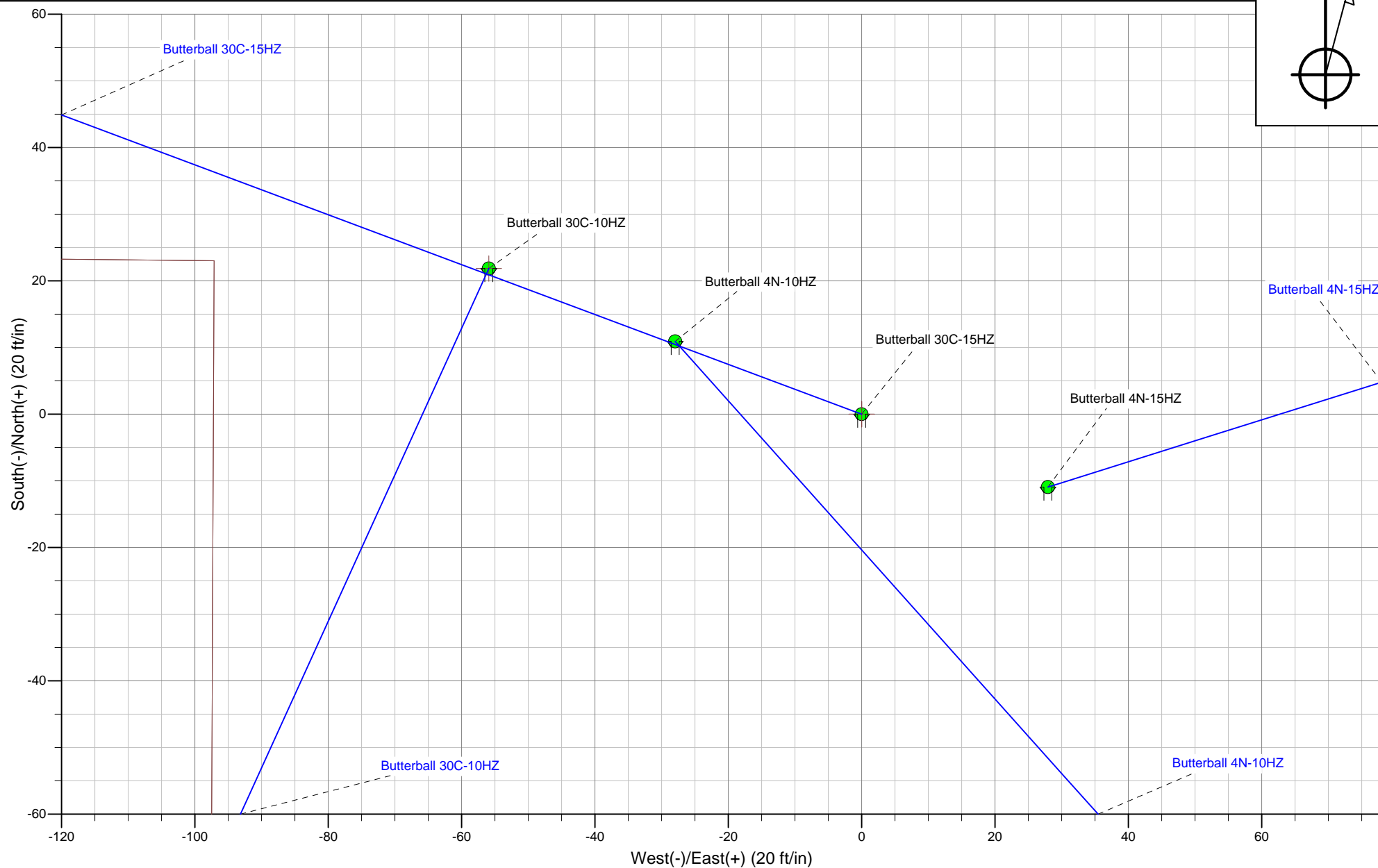
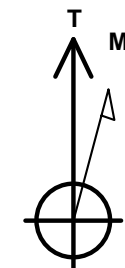


WELL DETAILS: Butterball 30C-10HZ	
Ground Level:	4996.00
RKB = 17ft @ 5013.00ft (Drilling Rig)	
Plan: Plan A 0 - PERMIT (Butterball 30C-10HZ/Plan A 0)	
Created By: Fred Hartmann Date: 06/24/2013	

Project: Weld County, CO (NAD 83)
Site: Sec. 10-T2N-R67W
Well: Butterball 13-10HZ Pad



HALLIBURTON
Sperry Drilling



Plan Report for Butterball 30C-10HZ - Plan A 0 - PERMIT

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)	Toolface Azimuth (°)
0.00	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	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
867.00	0.00	0.00	867.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Casing										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1100.00ft										
1,200.00	2.00	204.46	1,199.98	-1.59	-0.72	-1.59	2.00	2.00	0.00	204.46
1,300.00	4.00	204.46	1,299.84	-6.35	-2.89	-6.36	2.00	2.00	0.00	0.00
1,308.85	4.18	204.46	1,308.67	-6.93	-3.15	-6.94	2.00	2.00	0.00	0.00
End Nudge @ 1308.85ft										
1,400.00	4.18	204.46	1,399.57	-12.97	-5.90	-13.00	0.00	0.00	0.00	0.00
1,500.00	4.18	204.46	1,499.31	-19.60	-8.92	-19.64	0.00	0.00	0.00	0.00
1,600.00	4.18	204.46	1,599.04	-26.23	-11.93	-26.28	0.00	0.00	0.00	0.00
1,700.00	4.18	204.46	1,698.78	-32.86	-14.95	-32.92	0.00	0.00	0.00	0.00
1,800.00	4.18	204.46	1,798.51	-39.49	-17.97	-39.57	0.00	0.00	0.00	0.00
1,900.00	4.18	204.46	1,898.24	-46.12	-20.98	-46.21	0.00	0.00	0.00	0.00
2,000.00	4.18	204.46	1,997.98	-52.75	-24.00	-52.85	0.00	0.00	0.00	0.00
2,100.00	4.18	204.46	2,097.71	-59.38	-27.01	-59.50	0.00	0.00	0.00	0.00
2,200.00	4.18	204.46	2,197.45	-66.01	-30.03	-66.14	0.00	0.00	0.00	0.00
2,300.00	4.18	204.46	2,297.18	-72.64	-33.05	-72.78	0.00	0.00	0.00	0.00
2,400.00	4.18	204.46	2,396.92	-79.27	-36.06	-79.43	0.00	0.00	0.00	0.00
2,500.00	4.18	204.46	2,496.65	-85.90	-39.08	-86.07	0.00	0.00	0.00	0.00
2,600.00	4.18	204.46	2,596.39	-92.53	-42.10	-92.71	0.00	0.00	0.00	0.00
2,700.00	4.18	204.46	2,696.12	-99.16	-45.11	-99.36	0.00	0.00	0.00	0.00
2,800.00	4.18	204.46	2,795.85	-105.79	-48.13	-106.00	0.00	0.00	0.00	0.00
2,900.00	4.18	204.46	2,895.59	-112.42	-51.14	-112.64	0.00	0.00	0.00	0.00
3,000.00	4.18	204.46	2,995.32	-119.05	-54.16	-119.28	0.00	0.00	0.00	0.00
3,100.00	4.18	204.46	3,095.06	-125.68	-57.18	-125.93	0.00	0.00	0.00	0.00
3,200.00	4.18	204.46	3,194.79	-132.31	-60.19	-132.57	0.00	0.00	0.00	0.00
3,300.00	4.18	204.46	3,294.53	-138.94	-63.21	-139.21	0.00	0.00	0.00	0.00
3,400.00	4.18	204.46	3,394.26	-145.57	-66.22	-145.86	0.00	0.00	0.00	0.00
3,500.00	4.18	204.46	3,493.99	-152.20	-69.24	-152.50	0.00	0.00	0.00	0.00
3,600.00	4.18	204.46	3,593.73	-158.83	-72.26	-159.14	0.00	0.00	0.00	0.00
3,700.00	4.18	204.46	3,693.46	-165.46	-75.27	-165.79	0.00	0.00	0.00	0.00
3,800.00	4.18	204.46	3,793.20	-172.09	-78.29	-172.43	0.00	0.00	0.00	0.00
3,900.00	4.18	204.46	3,892.93	-178.72	-81.31	-179.07	0.00	0.00	0.00	0.00
4,000.00	4.18	204.46	3,992.67	-185.35	-84.32	-185.72	0.00	0.00	0.00	0.00
4,033.42	4.18	204.46	4,026.00	-187.56	-85.33	-187.94	0.00	0.00	0.00	0.00
Parkman										
4,100.00	4.18	204.46	4,092.40	-191.98	-87.34	-192.36	0.00	0.00	0.00	0.00
4,200.00	4.18	204.46	4,192.14	-198.61	-90.35	-199.00	0.00	0.00	0.00	0.00
4,300.00	4.18	204.46	4,291.87	-205.24	-93.37	-205.64	0.00	0.00	0.00	0.00
4,400.00	4.18	204.46	4,391.60	-211.87	-96.39	-212.29	0.00	0.00	0.00	0.00
4,460.56	4.18	204.46	4,452.00	-215.88	-98.21	-216.31	0.00	0.00	0.00	0.00
Sussex										
4,500.00	4.18	204.46	4,491.34	-218.50	-99.40	-218.93	0.00	0.00	0.00	0.00
4,600.00	4.18	204.46	4,591.07	-225.13	-102.42	-225.57	0.00	0.00	0.00	0.00
4,700.00	4.18	204.46	4,690.81	-231.76	-105.44	-232.22	0.00	0.00	0.00	0.00
4,800.00	4.18	204.46	4,790.54	-238.39	-108.45	-238.86	0.00	0.00	0.00	0.00

Plan Report for Butterball 30C-10HZ - Plan A 0 - PERMIT

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)	Toolface Azimuth (°)
4,900.00	4.18	204.46	4,890.28	-245.02	-111.47	-245.50	0.00	0.00	0.00	0.00
5,000.00	4.18	204.46	4,990.01	-251.65	-114.48	-252.15	0.00	0.00	0.00	0.00
5,100.00	4.18	204.46	5,089.74	-258.28	-117.50	-258.79	0.00	0.00	0.00	0.00
5,200.00	4.18	204.46	5,189.48	-264.91	-120.52	-265.43	0.00	0.00	0.00	0.00
5,300.00	4.18	204.46	5,289.21	-271.54	-123.53	-272.08	0.00	0.00	0.00	0.00
5,400.00	4.18	204.46	5,388.95	-278.17	-126.55	-278.72	0.00	0.00	0.00	0.00
5,500.00	4.18	204.46	5,488.68	-284.80	-129.57	-285.36	0.00	0.00	0.00	0.00
5,576.52	4.18	204.46	5,565.00	-289.87	-131.87	-290.44	0.00	0.00	0.00	0.00
Fort Hays										
5,600.00	4.18	204.46	5,588.42	-291.43	-132.58	-292.00	0.00	0.00	0.00	0.00
5,700.00	4.18	204.46	5,688.15	-298.06	-135.60	-298.65	0.00	0.00	0.00	0.00
5,800.00	4.18	204.46	5,787.89	-304.69	-138.61	-305.29	0.00	0.00	0.00	0.00
5,900.00	4.18	204.46	5,887.62	-311.32	-141.63	-311.93	0.00	0.00	0.00	0.00
6,000.00	4.18	204.46	5,987.35	-317.95	-144.65	-318.58	0.00	0.00	0.00	0.00
6,100.00	4.18	204.46	6,087.09	-324.58	-147.66	-325.22	0.00	0.00	0.00	0.00
6,200.00	4.18	204.46	6,186.82	-331.21	-150.68	-331.86	0.00	0.00	0.00	0.00
6,300.00	4.18	204.46	6,286.56	-337.84	-153.70	-338.51	0.00	0.00	0.00	0.00
6,400.00	4.18	204.46	6,386.29	-344.47	-156.71	-345.15	0.00	0.00	0.00	0.00
6,500.00	4.18	204.46	6,486.03	-351.10	-159.73	-351.79	0.00	0.00	0.00	0.00
6,600.00	4.18	204.46	6,585.76	-357.73	-162.74	-358.44	0.00	0.00	0.00	0.00
6,700.00	4.18	204.46	6,685.49	-364.36	-165.76	-365.08	0.00	0.00	0.00	0.00
6,800.00	4.18	204.46	6,785.23	-370.99	-168.78	-371.72	0.00	0.00	0.00	0.00
6,894.56	4.18	204.46	6,879.54	-377.26	-171.63	-378.00	0.00	0.00	0.00	0.00
Top 4-1/2" Liner @ 6894.56ft										
6,900.00	4.18	204.46	6,884.96	-377.62	-171.79	-378.36	0.00	0.00	0.00	0.00
6,994.56	4.18	204.46	6,979.27	-383.89	-174.65	-384.65	0.00	0.00	0.00	0.00
KOP @ 6994.56ft										
7,000.00	3.69	207.94	6,984.70	-384.22	-174.81	-384.98	9.99	-8.98	63.93	155.71
7,100.00	6.95	346.00	7,084.48	-381.19	-177.79	-381.96	10.00	3.26	138.06	152.24
7,200.00	16.82	354.54	7,182.22	-360.86	-180.63	-361.65	10.00	9.87	8.54	14.34
7,243.13	21.11	355.78	7,223.00	-346.90	-181.80	-347.69	10.00	9.96	2.87	5.94
Sharon Springs										
7,300.00	26.79	356.83	7,274.95	-323.87	-183.26	-324.66	10.00	9.97	1.84	4.77
7,359.99	32.77	357.57	7,327.00	-294.12	-184.70	-294.92	10.00	9.98	1.23	3.81
Niobrara A										
7,391.49	35.92	357.86	7,353.00	-276.37	-185.41	-277.17	10.00	9.99	0.94	3.17
Niobrara B										
7,400.00	36.77	357.94	7,359.86	-271.32	-185.59	-272.13	10.00	9.99	0.85	2.93
DLS = 10.00/100ft										
7,500.00	46.76	358.62	7,434.35	-204.83	-187.55	-205.65	10.00	9.99	0.68	2.87
7,503.88	47.15	358.64	7,437.00	-202.00	-187.62	-202.81	10.00	9.99	0.56	2.36
Niobrara C										
7,600.00	56.75	359.11	7,496.18	-126.41	-189.09	-127.23	10.00	9.99	0.49	2.34
7,700.00	66.75	359.50	7,543.45	-38.44	-190.15	-39.27	10.00	9.99	0.39	2.05
7,800.00	76.74	359.83	7,574.74	56.41	-190.70	55.57	10.00	10.00	0.33	1.87
7,856.75	82.41	0.00	7,585.00	112.20	-190.78	111.37	10.00	10.00	0.31	1.76
Codell										
7,900.00	86.74	0.14	7,589.09	155.24	-190.72	154.41	10.00	10.00	0.30	1.73
7,937.07	90.44	0.25	7,590.00	192.30	-190.60	191.47	10.00	9.99	0.30	1.72
End Build @ 7937.07ft - Landing Target (Heel) - 7" Casing - Butterball 30C-10HZ_CP										
8,000.00	90.44	0.25	7,589.51	255.22	-190.33	254.39	0.00	0.00	0.00	1.72
8,100.00	90.44	0.25	7,588.74	355.22	-189.90	354.39	0.00	0.00	0.00	0.00
8,200.00	90.44	0.25	7,587.97	455.22	-189.47	454.38	0.00	0.00	0.00	0.00
8,300.00	90.44	0.25	7,587.20	555.21	-189.04	554.38	0.00	0.00	0.00	0.00
8,400.00	90.44	0.25	7,586.43	655.21	-188.61	654.38	0.00	0.00	0.00	0.00
8,500.00	90.44	0.25	7,585.65	755.20	-188.17	754.38	0.00	0.00	0.00	0.00
8,600.00	90.44	0.25	7,584.88	855.20	-187.74	854.37	0.00	0.00	0.00	0.00
8,700.00	90.44	0.25	7,584.11	955.20	-187.31	954.37	0.00	0.00	0.00	0.00

Plan Report for Butterball 30C-10HZ - Plan A 0 - PERMIT

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)	Toolface Azimuth (°)
8,800.00	90.44	0.25	7,583.34	1,055.19	-186.88	1,054.37	0.00	0.00	0.00	0.00
8,900.00	90.44	0.25	7,582.57	1,155.19	-186.45	1,154.36	0.00	0.00	0.00	0.00
9,000.00	90.44	0.25	7,581.79	1,255.18	-186.02	1,254.36	0.00	0.00	0.00	0.00
9,100.00	90.44	0.25	7,581.02	1,355.18	-185.59	1,354.36	0.00	0.00	0.00	0.00
9,200.00	90.44	0.25	7,580.25	1,455.18	-185.16	1,454.35	0.00	0.00	0.00	0.00
9,300.00	90.44	0.25	7,579.48	1,555.17	-184.73	1,554.35	0.00	0.00	0.00	0.00
9,400.00	90.44	0.25	7,578.71	1,655.17	-184.30	1,654.35	0.00	0.00	0.00	0.00
9,500.00	90.44	0.25	7,577.93	1,755.16	-183.87	1,754.35	0.00	0.00	0.00	0.00
9,600.00	90.44	0.25	7,577.16	1,855.16	-183.43	1,854.34	0.00	0.00	0.00	0.00
9,700.00	90.44	0.25	7,576.39	1,955.16	-183.00	1,954.34	0.00	0.00	0.00	0.00
9,800.00	90.44	0.25	7,575.62	2,055.15	-182.57	2,054.34	0.00	0.00	0.00	0.00
9,900.00	90.44	0.25	7,574.85	2,155.15	-182.14	2,154.33	0.00	0.00	0.00	0.00
10,000.00	90.44	0.25	7,574.07	2,255.14	-181.71	2,254.33	0.00	0.00	0.00	0.00
10,100.00	90.44	0.25	7,573.30	2,355.14	-181.28	2,354.33	0.00	0.00	0.00	0.00
10,200.00	90.44	0.25	7,572.53	2,455.14	-180.85	2,454.32	0.00	0.00	0.00	0.00
10,300.00	90.44	0.25	7,571.76	2,555.13	-180.42	2,554.32	0.00	0.00	0.00	0.00
10,400.00	90.44	0.25	7,570.98	2,655.13	-179.99	2,654.32	0.00	0.00	0.00	0.00
10,500.00	90.44	0.25	7,570.21	2,755.13	-179.56	2,754.32	0.00	0.00	0.00	0.00
10,600.00	90.44	0.25	7,569.44	2,855.12	-179.13	2,854.31	0.00	0.00	0.00	0.00
10,700.00	90.44	0.25	7,568.67	2,955.12	-178.69	2,954.31	0.00	0.00	0.00	0.00
10,800.00	90.44	0.25	7,567.90	3,055.11	-178.26	3,054.31	0.00	0.00	0.00	0.00
10,900.00	90.44	0.25	7,567.12	3,155.11	-177.83	3,154.30	0.00	0.00	0.00	0.00
11,000.00	90.44	0.25	7,566.35	3,255.11	-177.40	3,254.30	0.00	0.00	0.00	0.00
11,100.00	90.44	0.25	7,565.58	3,355.10	-176.97	3,354.30	0.00	0.00	0.00	0.00
11,200.00	90.44	0.25	7,564.81	3,455.10	-176.54	3,454.29	0.00	0.00	0.00	0.00
11,300.00	90.44	0.25	7,564.04	3,555.09	-176.11	3,554.29	0.00	0.00	0.00	0.00
11,400.00	90.44	0.25	7,563.26	3,655.09	-175.68	3,654.29	0.00	0.00	0.00	0.00
11,500.00	90.44	0.25	7,562.49	3,755.09	-175.25	3,754.29	0.00	0.00	0.00	0.00
11,600.00	90.44	0.25	7,561.72	3,855.08	-174.82	3,854.28	0.00	0.00	0.00	0.00
11,700.00	90.44	0.25	7,560.95	3,955.08	-174.38	3,954.28	0.00	0.00	0.00	0.00
11,800.00	90.44	0.25	7,560.18	4,055.07	-173.95	4,054.28	0.00	0.00	0.00	0.00
11,900.00	90.44	0.25	7,559.40	4,155.07	-173.52	4,154.27	0.00	0.00	0.00	0.00
12,000.00	90.44	0.25	7,558.63	4,255.07	-173.09	4,254.27	0.00	0.00	0.00	0.00
12,081.87	90.44	0.25	7,558.00	4,336.93	-172.74	4,336.14	0.00	0.00	0.00	0.00
Total Depth (Toe)										
12,081.88	90.44	0.25	7,558.00	4,336.94	-172.74	4,336.15	0.00	0.00	0.00	0.00
TD @ 12081.88ft - Butterball 30C-10HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,308.85	1,308.67	-6.93	-3.15	End Nudge @ 1308.85ft
6,894.56	6,879.54	-377.26	-171.63	Top 4-1/2" Liner @ 6894.56ft
6,994.56	6,979.27	-383.89	-174.65	KOP @ 6994.56ft
7,400.00	7,359.86	-271.32	-185.59	DLS = 10.00/100ft
7,937.07	7,590.00	192.30	-190.60	End Build @ 7937.07ft
12,081.88	7,558.00	4,336.94	-172.74	TD @ 12081.88ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
User	No Target (Freehand)	0.25	Slot	0.00	0.00	0.00

Plan Report for Butterball 30C-10HZ - Plan A 0 - PERMIT**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,081.88	Plan A 0 - PERMIT	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
867.00	867.00	9 5/8" Casing	9-5/8	13-1/2
7,937.07	7,590.00	7" Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,033.42	4,026.00	Parkman		0.00	
4,460.56	4,452.00	Sussex		0.00	
5,576.52	5,565.00	Fort Hays		0.00	
7,243.13	7,223.00	Sharon Springs		0.00	
7,359.99	7,327.00	Niobrara A		0.00	
7,391.49	7,353.00	Niobrara B		0.00	
7,503.88	7,437.00	Niobrara C		0.00	
7,856.75	7,585.00	Codell		0.00	
7,937.07	7,590.00	Landing Target (Heel)		0.00	
12,081.87	7,558.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Butterball 30C-10HZ_CP	7,590.00	192.30	-190.60	Point
Butterball 30C-10HZ_SHL	0.00	0.00	0.00	Point
Butterball 30C-10HZ_LD	0.00	0.00	0.00	Polygon
Butterball Sec10	0.00	0.00	0.00	Polygon
Butterball 30C-10HZ_BHL	7,558.00	4,336.94	-172.74	Point

North Reference Sheet for Sec. 10-T2N-R67W - Butterball 30C-10HZ - Plan A 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 17ft @ 5013.00ft (Drilling Rig). Northing and Easting are relative to Butterball 30C-10HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995849

Grid Coordinates of Well: 1,296,895.73 ft N, 3,172,160.27 ft E

Geographical Coordinates of Well: 40° 08' 48.24" N, 104° 53' 02.94" W

Grid Convergence at Surface is: 0.40°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,081.88ft
the Bottom Hole Displacement is 4,340.38ft in the Direction of 357.72° (True).

Magnetic Convergence at surface is: -8.26° (24 June 2013, , BGGM2013)

