

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec 10-T2N-R67W

Butterball 29C-15HZ

Plan B

Plan: Rev B0

Sperry Drilling Services

Proposal Report

10 October, 2013

Well Coordinates: 1,301,060.44 N, 3,173,592.06 E (40° 09' 29.29" N, 104° 52' 44.12" W)

Ground Level: 4,935.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Butterball 29C-15HZ

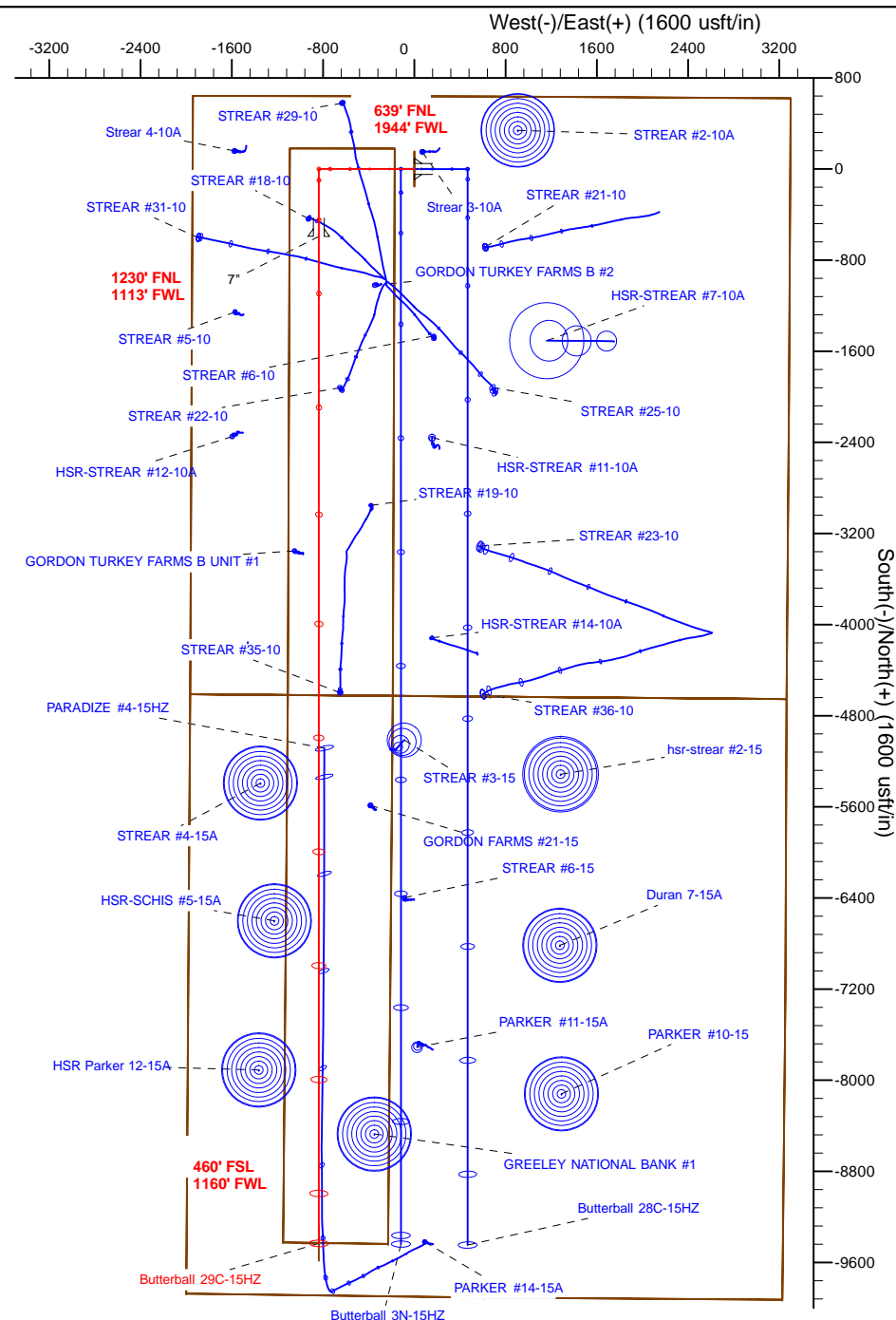
RKB = 16' @ 4951.00usft (Xtreme22)

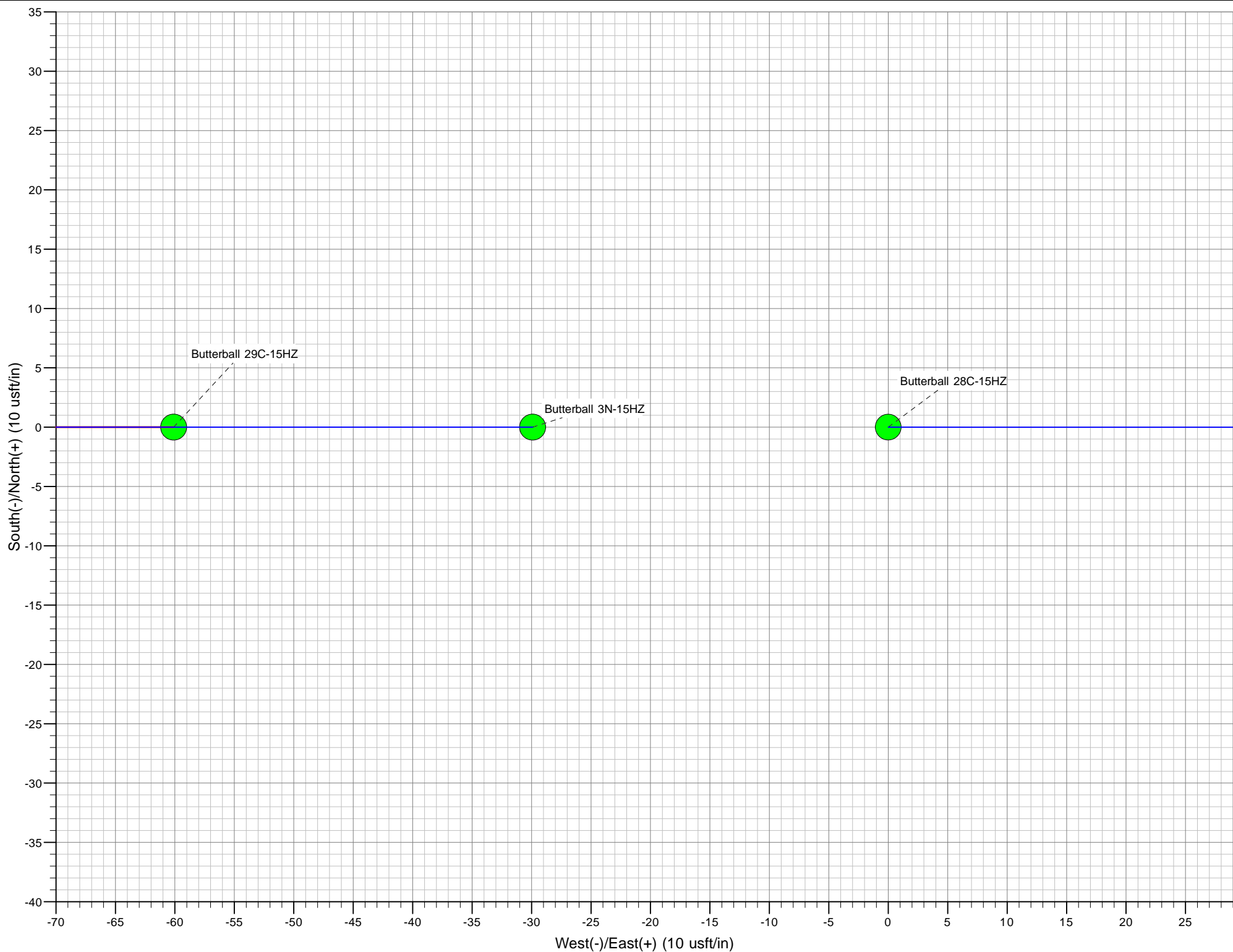
N

True

API - US Survey Feet - Custom

HALLIBURTON





Plan Report for Butterball 29C-15HZ - Rev B0

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)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Butterball 29C-15HZ_SEC - Butterball 29C-15HZ_SHL - Butterball 29C-15HZ_LD										
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
755.00	0.00	0.00	755.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base										
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
805.00	0.00	0.00	805.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1500.00ft										
1,600.00	2.00	270.00	1,599.98	0.00	-1.75	0.00	2.00	2.00	0.00	270.00
1,700.00	4.00	270.00	1,699.84	0.00	-6.98	0.00	2.00	2.00	0.00	0.00
1,800.00	6.00	270.00	1,799.45	0.00	-15.69	0.00	2.00	2.00	0.00	0.00
1,900.00	8.00	270.00	1,898.70	0.00	-27.88	0.00	2.00	2.00	0.00	0.00
2,000.00	10.00	270.00	1,997.47	0.00	-43.52	0.00	2.00	2.00	0.00	0.00
End Nudge @ 2000.00ft										
2,100.00	10.00	270.00	2,095.95	0.00	-60.89	0.00	0.00	0.00	0.00	0.00
2,200.00	10.00	270.00	2,194.43	0.00	-78.25	0.00	0.00	0.00	0.00	0.00
2,300.00	10.00	270.00	2,292.91	0.00	-95.62	0.00	0.00	0.00	0.00	0.00
2,400.00	10.00	270.00	2,391.39	0.00	-112.98	0.00	0.00	0.00	0.00	0.00
2,500.00	10.00	270.00	2,489.87	0.00	-130.35	0.00	0.00	0.00	0.00	0.00
2,600.00	10.00	270.00	2,588.35	0.00	-147.71	0.00	0.00	0.00	0.00	0.00
2,700.00	10.00	270.00	2,686.83	0.00	-165.08	0.00	0.00	0.00	0.00	0.00
2,800.00	10.00	270.00	2,785.31	0.00	-182.44	0.00	0.00	0.00	0.00	0.00
2,900.00	10.00	270.00	2,883.79	0.00	-199.81	0.00	0.00	0.00	0.00	0.00
3,000.00	10.00	270.00	2,982.27	0.00	-217.17	0.00	0.00	0.00	0.00	0.00
3,100.00	10.00	270.00	3,080.75	0.00	-234.54	0.00	0.00	0.00	0.00	0.00
3,200.00	10.00	270.00	3,179.23	0.00	-251.90	0.00	0.00	0.00	0.00	0.00
3,300.00	10.00	270.00	3,277.72	0.00	-269.27	0.00	0.00	0.00	0.00	0.00
3,400.00	10.00	270.00	3,376.20	0.00	-286.63	0.00	0.00	0.00	0.00	0.00
3,500.00	10.00	270.00	3,474.68	0.00	-303.99	0.00	0.00	0.00	0.00	0.00
3,600.00	10.00	270.00	3,573.16	0.00	-321.36	0.00	0.00	0.00	0.00	0.00
3,700.00	10.00	270.00	3,671.64	0.00	-338.72	0.00	0.00	0.00	0.00	0.00
3,800.00	10.00	270.00	3,770.12	0.00	-356.09	0.00	0.00	0.00	0.00	0.00
3,900.00	10.00	270.00	3,868.60	0.00	-373.45	0.00	0.00	0.00	0.00	0.00
3,961.33	10.00	270.00	3,929.00	0.00	-384.10	0.00	0.00	0.00	0.00	0.00
Parkman										
4,000.00	10.00	270.00	3,967.08	0.00	-390.82	0.00	0.00	0.00	0.00	0.00
4,100.00	10.00	270.00	4,065.56	0.00	-408.18	0.00	0.00	0.00	0.00	0.00
4,200.00	10.00	270.00	4,164.04	0.00	-425.55	0.00	0.00	0.00	0.00	0.00
4,300.00	10.00	270.00	4,262.52	0.00	-442.91	0.00	0.00	0.00	0.00	0.00
4,393.90	10.00	270.00	4,355.00	0.00	-459.22	0.00	0.00	0.00	0.00	0.00
Sussex										
4,400.00	10.00	270.00	4,361.00	0.00	-460.28	0.00	0.00	0.00	0.00	0.00
4,500.00	10.00	270.00	4,459.48	0.00	-477.64	0.00	0.00	0.00	0.00	0.00

Plan Report for Butterball 29C-15HZ - Rev B0

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)	Toolface Azimuth (°)
4,600.00	10.00	270.00	4,557.97	0.00	-495.01	0.00	0.00	0.00	0.00	0.00
4,700.00	10.00	270.00	4,656.45	0.00	-512.37	0.00	0.00	0.00	0.00	0.00
4,800.00	10.00	270.00	4,754.93	0.00	-529.74	0.00	0.00	0.00	0.00	0.00
4,900.00	10.00	270.00	4,853.41	0.00	-547.10	0.00	0.00	0.00	0.00	0.00
5,000.00	10.00	270.00	4,951.89	0.00	-564.47	0.00	0.00	0.00	0.00	0.00
5,100.00	10.00	270.00	5,050.37	0.00	-581.83	0.00	0.00	0.00	0.00	0.00
5,200.00	10.00	270.00	5,148.85	0.00	-599.20	0.00	0.00	0.00	0.00	0.00
5,300.00	10.00	270.00	5,247.33	0.00	-616.56	0.00	0.00	0.00	0.00	0.00
5,400.00	10.00	270.00	5,345.81	0.00	-633.93	0.00	0.00	0.00	0.00	0.00
5,500.00	10.00	270.00	5,444.29	0.00	-651.29	0.00	0.00	0.00	0.00	0.00
5,600.00	10.00	270.00	5,542.77	0.00	-668.66	0.00	0.00	0.00	0.00	0.00
5,700.00	10.00	270.00	5,641.25	0.00	-686.02	0.00	0.00	0.00	0.00	0.00
5,800.00	10.00	270.00	5,739.73	0.00	-703.39	0.00	0.00	0.00	0.00	0.00
5,900.00	10.00	270.00	5,838.22	0.00	-720.75	0.00	0.00	0.00	0.00	0.00
6,000.00	10.00	270.00	5,936.70	0.00	-738.12	0.00	0.00	0.00	0.00	0.00
6,100.00	10.00	270.00	6,035.18	0.00	-755.48	0.00	0.00	0.00	0.00	0.00
6,200.00	10.00	270.00	6,133.66	0.00	-772.84	0.00	0.00	0.00	0.00	0.00
6,300.00	10.00	270.00	6,232.14	0.00	-790.21	0.00	0.00	0.00	0.00	0.00
6,317.00	10.00	270.00	6,248.88	0.00	-793.16	0.00	0.00	0.00	0.00	0.00
Begin Drop @ 6317.00ft										
6,400.00	8.34	270.00	6,330.82	0.00	-806.39	0.00	2.00	-2.00	0.00	180.00
6,500.00	6.34	270.00	6,429.99	0.00	-819.16	0.00	2.00	-2.00	0.00	180.00
6,600.00	4.34	270.00	6,529.55	0.00	-828.47	0.00	2.00	-2.00	0.00	180.00
6,700.00	2.34	270.00	6,629.38	0.00	-834.30	0.00	2.00	-2.00	0.00	180.00
6,800.00	0.34	270.00	6,729.35	0.00	-836.63	0.00	2.00	-2.00	0.00	180.00
6,817.00	0.00	0.00	6,746.35	0.00	-836.68	0.00	2.00	-2.00	0.00	180.00
End Drop @ 6817.00ft										
6,900.00	0.00	0.00	6,829.35	0.00	-836.68	0.00	0.00	0.00	0.00	0.00
6,955.72	0.00	0.00	6,885.07	0.00	-836.68	0.00	0.00	0.00	0.00	0.00
KOP @ 6955.72ft										
6,960.00	0.43	180.00	6,889.35	-0.02	-836.68	0.02	10.00	10.00	0.00	180.00
DLS = 10/100'										
7,000.00	4.43	180.00	6,929.30	-1.71	-836.68	1.71	10.00	10.00	0.00	0.00
7,100.00	14.43	180.00	7,027.83	-18.07	-836.68	18.07	10.00	10.00	0.00	0.00
7,200.00	24.43	180.00	7,122.01	-51.29	-836.68	51.29	10.00	10.00	0.00	0.00
7,215.46	25.97	180.00	7,136.00	-57.87	-836.68	57.87	10.00	10.00	0.00	0.00
DLS = 6/100'										
7,243.47	27.65	180.00	7,161.00	-70.51	-836.68	70.51	6.00	6.00	0.00	0.00
Sharon Springs										
7,300.00	31.05	180.00	7,210.26	-98.21	-836.68	98.21	6.00	6.00	0.00	0.00
7,330.33	32.87	180.00	7,236.00	-114.27	-836.68	114.27	6.00	6.00	0.00	0.00
DLS = 10/100' - Niobrara A										
7,360.63	35.90	180.00	7,261.00	-131.37	-836.68	131.37	10.00	10.00	0.00	0.00
Niobrara B										
7,400.00	39.83	180.00	7,292.08	-155.53	-836.68	155.53	10.00	10.00	0.00	0.00
7,472.99	47.13	180.00	7,345.00	-205.73	-836.69	205.73	10.00	10.00	0.00	0.00
Niobrara C										
7,500.00	49.83	180.00	7,362.90	-225.95	-836.69	225.95	10.00	10.00	0.00	0.00
7,600.00	59.83	180.00	7,420.42	-307.59	-836.69	307.59	10.00	10.00	0.00	0.00
7,700.00	69.83	180.00	7,462.90	-397.98	-836.69	397.98	10.00	10.00	0.00	0.00
7,749.75	74.81	180.00	7,478.00	-445.37	-836.69	445.37	10.00	10.00	0.00	0.00
Fort Hays										
7,800.00	79.83	180.00	7,489.02	-494.38	-836.70	494.38	10.00	10.00	0.00	0.00
7,896.87	89.52	180.00	7,498.00	-590.72	-836.70	590.72	10.00	10.00	0.00	0.00
End Build @ 7896.87ft - Landing Target (Heel) - 7"										
7,896.88	89.52	180.00	7,498.00	-590.73	-836.70	590.73	3.26	3.26	0.00	0.00
Begin Nudge @ 7896.88ft										
7,900.00	89.58	180.00	7,498.02	-593.85	-836.70	593.85	2.00	2.00	-0.01	-0.35

Plan Report for Butterball 29C-15HZ - Rev B0

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)	Toolface Azimuth (°)
7,920.82	90.00	180.00	7,498.10	-614.67	-836.70	614.67	2.00	2.00	-0.01	-0.35
End Nudge @ 7920.82ft										
8,000.00	90.00	180.00	7,498.10	-693.85	-836.70	693.85	0.00	0.00	0.00	0.00
8,100.00	90.00	180.00	7,498.10	-793.85	-836.70	793.85	0.00	0.00	0.00	0.00
8,200.00	90.00	180.00	7,498.10	-893.85	-836.70	893.85	0.00	0.00	0.00	0.00
8,300.00	90.00	180.00	7,498.10	-993.85	-836.70	993.85	0.00	0.00	0.00	0.00
8,400.00	90.00	180.00	7,498.10	-1,093.85	-836.70	1,093.85	0.00	0.00	0.00	0.00
8,500.00	90.00	180.00	7,498.10	-1,193.85	-836.70	1,193.85	0.00	0.00	0.00	0.00
8,600.00	90.00	180.00	7,498.10	-1,293.85	-836.70	1,293.85	0.00	0.00	0.00	0.00
8,700.00	90.00	180.00	7,498.10	-1,393.85	-836.70	1,393.85	0.00	0.00	0.00	0.00
8,800.00	90.00	180.00	7,498.10	-1,493.85	-836.70	1,493.85	0.00	0.00	0.00	0.00
8,900.00	90.00	180.00	7,498.10	-1,593.85	-836.70	1,593.85	0.00	0.00	0.00	0.00
9,000.00	90.00	180.00	7,498.10	-1,693.85	-836.70	1,693.85	0.00	0.00	0.00	0.00
9,100.00	90.00	180.00	7,498.10	-1,793.85	-836.70	1,793.85	0.00	0.00	0.00	0.00
9,200.00	90.00	180.00	7,498.10	-1,893.85	-836.70	1,893.85	0.00	0.00	0.00	0.00
9,300.00	90.00	180.00	7,498.10	-1,993.85	-836.70	1,993.85	0.00	0.00	0.00	0.00
9,400.00	90.00	180.00	7,498.10	-2,093.85	-836.70	2,093.85	0.00	0.00	0.00	0.00
9,500.00	90.00	180.00	7,498.10	-2,193.85	-836.70	2,193.85	0.00	0.00	0.00	0.00
9,600.00	90.00	180.00	7,498.10	-2,293.85	-836.70	2,293.85	0.00	0.00	0.00	0.00
9,700.00	90.00	180.00	7,498.10	-2,393.85	-836.70	2,393.85	0.00	0.00	0.00	0.00
9,800.00	90.00	180.00	7,498.10	-2,493.85	-836.70	2,493.85	0.00	0.00	0.00	0.00
9,900.00	90.00	180.00	7,498.10	-2,593.85	-836.70	2,593.85	0.00	0.00	0.00	0.00
10,000.00	90.00	180.00	7,498.10	-2,693.85	-836.70	2,693.85	0.00	0.00	0.00	0.00
10,100.00	90.00	180.00	7,498.10	-2,793.85	-836.70	2,793.85	0.00	0.00	0.00	0.00
10,200.00	90.00	180.00	7,498.10	-2,893.85	-836.70	2,893.85	0.00	0.00	0.00	0.00
10,300.00	90.00	180.00	7,498.10	-2,993.85	-836.70	2,993.85	0.00	0.00	0.00	0.00
10,306.15	90.00	180.00	7,498.10	-3,000.00	-836.70	3,000.00	0.00	0.00	0.00	0.00
Begin Nudge to 89.3 deg @ 10306.15ft										
10,339.15	89.34	180.00	7,498.29	-3,033.00	-836.70	3,033.00	2.00	-2.00	0.01	179.57
End Nudge @ 10339.15ft										
10,400.00	89.34	180.00	7,498.99	-3,093.84	-836.71	3,093.84	0.00	0.00	0.00	179.57
10,500.00	89.34	180.00	7,500.14	-3,193.84	-836.72	3,193.84	0.00	0.00	0.00	0.00
10,600.00	89.34	180.00	7,501.29	-3,293.83	-836.72	3,293.83	0.00	0.00	0.00	0.00
10,661.24	89.34	180.00	7,502.00	-3,355.06	-836.73	3,355.06	0.00	0.00	0.00	0.00
Codell										
10,700.00	89.34	180.00	7,502.45	-3,393.82	-836.73	3,393.82	0.00	0.00	0.00	0.00
10,800.00	89.34	180.00	7,503.60	-3,493.82	-836.74	3,493.82	0.00	0.00	0.00	0.00
10,900.00	89.34	180.00	7,504.75	-3,593.81	-836.75	3,593.81	0.00	0.00	0.00	0.00
11,000.00	89.34	180.00	7,505.90	-3,693.80	-836.76	3,693.80	0.00	0.00	0.00	0.00
11,100.00	89.34	180.00	7,507.05	-3,793.80	-836.77	3,793.80	0.00	0.00	0.00	0.00
11,200.00	89.34	180.00	7,508.21	-3,893.79	-836.78	3,893.79	0.00	0.00	0.00	0.00
11,300.00	89.34	180.00	7,509.36	-3,993.78	-836.78	3,993.78	0.00	0.00	0.00	0.00
11,400.00	89.34	180.00	7,510.51	-4,093.78	-836.79	4,093.78	0.00	0.00	0.00	0.00
11,500.00	89.34	180.00	7,511.66	-4,193.77	-836.80	4,193.77	0.00	0.00	0.00	0.00
11,600.00	89.34	180.00	7,512.81	-4,293.76	-836.81	4,293.76	0.00	0.00	0.00	0.00
11,700.00	89.34	180.00	7,513.96	-4,393.76	-836.82	4,393.76	0.00	0.00	0.00	0.00
11,800.00	89.34	180.00	7,515.12	-4,493.75	-836.83	4,493.75	0.00	0.00	0.00	0.00
11,900.00	89.34	180.00	7,516.27	-4,593.74	-836.84	4,593.74	0.00	0.00	0.00	0.00
12,000.00	89.34	180.00	7,517.42	-4,693.74	-836.84	4,693.74	0.00	0.00	0.00	0.00
12,100.00	89.34	180.00	7,518.57	-4,793.73	-836.85	4,793.73	0.00	0.00	0.00	0.00
12,200.00	89.34	180.00	7,519.72	-4,893.72	-836.86	4,893.72	0.00	0.00	0.00	0.00
12,300.00	89.34	180.00	7,520.88	-4,993.72	-836.87	4,993.72	0.00	0.00	0.00	0.00
12,400.00	89.34	180.00	7,522.03	-5,093.71	-836.88	5,093.71	0.00	0.00	0.00	0.00
12,500.00	89.34	180.00	7,523.18	-5,193.70	-836.89	5,193.70	0.00	0.00	0.00	0.00
12,600.00	89.34	180.00	7,524.33	-5,293.70	-836.90	5,293.70	0.00	0.00	0.00	0.00
12,700.00	89.34	180.00	7,525.48	-5,393.69	-836.90	5,393.69	0.00	0.00	0.00	0.00
12,800.00	89.34	180.00	7,526.63	-5,493.68	-836.91	5,493.68	0.00	0.00	0.00	0.00
12,900.00	89.34	180.00	7,527.79	-5,593.68	-836.92	5,593.68	0.00	0.00	0.00	0.00
13,000.00	89.34	180.00	7,528.94	-5,693.67	-836.93	5,693.67	0.00	0.00	0.00	0.00

Plan Report for Butterball 29C-15HZ - Rev B0

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)	Toolface Azimuth (°)
13,100.00	89.34	180.00	7,530.09	-5,793.66	-836.94	5,793.66	0.00	0.00	0.00	0.00
13,200.00	89.34	180.00	7,531.24	-5,893.66	-836.95	5,893.66	0.00	0.00	0.00	0.00
13,300.00	89.34	180.00	7,532.39	-5,993.65	-836.96	5,993.65	0.00	0.00	0.00	0.00
13,400.00	89.34	180.00	7,533.55	-6,093.64	-836.96	6,093.64	0.00	0.00	0.00	0.00
13,500.00	89.34	180.00	7,534.70	-6,193.64	-836.97	6,193.64	0.00	0.00	0.00	0.00
13,600.00	89.34	180.00	7,535.85	-6,293.63	-836.98	6,293.63	0.00	0.00	0.00	0.00
13,700.00	89.34	180.00	7,537.00	-6,393.62	-836.99	6,393.62	0.00	0.00	0.00	0.00
13,800.00	89.34	180.00	7,538.15	-6,493.62	-837.00	6,493.62	0.00	0.00	0.00	0.00
13,900.00	89.34	180.00	7,539.30	-6,593.61	-837.01	6,593.61	0.00	0.00	0.00	0.00
14,000.00	89.34	180.00	7,540.46	-6,693.60	-837.02	6,693.60	0.00	0.00	0.00	0.00
14,100.00	89.34	180.00	7,541.61	-6,793.60	-837.02	6,793.60	0.00	0.00	0.00	0.00
14,200.00	89.34	180.00	7,542.76	-6,893.59	-837.03	6,893.59	0.00	0.00	0.00	0.00
14,300.00	89.34	180.00	7,543.91	-6,993.58	-837.04	6,993.58	0.00	0.00	0.00	0.00
14,400.00	89.34	180.00	7,545.06	-7,093.58	-837.05	7,093.58	0.00	0.00	0.00	0.00
14,500.00	89.34	180.00	7,546.22	-7,193.57	-837.06	7,193.57	0.00	0.00	0.00	0.00
14,600.00	89.34	180.00	7,547.37	-7,293.56	-837.07	7,293.56	0.00	0.00	0.00	0.00
14,700.00	89.34	180.00	7,548.52	-7,393.56	-837.08	7,393.56	0.00	0.00	0.00	0.00
14,800.00	89.34	180.00	7,549.67	-7,493.55	-837.08	7,493.55	0.00	0.00	0.00	0.00
14,900.00	89.34	180.00	7,550.82	-7,593.54	-837.09	7,593.54	0.00	0.00	0.00	0.00
15,000.00	89.34	180.00	7,551.98	-7,693.54	-837.10	7,693.54	0.00	0.00	0.00	0.00
15,100.00	89.34	180.00	7,553.13	-7,793.53	-837.11	7,793.53	0.00	0.00	0.00	0.00
15,200.00	89.34	180.00	7,554.28	-7,893.52	-837.12	7,893.52	0.00	0.00	0.00	0.00
15,300.00	89.34	180.00	7,555.43	-7,993.52	-837.13	7,993.52	0.00	0.00	0.00	0.00
15,400.00	89.34	180.00	7,556.58	-8,093.51	-837.14	8,093.51	0.00	0.00	0.00	0.00
15,500.00	89.34	180.00	7,557.73	-8,193.50	-837.14	8,193.50	0.00	0.00	0.00	0.00
15,600.00	89.34	180.00	7,558.89	-8,293.50	-837.15	8,293.50	0.00	0.00	0.00	0.00
15,700.00	89.34	180.00	7,560.04	-8,393.49	-837.16	8,393.49	0.00	0.00	0.00	0.00
15,800.00	89.34	180.00	7,561.19	-8,493.48	-837.17	8,493.48	0.00	0.00	0.00	0.00
15,900.00	89.34	180.00	7,562.34	-8,593.48	-837.18	8,593.48	0.00	0.00	0.00	0.00
16,000.00	89.34	180.00	7,563.49	-8,693.47	-837.19	8,693.47	0.00	0.00	0.00	0.00
16,100.00	89.34	180.00	7,564.65	-8,793.46	-837.20	8,793.46	0.00	0.00	0.00	0.00
16,200.00	89.34	180.00	7,565.80	-8,893.46	-837.20	8,893.46	0.00	0.00	0.00	0.00
16,300.00	89.34	180.00	7,566.95	-8,993.45	-837.21	8,993.45	0.00	0.00	0.00	0.00
16,400.00	89.34	180.00	7,568.10	-9,093.44	-837.22	9,093.44	0.00	0.00	0.00	0.00
16,500.00	89.34	180.00	7,569.25	-9,193.44	-837.23	9,193.44	0.00	0.00	0.00	0.00
16,600.00	89.34	180.00	7,570.40	-9,293.43	-837.24	9,293.43	0.00	0.00	0.00	0.00
16,700.00	89.34	180.00	7,571.56	-9,393.42	-837.25	9,393.42	0.00	0.00	0.00	0.00
16,738.54	89.34	180.00	7,572.00	-9,431.96	-837.25	9,431.96	0.00	0.00	0.00	0.00

TD Well @ 16738.54ft - Total Depth (Toe) - Butterball 29C-15HZ_BH Reloc

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	Begin Nudge @ 1500.00ft
2,000.00	1,997.47	0.00	-43.52	End Nudge @ 2000.00ft
6,317.00	6,248.88	0.00	-793.16	Begin Drop @ 6317.00ft
6,817.00	6,746.35	0.00	-836.68	End Drop @ 6817.00ft
6,955.72	6,885.07	0.00	-836.68	KOP @ 6955.72ft
6,960.00	6,889.35	-0.02	-836.68	DLS = 10/100'
7,215.46	7,136.00	-57.87	-836.68	DLS = 6/100'
7,330.33	7,236.00	-114.26	-836.68	DLS = 10/100'
7,896.87	7,498.00	-590.72	-836.70	End Build @ 7896.87ft
7,896.88	7,498.00	-590.73	-836.70	Begin Nudge @ 7896.88ft
7,920.82	7,498.10	-614.67	-836.70	End Nudge @ 7920.82ft
10,306.15	7,498.10	-3,000.00	-836.70	Begin Nudge to 89.3 deg @ 10306.15ft
10,339.15	7,498.29	-3,033.00	-836.70	End Nudge @ 10339.15ft
16,738.54	7,572.00	-9,431.96	-837.25	TD Well @ 16738.54ft

Plan Report for Butterball 29C-15HZ - Rev B0

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,896.87	Rev B0	MWD+IFR1+SC
7,896.87	16,738.54	Rev B0	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
805.00	805.00	9 5/8"	9-5/8	13-1/2
7,896.87	7,498.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
755.00	755.00	Fox Hills Base			
3,961.33	3,929.00	Parkman			
4,393.90	4,355.00	Sussex			
7,243.47	7,161.00	Sharon Springs			
7,330.33	7,236.00	Niobrara A			
7,360.63	7,261.00	Niobrara B			
7,472.99	7,345.00	Niobrara C			
7,749.75	7,478.00	Fort Hays			
7,896.87	7,498.00	Landing Target (Heel)			
10,661.24	7,502.00	Codell			
16,738.54	7,572.00	Total Depth (Toe)			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Butterball 29C-15HZ_SEC	0.00	0.00	0.00	Polygon
Butterball 29C-15HZ_SHL	0.00	0.00	0.00	Point
Butterball 29C-15HZ_LD	0.00	0.00	0.00	Polygon
Butterball 29C-15HZ_BH Reloc	7,572.00	-9,431.96	-837.25	Point

Plan Report for Butterball 29C-15HZ - Rev B0

Directional Difficulty Index

Average Dogleg over Survey:	0.66 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,896.87 usft
Net Tortosity applicable to Plans:	0.66 °/100usft	Directional Difficulty Index:	6.622

Audit Info

North Reference Sheet for Sec 10-T2N-R67W - Butterball 29C-15HZ - Plan B

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

Vertical Depths are relative to RKB = 16' @ 4951.00usft (Xtreme22). Northing and Easting are relative to Butterball 29C-15HZ

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° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995815

Grid Coordinates of Well: 1,301,060.44 usft N, 3,173,592.06 usft E

Geographical Coordinates of Well: 40° 09' 29.29" N, 104° 52' 44.12" W

Grid Convergence at Surface is: 0.40°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,738.54usft the Bottom Hole Displacement is 9,469.05usft in the Direction of 185.07° (True).

Magnetic Convergence at surface is: -8.23° (2 October 2013, , BGGM2013)

