

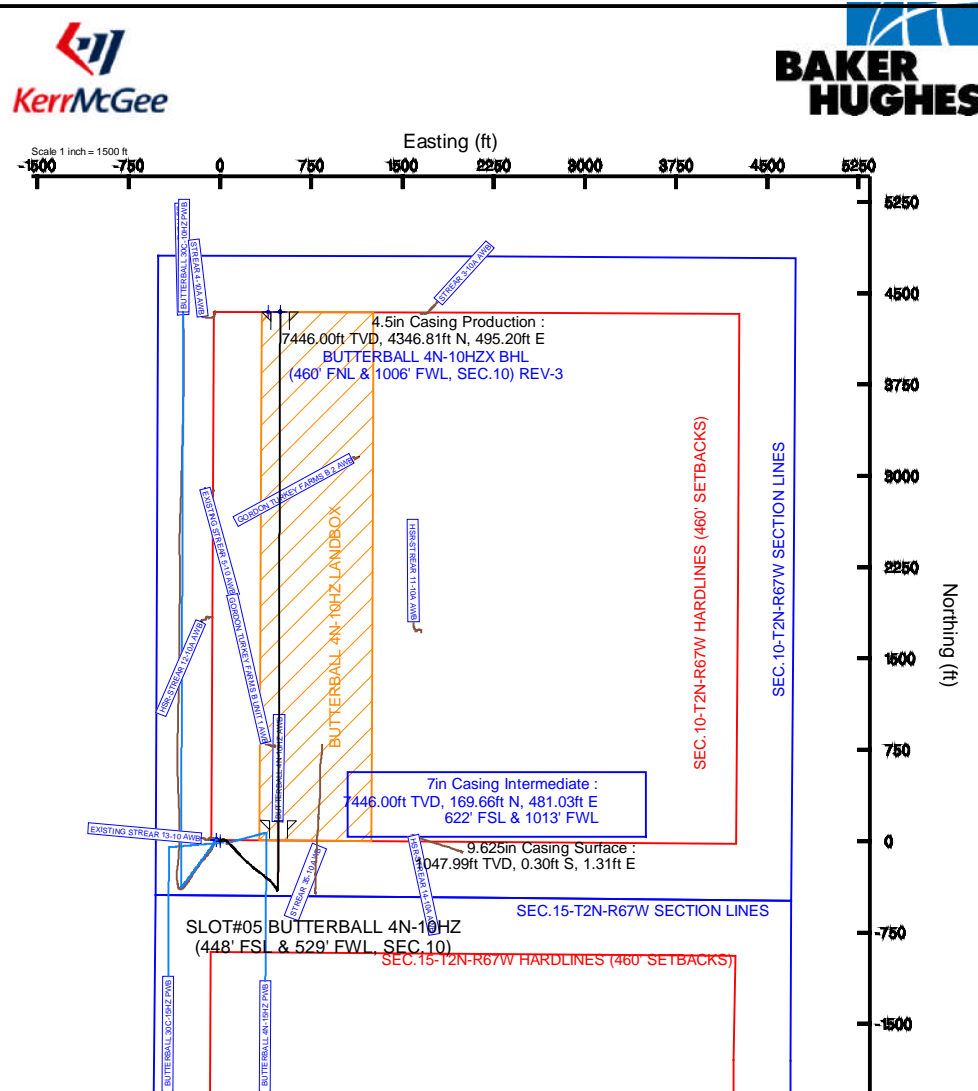
Location: COLORADO	Slot: SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Field: WELD COUNTY (KERR MCGEE)	Well: BUTTERBALL 4N-10HZ
Facility: SEC.10-T2N-R6TW	Wellbore: BUTTERBALL 4N-10HZX PWB
<b>Plot reference wellpath is BUTTERBALL 4N-10HZX (REV-A.0) PWP</b>	
True vertical depths are referenced to XTREME 8 (17KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to XTREME 8 (17KB) (RKB)	North Reference: True north
XTREME 8 (17KB) (RKB) to Mean Sea Level: 5013 feet	Scale: True distance
Mean Sea Level to Mud line (A1 Slot: SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precain on 25/Oct/2013

Facility Name			Grid East (US R)	Grid North (US R)	Latitude	Longitude
SEC.10-T2N-R67W			3173592.204	1301060.322	40°09'29.292"N	104°52'44.121"W
Slot	Local N (R)	Local E (R)	Grid East (US R)	Grid North (US R)	Latitude	Longitude
SLOT#05 BUTTERBALL 4N-10H2 (44# FSL & 52# FWL, SEC.10)	-1655.59	-1433.15	3172188.326	1296884.982	40°08'48.127"N	104°53'02.576"W
XTREME 6 (17#K) (R#B) to Mud line (N Slot: SLOT#05 BUTTERBALL 4N-10H2 (44# FSL & 52# FWL, SEC.10))					5013#	
Mean Sea Level to Mud line (N Slot: SLOT#05 BUTTERBALL 4N-10H2 (44# FSL & 52# FWL, SEC.10))					0#	
XTREME 6 (17#K) (R#B) to Mean Sea Level					5013#	

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	956.00	Generic gyro - continuous	Generic gyro - continuous (Standard)		BUTTERBALL 4N-10HZ AWB
956.00	6483.00	NavTrak	NavTrak (MAGCORR_JFR)		BUTTERBALL 4N-10HZ AWB
6483.00	12004.38	NavTrak	NavTrak (MAGCORR_JFR)		BUTTERBALL 4N-10HZ PWB

Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-INTO BHI MWD+IFR SURVEYS	6483.00	0.480	138.870	6428.85	-400.49	473.47	0.00	-398.90
KOP_BUILD @ 10'/100'	6923.61	0.480	138.870	6869.45	-403.27	475.89	0.00	-401.68
LANDING POINT	7827.21	90.000	0.194	7446.00	169.67	481.03	10.00	171.27
TOTAL DEPTH	12004.38	90.000	0.195	7446.00	4346.81	495.20	0.00	4346.44

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC 10-T2N-R67W HARLINES (460' SETBACKS)		0.00	10.93	-27.96	3172160.30	126895.72	40°08'48.236"N	104°52'02.036"W
SEC 10-T2N-R67W SECTION LINES		0.00	10.93	-27.96	3172160.30	126895.72	40°08'48.236"N	104°52'02.036"W
SEC 15-T2N-R67W HARLINES (460' SETBACKS)		0.00	10.93	-27.96	3172160.30	126895.72	40°08'48.236"N	104°52'02.036"W
SEC 15-T2N-R67W SECTION LINES		0.00	10.93	-27.96	3172160.30	126895.72	40°08'48.236"N	104°52'02.036"W
BUTTERBALL 4N-104E-B4L (460' FNL & 100F' FSL) SEC 10-R1V-2	7349.00	4346.61	456.20	3172653.30	123124.94	40°09'31.082"N	104°52'56.198"W	
BUTTERBALL 4N-104E-B4L ON PLAT (460' FNL & 90F' FSL) SEC 10-R1V-1	7349.00	4346.77	365.20	3172553.31	123124.20	40°09'31.082"N	104°52'57.486"W	
BUTTERBALL 4N-104E-LANDBOX	7349.00	0.00	0.00	3172188.33	126884.98	40°08'48.127"N	104°52'02.076"W	
BUTTERBALL 4N-104E-B4L (460' FNL & 100F' FSL) SEC 10-R1V-3	12004.38	4346.61	456.20	3172653.30	123124.94	40°09'31.082"N	104°52'56.198"W	



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Precain
Scale	0.999958	Report Generated	25/Oct/2013 at 13:29
Convergence at slot	n/a	Database/Source file	WellArchitectDB/BUTTERBALL_4N-10HZX_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-4165.59	-1433.15	3172188.33	1296884.98	40°08'48.127"N	104°53'02.576"W
Facility Reference Pt			3173592.20	1301060.32	40°09'29.292"N	104°52'44.121"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	XTREME 8 (17'KB) (RKB) to Facility Vertical Datum	5013.00ft
Horizontal Reference Pt	Slot	XTREME 8 (17'KB) (RKB) to Mean Sea Level	5013.00ft
Vertical Reference Pt	XTREME 8 (17'KB) (RKB)	XTREME 8 (17'KB) (RKB) to Mud Line at Slot (SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10))	5013.00ft
MD Reference Pt	XTREME 8 (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	0.19°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

WELLPATH DATA (137 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	77.690	0.00	0.00	0.00	0.00	40°08'48.127"N	104°53'02.576"W	0.00	
17.00	0.000	77.690	17.00	0.00	0.00	0.00	40°08'48.127"N	104°53'02.576"W	0.00	
117.00	0.260	77.690	117.00	0.05	0.05	0.22	40°08'48.127"N	104°53'02.573"W	0.26	
217.00	0.530	84.200	217.00	0.15	0.14	0.90	40°08'48.128"N	104°53'02.564"W	0.27	
317.00	0.360	72.610	316.99	0.29	0.28	1.66	40°08'48.130"N	104°53'02.555"W	0.19	
417.00	0.200	76.550	416.99	0.43	0.42	2.13	40°08'48.131"N	104°53'02.549"W	0.16	
517.00	0.210	78.390	516.99	0.50	0.50	2.48	40°08'48.132"N	104°53'02.544"W	0.01	
617.00	0.030	117.090	616.99	0.53	0.52	2.69	40°08'48.132"N	104°53'02.541"W	0.19	
717.00	0.080	162.820	716.99	0.45	0.44	2.73	40°08'48.131"N	104°53'02.541"W	0.06	
817.00	0.300	225.450	816.99	0.20	0.19	2.56	40°08'48.129"N	104°53'02.543"W	0.27	
817.01†	0.300	225.452	817.00	0.20	0.19	2.56	40°08'48.129"N	104°53'02.543"W	0.16	FOX HILLS BASE
917.00	0.410	245.350	916.99	-0.13	-0.14	2.05	40°08'48.126"N	104°53'02.550"W	0.16	
956.00	0.250	263.940	955.99	-0.20	-0.21	1.84	40°08'48.125"N	104°53'02.552"W	0.49	
1136.00	0.580	255.650	1135.98	-0.47	-0.48	0.57	40°08'48.122"N	104°53'02.569"W	0.19	
1197.00	0.780	251.120	1196.98	-0.69	-0.69	-0.13	40°08'48.120"N	104°53'02.578"W	0.34	
1258.00	0.930	52.290	1257.98	-0.52	-0.52	-0.13	40°08'48.122"N	104°53'02.578"W	2.77	
1351.00	3.430	51.170	1350.90	1.70	1.69	2.64	40°08'48.144"N	104°53'02.542"W	2.69	
1442.00	3.570	51.740	1441.73	5.17	5.15	6.98	40°08'48.178"N	104°53'02.486"W	0.16	
1533.00	5.110	49.380	1532.47	9.58	9.54	12.28	40°08'48.221"N	104°53'02.418"W	1.70	
1626.00	4.640	71.990	1625.14	13.47	13.40	19.01	40°08'48.259"N	104°53'02.331"W	2.11	
1717.00	4.410	86.890	1715.86	14.82	14.73	26.00	40°08'48.273"N	104°53'02.241"W	1.31	
1809.00	4.350	104.300	1807.60	14.17	14.06	32.91	40°08'48.266"N	104°53'02.152"W	1.44	
1901.00	5.560	121.250	1899.26	11.02	10.89	40.11	40°08'48.235"N	104°53'02.060"W	2.05	
1992.00	6.800	123.770	1989.72	5.77	5.60	48.35	40°08'48.182"N	104°53'01.953"W	1.39	
2084.00	8.130	134.280	2080.95	-1.77	-1.97	57.54	40°08'48.108"N	104°53'01.835"W	2.07	
2175.00	9.270	138.240	2170.90	-11.70	-11.93	67.03	40°08'48.009"N	104°53'01.713"W	1.41	
2267.00	10.770	134.450	2261.49	-23.21	-23.47	78.10	40°08'47.895"N	104°53'01.570"W	1.78	
2360.00	10.210	130.970	2352.94	-34.66	-34.96	90.53	40°08'47.781"N	104°53'01.410"W	0.91	
2452.00	11.190	134.760	2443.34	-46.25	-46.60	103.02	40°08'47.667"N	104°53'01.249"W	1.31	
2544.00	10.290	136.390	2533.73	-58.45	-58.83	115.03	40°08'47.546"N	104°53'01.095"W	1.03	
2635.00	10.670	140.160	2623.21	-70.76	-71.18	126.03	40°08'47.424"N	104°53'00.953"W	0.86	
2727.00	10.650	138.610	2713.62	-83.64	-84.10	137.11	40°08'47.296"N	104°53'00.810"W	0.31	
2819.00	10.010	138.500	2804.13	-95.97	-96.47	148.03	40°08'47.174"N	104°53'00.670"W	0.70	
2904.00	11.750	137.890	2887.60	-107.89	-108.42	158.73	40°08'47.056"N	104°53'00.532"W	2.05	
2989.00	11.530	137.900	2970.85	-120.58	-121.15	170.23	40°08'46.930"N	104°53'00.384"W	0.26	
3075.00	12.730	134.140	3054.93	-133.51	-134.12	182.79	40°08'46.802"N	104°53'00.222"W	1.67	
3160.00	11.490	133.980	3138.04	-145.87	-146.52	195.60	40°08'46.679"N	104°53'00.057"W	1.46	
3245.00	10.870	135.910	3221.43	-157.47	-158.16	207.27	40°08'46.564"N	104°52'59.907"W	0.85	
3330.00	10.440	127.880	3304.97	-167.91	-168.65	218.93	40°08'46.460"N	104°52'59.757"W	1.82	
3416.00	9.340	127.460	3389.69	-176.90	-177.67	230.62	40°08'46.371"N	104°52'59.606"W	1.28	
3501.00	9.560	132.100	3473.53	-185.80	-186.60	241.33	40°08'46.283"N	104°52'59.468"W	0.93	
3587.00	8.800	133.880	3558.43	-195.11	-195.95	251.37	40°08'46.191"N	104°52'59.339"W	0.94	
3672.00	9.880	138.680	3642.31	-205.06	-205.93	260.87	40°08'46.092"N	104°52'59.217"W	1.57	
3757.00	9.270	128.150	3726.13	-214.74	-215.64	271.07	40°08'45.996"N	104°52'59.085"W	2.18	
3843.00	10.410	128.190	3810.86	-223.78	-224.72	282.63	40°08'45.906"N	104°52'58.937"W	1.33	

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

### WELLPATH DATA (137 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3928.00	8.940	127.410	3894.65	-232.50	-233.48	293.91	40°08'45.820"N	104°52'58.791"W	1.74	
4013.00	9.250	126.290	3978.58	-240.52	-241.54	304.66	40°08'45.740"N	104°52'58.653"W	0.42	
4064.10†	9.459	127.711	4029.00	-245.50	-246.54	311.29	40°08'45.691"N	104°52'58.567"W	0.61	PARKMAN
4098.00	9.600	128.620	4062.43	-248.95	-250.01	315.70	40°08'45.656"N	104°52'58.511"W	0.61	
4183.00	10.720	119.910	4146.10	-257.28	-258.37	328.10	40°08'45.574"N	104°52'58.351"W	2.23	
4269.00	11.520	127.850	4230.49	-266.49	-267.63	341.81	40°08'45.482"N	104°52'58.174"W	2.01	
4354.00	11.190	133.560	4313.83	-277.34	-278.52	354.49	40°08'45.375"N	104°52'58.011"W	1.38	
4439.00	8.940	132.590	4397.52	-287.46	-288.68	365.33	40°08'45.274"N	104°52'57.872"W	2.65	
4497.22†	9.288	130.904	4455.00	-293.57	-294.82	372.21	40°08'45.214"N	104°52'57.783"W	0.75	SUSSEX
4524.00	9.450	130.170	4481.43	-296.40	-297.65	375.52	40°08'45.186"N	104°52'57.740"W	0.75	
4609.00	10.560	122.910	4565.14	-305.09	-306.38	387.40	40°08'45.099"N	104°52'57.587"W	1.97	
4694.00	11.160	127.920	4648.62	-314.33	-315.67	400.42	40°08'45.007"N	104°52'57.420"W	1.32	
4780.00	12.530	132.250	4732.78	-325.68	-327.06	413.90	40°08'44.895"N	104°52'57.246"W	1.90	
4865.00	11.260	141.720	4815.97	-338.35	-339.77	425.86	40°08'44.769"N	104°52'57.092"W	2.73	
4950.00	9.040	142.790	4899.63	-350.16	-351.61	435.04	40°08'44.652"N	104°52'56.974"W	2.62	
5035.00	7.590	145.120	4983.73	-360.06	-361.53	442.29	40°08'44.554"N	104°52'56.881"W	1.75	
5120.00	7.850	140.420	5067.96	-369.11	-370.61	449.20	40°08'44.465"N	104°52'56.792"W	0.80	
5205.00	7.820	141.440	5152.17	-378.08	-379.61	456.51	40°08'44.376"N	104°52'56.698"W	0.17	
5290.00	6.380	144.610	5236.52	-386.43	-387.98	462.85	40°08'44.293"N	104°52'56.616"W	1.76	
5376.00	3.260	144.950	5322.20	-392.32	-393.88	467.02	40°08'44.235"N	104°52'56.562"W	3.63	
5461.00	2.660	143.580	5407.09	-395.88	-397.44	469.58	40°08'44.199"N	104°52'56.529"W	0.71	
5546.00	2.310	147.640	5492.01	-398.90	-400.48	471.66	40°08'44.169"N	104°52'56.502"W	0.46	
5631.00	1.950	160.570	5576.95	-401.71	-403.29	473.06	40°08'44.142"N	104°52'56.484"W	0.70	
5716.00	1.130	183.800	5661.92	-403.91	-405.49	473.49	40°08'44.120"N	104°52'56.479"W	1.19	
5801.00	0.950	293.700	5746.91	-404.46	-406.04	472.79	40°08'44.114"N	104°52'56.488"W	2.01	
5887.00	1.300	281.080	5832.90	-403.99	-405.57	471.18	40°08'44.119"N	104°52'56.509"W	0.50	
5972.00	0.490	36.640	5917.89	-403.52	-405.09	470.45	40°08'44.124"N	104°52'56.518"W	1.85	
6142.00	0.520	45.310	6087.88	-402.39	-403.96	471.43	40°08'44.135"N	104°52'56.505"W	0.05	
6397.00	1.040	18.390	6342.86	-399.38	-400.95	472.98	40°08'44.165"N	104°52'56.485"W	0.24	
6483.00	0.480	138.870	6428.85	-398.90	-400.49	473.47	40°08'44.169"N	104°52'56.479"W	0.00	TIE-INTO BHI MWD+IFR SURVEYS
6583.00†	0.480	138.870	6528.85	-399.53	-401.12	474.02	40°08'44.163"N	104°52'56.472"W	0.00	
6683.00†	0.480	138.870	6628.85	-400.16	-401.75	474.57	40°08'44.157"N	104°52'56.465"W	0.00	
6783.00†	0.480	138.870	6728.84	-400.79	-402.38	475.12	40°08'44.151"N	104°52'56.458"W	0.00	
6883.00†	0.480	138.870	6828.84	-401.42	-403.01	475.67	40°08'44.144"N	104°52'56.451"W	0.00	
6923.61	0.480	138.870	6869.45	-401.68	-403.27	475.89	40°08'44.142"N	104°52'56.448"W	0.00	KOP, BUILD @ 10/100'
6983.00†	5.587	3.436	6928.75	-398.97	-400.56	476.23	40°08'44.169"N	104°52'56.444"W	10.00	
7083.00†	15.582	1.331	7026.92	-380.64	-382.23	476.84	40°08'44.350"N	104°52'56.436"W	10.00	
7183.00†	25.580	0.856	7120.42	-345.54	-347.13	477.47	40°08'44.697"N	104°52'56.428"W	10.00	
7283.00†	35.580	0.637	7206.41	-294.73	-296.32	478.12	40°08'45.199"N	104°52'56.419"W	10.00	
7335.97†	40.876	0.561	7248.00	-261.96	-263.56	478.46	40°08'45.522"N	104°52'56.415"W	10.00	SHARON SPRINGS
7383.00†	45.579	0.505	7282.26	-229.76	-231.36	478.76	40°08'45.841"N	104°52'56.411"W	10.00	
7466.23†	53.902	0.425	7336.00	-166.30	-167.90	479.27	40°08'46.468"N	104°52'56.404"W	10.00	NIOBRARA A
7483.00†	55.579	0.411	7345.68	-152.61	-154.21	479.37	40°08'46.603"N	104°52'56.403"W	10.00	
7503.57†	57.636	0.395	7357.00	-135.44	-137.04	479.49	40°08'46.773"N	104°52'56.401"W	10.00	NIOBRARA B
7583.00†	65.579	0.338	7394.74	-65.62	-67.22	479.94	40°08'47.463"N	104°52'56.396"W	10.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

WELLPATH DATA (137 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7683.00†	75.579	0.276	7427.95	28.57	26.97	480.44	40°08'48.393"N	104°52'56.389"W	10.00	
7783.00†	85.579	0.219	7444.30	127.10	125.50	480.87	40°08'49.367"N	104°52'56.384"W	10.00	
7827.21†	90.000	0.194	7446.00	171.26	169.66	481.03	40°08'49.804"N	104°52'56.382"W	10.00	NIOBRARA C (LANDING POINT)
7827.21	90.000	0.194	7446.00	171.27	169.67	481.03	40°08'49.804"N	104°52'56.382"W	10.00	LANDING POINT
7883.00†	90.000	0.194	7446.00	227.05	225.45	481.22	40°08'50.355"N	104°52'56.379"W	0.00	
7983.00†	90.000	0.194	7446.00	327.05	325.45	481.55	40°08'51.343"N	104°52'56.375"W	0.00	
8083.00†	90.000	0.194	7446.00	427.05	425.45	481.89	40°08'52.331"N	104°52'56.370"W	0.00	
8183.00†	90.000	0.194	7446.00	527.05	525.45	482.23	40°08'53.319"N	104°52'56.366"W	0.00	
8283.00†	90.000	0.194	7446.00	627.05	625.45	482.57	40°08'54.308"N	104°52'56.362"W	0.00	
8383.00†	90.000	0.194	7446.00	727.05	725.45	482.91	40°08'55.296"N	104°52'56.357"W	0.00	
8483.00†	90.000	0.194	7446.00	827.05	825.45	483.25	40°08'56.284"N	104°52'56.353"W	0.00	
8583.00†	90.000	0.194	7446.00	927.05	925.45	483.59	40°08'57.272"N	104°52'56.348"W	0.00	
8683.00†	90.000	0.194	7446.00	1027.05	1025.45	483.93	40°08'58.260"N	104°52'56.344"W	0.00	
8783.00†	90.000	0.194	7446.00	1127.05	1125.45	484.27	40°08'59.249"N	104°52'56.340"W	0.00	
8883.00†	90.000	0.194	7446.00	1227.05	1225.45	484.61	40°09'00.237"N	104°52'56.335"W	0.00	
8983.00†	90.000	0.194	7446.00	1327.05	1325.45	484.95	40°09'01.225"N	104°52'56.331"W	0.00	
9083.00†	90.000	0.194	7446.00	1427.05	1425.44	485.29	40°09'02.213"N	104°52'56.327"W	0.00	
9183.00†	90.000	0.194	7446.00	1527.05	1525.44	485.63	40°09'03.201"N	104°52'56.322"W	0.00	
9283.00†	90.000	0.194	7446.00	1627.05	1625.44	485.96	40°09'04.190"N	104°52'56.318"W	0.00	
9383.00†	90.000	0.194	7446.00	1727.05	1725.44	486.30	40°09'05.178"N	104°52'56.313"W	0.00	
9483.00†	90.000	0.194	7446.00	1827.05	1825.44	486.64	40°09'06.166"N	104°52'56.309"W	0.00	
9583.00†	90.000	0.194	7446.00	1927.05	1925.44	486.98	40°09'07.154"N	104°52'56.305"W	0.00	
9683.00†	90.000	0.194	7446.00	2027.05	2025.44	487.32	40°09'08.142"N	104°52'56.300"W	0.00	
9783.00†	90.000	0.194	7446.00	2127.05	2125.44	487.66	40°09'09.131"N	104°52'56.296"W	0.00	
9883.00†	90.000	0.194	7446.00	2227.05	2225.44	488.00	40°09'10.119"N	104°52'56.291"W	0.00	
9983.00†	90.000	0.194	7446.00	2327.05	2325.44	488.34	40°09'11.107"N	104°52'56.287"W	0.00	
10083.00†	90.000	0.194	7446.00	2427.05	2425.44	488.68	40°09'12.095"N	104°52'56.283"W	0.00	
10183.00†	90.000	0.194	7446.00	2527.05	2525.44	489.02	40°09'13.084"N	104°52'56.278"W	0.00	
10283.00†	90.000	0.194	7446.00	2627.05	2625.44	489.36	40°09'14.072"N	104°52'56.274"W	0.00	
10383.00†	90.000	0.194	7446.00	2727.05	2725.44	489.70	40°09'15.060"N	104°52'56.269"W	0.00	
10483.00†	90.000	0.194	7446.00	2827.05	2825.44	490.04	40°09'16.048"N	104°52'56.265"W	0.00	
10583.00†	90.000	0.194	7446.00	2927.05	2925.44	490.38	40°09'17.036"N	104°52'56.261"W	0.00	
10683.00†	90.000	0.194	7446.00	3027.05	3025.44	490.71	40°09'18.025"N	104°52'56.256"W	0.00	
10783.00†	90.000	0.194	7446.00	3127.05	3125.43	491.05	40°09'19.013"N	104°52'56.252"W	0.00	
10883.00†	90.000	0.194	7446.00	3227.05	3225.43	491.39	40°09'20.001"N	104°52'56.247"W	0.00	
10983.00†	90.000	0.194	7446.00	3327.05	3325.43	491.73	40°09'20.989"N	104°52'56.243"W	0.00	
11083.00†	90.000	0.194	7446.00	3427.05	3425.43	492.07	40°09'21.977"N	104°52'56.239"W	0.00	
11183.00†	90.000	0.194	7446.00	3527.05	3525.43	492.41	40°09'22.966"N	104°52'56.234"W	0.00	
11283.00†	90.000	0.194	7446.00	3627.05	3625.43	492.75	40°09'23.954"N	104°52'56.230"W	0.00	
11383.00†	90.000	0.194	7446.00	3727.05	3725.43	493.09	40°09'24.942"N	104°52'56.225"W	0.00	
11483.00†	90.000	0.194	7446.00	3827.05	3825.43	493.43	40°09'25.930"N	104°52'56.221"W	0.00	
11583.00†	90.000	0.194	7446.00	3927.05	3925.43	493.77	40°09'26.918"N	104°52'56.217"W	0.00	
11683.00†	90.000	0.195	7446.00	4027.05	4025.43	494.11	40°09'27.907"N	104°52'56.212"W	0.00	
11783.00†	90.000	0.195	7446.00	4127.05	4125.43	494.45	40°09'28.895"N	104°52'56.208"W	0.00	
11883.00†	90.000	0.195	7446.00	4227.05	4225.43	494.79	40°09'29.883"N	104°52'56.203"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

WELLPATH DATA (137 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11983.00†	90.000	0.195	7446.00	4327.05	4325.43	495.13	40°09'30.871"N	104°52'56.199"W	0.00	
12004.38	90.000	0.195	7446.00 <sup>1</sup>	4348.44	4346.81	495.20	40°09'31.082"N	104°52'56.198"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: BUTTERBALL 4N-10HZX PWB      Ref Wellpath: BUTTERBALL 4N-10HZX (REV-A.0) PWP									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.5in Open Hole	17.00	1048.00	1031.00	17.00	1047.99	0.00	0.00	-0.30	1.31
9.625in Casing Surface	17.00	1048.00	1031.00	17.00	1047.99	0.00	0.00	-0.30	1.31
8.75in Open Hole	1048.00	7827.21	6779.21	1047.99	7446.00	-0.30	1.31	169.66	481.03
7in Casing Intermediate	17.00	7827.21	7810.21	17.00	7446.00	0.00	0.00	169.66	481.03
6.125in Open Hole	7827.21	12004.38	4177.17	7446.00	7446.00	169.66	481.03	4346.81	495.20
4.5in Casing Production	6483.00	12004.38	5521.38	6428.85	7446.00	-400.49	473.47	4346.81	495.20



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.10-T2N-R67W HARDLINES (460' SETBACKS)		0.00	10.93	-27.96	3172160.30	1296895.72	40°08'48.235"N	104°53'02.936"W	polygon
SEC.10-T2N-R67W SECTION LINES		0.00	10.93	-27.96	3172160.30	1296895.72	40°08'48.235"N	104°53'02.936"W	polygon
SEC.15-T2N-R67W HARDLINES (460' SETBACKS)		0.00	10.93	-27.96	3172160.30	1296895.72	40°08'48.235"N	104°53'02.936"W	polygon
SEC.15-T2N-R67W SECTION LINES		0.00	10.93	-27.96	3172160.30	1296895.72	40°08'48.235"N	104°53'02.936"W	polygon
BUTTERBALL 4N-10HZ BHL (460' FNL & 1006' FWL, SEC.10) REV-2		7349.00	4346.81	495.20	3172653.30	1301234.94	40°09'31.082"N	104°52'56.198"W	point
BUTTERBALL 4N-10HZ BHL ON PLAT (460' FNL & 906' FWL, SEC.10) REV-1		7349.00	4346.77	395.20	3172553.31	1301234.20	40°09'31.082"N	104°52'57.486"W	point
BUTTERBALL 4N-10HZ LANDBOX		7349.00	0.00	0.00	3172188.33	1296884.98	40°08'48.127"N	104°53'02.576"W	polygon
1) BUTTERBALL 4N-10HZX BHL (460' FNL & 1006' FWL, SEC.10) REV-3	12004.38	7446.00	4346.81	495.20	3172653.30	1301234.94	40°09'31.082"N	104°52'56.198"W	point

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 4N-10HZX PWB					Ref Wellpath: BUTTERBALL 4N-10HZX (REV-A.0) PWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
17.00	956.00	Generic gyro - continuous (Standard)				BUTTERBALL 4N-10HZ AWB
956.00	6483.00	NaviTrak (MAGCORR,IFR)				BUTTERBALL 4N-10HZ AWB
6483.00	12004.38	NaviTrak (MAGCORR,IFR)				BUTTERBALL 4N-10HZX PWB

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 BUTTERBALL 4N-10HZ (448' FSL & 529' FWL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 4N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 4N-10HZX PWB
Facility	SEC.10-T2N-R67W	Sidetrack from	BUTTERBALL 4N-10HZ AWB at 6483.00 MD

### WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
817.01	0.300	225.452	817.00	FOX HILLS BASE
4064.10	9.459	127.711	4029.00	PARKMAN
4497.22	9.288	130.904	4455.00	SUSSEX
7335.97	40.876	0.561	7248.00	SHARON SPRINGS
7466.23	53.902	0.425	7336.00	NIOBRARA A
7503.57	57.636	0.395	7357.00	NIOBRARA B
7827.21	90.000	0.194	7446.00	NIOBRARA C (LANDING POINT)

### DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
6483.00	0.480	138.870	6428.85	TIE-INTO BHI MWD+IFR SURVEYS
6923.61	0.480	138.870	6869.45	KOP, BUILD @ 10/100'
7827.21	90.000	0.194	7446.00	LANDING POINT
12004.38	90.000	0.195	7446.00	TOTAL DEPTH