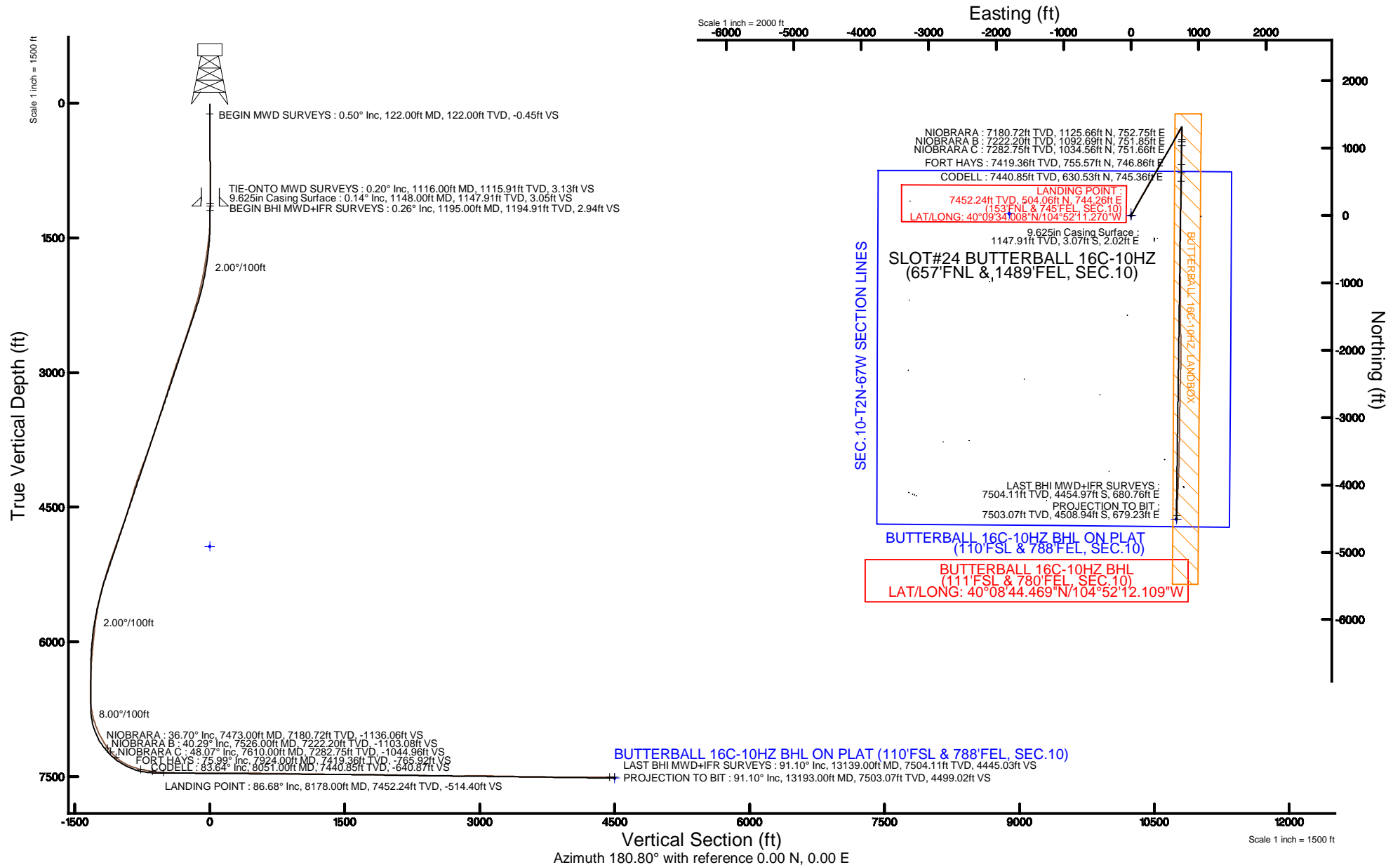


KERR-MCGEE OIL & GAS ONSHORE LP (WA)

Location: COLORADO Slot: SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)
 Field: WELD COUNTY (UTM/TRUE NORTH) Well: BUTTERBALL 16C-10HZ
 Facility: SEC.10-T2N-R67W Wellbore: BUTTERBALL 16C-10HZ PWB



Plot reference wellpath is BUTTERBALL 16C-10HZ (REV-A.1) PWP	
True vertical depths are referenced to XTREME 24 (16'KB) (RKB)	Grid System: NAD83 / UTM Zone 13 North, US feet
Measured depths are referenced to XTREME 24 (16'KB) (RKB)	North Reference: True north
XTREME 24 (16'KB) (RKB) to Mean Sea Level: 4936 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)):	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: amarcar on 18/May/2015





Actual Wellpath Report

BUTTERBALL 16C-10HZ AWP

Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 16C-10HZ AWB <13193>
Facility	SEC.10-T2N-R67W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 4.1.1
North Reference	True	User	Amarcar
Scale	0.999601	Report Generated	18/May/2015 at 07:31
Convergence at slot	0.08° East	Database/Source file	KERR MCGEE UTM/BUTTERBALL_16C-10HZ_AWB_13193_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-26.75	1806.38	1676051.88	14584316.99	40°09'29.027"N	104°52'20.856"W
Facility Reference Pt			1674246.19	14584341.27	40°09'29.292"N	104°52'44.121"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	XTREME 24 (16'KB) (RKB) to Facility Vertical Datum	4936.00ft
Horizontal Reference Pt	Slot	XTREME 24 (16'KB) (RKB) to Mean Sea Level	4936.00ft
Vertical Reference Pt	XTREME 24 (16'KB) (RKB)	XTREME 24 (16'KB) (RKB) to Mud Line at Slot (SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10))	4936.00ft
MD Reference Pt	XTREME 24 (16'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	180.80°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#24 BUTTERBALL 16C-10HZ (657°FNL & 1489°FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 16C-10HZ AWB <13193>
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (148 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	11.500	0.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
16.00	0.000	11.500	16.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
122.00	0.500	11.500	122.00	-0.45	0.45	0.09	40°09'29.031"N	104°52'20.855"W	0.47	BEGIN MWD SURVEYS
211.00	0.700	1.200	210.99	-1.38	1.38	0.18	40°09'29.041"N	104°52'20.854"W	0.25	
297.00	0.200	93.000	296.99	-1.90	1.89	0.34	40°09'29.046"N	104°52'20.852"W	0.85	
384.00	0.500	112.300	383.99	-1.75	1.74	0.84	40°09'29.044"N	104°52'20.845"W	0.37	
474.00	1.100	189.200	473.98	-0.76	0.74	1.07	40°09'29.034"N	104°52'20.842"W	1.22	
568.00	1.600	187.600	567.96	1.44	-1.45	0.75	40°09'29.013"N	104°52'20.846"W	0.53	
664.00	1.100	224.600	663.93	3.44	-3.44	-0.07	40°09'28.993"N	104°52'20.857"W	1.02	
760.00	0.300	98.400	759.93	4.13	-4.13	-0.47	40°09'28.986"N	104°52'20.862"W	1.35	
855.00	0.600	74.300	854.92	4.03	-4.03	0.25	40°09'28.987"N	104°52'20.853"W	0.37	
948.00	0.900	76.000	947.91	3.70	-3.72	1.43	40°09'28.990"N	104°52'20.838"W	0.37	
1045.00	0.200	353.000	1044.91	3.34	-3.37	2.15	40°09'28.994"N	104°52'20.828"W	0.93	
1116.00	0.200	317.700	1115.91	3.13	-3.15	2.05	40°09'28.996"N	104°52'20.830"W	0.17	TIE-ONTO MWD SURVEYS
1195.00	0.260	61.100	1194.91	2.94	-2.97	2.12	40°09'28.998"N	104°52'20.829"W	0.46	BEGIN BHI MWD+IFR SURVEYS
1290.00	1.770	33.020	1289.89	1.59	-1.63	3.10	40°09'29.011"N	104°52'20.816"W	1.63	
1385.00	3.320	36.490	1384.80	-1.89	1.81	5.54	40°09'29.045"N	104°52'20.785"W	1.64	
1480.00	6.270	27.320	1479.45	-8.77	8.63	9.56	40°09'29.112"N	104°52'20.733"W	3.20	
1575.00	7.900	24.120	1573.73	-19.40	19.20	14.61	40°09'29.217"N	104°52'20.668"W	1.76	
1670.00	9.170	28.020	1667.67	-32.13	31.84	20.83	40°09'29.342"N	104°52'20.588"W	1.47	
1765.00	11.330	30.360	1761.15	-46.98	46.58	29.10	40°09'29.487"N	104°52'20.481"W	2.32	
1860.00	11.320	30.940	1854.30	-63.16	62.63	38.62	40°09'29.646"N	104°52'20.359"W	0.12	
1955.00	13.030	27.010	1947.16	-80.83	80.17	48.27	40°09'29.819"N	104°52'20.234"W	2.00	
2050.00	14.170	24.410	2039.50	-101.10	100.30	57.94	40°09'30.018"N	104°52'20.110"W	1.36	
2145.00	15.470	24.740	2131.34	-123.33	122.40	68.05	40°09'30.237"N	104°52'19.980"W	1.37	
2240.00	17.130	28.270	2222.52	-147.33	146.23	79.98	40°09'30.472"N	104°52'19.826"W	2.03	
2335.00	18.180	29.400	2313.04	-172.76	171.46	93.88	40°09'30.721"N	104°52'19.647"W	1.16	
2430.00	19.340	30.640	2402.99	-199.41	197.91	109.18	40°09'30.983"N	104°52'19.450"W	1.29	
2525.00	20.590	28.280	2492.28	-227.88	226.16	125.11	40°09'31.262"N	104°52'19.245"W	1.57	
2620.00	20.430	28.110	2581.26	-257.43	255.49	140.83	40°09'31.552"N	104°52'19.042"W	0.18	
2715.00	21.470	31.620	2669.98	-287.10	284.92	157.76	40°09'31.843"N	104°52'18.824"W	1.72	
2810.00	22.370	31.880	2758.11	-317.51	315.08	176.43	40°09'32.141"N	104°52'18.584"W	0.95	
2905.00	22.620	30.070	2845.89	-348.93	346.24	195.13	40°09'32.449"N	104°52'18.343"W	0.77	
3000.00	21.060	29.360	2934.07	-379.86	376.93	212.65	40°09'32.752"N	104°52'18.117"W	1.67	
3095.00	20.040	28.550	3023.02	-409.26	406.10	228.80	40°09'33.040"N	104°52'17.909"W	1.11	
3190.00	19.690	27.180	3112.37	-438.00	434.64	243.89	40°09'33.322"N	104°52'17.715"W	0.61	
3285.00	19.990	28.540	3201.73	-466.71	463.14	258.96	40°09'33.604"N	104°52'17.521"W	0.58	
3380.00	20.440	30.680	3290.88	-495.47	491.67	275.18	40°09'33.886"N	104°52'17.312"W	0.91	
3475.00	19.740	30.630	3380.10	-523.77	519.74	291.82	40°09'34.163"N	104°52'17.097"W	0.74	
3570.00	20.470	31.760	3469.31	-551.93	547.67	308.74	40°09'34.439"N	104°52'16.880"W	0.87	
3665.00	20.840	30.880	3558.20	-580.80	576.30	326.15	40°09'34.722"N	104°52'16.655"W	0.51	
3760.00	21.230	28.880	3646.87	-610.60	605.87	343.14	40°09'35.014"N	104°52'16.437"W	0.86	
3855.00	20.430	30.930	3735.66	-640.12	635.15	359.97	40°09'35.304"N	104°52'16.220"W	1.14	
3950.00	22.030	30.870	3824.21	-669.88	664.67	377.63	40°09'35.595"N	104°52'15.992"W	1.68	
4045.00	21.650	28.650	3912.40	-700.79	695.34	395.17	40°09'35.898"N	104°52'15.766"W	0.96	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#24 BUTTERBALL 16C-10HZ (657°FNL & 1489°FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 16C-10HZ AWP <13193>
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (148 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4140.00	23.750	28.540	4000.03	-733.22	727.53	412.72	40°09'36.216"N	104°52'15.540"W	2.21	
4234.00	22.210	26.380	4086.57	-766.00	760.08	429.66	40°09'36.538"N	104°52'15.322"W	1.87	
4329.00	22.610	29.460	4174.40	-798.22	792.06	446.62	40°09'36.854"N	104°52'15.104"W	1.31	
4424.00	20.540	35.460	4262.75	-827.96	821.55	465.27	40°09'37.146"N	104°52'14.863"W	3.18	
4519.00	19.840	34.730	4351.91	-855.05	848.37	484.13	40°09'37.411"N	104°52'14.621"W	0.78	
4613.00	19.860	33.740	4440.33	-881.68	874.76	502.08	40°09'37.671"N	104°52'14.389"W	0.36	
4708.00	20.400	31.650	4529.53	-909.44	902.27	519.73	40°09'37.943"N	104°52'14.162"W	0.95	
4803.00	21.150	31.080	4618.35	-938.46	931.04	537.27	40°09'38.228"N	104°52'13.936"W	0.82	
4898.00	21.700	27.930	4706.79	-968.89	961.24	554.34	40°09'38.526"N	104°52'13.716"W	1.34	
4993.00	21.730	29.100	4795.04	-1000.00	992.13	571.12	40°09'38.831"N	104°52'13.500"W	0.46	
5087.00	20.670	27.860	4882.68	-1030.10	1022.00	587.34	40°09'39.126"N	104°52'13.291"W	1.22	
5182.00	22.220	30.370	4971.10	-1060.66	1052.32	604.26	40°09'39.426"N	104°52'13.073"W	1.90	
5277.00	21.430	27.680	5059.30	-1091.76	1083.19	621.40	40°09'39.731"N	104°52'12.852"W	1.34	
5372.00	19.900	27.590	5148.18	-1121.67	1112.89	636.95	40°09'40.025"N	104°52'12.652"W	1.61	
5467.00	19.500	28.420	5237.62	-1150.16	1141.16	651.99	40°09'40.304"N	104°52'12.458"W	0.51	
5562.00	18.130	28.970	5327.54	-1177.24	1168.04	666.69	40°09'40.570"N	104°52'12.269"W	1.45	
5656.00	16.090	26.830	5417.38	-1201.84	1192.46	679.66	40°09'40.811"N	104°52'12.102"W	2.27	
5752.00	13.630	31.220	5510.16	-1223.55	1214.01	691.53	40°09'41.024"N	104°52'11.949"W	2.82	
5846.00	12.830	29.610	5601.67	-1242.24	1232.56	702.42	40°09'41.207"N	104°52'11.809"W	0.94	
5941.00	10.060	25.340	5694.77	-1259.04	1249.23	711.19	40°09'41.372"N	104°52'11.696"W	3.05	
6036.00	9.290	37.250	5788.43	-1272.76	1262.83	719.38	40°09'41.506"N	104°52'11.590"W	2.25	
6131.00	7.760	33.650	5882.38	-1284.31	1274.28	727.58	40°09'41.619"N	104°52'11.485"W	1.70	
6226.00	6.750	30.800	5976.62	-1294.54	1284.41	733.99	40°09'41.720"N	104°52'11.402"W	1.13	
6321.00	5.550	27.220	6071.07	-1303.49	1293.29	738.95	40°09'41.807"N	104°52'11.338"W	1.33	
6416.00	4.710	28.570	6165.69	-1311.05	1300.80	742.92	40°09'41.882"N	104°52'11.287"W	0.89	
6511.00	3.700	25.360	6260.43	-1317.29	1307.00	746.10	40°09'41.943"N	104°52'11.246"W	1.09	
6605.00	3.080	27.290	6354.27	-1322.31	1311.99	748.55	40°09'41.992"N	104°52'11.215"W	0.67	
6700.00	1.810	42.620	6449.18	-1325.71	1315.36	750.74	40°09'42.025"N	104°52'11.186"W	1.49	
6795.00	0.940	91.980	6544.15	-1326.81	1316.43	752.53	40°09'42.036"N	104°52'11.163"W	1.47	
6890.00	1.000	83.940	6639.14	-1326.90	1316.50	754.14	40°09'42.037"N	104°52'11.143"W	0.16	
6985.00	9.590	172.060	6733.69	-1319.16	1308.73	756.06	40°09'41.960"N	104°52'11.118"W	10.11	
7080.00	14.060	175.770	6826.65	-1299.83	1289.37	758.00	40°09'41.769"N	104°52'11.093"W	4.77	
7174.00	17.960	175.470	6916.99	-1274.02	1263.53	759.99	40°09'41.513"N	104°52'11.067"W	4.15	
7269.00	24.740	183.390	7005.44	-1239.53	1229.03	759.97	40°09'41.172"N	104°52'11.068"W	7.74	
7364.00	30.120	185.220	7089.73	-1195.87	1185.42	756.63	40°09'40.741"N	104°52'11.111"W	5.73	
7459.00	35.750	182.770	7169.43	-1144.32	1133.92	753.11	40°09'40.232"N	104°52'11.156"W	6.09	
7473.00†	36.695	182.330	7180.72	-1136.06	1125.66	752.75	40°09'40.151"N	104°52'11.161"W	7.00	NIOBRARA
7526.00†	40.286	180.827	7222.20	-1103.08	1092.69	751.85	40°09'39.825"N	104°52'11.172"W	7.00	NIOBRARA B
7554.00	42.190	180.120	7243.26	-1084.62	1074.23	751.70	40°09'39.643"N	104°52'11.174"W	7.00	
7610.00†	48.067	180.001	7282.75	-1044.96	1034.56	751.66	40°09'39.250"N	104°52'11.175"W	10.50	NIOBRARA C
7649.00	52.160	179.930	7307.75	-1015.04	1004.64	751.68	40°09'38.955"N	104°52'11.174"W	10.50	
7744.00	63.140	181.570	7358.51	-934.91	924.52	750.56	40°09'38.163"N	104°52'11.189"W	11.65	
7839.00	71.190	181.240	7395.35	-847.44	837.07	748.43	40°09'37.299"N	104°52'11.216"W	8.48	
7924.00†	75.986	180.962	7419.36	-765.92	755.57	746.86	40°09'36.493"N	104°52'11.237"W	5.65	FORT HAYS
7934.00	76.550	180.930	7421.73	-756.21	745.86	746.70	40°09'36.397"N	104°52'11.239"W	5.65	

REFERENCE WELLPATH IDENTIFICATION			
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Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 16C-10HZ AWP <13193>
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (148 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8029.00	83.290	180.490	7438.35	-662.73	652.39	745.55	40°09'35.474"N	104°52'11.254"W	7.11	
8051.00†	83.635	180.504	7440.85	-640.87	630.53	745.36	40°09'35.258"N	104°52'11.256"W	1.57	CODCELL
8124.00	84.780	180.550	7448.22	-568.25	557.91	744.69	40°09'34.540"N	104°52'11.265"W	1.57	
8178.00†	86.679	180.356	7452.24	-514.40	504.06	744.26	40°09'34.008"N	104°52'11.270"W	3.53	LANDING POINT
8219.00	88.120	180.210	7454.10	-473.45	463.10	744.06	40°09'33.603"N	104°52'11.273"W	3.53	
8314.00	88.030	180.240	7457.29	-378.51	368.16	743.69	40°09'32.665"N	104°52'11.278"W	0.10	
8408.00	90.280	182.290	7458.68	-284.53	274.20	741.61	40°09'31.737"N	104°52'11.304"W	3.24	
8503.00	89.940	181.610	7458.50	-189.55	179.26	738.38	40°09'30.798"N	104°52'11.346"W	0.80	
8598.00	89.910	181.820	7458.62	-94.56	84.30	735.54	40°09'29.860"N	104°52'11.383"W	0.22	
8693.00	89.910	181.330	7458.77	0.43	-10.66	732.93	40°09'28.922"N	104°52'11.416"W	0.52	
8788.00	89.850	181.460	7458.97	95.42	-105.63	730.61	40°09'27.983"N	104°52'11.446"W	0.15	
8883.00	89.970	181.340	7459.12	190.42	-200.61	728.29	40°09'27.044"N	104°52'11.476"W	0.18	
8978.00	89.910	181.270	7459.22	285.41	-295.58	726.13	40°09'26.106"N	104°52'11.504"W	0.10	
9072.00	90.000	180.880	7459.29	379.41	-389.56	724.37	40°09'25.177"N	104°52'11.527"W	0.43	
9167.00	88.920	179.850	7460.19	474.40	-484.56	723.76	40°09'24.238"N	104°52'11.535"W	1.57	
9262.00	88.950	179.850	7461.95	569.37	-579.54	724.01	40°09'23.300"N	104°52'11.531"W	0.03	
9356.00	89.110	180.050	7463.54	663.35	-673.52	724.09	40°09'22.371"N	104°52'11.530"W	0.27	
9451.00	89.070	179.010	7465.05	758.31	-768.51	724.87	40°09'21.432"N	104°52'11.520"W	1.10	
9546.00	88.670	178.380	7466.93	853.23	-863.46	727.03	40°09'20.494"N	104°52'11.493"W	0.79	
9640.00	89.170	178.310	7468.70	947.13	-957.41	729.75	40°09'19.566"N	104°52'11.458"W	0.54	
9735.00	89.750	179.950	7469.59	1042.08	-1052.39	731.19	40°09'18.627"N	104°52'11.439"W	1.83	
9830.00	89.290	179.250	7470.39	1137.05	-1147.38	731.85	40°09'17.688"N	104°52'11.431"W	0.88	
9925.00	89.350	179.840	7471.52	1232.02	-1242.37	732.61	40°09'16.750"N	104°52'11.421"W	0.62	
10020.00	89.190	179.940	7472.73	1327.00	-1337.37	732.79	40°09'15.811"N	104°52'11.419"W	0.20	
10114.00	90.360	180.940	7473.10	1421.00	-1431.36	732.07	40°09'14.882"N	104°52'11.428"W	1.64	
10209.00	90.150	181.360	7472.67	1516.00	-1526.34	730.16	40°09'13.944"N	104°52'11.453"W	0.49	
10304.00	89.440	178.390	7473.01	1610.97	-1621.33	730.37	40°09'13.005"N	104°52'11.450"W	3.21	
10399.00	89.040	177.840	7474.27	1705.86	-1716.27	733.49	40°09'12.067"N	104°52'11.410"W	0.72	
10494.00	88.730	179.750	7476.12	1800.78	-1811.22	735.49	40°09'11.128"N	104°52'11.384"W	2.04	
10588.00	88.390	178.550	7478.49	1894.71	-1905.18	736.89	40°09'10.200"N	104°52'11.366"W	1.33	
10683.00	89.100	179.560	7480.57	1989.64	-2000.14	738.45	40°09'09.261"N	104°52'11.346"W	1.30	
10778.00	89.350	179.850	7481.85	2084.61	-2095.13	738.94	40°09'08.323"N	104°52'11.340"W	0.40	
10872.00	89.190	181.820	7483.05	2178.60	-2189.11	737.57	40°09'07.394"N	104°52'11.357"W	2.10	
10967.00	88.670	181.320	7484.82	2273.57	-2284.06	734.97	40°09'06.456"N	104°52'11.391"W	0.76	
11062.00	89.350	182.030	7486.46	2368.55	-2379.00	732.19	40°09'05.517"N	104°52'11.427"W	1.03	
11157.00	89.190	181.840	7487.67	2463.52	-2473.94	728.98	40°09'04.579"N	104°52'11.468"W	0.26	
11252.00	88.700	181.270	7489.42	2558.50	-2568.89	726.41	40°09'03.641"N	104°52'11.501"W	0.79	
11347.00	88.580	180.280	7491.68	2653.47	-2663.85	725.12	40°09'02.703"N	104°52'11.518"W	1.05	
11442.00	90.360	181.570	7492.56	2748.46	-2758.83	723.59	40°09'01.764"N	104°52'11.538"W	2.31	
11537.00	90.490	181.080	7491.85	2843.45	-2853.80	721.39	40°09'00.825"N	104°52'11.566"W	0.53	
11632.00	90.520	180.360	7491.01	2938.45	-2948.79	720.20	40°08'59.887"N	104°52'11.581"W	0.76	
11727.00	89.840	179.810	7490.72	3033.44	-3043.79	720.06	40°08'58.948"N	104°52'11.583"W	0.92	
11821.00	89.190	181.070	7491.51	3127.43	-3137.78	719.34	40°08'58.019"N	104°52'11.593"W	1.51	
11916.00	89.260	180.420	7492.80	3222.42	-3232.76	718.10	40°08'57.081"N	104°52'11.609"W	0.69	
12011.00	88.420	181.950	7494.72	3317.40	-3327.72	716.14	40°08'56.142"N	104°52'11.634"W	1.84	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 16C-10HZ AWB <13193>
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (148 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12105.00	88.480	181.260	7497.26	3411.35	-3421.65	713.50	40°08'55.214"N	104°52'11.668"W	0.74	
12200.00	88.610	180.500	7499.68	3506.32	-3516.60	712.05	40°08'54.276"N	104°52'11.687"W	0.81	
12295.00	89.570	180.690	7501.18	3601.31	-3611.59	711.06	40°08'53.337"N	104°52'11.699"W	1.03	
12390.00	89.750	181.570	7501.75	3696.30	-3706.56	709.19	40°08'52.398"N	104°52'11.723"W	0.95	
12486.00	89.410	182.650	7502.45	3792.27	-3802.50	705.65	40°08'51.450"N	104°52'11.769"W	1.18	
12581.00	88.980	182.310	7503.79	3887.22	-3897.40	701.54	40°08'50.513"N	104°52'11.822"W	0.58	
12676.00	89.190	182.470	7505.30	3982.17	-3992.30	697.58	40°08'49.575"N	104°52'11.873"W	0.28	
12771.00	89.530	182.250	7506.36	4077.13	-4087.22	693.67	40°08'48.637"N	104°52'11.923"W	0.43	
12865.00	90.090	182.200	7506.68	4171.10	-4181.14	690.02	40°08'47.709"N	104°52'11.970"W	0.60	
12960.00	90.360	181.830	7506.30	4266.08	-4276.08	686.68	40°08'46.770"N	104°52'12.014"W	0.48	
13055.00	90.700	182.060	7505.42	4361.06	-4371.02	683.46	40°08'45.832"N	104°52'12.055"W	0.43	
13139.00	91.100	181.620	7504.11	4445.03	-4454.97	680.76	40°08'45.003"N	104°52'12.090"W	0.71	LAST BHI MWD+IFR SURVEYS
13193.00	91.100	181.620	7503.07	4499.02	-4508.94	679.23	40°08'44.469"N	104°52'12.109"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: BUTTERBALL 16C-10HZ AWB <13193> Ref Wellpath: BUTTERBALL 16C-10HZ AWP									
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	16.00	1160.00	1144.00	16.00	1159.91	0.00	0.00	-3.05	2.03
9.625in Casing Surface	16.00	1148.00	1132.00	16.00	1147.91	0.00	0.00	-3.07	2.02
7.875in Open Hole	1160.00	13193.00	12033.00	1159.91	7503.07	-3.05	2.03	-4508.94	679.23

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.10-T2N-67W SECTION LINES	4936.00	26.98	-1806.53	1674246.04	14584341.37	40°09'29.293"N	104°52'44.123"W	polygon
BUTTERBALL 16C-10HZ LANDBOX	7516.00	0.00	0.00	1676051.88	14584316.99	40°09'29.027"N	104°52'20.856"W	polygon
BUTTERBALL 16C-10HZ BHL ON PLAT REV-3 (110'FSL & 788'FEL, SEC.10)	7516.00	-4509.64	670.68	1676728.76	14579810.12	40°08'44.462"N	104°52'12.220"W	point

WELLPATH COMPOSITION - Ref Wellbore: BUTTERBALL 16C-10HZ AWB <13193> Ref Wellpath: BUTTERBALL 16C-10HZ AWP						
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore		
16.00	1116.00	ISCWSA MWD, Rev. 2 (Standard)	CATHEDRAL MWD SURVEYS 13.5" <122-1116>	BUTTERBALL 16C-10HZ AWB <13193>		
1116.00	13139.00	Custom APC, ISCWSA REV 2 MWD+IFR1+SC (approximation)	BHI MWD+IFR SURVEYS 7 7/8" <1195-13139>	BUTTERBALL 16C-10HZ AWB <13193>		
13139.00	13193.00	Blind Drilling (std)	Projection to bit	BUTTERBALL 16C-10HZ AWB <13193>		

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)		Slot	SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)
Area	COLORADO		Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (UTM/TRUE NORTH)		Wellbore	BUTTERBALL 16C-10HZ AWB <13193>
Facility	SEC.10-T2N-R67W			

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
122.00	0.500	11.500	122.00	BEGIN MWD SURVEYS	
1116.00	0.200	317.700	1115.91	TIE-ONTO MWD SURVEYS	
1195.00	0.260	61.100	1194.91	BEGIN BHI MWD+IFR SURVEYS	
7473.00	36.695	182.330	7180.72	NIOBRARA	
7526.00	40.286	180.827	7222.20	NIOBRARA B	
7610.00	48.067	180.001	7282.75	NIOBRARA C	
7924.00	75.986	180.962	7419.36	FORT HAYS	
8051.00	83.635	180.504	7440.85	CODELL	
8178.00	86.679	180.356	7452.24	LANDING POINT	
13139.00	91.100	181.620	7504.11	LAST BHI MWD+IFR SURVEYS	
13193.00	91.100	181.620	7503.07	PROJECTION TO BIT	