



## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#60 BUTTERBALL 25C2-34HZ (820'FNL & 2310'FWL,SEC.10)
Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Painsetr
Scale	0.999601	Report Generated	6/6/2017 at 10:41 AM
Convergence at slot	0.08° East	Database/Source file	WA_DEN_Anadarko_Defn/BUTTERBALL_25C2-34HZ_AWP.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-181.64	364.62	1674610.91	14584160.20	40°09'27.497"N	104°52'39.425"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	NABORS X22 (32') (RT) to Facility Vertical Datum	4966.00ft
Horizontal Reference Pt	Slot	NABORS X22 (32') (RT) to Mean Sea Level	4966.00ft
Vertical Reference Pt	NABORS X22 (32') (RT)	NABORS X22 (32') (RT) to Mud Line at Slot (SLOT#60 BUTTERBALL 25C2-34HZ (820'FNL & 2310'FWL,SEC.10))	4966.00ft
MD Reference Pt	NABORS X22 (32') (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.48°

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Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	282.010	0.00	0.00	0.00	0.00	1674610.91	14584160.19	40°09'27.497"N	104°52'39.425"W	0.00	
32.00	0.000	282.010	32.00	0.00	0.00	0.00	1674610.91	14584160.19	40°09'27.497"N	104°52'39.425"W	0.00	
187.00	0.440	282.010	187.00	0.13	0.12	-0.58	1674610.33	14584160.32	40°09'27.498"N	104°52'39.432"W	0.28	FIRST SDI MWD+IFR1 SURVEY
300.00	0.410	305.690	300.00	0.46	0.45	-1.33	1674609.57	14584160.64	40°09'27.501"N	104°52'39.442"W	0.16	
389.00	0.510	9.800	388.99	1.04	1.03	-1.53	1674609.38	14584161.22	40°09'27.507"N	104°52'39.445"W	0.56	
476.00	1.880	53.000	475.97	2.27	2.27	-0.32	1674610.59	14584162.46	40°09'27.519"N	104°52'39.429"W	1.78	
562.00	2.910	64.650	561.90	4.02	4.05	2.78	1674613.68	14584164.25	40°09'27.537"N	104°52'39.389"W	1.32	
651.00	4.250	60.900	650.72	6.55	6.62	7.70	1674618.60	14584166.82	40°09'27.562"N	104°52'39.326"W	1.53	
740.00	5.170	75.110	739.42	9.12	9.26	14.46	1674625.35	14584169.47	40°09'27.588"N	104°52'39.239"W	1.66	
828.00	7.030	75.380	826.92	11.42	11.63	23.50	1674634.39	14584171.86	40°09'27.612"N	104°52'39.122"W	2.11	
917.00	7.680	78.470	915.19	13.88	14.20	34.60	1674645.48	14584174.43	40°09'27.637"N	104°52'38.979"W	0.85	
1002.00	8.900	72.860	999.30	16.85	17.27	46.45	1674657.32	14584177.52	40°09'27.668"N	104°52'38.827"W	1.72	
1090.00	9.170	67.730	1086.21	21.40	21.93	59.44	1674670.30	14584182.20	40°09'27.714"N	104°52'38.659"W	0.97	
1177.00	10.540	64.480	1171.92	27.33	27.99	73.04	1674683.88	14584188.27	40°09'27.774"N	104°52'38.484"W	1.70	
1266.00	11.560	66.700	1259.27	34.22	35.02	88.58	1674699.40	14584195.33	40°09'27.843"N	104°52'38.284"W	1.24	
1351.00	11.890	63.220	1342.50	41.39	42.34	104.22	1674715.02	14584202.66	40°09'27.915"N	104°52'38.083"W	0.92	
1439.00	13.660	63.000	1428.32	50.04	51.14	121.57	1674732.36	14584211.48	40°09'28.002"N	104°52'37.859"W	2.01	
1528.00	14.050	62.880	1514.73	59.56	60.84	140.55	1674751.32	14584221.20	40°09'28.098"N	104°52'37.615"W	0.44	
1615.00	13.800	67.120	1599.18	68.24	69.69	159.51	1674770.26	14584230.07	40°09'28.186"N	104°52'37.371"W	1.21	
1703.00	14.360	66.110	1684.53	76.56	78.19	179.16	1674789.88	14584238.60	40°09'28.270"N	104°52'37.118"W	0.69	
1790.00	13.330	68.260	1769.00	84.47	86.27	198.34	1674809.05	14584246.70	40°09'28.350"N	104°52'36.871"W	1.32	
1810.00	13.350	68.010	1788.46	86.15	87.99	202.62	1674813.33	14584248.43	40°09'28.367"N	104°52'36.815"W	0.31	LAST SDI MWD+IFR1 SURVEY
1925.00	13.250	67.010	1900.38	96.05	98.11	227.06	1674837.74	14584258.58	40°09'28.466"N	104°52'36.501"W	0.22	FIRST BHI MWD+IFR1+MSA SURVEY
2019.00	12.860	71.220	1991.95	103.45	105.68	246.88	1674857.55	14584266.18	40°09'28.541"N	104°52'36.245"W	1.09	
2113.00	12.480	68.890	2083.66	110.30	112.71	266.26	1674876.91	14584273.22	40°09'28.611"N	104°52'35.996"W	0.68	
2207.00	11.530	75.150	2175.61	116.19	118.77	284.82	1674895.45	14584279.31	40°09'28.671"N	104°52'35.757"W	1.71	
2301.00	11.290	72.110	2267.75	121.27	124.01	302.66	1674913.27	14584284.57	40°09'28.722"N	104°52'35.527"W	0.69	
2395.00	8.150	78.700	2360.40	125.26	128.14	317.95	1674928.56	14584288.72	40°09'28.763"N	104°52'35.330"W	3.54	
2488.00	9.550	91.100	2452.29	126.28	129.29	332.13	1674942.73	14584289.89	40°09'28.775"N	104°52'35.147"W	2.54	
2582.00	8.670	88.700	2545.11	126.15	129.30	347.01	1674957.60	14584289.92	40°09'28.775"N	104°52'34.956"W	1.02	
2675.00	8.850	102.660	2637.03	124.62	127.89	361.00	1674971.59	14584288.53	40°09'28.761"N	104°52'34.776"W	2.29	
2769.00	10.220	102.810	2729.73	121.05	124.45	376.19	1674986.77	14584285.12	40°09'28.727"N	104°52'34.580"W	1.46	
2863.00	10.840	96.670	2822.15	118.02	121.58	393.10	1675003.68	14584282.27	40°09'28.698"N	104°52'34.362"W	1.36	
2957.00	11.240	85.860	2914.42	117.49	121.21	411.02	1675021.59	14584281.93	40°09'28.695"N	104°52'34.131"W	2.24	
3050.00	10.940	70.060	3005.71	121.00	124.88	428.36	1675038.92	14584285.61	40°09'28.731"N	104°52'33.908"W	3.27	
3144.00	10.230	69.390	3098.11	126.83	130.86	444.56	1675055.11	14584291.61	40°09'28.790"N	104°52'33.699"W	0.77	
3238.00	9.610	68.140	3190.70	132.56	136.72	459.65	1675070.19	14584297.49	40°09'28.848"N	104°52'33.505"W	0.70	
3332.00	9.860	75.020	3283.35	137.42	141.72	474.71	1675085.23	14584302.51	40°09'28.897"N	104°52'33.311"W	1.27	
3425.00	8.640	72.790	3375.14	141.42	145.85	489.07	1675099.58	14584306.65	40°09'28.938"N	104°52'33.126"W	1.37	
3519.00	8.020	66.200	3468.15	146.04	150.58	501.82	1675112.32	14584311.41	40°09'28.985"N	104°52'32.962"W	1.21	
3613.00	10.020	71.040	3560.98	151.22	155.88	515.55	1675126.04	14584316.73	40°09'29.037"N	104°52'32.785"W	2.27	
3706.00	10.810	78.340	3652.45	155.46	160.28	531.75	1675142.22	14584321.14	40°09'29.081"N	104°52'32.576"W	1.65	
3800.00	9.620	75.010	3744.96	159.13	164.09	547.97	1675158.43	14584324.97	40°09'29.118"N	104°52'32.368"W	1.41	
3894.00	10.740	92.250	3837.50	160.67	165.78	564.31	1675174.77	14584326.68	40°09'29.135"N	104°52'32.157"W	3.44	
3987.00	9.610	90.810	3929.04	160.07	165.33	580.73	1675191.18	14584326.26	40°09'29.131"N	104°52'31.946"W	1.25	

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Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWP
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4081.00	11.460	92.700	4021.45	159.36	164.78	597.91	1675208.35	14584325.73	40°09'29.125"N	104°52'31.724"W	2.00	
4175.00	10.600	92.730	4113.71	158.35	163.92	615.87	1675226.31	14584324.90	40°09'29.117"N	104°52'31.493"W	0.91	
4268.00	11.090	92.470	4205.05	157.40	163.13	633.35	1675243.78	14584324.13	40°09'29.109"N	104°52'31.268"W	0.53	
4361.00	9.850	89.810	4296.50	156.89	162.77	650.24	1675260.67	14584323.80	40°09'29.105"N	104°52'31.050"W	1.43	
4486.00	8.440	87.560	4419.91	157.13	163.20	670.10	1675280.52	14584324.25	40°09'29.110"N	104°52'30.795"W	1.16	
4580.00	7.160	85.610	4513.04	157.76	163.94	682.83	1675293.24	14584325.01	40°09'29.117"N	104°52'30.631"W	1.39	
4673.00	6.550	81.670	4605.38	158.87	165.15	693.86	1675304.26	14584326.24	40°09'29.129"N	104°52'30.488"W	0.83	
4767.00	6.150	79.730	4698.80	160.45	166.83	704.12	1675314.52	14584327.92	40°09'29.145"N	104°52'30.356"W	0.48	
4861.00	5.200	82.350	4792.34	161.84	168.29	713.30	1675323.69	14584329.40	40°09'29.160"N	104°52'30.238"W	1.05	
4954.00	4.900	104.320	4884.99	161.34	167.87	721.32	1675331.71	14584328.99	40°09'29.156"N	104°52'30.135"W	2.09	
5048.00	4.620	100.230	4978.66	159.61	166.21	728.94	1675339.33	14584327.34	40°09'29.139"N	104°52'30.037"W	0.47	
5142.00	4.290	95.970	5072.38	158.51	165.17	736.16	1675346.55	14584326.31	40°09'29.129"N	104°52'29.944"W	0.50	
5235.00	3.970	120.780	5165.14	156.44	163.16	742.39	1675352.77	14584324.31	40°09'29.109"N	104°52'29.864"W	1.94	
5329.00	1.800	87.470	5259.02	154.80	161.56	746.66	1675357.04	14584322.72	40°09'29.093"N	104°52'29.808"W	2.83	
5423.00	0.590	202.200	5353.01	154.41	161.17	747.95	1675358.34	14584322.33	40°09'29.090"N	104°52'29.792"W	2.25	
5517.00	0.760	218.490	5447.00	153.48	160.24	747.38	1675357.77	14584321.40	40°09'29.080"N	104°52'29.799"W	0.27	
5611.00	0.580	206.780	5541.00	152.57	159.33	746.78	1675357.17	14584320.49	40°09'29.071"N	104°52'29.807"W	0.24	
5704.00	0.280	190.270	5633.99	151.93	158.68	746.53	1675356.92	14584319.84	40°09'29.065"N	104°52'29.810"W	0.35	
5798.00	0.430	207.010	5727.99	151.39	158.14	746.32	1675356.71	14584319.30	40°09'29.060"N	104°52'29.813"W	0.19	
5891.00	0.510	233.600	5820.99	150.84	157.59	745.83	1675356.22	14584318.74	40°09'29.054"N	104°52'29.819"W	0.25	
5985.00	0.220	215.570	5914.99	150.45	157.19	745.39	1675355.78	14584318.35	40°09'29.050"N	104°52'29.825"W	0.33	
6079.00	0.190	299.250	6008.99	150.38	157.12	745.15	1675355.54	14584318.28	40°09'29.050"N	104°52'29.828"W	0.29	
6172.00	0.210	305.900	6101.99	150.55	157.29	744.88	1675355.27	14584318.45	40°09'29.051"N	104°52'29.831"W	0.03	
6266.00	0.130	341.920	6195.99	150.76	157.50	744.70	1675355.10	14584318.65	40°09'29.053"N	104°52'29.834"W	0.14	
6360.00	0.540	311.620	6289.98	151.16	157.89	744.34	1675354.73	14584319.05	40°09'29.057"N	104°52'29.838"W	0.46	
6454.00	0.720	308.110	6383.98	151.82	158.55	743.54	1675353.94	14584319.71	40°09'29.064"N	104°52'29.849"W	0.20	
6548.00	0.730	315.950	6477.97	152.63	159.35	742.66	1675353.05	14584320.50	40°09'29.072"N	104°52'29.860"W	0.11	
6641.00	0.970	290.520	6570.96	153.34	160.05	741.51	1675351.90	14584321.20	40°09'29.078"N	104°52'29.875"W	0.47	
6734.00	0.740	310.640	6663.95	154.02	160.72	740.32	1675350.71	14584321.87	40°09'29.085"N	104°52'29.890"W	0.40	
6827.00	0.990	315.080	6756.94	154.99	161.68	739.30	1675349.69	14584322.82	40°09'29.095"N	104°52'29.903"W	0.28	
6843.00†	1.837	5.155	6772.93	155.34	162.03	739.22	1675349.61	14584323.18	40°09'29.098"N	104°52'29.904"W	8.88	KOP
6920.00	8.450	30.810	6849.59	161.41	168.12	742.24	1675352.61	14584329.27	40°09'29.158"N	104°52'29.865"W	8.88	
7013.00	20.110	21.280	6939.57	182.16	188.96	751.57	1675361.92	14584350.12	40°09'29.364"N	104°52'29.745"W	12.75	
7107.00	30.030	11.790	7024.64	220.26	227.16	762.27	1675372.56	14584388.31	40°09'29.742"N	104°52'29.607"W	11.36	
7200.00	34.780	0.970	7103.20	269.58	276.53	767.48	1675377.70	14584437.67	40°09'30.230"N	104°52'29.540"W	8.04	
7293.00	41.040	356.160	7176.56	326.65	333.58	765.89	1675376.03	14584494.70	40°09'30.793"N	104°52'29.561"W	7.44	
7387.00	44.230	355.290	7245.70	390.17	397.06	761.13	1675371.18	14584558.15	40°09'31.421"N	104°52'29.622"W	3.45	
7480.00	54.220	1.000	7306.39	460.44	467.32	759.12	1675369.08	14584628.37	40°09'32.115"N	104°52'29.648"W	11.70	
7574.00	57.660	359.720	7359.03	538.29	545.18	759.59	1675369.44	14584706.20	40°09'32.884"N	104°52'29.642"W	3.83	
7668.00	62.510	357.360	7405.90	619.72	626.59	757.47	1675367.21	14584787.58	40°09'33.689"N	104°52'29.669"W	5.60	
7762.00	72.200	359.020	7442.05	706.34	713.20	754.78	1675364.40	14584874.15	40°09'34.545"N	104°52'29.704"W	10.44	
7856.00	80.530	359.570	7464.19	797.61	804.46	753.66	1675363.16	14584965.37	40°09'35.447"N	104°52'29.718"W	8.88	
7950.00	88.610	0.380	7473.08	891.11	897.96	753.63	1675363.00	14585058.83	40°09'36.371"N	104°52'29.718"W	8.64	LANDING (78'FSL & 3064'FWL,SEC.03) 40.1601029 -104.8749218
8018.00†	88.169	359.859	7474.99	959.08	965.93	753.77	1675363.05	14585126.78	40°09'37.042"N	104°52'29.717"W	1.00	EXIT RADIUS HEEL (146'FSL & 3064'FWL,SEC.03) 40.1602895 -104.8749213
8044.00	88.000	359.660	7475.86	985.06	991.92	753.66	1675362.90	14585152.75	40°09'37.299"N	104°52'29.718"W	1.00	

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Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

### WELLPATH DATA (174 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8137.00	90.250	1.660	7477.28	1078.02	1084.89	754.73	1675363.84	14585245.69	40°09'38.218"N	104°52'29.704"W	3.24	
8231.00	90.120	1.040	7476.98	1171.97	1178.86	756.95	1675365.93	14585339.63	40°09'39.146"N	104°52'29.676"W	0.67	
8326.00	90.520	358.320	7476.45	1266.96	1273.85	756.42	1675365.27	14585434.58	40°09'40.085"N	104°52'29.682"W	2.89	
8419.00	90.800	357.870	7475.38	1359.93	1366.79	753.32	1675362.05	14585527.48	40°09'41.004"N	104°52'29.722"W	0.57	
8512.00	89.350	357.800	7475.26	1452.89	1459.72	749.81	1675358.41	14585620.37	40°09'41.922"N	104°52'29.767"W	1.56	
8606.00	89.450	357.490	7476.24	1546.83	1553.64	745.95	1675354.42	14585714.24	40°09'42.850"N	104°52'29.817"W	0.35	
8700.00	89.480	356.820	7477.12	1640.75	1647.52	741.28	1675349.63	14585808.07	40°09'43.778"N	104°52'29.877"W	0.71	
8793.00	90.000	356.640	7477.54	1733.64	1740.37	735.98	1675344.20	14585900.88	40°09'44.695"N	104°52'29.945"W	0.59	
8886.00	90.650	356.680	7477.01	1826.53	1833.21	730.56	1675338.65	14585993.67	40°09'45.613"N	104°52'30.015"W	0.70	
8980.00	90.960	355.980	7475.69	1920.38	1927.00	724.54	1675332.51	14586087.42	40°09'46.540"N	104°52'30.093"W	0.81	
9071.00	87.970	357.810	7476.54	2011.26	2017.85	719.62	1675327.46	14586178.23	40°09'47.437"N	104°52'30.156"W	3.85	
9163.00	90.520	359.280	7477.75	2103.23	2109.80	717.28	1675325.00	14586270.14	40°09'48.346"N	104°52'30.186"W	3.20	
9255.00	90.520	358.600	7476.92	2195.23	2201.78	715.58	1675323.17	14586362.08	40°09'49.255"N	104°52'30.208"W	0.74	
9347.00	90.770	358.130	7475.88	2287.20	2293.74	712.95	1675320.42	14586454.00	40°09'50.164"N	104°52'30.242"W	0.58	
9438.00	91.540	358.120	7474.05	2378.16	2384.67	709.98	1675317.32	14586544.89	40°09'51.062"N	104°52'30.280"W	0.85	
9530.00	92.400	359.950	7470.89	2470.10	2476.60	708.43	1675315.64	14586636.78	40°09'51.971"N	104°52'30.300"W	2.20	
9623.00	91.660	1.400	7467.59	2563.01	2569.53	709.52	1675316.61	14586729.67	40°09'52.889"N	104°52'30.286"W	1.75	
9714.00	89.850	0.050	7466.39	2653.98	2660.51	710.67	1675317.63	14586820.62	40°09'53.788"N	104°52'30.271"W	2.48	
9805.00	90.220	0.360	7466.34	2744.97	2751.51	711.00	1675317.83	14586911.58	40°09'54.687"N	104°52'30.267"W	0.53	
9896.00	90.060	358.460	7466.11	2835.97	2842.50	710.06	1675316.77	14587002.53	40°09'55.587"N	104°52'30.279"W	2.10	
9990.00	90.090	358.160	7465.99	2929.95	2936.46	707.29	1675313.87	14587096.45	40°09'56.515"N	104°52'30.315"W	0.32	
10084.00	89.750	357.610	7466.12	3023.91	3030.40	703.82	1675310.28	14587190.34	40°09'57.443"N	104°52'30.359"W	0.69	
10178.00	89.750	357.770	7466.53	3117.86	3124.32	700.03	1675306.36	14587284.22	40°09'58.372"N	104°52'30.408"W	0.17	
10271.00	90.460	357.960	7466.36	3210.82	3217.25	696.57	1675302.77	14587377.12	40°09'59.290"N	104°52'30.453"W	0.79	
10364.00	89.290	358.580	7466.56	3303.80	3310.21	693.76	1675299.83	14587470.03	40°10'00.209"N	104°52'30.489"W	1.42	
10458.00	91.050	359.070	7466.29	3397.79	3404.18	691.83	1675297.78	14587563.97	40°10'01.137"N	104°52'30.513"W	1.94	
10551.00	91.420	358.780	7464.28	3490.76	3497.15	690.09	1675295.91	14587656.89	40°10'02.056"N	104°52'30.536"W	0.51	
10645.00	91.510	357.780	7461.88	3584.71	3591.07	687.27	1675292.96	14587750.77	40°10'02.984"N	104°52'30.572"W	1.07	
10739.00	91.970	358.070	7459.02	3678.63	3684.97	683.87	1675289.43	14587844.62	40°10'03.912"N	104°52'30.616"W	0.58	
10832.00	89.720	357.640	7457.65	3771.58	3777.89	680.39	1675285.82	14587937.50	40°10'04.830"N	104°52'30.661"W	2.46	
10925.00	89.660	1.710	7458.16	3864.56	3870.86	679.86	1675285.16	14588030.44	40°10'05.749"N	104°52'30.668"W	4.38	
11019.00	92.190	359.740	7456.64	3958.51	3964.83	681.05	1675286.22	14588124.37	40°10'06.678"N	104°52'30.652"W	3.41	
11112.00	92.740	359.690	7452.64	4051.42	4057.74	680.59	1675285.63	14588217.25	40°10'07.596"N	104°52'30.658"W	0.59	
11204.00	91.510	0.980	7449.23	4143.35	4149.67	681.12	1675286.05	14588309.14	40°10'08.504"N	104°52'30.651"W	1.94	
11298.00	91.540	0.280	7446.73	4237.29	4243.64	682.16	1675286.95	14588403.07	40°10'09.433"N	104°52'30.638"W	0.75	
11392.00	91.230	2.040	7444.45	4331.22	4337.58	684.06	1675288.72	14588496.98	40°10'10.361"N	104°52'30.613"W	1.90	
11487.00	91.420	1.260	7442.26	4426.13	4432.52	686.79	1675291.32	14588591.88	40°10'11.299"N	104°52'30.578"W	0.84	
11580.00	90.370	0.100	7440.80	4519.09	4525.50	687.90	1675292.30	14588684.82	40°10'12.218"N	104°52'30.564"W	1.68	
11673.00	90.250	359.400	7440.30	4612.09	4618.50	687.49	1675291.77	14588777.78	40°10'13.137"N	104°52'30.569"W	0.76	
11767.00	90.590	359.030	7439.61	4706.09	4712.48	686.20	1675290.35	14588871.73	40°10'14.066"N	104°52'30.585"W	0.53	
11861.00	89.380	359.920	7439.64	4800.08	4806.48	685.34	1675289.36	14588965.69	40°10'14.995"N	104°52'30.597"W	1.60	
11955.00	89.850	359.700	7440.27	4894.08	4900.47	685.03	1675288.92	14589059.64	40°10'15.924"N	104°52'30.601"W	0.55	
12049.00	90.000	359.000	7440.39	4988.08	4994.47	683.97	1675287.72	14589153.60	40°10'16.852"N	104°52'30.614"W	0.76	
12142.00	90.490	358.680	7439.99	5081.07	5087.45	682.08	1675285.71	14589246.54	40°10'17.771"N	104°52'30.638"W	0.63	
12236.00	91.690	1.010	7438.20	5175.05	5181.42	681.83	1675285.33	14589340.47	40°10'18.700"N	104°52'30.642"W	2.79	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#60 BUTTERBALL 25C2-34HZ (820'FNL & 2310'FWL,SEC.10)
Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station												
MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	DLS °/100ft	Comments
12331.00	91.790	0.710	7435.32	5269.97	5276.37	683.25	1675286.62	14589435.38	40°10'19.638"N	104°52'30.623"W	0.33	
12424.00	91.940	359.840	7432.29	5362.92	5369.32	683.70	1675286.94	14589528.30	40°10'20.557"N	104°52'30.618"W	0.95	
12518.00	88.980	358.460	7431.54	5456.90	5463.29	682.30	1675285.42	14589622.23	40°10'21.485"N	104°52'30.635"W	3.47	
12612.00	89.230	358.390	7433.01	5550.87	5557.24	679.72	1675282.71	14589716.14	40°10'22.414"N	104°52'30.669"W	0.28	
12706.00	89.720	357.860	7433.87	5644.84	5651.19	676.65	1675279.50	14589810.04	40°10'23.342"N	104°52'30.708"W	0.77	
12799.00	89.230	1.060	7434.72	5737.82	5744.17	675.77	1675278.50	14589902.99	40°10'24.261"N	104°52'30.720"W	3.48	
12891.00	89.660	0.990	7435.61	5829.79	5836.15	677.42	1675280.02	14589994.93	40°10'25.170"N	104°52'30.698"W	0.47	
12984.00	90.180	0.620	7435.74	5922.76	5929.14	678.72	1675281.19	14590087.89	40°10'26.089"N	104°52'30.681"W	0.69	
13078.00	90.400	0.240	7435.27	6016.75	6023.13	679.43	1675281.77	14590181.85	40°10'27.018"N	104°52'30.672"W	0.47	
13172.00	91.290	0.220	7433.88	6110.73	6117.12	679.80	1675282.02	14590275.80	40°10'27.947"N	104°52'30.667"W	0.95	
13265.00	91.730	0.020	7431.43	6203.69	6210.09	680.00	1675282.08	14590368.73	40°10'28.865"N	104°52'30.665"W	0.52	
13358.00	89.480	355.360	7430.45	6296.61	6302.98	676.25	1675278.21	14590461.57	40°10'29.783"N	104°52'30.713"W	5.56	
13452.00	89.660	354.490	7431.15	6390.31	6396.61	667.94	1675269.77	14590555.15	40°10'30.708"N	104°52'30.820"W	0.95	
13546.00	90.890	356.620	7430.70	6484.08	6490.31	660.65	1675262.36	14590648.81	40°10'31.634"N	104°52'30.914"W	2.62	
13639.00	89.720	359.060	7430.21	6577.03	6583.24	657.15	1675258.73	14590741.69	40°10'32.553"N	104°52'30.959"W	2.91	
13733.00	90.280	1.820	7430.21	6671.01	6677.23	657.87	1675259.32	14590835.65	40°10'33.482"N	104°52'30.950"W	3.00	
13827.00	90.460	1.060	7429.60	6764.95	6771.19	660.23	1675261.55	14590929.58	40°10'34.410"N	104°52'30.919"W	0.83	
13921.00	90.000	359.880	7429.22	6858.93	6865.19	661.00	1675262.19	14591023.54	40°10'35.339"N	104°52'30.909"W	1.35	
14014.00	90.800	0.560	7428.57	6951.92	6958.18	661.36	1675262.42	14591116.49	40°10'36.258"N	104°52'30.905"W	1.13	
14108.00	89.510	358.910	7428.32	7045.91	7052.18	660.92	1675261.86	14591210.45	40°10'37.187"N	104°52'30.910"W	2.23	
14201.00	90.620	1.030	7428.21	7138.90	7145.17	660.88	1675261.68	14591303.41	40°10'38.106"N	104°52'30.911"W	2.57	
14296.00	90.220	359.850	7427.52	7233.89	7240.16	661.61	1675262.28	14591398.36	40°10'39.044"N	104°52'30.901"W	1.31	
14390.00	88.860	0.340	7428.27	7327.87	7334.16	661.76	1675262.31	14591492.32	40°10'39.973"N	104°52'30.899"W	1.54	
14484.00	94.470	1.440	7425.54	7421.77	7428.07	663.22	1675263.63	14591586.19	40°10'40.901"N	104°52'30.881"W	6.08	
14578.00	94.080	1.470	7418.53	7515.45	7521.78	665.60	1675265.88	14591679.87	40°10'41.827"N	104°52'30.850"W	0.42	
14672.00	95.540	2.060	7410.65	7609.04	7615.40	668.48	1675268.64	14591773.45	40°10'42.753"N	104°52'30.813"W	1.67	
14766.00	92.340	1.370	7404.19	7702.74	7709.12	671.29	1675271.31	14591867.14	40°10'43.679"N	104°52'30.777"W	3.48	
14860.00	88.980	0.360	7403.11	7796.69	7803.09	672.71	1675272.60	14591961.08	40°10'44.607"N	104°52'30.758"W	3.73	
14954.00	90.000	359.750	7403.95	7890.68	7897.08	672.80	1675272.56	14592055.03	40°10'45.536"N	104°52'30.757"W	1.26	
15048.00	91.260	358.540	7402.91	7984.67	7991.06	671.39	1675271.03	14592148.97	40°10'46.465"N	104°52'30.775"W	1.86	
15142.00	89.260	358.110	7402.49	8078.64	8085.02	668.65	1675268.15	14592242.89	40°10'47.393"N	104°52'30.810"W	2.18	
15236.00	87.100	357.550	7405.47	8172.55	8178.90	665.09	1675264.47	14592336.72	40°10'48.321"N	104°52'30.856"W	2.37	
15331.00	87.780	357.100	7409.72	8267.39	8273.70	660.66	1675259.91	14592431.48	40°10'49.258"N	104°52'30.913"W	0.86	
15425.00	88.270	356.590	7412.95	8361.23	8367.50	655.49	1675254.61	14592525.24	40°10'50.185"N	104°52'30.980"W	0.75	
15519.00	89.140	356.040	7415.08	8455.06	8461.28	649.45	1675248.45	14592618.97	40°10'51.112"N	104°52'31.058"W	1.09	
15613.00	90.520	356.520	7415.36	8548.91	8555.08	643.35	1675242.22	14592712.72	40°10'52.038"N	104°52'31.136"W	1.55	
15630.00†	90.690	356.463	7415.18	8565.89	8572.04	642.31	1675241.16	14592729.68	40°10'52.206"N	104°52'31.150"W	1.05	ENTERED RADIUS TOE (2375'FSL & 2287'FEL,SEC.34) 40.1811684 -104.8753193
15789.00	92.280	355.930	7411.06	8724.57	8730.64	631.77	1675230.40	14592888.19	40°10'53.773"N	104°52'31.285"W	1.05	LAST BHI MWD+IFR1+MSA SURVEY
15836.00	92.280	355.930	7409.19	8771.44	8777.48	628.44	1675227.01	14592935.02	40°10'54.236"N	104°52'31.328"W	0.00	PTB (2580'FSL & 2301'FEL,SEC.34) 40.1817323 -104.8753690

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#60 BUTTERBALL 25C2-34HZ (820'FNL & 2310'FWL,SEC.10)
Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.03-T2N-R67W	-6.00	368.32	-1930.04	1672681.13	14584525.71	40°09'31.136"N	104°53'04.283"W	polygon
SEC.10-T2N-R67W	-6.00	368.32	-1930.04	1672681.13	14584525.71	40°09'31.136"N	104°53'04.283"W	polygon
SEC.34-T3N-R67W	-6.00	368.32	-1930.04	1672681.13	14584525.71	40°09'31.136"N	104°53'04.283"W	polygon
BUTTERBALL 25C2-34HZ BHL REV-1(2581'FSL & 2209'FEL,SEC.34)	7449.00	8778.47	720.36	1675318.89	14592936.13	40°10'54.246"N	104°52'30.144"W	point
BUTTERBALL 25C2-34HZ BHL REV-2(2581'FSL & 2229'FEL,SEC.34)	7449.00	8778.47	700.36	1675298.90	14592936.10	40°10'54.246"N	104°52'30.402"W	point
BUTTERBALL 25C2-34HZ BHL REV-3(2581'FSL & 2267'FEL,SEC.34)	7449.00	8778.47	662.36	1675260.91	14592936.05	40°10'54.246"N	104°52'30.891"W	point
BUTTERBALL 25C2-34HZ HEEL REV-1(101'FSL & 2202'FEL,SEC.03)	7516.00	917.65	733.44	1675342.79	14585078.49	40°09'36.565"N	104°52'29.978"W	point
BUTTERBALL 25C2-34HZ LANDBOX	7516.00	0.00	0.00	1674610.91	14584160.19	40°09'27.497"N	104°52'39.425"W	polygon
BUTTERBALL 25C2-34HZ RADIUS 1	7516.00	819.19	318.95	1674928.60	14584979.50	40°09'35.592"N	104°52'35.317"W	polygon
BUTTERBALL 25C2-34HZ RADIUS 2	7516.00	8890.95	310.16	1674908.70	14593048.00	40°10'55.358"N	104°52'35.429"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: BUTTERBALL 25C2-34HZ AWB				Ref Wellpath: BUTTERBALL 25C2-34HZ AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore
32.00	1810.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)	SDI Custom APC ISCWSA Rev-2 MWD+IFR1 <187 - 1810>		BUTTERBALL 25C2-34HZ AWB
1810.00	15789.00	Custom APC ISCWSA REV 2 MWD+IFR1+MSA (approximation)	BHI Custom APC ISCWSA Rev-2 MWD+IFR1+MSA <1925 - 15789>		BUTTERBALL 25C2-34HZ AWB
15789.00	15836.00	Blind Drilling (std)	Projection to bit		BUTTERBALL 25C2-34HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#60 BUTTERBALL 25C2-34HZ (820'FNL & 2310'FWL,SEC.10)
Area	COLORADO	Well	BUTTERBALL 25C2-34HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	BUTTERBALL 25C2-34HZ AWB
Facility	SEC.10-T2N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
187.00	0.440	282.010	187.00	FIRST SDI MWD+IFR1 SURVEY
1810.00	13.350	68.010	1788.46	LAST SDI MWD+IFR1 SURVEY
1925.00	13.250	67.010	1900.38	FIRST BHI MWD+IFR1+MSA SURVEY
6843.00	1.837	5.155	6772.93	KOP
7950.00	88.610	0.380	7473.08	LANDING (78'FSL & 3064'FWL,SEC.03) 40.1601029 -104.8749218
8018.00	88.169	359.859	7474.99	EXIT RADIUS HEEL (146'FSL & 3064'FWL,SEC.03) 40.1602895 -104.8749213
15630.00	90.690	356.463	7415.18	ENTERED RADIUS TOE (2375'FSL & 2287'FEL,SEC.34) 40.1811684 -104.8753193
15789.00	92.280	355.930	7411.06	LAST BHI MWD+IFR1+MSA SURVEY
15836.00	92.280	355.930	7409.19	PTB (2580'FSL & 2301'FEL,SEC.34) 40.1817323 -104.8753690