

Scale 1 inch = 1500 ft

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 37N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB
Facility	SEC.10-T2N-R67W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.1.1
North Reference	True	User	Robiale01
Scale	0.999958	Report Generated	3/2/2015 at 2:11:21 PM
Convergence at slot	0.41° East	Database/Source file	WellArchitectDB3/BUTTERBALL_37N-10HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	3.10	1806.68	3175398.74	1301076.08	40°09'29.322"N	104°52'20.852"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 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#23 BUTTERBALL 37N-10HZ (627'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	182.81°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 37N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (147 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	49.300	0.00	0.00	0.00	0.00	40°09'29.322"N	104°52'20.852"W	0.00	
16.00	0.000	49.300	16.00	0.00	0.00	0.00	40°09'29.322"N	104°52'20.852"W	0.00	
122.00	0.200	49.300	122.00	-0.13	0.12	0.14	40°09'29.323"N	104°52'20.850"W	0.19	
211.00	0.300	17.800	211.00	-0.46	0.44	0.33	40°09'29.326"N	104°52'20.848"W	0.19	
297.00	0.500	31.300	297.00	-1.01	0.98	0.59	40°09'29.332"N	104°52'20.844"W	0.26	
384.00	0.700	26.000	383.99	-1.83	1.78	1.02	40°09'29.340"N	104°52'20.839"W	0.24	
474.00	0.100	98.400	473.99	-2.33	2.26	1.34	40°09'29.344"N	104°52'20.835"W	0.75	
568.00	0.400	179.600	567.99	-1.99	1.92	1.43	40°09'29.341"N	104°52'20.834"W	0.42	
612.01†	0.537	178.406	612.00	-1.63	1.56	1.43	40°09'29.337"N	104°52'20.834"W	0.31	BASE FOX HILLS
664.00	0.700	177.600	663.98	-1.07	1.00	1.45	40°09'29.332"N	104°52'20.833"W	0.31	
760.00	0.600	238.700	759.98	-0.21	0.16	1.05	40°09'29.324"N	104°52'20.839"W	0.69	
855.00	1.100	270.800	854.97	0.10	-0.09	-0.29	40°09'29.321"N	104°52'20.856"W	0.71	
948.00	0.200	313.300	947.96	0.03	0.03	-1.30	40°09'29.322"N	104°52'20.869"W	1.03	
1045.00	0.200	46.700	1044.96	-0.20	0.27	-1.30	40°09'29.325"N	104°52'20.869"W	0.30	
1120.00	0.200	65.200	1119.96	-0.36	0.41	-1.09	40°09'29.326"N	104°52'20.866"W	0.09	TIE ONTO CATHEDRAL MWD
1220.00†	0.200	65.200	1219.96	-0.52	0.56	-0.77	40°09'29.328"N	104°52'20.862"W	0.00	
1300.04	0.200	65.200	1300.00	-0.65	0.67	-0.52	40°09'29.329"N	104°52'20.859"W	0.00	BEGIN NUDGE
1320.00†	0.564	37.053	1319.96	-0.75	0.77	-0.42	40°09'29.330"N	104°52'20.857"W	2.00	
1420.00†	2.552	26.377	1419.92	-3.19	3.15	0.86	40°09'29.353"N	104°52'20.841"W	2.00	
1520.00†	4.550	25.060	1519.72	-8.91	8.74	3.53	40°09'29.408"N	104°52'20.807"W	2.00	
1620.00†	6.550	24.545	1619.25	-17.87	17.52	7.58	40°09'29.495"N	104°52'20.754"W	2.00	
1720.00†	8.549	24.271	1718.38	-30.09	29.49	13.01	40°09'29.613"N	104°52'20.685"W	2.00	
1820.00†	10.549	24.100	1816.98	-45.54	44.62	19.80	40°09'29.763"N	104°52'20.597"W	2.00	
1920.00†	12.549	23.983	1914.96	-64.20	62.91	27.95	40°09'29.944"N	104°52'20.492"W	2.00	
2020.00†	14.549	23.898	2012.17	-86.05	84.32	37.46	40°09'30.155"N	104°52'20.370"W	2.00	
2120.00†	16.549	23.832	2108.50	-111.07	108.83	48.30	40°09'30.397"N	104°52'20.230"W	2.00	
2192.56	18.000	23.794	2177.79	-131.18	128.54	57.00	40°09'30.592"N	104°52'20.118"W	2.00	END NUDGE
2220.00†	18.000	23.794	2203.88	-139.10	136.30	60.42	40°09'30.669"N	104°52'20.074"W	0.00	
2320.00†	18.000	23.794	2298.99	-167.95	164.58	72.89	40°09'30.948"N	104°52'19.913"W	0.00	
2420.00†	18.000	23.794	2394.10	-196.80	192.85	85.36	40°09'31.228"N	104°52'19.753"W	0.00	
2520.00†	18.000	23.794	2489.20	-225.66	221.13	97.82	40°09'31.507"N	104°52'19.592"W	0.00	
2620.00†	18.000	23.794	2584.31	-254.51	249.40	110.29	40°09'31.787"N	104°52'19.431"W	0.00	
2720.00†	18.000	23.794	2679.41	-283.36	277.68	122.76	40°09'32.066"N	104°52'19.271"W	0.00	
2820.00†	18.000	23.794	2774.52	-312.21	305.95	135.23	40°09'32.345"N	104°52'19.110"W	0.00	
2920.00†	18.000	23.794	2869.62	-341.06	334.23	147.69	40°09'32.625"N	104°52'18.950"W	0.00	
3020.00†	18.000	23.794	2964.73	-369.92	362.50	160.16	40°09'32.904"N	104°52'18.789"W	0.00	
3120.00†	18.000	23.794	3059.84	-398.77	390.78	172.63	40°09'33.184"N	104°52'18.629"W	0.00	
3220.00†	18.000	23.794	3154.94	-427.62	419.05	185.10	40°09'33.463"N	104°52'18.468"W	0.00	
3320.00†	18.000	23.794	3250.05	-456.47	447.33	197.56	40°09'33.743"N	104°52'18.307"W	0.00	
3420.00†	18.000	23.794	3345.15	-485.32	475.60	210.03	40°09'34.022"N	104°52'18.147"W	0.00	
3520.00†	18.000	23.794	3440.26	-514.18	503.88	222.50	40°09'34.301"N	104°52'17.986"W	0.00	
3620.00†	18.000	23.794	3535.36	-543.03	532.15	234.96	40°09'34.581"N	104°52'17.826"W	0.00	
3720.00†	18.000	23.794	3630.47	-571.88	560.43	247.43	40°09'34.860"N	104°52'17.665"W	0.00	
3820.00†	18.000	23.794	3725.58	-600.73	588.70	259.90	40°09'35.140"N	104°52'17.505"W	0.00	
3920.00†	18.000	23.794	3820.68	-629.58	616.98	272.37	40°09'35.419"N	104°52'17.344"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 37N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (147 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4020.00†	18.000	23.794	3915.79	-658.44	645.25	284.83	40°09'35.698"N	104°52'17.183"W	0.00	
4069.64†	18.000	23.794	3963.00	-672.76	659.29	291.02	40°09'35.837"N	104°52'17.104"W	0.00	PARKMAN
4120.00†	18.000	23.794	4010.89	-687.29	673.53	297.30	40°09'35.978"N	104°52'17.023"W	0.00	
4220.00†	18.000	23.794	4106.00	-716.14	701.80	309.77	40°09'36.257"N	104°52'16.862"W	0.00	
4320.00†	18.000	23.794	4201.10	-744.99	730.08	322.24	40°09'36.537"N	104°52'16.702"W	0.00	
4420.00†	18.000	23.794	4296.21	-773.85	758.35	334.70	40°09'36.816"N	104°52'16.541"W	0.00	
4509.15†	18.000	23.794	4381.00	-799.57	783.56	345.82	40°09'37.065"N	104°52'16.398"W	0.00	SUSSEX
4520.00†	18.000	23.794	4391.31	-802.70	786.63	347.17	40°09'37.095"N	104°52'16.381"W	0.00	
4620.00†	18.000	23.794	4486.42	-831.55	814.90	359.64	40°09'37.375"N	104°52'16.220"W	0.00	
4720.00†	18.000	23.794	4581.53	-860.40	843.18	372.11	40°09'37.654"N	104°52'16.059"W	0.00	
4820.00†	18.000	23.794	4676.63	-889.25	871.45	384.57	40°09'37.934"N	104°52'15.899"W	0.00	
4920.00†	18.000	23.794	4771.74	-918.11	899.73	397.04	40°09'38.213"N	104°52'15.738"W	0.00	
5020.00†	18.000	23.794	4866.84	-946.96	928.00	409.51	40°09'38.493"N	104°52'15.578"W	0.00	
5120.00†	18.000	23.794	4961.95	-975.81	956.28	421.97	40°09'38.772"N	104°52'15.417"W	0.00	
5220.00†	18.000	23.794	5057.05	-1004.66	984.55	434.44	40°09'39.051"N	104°52'15.256"W	0.00	
5320.00†	18.000	23.794	5152.16	-1033.51	1012.83	446.91	40°09'39.331"N	104°52'15.096"W	0.00	
5420.00†	18.000	23.794	5247.27	-1062.37	1041.10	459.38	40°09'39.610"N	104°52'14.935"W	0.00	
5520.00†	18.000	23.794	5342.37	-1091.22	1069.38	471.84	40°09'39.890"N	104°52'14.775"W	0.00	
5564.85	18.000	23.794	5385.03	-1104.16	1082.06	477.44	40°09'40.015"N	104°52'14.703"W	0.00	BEGIN DROP
5620.00†	16.897	23.794	5437.64	-1119.60	1097.19	484.11	40°09'40.164"N	104°52'14.617"W	2.00	
5720.00†	14.897	23.794	5533.81	-1145.17	1122.25	495.16	40°09'40.412"N	104°52'14.474"W	2.00	
5820.00†	12.897	23.794	5630.88	-1167.59	1144.23	504.85	40°09'40.629"N	104°52'14.350"W	2.00	
5920.00†	10.897	23.794	5728.72	-1186.84	1163.09	513.16	40°09'40.816"N	104°52'14.242"W	2.00	
6020.00†	8.897	23.794	5827.23	-1202.89	1178.82	520.10	40°09'40.971"N	104°52'14.153"W	2.00	
6120.00†	6.897	23.794	5926.28	-1215.72	1191.39	525.64	40°09'41.095"N	104°52'14.082"W	2.00	
6220.00†	4.897	23.794	6025.74	-1225.31	1200.79	529.79	40°09'41.188"N	104°52'14.028"W	2.00	
6320.00†	2.897	23.794	6125.51	-1231.65	1207.01	532.53	40°09'41.250"N	104°52'13.993"W	2.00	
6420.00†	0.897	23.794	6225.45	-1234.74	1210.03	533.86	40°09'41.280"N	104°52'13.976"W	2.00	
6464.85	0.000	182.809	6270.29	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	2.00	END DROP
6520.00†	0.000	182.809	6325.44	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	0.00	
6620.00†	0.000	182.809	6425.44	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	0.00	
6720.00†	0.000	182.809	6525.44	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	0.00	
6820.00†	0.000	182.809	6625.44	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	0.00	
6873.94	0.000	182.809	6679.38	-1235.07	1210.36	534.00	40°09'41.283"N	104°52'13.974"W	0.00	KOP, BUILD @ 9°/100'
6920.00†	4.146	182.809	6725.40	-1233.41	1208.69	533.92	40°09'41.266"N	104°52'13.975"W	9.00	
7020.00†	13.146	182.809	6824.17	-1218.39	1193.69	533.19	40°09'41.118"N	104°52'13.985"W	9.00	
7120.00†	22.146	182.809	6919.36	-1188.11	1163.45	531.70	40°09'40.819"N	104°52'14.004"W	9.00	
7220.00†	31.146	182.809	7008.65	-1143.31	1118.70	529.51	40°09'40.377"N	104°52'14.032"W	9.00	
7320.00†	40.146	182.809	7089.83	-1085.09	1060.55	526.65	40°09'39.802"N	104°52'14.069"W	9.00	
7332.09†	41.234	182.809	7099.00	-1077.20	1052.68	526.27	40°09'39.725"N	104°52'14.074"W	9.00	SHARON SPRINGS
7420.00†	49.146	182.809	7160.90	-1014.89	990.44	523.21	40°09'39.109"N	104°52'14.113"W	9.00	
7461.48†	52.879	182.809	7187.00	-982.65	958.24	521.63	40°09'38.791"N	104°52'14.133"W	9.00	NIOBRARA A
7520.00†	58.146	182.809	7220.12	-934.43	910.08	519.27	40°09'38.315"N	104°52'14.164"W	9.00	
7539.19†	59.873	182.809	7230.00	-917.99	893.65	518.47	40°09'38.153"N	104°52'14.174"W	9.00	NIOBRARA B
7620.00†	67.146	182.809	7266.02	-845.71	821.46	514.92	40°09'37.440"N	104°52'14.220"W	9.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 37N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (147 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7720.00†	76.146	182.809	7297.48	-750.89	726.76	510.28	40°09'36.504"N	104°52'14.280"W	9.00	
7730.91†	77.127	182.809	7300.00	-740.28	716.16	509.76	40°09'36.399"N	104°52'14.286"W	9.00	NIOBRARA C
7820.00†	85.146	182.809	7313.72	-652.32	628.31	505.45	40°09'35.531"N	104°52'14.342"W	9.00	
7873.94	90.000	182.809	7316.00	-598.45	574.50	502.81	40°09'34.999"N	104°52'14.376"W	9.00	LANDING POINT
7873.94†	90.000	182.809	7316.00	-598.45	574.50	502.81	40°09'34.999"N	104°52'14.376"W	0.00	PRODUCTION TOP
7920.00†	90.000	182.809	7316.00	-552.39	528.49	500.55	40°09'34.545"N	104°52'14.405"W	0.00	
8020.00†	90.000	182.809	7316.00	-452.39	428.61	495.65	40°09'33.558"N	104°52'14.468"W	0.00	
8120.00†	90.000	182.809	7316.00	-352.39	328.73	490.75	40°09'32.571"N	104°52'14.531"W	0.00	
8220.00†	90.000	182.809	7316.00	-252.39	228.85	485.85	40°09'31.583"N	104°52'14.595"W	0.00	
8320.00†	90.000	182.809	7316.00	-152.39	128.97	480.95	40°09'30.596"N	104°52'14.658"W	0.00	
8420.00†	90.000	182.809	7316.00	-52.39	29.09	476.05	40°09'29.609"N	104°52'14.721"W	0.00	
8520.00†	90.000	182.809	7316.00	47.61	-70.79	471.15	40°09'28.622"N	104°52'14.784"W	0.00	
8620.00†	90.000	182.809	7316.00	147.61	-170.67	466.25	40°09'27.635"N	104°52'14.847"W	0.00	
8720.00†	90.000	182.809	7316.00	247.61	-270.55	461.35	40°09'26.648"N	104°52'14.910"W	0.00	
8820.00†	90.000	182.809	7316.00	347.61	-370.43	456.44	40°09'25.661"N	104°52'14.973"W	0.00	
8920.00†	90.000	182.809	7316.00	447.61	-470.31	451.54	40°09'24.674"N	104°52'15.036"W	0.00	
9020.00†	90.000	182.809	7316.00	547.61	-570.19	446.64	40°09'23.687"N	104°52'15.100"W	0.00	
9120.00†	90.000	182.809	7316.00	647.61	-670.07	441.74	40°09'22.700"N	104°52'15.163"W	0.00	
9220.00†	90.000	182.809	7316.00	747.61	-769.95	436.84	40°09'21.713"N	104°52'15.226"W	0.00	
9320.00†	90.000	182.809	7316.00	847.61	-869.83	431.94	40°09'20.726"N	104°52'15.289"W	0.00	
9420.00†	90.000	182.809	7316.00	947.61	-969.71	427.04	40°09'19.739"N	104°52'15.352"W	0.00	
9520.00†	90.000	182.809	7316.00	1047.61	-1069.59	422.14	40°09'18.752"N	104°52'15.415"W	0.00	
9620.00†	90.000	182.809	7316.00	1147.61	-1169.47	417.24	40°09'17.765"N	104°52'15.478"W	0.00	
9720.00†	90.000	182.809	7316.00	1247.61	-1269.35	412.34	40°09'16.778"N	104°52'15.542"W	0.00	
9820.00†	90.000	182.809	7316.00	1347.61	-1369.22	407.44	40°09'15.791"N	104°52'15.605"W	0.00	
9920.00†	90.000	182.809	7316.00	1447.61	-1469.10	402.54	40°09'14.804"N	104°52'15.668"W	0.00	
10020.00†	90.000	182.809	7316.00	1547.61	-1568.98	397.64	40°09'13.817"N	104°52'15.731"W	0.00	
10120.00†	90.000	182.809	7316.00	1647.61	-1668.86	392.74	40°09'12.830"N	104°52'15.794"W	0.00	
10220.00†	90.000	182.809	7316.00	1747.61	-1768.74	387.84	40°09'11.843"N	104°52'15.857"W	0.00	
10320.00†	90.000	182.809	7316.00	1847.61	-1868.62	382.94	40°09'10.856"N	104°52'15.920"W	0.00	
10420.00†	90.000	182.809	7316.00	1947.61	-1968.50	378.04	40°09'09.869"N	104°52'15.984"W	0.00	
10520.00†	90.000	182.809	7316.00	2047.61	-2068.38	373.14	40°09'08.882"N	104°52'16.047"W	0.00	
10620.00†	90.000	182.809	7316.00	2147.61	-2168.26	368.23	40°09'07.895"N	104°52'16.110"W	0.00	
10720.00†	90.000	182.809	7316.00	2247.61	-2268.14	363.33	40°09'06.908"N	104°52'16.173"W	0.00	
10820.00†	90.000	182.809	7316.00	2347.61	-2368.02	358.43	40°09'05.921"N	104°52'16.236"W	0.00	
10920.00†	90.000	182.809	7316.00	2447.61	-2467.90	353.53	40°09'04.934"N	104°52'16.299"W	0.00	
11020.00†	90.000	182.809	7316.00	2547.61	-2567.78	348.63	40°09'03.947"N	104°52'16.362"W	0.00	
11120.00†	90.000	182.809	7316.00	2647.61	-2667.66	343.73	40°09'02.960"N	104°52'16.425"W	0.00	
11220.00†	90.000	182.809	7316.00	2747.61	-2767.54	338.83	40°09'01.973"N	104°52'16.489"W	0.00	
11320.00†	90.000	182.809	7316.00	2847.61	-2867.42	333.93	40°09'00.986"N	104°52'16.552"W	0.00	
11420.00†	90.000	182.809	7316.00	2947.61	-2967.30	329.03	40°09'00.000"N	104°52'16.615"W	0.00	
11520.00†	90.000	182.809	7316.00	3047.61	-3067.18	324.13	40°08'59.012"N	104°52'16.678"W	0.00	
11620.00†	90.000	182.809	7316.00	3147.61	-3167.06	319.23	40°08'58.025"N	104°52'16.741"W	0.00	
11720.00†	90.000	182.809	7316.00	3247.61	-3266.94	314.33	40°08'57.038"N	104°52'16.804"W	0.00	
11820.00†	90.000	182.809	7316.00	3347.61	-3366.82	309.43	40°08'56.051"N	104°52'16.867"W	0.00	

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)	
Area	COLORADO	Well	BUTTERBALL 37N-10HZ	
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB	
Facility	SEC.10-T2N-R67W			

WELLPATH DATA (147 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11920.00†	90.000	182.809	7316.00	3447.61	-3466.70	304.53	40°08'55.064"N	104°52'16.930"W	0.00	
12020.00†	90.000	182.809	7316.00	3547.61	-3566.58	299.63	40°08'54.077"N	104°52'16.994"W	0.00	
12120.00†	90.000	182.809	7316.00	3647.61	-3666.46	294.73	40°08'53.090"N	104°52'17.057"W	0.00	
12220.00†	90.000	182.809	7316.00	3747.61	-3766.34	289.83	40°08'52.103"N	104°52'17.120"W	0.00	
12320.00†	90.000	182.809	7316.00	3847.61	-3866.22	284.93	40°08'51.116"N	104°52'17.183"W	0.00	
12420.00†	90.000	182.809	7316.00	3947.61	-3966.10	280.03	40°08'50.129"N	104°52'17.246"W	0.00	
12520.00†	90.000	182.809	7316.00	4047.61	-4065.98	275.12	40°08'49.142"N	104°52'17.309"W	0.00	
12620.00†	90.000	182.809	7316.00	4147.61	-4165.86	270.22	40°08'48.155"N	104°52'17.372"W	0.00	
12720.00†	90.000	182.809	7316.00	4247.61	-4265.74	265.32	40°08'47.168"N	104°52'17.435"W	0.00	
12820.00†	90.000	182.809	7316.00	4347.61	-4365.62	260.42	40°08'46.181"N	104°52'17.498"W	0.00	
12920.00†	90.000	182.809	7316.00	4447.61	-4465.50	255.52	40°08'45.194"N	104°52'17.562"W	0.00	
12960.53	90.000	182.809	7316.00 [†]	4488.14	-4505.98	253.54	40°08'44.794"N	104°52'17.587"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: BUTTERBALL 37N-10HZ PWB					Ref Wellpath: BUTTERBALL 37N-10HZ (PERMIT REV-2) 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	16.00	1165.00	1149.00	16.00	1164.96	0.00	0.00	0.48	-0.94
9.625in Casing Surface	16.00	1155.00	1139.00	16.00	1154.96	0.00	0.00	0.46	-0.98
7.875in Open Hole	1165.00	12960.53	11795.53	1164.96	7316.00	0.48	-0.94	-4505.98	253.54
5.5in Casing Production	16.00	12960.53	12944.53	16.00	7316.00	0.00	0.00	-4505.98	253.54

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 SECTION LINES		-77.00	-4157.52	-3268.09	3172160.30	1296895.72	40°08'48.235"N	104°53'02.936"W	polygon
BUTTERBALL 37N-10HZ LANDBOX		7316.00	0.00	0.00	3175398.74	1301076.08	40°09'29.322"N	104°52'20.852"W	polygon
1) BUTTERBALL 37N-10HZ BHL ON PLAT REV-3 (140'FSL & 1205'FEL, SEC.10)	12960.53	7316.00	-4505.98	253.54	3175684.15	1296572.20	40°08'44.794"N	104°52'17.587"W	point

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 37N-10HZ PWB					Ref Wellpath: BUTTERBALL 37N-10HZ (PERMIT REV-2) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model					Log Name/Comment	Wellbore	
16.00	1120.00	ISCWSA MWD, Rev. 2 (Standard)						BUTTERBALL 37N-10HZ AWB <1120>	
1120.00	7873.94	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)						BUTTERBALL 37N-10HZ PWB	
7873.94	12960.53	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)						BUTTERBALL 37N-10HZ PWB	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 BUTTERBALL 37N-10HZ (627'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 37N-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 37N-10HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
612.01	0.537	178.406	612.00	BASE FOX HILLS
4069.64	18.000	23.794	3963.00	PARKMAN
4509.15	18.000	23.794	4381.00	SUSSEX
7332.09	41.234	182.809	7099.00	SHARON SPRINGS
7461.48	52.879	182.809	7187.00	NIOBRARA A
7539.19	59.873	182.809	7230.00	NIOBRARA B
7730.91	77.127	182.809	7300.00	NIOBRARA C
7873.94	90.000	182.809	7316.00	PRODUCTION TOP

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1120.00	0.200	65.200	1119.96	TIE ONTO CATHEDRAL MWD
1300.04	0.200	65.200	1300.00	BEGIN NUDGE
2192.56	18.000	23.794	2177.79	END NUDGE
5564.85	18.000	23.794	5385.03	BEGIN DROP
6464.85	0.000	182.809	6270.29	END DROP
6873.94	0.000	182.809	6679.38	KOP, BUILD @ 9°/100'
7873.94	90.000	182.809	7316.00	LANDING POINT
12960.53	90.000	182.809	7316.00	TOTAL DEPTH