

KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Field: WELD COUNTY (KERR MCGEE) Well: BUTTERBALL 29C-15HZ
Facility: SEC.10-T2N-R67W Wellbore: BUTTERBALL 29C-15HZ PWB

Plot reference wellpath is BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (17 KB) (RKB)
Measured depths are referenced to PERMIT (17 KB) (RKB)
PERMIT (17 KB) (RKB) to Mean Sea Level: 4952 feet
Mean Sea Level to Mud line (At Slot: SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)): 0 feet
Coordinates are in feet referenced to Slot
Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
North Reference: True north
Scale: True distance
Depths are in feet
Created by: precain on 18/Jul/2013

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.10-T2N-R67W			3173592.204	1301060.322	40°09'29.292"N	104°52'44.121"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)	0.10	-0.16	3173592.048	1301060.422	40°09'29.293"N	104°52'44.123"W
PERMIT (17 KB) (RKB) to Mud line (At Slot: SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10))					4952ft	
Mean Sea Level to Mud line (At Slot: SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10))					0ft	
PERMIT (17 KB) (RKB) to Mean Sea Level					4952ft	

Survey Program

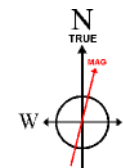
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	17325.39	NaviTrak	NaviTrak (Standard)		BUTTERBALL 29C-15HZ PWB

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	319.500	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1100.00	0.000	319.500	1100.00	0.00	0.00	0.00	0.00
END NUDGE	1600.00	10.000	319.500	1597.47	33.09	-28.27	2.00	-32.94
BEGIN DROP	5496.73	10.000	319.500	5435.00	547.63	-467.72	0.00	-544.99
END DROP	5996.73	0.000	180.322	5932.47	580.73	-495.99	2.00	-577.93
KOP, BUILD @ 10°/100	6985.32	0.000	180.322	6921.06	580.73	-495.99	0.00	-577.93
LANDING POINT	7881.50	89.618	180.322	7494.00	11.60	-499.19	10.00	-8.79
TOTAL DEPTH	17325.39	89.618	180.322	7557.00	-9431.92	-552.25	0.00	9434.88

Targets

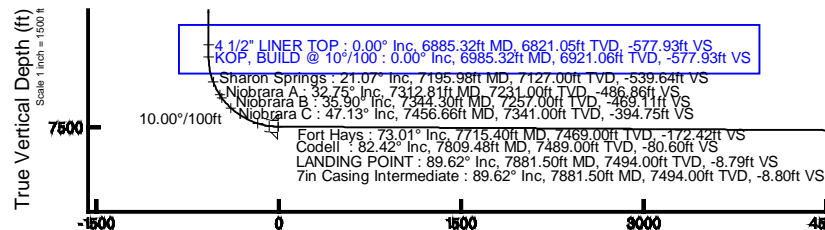
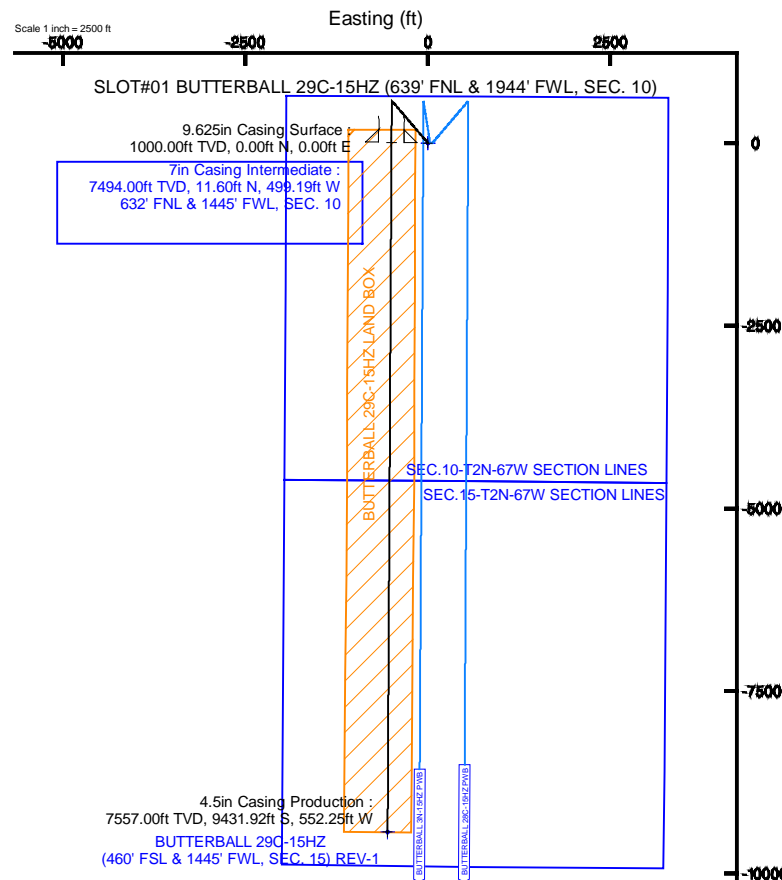
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.10-T2N-67W SECTION LINES		4952.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
SEC.15-T2N-67W SECTION LINES		4952.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
BUTTERBALL 29C-15HZ (460' FSL & 1445' FWL, SEC. 15) REV-1	17325.39	7557.00	-9431.92	-552.25	3173105.89	1291625.27	40°07'56.086"N	104°52'51.233"W
BUTTERBALL 29C-15HZ LAND BOX		7557.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W



BGGM (1945.0 to 2015.0) Dip: 66.76° Field: 52704.2 nT
Magnetic North is 8.65 degrees East of True North (at 15/Jul/2013)

To correct azimuth from Magnetic to True add 8.65 degrees

Scale 1 inch = 2500 ft



Vertical Section (ft)

Azimuth 180.32° with reference 0.00 N, 0.00 E





Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 1 of 8



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

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	18/Jul/2013 at 22:01
Convergence at slot	n/a	Database/Source file	WellArchitectDB/BUTTERBALL_29C-15HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.10	-0.16	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"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	PERMIT (17' KB) (RKB) to Facility Vertical Datum	4952.00ft
Horizontal Reference Pt	Slot	PERMIT (17' KB) (RKB) to Mean Sea Level	4952.00ft
Vertical Reference Pt	PERMIT (17' KB) (RKB)	PERMIT (17' KB) (RKB) to Mud Line at Slot (SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10))	4952.00ft
MD Reference Pt	PERMIT (17' KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	180.32°



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 2 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (192 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	319.500	0.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
17.00	0.000	319.500	17.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	TIE-ON
117.00†	0.000	319.500	117.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
217.00†	0.000	319.500	217.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
317.00†	0.000	319.500	317.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
417.00†	0.000	319.500	417.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
517.00†	0.000	319.500	517.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
617.00†	0.000	319.500	617.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
717.00†	0.000	319.500	717.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
756.00†	0.000	319.500	756.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	Fox Hills Base
817.00†	0.000	319.500	817.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
917.00†	0.000	319.500	917.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
1017.00†	0.000	319.500	1017.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	
1100.00	0.000	319.500	1100.00	0.00	0.00	0.00	40°09'29.293"N	104°52'44.123"W	0.00	BEGIN NUDGE
1117.00†	0.340	319.500	1117.00	-0.04	0.04	-0.03	40°09'29.293"N	104°52'44.123"W	2.00	
1217.00†	2.340	319.500	1216.97	-1.81	1.82	-1.55	40°09'29.311"N	104°52'44.143"W	2.00	
1317.00†	4.340	319.500	1316.79	-6.22	6.25	-5.33	40°09'29.355"N	104°52'44.192"W	2.00	
1417.00†	6.340	319.500	1416.35	-13.26	13.32	-11.38	40°09'29.425"N	104°52'44.270"W	2.00	
1517.00†	8.340	319.500	1515.53	-22.93	23.04	-19.68	40°09'29.521"N	104°52'44.376"W	2.00	
1600.00	10.000	319.500	1597.47	-32.94	33.09	-28.27	40°09'29.620"N	104°52'44.487"W	2.00	END NUDGE
1617.00†	10.000	319.500	1614.21	-35.17	35.34	-30.18	40°09'29.642"N	104°52'44.512"W	0.00	
1717.00†	10.000	319.500	1712.69	-48.31	48.54	-41.46	40°09'29.773"N	104°52'44.657"W	0.00	
1817.00†	10.000	319.500	1811.17	-61.45	61.75	-52.74	40°09'29.903"N	104°52'44.802"W	0.00	
1917.00†	10.000	319.500	1909.65	-74.59	74.95	-64.02	40°09'30.034"N	104°52'44.947"W	0.00	
2017.00†	10.000	319.500	2008.13	-87.73	88.16	-75.29	40°09'30.164"N	104°52'45.093"W	0.00	
2117.00†	10.000	319.500	2106.61	-100.87	101.36	-86.57	40°09'30.295"N	104°52'45.238"W	0.00	
2217.00†	10.000	319.500	2205.09	-114.01	114.57	-97.85	40°09'30.425"N	104°52'45.383"W	0.00	
2317.00†	10.000	319.500	2303.57	-127.15	127.77	-109.13	40°09'30.556"N	104°52'45.528"W	0.00	
2417.00†	10.000	319.500	2402.05	-140.30	140.97	-120.40	40°09'30.686"N	104°52'45.674"W	0.00	
2517.00†	10.000	319.500	2500.53	-153.44	154.18	-131.68	40°09'30.817"N	104°52'45.819"W	0.00	
2617.00†	10.000	319.500	2599.01	-166.58	167.38	-142.96	40°09'30.947"N	104°52'45.964"W	0.00	
2717.00†	10.000	319.500	2697.50	-179.72	180.59	-154.24	40°09'31.078"N	104°52'46.109"W	0.00	
2817.00†	10.000	319.500	2795.98	-192.86	193.79	-165.51	40°09'31.208"N	104°52'46.255"W	0.00	
2917.00†	10.000	319.500	2894.46	-206.00	207.00	-176.79	40°09'31.339"N	104°52'46.400"W	0.00	
3017.00†	10.000	319.500	2992.94	-219.14	220.20	-188.07	40°09'31.469"N	104°52'46.545"W	0.00	
3117.00†	10.000	319.500	3091.42	-232.28	233.40	-199.35	40°09'31.600"N	104°52'46.690"W	0.00	
3217.00†	10.000	319.500	3189.90	-245.42	246.61	-210.62	40°09'31.730"N	104°52'46.836"W	0.00	
3317.00†	10.000	319.500	3288.38	-258.56	259.81	-221.90	40°09'31.860"N	104°52'46.981"W	0.00	
3417.00†	10.000	319.500	3386.86	-271.70	273.02	-233.18	40°09'31.991"N	104°52'47.126"W	0.00	
3517.00†	10.000	319.500	3485.34	-284.84	286.22	-244.46	40°09'32.121"N	104°52'47.271"W	0.00	
3617.00†	10.000	319.500	3583.82	-297.98	299.43	-255.73	40°09'32.252"N	104°52'47.417"W	0.00	
3717.00†	10.000	319.500	3682.30	-311.12	312.63	-267.01	40°09'32.382"N	104°52'47.562"W	0.00	
3817.00†	10.000	319.500	3780.78	-324.27	325.83	-278.29	40°09'32.513"N	104°52'47.707"W	0.00	
3917.00†	10.000	319.500	3879.26	-337.41	339.04	-289.57	40°09'32.643"N	104°52'47.852"W	0.00	
3968.52†	10.000	319.500	3930.00	-344.18	345.84	-295.38	40°09'32.711"N	104°52'47.927"W	0.00	Parkman



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 3 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (192 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4017.00†	10.000	319.500	3977.75	-350.55	352.24	-300.84	40°09'32.774"N	104°52'47.998"W	0.00	
4117.00†	10.000	319.500	4076.23	-363.69	365.45	-312.12	40°09'32.904"N	104°52'48.143"W	0.00	
4217.00†	10.000	319.500	4174.71	-376.83	378.65	-323.40	40°09'33.035"N	104°52'48.288"W	0.00	
4317.00†	10.000	319.500	4273.19	-389.97	391.86	-334.68	40°09'33.165"N	104°52'48.434"W	0.00	
4401.09†	10.000	319.500	4356.00	-401.02	402.96	-344.16	40°09'33.275"N	104°52'48.556"W	0.00	Sussex
4417.00†	10.000	319.500	4371.67	-403.11	405.06	-345.95	40°09'33.296"N	104°52'48.579"W	0.00	
4517.00†	10.000	319.500	4470.15	-416.25	418.26	-357.23	40°09'33.426"N	104°52'48.724"W	0.00	
4617.00†	10.000	319.500	4568.63	-429.39	431.47	-368.51	40°09'33.557"N	104°52'48.869"W	0.00	
4717.00†	10.000	319.500	4667.11	-442.53	444.67	-379.79	40°09'33.687"N	104°52'49.015"W	0.00	
4817.00†	10.000	319.500	4765.59	-455.67	457.88	-391.06	40°09'33.818"N	104°52'49.160"W	0.00	
4917.00†	10.000	319.500	4864.07	-468.81	471.08	-402.34	40°09'33.948"N	104°52'49.305"W	0.00	
5017.00†	10.000	319.500	4962.55	-481.95	484.29	-413.62	40°09'34.079"N	104°52'49.450"W	0.00	
5117.00†	10.000	319.500	5061.03	-495.09	497.49	-424.90	40°09'34.209"N	104°52'49.596"W	0.00	
5217.00†	10.000	319.500	5159.52	-508.24	510.69	-436.17	40°09'34.340"N	104°52'49.741"W	0.00	
5317.00†	10.000	319.500	5258.00	-521.38	523.90	-447.45	40°09'34.470"N	104°52'49.886"W	0.00	
5417.00†	10.000	319.500	5356.48	-534.52	537.10	-458.73	40°09'34.601"N	104°52'50.031"W	0.00	
5496.73	10.000	319.500	5435.00	-544.99	547.63	-467.72	40°09'34.705"N	104°52'50.147"W	0.00	BEGIN DROP
5517.00†	9.595	319.500	5454.97	-547.60	550.25	-469.96	40°09'34.731"N	104°52'50.176"W	2.00	
5617.00†	7.595	319.500	5553.84	-558.91	561.62	-479.67	40°09'34.843"N	104°52'50.301"W	2.00	
5717.00†	5.595	319.500	5653.17	-567.60	570.35	-487.12	40°09'34.929"N	104°52'50.397"W	2.00	
5817.00†	3.595	319.500	5752.85	-573.66	576.44	-492.33	40°09'34.989"N	104°52'50.464"W	2.00	
5917.00†	1.595	319.500	5852.74	-577.09	579.88	-495.27	40°09'35.023"N	104°52'50.502"W	2.00	
5996.73	0.000	180.322	5932.47	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	2.00	END DROP
6017.00†	0.000	180.322	5952.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6117.00†	0.000	180.322	6052.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6217.00†	0.000	180.322	6152.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6317.00†	0.000	180.322	6252.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6417.00†	0.000	180.322	6352.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6517.00†	0.000	180.322	6452.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6617.00†	0.000	180.322	6552.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6717.00†	0.000	180.322	6652.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6817.00†	0.000	180.322	6752.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6885.32†	0.000	180.322	6821.05	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	4 1/2" LINER TOP
6917.00†	0.000	180.322	6852.73	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	
6985.32	0.000	180.322	6921.06	-577.93	580.73	-495.99	40°09'35.032"N	104°52'50.511"W	0.00	KOP, BUILD @ 10°/100
7017.00†	3.168	180.322	6952.71	-577.05	579.85	-495.99	40°09'35.023"N	104°52'50.511"W	10.00	
7117.00†	13.168	180.322	7051.57	-562.87	565.66	-496.07	40°09'34.883"N	104°52'50.512"W	10.00	
7195.98†	21.066	180.322	7127.00	-539.64	542.44	-496.20	40°09'34.653"N	104°52'50.514"W	10.00	Sharon Springs
7217.00†	23.168	180.322	7146.47	-531.73	534.52	-496.25	40°09'34.575"N	104°52'50.514"W	10.00	
7312.81†	32.749	180.322	7231.00	-486.86	489.66	-496.50	40°09'34.132"N	104°52'50.518"W	10.00	Niobrara A
7317.00†	33.168	180.322	7234.51	-484.58	487.38	-496.51	40°09'34.109"N	104°52'50.518"W	10.00	
7344.30†	35.897	180.322	7257.00	-469.11	471.91	-496.60	40°09'33.956"N	104°52'50.519"W	10.00	Niobrara B
7417.00†	43.168	180.322	7313.04	-422.86	425.66	-496.86	40°09'33.499"N	104°52'50.522"W	10.00	
7456.66†	47.134	180.322	7341.00	-394.75	397.55	-497.02	40°09'33.222"N	104°52'50.524"W	10.00	Niobrara C
7517.00†	53.168	180.322	7379.65	-348.45	351.25	-497.28	40°09'32.764"N	104°52'50.528"W	10.00	



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 4 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (192 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	63.168	180.322	7432.32	-263.60	266.40	-497.75	40°09'31.926"N	104°52'50.534"W	10.00	
7715.40†	73.008	180.322	7469.00	-172.42	175.22	-498.27	40°09'31.024"N	104°52'50.540"W	10.00	Fort Hays
7717.00†	73.168	180.322	7469.47	-170.89	173.69	-498.27	40°09'31.009"N	104°52'50.541"W	10.00	
7809.48†	82.415	180.322	7489.00	-80.60	83.40	-498.78	40°09'30.117"N	104°52'50.547"W	10.00	Codell
7817.00†	83.168	180.322	7489.94	-73.14	75.94	-498.82	40°09'30.043"N	104°52'50.548"W	10.00	
7881.50	89.618	180.322	7494.00	-8.79	11.60	-499.19	40°09'29.408"N	104°52'50.552"W	10.00	LANDING POINT
7917.00†	89.618	180.322	7494.24	26.70	-23.90	-499.39	40°09'29.057"N	104°52'50.555"W	0.00	
8017.00†	89.618	180.322	7494.90	126.70	-123.89	-499.95	40°09'28.069"N	104°52'50.562"W	0.00	
8117.00†	89.618	180.322	7495.57	226.70	-223.89	-500.51	40°09'27.080"N	104°52'50.569"W	0.00	
8217.00†	89.618	180.322	7496.24	326.70	-323.88	-501.07	40°09'26.092"N	104°52'50.576"W	0.00	
8317.00†	89.618	180.322	7496.91	426.69	-423.88	-501.63	40°09'25.104"N	104°52'50.584"W	0.00	
8417.00†	89.618	180.322	7497.57	526.69	-523.88	-502.19	40°09'24.116"N	104°52'50.591"W	0.00	
8517.00†	89.618	180.322	7498.24	626.69	-623.87	-502.76	40°09'23.128"N	104°52'50.598"W	0.00	
8617.00†	89.618	180.322	7498.91	726.69	-723.87	-503.32	40°09'22.140"N	104°52'50.605"W	0.00	
8717.00†	89.618	180.322	7499.57	826.68	-823.87	-503.88	40°09'21.151"N	104°52'50.612"W	0.00	
8817.00†	89.618	180.322	7500.24	926.68	-923.86	-504.44	40°09'20.163"N	104°52'50.620"W	0.00	
8917.00†	89.618	180.322	7500.91	1026.68	-1023.86	-505.00	40°09'19.175"N	104°52'50.627"W	0.00	
9017.00†	89.618	180.322	7501.58	1126.68	-1123.85	-505.57	40°09'18.187"N	104°52'50.634"W	0.00	
9117.00†	89.618	180.322	7502.24	1226.68	-1223.85	-506.13	40°09'17.199"N	104°52'50.641"W	0.00	
9217.00†	89.618	180.322	7502.91	1326.67	-1323.85	-506.69	40°09'16.211"N	104°52'50.649"W	0.00	
9317.00†	89.618	180.322	7503.58	1426.67	-1423.84	-507.25	40°09'15.222"N	104°52'50.656"W	0.00	
9417.00†	89.618	180.322	7504.24	1526.67	-1523.84	-507.81	40°09'14.234"N	104°52'50.663"W	0.00	
9517.00†	89.618	180.322	7504.91	1626.67	-1623.84	-508.38	40°09'13.246"N	104°52'50.670"W	0.00	
9617.00†	89.618	180.322	7505.58	1726.66	-1723.83	-508.94	40°09'12.258"N	104°52'50.677"W	0.00	
9717.00†	89.618	180.322	7506.24	1826.66	-1823.83	-509.50	40°09'11.270"N	104°52'50.685"W	0.00	
9817.00†	89.618	180.322	7506.91	1926.66	-1923.82	-510.06	40°09'10.282"N	104°52'50.692"W	0.00	
9917.00†	89.618	180.322	7507.58	2026.66	-2023.82	-510.62	40°09'09.293"N	104°52'50.699"W	0.00	
10017.00†	89.618	180.322	7508.25	2126.66	-2123.82	-511.19	40°09'08.305"N	104°52'50.706"W	0.00	
10117.00†	89.618	180.322	7508.91	2226.65	-2223.81	-511.75	40°09'07.317"N	104°52'50.713"W	0.00	
10217.00†	89.618	180.322	7509.58	2326.65	-2323.81	-512.31	40°09'06.329"N	104°52'50.721"W	0.00	
10317.00†	89.618	180.322	7510.25	2426.65	-2423.80	-512.87	40°09'05.341"N	104°52'50.728"W	0.00	
10417.00†	89.618	180.322	7510.91	2526.65	-2523.80	-513.43	40°09'04.353"N	104°52'50.735"W	0.00	
10517.00†	89.618	180.322	7511.58	2626.64	-2623.80	-514.00	40°09'03.364"N	104°52'50.742"W	0.00	
10617.00†	89.618	180.322	7512.25	2726.64	-2723.79	-514.56	40°09'02.376"N	104°52'50.749"W	0.00	
10717.00†	89.618	180.322	7512.92	2826.64	-2823.79	-515.12	40°09'01.388"N	104°52'50.757"W	0.00	
10817.00†	89.618	180.322	7513.58	2926.64	-2923.79	-515.68	40°09'00.400"N	104°52'50.764"W	0.00	
10917.00†	89.618	180.322	7514.25	3026.64	-3023.78	-516.24	40°08'59.412"N	104°52'50.771"W	0.00	
11017.00†	89.618	180.322	7514.92	3126.63	-3123.78	-516.81	40°08'58.424"N	104°52'50.778"W	0.00	
11117.00†	89.618	180.322	7515.58	3226.63	-3223.77	-517.37	40°08'57.435"N	104°52'50.786"W	0.00	
11217.00†	89.618	180.322	7516.25	3326.63	-3323.77	-517.93	40°08'56.447"N	104°52'50.793"W	0.00	
11317.00†	89.618	180.322	7516.92	3426.63	-3423.77	-518.49	40°08'55.459"N	104°52'50.800"W	0.00	
11417.00†	89.618	180.322	7517.59	3526.62	-3523.76	-519.05	40°08'54.471"N	104°52'50.807"W	0.00	
11517.00†	89.618	180.322	7518.25	3626.62	-3623.76	-519.61	40°08'53.483"N	104°52'50.814"W	0.00	
11617.00†	89.618	180.322	7518.92	3726.62	-3723.76	-520.18	40°08'52.495"N	104°52'50.822"W	0.00	
11717.00†	89.618	180.322	7519.59	3826.62	-3823.75	-520.74	40°08'51.506"N	104°52'50.829"W	0.00	



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 5 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (192 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11817.00†	89.618	180.322	7520.25	3926.62	-3923.75	-521.30	40°08'50.518"N	104°52'50.836"W	0.00	
11917.00†	89.618	180.322	7520.92	4026.61	-4023.74	-521.86	40°08'49.530"N	104°52'50.843"W	0.00	
12017.00†	89.618	180.322	7521.59	4126.61	-4123.74	-522.42	40°08'48.542"N	104°52'50.850"W	0.00	
12117.00†	89.618	180.322	7522.26	4226.61	-4223.74	-522.99	40°08'47.554"N	104°52'50.858"W	0.00	
12217.00†	89.618	180.322	7522.92	4326.61	-4323.73	-523.55	40°08'46.566"N	104°52'50.865"W	0.00	
12317.00†	89.618	180.322	7523.59	4426.60	-4423.73	-524.11	40°08'45.577"N	104°52'50.872"W	0.00	
12417.00†	89.618	180.322	7524.26	4526.60	-4523.72	-524.67	40°08'44.589"N	104°52'50.879"W	0.00	
12517.00†	89.618	180.322	7524.92	4626.60	-4623.72	-525.23	40°08'43.601"N	104°52'50.886"W	0.00	
12617.00†	89.618	180.322	7525.59	4726.60	-4723.72	-525.80	40°08'42.613"N	104°52'50.894"W	0.00	
12717.00†	89.618	180.322	7526.26	4826.60	-4823.71	-526.36	40°08'41.625"N	104°52'50.901"W	0.00	
12817.00†	89.618	180.322	7526.92	4926.59	-4923.71	-526.92	40°08'40.637"N	104°52'50.908"W	0.00	
12917.00†	89.618	180.322	7527.59	5026.59	-5023.71	-527.48	40°08'39.648"N	104°52'50.915"W	0.00	
13017.00†	89.618	180.322	7528.26	5126.59	-5123.70	-528.04	40°08'38.660"N	104°52'50.922"W	0.00	
13117.00†	89.618	180.322	7528.93	5226.59	-5223.70	-528.61	40°08'37.672"N	104°52'50.930"W	0.00	
13217.00†	89.618	180.322	7529.59	5326.58	-5323.69	-529.17	40°08'36.684"N	104°52'50.937"W	0.00	
13317.00†	89.618	180.322	7530.26	5426.58	-5423.69	-529.73	40°08'35.696"N	104°52'50.944"W	0.00	
13417.00†	89.618	180.322	7530.93	5526.58	-5523.69	-530.29	40°08'34.708"N	104°52'50.951"W	0.00	
13517.00†	89.618	180.322	7531.59	5626.58	-5623.68	-530.85	40°08'33.719"N	104°52'50.959"W	0.00	
13617.00†	89.618	180.322	7532.26	5726.58	-5723.68	-531.42	40°08'32.731"N	104°52'50.966"W	0.00	
13717.00†	89.618	180.322	7532.93	5826.57	-5823.68	-531.98	40°08'31.743"N	104°52'50.973"W	0.00	
13817.00†	89.618	180.322	7533.60	5926.57	-5923.67	-532.54	40°08'30.755"N	104°52'50.980"W	0.00	
13917.00†	89.618	180.322	7534.26	6026.57	-6023.67	-533.10	40°08'29.767"N	104°52'50.987"W	0.00	
14017.00†	89.618	180.322	7534.93	6126.57	-6123.66	-533.66	40°08'28.779"N	104°52'50.995"W	0.00	
14117.00†	89.618	180.322	7535.60	6226.56	-6223.66	-534.23	40°08'27.790"N	104°52'51.002"W	0.00	
14217.00†	89.618	180.322	7536.26	6326.56	-6323.66	-534.79	40°08'26.802"N	104°52'51.009"W	0.00	
14317.00†	89.618	180.322	7536.93	6426.56	-6423.65	-535.35	40°08'25.814"N	104°52'51.016"W	0.00	
14417.00†	89.618	180.322	7537.60	6526.56	-6523.65	-535.91	40°08'24.826"N	104°52'51.023"W	0.00	
14517.00†	89.618	180.322	7538.27	6626.56	-6623.65	-536.47	40°08'23.838"N	104°52'51.031"W	0.00	
14617.00†	89.618	180.322	7538.93	6726.55	-6723.64	-537.04	40°08'22.849"N	104°52'51.038"W	0.00	
14717.00†	89.618	180.322	7539.60	6826.55	-6823.64	-537.60	40°08'21.861"N	104°52'51.045"W	0.00	
14817.00†	89.618	180.322	7540.27	6926.55	-6923.63	-538.16	40°08'20.873"N	104°52'51.052"W	0.00	
14917.00†	89.618	180.322	7540.93	7026.55	-7023.63	-538.72	40°08'19.885"N	104°52'51.059"W	0.00	
15017.00†	89.618	180.322	7541.60	7126.54	-7123.63	-539.28	40°08'18.897"N	104°52'51.067"W	0.00	
15117.00†	89.618	180.322	7542.27	7226.54	-7223.62	-539.84	40°08'17.909"N	104°52'51.074"W	0.00	
15217.00†	89.618	180.322	7542.94	7326.54	-7323.62	-540.41	40°08'16.920"N	104°52'51.081"W	0.00	
15317.00†	89.618	180.322	7543.60	7426.54	-7423.61	-540.97	40°08'15.932"N	104°52'51.088"W	0.00	
15417.00†	89.618	180.322	7544.27	7526.54	-7523.61	-541.53	40°08'14.944"N	104°52'51.095"W	0.00	
15517.00†	89.618	180.322	7544.94	7626.53	-7623.61	-542.09	40°08'13.956"N	104°52'51.103"W	0.00	
15617.00†	89.618	180.322	7545.60	7726.53	-7723.60	-542.65	40°08'12.968"N	104°52'51.110"W	0.00	
15717.00†	89.618	180.322	7546.27	7826.53	-7823.60	-543.22	40°08'11.980"N	104°52'51.117"W	0.00	
15817.00†	89.618	180.322	7546.94	7926.53	-7923.60	-543.78	40°08'10.991"N	104°52'51.124"W	0.00	
15917.00†	89.618	180.322	7547.60	8026.52	-8023.59	-544.34	40°08'10.003"N	104°52'51.132"W	0.00	
16017.00†	89.618	180.322	7548.27	8126.52	-8123.59	-544.90	40°08'09.015"N	104°52'51.139"W	0.00	
16117.00†	89.618	180.322	7548.94	8226.52	-8223.58	-545.46	40°08'08.027"N	104°52'51.146"W	0.00	
16217.00†	89.618	180.322	7549.61	8326.52	-8323.58	-546.03	40°08'07.039"N	104°52'51.153"W	0.00	



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 6 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH DATA (192 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16317.00†	89.618	180.322	7550.27	8426.52	-8423.58	-546.59	40°08'06.051"N	104°52'51.160"W	0.00	
16417.00†	89.618	180.322	7550.94	8526.51	-8523.57	-547.15	40°08'05.062"N	104°52'51.168"W	0.00	
16517.00†	89.618	180.322	7551.61	8626.51	-8623.57	-547.71	40°08'04.074"N	104°52'51.175"W	0.00	
16617.00†	89.618	180.322	7552.27	8726.51	-8723.57	-548.27	40°08'03.086"N	104°52'51.182"W	0.00	
16717.00†	89.618	180.322	7552.94	8826.51	-8823.56	-548.84	40°08'02.098"N	104°52'51.189"W	0.00	
16817.00†	89.618	180.322	7553.61	8926.50	-8923.56	-549.40	40°08'01.110"N	104°52'51.196"W	0.00	
16917.00†	89.618	180.322	7554.28	9026.50	-9023.55	-549.96	40°08'00.122"N	104°52'51.204"W	0.00	
17017.00†	89.618	180.322	7554.94	9126.50	-9123.55	-550.52	40°07'59.133"N	104°52'51.211"W	0.00	
17117.00†	89.618	180.322	7555.61	9226.50	-9223.55	-551.08	40°07'58.145"N	104°52'51.218"W	0.00	
17217.00†	89.618	180.322	7556.28	9326.50	-9323.54	-551.65	40°07'57.157"N	104°52'51.225"W	0.00	
17317.00†	89.618	180.322	7556.94	9426.49	-9423.54	-552.21	40°07'56.169"N	104°52'51.232"W	0.00	
17325.39	89.618	180.322	7557.00 ¹	9434.88	-9431.92	-552.25	40°07'56.086"N	104°52'51.233"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -

Ref Wellbore: BUTTERBALL 29C-15HZ PWB Ref Wellpath: BUTTERBALL 29C-15HZ (PERMIT REV-1) 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	1000.00	983.00	17.00	1000.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1000.00	983.00	17.00	1000.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1000.00	7881.50	6881.50	1000.00	7494.00	0.00	0.00	11.60	-499.19
7in Casing Intermediate	17.00	7881.50	7864.50	17.00	7494.00	0.00	0.00	11.60	-499.19
6.125in Open Hole	7881.50	17325.39	9443.89	7494.00	7557.00	11.60	-499.19	-9431.92	-552.25
4.5in Casing Production	17.00	17325.39	17308.39	17.00	7557.00	0.00	0.00	-9431.92	-552.25



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 7 of 8



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.10-T2N-67W SECTION LINES		4952.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
SEC.15-T2N-67W SECTION LINES		4952.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
1) BUTTERBALL 29C-15HZ (460' FSL & 1445' FWL, SEC. 15) REV-1	17325.39	7557.00	-9431.92	-552.25	3173105.89	1291625.27	40°07'56.086"N	104°52'51.233"W	point
BUTTERBALL 29C-15HZ LAND BOX		7557.00	0.00	0.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 29C-15HZ PWB					Ref Wellpath: BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	
17.00	17325.39	NaviTrak (Standard)			BUTTERBALL 29C-15HZ PWB	



Planned Wellpath Report

BUTTERBALL 29C-15HZ (PERMIT REV-1) PWP

Page 8 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#01 BUTTERBALL 29C-15HZ (639' FNL & 1944' FWL, SEC. 10)
Area	COLORADO	Well	BUTTERBALL 29C-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 29C-15HZ PWB
Facility	SEC.10-T2N-R67W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
756.00	0.000	319.500	756.00	Fox Hills Base
3968.52	10.000	319.500	3930.00	Parkman
4401.09	10.000	319.500	4356.00	Sussex
6885.32	0.000	180.322	6821.05	4 1/2" LINER TOP
7195.98	21.066	180.322	7127.00	Sharon Springs
7312.81	32.749	180.322	7231.00	Niobrara A
7344.30	35.897	180.322	7257.00	Niobrara B
7456.66	47.134	180.322	7341.00	Niobrara C
7715.40	73.008	180.322	7469.00	Fort Hays
7809.48	82.415	180.322	7489.00	Codell

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	319.500	17.00	TIE-ON
1100.00	0.000	319.500	1100.00	BEGIN NUDGE
1600.00	10.000	319.500	1597.47	END NUDGE
5496.73	10.000	319.500	5435.00	BEGIN DROP
5996.73	0.000	180.322	5932.47	END DROP
6985.32	0.000	180.322	6921.06	KOP, BUILD @ 10°/100
7881.50	89.618	180.322	7494.00	LANDING POINT
17325.39	89.618	180.322	7557.00	TOTAL DEPTH