KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO | Slot: SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)
Field: WELD COUNTY (KERR MCGEE) | Well: BUTTERBALL 28C-15HZ
Facility: SEC.10-T2N-R67W | Wellbore: BUTTERBALL 28C-15HZ PWB

Plot reference wellpath is BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (17' KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMIT (17' KB) (RKB)	North Reference: True north
PERMIT (17' KB) (RKB) to Mean Sea Level: 4952 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precain on 19/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#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)	0.10	59.94	3173652.139	1301060.843	40°09'29.293"N	104°52'43.349"W
PERMIT (17' KB) (RKB) to Mud line (At Slot: SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10))					4952ft	
Mean Sea Level to Mud line (At Slot: SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' 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	17351.56	NaviTrak	NaviTrak (Standard)		BUTTERBALL 28C-15HZ PWB

Well Profile Data

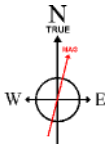
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	40.500	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1000.00	0.000	40.500	1000.00	0.00	0.00	0.00	0.00
END NUDGE	1500.00	10.000	40.500	1497.47	33.09	28.27	2.00	-33.25
BEGIN DROP	5376.43	10.000	40.500	5315.00	544.95	465.43	0.00	-547.55
END DROP	5876.43	0.000	180.321	5812.47	578.05	493.70	2.00	-580.80
KOP, BUILD @ 10/100'	7000.01	0.000	180.321	6936.05	578.05	493.70	0.00	-580.80
LANDING POINT	7897.22	89.721	180.321	7509.00	7.88	490.51	10.00	-10.63
TOTAL DEPTH	17351.56	89.721	180.321	7555.00	-9446.20	437.61	0.00	9443.60

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	-60.10	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
SEC.15-T2N-67W SECTION LINES		4952.00	0.00	-60.10	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
BUTTERBALL 28C-15HZ (460' FSL & 2495' FWL, SEC.15) REV-1	17351.56	7555.00	-9446.20	437.61	3174155.90	1291618.36	40°07'55.945"N	104°52'37.715"W
BUTTERBALL 28C-15HZ LAND BOX		7555.00	0.00	0.00	3173652.14	1301060.84	40°09'29.293"N	104°52'43.349"W

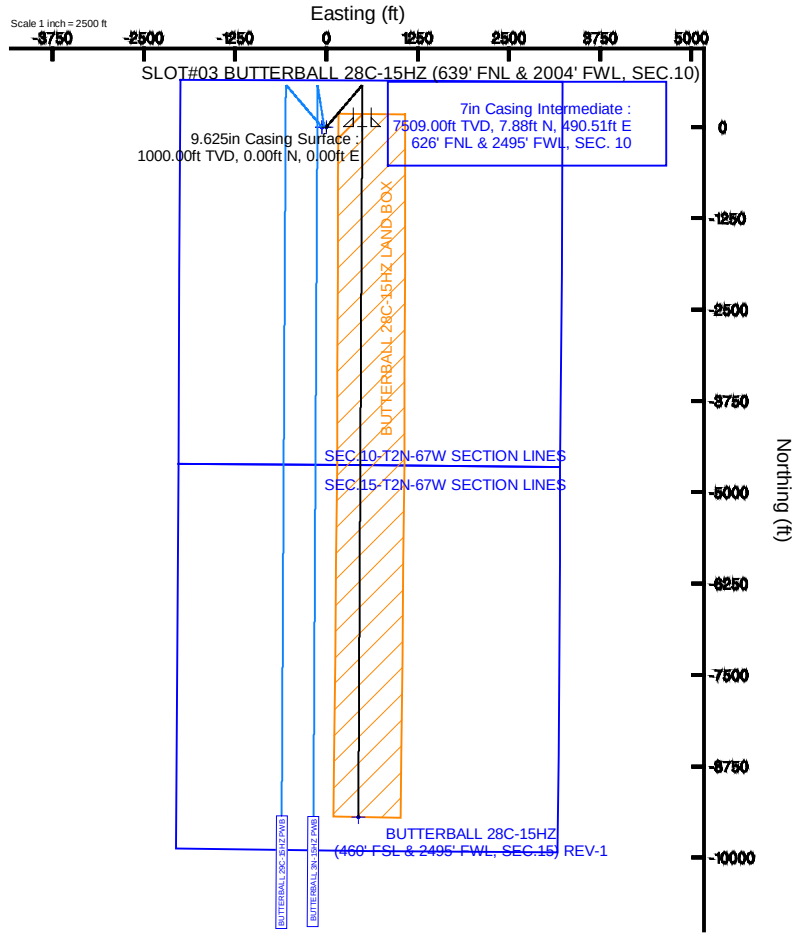
KerrMcGee

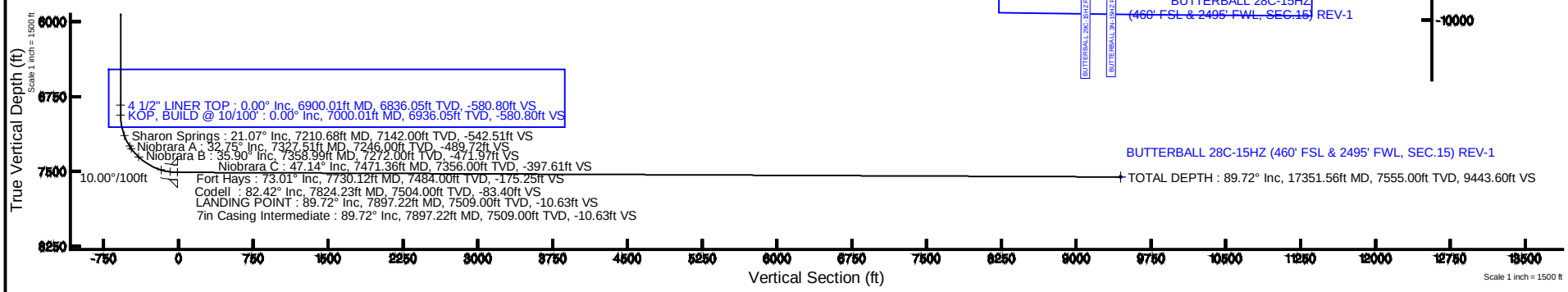
BAKER HUGHES



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





Azimuth 180.32° with reference 0.00 N, 0.00 E

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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	**19/Jul/2013** at **05:47**
Convergence at slot	**n/a**	Database/Source file	**WellArchitectDB/_BUTTERBALL_28C-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	59.94	3173652.14	1301060.84	**40°09'29.293"N**	**104°52'43.349"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#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' 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 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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	40.500	0.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
17.00	0.000	40.500	17.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	TIE-ON
117.00†	0.000	40.500	117.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
217.00†	0.000	40.500	217.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
317.00†	0.000	40.500	317.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
417.00†	0.000	40.500	417.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
517.00†	0.000	40.500	517.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
617.00†	0.000	40.500	617.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
717.00†	0.000	40.500	717.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
756.00†	0.000	40.500	756.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	Fox Hills Base
817.00†	0.000	40.500	817.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
917.00†	0.000	40.500	917.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	
1000.00	0.000	40.500	1000.00	0.00	0.00	0.00	40°09'29.293"N	104°52'43.349"W	0.00	BEGIN NUDGE
1017.00†	0.340	40.500	1017.00	-0.04	0.04	0.03	40°09'29.293"N	104°52'43.349"W	2.00	
1117.00†	2.340	40.500	1116.97	-1.83	1.82	1.55	40°09'29.311"N	104°52'43.329"W	2.00	
1217.00†	4.340	40.500	1216.79	-6.28	6.25	5.33	40°09'29.355"N	104°52'43.280"W	2.00	
1317.00†	6.340	40.500	1316.35	-13.39	13.32	11.38	40°09'29.425"N	104°52'43.202"W	2.00	
1417.00†	8.340	40.500	1415.53	-23.15	23.04	19.68	40°09'29.521"N	104°52'43.096"W	2.00	
1500.00	10.000	40.500	1497.47	-33.25	33.09	28.27	40°09'29.620"N	104°52'42.985"W	2.00	END NUDGE
1517.00†	10.000	40.500	1514.21	-35.51	35.34	30.18	40°09'29.642"N	104°52'42.960"W	0.00	
1617.00†	10.000	40.500	1612.69	-48.78	48.54	41.46	40°09'29.773"N	104°52'42.815"W	0.00	
1717.00†	10.000	40.500	1711.17	-62.04	61.75	52.74	40°09'29.903"N	104°52'42.670"W	0.00	
1817.00†	10.000	40.500	1809.65	-75.31	74.95	64.02	40°09'30.034"N	104°52'42.525"W	0.00	
1917.00†	10.000	40.500	1908.13	-88.58	88.16	75.29	40°09'30.164"N	104°52'42.379"W	0.00	
2017.00†	10.000	40.500	2006.61	-101.84	101.36	86.57	40°09'30.295"N	104°52'42.234"W	0.00	
2117.00†	10.000	40.500	2105.09	-115.11	114.57	97.85	40°09'30.425"N	104°52'42.089"W	0.00	
2217.00†	10.000	40.500	2203.57	-128.38	127.77	109.13	40°09'30.556"N	104°52'41.944"W	0.00	
2317.00†	10.000	40.500	2302.05	-141.65	140.97	120.40	40°09'30.686"N	104°52'41.798"W	0.00	
2417.00†	10.000	40.500	2400.53	-154.91	154.18	131.68	40°09'30.817"N	104°52'41.653"W	0.00	
2517.00†	10.000	40.500	2499.01	-168.18	167.38	142.96	40°09'30.947"N	104°52'41.508"W	0.00	
2617.00†	10.000	40.500	2597.50	-181.45	180.59	154.24	40°09'31.078"N	104°52'41.363"W	0.00	
2717.00†	10.000	40.500	2695.98	-194.72	193.79	165.51	40°09'31.208"N	104°52'41.217"W	0.00	
2817.00†	10.000	40.500	2794.46	-207.98	207.00	176.79	40°09'31.339"N	104°52'41.072"W	0.00	
2917.00†	10.000	40.500	2892.94	-221.25	220.20	188.07	40°09'31.469"N	104°52'40.927"W	0.00	
3017.00†	10.000	40.500	2991.42	-234.52	233.40	199.35	40°09'31.600"N	104°52'40.782"W	0.00	
3117.00†	10.000	40.500	3089.90	-247.78	246.61	210.62	40°09'31.730"N	104°52'40.636"W	0.00	
3217.00†	10.000	40.500	3188.38	-261.05	259.81	221.90	40°09'31.860"N	104°52'40.491"W	0.00	
3317.00†	10.000	40.500	3286.86	-274.32	273.02	233.18	40°09'31.991"N	104°52'40.346"W	0.00	
3417.00†	10.000	40.500	3385.34	-287.59	286.22	244.46	40°09'32.121"N	104°52'40.201"W	0.00	
3517.00†	10.000	40.500	3483.82	-300.85	299.43	255.73	40°09'32.252"N	104°52'40.055"W	0.00	
3617.00†	10.000	40.500	3582.30	-314.12	312.63	267.01	40°09'32.382"N	104°52'39.910"W	0.00	
3717.00†	10.000	40.500	3680.78	-327.39	325.83	278.29	40°09'32.513"N	104°52'39.765"W	0.00	
3817.00†	10.000	40.500	3779.26	-340.66	339.04	289.57	40°09'32.643"N	104°52'39.620"W	0.00	
3917.00†	10.000	40.500	3877.75	-353.92	352.24	300.84	40°09'32.774"N	104°52'39.474"W	0.00	
3985.29†	10.000	40.500	3945.00	-362.98	361.26	308.55	40°09'32.863"N	104°52'39.375"W	0.00	Parkman

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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	40.500	3976.23	-367.19	365.45	312.12	40°09'32.904"N	104°52'39.329"W	0.00	
4117.00†	10.000	40.500	4074.71	-380.46	378.65	323.40	40°09'33.035"N	104°52'39.184"W	0.00	
4217.00†	10.000	40.500	4173.19	-393.72	391.86	334.68	40°09'33.165"N	104°52'39.038"W	0.00	
4317.00†	10.000	40.500	4271.67	-406.99	405.06	345.95	40°09'33.296"N	104°52'38.893"W	0.00	
4417.00†	10.000	40.500	4370.15	-420.26	418.26	357.23	40°09'33.426"N	104°52'38.748"W	0.00	
4417.86†	10.000	40.500	4371.00	-420.37	418.38	357.33	40°09'33.427"N	104°52'38.747"W	0.00	Sussex
4517.00†	10.000	40.500	4468.63	-433.53	431.47	368.51	40°09'33.557"N	104°52'38.603"W	0.00	
4617.00†	10.000	40.500	4567.11	-446.79	444.67	379.79	40°09'33.687"N	104°52'38.457"W	0.00	
4717.00†	10.000	40.500	4665.59	-460.06	457.88	391.06	40°09'33.818"N	104°52'38.312"W	0.00	
4817.00†	10.000	40.500	4764.07	-473.33	471.08	402.34	40°09'33.948"N	104°52'38.167"W	0.00	
4917.00†	10.000	40.500	4862.55	-486.60	484.29	413.62	40°09'34.079"N	104°52'38.022"W	0.00	
5017.00†	10.000	40.500	4961.03	-499.86	497.49	424.90	40°09'34.209"N	104°52'37.876"W	0.00	
5117.00†	10.000	40.500	5059.52	-513.13	510.69	436.17	40°09'34.340"N	104°52'37.731"W	0.00	
5217.00†	10.000	40.500	5158.00	-526.40	523.90	447.45	40°09'34.470"N	104°52'37.586"W	0.00	
5317.00†	10.000	40.500	5256.48	-539.66	537.10	458.73	40°09'34.601"N	104°52'37.441"W	0.00	
5376.43	10.000	40.500	5315.00	-547.55	544.95	465.43	40°09'34.678"N	104°52'37.354"W	0.00	BEGIN DROP
5417.00†	9.189	40.500	5355.01	-552.72	550.09	469.82	40°09'34.729"N	104°52'37.298"W	2.00	
5517.00†	7.189	40.500	5453.98	-563.60	560.92	479.07	40°09'34.836"N	104°52'37.179"W	2.00	
5617.00†	5.189	40.500	5553.39	-571.83	569.12	486.07	40°09'34.917"N	104°52'37.089"W	2.00	
5717.00†	3.189	40.500	5653.12	-577.41	574.67	490.82	40°09'34.972"N	104°52'37.027"W	2.00	
5817.00†	1.189	40.500	5753.04	-580.33	577.58	493.30	40°09'35.001"N	104°52'36.995"W	2.00	
5876.43	0.000	180.321	5812.47	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	2.00	END DROP
5917.00†	0.000	180.321	5853.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6017.00†	0.000	180.321	5953.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6117.00†	0.000	180.321	6053.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6217.00†	0.000	180.321	6153.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6317.00†	0.000	180.321	6253.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6417.00†	0.000	180.321	6353.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6517.00†	0.000	180.321	6453.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6617.00†	0.000	180.321	6553.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6717.00†	0.000	180.321	6653.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6817.00†	0.000	180.321	6753.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
6900.01†	0.000	180.321	6836.05	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	4 1/2" LINER TOP
6917.00†	0.000	180.321	6853.04	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	
7000.01	0.000	180.321	6936.05	-580.80	578.05	493.70	40°09'35.005"N	104°52'36.990"W	0.00	KOP, BUILD @ 10/100'
7017.00†	1.699	180.321	6953.04	-580.55	577.79	493.70	40°09'35.003"N	104°52'36.990"W	10.00	
7117.00†	11.699	180.321	7052.23	-568.90	566.14	493.63	40°09'34.888"N	104°52'36.991"W	10.00	
7210.68†	21.067	180.321	7142.00	-542.51	539.75	493.48	40°09'34.627"N	104°52'36.993"W	10.00	Sharon Springs
7217.00†	21.699	180.321	7147.89	-540.20	537.44	493.47	40°09'34.604"N	104°52'36.993"W	10.00	
7317.00†	31.699	180.321	7237.11	-495.33	492.57	493.22	40°09'34.161"N	104°52'36.997"W	10.00	
7327.51†	32.750	180.321	7246.00	-489.72	486.97	493.19	40°09'34.105"N	104°52'36.997"W	10.00	Niobrara A
7358.99†	35.899	180.321	7272.00	-471.97	469.22	493.09	40°09'33.930"N	104°52'36.998"W	10.00	Niobrara B
7417.00†	41.699	180.321	7317.19	-435.64	432.89	492.88	40°09'33.571"N	104°52'37.001"W	10.00	
7471.36†	47.135	180.321	7356.00	-397.61	394.86	492.67	40°09'33.195"N	104°52'37.004"W	10.00	Niobrara C
7517.00†	51.699	180.321	7385.69	-362.96	360.20	492.48	40°09'32.852"N	104°52'37.006"W	10.00	

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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†	61.699	180.321	7440.52	-279.48	276.73	492.01	40°09'32.028"N	104°52'37.012"W	10.00	
7717.00†	71.699	180.321	7480.02	-187.75	185.00	491.50	40°09'31.121"N	104°52'37.019"W	10.00	
7730.12†	73.011	180.321	7484.00	-175.25	172.50	491.43	40°09'30.998"N	104°52'37.020"W	10.00	Fort Hays
7817.00†	81.699	180.321	7503.00	-90.56	87.81	490.95	40°09'30.161"N	104°52'37.026"W	10.00	
7824.23†	82.423	180.321	7504.00	-83.40	80.65	490.91	40°09'30.090"N	104°52'37.026"W	10.00	Codell
7897.22	89.721	180.321	7509.00	-10.63	7.88	490.51	40°09'29.371"N	104°52'37.032"W	10.00	LANDING POINT
7917.00†	89.721	180.321	7509.09	9.15	-11.90	490.40	40°09'29.175"N	104°52'37.033"W	0.00	
8017.00†	89.721	180.321	7509.58	109.15	-111.89	489.84	40°09'28.187"N	104°52'37.040"W	0.00	
8117.00†	89.721	180.321	7510.07	209.15	-211.89	489.28	40°09'27.199"N	104°52'37.047"W	0.00	
8217.00†	89.721	180.321	7510.55	309.15	-311.89	488.72	40°09'26.211"N	104°52'37.055"W	0.00	
8317.00†	89.721	180.321	7511.04	409.14	-411.89	488.16	40°09'25.223"N	104°52'37.062"W	0.00	
8417.00†	89.721	180.321	7511.53	509.14	-511.88	487.60	40°09'24.234"N	104°52'37.069"W	0.00	
8517.00†	89.721	180.321	7512.01	609.14	-611.88	487.04	40°09'23.246"N	104°52'37.076"W	0.00	
8617.00†	89.721	180.321	7512.50	709.14	-711.88	486.48	40°09'22.258"N	104°52'37.084"W	0.00	
8717.00†	89.721	180.321	7512.99	809.14	-811.88	485.92	40°09'21.270"N	104°52'37.091"W	0.00	
8817.00†	89.721	180.321	7513.47	909.14	-911.87	485.36	40°09'20.282"N	104°52'37.098"W	0.00	
8917.00†	89.721	180.321	7513.96	1009.14	-1011.87	484.80	40°09'19.294"N	104°52'37.105"W	0.00	
9017.00†	89.721	180.321	7514.45	1109.14	-1111.87	484.24	40°09'18.305"N	104°52'37.113"W	0.00	
9117.00†	89.721	180.321	7514.93	1209.14	-1211.86	483.68	40°09'17.317"N	104°52'37.120"W	0.00	
9217.00†	89.721	180.321	7515.42	1309.13	-1311.86	483.12	40°09'16.329"N	104°52'37.127"W	0.00	
9317.00†	89.721	180.321	7515.90	1409.13	-1411.86	482.56	40°09'15.341"N	104°52'37.134"W	0.00	
9417.00†	89.721	180.321	7516.39	1509.13	-1511.86	482.00	40°09'14.353"N	104°52'37.141"W	0.00	
9517.00†	89.721	180.321	7516.88	1609.13	-1611.85	481.44	40°09'13.365"N	104°52'37.149"W	0.00	
9617.00†	89.721	180.321	7517.36	1709.13	-1711.85	480.88	40°09'12.376"N	104°52'37.156"W	0.00	
9717.00†	89.721	180.321	7517.85	1809.13	-1811.85	480.33	40°09'11.388"N	104°52'37.163"W	0.00	
9817.00†	89.721	180.321	7518.34	1909.13	-1911.84	479.77	40°09'10.400"N	104°52'37.170"W	0.00	
9917.00†	89.721	180.321	7518.82	2009.13	-2011.84	479.21	40°09'09.412"N	104°52'37.178"W	0.00	
10017.00†	89.721	180.321	7519.31	2109.12	-2111.84	478.65	40°09'08.424"N	104°52'37.185"W	0.00	
10117.00†	89.721	180.321	7519.80	2209.12	-2211.84	478.09	40°09'07.435"N	104°52'37.192"W	0.00	
10217.00†	89.721	180.321	7520.28	2309.12	-2311.83	477.53	40°09'06.447"N	104°52'37.199"W	0.00	
10317.00†	89.721	180.321	7520.77	2409.12	-2411.83	476.97	40°09'05.459"N	104°52'37.207"W	0.00	
10417.00†	89.721	180.321	7521.26	2509.12	-2511.83	476.41	40°09'04.471"N	104°52'37.214"W	0.00	
10517.00†	89.721	180.321	7521.74	2609.12	-2611.83	475.85	40°09'03.483"N	104°52'37.221"W	0.00	
10617.00†	89.721	180.321	7522.23	2709.12	-2711.82	475.29	40°09'02.495"N	104°52'37.228"W	0.00	
10717.00†	89.721	180.321	7522.72	2809.12	-2811.82	474.73	40°09'01.506"N	104°52'37.235"W	0.00	
10817.00†	89.721	180.321	7523.20	2909.12	-2911.82	474.17	40°09'00.518"N	104°52'37.243"W	0.00	
10917.00†	89.721	180.321	7523.69	3009.11	-3011.81	473.61	40°08'59.530"N	104°52'37.250"W	0.00	
11017.00†	89.721	180.321	7524.18	3109.11	-3111.81	473.05	40°08'58.542"N	104°52'37.257"W	0.00	
11117.00†	89.721	180.321	7524.66	3209.11	-3211.81	472.49	40°08'57.554"N	104°52'37.264"W	0.00	
11217.00†	89.721	180.321	7525.15	3309.11	-3311.81	471.93	40°08'56.565"N	104°52'37.272"W	0.00	
11317.00†	89.721	180.321	7525.64	3409.11	-3411.80	471.37	40°08'55.577"N	104°52'37.279"W	0.00	
11417.00†	89.721	180.321	7526.12	3509.11	-3511.80	470.81	40°08'54.589"N	104°52'37.286"W	0.00	
11517.00†	89.721	180.321	7526.61	3609.11	-3611.80	470.25	40°08'53.601"N	104°52'37.293"W	0.00	
11617.00†	89.721	180.321	7527.10	3709.11	-3711.80	469.69	40°08'52.613"N	104°52'37.301"W	0.00	
11717.00†	89.721	180.321	7527.58	3809.10	-3811.79	469.14	40°08'51.625"N	104°52'37.308"W	0.00	

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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†	89.721	180.321	7528.07	3909.10	-3911.79	468.58	40°08'50.636"N	104°52'37.315"W	0.00	
11917.00†	89.721	180.321	7528.56	4009.10	-4011.79	468.02	40°08'49.648"N	104°52'37.322"W	0.00	
12017.00†	89.721	180.321	7529.04	4109.10	-4111.78	467.46	40°08'48.660"N	104°52'37.329"W	0.00	
12117.00†	89.721	180.321	7529.53	4209.10	-4211.78	466.90	40°08'47.672"N	104°52'37.337"W	0.00	
12217.00†	89.721	180.321	7530.02	4309.10	-4311.78	466.34	40°08'46.684"N	104°52'37.344"W	0.00	
12317.00†	89.721	180.321	7530.50	4409.10	-4411.78	465.78	40°08'45.696"N	104°52'37.351"W	0.00	
12417.00†	89.721	180.321	7530.99	4509.10	-4511.77	465.22	40°08'44.707"N	104°52'37.358"W	0.00	
12517.00†	89.721	180.321	7531.48	4609.09	-4611.77	464.66	40°08'43.719"N	104°52'37.366"W	0.00	
12617.00†	89.721	180.321	7531.96	4709.09	-4711.77	464.10	40°08'42.731"N	104°52'37.373"W	0.00	
12717.00†	89.721	180.321	7532.45	4809.09	-4811.77	463.54	40°08'41.743"N	104°52'37.380"W	0.00	
12817.00†	89.721	180.321	7532.94	4909.09	-4911.76	462.98	40°08'40.755"N	104°52'37.387"W	0.00	
12917.00†	89.721	180.321	7533.42	5009.09	-5011.76	462.42	40°08'39.766"N	104°52'37.394"W	0.00	
13017.00†	89.721	180.321	7533.91	5109.09	-5111.76	461.86	40°08'38.778"N	104°52'37.402"W	0.00	
13117.00†	89.721	180.321	7534.40	5209.09	-5211.75	461.30	40°08'37.790"N	104°52'37.409"W	0.00	
13217.00†	89.721	180.321	7534.88	5309.09	-5311.75	460.74	40°08'36.802"N	104°52'37.416"W	0.00	
13317.00†	89.721	180.321	7535.37	5409.09	-5411.75	460.18	40°08'35.814"N	104°52'37.423"W	0.00	
13417.00†	89.721	180.321	7535.85	5509.08	-5511.75	459.62	40°08'34.826"N	104°52'37.431"W	0.00	
13517.00†	89.721	180.321	7536.34	5609.08	-5611.74	459.06	40°08'33.837"N	104°52'37.438"W	0.00	
13617.00†	89.721	180.321	7536.83	5709.08	-5711.74	458.50	40°08'32.849"N	104°52'37.445"W	0.00	
13717.00†	89.721	180.321	7537.31	5809.08	-5811.74	457.95	40°08'31.861"N	104°52'37.452"W	0.00	
13817.00†	89.721	180.321	7537.80	5909.08	-5911.73	457.39	40°08'30.873"N	104°52'37.460"W	0.00	
13917.00†	89.721	180.321	7538.29	6009.08	-6011.73	456.83	40°08'29.885"N	104°52'37.467"W	0.00	
14017.00†	89.721	180.321	7538.77	6109.08	-6111.73	456.27	40°08'28.896"N	104°52'37.474"W	0.00	
14117.00†	89.721	180.321	7539.26	6209.08	-6211.73	455.71	40°08'27.908"N	104°52'37.481"W	0.00	
14217.00†	89.721	180.321	7539.75	6309.07	-6311.72	455.15	40°08'26.920"N	104°52'37.488"W	0.00	
14317.00†	89.721	180.321	7540.23	6409.07	-6411.72	454.59	40°08'25.932"N	104°52'37.496"W	0.00	
14417.00†	89.721	180.321	7540.72	6509.07	-6511.72	454.03	40°08'24.944"N	104°52'37.503"W	0.00	
14517.00†	89.721	180.321	7541.21	6609.07	-6611.72	453.47	40°08'23.956"N	104°52'37.510"W	0.00	
14617.00†	89.721	180.321	7541.69	6709.07	-6711.71	452.91	40°08'22.967"N	104°52'37.517"W	0.00	
14717.00†	89.721	180.321	7542.18	6809.07	-6811.71	452.35	40°08'21.979"N	104°52'37.525"W	0.00	
14817.00†	89.721	180.321	7542.67	6909.07	-6911.71	451.79	40°08'20.991"N	104°52'37.532"W	0.00	
14917.00†	89.721	180.321	7543.15	7009.07	-7011.70	451.23	40°08'20.003"N	104°52'37.539"W	0.00	
15017.00†	89.721	180.321	7543.64	7109.07	-7111.70	450.67	40°08'19.015"N	104°52'37.546"W	0.00	
15117.00†	89.721	180.321	7544.13	7209.06	-7211.70	450.11	40°08'18.026"N	104°52'37.554"W	0.00	
15217.00†	89.721	180.321	7544.61	7309.06	-7311.70	449.55	40°08'17.038"N	104°52'37.561"W	0.00	
15317.00†	89.721	180.321	7545.10	7409.06	-7411.69	448.99	40°08'16.050"N	104°52'37.568"W	0.00	
15417.00†	89.721	180.321	7545.59	7509.06	-7511.69	448.43	40°08'15.062"N	104°52'37.575"W	0.00	
15517.00†	89.721	180.321	7546.07	7609.06	-7611.69	447.87	40°08'14.074"N	104°52'37.582"W	0.00	
15617.00†	89.721	180.321	7546.56	7709.06	-7711.69	447.31	40°08'13.086"N	104°52'37.590"W	0.00	
15717.00†	89.721	180.321	7547.05	7809.06	-7811.68	446.76	40°08'12.097"N	104°52'37.597"W	0.00	
15817.00†	89.721	180.321	7547.53	7909.06	-7911.68	446.20	40°08'11.109"N	104°52'37.604"W	0.00	
15917.00†	89.721	180.321	7548.02	8009.05	-8011.68	445.64	40°08'10.121"N	104°52'37.611"W	0.00	
16017.00†	89.721	180.321	7548.51	8109.05	-8111.67	445.08	40°08'09.133"N	104°52'37.619"W	0.00	
16117.00†	89.721	180.321	7548.99	8209.05	-8211.67	444.52	40°08'08.145"N	104°52'37.626"W	0.00	
16217.00†	89.721	180.321	7549.48	8309.05	-8311.67	443.96	40°08'07.156"N	104°52'37.633"W	0.00	

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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†	89.721	180.321	7549.97	8409.05	-8411.67	443.40	40°08'06.168"N	104°52'37.640"W	0.00	
16417.00†	89.721	180.321	7550.45	8509.05	-8511.66	442.84	40°08'05.180"N	104°52'37.647"W	0.00	
16517.00†	89.721	180.321	7550.94	8609.05	-8611.66	442.28	40°08'04.192"N	104°52'37.655"W	0.00	
16617.00†	89.721	180.321	7551.43	8709.05	-8711.66	441.72	40°08'03.204"N	104°52'37.662"W	0.00	
16717.00†	89.721	180.321	7551.91	8809.05	-8811.66	441.16	40°08'02.216"N	104°52'37.669"W	0.00	
16817.00†	89.721	180.321	7552.40	8909.04	-8911.65	440.60	40°08'01.227"N	104°52'37.676"W	0.00	
16917.00†	89.721	180.321	7552.89	9009.04	-9011.65	440.04	40°08'00.239"N	104°52'37.684"W	0.00	
17017.00†	89.721	180.321	7553.37	9109.04	-9111.65	439.48	40°07'59.251"N	104°52'37.691"W	0.00	
17117.00†	89.721	180.321	7553.86	9209.04	-9211.64	438.92	40°07'58.263"N	104°52'37.698"W	0.00	
17217.00†	89.721	180.321	7554.35	9309.04	-9311.64	438.36	40°07'57.275"N	104°52'37.705"W	0.00	
17317.00†	89.721	180.321	7554.83	9409.04	-9411.64	437.80	40°07'56.286"N	104°52'37.713"W	0.00	
17351.56	89.721	180.321	7555.00[1]	9443.60	-9446.20	437.61	40°07'55.945"N	104°52'37.715"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -

Ref Wellbore: BUTTERBALL 28C-15HZ PWB **Ref Wellpath: BUTTERBALL 28C-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	7897.22	6897.22	1000.00	7509.00	0.00	0.00	7.88	490.51
7in Casing Intermediate	17.00	7897.22	7880.22	17.00	7509.00	0.00	0.00	7.88	490.51
6.125in Open Hole	7897.22	17351.56	9454.34	7509.00	7555.00	7.88	490.51	-9446.20	437.61
4.5in Casing Production	17.00	17351.56	17334.56	17.00	7555.00	0.00	0.00	-9446.20	437.61

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-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	-60.10	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	-60.10	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
1) BUTTERBALL 28C-15HZ (460' FSL & 2495' FWL, SEC.15) REV-1	17351.56	7555.00	-9446.20	437.61	3174155.90	1291618.36	**40°07'55.945"N**	**104°52'37.715"W**	point
BUTTERBALL 28C-15HZ LAND BOX		7555.00	0.00	0.00	3173652.14	1301060.84	40°09'29.293"N	104°52'43.349"W	polygon

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 28C-15HZ PWB Ref Wellpath: BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	17351.56	NaviTrak (Standard)		BUTTERBALL 28C-15HZ PWB

Planned Wellpath Report

BUTTERBALL 28C-15HZ (PERMIT REV-1) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**KERR-MCGEE OIL & GAS ONSHORE LP**	Slot	**SLOT#03 BUTTERBALL 28C-15HZ (639' FNL & 2004' FWL, SEC.10)**
Area	**COLORADO**	Well	**BUTTERBALL 28C-15HZ**
Field	**WELD COUNTY (KERR MCGEE)**	Wellbore	**BUTTERBALL 28C-15HZ PWB**
Facility	**SEC.10-T2N-R67W**		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
756.00	0.000	40.500	756.00	Fox Hills Base
3985.29	10.000	40.500	3945.00	Parkman
4417.86	10.000	40.500	4371.00	Sussex
6900.01	0.000	180.321	6836.05	4 1/2" LINER TOP
7210.68	21.067	180.321	7142.00	Sharon Springs
7327.51	32.750	180.321	7246.00	Niobrara A
7358.99	35.899	180.321	7272.00	Niobrara B
7471.36	47.135	180.321	7356.00	Niobrara C
7730.12	73.011	180.321	7484.00	Fort Hays
7824.23	82.423	180.321	7504.00	Codell

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	40.500	17.00	TIE-ON
1000.00	0.000	40.500	1000.00	BEGIN NUDGE
1500.00	10.000	40.500	1497.47	END NUDGE
5376.43	10.000	40.500	5315.00	BEGIN DROP
5876.43	0.000	180.321	5812.47	END DROP
7000.01	0.000	180.321	6936.05	KOP, BUILD @ 10/100'
7897.22	89.721	180.321	7509.00	LANDING POINT
17351.56	89.721	180.321	7555.00	TOTAL DEPTH