

KERR-MCGEE OIL & GAS ONSHORE LP

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

Plot reference wellpath is BUTTERBALL 16C-10HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (17KB) (RKB) Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMIT (17KB) (RKB) North Reference: True north
PERMIT (17KB) (RKB) to Mean Sea Level: 4937 feet Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10); 0 feet Depths are in feet
Coordinates are in feet referenced to Slot Created by: robale01 on 9/29/2014

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#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10)	-26.75	1806.38	3175398.643	1301046.225	40°09'29.027"N	104°52'20.856"W
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10))					4937ft	
Mean Sea Level to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10))					0ft	
PERMIT (17KB) (RKB) to Mean Sea Level					4937ft	

Survey Program

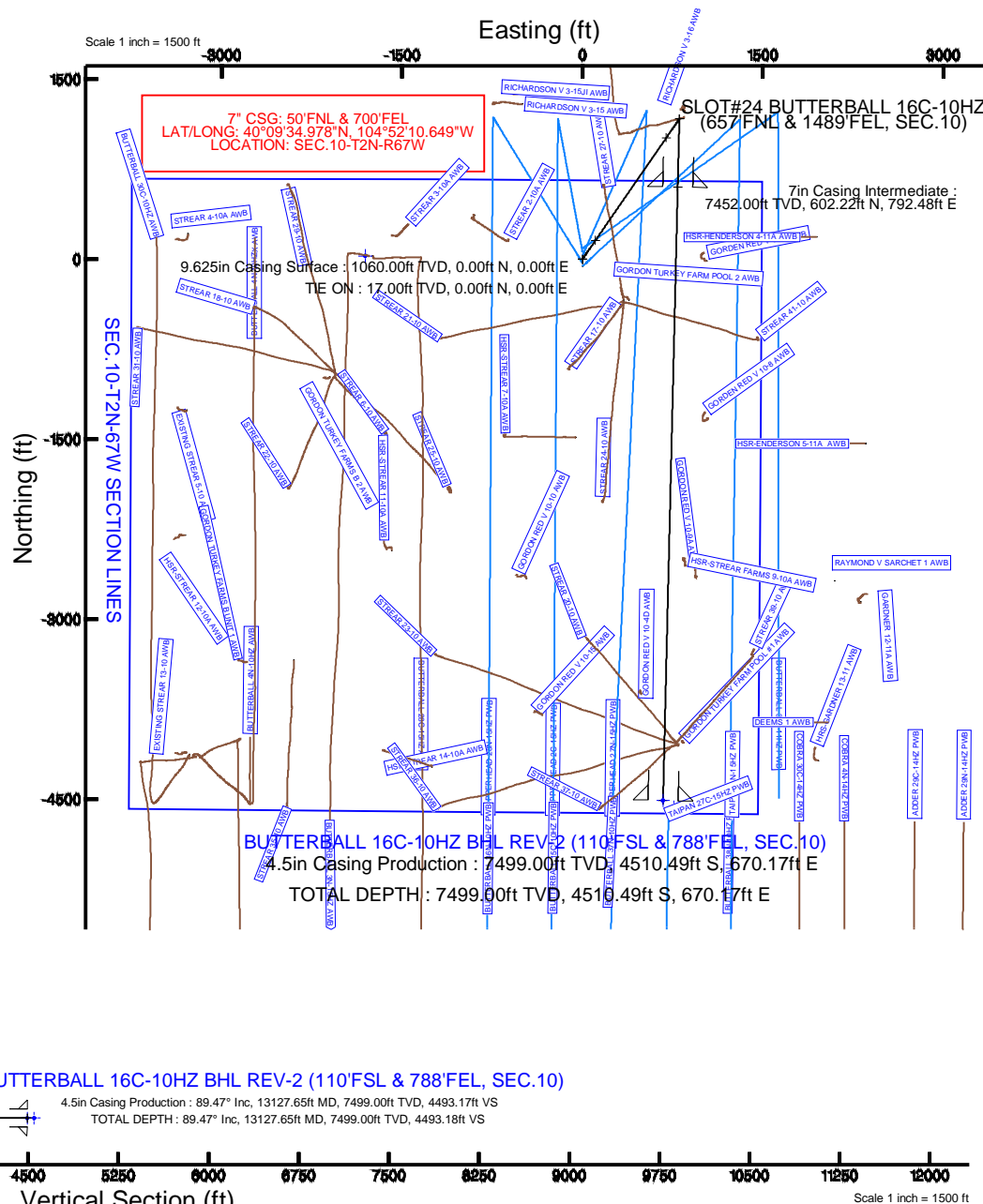
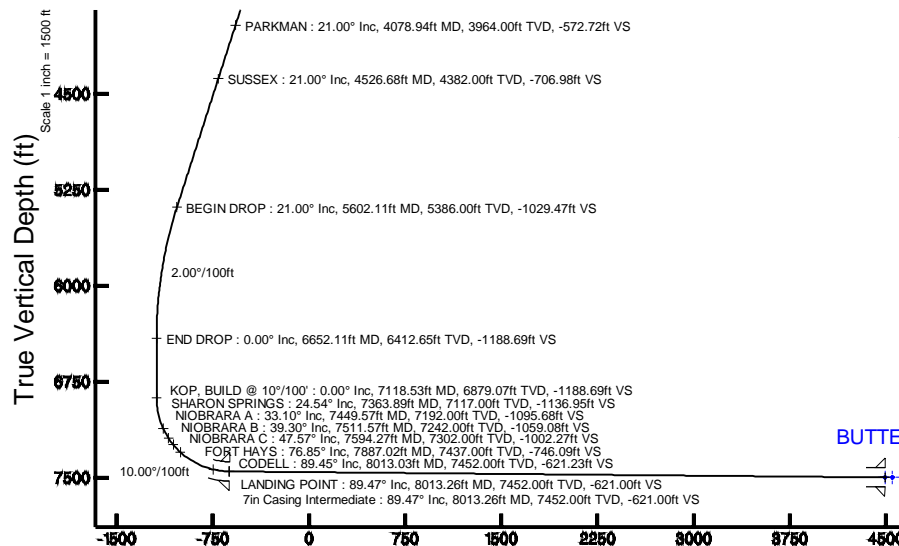
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	8013.26	NaviTrak	NaviTrak (MAGCORR, IFR)		BUTTERBALL 16C-10HZ PWB
8013.26	13127.65	NaviTrak	NaviTrak (MAGCORR, IFR)		BUTTERBALL 16C-10HZ PWB

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-R67W SECTION LINES		0.00	26.98	-1806.53	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
BUTTERBALL 16C-10HZ BHL ON PLAT REV-1 (50FSL & 700FEL, SEC.10)		7499.00	-4570.47	758.19	3176189.12	1296481.43	40°08'43.861"N	104°52'11.093"W
BUTTERBALL 16C-10HZ BHL REV-2 (110FSL & 788FEL, SEC.10)	13127.65	7499.00	-4510.49	670.17	3176100.69	1296540.79	40°08'44.454"N	104°52'12.226"W

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	34.570	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1650.00	0.000	34.570	1650.00	0.00	0.00	0.00	0.00
END NUDGE	2700.00	21.000	34.570	2676.65	156.68	107.97	2.00	-159.22
BEGIN DROP	5602.11	21.000	34.570	5386.00	1013.07	698.09	0.00	-1029.47
END DROP	6652.11	0.000	181.370	6412.65	1169.75	806.05	2.00	-1188.69
KOP, BUILD @ 10°/100'	7118.53	0.000	181.370	6879.07	1169.75	806.05	0.00	-1188.69
LANDING POINT	8013.26	89.473	181.370	7452.00	602.22	792.48	10.00	-621.00
TOTAL DEPTH	13127.65	89.473	181.370	7499.00	-4510.49	670.17	0.00	4493.18



Azimuth 181.37° with reference 0.00 N, 0.00 E

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

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Robiale01
Scale	0.999958	Report Generated	9/29/2014 at 2:02:15 PM
Convergence at slot	n/a	Database/Source file	WellArchitectDB/BUTTERBALL_16C-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	-26.75	1806.38	3175398.64	1301046.23	40°09'29.027"N	104°52'20.856"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	4937.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	4937.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10))	4937.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	181.37°

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

WELLPATH DATA (150 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	34.570	0.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
17.00	0.000	34.570	17.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	TIE ON
117.00†	0.000	34.570	117.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
217.00†	0.000	34.570	217.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
317.00†	0.000	34.570	317.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
417.00†	0.000	34.570	417.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
517.00†	0.000	34.570	517.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
613.00†	0.000	34.570	613.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	BASE FOX HILLS
617.00†	0.000	34.570	617.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
717.00†	0.000	34.570	717.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
817.00†	0.000	34.570	817.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
917.00†	0.000	34.570	917.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1017.00†	0.000	34.570	1017.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1060.00†	0.000	34.570	1060.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	SURFACE CSG SETTING DEPTH
1117.00†	0.000	34.570	1117.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1217.00†	0.000	34.570	1217.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1317.00†	0.000	34.570	1317.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1417.00†	0.000	34.570	1417.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1517.00†	0.000	34.570	1517.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1617.00†	0.000	34.570	1617.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
1650.00	0.000	34.570	1650.00	0.00	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	BEGIN NUDGE
1717.00†	1.340	34.570	1716.99	-0.66	0.65	0.44	40°09'29.033"N	104°52'20.850"W	2.00	
1817.00†	3.340	34.570	1816.91	-4.07	4.01	2.76	40°09'29.067"N	104°52'20.820"W	2.00	
1917.00†	5.340	34.570	1916.61	-10.40	10.24	7.05	40°09'29.128"N	104°52'20.765"W	2.00	
2017.00†	7.340	34.570	2016.00	-19.64	19.33	13.32	40°09'29.218"N	104°52'20.684"W	2.00	
2117.00†	9.340	34.570	2114.93	-31.78	31.27	21.55	40°09'29.336"N	104°52'20.578"W	2.00	
2217.00†	11.340	34.570	2213.31	-46.80	46.05	31.73	40°09'29.482"N	104°52'20.447"W	2.00	
2317.00†	13.340	34.570	2310.99	-64.68	63.65	43.86	40°09'29.656"N	104°52'20.291"W	2.00	
2417.00†	15.340	34.570	2407.87	-85.40	84.04	57.91	40°09'29.858"N	104°52'20.110"W	2.00	
2517.00†	17.340	34.570	2503.83	-108.94	107.21	73.87	40°09'30.086"N	104°52'19.905"W	2.00	
2617.00†	19.340	34.570	2598.74	-135.27	133.12	91.73	40°09'30.342"N	104°52'19.675"W	2.00	
2700.00	21.000	34.570	2676.65	-159.22	156.68	107.97	40°09'30.575"N	104°52'19.465"W	2.00	END NUDGE
2717.00†	21.000	34.570	2692.52	-164.32	161.70	111.42	40°09'30.625"N	104°52'19.421"W	0.00	
2817.00†	21.000	34.570	2785.88	-194.30	191.21	131.76	40°09'30.917"N	104°52'19.159"W	0.00	
2917.00†	21.000	34.570	2879.24	-224.29	220.72	152.09	40°09'31.208"N	104°52'18.897"W	0.00	
3017.00†	21.000	34.570	2972.59	-254.28	250.23	172.43	40°09'31.500"N	104°52'18.635"W	0.00	
3117.00†	21.000	34.570	3065.95	-284.26	279.73	192.76	40°09'31.791"N	104°52'18.373"W	0.00	
3217.00†	21.000	34.570	3159.31	-314.25	309.24	213.09	40°09'32.083"N	104°52'18.111"W	0.00	
3317.00†	21.000	34.570	3252.67	-344.24	338.75	233.43	40°09'32.375"N	104°52'17.850"W	0.00	
3417.00†	21.000	34.570	3346.03	-374.22	368.26	253.76	40°09'32.666"N	104°52'17.588"W	0.00	
3517.00†	21.000	34.570	3439.38	-404.21	397.77	274.10	40°09'32.958"N	104°52'17.326"W	0.00	
3617.00†	21.000	34.570	3532.74	-434.20	427.28	294.43	40°09'33.249"N	104°52'17.064"W	0.00	
3717.00†	21.000	34.570	3626.10	-464.19	456.79	314.77	40°09'33.541"N	104°52'16.802"W	0.00	
3817.00†	21.000	34.570	3719.46	-494.17	486.30	335.10	40°09'33.833"N	104°52'16.540"W	0.00	
3917.00†	21.000	34.570	3812.82	-524.16	515.81	355.43	40°09'34.124"N	104°52'16.278"W	0.00	

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

WELLPATH DATA (150 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4017.00†	21.000	34.570	3906.17	-554.15	545.32	375.77	40°09'34.416"N	104°52'16.016"W	0.00	
4078.94†	21.000	34.570	3964.00	-572.72	563.60	388.36	40°09'34.596"N	104°52'15.854"W	0.00	PARKMAN
4117.00†	21.000	34.570	3999.53	-584.13	574.83	396.10	40°09'34.707"N	104°52'15.754"W	0.00	
4217.00†	21.000	34.570	4092.89	-614.12	604.34	416.44	40°09'34.999"N	104°52'15.492"W	0.00	
4317.00†	21.000	34.570	4186.25	-644.11	633.85	436.77	40°09'35.291"N	104°52'15.231"W	0.00	
4417.00†	21.000	34.570	4279.61	-674.09	663.35	457.11	40°09'35.582"N	104°52'14.969"W	0.00	
4517.00†	21.000	34.570	4372.96	-704.08	692.86	477.44	40°09'35.874"N	104°52'14.707"W	0.00	
4526.68†	21.000	34.570	4382.00	-706.98	695.72	479.41	40°09'35.902"N	104°52'14.681"W	0.00	SUSSEX
4617.00†	21.000	34.570	4466.32	-734.07	722.37	497.77	40°09'36.165"N	104°52'14.445"W	0.00	
4717.00†	21.000	34.570	4559.68	-764.05	751.88	518.11	40°09'36.457"N	104°52'14.183"W	0.00	
4817.00†	21.000	34.570	4653.04	-794.04	781.39	538.44	40°09'36.749"N	104°52'13.921"W	0.00	
4917.00†	21.000	34.570	4746.40	-824.03	810.90	558.78	40°09'37.040"N	104°52'13.659"W	0.00	
5017.00†	21.000	34.570	4839.75	-854.02	840.41	579.11	40°09'37.332"N	104°52'13.397"W	0.00	
5117.00†	21.000	34.570	4933.11	-884.00	869.92	599.45	40°09'37.624"N	104°52'13.135"W	0.00	
5217.00†	21.000	34.570	5026.47	-913.99	899.43	619.78	40°09'37.915"N	104°52'12.873"W	0.00	
5317.00†	21.000	34.570	5119.83	-943.98	928.94	640.11	40°09'38.207"N	104°52'12.611"W	0.00	
5417.00†	21.000	34.570	5213.19	-973.96	958.45	660.45	40°09'38.498"N	104°52'12.350"W	0.00	
5517.00†	21.000	34.570	5306.54	-1003.95	987.96	680.78	40°09'38.790"N	104°52'12.088"W	0.00	
5602.11	21.000	34.570	5386.00	-1029.47	1013.07	698.09	40°09'39.038"N	104°52'11.865"W	0.00	BEGIN DROP
5617.00†	20.702	34.570	5399.92	-1033.91	1017.44	701.10	40°09'39.081"N	104°52'11.826"W	2.00	
5717.00†	18.702	34.570	5494.06	-1062.12	1045.19	720.22	40°09'39.356"N	104°52'11.580"W	2.00	
5817.00†	16.702	34.570	5589.32	-1087.56	1070.23	737.48	40°09'39.603"N	104°52'11.357"W	2.00	
5917.00†	14.702	34.570	5685.58	-1110.20	1092.52	752.83	40°09'39.823"N	104°52'11.160"W	2.00	
6017.00†	12.702	34.570	5782.73	-1130.02	1112.02	766.27	40°09'40.016"N	104°52'10.986"W	2.00	
6117.00†	10.702	34.570	5880.65	-1146.99	1128.72	777.78	40°09'40.181"N	104°52'10.838"W	2.00	
6217.00†	8.702	34.570	5979.21	-1161.09	1142.60	787.34	40°09'40.318"N	104°52'10.715"W	2.00	
6317.00†	6.702	34.570	6078.30	-1172.31	1153.63	794.95	40°09'40.427"N	104°52'10.617"W	2.00	
6417.00†	4.702	34.570	6177.80	-1180.62	1161.81	800.58	40°09'40.508"N	104°52'10.544"W	2.00	
6517.00†	2.702	34.570	6277.59	-1186.02	1167.13	804.25	40°09'40.560"N	104°52'10.497"W	2.00	
6617.00†	0.702	34.570	6377.54	-1188.51	1169.58	805.93	40°09'40.585"N	104°52'10.476"W	2.00	
6652.11	0.000	181.370	6412.65	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	2.00	END DROP
6717.00†	0.000	181.370	6477.54	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	
6817.00†	0.000	181.370	6577.54	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	
6917.00†	0.000	181.370	6677.54	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	
7017.00†	0.000	181.370	6777.54	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	
7117.00†	0.000	181.370	6877.54	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	
7118.53	0.000	181.370	6879.07	-1188.69	1169.75	806.05	40°09'40.586"N	104°52'10.474"W	0.00	KOP, BUILD @ 10°/100'
7217.00†	9.847	181.370	6977.06	-1180.25	1161.31	805.85	40°09'40.503"N	104°52'10.477"W	10.00	
7317.00†	19.847	181.370	7073.59	-1154.66	1135.73	805.24	40°09'40.250"N	104°52'10.485"W	10.00	
7363.89†	24.536	181.370	7117.00	-1136.95	1118.03	804.82	40°09'40.075"N	104°52'10.490"W	10.00	SHARON SPRINGS
7417.00†	29.847	181.370	7164.22	-1112.69	1093.77	804.24	40°09'39.836"N	104°52'10.497"W	10.00	
7449.57†	33.105	181.370	7192.00	-1095.68	1076.77	803.83	40°09'39.668"N	104°52'10.503"W	10.00	NIOBRARA A
7511.57†	39.304	181.370	7242.00	-1059.08	1040.18	802.95	40°09'39.306"N	104°52'10.514"W	10.00	NIOBRARA B
7517.00†	39.847	181.370	7246.19	-1055.62	1036.72	802.87	40°09'39.272"N	104°52'10.515"W	10.00	
7594.27†	47.574	181.370	7302.00	-1002.27	983.38	801.60	40°09'38.745"N	104°52'10.532"W	10.00	NIOBRARA C

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

WELLPATH DATA (150 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	49.847	181.370	7317.00	-985.19	966.31	801.19	40°09'38.576"N	104°52'10.537"W	10.00	
7717.00†	59.847	181.370	7374.50	-903.53	884.68	799.23	40°09'37.769"N	104°52'10.562"W	10.00	
7817.00†	69.847	181.370	7416.95	-813.13	794.30	797.07	40°09'36.876"N	104°52'10.590"W	10.00	
7887.02†	76.849	181.370	7437.00	-746.09	727.28	795.47	40°09'36.214"N	104°52'10.611"W	10.00	FORT HAYS
7917.00†	79.847	181.370	7443.05	-716.73	697.93	794.77	40°09'35.924"N	104°52'10.620"W	10.00	
8013.03†	89.450	181.370	7452.00	-621.23	602.45	792.48	40°09'34.980"N	104°52'10.649"W	10.00	CODELL
8013.26	89.473	181.370	7452.00	-621.00	602.22	792.48	40°09'34.978"N	104°52'10.649"W	10.00	LANDING POINT
8017.00†	89.473	181.370	7452.04	-617.26	598.49	792.39	40°09'34.941"N	104°52'10.650"W	0.00	
8117.00†	89.473	181.370	7452.96	-517.26	498.52	790.00	40°09'33.953"N	104°52'10.681"W	0.00	
8217.00†	89.473	181.370	7453.87	-417.27	398.55	787.61	40°09'32.965"N	104°52'10.712"W	0.00	
8317.00†	89.473	181.370	7454.79	-317.27	298.58	785.21	40°09'31.978"N	104°52'10.743"W	0.00	
8417.00†	89.473	181.370	7455.71	-217.28	198.62	782.82	40°09'30.990"N	104°52'10.774"W	0.00	
8517.00†	89.473	181.370	7456.63	-117.28	98.65	780.43	40°09'30.002"N	104°52'10.804"W	0.00	
8617.00†	89.473	181.370	7457.55	-17.29	-1.32	778.04	40°09'29.014"N	104°52'10.835"W	0.00	
8717.00†	89.473	181.370	7458.47	82.71	-101.28	775.65	40°09'28.026"N	104°52'10.866"W	0.00	
8817.00†	89.473	181.370	7459.39	182.71	-201.25	773.26	40°09'27.038"N	104°52'10.897"W	0.00	
8917.00†	89.473	181.370	7460.31	282.70	-301.22	770.87	40°09'26.050"N	104°52'10.928"W	0.00	
9017.00†	89.473	181.370	7461.23	382.70	-401.19	768.47	40°09'25.062"N	104°52'10.959"W	0.00	
9117.00†	89.473	181.370	7462.14	482.69	-501.15	766.08	40°09'24.074"N	104°52'10.990"W	0.00	
9217.00†	89.473	181.370	7463.06	582.69	-601.12	763.69	40°09'23.087"N	104°52'11.020"W	0.00	
9317.00†	89.473	181.370	7463.98	682.69	-701.09	761.30	40°09'22.099"N	104°52'11.051"W	0.00	
9417.00†	89.473	181.370	7464.90	782.68	-801.05	758.91	40°09'21.111"N	104°52'11.082"W	0.00	
9517.00†	89.473	181.370	7465.82	882.68	-901.02	756.52	40°09'20.123"N	104°52'11.113"W	0.00	
9617.00†	89.473	181.370	7466.74	982.67	-1000.99	754.13	40°09'19.135"N	104°52'11.144"W	0.00	
9717.00†	89.473	181.370	7467.66	1082.67	-1100.96	751.73	40°09'18.147"N	104°52'11.175"W	0.00	
9817.00†	89.473	181.370	7468.58	1182.66	-1200.92	749.34	40°09'17.159"N	104°52'11.205"W	0.00	
9917.00†	89.473	181.370	7469.50	1282.66	-1300.89	746.95	40°09'16.171"N	104°52'11.236"W	0.00	
10017.00†	89.473	181.370	7470.42	1382.66	-1400.86	744.56	40°09'15.184"N	104°52'11.267"W	0.00	
10117.00†	89.473	181.370	7471.33	1482.65	-1500.82	742.17	40°09'14.196"N	104°52'11.298"W	0.00	
10217.00†	89.473	181.370	7472.25	1582.65	-1600.79	739.78	40°09'13.208"N	104°52'11.329"W	0.00	
10317.00†	89.473	181.370	7473.17	1682.64	-1700.76	737.39	40°09'12.220"N	104°52'11.360"W	0.00	
10417.00†	89.473	181.370	7474.09	1782.64	-1800.73	734.99	40°09'11.232"N	104°52'11.390"W	0.00	
10517.00†	89.473	181.370	7475.01	1882.63	-1900.69	732.60	40°09'10.244"N	104°52'11.421"W	0.00	
10617.00†	89.473	181.370	7475.93	1982.63	-2000.66	730.21	40°09'09.256"N	104°52'11.452"W	0.00	
10717.00†	89.473	181.370	7476.85	2082.63	-2100.63	727.82	40°09'08.268"N	104°52'11.483"W	0.00	
10817.00†	89.473	181.370	7477.77	2182.62	-2200.59	725.43	40°09'07.280"N	104°52'11.514"W	0.00	
10917.00†	89.473	181.370	7478.69	2282.62	-2300.56	723.04	40°09'06.293"N	104°52'11.545"W	0.00	
11017.00†	89.473	181.370	7479.60	2382.61	-2400.53	720.65	40°09'05.305"N	104°52'11.575"W	0.00	
11117.00†	89.473	181.370	7480.52	2482.61	-2500.50	718.25	40°09'04.317"N	104°52'11.606"W	0.00	
11217.00†	89.473	181.370	7481.44	2582.60	-2600.46	715.86	40°09'03.329"N	104°52'11.637"W	0.00	
11317.00†	89.473	181.370	7482.36	2682.60	-2700.43	713.47	40°09'02.341"N	104°52'11.668"W	0.00	
11417.00†	89.473	181.370	7483.28	2782.60	-2800.40	711.08	40°09'01.353"N	104°52'11.699"W	0.00	
11517.00†	89.473	181.370	7484.20	2882.59	-2900.37	708.69	40°09'00.365"N	104°52'11.730"W	0.00	
11617.00†	89.473	181.370	7485.12	2982.59	-3000.33	706.30	40°08'59.377"N	104°52'11.760"W	0.00	
11717.00†	89.473	181.370	7486.04	3082.58	-3100.30	703.90	40°08'58.390"N	104°52'11.791"W	0.00	

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

WELLPATH DATA (150 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11817.00†	89.473	181.370	7486.96	3182.58	-3200.27	701.51	40°08'57.402"N	104°52'11.822"W	0.00	
11917.00†	89.473	181.370	7487.87	3282.58	-3300.23	699.12	40°08'56.414"N	104°52'11.853"W	0.00	
12017.00†	89.473	181.370	7488.79	3382.57	-3400.20	696.73	40°08'55.426"N	104°52'11.884"W	0.00	
12117.00†	89.473	181.370	7489.71	3482.57	-3500.17	694.34	40°08'54.438"N	104°52'11.915"W	0.00	
12217.00†	89.473	181.370	7490.63	3582.56	-3600.14	691.95	40°08'53.450"N	104°52'11.945"W	0.00	
12317.00†	89.473	181.370	7491.55	3682.56	-3700.10	689.56	40°08'52.462"N	104°52'11.976"W	0.00	
12417.00†	89.473	181.370	7492.47	3782.55	-3800.07	687.16	40°08'51.474"N	104°52'12.007"W	0.00	
12517.00†	89.473	181.370	7493.39	3882.55	-3900.04	684.77	40°08'50.487"N	104°52'12.038"W	0.00	
12617.00†	89.473	181.370	7494.31	3982.55	-4000.00	682.38	40°08'49.499"N	104°52'12.069"W	0.00	
12717.00†	89.473	181.370	7495.23	4082.54	-4099.97	679.99	40°08'48.511"N	104°52'12.100"W	0.00	
12817.00†	89.473	181.370	7496.15	4182.54	-4199.94	677.60	40°08'47.523"N	104°52'12.130"W	0.00	
12917.00†	89.473	181.370	7497.06	4282.53	-4299.91	675.21	40°08'46.535"N	104°52'12.161"W	0.00	
13017.00†	89.473	181.370	7497.98	4382.53	-4399.87	672.82	40°08'45.547"N	104°52'12.192"W	0.00	
13117.00†	89.473	181.370	7498.90	4482.52	-4499.84	670.42	40°08'44.559"N	104°52'12.223"W	0.00	
13127.65	89.473	181.370	7499.00 ¹	4493.18	-4510.49	670.17	40°08'44.454"N	104°52'12.226"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: BUTTERBALL 16C-10HZ PWB					Ref Wellpath: BUTTERBALL 16C-10HZ (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	1060.00	1043.00	17.00	1060.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1060.00	1043.00	17.00	1060.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1060.00	8013.26	6953.26	1060.00	7452.00	0.00	0.00	602.22	792.48
7in Casing Intermediate	17.00	8013.26	7996.26	17.00	7452.00	0.00	0.00	602.22	792.48
6.125in Open Hole	8013.26	13127.65	5114.39	7452.00	7499.00	602.22	792.48	-4510.49	670.17
4.5in Casing Production	17.00	13127.65	13110.65	17.00	7499.00	0.00	0.00	-4510.49	670.17

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10)
Area	COLORADO	Well	BUTTERBALL 16C-10HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	BUTTERBALL 16C-10HZ 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		0.00	26.98	-1806.53	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
BUTTERBALL 16C-10HZ BHL ON PLAT REV-1 (50'FSL & 700'FEL, SEC.10)		7499.00	-4570.47	758.19	3176189.12	1296481.43	40°08'43.861"N	104°52'11.093"W	point
1) BUTTERBALL 16C-10HZ BHL REV-2 (110'FSL & 788'FEL, SEC.10)	13127.65	7499.00	-4510.49	670.17	3176100.69	1296540.79	40°08'44.454"N	104°52'12.226"W	point

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 16C-10HZ PWB					Ref Wellpath: BUTTERBALL 16C-10HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment		Wellbore		
17.00	8013.26	NaviTrak (MAGCORR,IFR)					BUTTERBALL 16C-10HZ PWB		
8013.26	13127.65	NaviTrak (MAGCORR,IFR)					BUTTERBALL 16C-10HZ PWB		

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

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
613.00	0.000	34.570	613.00	BASE FOX HILLS
1060.00	0.000	34.570	1060.00	SURFACE CSG SETTING DEPTH
4078.94	21.000	34.570	3964.00	PARKMAN
4526.68	21.000	34.570	4382.00	SUSSEX
7363.89	24.536	181.370	7117.00	SHARON SPRINGS
7449.57	33.105	181.370	7192.00	NIOBRARA A
7511.57	39.304	181.370	7242.00	NIOBRARA B
7594.27	47.574	181.370	7302.00	NIOBRARA C
7887.02	76.849	181.370	7437.00	FORT HAYS
8013.03	89.450	181.370	7452.00	CODELL

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	34.570	17.00	TIE ON
1650.00	0.000	34.570	1650.00	BEGIN NUDGE
2700.00	21.000	34.570	2676.65	END NUDGE
5602.11	21.000	34.570	5386.00	BEGIN DROP
6652.11	0.000	181.370	6412.65	END DROP
7118.53	0.000	181.370	6879.07	KOP, BUILD @ 10°/100'
8013.26	89.473	181.370	7452.00	LANDING POINT
13127.65	89.473	181.370	7499.00	TOTAL DEPTH