

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-2) PWP

True vertical depths are referenced to XTREME 24 (16KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to XTREME 24 (16KB) (RKB)	North Reference: True north
XTREME 24 (16KB) (RKB) to Mean Sea Level: 4936 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 3/2/2015

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	3173598.643	1301046.225	40°09'29.027"N	104°52'20.856"W	
XTREME 24 (16KB) (RKB) to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10))						4936ft	
Mean Sea Level to Mud line (At Slot: SLOT#24 BUTTERBALL 16C-10HZ (657FNL & 1489FEL, SEC.10))						0ft	
XTREME 24 (16KB) (RKB) to Mean Sea Level						4936ft	

Survey Program

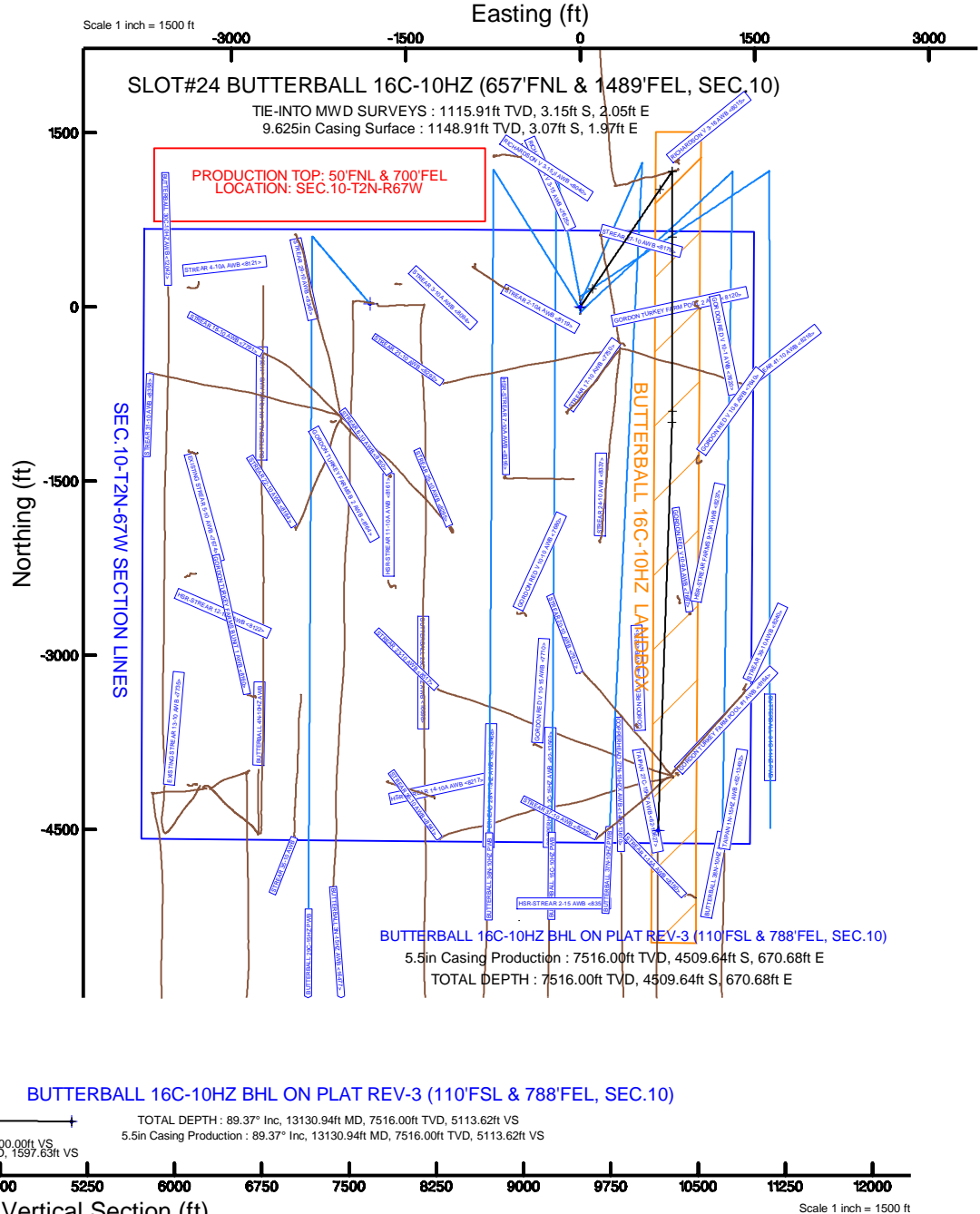
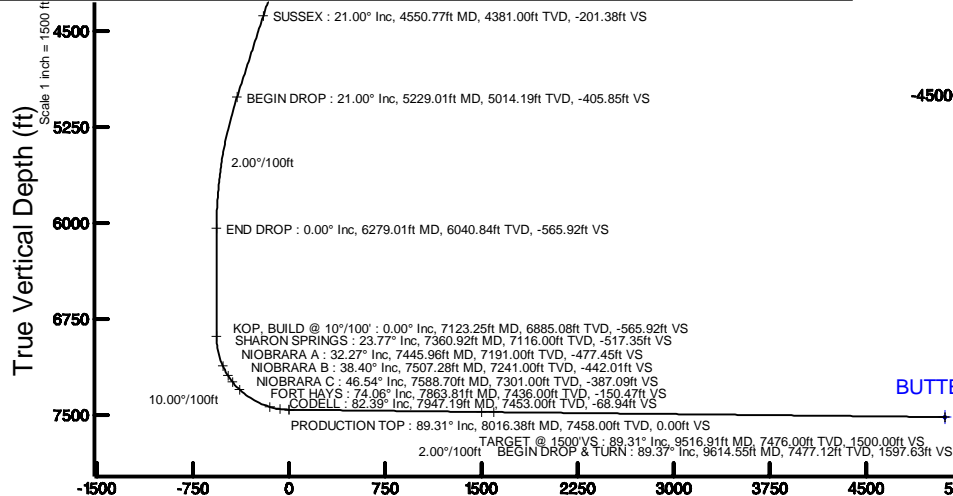
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
16.00	1116.00	ISWCSAMWD, Rev 2	ISWCSAMWD, Rev 2 (Standard)		BUTTERBALL 16C-10HZ AWB <1116>
1116.00	8016.38	ISWCSAMWD, Rev 2, axial magnetic correction	ISWCSAMWD, Rev 2, axial magnetic correction (Standard) (Mag/VR IFR Wattenberg)		BUTTERBALL 16C-10HZ PWB
8016.38	13130.94	ISWCSAMWD, Rev 2, axial magnetic correction	ISWCSAMWD, Rev 2, axial magnetic correction (Standard) (Mag/VR IFR Wattenberg)		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-67W SECTION LINES	4936.00	26.98	-1806.53	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	
BUTTERBALL 16C-10HZ LANDBOX	7516.00	0.00	0.00	3173598.64	1301046.22	40°09'29.027"N	104°52'20.856"W	
BUTTERBALL 16C-10HZ BHL ON PLAT REV-3 (110FSL & 788FEL, SEC.10)	13130.94	7516.00	-4509.64	670.68	3176101.19	1296541.64	40°08'44.462"N	104°52'12.220"W

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-INTO MWD SURVEYS	1116.00	0.200	317.700	1115.91	-3.15	2.05	0.17	624.29
BEGIN NUDGE	1300.09	0.200	317.700	1300.00	-2.68	1.62	0.00	623.82
END NUDGE	2347.78	21.000	34.088	2324.34	155.92	106.78	2.00	462.77
BEGIN DROP	5229.01	21.000	34.088	5014.19	1011.04	685.49	0.00	-405.85
END DROP	6279.01	0.000	180.000	6040.84	1168.62	792.13	2.00	-565.92
KOP, BUILD @ 10°/100'	7123.25	0.000	180.000	6885.08	1168.62	792.13	0.00	-565.92
LANDING POINT	8016.38	89.313	180.000	7458.00	602.54	792.13	10.00	0.00
TARGET @ 1500'VS	9516.91	89.313	180.000	7476.00	-897.88	792.13	0.00	1500.00
BEGIN DROP & TURN	9614.55	89.367	181.952	7477.12	-995.50	790.47	2.00	1597.63
TOTAL DEPTH	13130.94	89.367	181.952	7516.00	-4509.64	670.68	0.00	5113.62



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® 4.1.1
North Reference	True	User	Robiale01
Scale	0.999958	Report Generated	3/2/2015 at 2:42:10 PM
Convergence at slot	0.41° East	Database/Source file	WellArchitectDB3/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	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#24 BUTTERBALL 16C-10HZ (657'FNL & 1489'FEL, SEC.10))	4936.00ft
MD Reference Pt	XTREME 24 (16'KB) (RKB)	Section Origin	N 602.54, E 792.13 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	181.36°

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 (154 stations) † = interpolated/extrapolated station										Comments
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	
0.00†	0.000	11.500	0.00	621.18	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
16.00	0.000	11.500	16.00	621.18	0.00	0.00	40°09'29.027"N	104°52'20.856"W	0.00	
122.00	0.500	11.500	122.00	620.73	0.45	0.09	40°09'29.031"N	104°52'20.855"W	0.47	
211.00	0.700	1.200	210.99	619.80	1.38	0.18	40°09'29.041"N	104°52'20.854"W	0.25	
297.00	0.200	93.000	296.99	619.28	1.89	0.34	40°09'29.046"N	104°52'20.852"W	0.85	
384.00	0.500	112.300	383.99	619.42	1.74	0.84	40°09'29.044"N	104°52'20.845"W	0.37	
474.00	1.100	189.200	473.98	620.42	0.74	1.07	40°09'29.034"N	104°52'20.842"W	1.22	
568.00	1.600	187.600	567.96	622.62	-1.45	0.75	40°09'29.013"N	104°52'20.846"W	0.53	
612.06†	1.305	201.066	612.00	623.70	-2.53	0.49	40°09'29.002"N	104°52'20.850"W	1.02	BASE FOX HILLS
664.00	1.100	224.600	663.93	624.62	-3.44	-0.07	40°09'28.993"N	104°52'20.857"W	1.02	
760.00	0.300	98.400	759.93	625.32	-4.13	-0.47	40°09'28.986"N	104°52'20.862"W	1.35	
855.00	0.600	74.300	854.92	625.21	-4.03	0.25	40°09'28.987"N	104°52'20.853"W	0.37	
948.00	0.900	76.000	947.91	624.87	-3.72	1.43	40°09'28.990"N	104°52'20.838"W	0.32	
1045.00	0.200	353.000	1044.91	624.50	-3.37	2.15	40°09'28.994"N	104°52'20.828"W	0.93	
1059.09†	0.194	346.213	1059.00	624.45	-3.32	2.14	40°09'28.994"N	104°52'20.828"W	0.17	SURFACE CSG SETTING DEPTH
1116.00	0.200	317.700	1115.91	624.29	-3.15	2.05	40°09'28.996"N	104°52'20.830"W	0.17	TIE-INTO MWD SURVEYS
1216.00†	0.200	317.700	1215.91	624.04	-2.90	1.82	40°09'28.998"N	104°52'20.833"W	0.00	
1300.09	0.200	317.700	1300.00	623.82	-2.68	1.62	40°09'29.001"N	104°52'20.835"W	0.00	BEGIN NUDGE
1316.00†	0.412	6.411	1315.91	623.75	-2.60	1.61	40°09'29.001"N	104°52'20.835"W	2.00	
1416.00†	2.372	29.887	1415.87	621.57	-0.45	2.68	40°09'29.023"N	104°52'20.822"W	2.00	
1516.00†	4.368	32.045	1515.70	616.48	4.57	5.73	40°09'29.072"N	104°52'20.782"W	2.00	
1616.00†	6.366	32.850	1615.25	608.47	12.46	10.76	40°09'29.150"N	104°52'20.717"W	2.00	
1716.00†	8.366	33.271	1714.42	597.57	23.20	17.76	40°09'29.256"N	104°52'20.627"W	2.00	
1816.00†	10.365	33.531	1813.08	583.78	36.78	26.72	40°09'29.390"N	104°52'20.512"W	2.00	
1916.00†	12.365	33.707	1911.12	567.11	53.19	37.63	40°09'29.553"N	104°52'20.371"W	2.00	
2016.00†	14.365	33.835	2008.41	547.60	72.40	50.48	40°09'29.742"N	104°52'20.206"W	2.00	
2116.00†	16.365	33.932	2104.83	525.26	94.40	65.25	40°09'29.960"N	104°52'20.016"W	2.00	
2216.00†	18.365	34.009	2200.26	500.12	119.15	81.93	40°09'30.204"N	104°52'19.801"W	2.00	
2316.00†	20.364	34.071	2294.60	472.22	146.62	100.49	40°09'30.476"N	104°52'19.562"W	2.00	
2347.78	21.000	34.088	2324.34	462.77	155.92	106.78	40°09'30.568"N	104°52'19.481"W	2.00	END NUDGE
2416.00†	21.000	34.088	2388.02	442.21	176.16	120.48	40°09'30.768"N	104°52'19.304"W	0.00	
2516.00†	21.000	34.088	2481.38	412.06	205.84	140.57	40°09'31.061"N	104°52'19.046"W	0.00	
2616.00†	21.000	34.088	2574.74	381.91	235.52	160.65	40°09'31.354"N	104°52'18.787"W	0.00	
2716.00†	21.000	34.088	2668.10	351.76	265.20	180.74	40°09'31.648"N	104°52'18.528"W	0.00	
2816.00†	21.000	34.088	2761.46	321.62	294.88	200.82	40°09'31.941"N	104°52'18.269"W	0.00	
2916.00†	21.000	34.088	2854.81	291.47	324.56	220.91	40°09'32.234"N	104°52'18.011"W	0.00	
3016.00†	21.000	34.088	2948.17	261.32	354.24	240.99	40°09'32.528"N	104°52'17.752"W	0.00	
3116.00†	21.000	34.088	3041.53	231.17	383.92	261.08	40°09'32.821"N	104°52'17.493"W	0.00	
3216.00†	21.000	34.088	3134.89	201.02	413.60	281.17	40°09'33.114"N	104°52'17.235"W	0.00	
3316.00†	21.000	34.088	3228.25	170.88	443.28	301.25	40°09'33.407"N	104°52'16.976"W	0.00	
3416.00†	21.000	34.088	3321.60	140.73	472.96	321.34	40°09'33.701"N	104°52'16.717"W	0.00	
3516.00†	21.000	34.088	3414.96	110.58	502.64	341.42	40°09'33.994"N	104°52'16.459"W	0.00	
3616.00†	21.000	34.088	3508.32	80.43	532.31	361.51	40°09'34.287"N	104°52'16.200"W	0.00	
3716.00†	21.000	34.088	3601.68	50.29	561.99	381.59	40°09'34.581"N	104°52'15.941"W	0.00	
3816.00†	21.000	34.088	3695.04	20.14	591.67	401.68	40°09'34.874"N	104°52'15.683"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 (154 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3916.00†	21.000	34.088	3788.39	-10.01	621.35	421.76	40°09'35.167"N	104°52'15.424"W	0.00	
4016.00†	21.000	34.088	3881.75	-40.16	651.03	441.85	40°09'35.460"N	104°52'15.165"W	0.00	
4103.03†	21.000	34.088	3963.00	-66.40	676.86	459.33	40°09'35.716"N	104°52'14.940"W	0.00	PARKMAN
4116.00†	21.000	34.088	3975.11	-70.31	680.71	461.93	40°09'35.754"N	104°52'14.906"W	0.00	
4216.00†	21.000	34.088	4068.47	-100.45	710.39	482.02	40°09'36.047"N	104°52'14.648"W	0.00	
4316.00†	21.000	34.088	4161.83	-130.60	740.07	502.10	40°09'36.340"N	104°52'14.389"W	0.00	
4416.00†	21.000	34.088	4255.18	-160.75	769.75	522.19	40°09'36.634"N	104°52'14.130"W	0.00	
4516.00†	21.000	34.088	4348.54	-190.90	799.43	542.28	40°09'36.927"N	104°52'13.872"W	0.00	
4550.77†	21.000	34.088	4381.00	-201.38	809.75	549.26	40°09'37.029"N	104°52'13.782"W	0.00	SUSSEX
4616.00†	21.000	34.088	4441.90	-221.04	829.11	562.36	40°09'37.220"N	104°52'13.613"W	0.00	
4716.00†	21.000	34.088	4535.26	-251.19	858.79	582.45	40°09'37.513"N	104°52'13.354"W	0.00	
4816.00†	21.000	34.088	4628.62	-281.34	888.46	602.53	40°09'37.807"N	104°52'13.095"W	0.00	
4916.00†	21.000	34.088	4721.97	-311.49	918.14	622.62	40°09'38.100"N	104°52'12.837"W	0.00	
5016.00†	21.000	34.088	4815.33	-341.64	947.82	642.70	40°09'38.393"N	104°52'12.578"W	0.00	
5116.00†	21.000	34.088	4908.69	-371.78	977.50	662.79	40°09'38.687"N	104°52'12.319"W	0.00	
5216.00†	21.000	34.088	5002.05	-401.93	1007.18	682.87	40°09'38.980"N	104°52'12.061"W	0.00	
5229.01	21.000	34.088	5014.19	-405.85	1011.04	685.49	40°09'39.018"N	104°52'12.027"W	0.00	BEGIN DROP
5316.00†	19.260	34.088	5095.87	-431.04	1035.83	702.27	40°09'39.263"N	104°52'11.811"W	2.00	
5416.00†	17.260	34.088	5190.83	-457.40	1061.78	719.83	40°09'39.519"N	104°52'11.585"W	2.00	
5516.00†	15.260	34.088	5286.82	-480.95	1084.97	735.52	40°09'39.749"N	104°52'11.383"W	2.00	
5616.00†	13.260	34.088	5383.74	-501.67	1105.37	749.32	40°09'39.950"N	104°52'11.205"W	2.00	
5716.00†	11.260	34.088	5481.45	-519.53	1122.95	761.22	40°09'40.124"N	104°52'11.051"W	2.00	
5816.00†	9.260	34.088	5579.85	-534.52	1137.71	771.21	40°09'40.270"N	104°52'10.923"W	2.00	
5916.00†	7.260	34.088	5678.80	-546.60	1149.60	779.26	40°09'40.387"N	104°52'10.819"W	2.00	
6016.00†	5.260	34.088	5778.20	-555.78	1158.63	785.37	40°09'40.477"N	104°52'10.740"W	2.00	
6116.00†	3.260	34.088	5877.92	-562.02	1164.78	789.53	40°09'40.537"N	104°52'10.687"W	2.00	
6216.00†	1.260	34.088	5977.84	-565.34	1168.05	791.74	40°09'40.570"N	104°52'10.658"W	2.00	
6279.01	0.000	180.000	6040.84	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	2.00	END DROP
6316.00†	0.000	180.000	6077.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6416.00†	0.000	180.000	6177.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6516.00†	0.000	180.000	6277.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6616.00†	0.000	180.000	6377.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6716.00†	0.000	180.000	6477.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6816.00†	0.000	180.000	6577.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
6916.00†	0.000	180.000	6677.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
7016.00†	0.000	180.000	6777.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
7116.00†	0.000	180.000	6877.83	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	
7123.25	0.000	180.000	6885.08	-565.92	1168.62	792.13	40°09'40.575"N	104°52'10.653"W	0.00	KOP, BUILD @ 10°/100'
7216.00†	9.275	180.000	6977.43	-558.44	1161.13	792.13	40°09'40.501"N	104°52'10.653"W	10.00	
7316.00†	19.275	180.000	7074.22	-533.82	1136.51	792.13	40°09'40.258"N	104°52'10.653"W	10.00	
7360.92†	23.767	180.000	7116.00	-517.35	1120.03	792.13	40°09'40.095"N	104°52'10.653"W	10.00	SHARON SPRINGS
7416.00†	29.275	180.000	7165.26	-492.77	1095.45	792.13	40°09'39.852"N	104°52'10.653"W	10.00	
7445.96†	32.271	180.000	7191.00	-477.45	1080.12	792.13	40°09'39.701"N	104°52'10.653"W	10.00	NIOBRARA A
7507.28†	38.403	180.000	7241.00	-442.01	1044.67	792.13	40°09'39.350"N	104°52'10.653"W	10.00	NIOBRARA B
7516.00†	39.275	180.000	7247.79	-436.54	1039.20	792.13	40°09'39.296"N	104°52'10.653"W	10.00	

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 (154 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7588.70†	46.545	180.000	7301.00	-387.09	989.74	792.13	40°09'38.808"N	104°52'10.653"W	10.00	NIOBRARA C
7616.00†	49.275	180.000	7319.30	-366.84	969.48	792.13	40°09'38.607"N	104°52'10.653"W	10.00	
7716.00†	59.275	180.000	7377.61	-285.78	888.40	792.13	40°09'37.806"N	104°52'10.653"W	10.00	
7816.00†	69.275	180.000	7420.96	-195.83	798.43	792.13	40°09'36.917"N	104°52'10.654"W	10.00	
7863.81†	74.056	180.000	7436.00	-150.47	753.06	792.13	40°09'36.469"N	104°52'10.654"W	10.00	FORT HAYS
7916.00†	79.275	180.000	7448.03	-99.72	702.29	792.13	40°09'35.967"N	104°52'10.654"W	10.00	
7947.19†	82.394	180.000	7453.00	-68.94	671.50	792.13	40°09'35.663"N	104°52'10.654"W	10.00	CODELL
8016.00†	89.275	180.000	7458.00	-0.38	602.92	792.13	40°09'34.985"N	104°52'10.654"W	10.00	
8016.38	89.313	180.000	7458.00	0.00	602.54	792.13	40°09'34.981"N	104°52'10.654"W	10.00	LANDING POINT
8016.38†	89.313	180.000	7458.00	0.00	602.54	792.13	40°09'34.981"N	104°52'10.654"W	0.00	PRODUCTION TOP
8116.00†	89.313	180.000	7459.20	99.59	502.92	792.13	40°09'33.997"N	104°52'10.654"W	0.00	
8216.00†	89.313	180.000	7460.39	199.55	402.93	792.13	40°09'33.009"N	104°52'10.654"W	0.00	
8316.00†	89.313	180.000	7461.59	299.52	302.94	792.13	40°09'32.021"N	104°52'10.654"W	0.00	
8416.00†	89.313	180.000	7462.79	399.48	202.95	792.13	40°09'31.032"N	104°52'10.654"W	0.00	
8516.00†	89.313	180.000	7463.99	499.45	102.95	792.13	40°09'30.044"N	104°52'10.654"W	0.00	
8616.00†	89.313	180.000	7465.19	599.41	2.96	792.13	40°09'29.056"N	104°52'10.654"W	0.00	
8716.00†	89.313	180.000	7466.39	699.38	-97.03	792.13	40°09'28.068"N	104°52'10.654"W	0.00	
8816.00†	89.313	180.000	7467.59	799.34	-197.03	792.13	40°09'27.080"N	104°52'10.654"W	0.00	
8916.00†	89.313	180.000	7468.79	899.30	-297.02	792.13	40°09'26.092"N	104°52'10.654"W	0.00	
9016.00†	89.313	180.000	7469.99	999.27	-397.01	792.13	40°09'25.104"N	104°52'10.654"W	0.00	
9116.00†	89.313	180.000	7471.19	1099.23	-497.00	792.13	40°09'24.115"N	104°52'10.654"W	0.00	
9216.00†	89.313	180.000	7472.39	1199.20	-597.00	792.13	40°09'23.127"N	104°52'10.654"W	0.00	
9316.00†	89.313	180.000	7473.59	1299.16	-696.99	792.13	40°09'22.139"N	104°52'10.654"W	0.00	
9416.00†	89.313	180.000	7474.79	1399.13	-796.98	792.13	40°09'21.151"N	104°52'10.654"W	0.00	
9516.00†	89.313	180.000	7475.99	1499.09	-896.98	792.13	40°09'20.163"N	104°52'10.654"W	0.00	
9516.91	89.313	180.000	7476.00	1500.00	-897.88	792.13	40°09'20.154"N	104°52'10.654"W	0.00	TARGET @ 1500'VS
9614.55	89.367	181.952	7477.12	1597.63	-995.50	790.47	40°09'19.189"N	104°52'10.676"W	2.00	BEGIN DROP & TURN
9616.00†	89.367	181.952	7477.14	1599.08	-996.95	790.42	40°09'19.175"N	104°52'10.676"W	0.00	
9716.00†	89.367	181.952	7478.25	1699.07	-1096.88	787.01	40°09'18.187"N	104°52'10.720"W	0.00	
9816.00†	89.367	181.952	7479.35	1799.06	-1196.82	783.60	40°09'17.200"N	104°52'10.764"W	0.00	
9916.00†	89.367	181.952	7480.46	1899.04	-1296.76	780.20	40°09'16.212"N	104°52'10.808"W	0.00	
10016.00†	89.367	181.952	7481.56	1999.03	-1396.69	776.79	40°09'15.225"N	104°52'10.852"W	0.00	
10116.00†	89.367	181.952	7482.67	2099.02	-1496.63	773.39	40°09'14.237"N	104°52'10.896"W	0.00	
10216.00†	89.367	181.952	7483.77	2199.01	-1596.56	769.98	40°09'13.250"N	104°52'10.940"W	0.00	
10316.00†	89.367	181.952	7484.88	2299.00	-1696.50	766.57	40°09'12.262"N	104°52'10.984"W	0.00	
10416.00†	89.367	181.952	7485.99	2398.99	-1796.44	763.17	40°09'11.274"N	104°52'11.028"W	0.00	
10516.00†	89.367	181.952	7487.09	2498.98	-1896.37	759.76	40°09'10.287"N	104°52'11.072"W	0.00	
10616.00†	89.367	181.952	7488.20	2598.96	-1996.31	756.35	40°09'09.299"N	104°52'11.115"W	0.00	
10716.00†	89.367	181.952	7489.30	2698.95	-2096.24	752.95	40°09'08.312"N	104°52'11.159"W	0.00	
10816.00†	89.367	181.952	7490.41	2798.94	-2196.18	749.54	40°09'07.324"N	104°52'11.203"W	0.00	
10916.00†	89.367	181.952	7491.51	2898.93	-2296.11	746.13	40°09'06.337"N	104°52'11.247"W	0.00	
11016.00†	89.367	181.952	7492.62	2998.92	-2396.05	742.73	40°09'05.349"N	104°52'11.291"W	0.00	
11116.00†	89.367	181.952	7493.72	3098.91	-2495.99	739.32	40°09'04.361"N	104°52'11.335"W	0.00	
11216.00†	89.367	181.952	7494.83	3198.90	-2595.92	735.91	40°09'03.374"N	104°52'11.379"W	0.00	
11316.00†	89.367	181.952	7495.94	3298.88	-2695.86	732.51	40°09'02.386"N	104°52'11.423"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 (154 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11416.00†	89.367	181.952	7497.04	3398.87	-2795.79	729.10	40°09'01.399"N	104°52'11.467"W	0.00	
11516.00†	89.367	181.952	7498.15	3498.86	-2895.73	725.69	40°09'00.411"N	104°52'11.511"W	0.00	
11616.00†	89.367	181.952	7499.25	3598.85	-2995.67	722.29	40°08'59.424"N	104°52'11.554"W	0.00	
11716.00†	89.367	181.952	7500.36	3698.84	-3095.60	718.88	40°08'58.436"N	104°52'11.598"W	0.00	
11816.00†	89.367	181.952	7501.46	3798.83	-3195.54	715.48	40°08'57.448"N	104°52'11.642"W	0.00	
11916.00†	89.367	181.952	7502.57	3898.82	-3295.47	712.07	40°08'56.461"N	104°52'11.686"W	0.00	
12016.00†	89.367	181.952	7503.67	3998.80	-3395.41	708.66	40°08'55.473"N	104°52'11.730"W	0.00	
12116.00†	89.367	181.952	7504.78	4098.79	-3495.35	705.26	40°08'54.486"N	104°52'11.774"W	0.00	
12216.00†	89.367	181.952	7505.88	4198.78	-3595.28	701.85	40°08'53.498"N	104°52'11.818"W	0.00	
12316.00†	89.367	181.952	7506.99	4298.77	-3695.22	698.44	40°08'52.511"N	104°52'11.862"W	0.00	
12416.00†	89.367	181.952	7508.10	4398.76	-3795.15	695.04	40°08'51.523"N	104°52'11.906"W	0.00	
12516.00†	89.367	181.952	7509.20	4498.75	-3895.09	691.63	40°08'50.535"N	104°52'11.950"W	0.00	
12616.00†	89.367	181.952	7510.31	4598.74	-3995.02	688.22	40°08'49.548"N	104°52'11.994"W	0.00	
12716.00†	89.367	181.952	7511.41	4698.72	-4094.96	684.82	40°08'48.560"N	104°52'12.037"W	0.00	
12816.00†	89.367	181.952	7512.52	4798.71	-4194.90	681.41	40°08'47.573"N	104°52'12.081"W	0.00	
12916.00†	89.367	181.952	7513.62	4898.70	-4294.83	678.00	40°08'46.585"N	104°52'12.125"W	0.00	
13016.00†	89.367	181.952	7514.73	4998.69	-4394.77	674.60	40°08'45.598"N	104°52'12.169"W	0.00	
13116.00†	89.367	181.952	7515.83	5098.68	-4494.70	671.19	40°08'44.610"N	104°52'12.213"W	0.00	
13130.94	89.367	181.952	7516.00 [†]	5113.62	-4509.64	670.68	40°08'44.462"N	104°52'12.220"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: BUTTERBALL 16C-10HZ PWB					Ref Wellpath: BUTTERBALL 16C-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	1160.00	1144.00	16.00	1159.91	0.00	0.00	-3.04	1.95
9.625in Casing Surface	16.00	1149.00	1133.00	16.00	1148.91	0.00	0.00	-3.07	1.97
7.875in Open Hole	1160.00	13130.94	11970.94	1159.91	7516.00	-3.04	1.95	-4509.64	670.68
5.5in Casing Production	16.00	13130.94	13114.94	16.00	7516.00	0.00	0.00	-4509.64	670.68

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		4936.00	26.98	-1806.53	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
BUTTERBALL 16C-10HZ LANDBOX		7516.00	0.00	0.00	3175398.64	1301046.22	40°09'29.027"N	104°52'20.856"W	polygon
1) BUTTERBALL 16C-10HZ BHL ON PLAT REV-3 (110'FSL & 788'FEL, SEC.10)	13130.94	7516.00	-4509.64	670.68	3176101.19	1296541.64	40°08'44.462"N	104°52'12.220"W	point

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		

SURVEY PROGRAM - Ref Wellbore: BUTTERBALL 16C-10HZ PWB Ref Wellpath: BUTTERBALL 16C-10HZ (PERMIT REV-2) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	1116.00	ISCWSA MWD, Rev. 2 (Standard)		BUTTERBALL 16C-10HZ AWB <1116>
1116.00	8016.38	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)		BUTTERBALL 16C-10HZ PWB
8016.38	13130.94	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)		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
612.06	1.305	201.066	612.00	BASE FOX HILLS
1059.09	0.194	346.213	1059.00	SURFACE CSG SETTING DEPTH
4103.03	21.000	34.088	3963.00	PARKMAN
4550.77	21.000	34.088	4381.00	SUSSEX
7360.92	23.767	180.000	7116.00	SHARON SPRINGS
7445.96	32.271	180.000	7191.00	NIOBRARA A
7507.28	38.403	180.000	7241.00	NIOBRARA B
7588.70	46.545	180.000	7301.00	NIOBRARA C
7863.81	74.056	180.000	7436.00	FORT HAYS
7947.19	82.394	180.000	7453.00	CODELL
8016.38	89.313	180.000	7458.00	PRODUCTION TOP

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1116.00	0.200	317.700	1115.91	TIE-INTO MWD SURVEYS
1300.09	0.200	317.700	1300.00	BEGIN NUDGE
2347.78	21.000	34.088	2324.34	END NUDGE
5229.01	21.000	34.088	5014.19	BEGIN DROP
6279.01	0.000	180.000	6040.84	END DROP
7123.25	0.000	180.000	6885.08	KOP, BUILD @ 10°/100'
8016.38	89.313	180.000	7458.00	LANDING POINT
9516.91	89.313	180.000	7476.00	TARGET @ 1500'VS
9614.55	89.367	181.952	7477.12	BEGIN DROP & TURN
13130.94	89.367	181.952	7516.00	TOTAL DEPTH