

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL,SEC.27)
Area	COLORADO	Well	PUTTER 27-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUTTER 27-4HZ AWB
Facility	SEC.27-T3N-R68W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Painsetr
Scale	0.999600	Report Generated	1/10/2018 at 9:29 AM
Convergence at slot	0.00°	Database/Source file	WA_DEN_Anadarko_Defn/PUTTER_27-4HZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	3762.10	256.13	1642035.29	14600712.48	40°12'11.365"N	104°59'39.131"W
Facility Reference Pt			1641779.46	14596951.88	40°11'34.188"N	104°59'42.432"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	PD 464 (21') (RT) to Facility Vertical Datum	5001.00ft
Horizontal Reference Pt	Slot	PD 464 (21') (RT) to Mean Sea Level	5001.00ft
Vertical Reference Pt	PD 464 (21') (RT)	PD 464 (21') (RT) to Mud Line at Slot (SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL,SEC.27))	5001.00ft
MD Reference Pt	PD 464 (21') (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	180.68°

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WELLPATH DATA (198 stations) † = interpolated/extrapolated station												
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS (°/100ft)	Comments
0.00†	0.000	255.510	0.00	0.00	0.00	0.00	1642035.29	14600712.48	40°12'11.365"N	104°59'39.131"W	0.00	
21.00	0.000	255.510	21.00	0.00	0.00	0.00	1642035.29	14600712.48	40°12'11.365"N	104°59'39.131"W	0.00	
127.00	0.350	255.510	127.00	0.08	-0.08	-0.31	1642034.97	14600712.40	40°12'11.364"N	104°59'39.135"W	0.33	FIRST SURFACE MWD+IFR1 SURVEY
159.00	0.400	83.590	159.00	0.10	-0.09	-0.30	1642034.99	14600712.39	40°12'11.364"N	104°59'39.135"W	2.34	
191.00	0.620	40.970	191.00	-0.05	0.05	-0.07	1642035.21	14600712.53	40°12'11.365"N	104°59'39.132"W	1.32	
254.00	1.140	11.430	253.99	-0.93	0.92	0.28	1642035.56	14600713.40	40°12'11.374"N	104°59'39.127"W	1.07	
285.00	0.790	32.530	284.99	-1.41	1.40	0.45	1642035.74	14600713.89	40°12'11.379"N	104°59'39.125"W	1.59	
317.00	1.630	20.570	316.98	-2.02	2.02	0.73	1642036.01	14600714.50	40°12'11.385"N	104°59'39.122"W	2.73	
348.00	2.070	15.920	347.96	-2.98	2.97	1.04	1642036.32	14600715.45	40°12'11.394"N	104°59'39.118"W	1.50	
380.00	2.420	18.290	379.94	-4.18	4.16	1.41	1642036.69	14600716.64	40°12'11.406"N	104°59'39.113"W	1.13	
412.00	2.720	22.330	411.91	-5.53	5.51	1.91	1642037.19	14600717.99	40°12'11.419"N	104°59'39.106"W	1.09	
443.00	3.120	21.810	442.87	-7.00	6.97	2.50	1642037.79	14600719.45	40°12'11.434"N	104°59'39.099"W	1.29	
474.00	4.660	14.950	473.79	-9.01	8.97	3.14	1642038.42	14600721.45	40°12'11.454"N	104°59'39.091"W	5.18	
506.00	5.100	11.520	505.68	-11.67	11.62	3.76	1642039.04	14600724.10	40°12'11.480"N	104°59'39.083"W	1.65	
538.00	5.580	9.240	537.54	-14.60	14.55	4.29	1642039.58	14600727.03	40°12'11.509"N	104°59'39.076"W	1.64	
570.00	6.020	8.970	569.37	-17.80	17.74	4.81	1642040.09	14600730.22	40°12'11.540"N	104°59'39.069"W	1.38	
602.00	6.060	10.120	601.20	-21.13	21.06	5.36	1642040.65	14600733.54	40°12'11.573"N	104°59'39.062"W	0.40	
634.00	6.810	8.180	633.00	-24.67	24.61	5.93	1642041.21	14600737.08	40°12'11.608"N	104°59'39.055"W	2.44	
665.00	7.780	4.050	663.74	-28.59	28.52	6.34	1642041.62	14600740.99	40°12'11.647"N	104°59'39.049"W	3.56	
697.00	8.350	3.700	695.43	-33.07	33.00	6.64	1642041.92	14600745.47	40°12'11.691"N	104°59'39.045"W	1.79	
729.00	8.610	3.790	727.08	-37.79	37.71	6.95	1642042.23	14600750.17	40°12'11.738"N	104°59'39.041"W	0.81	
761.00	8.960	2.470	758.70	-42.67	42.59	7.22	1642042.50	14600755.05	40°12'11.786"N	104°59'39.038"W	1.26	
792.00	10.020	2.730	789.28	-47.78	47.69	7.45	1642042.73	14600760.15	40°12'11.836"N	104°59'39.035"W	3.42	
824.00	11.250	4.400	820.73	-53.67	53.58	7.82	1642043.10	14600766.04	40°12'11.895"N	104°59'39.030"W	3.96	
856.00	11.910	4.580	852.08	-60.08	59.99	8.32	1642043.60	14600772.45	40°12'11.958"N	104°59'39.024"W	2.07	
888.00	12.300	5.550	883.36	-66.77	66.67	8.92	1642044.20	14600779.13	40°12'12.024"N	104°59'39.016"W	1.37	
919.00	13.220	4.750	913.60	-73.60	73.49	9.53	1642044.81	14600785.94	40°12'12.091"N	104°59'39.008"W	3.02	
951.00	14.410	3.260	944.67	-81.23	81.11	10.06	1642045.34	14600793.56	40°12'12.167"N	104°59'39.001"W	3.88	
983.00	14.850	3.700	975.63	-89.30	89.18	10.55	1642045.83	14600801.63	40°12'12.246"N	104°59'38.995"W	1.42	
1015.00	15.160	2.650	1006.54	-97.58	97.45	11.01	1642046.28	14600809.90	40°12'12.328"N	104°59'38.989"W	1.29	
1046.00	15.560	3.520	1036.44	-105.78	105.65	11.45	1642046.73	14600818.09	40°12'12.409"N	104°59'38.983"W	1.49	
1078.00	16.000	3.880	1067.23	-114.47	114.34	12.01	1642047.29	14600826.77	40°12'12.495"N	104°59'38.976"W	1.41	
1110.00	16.300	3.960	1097.97	-123.36	123.22	12.62	1642047.89	14600835.65	40°12'12.583"N	104°59'38.968"W	0.94	
1141.00	16.570	3.260	1127.70	-132.12	131.97	13.17	1642048.45	14600844.40	40°12'12.669"N	104°59'38.961"W	1.08	
1173.00	16.570	3.260	1158.37	-141.23	141.08	13.69	1642048.96	14600853.51	40°12'12.759"N	104°59'38.955"W	0.00	
1205.00	17.140	3.790	1189.00	-150.50	150.34	14.26	1642049.53	14600862.76	40°12'12.851"N	104°59'38.947"W	1.84	
1237.00	17.930	3.080	1219.51	-160.13	159.96	14.84	1642050.11	14600872.38	40°12'12.946"N	104°59'38.940"W	2.56	
1269.00	18.240	3.790	1249.93	-170.05	169.88	15.44	1642050.70	14600882.29	40°12'13.044"N	104°59'38.932"W	1.19	
1300.00	18.460	2.910	1279.35	-179.80	179.62	16.01	1642051.27	14600892.03	40°12'13.140"N	104°59'38.925"W	1.14	
1332.00	18.540	2.290	1309.70	-189.95	189.77	16.47	1642051.73	14600902.17	40°12'13.240"N	104°59'38.919"W	0.66	
1364.00	18.680	1.850	1340.03	-200.16	199.97	16.84	1642052.10	14600912.37	40°12'13.341"N	104°59'38.914"W	0.62	
1395.00	18.630	1.850	1369.40	-210.07	209.88	17.16	1642052.42	14600922.28	40°12'13.439"N	104°59'38.910"W	0.16	
1427.00	18.540	1.330	1399.73	-220.27	220.08	17.44	1642052.70	14600932.47	40°12'13.540"N	104°59'38.906"W	0.59	
1459.00	18.810	1.500	1430.04	-230.51	230.32	17.69	1642052.95	14600942.71	40°12'13.641"N	104°59'38.903"W	0.86	
1490.00	18.590	3.880	1459.41	-240.44	240.25	18.16	1642053.42	14600952.63	40°12'13.739"N	104°59'38.897"W	2.56	

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WELLPATH DATA (198 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1522.00	18.540	5.020	1489.74	-250.61	250.40	18.95	1642054.21	14600962.79	40°12'13.839"N	104°59'38.887"W	1.14	
1554.00	18.810	3.000	1520.06	-260.84	260.62	19.66	1642054.92	14600973.00	40°12'13.940"N	104°59'38.878"W	2.19	
1585.00	18.540	4.490	1549.43	-270.75	270.53	20.31	1642055.57	14600982.90	40°12'14.038"N	104°59'38.869"W	1.77	
1617.00	18.280	2.820	1579.79	-280.84	280.61	20.96	1642056.21	14600992.98	40°12'14.138"N	104°59'38.861"W	1.84	
1649.00	18.280	2.470	1610.17	-290.87	290.64	21.42	1642056.68	14601003.00	40°12'14.237"N	104°59'38.855"W	0.34	
1681.00	18.370	1.330	1640.55	-300.93	300.69	21.75	1642057.01	14601013.06	40°12'14.336"N	104°59'38.851"W	1.15	
1712.00	18.500	1.590	1669.96	-310.73	310.49	22.00	1642057.26	14601022.85	40°12'14.433"N	104°59'38.847"W	0.50	
1744.00	18.060	4.140	1700.35	-320.76	320.52	22.50	1642057.76	14601032.87	40°12'14.532"N	104°59'38.841"W	2.85	
1776.00	17.450	4.840	1730.82	-330.50	330.24	23.26	1642058.52	14601042.59	40°12'14.628"N	104°59'38.831"W	2.02	
1808.00	17.670	2.730	1761.33	-340.13	339.88	23.90	1642059.15	14601052.22	40°12'14.724"N	104°59'38.823"W	2.10	
1839.00	18.370	3.080	1790.81	-349.72	349.45	24.39	1642059.64	14601061.80	40°12'14.818"N	104°59'38.817"W	2.28	LAST SURFACE MWD+IFR1 SURVEY
1937.00	18.350	2.430	1883.82	-380.56	380.29	25.87	1642061.12	14601092.62	40°12'15.123"N	104°59'38.798"W	0.21	FIRST BHGE MWD+IFR1+SC SURVEY
2026.00	17.880	0.010	1968.41	-408.23	407.95	26.47	1642061.71	14601120.27	40°12'15.396"N	104°59'38.790"W	1.00	
2116.00	17.000	358.070	2054.27	-435.19	434.91	26.03	1642061.27	14601147.22	40°12'15.663"N	104°59'38.796"W	1.17	
2206.00	17.180	2.330	2140.30	-461.62	461.34	26.12	1642061.37	14601173.64	40°12'15.924"N	104°59'38.794"W	1.40	
2296.00	16.480	1.570	2226.45	-487.67	487.39	27.01	1642062.26	14601199.67	40°12'16.181"N	104°59'38.783"W	0.82	
2386.00	18.280	7.030	2312.34	-514.47	514.16	29.09	1642064.33	14601226.44	40°12'16.446"N	104°59'38.756"W	2.70	
2475.00	18.090	5.950	2396.90	-542.10	541.75	32.23	1642067.47	14601254.02	40°12'16.719"N	104°59'38.716"W	0.43	
2565.00	17.120	4.400	2482.68	-569.23	568.86	34.70	1642069.93	14601281.12	40°12'16.986"N	104°59'38.684"W	1.20	
2655.00	16.930	1.990	2568.74	-595.55	595.17	36.17	1642071.40	14601307.41	40°12'17.246"N	104°59'38.665"W	0.81	
2744.00	17.890	5.470	2653.66	-622.13	621.73	37.92	1642073.15	14601333.96	40°12'17.509"N	104°59'38.642"W	1.59	
2834.00	16.910	3.460	2739.54	-648.98	648.55	40.03	1642075.26	14601360.78	40°12'17.774"N	104°59'38.615"W	1.28	
2923.00	17.840	6.212	2824.48	-675.48	675.03	42.28	1642077.51	14601387.24	40°12'18.036"N	104°59'38.586"W	1.39	
3013.00	17.770	6.470	2910.17	-702.86	702.38	45.32	1642080.55	14601414.58	40°12'18.306"N	104°59'38.547"W	0.12	
3103.00	17.980	6.380	2995.83	-730.35	729.83	48.42	1642083.63	14601442.02	40°12'18.577"N	104°59'38.507"W	0.24	
3192.00	17.780	3.700	3080.53	-757.59	757.04	50.82	1642086.03	14601469.22	40°12'18.846"N	104°59'38.476"W	0.95	
3282.00	16.340	2.100	3166.57	-783.97	783.41	52.17	1642087.38	14601495.58	40°12'19.107"N	104°59'38.459"W	1.68	
3371.00	15.890	4.850	3252.07	-808.64	808.06	53.66	1642088.87	14601520.22	40°12'19.350"N	104°59'38.439"W	1.00	
3461.00	15.660	4.510	3338.68	-833.04	832.44	55.66	1642090.86	14601544.60	40°12'19.591"N	104°59'38.414"W	0.28	
3551.00	14.510	3.710	3425.58	-856.42	855.81	57.34	1642092.55	14601567.95	40°12'19.822"N	104°59'38.392"W	1.30	
3640.00	13.110	2.340	3512.00	-877.65	877.02	58.47	1642093.68	14601589.15	40°12'20.032"N	104°59'38.377"W	1.62	
3730.00	11.780	359.510	3599.89	-897.04	896.40	58.81	1642094.01	14601608.53	40°12'20.223"N	104°59'38.373"W	1.63	
3819.00	11.090	6.030	3687.13	-914.64	914.00	59.63	1642094.83	14601626.12	40°12'20.397"N	104°59'38.362"W	1.65	
3909.00	10.510	2.400	3775.53	-931.47	930.81	60.89	1642096.09	14601642.92	40°12'20.563"N	104°59'38.346"W	0.99	
3999.00	9.110	10.750	3864.22	-946.69	946.01	62.56	1642097.76	14601658.12	40°12'20.713"N	104°59'38.325"W	2.21	
4089.00	5.980	6.380	3953.43	-958.37	957.68	64.41	1642099.61	14601669.78	40°12'20.829"N	104°59'38.301"W	3.53	
4178.00	4.060	1.860	4042.08	-966.13	965.43	65.03	1642100.22	14601677.53	40°12'20.905"N	104°59'38.293"W	2.20	
4268.00	2.540	336.820	4131.94	-971.14	970.45	64.35	1642099.54	14601682.55	40°12'20.955"N	104°59'38.302"W	2.29	
4358.00	0.780	264.970	4221.90	-972.91	972.23	62.95	1642098.15	14601684.33	40°12'20.973"N	104°59'38.320"W	2.68	
4448.00	1.050	265.090	4311.89	-972.77	972.11	61.52	1642096.72	14601684.20	40°12'20.971"N	104°59'38.338"W	0.30	
4537.00	0.450	144.940	4400.88	-972.40	971.75	60.91	1642096.10	14601683.85	40°12'20.968"N	104°59'38.346"W	1.50	
4627.00	0.820	143.730	4490.88	-971.60	970.94	61.49	1642096.69	14601683.04	40°12'20.960"N	104°59'38.338"W	0.41	
4717.00	0.560	153.590	4580.87	-970.69	970.03	62.07	1642097.26	14601682.12	40°12'20.951"N	104°59'38.331"W	0.32	
4806.00	0.400	187.640	4669.87	-970.00	969.33	62.22	1642097.42	14601681.43	40°12'20.944"N	104°59'38.329"W	0.36	
4896.00	0.510	200.620	4759.87	-969.31	968.65	62.04	1642097.23	14601680.74	40°12'20.937"N	104°59'38.331"W	0.17	

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MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS ["/100ft]	Comments
4986.00	0.360	127.090	4849.86	-968.77	968.10	62.12	1642097.32	14601680.20	40°12'20.932"N	104°59'38.330"W	0.59	
5076.00	0.430	134.620	4939.86	-968.36	967.69	62.59	1642097.78	14601679.79	40°12'20.928"N	104°59'38.324"W	0.10	
5165.00	0.220	187.320	5028.86	-967.96	967.29	62.80	1642098.00	14601679.38	40°12'20.924"N	104°59'38.322"W	0.39	
5255.00	0.260	183.230	5118.86	-967.59	966.91	62.77	1642097.97	14601679.01	40°12'20.920"N	104°59'38.322"W	0.05	
5345.00	0.400	270.510	5208.86	-967.38	966.71	62.44	1642097.64	14601678.81	40°12'20.918"N	104°59'38.326"W	0.52	
5458.00	0.240	171.760	5321.86	-967.15	966.48	62.08	1642097.28	14601678.58	40°12'20.916"N	104°59'38.331"W	0.44	
5548.00	0.190	285.070	5411.86	-967.00	966.33	61.97	1642097.16	14601678.43	40°12'20.914"N	104°59'38.332"W	0.40	
5638.00	0.900	150.150	5501.85	-966.43	965.76	62.17	1642097.37	14601677.86	40°12'20.909"N	104°59'38.330"W	1.16	
5728.00	1.050	167.990	5591.84	-965.01	964.34	62.70	1642097.89	14601676.44	40°12'20.895"N	104°59'38.323"W	0.37	
5817.00	0.940	164.550	5680.83	-963.52	962.84	63.06	1642098.26	14601674.94	40°12'20.880"N	104°59'38.318"W	0.14	
5907.00	0.900	173.010	5770.82	-962.11	961.42	63.34	1642098.54	14601673.52	40°12'20.866"N	104°59'38.315"W	0.16	
5996.00	0.680	186.920	5859.81	-960.89	960.21	63.37	1642098.56	14601672.31	40°12'20.854"N	104°59'38.314"W	0.33	
6086.00	0.570	215.450	5949.80	-959.99	959.31	63.04	1642098.24	14601671.41	40°12'20.845"N	104°59'38.318"W	0.36	
6176.00	0.750	216.840	6039.80	-959.15	958.48	62.43	1642097.63	14601670.58	40°12'20.837"N	104°59'38.326"W	0.20	
6266.00	0.370	200.590	6129.79	-958.40	957.73	61.97	1642097.17	14601669.83	40°12'20.829"N	104°59'38.332"W	0.45	
6355.00	0.460	237.270	6218.79	-957.93	957.27	61.57	1642096.77	14601669.37	40°12'20.825"N	104°59'38.337"W	0.31	
6445.00	0.620	248.250	6308.79	-957.55	956.89	60.82	1642096.01	14601669.00	40°12'20.821"N	104°59'38.347"W	0.21	
6482.00†	2.570	198.415	6345.77	-956.68	956.03	60.37	1642095.57	14601668.13	40°12'20.812"N	104°59'38.353"W	6.00	KOP
6534.00	5.660	191.650	6397.63	-953.05	952.41	59.48	1642094.68	14601664.52	40°12'20.777"N	104°59'38.364"W	6.00	
6624.00	12.580	184.600	6486.44	-938.90	938.28	57.80	1642093.00	14601650.39	40°12'20.637"N	104°59'38.386"W	7.77	
6714.00	19.550	183.160	6572.87	-914.04	913.44	56.18	1642091.38	14601625.56	40°12'20.392"N	104°59'38.407"W	7.76	
6804.00	24.740	181.810	6656.21	-880.15	879.56	54.75	1642089.96	14601591.69	40°12'20.057"N	104°59'38.425"W	5.79	
6893.00	31.720	179.650	6734.57	-838.08	837.50	54.31	1642089.52	14601549.65	40°12'19.641"N	104°59'38.431"W	7.93	
6983.00	36.440	179.630	6809.10	-787.67	787.08	54.62	1642089.84	14601499.25	40°12'19.143"N	104°59'38.427"W	5.24	
7073.00	42.080	181.240	6878.76	-730.75	730.16	54.14	1642089.36	14601442.35	40°12'18.580"N	104°59'38.433"W	6.37	
7162.00	48.860	179.690	6941.14	-667.34	666.75	53.68	1642088.90	14601378.97	40°12'17.954"N	104°59'38.439"W	7.72	
7252.00	56.120	180.860	6995.90	-596.00	595.41	53.30	1642088.53	14601307.66	40°12'17.249"N	104°59'38.444"W	8.13	
7342.00	63.790	179.550	7040.93	-518.16	517.57	53.06	1642088.29	14601229.84	40°12'16.480"N	104°59'38.447"W	8.61	
7431.00	69.440	180.230	7076.24	-436.51	435.91	53.20	1642088.44	14601148.22	40°12'15.673"N	104°59'38.445"W	6.39	
7521.00	79.710	180.200	7100.15	-349.87	349.27	52.88	1642088.12	14601061.61	40°12'14.816"N	104°59'38.449"W	11.41	
7611.00	87.780	179.000	7109.94	-260.50	259.88	53.51	1642088.76	14600972.26	40°12'13.933"N	104°59'38.441"W	9.06	LANDING (98'FNL & 1220'FWL,SEC.27) 40.2038703 -104.9940115
7700.00	90.250	180.100	7111.47	-171.53	170.91	54.21	1642089.46	14600883.32	40°12'13.054"N	104°59'38.432"W	3.04	
7790.00	90.680	178.850	7110.74	-81.56	80.91	55.03	1642090.29	14600793.37	40°12'12.165"N	104°59'38.422"W	1.47	
7879.00	90.950	178.200	7109.48	7.37	-8.05	57.32	1642092.59	14600704.44	40°12'11.285"N	104°59'38.392"W	0.79	
7964.00†	90.166	179.891	7108.65	92.33	-93.03	58.74	1642094.01	14600619.50	40°12'10.446"N	104°59'38.374"W	2.19	CROSS SETBACK HEEL (451'FNL & 1224'FWL,SEC.27) 40.2029016 -104.9939928
7969.00	90.120	179.990	7108.64	97.33	-98.03	58.75	1642094.01	14600614.50	40°12'10.396"N	104°59'38.374"W	2.19	
8059.00	91.170	180.300	7107.62	187.31	-188.02	58.52	1642093.79	14600524.54	40°12'09.507"N	104°59'38.377"W	1.22	
8148.00	90.060	182.030	7106.67	276.30	-276.99	56.71	1642091.99	14600435.61	40°12'08.628"N	104°59'38.400"W	2.31	
8238.00	90.340	181.390	7106.36	366.29	-366.95	54.02	1642089.31	14600345.68	40°12'07.739"N	104°59'38.435"W	0.78	
8328.00	91.170	181.610	7105.17	456.27	-456.91	51.67	1642086.96	14600255.76	40°12'06.850"N	104°59'38.465"W	0.95	
8417.00	89.380	181.420	7104.74	545.25	-545.87	49.31	1642084.61	14600166.83	40°12'05.971"N	104°59'38.495"W	2.02	
8507.00	90.490	181.800	7104.84	635.24	-635.84	46.79	1642082.09	14600076.90	40°12'05.082"N	104°59'38.528"W	1.30	
8596.00	89.690	182.110	7104.70	724.22	-724.78	43.75	1642079.06	14599987.99	40°12'04.203"N	104°59'38.567"W	0.96	
8686.00	90.950	182.090	7104.20	814.19	-814.72	40.45	1642075.77	14599898.09	40°12'03.314"N	104°59'38.610"W	1.40	
8775.00	90.800	180.460	7102.84	903.17	-903.68	38.47	1642073.80	14599809.16	40°12'02.435"N	104°59'38.635"W	1.84	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL, SEC.27)
Area	COLORADO	Well	PUTTER 27-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUTTER 27-4HZ AWB
Facility	SEC.27-T3N-R68W		

WELLPATH DATA (198 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [*/100ft]	Comments
8865.00	90.310	180.200	7101.97	993.16	-993.68	37.95	1642073.29	14599719.20	40°12'01.545"N	104°59'38.642"W	0.62	
8954.00	90.180	179.410	7101.59	1082.15	-1082.68	38.26	1642073.60	14599630.24	40°12'00.666"N	104°59'38.638"W	0.90	
9044.00	90.180	180.620	7101.31	1172.14	-1172.68	38.23	1642073.58	14599540.28	40°11'59.777"N	104°59'38.638"W	1.34	
9134.00	90.620	180.270	7100.68	1262.14	-1262.67	37.53	1642072.89	14599450.32	40°11'58.887"N	104°59'38.647"W	0.62	
9223.00	90.890	180.330	7099.51	1351.13	-1351.66	37.07	1642072.43	14599361.37	40°11'58.008"N	104°59'38.653"W	0.31	
9313.00	89.780	180.480	7098.98	1441.12	-1441.66	36.43	1642071.80	14599271.41	40°11'57.119"N	104°59'38.662"W	1.24	
9403.00	89.020	180.250	7099.92	1531.12	-1531.65	35.86	1642071.23	14599181.45	40°11'56.229"N	104°59'38.669"W	0.88	
9492.00	88.770	179.200	7101.64	1620.09	-1620.63	36.28	1642071.66	14599092.51	40°11'55.350"N	104°59'38.663"W	1.21	
9582.00	90.830	180.350	7101.95	1710.07	-1710.62	36.64	1642072.02	14599002.55	40°11'54.461"N	104°59'38.659"W	2.62	
9672.00	91.510	180.440	7100.12	1800.05	-1800.60	36.02	1642071.41	14598912.61	40°11'53.572"N	104°59'38.667"W	0.76	
9761.00	90.250	181.110	7098.75	1889.04	-1889.58	34.81	1642070.21	14598823.66	40°11'52.692"N	104°59'38.682"W	1.60	
9851.00	90.770	180.860	7097.95	1979.03	-1979.56	33.27	1642068.67	14598733.72	40°11'51.803"N	104°59'38.702"W	0.64	
9940.00	89.820	180.800	7097.49	2068.03	-2068.55	31.98	1642067.39	14598644.76	40°11'50.924"N	104°59'38.719"W	1.07	
10030.00	89.050	180.220	7098.38	2158.02	-2158.54	31.18	1642066.59	14598554.81	40°11'50.034"N	104°59'38.729"W	1.07	
10120.00	89.290	180.230	7099.68	2248.01	-2248.53	30.82	1642066.24	14598464.86	40°11'49.145"N	104°59'38.734"W	0.27	
10209.00	89.420	179.380	7100.68	2336.99	-2337.52	31.13	1642066.55	14598375.90	40°11'48.266"N	104°59'38.730"W	0.97	
10299.00	89.170	181.350	7101.79	2426.98	-2427.51	30.55	1642065.98	14598285.95	40°11'47.376"N	104°59'38.737"W	2.21	
10389.00	88.890	181.670	7103.31	2516.96	-2517.47	28.18	1642063.62	14598196.03	40°11'46.487"N	104°59'38.768"W	0.47	
10478.00	88.830	181.110	7105.08	2605.93	-2606.42	26.02	1642061.47	14598107.11	40°11'45.608"N	104°59'38.796"W	0.63	
10568.00	88.580	181.140	7107.12	2695.91	-2696.38	24.26	1642059.71	14598017.19	40°11'44.719"N	104°59'38.818"W	0.28	
10657.00	89.200	181.450	7108.84	2784.88	-2785.34	22.25	1642057.70	14597928.26	40°11'43.840"N	104°59'38.844"W	0.78	
10747.00	88.860	181.570	7110.37	2874.86	-2875.30	19.87	1642055.34	14597838.34	40°11'42.951"N	104°59'38.875"W	0.40	
10837.00	88.890	181.120	7112.13	2964.84	-2965.26	17.76	1642053.23	14597748.42	40°11'42.062"N	104°59'38.902"W	0.50	
10926.00	88.670	180.390	7114.03	3053.82	-3054.23	16.59	1642052.07	14597659.48	40°11'41.183"N	104°59'38.917"W	0.86	
11016.00	90.090	181.890	7115.00	3143.80	-3144.20	14.80	1642050.28	14597569.55	40°11'40.294"N	104°59'38.940"W	2.29	
11106.00	90.180	181.280	7114.79	3233.79	-3234.16	12.31	1642047.80	14597479.62	40°11'39.405"N	104°59'38.972"W	0.69	
11196.00	90.310	181.930	7114.40	3323.78	-3324.13	9.79	1642045.29	14597389.69	40°11'38.516"N	104°59'39.005"W	0.74	
11285.00	90.180	180.010	7114.02	3412.77	-3413.11	8.28	1642043.79	14597300.74	40°11'37.637"N	104°59'39.024"W	2.16	
11375.00	89.010	180.040	7114.66	3502.76	-3503.11	8.24	1642043.75	14597210.78	40°11'36.747"N	104°59'39.025"W	1.30	
11465.00	89.290	179.990	7116.00	3592.75	-3593.10	8.22	1642043.74	14597120.83	40°11'35.858"N	104°59'39.025"W	0.32	
11554.00	89.780	179.060	7116.72	3681.73	-3682.09	8.96	1642044.48	14597031.87	40°11'34.979"N	104°59'39.016"W	1.18	
11644.00	89.720	181.500	7117.11	3771.72	-3772.08	8.52	1642044.05	14596941.92	40°11'34.089"N	104°59'39.021"W	2.71	
11734.00	90.090	180.830	7117.26	3861.71	-3862.06	6.69	1642042.22	14596851.97	40°11'33.200"N	104°59'39.045"W	0.85	
11824.00	89.350	181.020	7117.70	3951.71	-3952.05	5.24	1642040.78	14596762.02	40°11'32.311"N	104°59'39.064"W	0.85	
11913.00	89.080	179.690	7118.92	4040.70	-4041.03	4.68	1642040.23	14596673.07	40°11'31.432"N	104°59'39.071"W	1.52	
12003.00	91.140	180.840	7118.75	4130.69	-4131.03	4.27	1642039.82	14596583.12	40°11'30.542"N	104°59'39.076"W	2.62	
12093.00	91.820	180.840	7116.42	4220.66	-4220.99	2.95	1642038.51	14596493.19	40°11'29.653"N	104°59'39.093"W	0.76	
12183.00	92.340	180.610	7113.16	4310.60	-4310.92	1.81	1642037.38	14596403.29	40°11'28.765"N	104°59'39.108"W	0.63	
12272.00	91.850	180.490	7109.90	4399.54	-4399.86	0.96	1642036.53	14596314.39	40°11'27.886"N	104°59'39.119"W	0.57	
12362.00	91.600	179.770	7107.19	4489.49	-4489.81	0.75	1642036.33	14596224.47	40°11'26.997"N	104°59'39.121"W	0.85	
12451.00	91.290	178.710	7104.95	4578.43	-4578.78	1.93	1642037.52	14596135.55	40°11'26.118"N	104°59'39.106"W	1.24	
12541.00	92.310	180.850	7102.12	4668.37	-4668.73	2.28	1642037.87	14596045.63	40°11'25.229"N	104°59'39.102"W	2.63	
12631.00	92.160	180.110	7098.61	4758.30	-4758.65	1.53	1642037.12	14595955.74	40°11'24.340"N	104°59'39.111"W	0.84	
12720.00	92.960	179.950	7094.64	4847.21	-4847.56	1.48	1642037.08	14595866.87	40°11'23.461"N	104°59'39.112"W	0.92	
12810.00	91.730	181.280	7090.95	4937.13	-4937.48	0.51	1642036.12	14595776.99	40°11'22.573"N	104°59'39.124"W	2.01	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL,SEC.27)
Area	COLORADO	Well	PUTTER 27-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUTTER 27-4HZ AWB
Facility	SEC.27-T3N-R68W		

WELLPATH DATA (198 stations) † = interpolated/extrapolated station												
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	DLS (°/100ft)	Comments
12900.00	91.970	181.620	7088.05	5027.07	-5027.40	-1.76	1642033.85	14595687.10	40°11'21.684"N	104°59'39.154"W	0.46	
12989.00	92.120	180.690	7084.87	5116.01	-5116.33	-3.56	1642032.06	14595598.21	40°11'20.806"N	104°59'39.177"W	1.06	
13079.00	91.910	180.380	7081.71	5205.96	-5206.27	-4.40	1642031.23	14595508.31	40°11'19.917"N	104°59'39.188"W	0.42	
13169.00	91.940	180.300	7078.68	5295.90	-5296.22	-4.93	1642030.70	14595418.39	40°11'19.028"N	104°59'39.195"W	0.09	
13259.00	92.060	179.930	7075.54	5385.84	-5386.16	-5.11	1642030.53	14595328.49	40°11'18.139"N	104°59'39.197"W	0.43	
13349.00	92.370	178.930	7072.06	5475.76	-5476.09	-4.22	1642031.43	14595238.60	40°11'17.250"N	104°59'39.185"W	1.16	
13438.00	91.820	181.220	7068.81	5564.68	-5565.02	-4.33	1642031.32	14595149.70	40°11'16.372"N	104°59'39.187"W	2.64	
13528.00	91.880	180.880	7065.90	5654.64	-5654.96	-5.98	1642029.68	14595059.80	40°11'15.483"N	104°59'39.208"W	0.38	
13617.00	92.120	180.660	7062.80	5743.58	-5743.90	-7.18	1642028.49	14594970.89	40°11'14.604"N	104°59'39.223"W	0.37	
13707.00	92.280	179.760	7059.34	5833.51	-5833.83	-7.51	1642028.16	14594881.00	40°11'13.715"N	104°59'39.228"W	1.01	
13708.00†	92.273	179.769	7059.30	5834.51	-5834.83	-7.50	1642028.17	14594880.00	40°11'13.705"N	104°59'39.228"W	1.09	CROSS SETBACK TOE (896'FNL & 1151'FWL,SEC.34) 40.1871404 -104.9942299
13797.00	91.690	180.540	7056.23	5923.45	-5923.77	-7.74	1642027.93	14594791.09	40°11'12.826"N	104°59'39.231"W	1.09	
13886.00	92.190	179.970	7053.21	6012.40	-6012.72	-8.14	1642027.54	14594702.18	40°11'11.947"N	104°59'39.236"W	0.85	
13976.00	92.470	179.910	7049.55	6102.32	-6102.65	-8.04	1642027.64	14594612.29	40°11'11.059"N	104°59'39.235"W	0.32	
14066.00	92.130	180.230	7045.94	6192.24	-6192.57	-8.15	1642027.54	14594522.40	40°11'10.170"N	104°59'39.236"W	0.52	
14156.00	92.950	179.660	7041.95	6282.14	-6282.48	-8.07	1642027.63	14594432.52	40°11'09.282"N	104°59'39.235"W	1.11	
14221.00	93.580	179.570	7038.25	6347.02	-6347.38	-7.63	1642028.07	14594367.66	40°11'08.640"N	104°59'39.229"W	0.98	LAST BHGE MWD+IFR1+SC SURVEY
14268.00	93.580	179.570	7035.32	6393.92	-6394.28	-7.28	1642028.43	14594320.77	40°11'08.177"N	104°59'39.225"W	0.00	PTB (1455'FNL & 1152'FWL,SEC.34) 40.1856047 -104.9942291

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL,SEC.27)
Area	COLORADO	Well	PUTTER 27-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUTTER 27-4HZ AWB
Facility	SEC.27-T3N-R68W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.27-T3N-R68W	1.00	0.40	-60.06	1641975.25	14600712.88	40°12'11.369"N	104°59'39.905"W	polygon
SEC.34-T3N-R68W	1.00	0.40	-60.06	1641975.25	14600712.88	40°12'11.369"N	104°59'39.905"W	polygon
PUTTER 27-4HZ BHL REV-1(2053'FNL & 1139'FWL,SEC.34)	7048.00	-6992.34	-20.10	1642015.65	14593722.96	40°11'02.267"N	104°59'39.390"W	point
PUTTER 27-4HZ BHL REV-2(1461'FNL & 1139'FWL,SEC.34)	7048.00	-6400.21	-20.10	1642015.61	14594314.84	40°11'08.118"N	104°59'39.390"W	point
PUTTER 27-4HZ HEEL REV-1(50'FNL & 1225'FWL,SEC.27)	7111.00	308.22	58.40	1642093.64	14601020.58	40°12'14.411"N	104°59'38.378"W	point
PUTTER 27-4HZ HEEL REV-2(115'FNL & 1225'FWL,SEC.27)	7111.00	243.22	58.40	1642093.64	14600955.61	40°12'13.768"N	104°59'38.378"W	point
PUTTER 27-4HZ INT. TARGET@4000'VS	7111.00	-4000.38	8.25	1642043.79	14596713.71	40°11'31.833"N	104°59'39.025"W	point
PUTTER 27-4HZ LANDBOX	7111.00	0.00	0.00	1642035.29	14600712.48	40°12'11.365"N	104°59'39.131"W	polygon
PUTTER 27-4HZ RADIUS 1	7111.00	356.05	154.50	1642189.70	14601068.40	40°12'14.883"N	104°59'37.140"W	polygon
PUTTER 27-4HZ RADIUS 2	7111.00	-6270.21	138.36	1642174.00	14594444.80	40°11'09.403"N	104°59'37.348"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: PUTTER 27-4HZ AWB Ref Wellpath: PUTTER 27-4HZ AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
21.00	1839.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)	Custom APC ISCWSA Rev-2 MWD+IFR1 <127 - 1839>	PUTTER 27-4HZ AWB
1839.00	14221.00	Custom APC ISCWSA REV 2 MWD+IFR1+SC (approximation)	BHGE Custom APC ISCWSA Rev-2 MWD+IFR1+SC <1937 - 14221>	PUTTER 27-4HZ AWB
14221.00	14268.00	Blind Drilling (std)	Projection to bit	PUTTER 27-4HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#32 PUTTER 27-4HZ (358'FNL & 1166'FWL,SEC.27)
Area	COLORADO	Well	PUTTER 27-4HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	PUTTER 27-4HZ AWB
Facility	SEC.27-T3N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
127.00	0.350	255.510	127.00	FIRST SURFACE MWD+IFR1 SURVEY
1839.00	18.370	3.080	1790.81	LAST SURFACE MWD+IFR1 SURVEY
1937.00	18.350	2.430	1883.82	FIRST BHGE MWD+IFR1+SC SURVEY
6482.00	2.570	198.415	6345.77	KOP
7611.00	87.780	179.000	7109.94	LANDING (98'FNL & 1220'FWL,SEC.27) 40.2038703 -104.9940115
7964.00	90.166	179.891	7108.65	CROSS SETBACK HEEL (451'FNL & 1224'FWL,SEC.27) 40.2029016 -104.9939928
13708.00	92.273	179.769	7059.30	CROSS SETBACK TOE (896'FNL & 1151'FWL,SEC.34) 40.1871404 -104.9942299
14221.00	93.580	179.570	7038.25	LAST BHGE MWD+IFR1+SC SURVEY
14268.00	93.580	179.570	7035.32	PTB (1455'FNL & 1152'FWL,SEC.34) 40.1856047 -104.9942291