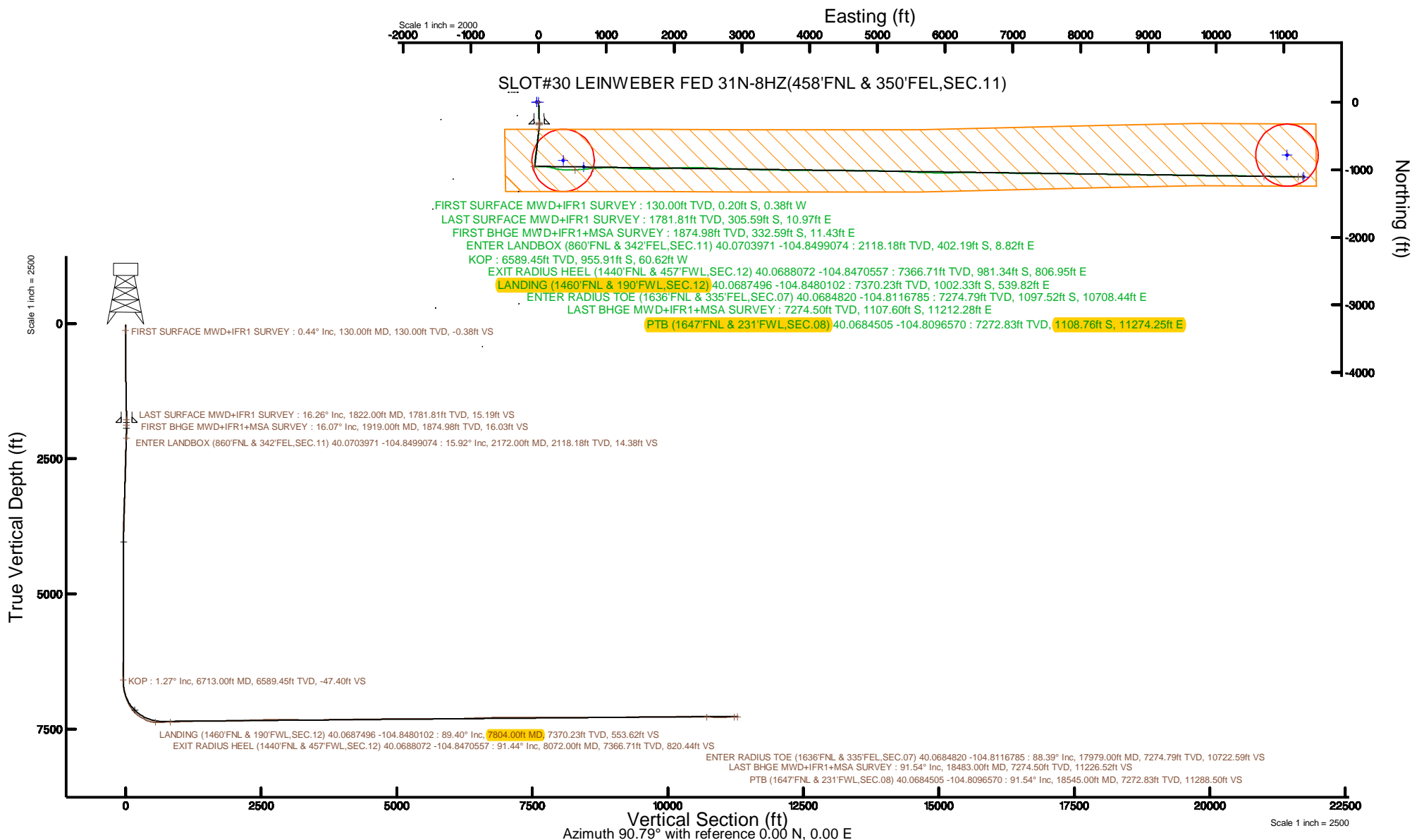


KERR-MCGEE OIL & GAS ONSHORE LP (WA)

Location: COLORADO Slot: SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Field: WELD COUNTY (UTM/TRUE NORTH) Well: LEINWEBER FED 31N-8HZ
Facility: SEC.11-T1N-R67W Wellbore: LEINWEBER FED 31N-8HZ PWB

Plot reference wellpath is LEINWEBER FED 31N-8HZ PWP Rev-B.0	Grid System: NAD83 / UTM Zone 13 North, US feet
True vertical depths are referenced to Xtreme 22 (17) (RT)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Xtreme 22 (17) (RT)	North Reference: True north
Xtreme 22 (17) (RT) to Mean Sea Level: 4975 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr on 2018-01-12
	Database: WA_DEN_Anadarko_Defn



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Painsetr
Scale	0.999602	Report Generated	1/12/2018 at 8:38 AM
Convergence at slot	0.10° East	Database/Source file	WA_DEN_Anadarko_Defn/LEINWEBER_FED_31N-8HZ_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	257.78	1441.41	1682397.57	14552805.47	40°04'17.404"N	104°50'59.780"W
Facility Reference Pt			1680957.15	14552545.45	40°04'14.857"N	104°51'18.321"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	Xtreme 22 (17') (RT) to Facility Vertical Datum	4975.00ft
Horizontal Reference Pt	Slot	Xtreme 22 (17') (RT) to Mean Sea Level	4975.00ft
Vertical Reference Pt	Xtreme 22 (17') (RT)	Xtreme 22 (17') (RT) to Mud Line at Slot (SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11))	4975.00ft
MD Reference Pt	Xtreme 22 (17') (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	90.79°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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	242.330	0.00	0.00	0.00	0.00	1682397.57	14552805.47	40°04'17.404"N	104°50'59.780"W	0.00	
17.00	0.000	242.330	17.00	0.00	0.00	0.00	1682397.57	14552805.47	40°04'17.404"N	104°50'59.780"W	0.00	
130.00	0.440	242.330	130.00	-0.38	-0.20	-0.38	1682397.18	14552805.27	40°04'17.402"N	104°50'59.785"W	0.39	FIRST SURFACE MWD+IFR1 SURVEY
161.00	0.310	197.680	161.00	-0.51	-0.34	-0.52	1682397.05	14552805.13	40°04'17.401"N	104°50'59.787"W	1.00	
193.00	0.400	187.220	193.00	-0.55	-0.53	-0.56	1682397.01	14552804.94	40°04'17.399"N	104°50'59.787"W	0.35	
225.00	0.440	204.980	225.00	-0.61	-0.75	-0.62	1682396.95	14552804.72	40°04'17.397"N	104°50'59.788"W	0.42	
256.00	0.440	201.550	256.00	-0.70	-0.97	-0.72	1682396.85	14552804.50	40°04'17.394"N	104°50'59.789"W	0.08	
287.00	0.350	189.510	287.00	-0.76	-1.17	-0.77	1682396.79	14552804.29	40°04'17.392"N	104°50'59.790"W	0.39	
319.00	0.620	171.750	318.99	-0.75	-1.44	-0.77	1682396.80	14552804.03	40°04'17.390"N	104°50'59.790"W	0.96	
350.00	0.440	182.650	349.99	-0.72	-1.73	-0.75	1682396.82	14552803.74	40°04'17.387"N	104°50'59.790"W	0.66	
382.00	1.360	168.850	381.99	-0.65	-2.22	-0.68	1682396.89	14552803.25	40°04'17.382"N	104°50'59.789"W	2.93	
414.00	1.710	183.970	413.98	-0.60	-3.07	-0.64	1682396.93	14552802.40	40°04'17.374"N	104°50'59.788"W	1.66	
445.00	1.850	171.930	444.96	-0.55	-4.03	-0.60	1682396.97	14552801.44	40°04'17.364"N	104°50'59.788"W	1.29	
476.00	2.330	172.810	475.94	-0.38	-5.15	-0.45	1682397.12	14552800.32	40°04'17.353"N	104°50'59.786"W	1.55	
508.00	2.590	176.850	507.91	-0.24	-6.52	-0.33	1682397.25	14552798.96	40°04'17.340"N	104°50'59.784"W	0.98	
540.00	3.030	169.290	539.87	-0.02	-8.07	-0.13	1682397.45	14552797.40	40°04'17.324"N	104°50'59.782"W	1.79	
572.00	3.600	181.250	571.82	0.14	-9.90	0.00	1682397.58	14552795.57	40°04'17.306"N	104°50'59.780"W	2.79	
604.00	3.820	176.410	603.75	0.21	-11.97	0.05	1682397.63	14552793.50	40°04'17.286"N	104°50'59.779"W	1.20	
636.00	4.610	175.890	635.67	0.40	-14.32	0.21	1682397.80	14552791.16	40°04'17.262"N	104°50'59.777"W	2.47	
667.00	5.710	177.290	666.54	0.60	-17.10	0.37	1682397.96	14552788.37	40°04'17.235"N	104°50'59.775"W	3.57	
699.00	6.150	176.410	698.37	0.83	-20.40	0.55	1682398.15	14552785.08	40°04'17.202"N	104°50'59.773"W	1.40	
731.00	7.250	175.090	730.15	1.16	-24.13	0.83	1682398.44	14552781.35	40°04'17.166"N	104°50'59.769"W	3.47	
763.00	7.510	176.320	761.88	1.53	-28.22	1.14	1682398.75	14552777.26	40°04'17.125"N	104°50'59.765"W	0.95	
794.00	8.170	175.800	792.59	1.88	-32.44	1.43	1682399.05	14552773.04	40°04'17.083"N	104°50'59.762"W	2.14	
826.00	8.660	177.380	824.25	2.22	-37.12	1.71	1682399.33	14552768.37	40°04'17.037"N	104°50'59.758"W	1.69	
890.00	9.840	176.320	887.42	2.93	-47.39	2.28	1682399.92	14552758.10	40°04'16.936"N	104°50'59.751"W	1.86	
921.00	10.020	176.060	917.95	3.36	-52.72	2.63	1682400.29	14552752.77	40°04'16.883"N	104°50'59.746"W	0.60	
953.00	10.150	176.060	949.46	3.82	-58.31	3.02	1682400.68	14552747.19	40°04'16.828"N	104°50'59.741"W	0.41	
985.00	10.630	177.820	980.93	4.21	-64.08	3.32	1682401.00	14552741.43	40°04'16.771"N	104°50'59.737"W	1.80	
1017.00	11.690	180.720	1012.33	4.37	-70.27	3.39	1682401.08	14552735.24	40°04'16.710"N	104°50'59.736"W	3.75	
1048.00	12.660	180.980	1042.63	4.36	-76.80	3.30	1682400.99	14552728.70	40°04'16.645"N	104°50'59.738"W	3.13	
1080.00	13.970	180.020	1073.77	4.40	-84.17	3.24	1682400.94	14552721.34	40°04'16.572"N	104°50'59.738"W	4.15	
1112.00	15.380	179.580	1104.73	4.54	-92.28	3.27	1682400.99	14552713.23	40°04'16.492"N	104°50'59.738"W	4.42	
1143.00	16.260	180.190	1134.55	4.67	-100.73	3.28	1682401.02	14552704.79	40°04'16.409"N	104°50'59.738"W	2.89	
1207.00	17.010	178.700	1195.87	5.11	-119.05	3.46	1682401.23	14552686.47	40°04'16.228"N	104°50'59.735"W	1.35	
1239.00	17.360	177.030	1226.44	5.59	-128.50	3.82	1682401.60	14552677.03	40°04'16.134"N	104°50'59.731"W	1.89	
1271.00	17.750	175.970	1256.95	6.32	-138.13	4.41	1682402.20	14552667.40	40°04'16.039"N	104°50'59.723"W	1.58	
1302.00	17.620	177.470	1286.49	6.99	-147.53	4.95	1682402.76	14552658.01	40°04'15.946"N	104°50'59.716"W	1.53	
1334.00	17.710	178.350	1316.98	7.47	-157.23	5.30	1682403.13	14552648.31	40°04'15.850"N	104°50'59.712"W	0.88	
1366.00	17.750	178.790	1347.46	7.85	-166.98	5.54	1682403.39	14552638.57	40°04'15.754"N	104°50'59.709"W	0.44	
1397.00	17.930	179.310	1376.97	8.14	-176.47	5.70	1682403.56	14552629.08	40°04'15.660"N	104°50'59.707"W	0.78	
1429.00	17.890	178.610	1407.42	8.45	-186.31	5.88	1682403.76	14552619.24	40°04'15.563"N	104°50'59.704"W	0.68	
1461.00	17.750	177.030	1437.88	8.96	-196.10	6.25	1682404.15	14552609.46	40°04'15.466"N	104°50'59.700"W	1.57	
1492.00	18.190	177.290	1467.37	9.57	-205.65	6.72	1682404.63	14552599.92	40°04'15.372"N	104°50'59.693"W	1.44	
1524.00	18.110	176.320	1497.78	10.26	-215.60	7.28	1682405.21	14552589.97	40°04'15.273"N	104°50'59.686"W	0.98	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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
1556.00	18.240	176.150	1528.18	11.05	-225.56	7.94	1682405.88	14552580.01	40°04'15.175"N	104°50'59.678"W	0.44	
1587.00	18.460	177.030	1557.61	11.77	-235.30	8.52	1682406.48	14552570.28	40°04'15.079"N	104°50'59.670"W	1.14	
1619.00	18.900	177.290	1587.92	12.42	-245.54	9.02	1682407.00	14552560.04	40°04'14.978"N	104°50'59.664"W	1.40	
1651.00	17.840	179.140	1618.29	12.87	-255.62	9.34	1682407.34	14552549.97	40°04'14.878"N	104°50'59.660"W	3.78	
1683.00	17.230	179.140	1648.80	13.15	-265.26	9.49	1682407.50	14552540.33	40°04'14.783"N	104°50'59.658"W	1.91	
1714.00	17.270	177.560	1678.41	13.54	-274.45	9.75	1682407.78	14552531.15	40°04'14.692"N	104°50'59.655"W	1.52	
1746.00	16.700	176.410	1709.01	14.16	-283.78	10.24	1682408.28	14552521.82	40°04'14.600"N	104°50'59.648"W	2.07	
1778.00	16.880	178.260	1739.65	14.72	-293.01	10.67	1682408.73	14552512.59	40°04'14.508"N	104°50'59.643"W	1.76	
1810.00	16.520	178.520	1770.30	15.11	-302.20	10.93	1682409.00	14552503.41	40°04'14.418"N	104°50'59.639"W	1.15	
1822.00	16.260	180.190	1781.81	15.19	-305.59	10.97	1682409.04	14552500.02	40°04'14.384"N	104°50'59.639"W	4.48	LAST SURFACE MWD+IFR1 SURVEY
1919.00	16.070	177.820	1874.98	16.03	-332.59	11.43	1682409.56	14552473.04	40°04'14.117"N	104°50'59.633"W	0.71	FIRST BHGE MWD+IFR1+MSA SURVEY
2006.00	16.000	180.630	1958.59	16.69	-356.61	11.76	1682409.92	14552449.02	40°04'13.880"N	104°50'59.629"W	0.90	
2094.00	16.010	183.270	2043.18	16.20	-380.85	10.93	1682409.14	14552424.79	40°04'13.640"N	104°50'59.639"W	0.83	
2172.00†	15.923	188.046	2118.18	14.38	-402.19	8.82	1682407.06	14552403.46	40°04'13.430"N	104°50'59.667"W	1.69	ENTER LANDBOX (860'FNL & 342'FEL,SEC.11) 40.0703971 -104.8499074
2181.00	15.920	188.600	2126.83	14.06	-404.63	8.47	1682406.71	14552401.02	40°04'13.405"N	104°50'59.671"W	1.69	
2269.00	16.620	189.860	2211.31	10.43	-428.96	4.51	1682402.79	14552376.69	40°04'13.165"N	104°50'59.722"W	0.89	
2356.00	15.980	188.350	2294.81	6.90	-453.07	0.64	1682398.96	14552352.58	40°04'12.927"N	104°50'59.772"W	0.88	
2443.00	15.610	186.490	2378.53	4.16	-476.55	-2.43	1682395.94	14552329.11	40°04'12.695"N	104°50'59.811"W	0.72	
2531.00	16.640	187.460	2463.06	1.52	-500.81	-5.40	1682393.01	14552304.86	40°04'12.455"N	104°50'59.849"W	1.21	
2618.00	15.930	186.310	2546.57	-1.07	-525.02	-8.33	1682390.12	14552280.64	40°04'12.216"N	104°50'59.887"W	0.90	
2706.00	15.650	184.020	2631.25	-2.90	-548.87	-10.49	1682388.01	14552256.81	40°04'11.980"N	104°50'59.915"W	0.78	
2794.00	15.520	185.200	2716.02	-4.48	-572.43	-12.39	1682386.15	14552233.25	40°04'11.747"N	104°50'59.939"W	0.39	
2881.00	15.520	187.170	2799.85	-6.66	-595.57	-14.90	1682383.68	14552210.11	40°04'11.518"N	104°50'59.972"W	0.61	
2969.00	16.110	188.030	2884.51	-9.51	-619.34	-18.07	1682380.55	14552186.34	40°04'11.284"N	104°51'00.012"W	0.72	
3056.00	16.670	186.340	2967.98	-12.24	-643.70	-21.14	1682377.52	14552161.99	40°04'11.043"N	104°51'00.052"W	0.85	
3143.00	15.710	186.350	3051.53	-14.58	-667.81	-23.82	1682374.88	14552137.89	40°04'10.805"N	104°51'00.086"W	1.10	
3230.00	15.560	188.730	3135.31	-17.34	-691.05	-26.89	1682371.85	14552114.65	40°04'10.575"N	104°51'00.126"W	0.76	
3318.00	16.170	191.210	3219.96	-21.18	-714.73	-31.06	1682367.72	14552090.97	40°04'10.341"N	104°51'00.180"W	1.04	
3405.00	15.900	190.740	3303.57	-25.43	-738.33	-35.64	1682363.18	14552067.38	40°04'10.108"N	104°51'00.238"W	0.34	
3493.00	16.070	189.080	3388.17	-29.27	-762.20	-39.81	1682359.06	14552043.51	40°04'09.872"N	104°51'00.292"W	0.55	
3580.00	15.790	187.330	3471.83	-32.35	-785.83	-43.22	1682355.69	14552019.89	40°04'09.638"N	104°51'00.336"W	0.64	
3667.00	15.280	186.170	3555.65	-34.77	-808.96	-45.96	1682352.99	14551996.75	40°04'09.410"N	104°51'00.371"W	0.69	
3754.00	14.450	185.620	3639.74	-36.76	-831.16	-48.26	1682350.73	14551974.56	40°04'09.190"N	104°51'00.401"W	0.97	
3842.00	12.350	184.680	3725.34	-38.33	-851.47	-50.10	1682348.92	14551954.25	40°04'08.990"N	104°51'00.424"W	2.40	
3929.00	10.750	182.810	3810.57	-39.24	-868.85	-51.26	1682347.79	14551936.88	40°04'08.818"N	104°51'00.439"W	1.89	
4017.00	9.760	180.380	3897.17	-39.48	-884.51	-51.71	1682347.37	14551921.23	40°04'08.663"N	104°51'00.445"W	1.23	
4104.00	7.760	179.250	3983.15	-39.27	-897.76	-51.68	1682347.42	14551907.99	40°04'08.532"N	104°51'00.445"W	2.31	
4192.00	7.250	182.850	4070.40	-39.31	-909.24	-51.88	1682347.24	14551896.50	40°04'08.419"N	104°51'00.447"W	0.79	
4279.00	6.670	185.480	4156.75	-39.92	-919.75	-52.63	1682346.50	14551886.00	40°04'08.315"N	104°51'00.457"W	0.76	
4367.00	5.750	184.750	4244.24	-40.64	-929.24	-53.49	1682345.67	14551876.52	40°04'08.221"N	104°51'00.468"W	1.05	
4454.00	4.550	187.300	4330.88	-41.33	-937.00	-54.29	1682344.88	14551868.75	40°04'08.144"N	104°51'00.478"W	1.40	
4542.00	2.110	186.850	4418.73	-41.90	-942.07	-54.92	1682344.25	14551863.68	40°04'08.094"N	104°51'00.486"W	2.77	
4630.00	1.550	169.510	4506.68	-41.83	-944.85	-54.90	1682344.28	14551860.90	40°04'08.067"N	104°51'00.486"W	0.89	
4717.00	1.500	166.230	4593.65	-41.32	-947.11	-54.41	1682344.77	14551858.64	40°04'08.044"N	104°51'00.480"W	0.12	
4804.00	1.360	182.590	4680.63	-41.06	-949.25	-54.19	1682345.00	14551856.51	40°04'08.023"N	104°51'00.477"W	0.49	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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
4892.00	1.420	194.740	4768.60	-41.36	-951.35	-54.52	1682344.68	14551854.41	40°04'08.003"N	104°51'00.481"W	0.34	
4979.00	1.420	198.050	4855.57	-41.94	-953.42	-55.12	1682344.07	14551852.34	40°04'07.982"N	104°51'00.489"W	0.09	
5066.00	1.140	204.360	4942.55	-42.61	-955.23	-55.81	1682343.38	14551850.53	40°04'07.964"N	104°51'00.498"W	0.36	
5154.00	1.250	181.470	5030.53	-42.97	-956.99	-56.20	1682343.00	14551848.77	40°04'07.947"N	104°51'00.503"W	0.55	
5241.00	1.150	136.100	5117.52	-42.36	-958.57	-55.62	1682343.58	14551847.20	40°04'07.931"N	104°51'00.495"W	1.07	
5329.00	0.490	115.380	5205.51	-41.40	-959.36	-54.67	1682344.54	14551846.40	40°04'07.923"N	104°51'00.483"W	0.81	
5416.00	0.190	317.870	5292.51	-41.16	-959.42	-54.43	1682344.78	14551846.35	40°04'07.923"N	104°51'00.480"W	0.77	
5504.00	0.280	233.860	5380.51	-41.43	-959.43	-54.70	1682344.51	14551846.33	40°04'07.923"N	104°51'00.484"W	0.37	
5592.00	0.550	229.330	5468.50	-41.92	-959.84	-55.19	1682344.01	14551845.93	40°04'07.919"N	104°51'00.490"W	0.31	
5679.00	0.720	223.000	5555.50	-42.60	-960.51	-55.88	1682343.32	14551845.25	40°04'07.912"N	104°51'00.499"W	0.21	
5767.00	0.460	329.390	5643.50	-43.16	-960.61	-56.44	1682342.77	14551845.15	40°04'07.911"N	104°51'00.506"W	1.09	
5879.00	0.530	344.120	5755.49	-43.54	-959.72	-56.81	1682342.40	14551846.04	40°04'07.920"N	104°51'00.511"W	0.13	
5966.00	0.290	306.050	5842.49	-43.83	-959.21	-57.10	1682342.11	14551846.55	40°04'07.925"N	104°51'00.514"W	0.40	
6054.00	0.240	290.390	5930.49	-44.19	-959.01	-57.45	1682341.75	14551846.75	40°04'07.927"N	104°51'00.519"W	0.10	
6141.00	0.250	278.070	6017.49	-44.55	-958.92	-57.81	1682341.40	14551846.84	40°04'07.928"N	104°51'00.524"W	0.06	
6229.00	0.220	253.620	6105.49	-44.90	-958.94	-58.16	1682341.04	14551846.81	40°04'07.928"N	104°51'00.528"W	0.12	
6316.00	0.220	193.900	6192.49	-45.10	-959.15	-58.36	1682340.84	14551846.61	40°04'07.925"N	104°51'00.531"W	0.25	
6403.00	0.870	309.290	6279.48	-45.65	-958.90	-58.91	1682340.29	14551846.86	40°04'07.928"N	104°51'00.538"W	1.13	
6491.00	1.070	328.280	6367.47	-46.62	-957.77	-59.86	1682339.34	14551847.98	40°04'07.939"N	104°51'00.550"W	0.43	
6579.00	0.660	324.200	6455.46	-47.36	-956.66	-60.59	1682338.61	14551849.09	40°04'07.950"N	104°51'00.559"W	0.47	
6666.00	0.370	323.400	6542.46	-47.83	-956.03	-61.05	1682338.15	14551849.72	40°04'07.956"N	104°51'00.565"W	0.33	
6713.00†	1.270	89.815	6589.45	-47.40	-955.91	-60.62	1682338.58	14551849.84	40°04'07.958"N	104°51'00.560"W	3.23	KOP
6753.00	2.550	95.520	6629.43	-46.07	-955.99	-59.29	1682339.91	14551849.76	40°04'07.957"N	104°51'00.543"W	3.23	
6841.00	7.950	91.630	6717.03	-38.03	-956.35	-51.25	1682347.94	14551849.41	40°04'07.953"N	104°51'00.439"W	6.15	
6928.00	12.370	89.640	6802.64	-22.69	-956.47	-35.91	1682363.28	14551849.33	40°04'07.952"N	104°51'00.242"W	5.10	
7016.00	17.160	92.720	6887.71	-0.28	-957.02	-13.51	1682385.68	14551848.81	40°04'07.947"N	104°50'59.954"W	5.51	
7103.00	22.340	90.570	6969.57	29.10	-957.80	15.87	1682415.04	14551848.08	40°04'07.939"N	104°50'59.576"W	6.01	
7190.00	27.170	88.730	7048.55	65.51	-957.52	52.28	1682451.44	14551848.42	40°04'07.942"N	104°50'59.108"W	5.62	
7278.00	34.560	89.370	7124.04	110.60	-956.80	97.39	1682496.53	14551849.22	40°04'07.949"N	104°50'58.527"W	8.41	
7366.00	46.660	101.750	7190.83	167.28	-963.08	153.98	1682553.11	14551843.04	40°04'07.887"N	104°50'57.799"W	16.47	
7453.00	55.010	103.900	7245.73	233.17	-978.11	219.67	1682618.79	14551828.12	40°04'07.738"N	104°50'56.955"W	9.79	
7541.00	60.280	98.800	7292.83	306.20	-992.63	292.51	1682691.63	14551813.73	40°04'07.595"N	104°50'56.018"W	7.73	
7628.00	65.000	92.720	7332.83	383.11	-1000.29	369.32	1682768.42	14551806.20	40°04'07.519"N	104°50'55.030"W	8.24	
7715.00	77.880	92.000	7360.46	465.38	-1003.66	451.55	1682850.63	14551802.97	40°04'07.486"N	104°50'53.972"W	14.83	
7803.00	89.380	86.400	7370.22	552.62	-1002.39	538.82	1682937.86	14551804.39	40°04'07.498"N	104°50'52.849"W	14.51	
7804.00†	89.396	86.392	7370.23	553.62	-1002.33	539.82	1682938.85	14551804.45	40°04'07.499"N	104°50'52.837"W	1.84	LANDING (1460'FNL & 190'FWL,SEC.12) 40.0687496 -104.8480102
7891.00	90.830	85.670	7370.06	640.32	-996.31	626.60	1683025.60	14551810.62	40°04'07.558"N	104°50'51.720"W	1.84	
7978.00	90.980	84.740	7368.68	726.89	-989.04	713.29	1683112.23	14551818.03	40°04'07.630"N	104°50'50.605"W	1.08	
8065.00	91.390	85.780	7366.88	813.47	-981.85	799.97	1683198.87	14551825.36	40°04'07.701"N	104°50'49.490"W	1.28	
8072.00†	91.443	85.817	7366.71	820.44	-981.34	806.95	1683205.85	14551825.89	40°04'07.706"N	104°50'49.401"W	0.93	EXIT RADIUS HEEL (1440'FNL & 457'FWL,SEC.12) 40.0688072 -104.8470557
8153.00	92.060	86.250	7364.24	901.12	-975.74	887.72	1683286.57	14551831.62	40°04'07.761"N	104°50'48.362"W	0.93	
8240.00	92.650	87.990	7360.66	987.86	-971.37	974.53	1683373.34	14551836.13	40°04'07.805"N	104°50'47.245"W	2.11	
8327.00	92.560	89.670	7356.71	1074.72	-969.59	1061.42	1683460.19	14551838.05	40°04'07.822"N	104°50'46.127"W	1.93	
8415.00	91.630	91.080	7353.49	1162.66	-970.17	1149.35	1683548.09	14551837.63	40°04'07.816"N	104°50'44.996"W	1.92	
8502.00	90.400	93.280	7351.95	1249.61	-973.48	1236.27	1683634.98	14551834.46	40°04'07.784"N	104°50'43.878"W	2.90	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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
8590.00	91.720	94.230	7350.32	1337.47	-979.24	1324.06	1683722.75	14551828.85	40°04'07.727"N	104°50'42.749"W	1.85	
8677.00	90.990	93.290	7348.26	1424.33	-984.95	1410.85	1683809.51	14551823.30	40°04'07.670"N	104°50'41.633"W	1.37	
8765.00	89.480	92.100	7347.90	1512.28	-989.08	1498.75	1683897.38	14551819.31	40°04'07.629"N	104°50'40.502"W	2.18	
8852.00	89.050	90.460	7349.02	1599.26	-991.03	1585.72	1683984.32	14551817.51	40°04'07.610"N	104°50'39.384"W	1.95	
8940.00	89.450	87.950	7350.17	1687.22	-989.80	1673.69	1684072.26	14551818.88	40°04'07.622"N	104°50'38.252"W	2.89	
9027.00	90.060	87.980	7350.54	1774.11	-986.72	1760.64	1684159.16	14551822.12	40°04'07.652"N	104°50'37.134"W	0.70	
9114.00	90.920	88.080	7349.80	1861.00	-983.72	1847.58	1684246.06	14551825.25	40°04'07.682"N	104°50'36.015"W	1.00	
9202.00	90.680	87.870	7348.57	1948.89	-980.62	1935.52	1684333.96	14551828.51	40°04'07.713"N	104°50'34.884"W	0.36	
9290.00	90.520	87.180	7347.65	2036.74	-976.82	2023.43	1684421.83	14551832.46	40°04'07.750"N	104°50'33.754"W	0.80	
9377.00	91.660	87.850	7345.99	2123.58	-973.04	2110.33	1684508.69	14551836.37	40°04'07.787"N	104°50'32.636"W	1.52	
9465.00	94.250	88.870	7341.46	2211.38	-970.53	2198.17	1684596.49	14551839.04	40°04'07.812"N	104°50'31.506"W	3.16	
9552.00	94.470	90.250	7334.84	2298.10	-969.86	2284.91	1684683.20	14551839.85	40°04'07.819"N	104°50'30.390"W	1.60	
9640.00	92.310	91.160	7329.64	2385.94	-970.94	2372.75	1684771.00	14551838.91	40°04'07.808"N	104°50'29.260"W	2.66	
9727.00	90.460	91.670	7327.54	2472.91	-973.09	2459.69	1684857.91	14551836.91	40°04'07.787"N	104°50'28.142"W	2.21	
9815.00	90.550	92.000	7326.76	2560.89	-975.91	2547.64	1684945.83	14551834.25	40°04'07.759"N	104°50'27.011"W	0.39	
9902.00	91.510	91.910	7325.20	2647.86	-978.88	2634.58	1685032.73	14551831.43	40°04'07.729"N	104°50'25.893"W	1.11	
9990.00	90.280	91.700	7323.82	2735.83	-981.65	2722.52	1685120.65	14551828.80	40°04'07.702"N	104°50'24.761"W	1.42	
10077.00	90.710	92.040	7323.07	2822.81	-984.49	2809.47	1685207.57	14551826.11	40°04'07.674"N	104°50'23.643"W	0.63	
10165.00	90.400	92.190	7322.22	2910.78	-987.73	2897.41	1685295.47	14551823.01	40°04'07.641"N	104°50'22.512"W	0.39	
10253.00	88.980	91.370	7322.69	2998.76	-990.47	2985.36	1685383.40	14551820.43	40°04'07.614"N	104°50'21.381"W	1.86	
10340.00	88.640	91.370	7324.50	3085.74	-992.55	3072.32	1685470.32	14551818.50	40°04'07.594"N	104°50'20.262"W	0.39	
10428.00	88.640	92.020	7326.59	3173.71	-995.15	3160.25	1685558.23	14551816.05	40°04'07.568"N	104°50'19.131"W	0.74	
10515.00	88.800	92.280	7328.53	3260.66	-998.41	3247.17	1685645.11	14551812.93	40°04'07.535"N	104°50'18.013"W	0.35	
10603.00	89.380	92.280	7329.93	3348.62	-1001.91	3335.09	1685733.00	14551809.58	40°04'07.501"N	104°50'16.882"W	0.66	
10690.00	90.150	90.810	7330.29	3435.61	-1004.26	3422.05	1685819.94	14551807.38	40°04'07.477"N	104°50'15.764"W	1.91	
10778.00	90.520	90.490	7329.77	3523.60	-1005.26	3510.04	1685907.90	14551806.53	40°04'07.467"N	104°50'14.632"W	0.56	
10866.00	91.660	90.540	7328.10	3611.59	-1006.05	3598.02	1685995.84	14551805.89	40°04'07.459"N	104°50'13.500"W	1.30	
10953.00	90.800	90.250	7326.23	3698.56	-1006.65	3685.00	1686082.78	14551805.44	40°04'07.453"N	104°50'12.382"W	1.04	
11041.00	91.140	90.020	7324.74	3786.54	-1006.85	3772.99	1686170.74	14551805.38	40°04'07.451"N	104°50'11.250"W	0.47	
11129.00	91.140	90.010	7322.99	3874.52	-1006.88	3860.97	1686258.68	14551805.50	40°04'07.451"N	104°50'10.118"W	0.01	
11216.00	90.280	90.550	7321.91	3961.51	-1007.30	3947.96	1686345.64	14551805.22	40°04'07.447"N	104°50'08.999"W	1.17	
11303.00	91.050	90.710	7320.90	4048.50	-1008.26	4034.95	1686432.60	14551804.42	40°04'07.437"N	104°50'07.880"W	0.90	
11391.00	90.740	90.370	7319.53	4136.49	-1009.09	4122.93	1686520.55	14551803.73	40°04'07.429"N	104°50'06.749"W	0.52	
11478.00	90.770	89.720	7318.38	4223.47	-1009.16	4209.93	1686607.50	14551803.81	40°04'07.428"N	104°50'05.630"W	0.75	
11566.00	91.970	89.590	7316.28	4311.43	-1008.63	4297.90	1686695.44	14551804.49	40°04'07.433"N	104°50'04.498"W	1.37	
11654.00	91.050	90.160	7313.96	4399.39	-1008.44	4385.87	1686783.37	14551804.83	40°04'07.435"N	104°50'03.367"W	1.23	
11744.00	90.000	91.010	7313.13	4489.38	-1009.35	4475.86	1686873.33	14551804.06	40°04'07.425"N	104°50'02.209"W	1.50	
11836.00	90.430	91.090	7312.79	4581.38	-1011.04	4567.84	1686965.28	14551802.53	40°04'07.409"N	104°50'01.026"W	0.48	
11928.00	91.260	90.840	7311.43	4673.37	-1012.59	4659.82	1687057.22	14551801.14	40°04'07.393"N	104°49'59.843"W	0.94	
12018.00	90.890	91.160	7309.74	4763.35	-1014.16	4749.79	1687147.15	14551799.72	40°04'07.377"N	104°49'58.686"W	0.54	
12109.00	89.690	90.770	7309.28	4854.35	-1015.69	4840.77	1687238.10	14551798.34	40°04'07.362"N	104°49'57.515"W	1.39	
12197.00	90.340	89.880	7309.26	4942.34	-1016.19	4928.77	1687326.07	14551797.99	40°04'07.357"N	104°49'56.384"W	1.25	
12284.00	90.950	91.080	7308.28	5029.33	-1016.92	5015.76	1687413.02	14551797.41	40°04'07.350"N	104°49'55.265"W	1.55	
12372.00	90.550	91.530	7307.13	5117.32	-1018.92	5103.73	1687500.96	14551795.56	40°04'07.330"N	104°49'54.133"W	0.68	
12459.00	91.320	91.870	7305.71	5204.30	-1021.50	5190.68	1687587.88	14551793.12	40°04'07.304"N	104°49'53.015"W	0.97	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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
12546.00	90.890	92.250	7304.03	5291.26	-1024.63	5277.60	1687674.78	14551790.14	40°04'07.273"N	104°49'51.897"W	0.66	
12634.00	89.200	92.290	7303.96	5379.23	-1028.12	5365.53	1687762.68	14551786.81	40°04'07.238"N	104°49'50.766"W	1.92	
12721.00	90.220	93.090	7304.40	5466.18	-1032.20	5452.43	1687849.55	14551782.87	40°04'07.198"N	104°49'49.648"W	1.49	
12809.00	89.850	92.920	7304.35	5554.11	-1036.81	5540.31	1687937.40	14551778.41	40°04'07.152"N	104°49'48.518"W	0.46	
12896.00	88.800	91.660	7305.37	5641.07	-1040.29	5627.23	1688024.29	14551775.08	40°04'07.117"N	104°49'47.400"W	1.89	
12983.00	88.800	91.570	7307.20	5728.05	-1042.74	5714.18	1688111.21	14551772.78	40°04'07.093"N	104°49'46.281"W	0.10	
13071.00	89.540	91.660	7308.47	5816.03	-1045.22	5802.13	1688199.13	14551770.45	40°04'07.068"N	104°49'45.150"W	0.85	
13158.00	89.780	91.900	7308.99	5903.01	-1047.92	5889.09	1688286.06	14551767.89	40°04'07.041"N	104°49'44.031"W	0.39	
13246.00	89.630	90.290	7309.44	5991.01	-1049.60	5977.07	1688374.01	14551766.36	40°04'07.025"N	104°49'42.900"W	1.84	
13333.00	90.980	87.860	7308.98	6077.96	-1048.20	6064.05	1688460.95	14551767.91	40°04'07.038"N	104°49'41.781"W	3.20	
13421.00	92.990	88.010	7305.93	6165.79	-1045.03	6151.93	1688548.79	14551771.23	40°04'07.069"N	104°49'40.651"W	2.29	
13508.00	92.460	88.120	7301.79	6252.59	-1042.10	6238.79	1688635.60	14551774.31	40°04'07.098"N	104°49'39.533"W	0.62	
13596.00	92.860	89.160	7297.71	6340.44	-1040.01	6326.66	1688723.44	14551776.54	40°04'07.118"N	104°49'38.403"W	1.27	
13683.00	92.250	90.620	7293.83	6427.34	-1039.84	6413.58	1688810.32	14551776.85	40°04'07.120"N	104°49'37.285"W	1.82	
13771.00	91.420	91.410	7291.01	6515.29	-1041.40	6501.51	1688898.23	14551775.44	40°04'07.104"N	104°49'36.154"W	1.30	
13859.00	90.740	91.040	7289.35	6603.27	-1043.28	6589.48	1688986.16	14551773.71	40°04'07.085"N	104°49'35.023"W	0.88	
13947.00	92.030	90.860	7287.23	6691.24	-1044.74	6677.44	1689074.09	14551772.40	40°04'07.071"N	104°49'33.891"W	1.48	
14034.00	91.850	91.480	7284.28	6778.19	-1046.52	6764.37	1689160.98	14551770.77	40°04'07.053"N	104°49'32.773"W	0.74	
14122.00	90.590	91.470	7282.41	6866.16	-1048.78	6852.32	1689248.90	14551768.66	40°04'07.030"N	104°49'31.642"W	1.43	
14210.00	89.010	91.080	7282.71	6954.15	-1050.74	6940.29	1689336.85	14551766.85	40°04'07.011"N	104°49'30.510"W	1.85	
14298.00	89.910	90.970	7283.54	7042.15	-1052.31	7028.28	1689424.79	14551765.42	40°04'06.995"N	104°49'29.379"W	1.03	
14386.00	91.600	91.790	7282.38	7130.13	-1054.43	7116.24	1689512.72	14551763.45	40°04'06.974"N	104°49'28.247"W	2.13	
14474.00	91.200	91.080	7280.23	7218.10	-1056.64	7204.18	1689600.64	14551761.40	40°04'06.952"N	104°49'27.116"W	0.93	
14561.00	89.110	90.490	7280.00	7305.10	-1057.83	7291.17	1689687.59	14551760.35	40°04'06.940"N	104°49'25.997"W	2.50	
14648.00	89.420	90.170	7281.12	7392.08	-1058.33	7378.16	1689774.55	14551760.00	40°04'06.935"N	104°49'24.878"W	0.51	
14736.00	90.060	89.980	7281.51	7480.08	-1058.44	7466.16	1689862.51	14551760.03	40°04'06.933"N	104°49'23.746"W	0.76	
14823.00	90.000	90.140	7281.47	7567.07	-1058.54	7553.16	1689949.48	14551760.09	40°04'06.932"N	104°49'22.627"W	0.20	
14911.00	90.800	90.070	7280.85	7655.06	-1058.70	7641.16	1690037.44	14551760.08	40°04'06.930"N	104°49'21.496"W	0.91	
14998.00	90.340	90.070	7279.99	7742.05	-1058.80	7728.15	1690124.40	14551760.12	40°04'06.929"N	104°49'20.377"W	0.53	
15086.00	89.630	91.240	7280.01	7830.05	-1059.81	7816.14	1690212.36	14551759.26	40°04'06.919"N	104°49'19.245"W	1.56	
15173.00	90.370	90.960	7280.01	7917.04	-1061.48	7903.13	1690299.31	14551757.74	40°04'06.902"N	104°49'18.126"W	0.91	
15261.00	89.410	90.700	7280.18	8005.04	-1062.75	7991.12	1690387.27	14551756.61	40°04'06.889"N	104°49'16.994"W	1.13	
15348.00	90.310	90.220	7280.39	8092.04	-1063.45	8078.11	1690474.23	14551756.06	40°04'06.882"N	104°49'15.875"W	1.17	
15436.00	89.540	90.320	7280.51	8180.04	-1063.87	8166.11	1690562.19	14551755.79	40°04'06.877"N	104°49'14.743"W	0.88	
15523.00	90.460	90.310	7280.51	8267.03	-1064.35	8253.11	1690649.16	14551755.46	40°04'06.872"N	104°49'13.624"W	1.06	
15610.00	90.180	91.270	7280.02	8354.03	-1065.54	8340.10	1690736.11	14551754.41	40°04'06.860"N	104°49'12.505"W	1.15	
15698.00	90.580	91.140	7279.44	8442.03	-1067.40	8428.08	1690824.06	14551752.71	40°04'06.842"N	104°49'11.374"W	0.48	
15785.00	89.690	91.690	7279.23	8529.02	-1069.54	8515.05	1690911.00	14551750.71	40°04'06.820"N	104°49'10.255"W	1.20	
15873.00	89.410	91.950	7279.93	8617.00	-1072.34	8603.00	1690998.92	14551748.06	40°04'06.792"N	104°49'09.124"W	0.43	
15960.00	89.540	91.360	7280.72	8703.99	-1074.85	8689.96	1691085.85	14551745.70	40°04'06.767"N	104°49'08.005"W	0.69	
16048.00	89.910	90.980	7281.15	8791.98	-1076.65	8777.94	1691173.80	14551744.05	40°04'06.749"N	104°49'06.874"W	0.60	
16135.00	90.950	90.610	7280.49	8878.98	-1077.85	8864.93	1691260.75	14551742.99	40°04'06.737"N	104°49'05.755"W	1.27	
16223.00	90.120	90.890	7279.67	8966.98	-1079.01	8952.92	1691348.71	14551741.98	40°04'06.725"N	104°49'04.623"W	1.00	
16310.00	90.280	89.720	7279.37	9053.97	-1079.47	9039.91	1691435.67	14551741.67	40°04'06.720"N	104°49'03.504"W	1.36	
16398.00	90.770	89.450	7278.56	9141.95	-1078.83	9127.91	1691523.63	14551742.45	40°04'06.726"N	104°49'02.372"W	0.64	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH DATA (251 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
16485.00	91.290	89.740	7277.00	9228.91	-1078.22	9214.89	1691610.57	14551743.22	40°04'06.732"N	104°49'01.253"W	0.68	
16573.00	92.120	90.020	7274.38	9316.86	-1078.03	9302.85	1691698.50	14551743.55	40°04'06.734"N	104°49'00.122"W	1.00	
16660.00	90.550	91.060	7272.35	9403.83	-1078.85	9389.82	1691785.43	14551742.87	40°04'06.725"N	104°48'59.003"W	2.16	
16748.00	90.800	91.180	7271.31	9491.83	-1080.57	9477.80	1691873.38	14551741.30	40°04'06.708"N	104°48'57.872"W	0.32	
16835.00	90.060	91.560	7270.66	9578.82	-1082.65	9564.77	1691960.32	14551739.37	40°04'06.687"N	104°48'56.753"W	0.96	
16922.00	90.310	91.780	7270.38	9665.81	-1085.19	9651.73	1692047.25	14551736.98	40°04'06.661"N	104°48'55.635"W	0.38	
17010.00	89.320	91.770	7270.66	9753.79	-1087.91	9739.69	1692135.18	14551734.41	40°04'06.634"N	104°48'54.503"W	1.13	
17097.00	89.080	90.860	7271.88	9840.78	-1089.91	9826.65	1692222.11	14551732.56	40°04'06.614"N	104°48'53.385"W	1.08	
17185.00	90.180	89.790	7272.45	9928.77	-1090.41	9914.65	1692310.07	14551732.21	40°04'06.609"N	104°48'52.253"W	1.74	
17272.00	91.350	89.360	7271.29	10015.74	-1089.76	10001.64	1692397.02	14551733.00	40°04'06.615"N	104°48'51.134"W	1.43	
17360.00	90.920	90.060	7269.54	10103.71	-1089.32	10089.62	1692484.97	14551733.59	40°04'06.619"N	104°48'50.002"W	0.93	
17447.00	90.800	90.020	7268.24	10190.69	-1089.38	10176.61	1692571.92	14551733.68	40°04'06.618"N	104°48'48.883"W	0.15	
17535.00	90.580	90.360	7267.18	10278.68	-1089.67	10264.60	1692659.88	14551733.53	40°04'06.615"N	104°48'47.752"W	0.46	
17622.00	88.770	91.260	7267.67	10365.68	-1090.90	10351.59	1692746.84	14551732.45	40°04'06.602"N	104°48'46.633"W	2.32	
17710.00	88.920	90.980	7269.45	10453.66	-1092.62	10439.55	1692834.77	14551730.88	40°04'06.585"N	104°48'45.501"W	0.36	
17797.00	89.630	90.750	7270.55	10540.65	-1093.93	10526.53	1692921.72	14551729.72	40°04'06.572"N	104°48'44.383"W	0.86	
17884.00	88.370	91.220	7272.06	10627.63	-1095.43	10613.51	1693008.66	14551728.37	40°04'06.556"N	104°48'43.264"W	1.55	
17972.00	88.340	91.300	7274.59	10715.59	-1097.36	10701.45	1693096.57	14551726.58	40°04'06.537"N	104°48'42.133"W	0.10	
17979.00†	88.390	91.292	7274.79	10722.59	-1097.52	10708.44	1693103.56	14551726.44	40°04'06.535"N	104°48'42.043"W	0.72	ENTER RADIUS TOE (1636'FNL & 335'FEL,SEC.07) 40.0684820 -104.8116785
18058.00	88.950	91.200	7276.62	10801.57	-1099.24	10787.40	1693182.49	14551724.85	40°04'06.518"N	104°48'41.027"W	0.72	
18145.00	89.420	91.190	7277.86	10888.56	-1101.05	10874.37	1693269.43	14551723.18	40°04'06.500"N	104°48'39.909"W	0.54	
18233.00	90.650	90.940	7277.81	10976.55	-1102.69	10962.36	1693357.38	14551721.70	40°04'06.483"N	104°48'38.777"W	1.43	
18320.00	90.150	90.960	7277.20	11063.55	-1104.13	11049.34	1693444.34	14551720.40	40°04'06.469"N	104°48'37.658"W	0.58	
18408.00	91.110	91.430	7276.23	11151.54	-1105.97	11137.32	1693532.28	14551718.72	40°04'06.450"N	104°48'36.526"W	1.21	
18483.00	91.540	91.070	7274.50	11226.52	-1107.60	11212.28	1693607.21	14551717.21	40°04'06.434"N	104°48'35.562"W	0.75	LAST BHGE MWD+IFR1+MSA SURVEY
18545.00	91.540	91.070	7272.83	11288.50	-1108.76	11274.25	1693669.16	14551716.16	40°04'06.422"N	104°48'34.765"W	0.00	PTB (1647'FNL & 231'FWL,SEC.08) 40.0684505 -104.8096570

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.07-T1N-R66W	-3.00	0.30	-30.01	1682367.57	14552805.72	40°04'17.407"N	104°51'00.166"W	polygon
SEC.12-T1N-R67W	-3.00	0.30	-30.01	1682367.57	14552805.72	40°04'17.407"N	104°51'00.166"W	polygon
LEINWEBER FED 31N-8HZ BHL REV-1(1644'FNL & 249'FWL,SEC.08)	7261.00	-1106.02	11291.60	1693686.50	14551718.92	40°04'06.449"N	104°48'34.542"W	point
LEINWEBER FED 31N-8HZ HEEL REV-1(1416'FNL & 305'FWL,SEC.12)	7354.00	-959.21	666.09	1683065.00	14551847.77	40°04'07.925"N	104°50'51.212"W	point
LEINWEBER FED 31N-8HZ LANDBOX	7354.00	0.00	0.00	1682397.57	14552805.47	40°04'17.404"N	104°50'59.780"W	polygon
LEINWEBER FED 31N-8HZ RADIUS 1	7354.00	-862.43	362.83	1682761.70	14551944.00	40°04'08.881"N	104°50'55.113"W	polygon
LEINWEBER FED 31N-8HZ RADIUS 2	7354.00	-784.00	11045.05	1693439.50	14552040.40	40°04'09.632"N	104°48'37.711"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: LEINWEBER FED 31N-8HZ AWB					Ref Wellpath: LEINWEBER FED 31N-8HZ AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
17.00	1822.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)		Custom APC ISCWSA Rev-2 MWD+IFR1 <130 - 1822>		LEINWEBER FED 31N-8HZ AWB
1822.00	18483.00	Custom APC ISCWSA REV 2 MWD+IFR1+MSA (approximation)		BHGE Custom APC ISCWSA Rev-2 MWD+IFR1+MSA <1919 - 18483>		LEINWEBER FED 31N-8HZ AWB
18483.00	18545.00	Blind Drilling (std)		Projection to bit		LEINWEBER FED 31N-8HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#30 LEINWEBER FED 31N-8HZ(458'FNL & 350'FEL,SEC.11)
Area	COLORADO	Well	LEINWEBER FED 31N-8HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	LEINWEBER FED 31N-8HZ AWB
Facility	SEC.11-T1N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
130.00	0.440	242.330	130.00	FIRST SURFACE MWD+IFR1 SURVEY
1822.00	16.260	180.190	1781.81	LAST SURFACE MWD+IFR1 SURVEY
1919.00	16.070	177.820	1874.98	FIRST BHGE MWD+IFR1+MSA SURVEY
2172.00	15.923	188.046	2118.18	ENTER LANDBOX (860'FNL & 342'FEL,SEC.11) 40.0703971 -104.8499074
6713.00	1.270	89.815	6589.45	KOP
7804.00	89.396	86.392	7370.23	LANDING (1460'FNL & 190'FWL,SEC.12) 40.0687496 -104.8480102
8072.00	91.443	85.817	7366.71	EXIT RADIUS HEEL (1440'FNL & 457'FWL,SEC.12) 40.0688072 -104.8470557
17979.00	88.390	91.292	7274.79	ENTER RADIUS TOE (1636'FNL & 335'FEL,SEC.07) 40.0684820 -104.8116785
18483.00	91.540	91.070	7274.50	LAST BHGE MWD+IFR1+MSA SURVEY
18545.00	91.540	91.070	7272.83	PTB (1647'FNL & 231'FWL,SEC.08) 40.0684505 -104.8096570